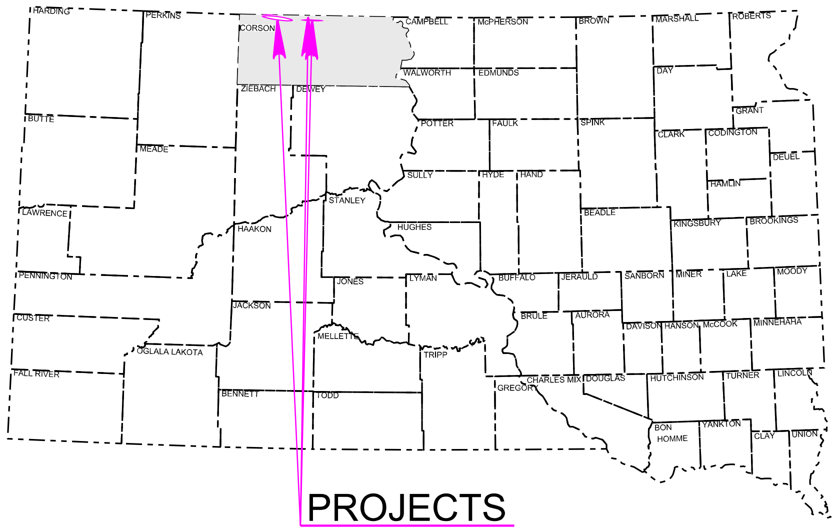
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	1	76

Plotting Date: 08/20/2024



STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECTS EM 0012(206)112, NH 0012(231)132 & P 0065(20)232 US HIGHWAY 12 & SD HIGHWAY 65 CORSON COUNTY

AC SURFACING, MILL & AC RESURFACING, PIPE WORK

PCN 05U5, 067R & 07CC

INDEX OF SHEETS

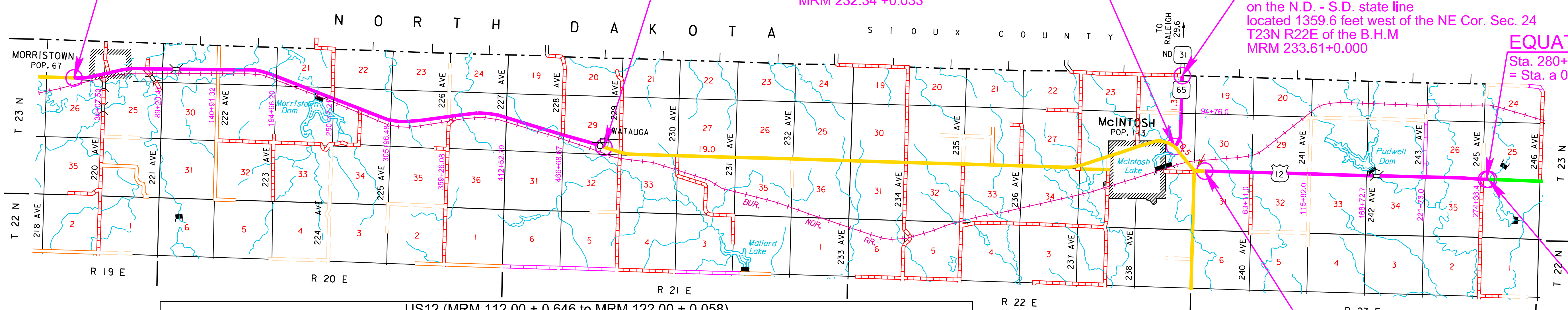
BEGIN EM 0012(206)112
Station 6+80.00 = Station 0-01.24
on F267(09) located 3.55 feet N. and 201.61 feet W. of the S 1/4 Cor. of Sec. 23 T 23 N R 19 E of the B.H.M
MRM 112.00+0.646

END EM 0012(206)112
Sta. 499+20.00 = Sta. 11+17.02
on F 0012(22)123 located 45.10 feet N. and 373.37 feet W. of the SW corner of Lot 7 in block 6 of the Original Town of Watauga
MRM 122.00+0.000

END P 0065(20)232
Sta. 65+74.40 = Sta. 13+98.00 (SD 65N)
on NH-PS 0012(187)107 located 2316.77 feet N and 1858.06 feet West of the SE Cor. of Sec. 25 T23N R 22E of the B.H.M
MRM 232.34 +0.033

BEGIN P 0065(20)232
Sta. 0+32.20 = 0+00.00 on NRH 281
on the N.D. - S.D. state line
located 1359.6 feet west of the NE Cor. Sec. 24 T23N R22E of the B.H.M
MRM 233.61+0.000

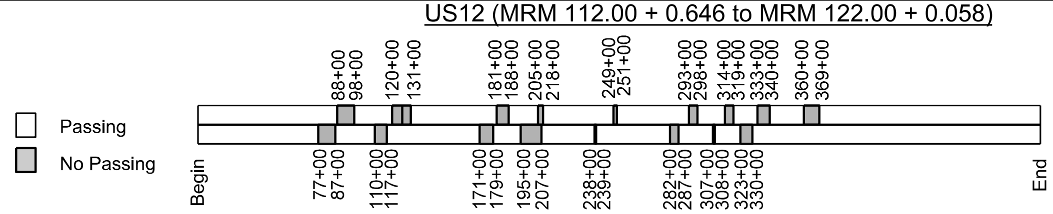
EQUATION
Sta. 280+38.20 Back
= Sta. a 0+00.00 Ahead



BEGIN NH 0012(231)132
Sta. 19+64.58 = Sta. 1367+00.00
on NH 012(187)107 = Station 1659+48.76
on F 044-2(6) located 76.34 feet North and 925.99 feet east of SW Cor. of Sec 30 T23N R23E of the B.H.M. MRM 132.64+0.162

END NH 0012(231)132
Sta. a 2+00.00
=Sta. 2+00.00 on F0012(35)137
located 776.79 feet east of the SW Cor. of Sec. 25 T23N R64W of the B.H.M MRM 137.00+0.799

US12 (MRM 112.00 + 0.646 to MRM 122.00 + 0.058)



This striping diagram is for informational purposes only. Actual striping for passing/no passing zones should be determined by field verified procedures.

STORM WATER PERMIT (PCN 05U5)
Major Receiving
Body of Water: Hay Creek
Area Disturbed: 0 acres
Total Project Area: 273.1 acres
Approx. Begin Lat,Long: 45.934699,-101.732463

STORM WATER PERMIT (PCN 07CC)
Major Receiving
Body of Water: Stink Creek
Area Disturbed: 0.3 acres
Total Project Area: 30.5 acres
Approx. Begin Lat,Long: 45.944213,-101.333931

STORM WATER PERMIT (PCN 067R)
Major Receiving
Body of Water: Iron Dog Creek
Area Disturbed: 1.2 acres
Total Project Area: 129.3 acres
Approx. Begin Lat,Long: 45.920355,-101.324830

DESIGN DESIGNATION
US12 (MRM 112.00 + 0.646 to MRM 122.00 + 0.000)

AADT (2022)	484
AADT (2045)	632
DHV	101
D	50 %
DHV T%	12.4%
AADT T%	27.2%
V	65 mph

DESIGN DESIGNATION
SD 65 (MRM 232.34 + 0.033 to MRM 233.61 + 0.000)

AADT (2022)	218
AADT (2042)	285
DHV	45
D	50 %
DHV T%	5.6 %
AADT T%	12.4 %
V	65 mph

DESIGN DESIGNATION
US12 (MRM 132.64 + 0.162 to MRM 137.00 + 0.799)

AADT (2022)	400
AADT (2042)	522
DHV	83
D	50 %
DHV T%	16.2%
AADT T%	35.6%
V	65 mph

US12 (MRM 112.00 + 0.646 to MRM 122.00 + 0.000)

Gross Length	49,240 Feet	9.326 Miles
Length of Exceptions	160 Feet	0.030 Miles
Net Length	49,080 Feet	9.296 Miles

SD 65 (MRM 232.34 + 0.033 to MRM 233.61 + 0.000)

Gross Length	6,542 Feet	1.239 Miles
Length of Exceptions	0 Feet	0 Miles
Net Length	6,542 Feet	1.239 Miles

US12 (MRM 132.64 + 0.162 to MRM 137.00 + 0.787)

Gross Length	26,284 Feet	4.978 Miles
Length of Exceptions	0 Feet	0 Miles
Net Length	26,284 Feet	4.978 Miles

3

October 2, 2024

ESTIMATE OF QUANTITIES

PCN 07CC P 0065(20)232

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0135	Remove Delineator	12	Each
110E1010	Remove Asphalt Concrete Pavement	93.0	SqYd
110E1690	Remove Sediment	1.0	CuYd
110E7500	Remove Pipe for Reset	30	Ft
110E7510	Remove Pipe End Section for Reset	12	Each
120E0100	Unclassified Excavation, Digouts	62	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E1010	Base Course	123.9	Ton
260E1030	Base Course, Salvaged	180.0	Ton
320E1800	Asphalt Concrete Blade Laid	185.9	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	2.5	Mile
320E7040	Grind 6" Transverse Rumble Strip in Asphalt Concrete	612.0	Ft
330E0100	SS-1h or CSS-1h Asphalt for Tack	13.7	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	5.3	Ton
330E2000	Sand for Flush Seal	65.3	Ton
332E0010	Cold Milling Asphalt Concrete	24,057	SqYd
450E9000	Reset Pipe	30	Ft
450E9001	Reset Pipe End Section	12	Each
632E2510	Type 2 Object Marker Back to Back	14	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	56	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	8	Gal
634E0010	Flagging	60.0	Hour
634E0020	Pilot Car	20.0	Hour
634E0110	Traffic Control Signs	344.4	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	3.7	Mile
720E1010	PVC Coated Bank and Channel Protection Gabion	24.0	CuYd
730E0210	Type F Permanent Seed Mixture	9	Lb
731E0100	Fertilizing	452	Lb
732E0250	Fiber Mulching	602	Lb
734E0154	12" Diameter Erosion Control Wattle	100	Ft
734E0165	Remove and Reset Erosion Control Wattle	25	Ft
831E0110	Type B Drainage Fabric	68	SqYd

ALTERNATIVE A -- PCN 07CC P 0065(20)232

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	446.0	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	892.0	Ton
320E0005	PG 58-34 Asphalt Binder	141.1	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	2,789.2	Ton
320E4000	Hydrated Lime	29.7	Ton

*** - Denotes Non-Participating**

ALTERNATIVE B -- PCN 07CC P 0065(20)232

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	427.4	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	854.8	Ton
320E0005	PG 58-34 Asphalt Binder	119.7	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	2,872.0	Ton
320E4000	Hydrated Lime	31.0	Ton

*** - Denotes Non-Participating**

PCN 067R NH 0012(231)132

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0135	Remove Delineator	46	Each
110E0500	Remove Pipe Culvert	6	Ft
110E0510	Remove Pipe End Section	2	Each
110E0600	Remove Fence	150	Ft
110E1010	Remove Asphalt Concrete Pavement	373.0	SqYd
110E1690	Remove Sediment	1.0	CuYd
110E7500	Remove Pipe for Reset	120	Ft
110E7510	Remove Pipe End Section for Reset	33	Each
120E0100	Unclassified Excavation, Digouts	249	CuYd
120E0600	Contractor Furnished Borrow Excavation	20	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
250E0020	Incidental Work, Grading	Lump Sum	LS
260E1010	Base Course	497.8	Ton
260E1030	Base Course, Salvaged	490.0	Ton
320E1800	Asphalt Concrete Blade Laid	746.7	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	10.0	Mile
330E0100	SS-1h or CSS-1h Asphalt for Tack	67.4	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	25.9	Ton
330E2000	Sand for Flush Seal	267.8	Ton
332E0010	Cold Milling Asphalt Concrete	116,176	SqYd
421E0100	Pipe Culvert Undercut	16	CuYd
450E0182	36" RCP Class 2, Furnish	6	Ft
450E0190	36" RCP, Install	6	Ft
450E2008	18" RCP Flared End, Furnish	1	Each
450E2009	18" RCP Flared End, Install	1	Each
450E2028	36" RCP Flared End, Furnish	1	Each
450E2029	36" RCP Flared End, Install	1	Each
450E4699	Tie Bolts for RCP	46	Each
450E8300	Culvert Joint Cleaning	639.0	Ft
450E8305	Repair Culvert Joint	639.0	Ft
450E8310	Chemical Grout Void Fill	345.0	Gal
* 450E8900	Cleanout Pipe Culvert	2	Each
450E8910	Cleanout for Culvert Treatment	3	Each
450E9000	Reset Pipe	120	Ft
450E9001	Reset Pipe End Section	33	Each
620E0020	Type 2 Right-of-Way Fence	150	Ft
620E1020	2 Post Panel	4	Each
620E1030	3 Post Panel	4	Each
632E2510	Type 2 Object Marker Back to Back	70	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	224	Gal

Revised 03/06/2024 - SJa

ESTIMATE OF QUANTITIES

PCN 067R NH 0012(231)132 (continued)

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	37	Gal
634E0010	Flagging	200.0	Hour
634E0020	Pilot Car	90.0	Hour
634E0110	Traffic Control Signs	594.6	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	14.9	Mile
720E1010	PVC Coated Bank and Channel Protection Gabion	117.0	CuYd
730E0210	Type F Permanent Seed Mixture	29	Lb
731E0100	Fertilizing	1,538	Lb
732E0250	Fiber Mulching	2,050	Lb
734E0154	12" Diameter Erosion Control Wattle	100	Ft
734E0165	Remove and Reset Erosion Control Wattle	25	Ft
831E0110	Type B Drainage Fabric	335	SqYd
900E0010	Refurbish Single Mailbox	1	Each
900E5840	Permanent Vehicle Classification System	1	Each

*** - Denotes Non-Participating**

ALTERNATIVE A -- PCN 067R NH 0012(231)132

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	2,278.5	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	4,557.0	Ton
320E0005	PG 58-34 Asphalt Binder	678.2	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	13,676.2	Ton
320E4000	Hydrated Lime	140.6	Ton

*** - Denotes Non-Participating**

ALTERNATIVE B -- PCN 067R NH 0012(231)132

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	2,187.7	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	4,375.4	Ton
320E0005	PG 58-34 Asphalt Binder	571.1	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	14,031.4	Ton
320E4000	Hydrated Lime	145.6	Ton

*** - Denotes Non-Participating**

PCN 05U5 EM 0012(206)112

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E1350	Restoration of Stockpile Site	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E6410	Remove Type 1 MGS for Reset	50.0	Ft
110E6500	Remove Type 1 Guardrail Transition for Reset	4	Each
110E6617	Remove MGS Tangent End Terminal for Reset	4	Each
120E6200	Water for Granular Material	35.4	MGal
210E1005	Surface Preparation	1.000	Mile
260E1030	Base Course, Salvaged	720.0	Ton
320E7012	Grind 12" Rumble Strip or Stripe in Asphalt Concrete	18.6	Mile
330E0010	MC-70 Asphalt for Prime	29.2	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	58.3	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	47.6	Ton
330E1000	Blotting Sand for Prime	70.4	Ton
330E2000	Sand for Flush Seal	507.7	Ton
332E0010	Cold Milling Asphalt Concrete	1,123	SqYd
600E0300	Type III Field Laboratory	1	Each
630E5010	Reset Type 1 MGS	50.0	Ft
630E5204	Reset MGS MASH Tangent End Terminal	4	Each
630E5300	Reset Type 1 Guardrail Transition	4	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	420	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	79	Gal
634E0010	Flagging	496.0	Hour
634E0020	Pilot Car	238.0	Hour
634E0110	Traffic Control Signs	798.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0630	Temporary Pavement Marking	28.0	Mile
900E1980	Storage Unit	1	Each

ALTERNATIVE A -- PCN 05U5 EM 0012(206)112

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	1,515.7	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	3,031.4	Ton
320E0005	PG 58-34 Asphalt Binder	2,080.2	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	45,622.1	Ton
320E4000	Hydrated Lime	456.0	Ton

*** - Denotes Non-Participating**

ALTERNATIVE B -- PCN 05U5 EM 0012(206)112

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
* 260E6000	Granular Material, Furnish	1,192.6	Ton
* 270E0200	Blend, Haul, and Stockpile Granular Material	2,385.2	Ton
320E0005	PG 58-34 Asphalt Binder	1,718.5	Ton
320E1203	Class Q3R Hot Mixed Asphalt Concrete	46,865.1	Ton
320E4000	Hydrated Lime	456.4	Ton

*** - Denotes Non-Participating**

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

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

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

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

COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS (PCN 07CC)

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.191 acres of wetlands (includes temporary and permanent) becoming impacted. Refer to plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands (PCN 07CC)

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
1	32+50 – 42+00	0.00	0.00	0.076	0.009	0.085
2	61+00 – 67+60	0.00	0.00	0.032	0.074	0.106

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. 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 A1: WETLANDS (PCN 067R)

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.031 acres of wetlands (includes temporary and permanent) becoming impacted. Refer to plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands (PCN 067R)

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
1	19+20 - 25+00	0.000	0.000	0.008	0.000	0.008
2	42+00 - 43+25	0.000	0.004	0.000	0.019	0.023

Action Taken/Required:

Mitigation is required in accordance with the "*Statewide Finding Regarding Wetlands for South Dakota Federal-Aid Highway Projects (February 2018)*". Replacement of 0.004 acres of permanent wetland impacts will be completed through another wetland mitigation opportunity in a manner which considers FHWA's program-wide goal of 'net gain' of wetlands through enhancement, creation, and preservation.

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be reestablished. 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 (PCN 067R)

The East & West McIntosh Dams are classified as 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.

The Pudwell Dam is classified as a warm water permanent fishery with a total suspended solids standard of less than 90 mg/L 30-day average, less than 158 mg/L daily maximum.

The McGee Dam is classified as a warm water semi-permanent fishery with a total suspended solids standard of less than 90 mg/L 30-day average, less than 158 mg/L daily maximum.

The Pudwell Dam, McGee Dam, and East & West McIntosh Dams are classified as fish and wildlife propagation, recreation, irrigation, and stock watering waters. Because of these beneficial uses, special construction measures may have to be taken to ensure that this water body is not impacted.

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 D1: SURFACE WATER QUALITY (PCN 07CCR)

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.

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

Action Taken/Required:

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

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

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

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

COMMITMENT E: STORM WATER

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

Action Taken/Required:

The EPA 2022 Construction General Permit is required for this project. The SDDOT is the owner of this permit and will submit the NOI to EPA 15 days prior to project start in order to obtain coverage. Work can begin after authorization is received from the EPA. This permit provides coverage for construction and dewatering activities for this project.

The Contractor must adhere to the “Special Provision Regarding Storm Water Discharge to Waters of the United States within Indian Reservations”.

Storm Water Pollution Prevention Plan

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

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

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

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

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

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

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

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

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the Tribal Historic Preservation Office (THPO) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

All earth disturbing activities not designated within the plans require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 150 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

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

COMMITMENT 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.

COMMITMENT O: SECTION 401 WATER QUALITY CERTIFICATION

The SDDOT has obtained a Clean Water Act Section 401 Water Quality Certification from the Environmental Protection Agency (EPA) regarding an US Army Corp of Engineers CWA Section 404 Permit for the actions associated with this project.

Action Taken/Required:

The Contractor will comply with all requirements contained in the Section 401 certification. A copy of the EPA CWA 401 Certification must be retained on-

SCOPE OF WORK

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

Pipe Work (All)

1. Install Traffic Control Devices
2. Remove & Replace Topsoil
3. Replace/Line/Reset Culverts
4. Remove Traffic Control Devices
5. Seed, Fertilize, Mulch and Install Erosion Control Measures on Disturbed Areas

AC Surfacing (PCN 05U5)

1. Install Fixed Location Signing Prior to Construction Activities Commencing
2. Cold Mill Asphalt Concrete (at bridge end and tie-ins)
3. Surface Preparation (if necessary 1 mile for bidding purposes)
4. Asphalt Concrete Paving Operations
5. Surfacing Placement Operations on Approaches/Intersecting Roads
6. Grind Rumble Strips\Stripes
7. Place Flush Seal
8. Permanent Pavement Markings
9. Remove and Reset Guardrail
10. Refurbish Mailboxes
11. Remove Project Temporary Signing
12. Complete Any Remaining Project Cleanup

Cold Milling & AC Resurfacing (PCN 07CC and 067R)

1. Install Fixed Location Signing Prior to Construction Activities Commencing
2. Cold Mill Asphalt Concrete
3. Unclassified Excavation for Digouts & Backfill Operations
4. Asphalt Blade Laid
5. Asphalt Concrete Paving Operations
6. Surfacing Placement Operations on Approaches/Intersecting Roads
7. Install Permanent Vehicle Classification System (PCN 067R)
8. Grind Rumble Strips\Stripes
9. Place Flush Seal
10. Permanent Pavement Markings
11. Refurbish Mailboxes
12. Remove Delineators and Install Object Markers
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.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval 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.

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 construction operations will be conducted in the general direction of traffic movement.

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

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

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

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

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

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".

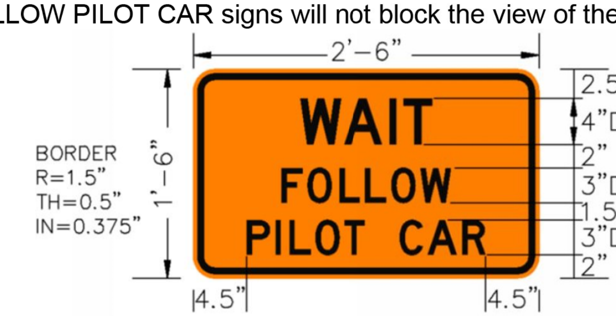
GROOVED PAVEMENT (W8-15) signs with MOTORCYCLE (W8-15P) plaques are required in advance of areas that have been cold milled and are not resurfaced the same day. The GROOVED PAVEMENT sign assemblies will be installed a minimum of 1000 feet in advance of cold milled sections and remain in place until the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

A mobile work operation will be allowed provided the rumble strip or rumble stripe grooving, flush sealing, and pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.

FLAGGING

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

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



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

TEMPORARY PAVEMENT MARKING

The total length of no passing zone on this project is estimated to be PCN 05U5 – 2.3 miles, PCN 07CC - 0.2 miles, PCN 067R – 0.8 miles.

It is estimated that 14 - (PCN 05U5), 2 - (PCN 07CC), 4 - (PCN 067R) : DO NOT PASS (R4-1) and 14 - (PCN 05U5), 2 - (PCN 07CC), 4 - (PCN 067R) : 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

TEMPORARY PAVEMENT MARKING (CONTINUED)

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:

PCN 067R and 07CC
- One pass on top of the milled surface
- One pass on the final lift of asphalt concrete
- One pass after the flush seal

PCN 05U5
- One pass on the first lift of asphalt concrete
- One pass on top of the final lift of asphalt concrete
- 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 SIGNS

Traffic control signs have been included in a table for each route. Payment will only be for those signs used on each route.

REMOVE DELINEATOR

The Contractor will remove the existing culvert delineators as shown in the Table of Culvert Repairs. All costs for removing the delineators\object markers will be incidental to the contract unit price per each for “Remove Delineator”.

All removed delineators\object markers will become the property of the Contractor.

PERMANENT PAVEMENT MARKING

The Contractor will be required to repaint all existing pavement markings including centerline, edge line, lane lines. The Contractor will be required to document and be able to relocate for replacement of the existing markings before the markings are obliterated. The cost to duplicate the existing marking locations will be incidental to the contract unit prices for the various contract items.

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

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.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4” line = 22.5 Gals/Mile
Dashed 4” line = 7.6 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 2 days and within 30 days of the line application using either a portable or mobile retroreflectometer that conforms to 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

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

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

TRAFFIC CONTROL FOR ASPHALT CONCRETE RESURFACING

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

PRESS RELEASE ANNOUNCEMENTS

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

GENERAL GEOLOGY

The project alignment is underlain by The Hell Creek and Ludlow Formations. The South Dakota Geologic Survey describes these formations as outlined below:

The Hell Creek Formation consists of tan to brown and light- to dark-gray, “somber beds” of shale. Interbedded with brown to red carbonaceous shale, gray and brown bentonitic silty shale, and gray, brown, and yellow siltstone, sandstone, and claystone-pebble conglomerate.

The Ludlow Formation consists of white, tan, yellow, and gray cross-bedded, fine to medium grained, sandstone interbedded with locally bentonitic, gray siltstone, claystone, and sandy to silty claystone. Characterized by uranium-bearing lignite beds and “clinker” beds formed by burning coal seams.

TEMPORARY EXCAVATION

Temporary 1.5:1 excavation slope is required for remove and reset pipe sections at Station 180+27. The temporary slopes will be unstable over the long-term. However, the slopes should remain globally stable over the short-term during construction if measures are taken to divert runoff away from the slopes and construction activities are sequenced to minimize the amount of time the temporary slope is left exposed and unsupported. Regular monitoring of the temporary slope is required during construction. If the temporary slope becomes unstable, excavation will cease, and the slope will be evaluated by the Engineer.

INCIDENTAL WORK, GRADING

There is an abandoned telephone line in conduit running through the culvert at US 12 MRM 137.00 + 0.233 that will need to be removed and disposed of during the remove and reset the culvert ends, if not removed/relocated by Lumen (Century Link).

CULVERTS

For pipe extensions that are outside the new surfaced shoulder as shown in the typical sections, acceptance tests in the lower one-half and upper one-half of pipe 48” or less in diameter may be performed by visual inspection to the satisfaction of the Engineer. All other MSTR pipe density testing requirements will apply.

PIPE CULVERT UNDERCUT

Pipe culvert undercut may be required for this project. The Engineer will determine which pipe will be undercut in accordance with Section 421 of the Specifications.

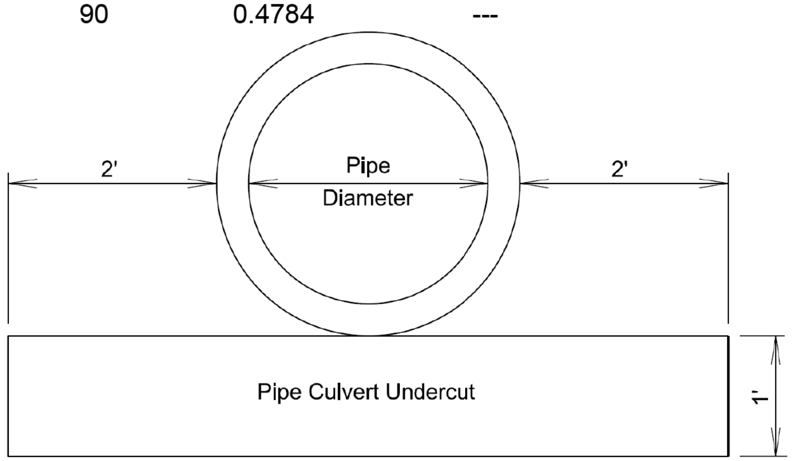
If pipe culvert undercut is required, the table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

The table below contains the rate for one-foot depth of pipe culvert undercut per foot of pipe length and should be used as an aid in determining the actual amount of undercut to be performed during construction. The table is derived from the drawing below and conforms to the Specifications. When calculating pipe culvert undercut, the length of pipe ends should be included in the overall pipe length.

Storm sewer and approach pipes do not require undercutting unless specified otherwise in these plans.

Compaction of the undercut backfill will to the satisfaction of the Engineer.

Pipe Diameter (In)	Round Pipe Undercut Rate for 1' Depth (CuYd/Ft)	Arch Pipe Undercut Rate for 1' Depth (CuYd/Ft)
24	0.2407	0.2577
30	0.2623	0.2847
36	0.2840	0.3110
42	0.3056	0.3337
48	0.3272	0.3596
54	0.3488	0.3827
60	0.3704	0.4105
66	0.3920	---
72	0.4136	0.4630
78	0.4352	---
84	0.4568	0.5123
90	0.4784	---



TIE BOLTS FOR RCP

All joints for RCP installed both new and reset, will be tied together. This includes connection from existing culvert sections to new or reset sections. Existing tie bolts may be salvaged and reused if condition is acceptable to the Engineer. The cost for furnishing and installing the tie bolts for new and reset sections will be incidental to corresponding pipe items.

For informational purposes: Field drilling will be required to install the tie bolts on reset culverts, on reset culvert ends, and existing culverts when installing new/reset end sections. All cost for removing/resetting existing tie bolts, drilling tie bolt holes, and furnishing and installing the tie bolts will be incidental to corresponding pipe 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.

TRANSITIONS

Transitions for existing surface to new surface at the ends of project and at the approaches to Str. 16-154-005 are detailed on the "Surfacing Transition Layouts" sheet.

PROTECTION OF BRIDGE JOINTS

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.

COLD MILLING ASPHALT CONCRETE

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 18 for Sections 2 (PCN 07CC) and 3 (PCN 067R). 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.

Cold milling asphalt is estimated to produce 6,263.8 tons of salvaged asphalt mix material. An additional estimated 10,000 tons will be provided from the stockpile produced on PCN 05HW. An estimated 1390.0 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 11,688.6 tons (Alternative A) and 12,121.1 tons (Alternative B) of cold milled asphalt concrete material will be used on this project as RAP in the Class Q3R Hot Mixed Asphalt Concrete mixture.

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

CLASS Q3R HOT MIXED ASPHALT CONCRETE

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

Virgin mineral aggregate for Class Q3R Hot Mixed Asphalt Concrete- Alternate A will conform to the requirements of Class Q3.

Virgin mineral aggregate for Class Q3R 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 Q3.

The Class Q3R 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.

RAP will be obtained from the stockpiled salvaged asphalt mix material produced from project PCN 05HW, estimated at 10,000 tons, located at stockpile site within 1 mile of the project. The RAP produced from PCN 05HW was planned to be removed and stockpiled the year prior to this project. The RAP was processed to meet the requirements of Section 884.2 D.6 prior to stockpiling. There is potential that some of the RAP has clumped or gummed together since the time it was processed and stockpiled. The Contractor may be required to re-process the material to meet the requirements of Section 884.2 C.1, prior to incorporating into the mixture. This determination will be made by the Engineer during construction. All costs to process the material will be incidental to Class Q3R Hot Mixed Asphalt Concrete.

An estimated 6,263.8 tons of RAP will also be obtained from the cold milled asphalt concrete material produced from this project. The RAP must meet the requirements of Section 884.2 C.1, prior to incorporating into the mixture.

Mix Design Criteria:
Gyratory Controlled QC/QA Mix Design requirements for the Class Q3R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q3 except as modified by the following:

Gyratory Compactive Effort:

	$N_{initial}$	N_{design}	$N_{maximum}$
Class Q3R	6	50	75

Mix Design Criteria – Alternate B:
Gyratory Controlled QC/QA Mix Design requirements for the Class Q3R Hot Mixed Asphalt Concrete will conform to the requirements of Class Q3 except as modified by the following:

Voids in Mineral Aggregate (VMA):

	Minimum VMA (%):
Class Q3R	13.0

Pay Factor Attributes – Alternate B:
Air Voids:

	Air Voids (%):
Class Q3R	3.5 ± 1.0

All remaining requirements for Class Q3 will apply.

TYPE III FIELD LABORATORY

The lab will be equipped with an internet connection such as DSL, cable modem, or other approved service. The internet connection will be provided with a multi-port wireless router. The internet connection will be a minimum speed of 5 Mbps unless limited by job location and approved by the DOT. Prior to installing the wireless router, the Contractor will submit the wireless router's technical data to the Area Office to check for compatibility with the state's computer equipment. The internet connection is intended for state personnel usage only. The Contractor's personnel are prohibited from using the internet connection unless pre-approved by the Project Engineer. These items 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.

CHECKING SPREAD RATES

The Contractor will be responsible for checking the Base Course, 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.

SURFACE PREPARATION SECTION 1 (PCN 05U5)

Prior to placement of the Class Q3R Hot Mixed Asphalt Concrete, the Contractor may be required to prepare the existing surface according to the Surface Preparation specifications provided in Section 210, at locations determined by the Engineer.

The locations provided on the typical sections for Asphalt Surface Treatment, In Place, represent the locations where an asphalt surface treatment is anticipated to be in place at the time of construction. The Contractor is advised that locations and dimensions of actual Asphalt Surface Treatment, In Place, may vary from that given on the typical sections. There will be no increase in the payment for Surface Preparation based on the actual surface treatment in place at the time of construction.

Quantities for Surface Preparation, MC-70 Asphalt for Prime, and Blotting Sand for Prime have been provided for 1 mile to determine bid prices. Actual limits to receive Surface Preparation, MC-70 Asphalt for Prime, and Blotting Sand for Prime ahead of Class Q3R Hot Mixed Asphalt Concrete placement will be limited to particular project conditions and will be subject to approval by the Engineer. In no case will Surface Preparation operations ahead of Class Q3R Hot Mixed Asphalt Concrete placement operations exceed fourteen calendar days.

BLOTTING SAND FOR PRIME

Included in the Estimate of Quantities are 70.4 tons of Blotting Sand for Prime to be used where necessary for maintenance of traffic as directed by the Engineer. (Rate = 10 pounds per square yard)

WATER FOR GRANULAR MATERIAL

Included in the Estimate of Quantities are 35.4 MGal of Water for Granular Material per mile for compaction for the Surface Preparation.

All other Water for Granular Material quantities are incidental to the individual bid items. Six percent plus or minus moisture will be required at the time of compaction unless otherwise directed by the Engineer.

UNCLASSIFIED EXCAVATION, DIGOUTS

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts will be Hot Mixed Asphalt and Base Course for Section 2 (PCN 07CC) and 3 (PCN 067R). The depth of asphalt will match the in-place thickness.

Included in the Estimate of Quantities are 50 cubic yards of Unclassified Excavation, Digouts and 75 square yards of Remove Asphalt Concrete Pavement per mile for the removal of asphalt and unstable material for Sections 2 (PCN 07CC) and 3 (PCN 067R).

Included in the Estimate of Quantities are 100 tons of Base Course and 25 tons of Class Q3R Hot Mixed Asphalt Concrete, 0.25 ton of Hydrated Lime, and 1.1 tons of PG 58-34 Asphalt Binder per mile for Alt A, and 25 tons of Class Q3R Hot Mixed Asphalt Concrete, 0.25 ton of hydrated Lime, and 0.9 tons of PG 58-34 Asphalt Binder per mile for Alt. B per mile for backfill of Unclassified Excavation, Digouts for Sections Sections 2 (PCN 07CC) and 3 (PCN 067R).

UNCLASSIFIED EXCAVATION, DIGOUTS (CONTINUED)

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.

Compaction of the digout backfill materials will be to the satisfaction of the Engineer.

A copy of the surfacing/subgrade investigation for these projects 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 of Sections 2 (PCN 07CC) and 3 (PCN 067R).

Mineral Aggregate for tight bladed material will use only the fine aggregate components combined in the same proportions as the Class Q3R 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 Quantities are 34.8 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./Sq.Yd.)

ADDITIONAL QUANTITIES

Included in the Estimate of Quantities are 100 tons of Class Q3R Hot Mixed Asphalt Concrete, 1.0 ton of Hydrated Lime, and 4.6 tons of PG 58-34 Asphalt Binder per mile for Alt A, and 100 tons of Class Q3R Hot Mixed Asphalt Concrete, 1.0 ton of hydrated Lime, and 3.7 tons of PG 58-34 Asphalt Binder per mile for Alt. B for spot leveling, strengthening, and repair of the existing surface for Sections 2 (PCN 07CC) and 3 (PCN 067R).

Also 1.4 tons of SS-1h or CSS-1h Asphalt for Tack (Rate = 0.09 Gal./SqYd) per mile for spot leveling, strengthening, and repair of the existing surface throughout the project.

FLUSH SEAL

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

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

SAND FOR FLUSH SEAL

The sand application will be placed 11' wide in each lane, leaving 12" on the lane line and 6" on each edge line free of sand.

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.

GRIND RUMBLE STRIPS IN ASPHALT CONCRETE

Asphalt Concrete Rumble Strips will be constructed on the shoulders. Rumble Strips will be paid for at the contract unit price per mile for Grind 12” Rumble Strip or Stripe in Asphalt Concrete. It is estimated that 31.1 miles of asphalt concrete rumble strips/stripes will be required.

Rumble Strip 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 12” Rumble Strips at a width of 1.5’ 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.

	Station	to	Station	L/R	Quantity (Mile)
			PCN 05U5		
	6+80	to	100+80	L	1.780
	6+80	to	100+80	R	1.780
	102+40	to	499+20	L	7.515
	102+40	to	499+20	R	7.515
					18.6
			PCN 07CC		
	0+32	to	65+71	L	1.238
	0+32	to	65+71	R	1.238
					2.5
			PCN 067R		
	19+65	to	280+48	L	4.940
	19+65	to	280+48	R	4.940
a	0+00	to	2+00	L	0.038
a	0+00	to	2+00	R	0.038
					10.0
				Project Total:	31.1

RUMBLE STRIP/STRIPE ROADWAY CLEANING

The Contractor will be required to remove loose material from the driving surface and/or asphalt shoulders of the roadway. Loose material may be swept to the edge of shoulders and it will be the Contractor's responsibility to ensure the loose material does not enter any vegetated areas and/or waterways.

All costs associated with the work will be incidental to the contract unit price per mile for "Grind Centerline Rumble Strip in in Asphalt Concrete" "Grind 12" Rumble Strip in Asphalt Concrete".

GRIND 6” TRANSVERSE RUMBLE STRIP IN ASPHALT CONCRETE

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

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.

TABLE OF TRANSVERSE RUMBLE STRIPS

Location		Direction	Quantity (feet)
SD 65	650’ North of US 12 Stop Sign	SB	306
SD 65	1000’ North of US 12 Stop Sign	SB	306
		Total:	612

SDDOT STOCKPILE SITE (TO BE DETERIMINED)

Prior to stockpiling of Base Course, Salvaged, topsoil will be salvaged from and stockpiled within the leased area. Topsoil will be considered to consist of the upper 6 inches of natural soil which normally supports vegetation.

Payment for stockpile site preparation will be incidental to contract unit price per ton for “Blend, Haul and Stockpile Granular Material”.

BLEND, HAUL, AND STOCKPILE GRANULAR MATERIAL

Excess salvaged asphalt concrete material estimated at 4,220.0 tons for Alternate A and 3,787.0 for Alternate B (for informational purposes only) will be blended with 4,220.0 tons for Alternate A and 3,787.0 for Alternate B of Granular Material, Furnish (for informational purposes only) and will be hauled, blended and stockpiled at the SDDOT leased stockpile site located at a site to be determined by the Department for use on a future Grading Project P 63(60)239 PCN 0781.

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”.

BASE COURSE, SALVAGED

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

All other requirements for Base Course, Salvaged will apply.

Compaction of the Base Course, Salvaged placed on the approaches will be to the satisfaction of the Engineer.

RESTORATION OF RAP STOCKPILE SITE FROM PCN 05HW

The Contractor will be responsible for the removal of any remaining stockpiled material and clean up the stockpile site. The Contractor will scarify, replace and blade smooth the upper six inches of topsoil in the stockpile site upon completion of the project.

All costs associated with this work will be incidental to the lump sum unit price bid for Restoration of Stockpile Site.

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 (PCN 067R)

Station	L/R	Single (Each)	Double (Each)
249+97	R	1	
	Totals:	1	0

REMOVE AND REPLACE TOPSOIL

6 inches of topsoil will be salvaged and stockpiled prior to constructing the following: culvert extension/resets, new culverts.

Limits of this work and stockpile location will be directed by the Engineer. Following completion of construction, topsoil will be spread evenly over the disturbed areas. The estimated amount of topsoil to be removed and replaced is 540 CuYd distributed across the total project in the various disturbed areas.

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

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 the following fungal species:

25% *Glomus intraradices*
25% *Glomus aggregatum or deserticola*
25% *Glomus mosseae*
25% *Glomus etunicatum*

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

The mycorrhizal inoculum will be as shown below or an approved equal:

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com
AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 www.reforest.com

FERTILIZING

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

The fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer’s recommended method of application.
The all-natural slow-release fertilizer will be as shown below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 www.sustane.com
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 www.perfect-blend.com

PERMANENT SEEDING

The areas to be seeded consist of all disturbed areas within the project limits except for the top of roadways and temporary easements under cultivation.

Type F Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
	Total:	26

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.

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

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

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

http://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 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:

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

FENCE QUANTITES

			Right-of-Way Fence		Post Panels	
Station to Station		Side (L/R)	Remove Fence (Ft)	Type 2 (Ft)	2 Post Panel (Each)	3 Post Panel (Each)
PCN 067R						
183+75	184+25	L	75	75	2	2
183+75	184+25	R	75	75	2	2
		TOTALS:	150	150	4	4

Steel sucker rod fence removed on left will be left in a neat condition at a location of the landowners choosing.

Post Type and Sequence:
Right-of-way fence shall be constructed using alternate wood and steel posts except as noted.

STORMWATER POLLUTION PREVENTION PLAN CHECKLIST

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

5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION

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

5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES

5.4

- **5.3 (3a): Project Limits** (See Title Sheet)
- **5.3 (3a): Project Description** (See Title Sheet)
- **5.3 (4): Site Map(s)** (See Title Sheet and Plans)
- **Major Soil Disturbing Activities** (check all that apply)
  - ☒ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☐ Filling
  - ☐ Other (describe):
- **5.3 (3b): Total Project Area** (See Title Sheet)
- **5.3 (3b): Total Area to be Disturbed** (See Title Sheet)
- **5.3 (3c): Maximum Area Disturbed at One Time**
- **5.3 (3d): Existing Vegetative Cover (%) 100**
- **5.3 (3d): Description of Vegetative Cover** Pasture Grasses

- **5.3 (3e): Soil Properties: Loams, loamy fine sand, fine sandy loams, sandy loams, silt loams, silty clay loams, silty clays, clays**
- **5.3 (3f): Name of Receiving Water Body/Bodies** (See Title Sheet)
- **5.3 (3g): Location of Construction Support Activity Areas**

5.3 (3H): ORDER OF CONSTRUCTION ACTIVITIES

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install perimeter protection where runoff may exit site.	
Install perimeter protection around stockpiles.	
Install channel and ditch bottom protection.	
Clearing and grubbing.	
Remove and stockpile topsoil.	
Stabilize disturbed areas.	
Final paving.	
Removal of protection devices.	
Reseed areas disturbed by removal activities.	

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

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

Perimeter Controls (See Detail Plan Sheets)

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

Structural Erosion and Sediment Controls

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

Dust Controls

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

Dewatering BMPs

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

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

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

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

5.3 (6): PROCEDURES FOR INSPECTIONS

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

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

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

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

- **Material Management**
  - Housekeeping
    - Only needed products will be stored on-site by the Contractor.
    - Except for bulk materials the contractor will store all materials under cover and/or in appropriate containers.
    - Products must be stored in original containers and labeled.
    - Material mixing will be conducted in accordance with the manufacturer's recommendations.
    - When possible, all products will be completely used before properly disposing of the container off-site.
    - The manufacturer's directions for disposal of materials and containers will be followed.
    - The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
    - Dust generated will be controlled in an environmentally safe manner.
  - Hazardous Materials
    - Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
    - Original labels and material safety data sheets will be retained in a safe place to relay important product information.
    - If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
    - Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
    - Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any stormwater system or stormwater treatment system.
    - Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of stormwater runoff.

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

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

5.3 (8B): WASTE MANAGEMENT PROCEDURES

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

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

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

5.3 (9): CONSTRUCTION SITE POLLUTANTS

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

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

Product Specific Practices

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

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

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

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

5.3 (10): NON-STORMWATER DISCHARGES

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

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

5.3 (11): INFEASIBILITY DOCUMENTATION

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

7.0: SPILL NOTIFICATION

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

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

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

5.4: SWPPP CERTIFICATIONS

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

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

➢ **South Dakota Department of Transportation**

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

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

➢ **Prime Contractor**

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

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

Authorized Signature

CONTACT INFORMATION

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

➢ **Contractor Information**:

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

➢ **Erosion Control Supervisor**

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

➢ **SDDOT Project Engineer**

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

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

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

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

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

5.5: REQUIRED SWPPP MODIFICATIONS

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

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

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

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

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

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

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

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

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

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

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

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

TABLE OF PROJECT STATIONING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	17	76

PROJECT STATIONING

P0065(20)232 - PCN 07CC - SD 65 (MRM 232.34 + 0.033 to 233.61 + 0.000)

SECTION	STATION		TO	STATION		DESCRIPTION	RESURFACING LENGTHS	EXCEPTION LENGTHS	GROSS PROJECT LENGTHS
	Begin Project	0+32.20	to	65+74.40		SD 65	6542.20'	-	6542.20'
							6542.20'	0.00'	6542.20'
						TOTALS =	**1.239 Miles**	**0.000 Miles**	**1.239 Miles**

NH 0012(231)132 - PCN 067R - US 12 (MRM 131.61 +0.162 to 137.00 + 0.799)

SECTION	STATION		TO	STATION		DESCRIPTION	RESURFACING LENGTHS	EXCEPTION LENGTHS	GROSS PROJECT LENGTHS
	Begin Project	19+64.58	to	280+38.20		US 12	26073.62'	-	26073.62'
Equation		280+38.20 Bk	=	a 0+00.00 Ah		US 12	-	-	-
	a	0+00.00	to	a 2+00.00	**End Project**	US 12	200.00'	-	200.00'
							26273.62'	0.00'	26273.62'
						TOTALS =	**4.976 Miles**	**0.000 Miles**	**4.976 Miles**

EM 0012(275)112 - PCN 05U5 - US 12 (MRM 112.00 + 0.605 to 122.00 +0.058)

SECTION	STATION		TO	STATION		DESCRIPTION	SURFACING LENGTHS	EXCEPTION LENGTHS	GROSS PROJECT LENGTHS
	Begin Project	6+80.00	to	100+78.23		US 12	9398.23'	-	9398.23'
Exception		100+78.23	to	102+42.23		Str. 16-154-005	-	164.00'	164.00'
		102+42.23	to	499+20.00	**End Project**	US 12	39677.77'	-	39677.77'
							49076.00'	164.00'	49240.00'
						TOTALS =	**9.295 Miles**	**0.031 Miles**	**9.326 Miles**

TABLE OF MATERIAL QUANTITIES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	18	76

MATERIAL QUANTITIES

Description	Water For Granular Material (MGal)	Asphalt for Prime (Ton)	Blotting Sand for Prime (Ton)	Contractor Furnished Borrow Excavation (CuYd)	Base Course (Ton)	Base Course, Salvaged (Ton)	*Granular Material, Furnish (Alternate A) (Ton)	*Granular Material, Furnish (Alternate B) (Ton)	Asphalt Concrete Blade Laid (Ton)	Class Q3R Hot Mixed Asphalt Concrete (Alternate A) (Ton)	PG 58-34 Asphalt Binder (Alternate A) (Ton)	Hydrated Lime (Alternate A) (Ton)	Class Q3R 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 05U5										44,777.3	2,041.8	447.6	45,990.8	1,686.4	447.6	56.3	46.1	479.8
Additional Quantities Totals =	35.4	29.2	80.4		0.0	720.0	1,515.7	1,192.6	-	844.8	38.4	8.4	874.3	32.1	8.8	2.0	1.5	27.9
PCN 05U5 Subtotal=	**35.4**	**29.2**	**80.4**	**0**	**0.0**	**720.0**	**1,515.7**	**1,192.6**	**0.0**	**45,622.1**	**2,080.2**	**456.0**	**46,865.1**	**1,718.5**	**456.4**	**58.3**	**47.6**	**507.7**
PCN 07CC									185.9	2,618.0	118.9	26.0	2,691.1	99.1	27.3	6.4	5.2	64.4
Asphalt Concrete Blade Laid									-	-	14.0	1.9		14.0	1.9	6.9	-	-
Table of Additional Quantities Totals =					123.9	180.0	446.0	427.4	-	180.2	8.2	1.8	180.9	6.6	1.8	0.4	0.1	0.9
PCN 07CC Subtotal=	**-**	**-**	**-**	**0**	**123.9**	**180.0**	**446.0**	**427.4**	**185.9**	**2,798.2**	**141.1**	**29.7**	**2,872.0**	**119.7**	**31.0**	**13.7**	**5.3**	**65.3**
PCN 067R	-	-	-	-	-	-	-	-	746.7	12,808.4	582.4	124.5	13,156.9	482.9	129.4	37.8	25.4	258.9
Asphalt Concrete Blade Laid	-	-	-	-	-	-	-	-	-	-	56.3	7.5	-	56.3	7.5	27.9	-	-
Table of Additional Quantities Totals =				20	497.8	490.0	2,278.5	2,187.7	-	867.8	39.5	8.6	874.5	31.9	8.7	1.7	0.5	8.9
PCN 067RSubtotal=	**-**	**-**	**-**	**20**	**497.8**	**490.0**	**2,278.5**	**2,187.7**	**746.7**	**13,676.2**	**678.2**	**140.6**	**14,031.4**	**571.1**	**145.6**	**67.4**	**25.9**	**267.8**
PROJECT TOTALS =	**35.4**	**29.2**	**80.4**	**20**	**621.7**	**1,390.0**	**4,240.2**	**3,807.7**	**932.6**	**62,096.5**	**2,899.5**	**626.3**	**63,768.5**	**2,409.3**	**633.0**	**139.4**	**78.7**	**840.8**

* Denotes Non-participating

RATES OF MATERIALS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	19	76

SECTION 1 (PCN 05U5) (per mile)

EM 0012(206)112 PCN 05U5

Surface Preparation

Prime

MC-70 Asphalt for Prime at the Rate of 29.2 ton applied 42 feet wide (Rate =0.30 gallon per square yard).

Blotting Sand for Prime at the rate of 70.4 tons applied 24 feet wide (Rate = 10 lbs. per square yard).

Bottom Lift
Sta. 7+00 to to Sta. 10+00.00
Sta. 29+80.77 to Sta. 43+08.80
Sta. 69+23.22 to Sta. 167+33.10
Sta. 187+61.62 to Sta. 297+80.90
Sta. 325+55.01 to Sta. 379+50.80
Sta. 410+73.44 to Sta. 499+00.00

Class Q3R Hot Mixed Asphalt Concrete

	Alt. A	Alt. B
Aggregate (80% Contractor Furnished)	1740 Tons	1804 Tons
Reclaimed Asphalt Pavement (RAP) (20%)	435 Tons	451 Tons
PG 58-34 Asphalt Binder	105 Tons	87 Tons
TOTAL MIX	**2280 Tons**	**2342 Tons**
Hydrated Lime	23 Tons	23 Tons
TOTAL MIX WITH HYDRATED LIME	**2303 Tons**	**2365 Tons**

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

Bottom Lift (Superelevated Sections)
Sta. 10+00.00 to Sta. 29+80.77
Sta. 43+08.80 to Sta. 69+23.22
Sta. 167+33.10 to Sta. 187+61.62
Sta. 297+80.90 to Sta. 325+55.01
Sta. 379+50.80 to Sta. 410+73.44

Class Q3R Hot Mixed Asphalt Concrete

	Alt. A	Alt. B
Aggregate (80% Contractor Furnished)	1889 Tons	1959 Tons
Reclaimed Asphalt Pavement (RAP) (20%)	472 Tons	490Tons
PG 58-34 Asphalt Binder	114 Tons	94 Tons
TOTAL MIX	**2475 Tons**	**2543 Tons**
Hydrated Lime	25 Tons	25 Tons
TOTAL MIX WITH HYDRATED LIME	**2500 Tons**	**2568 Tons**

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

Top Lift
Sta. 7+00 to Sta. 499+00.00

Class Q3R Hot Mixed Asphalt Concrete

	Alt. A	Alt. B
Aggregate (80% Contractor Furnished)	1889 Tons	1959 Tons
Reclaimed Asphalt Pavement (RAP) (20%)	472 Tons	490Tons
PG 58-34 Asphalt Binder	114 Tons	94 Tons
TOTAL MIX	**2475 Tons**	**2543 Tons**
Hydrated Lime	25 Tons	25 Tons
TOTAL MIX WITH HYDRATED LIME	**2500 Tons**	**2568 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 6.1 tons applied 41.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2.0” lift of Class Q3R Hot Mixed Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 5.0 tons applied 40.0 feet wide (Rate = 0.05 gallon per square yard).

Provide Sand for Flush Seal at the rate of 52.0 tons applied 22.0 feet wide with a 1’ centerline gap (Rate = 8 pounds per square yard).

RATES OF MATERIALS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	20	76

SECTION 2 (PCN07CC) (per mile)

P 0065(20)232 PCN 07CC

Cold Milling Asphalt Concrete is computed at the rate of 19,067 Square Yards, applied 32.5 feet wide.

Class Q3R Hot Mixed Asphalt Concrete

	Alt. A	Alt. B
Aggregate (80% Contractor Furnished)	1597 Tons	1656 Tons
Reclaimed Asphalt Pavement (RAP) (20%)	399 Tons	414 Tons
PG 58-34 Asphalt Binder	96 Tons	80 Tons
TOTAL MIX	**2092 Tons**	**2150 Tons**
Hydrated Lime	21 Tons	22 Tons
TOTAL MIX WITH HYDRATED LIME	**2113 Tons**	**2172 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 5.2 tons applied 35.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2.0” lift of Class Q3R Hot Mixed Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 4.2 tons applied 34.0 feet wide (Rate = 0.05 gallon per square yard).

Provide Sand for Flush Seal at the rate of 52.0 tons applied 22.0 feet wide with 1’ centerline gap (Rate = 8 pounds per square yard).

SECTION 3 (PCN 067R) (per mile)

NH 0012(231)132 PCN 067R

Cold Milling Asphalt Concrete is computed at the rate of 23,173 Square Yards, applied 39.5 feet wide.

Class Q3R Hot Mixed Asphalt Concrete

	Alt. A	Alt. B
Aggregate (80% Contractor Furnished)	1945 Tons	2016 Tons
Reclaimed Asphalt Pavement (RAP) (20%)	486 Tons	504 Tons
PG 58-34 Asphalt Binder	117 Tons	97 Tons
TOTAL MIX	**2548 Tons**	**2617 Tons**
Hydrated Lime	25 Tons	26 Tons
TOTAL MIX WITH HYDRATED LIME	**2573 Tons**	**2643 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 2.0 tons applied 9.0 feet wide (Rate = 0.09 gallon per square yard) per side outside of the Asphalt Concrete Blade Laid and prior to 2” Asphalt Concrete Mainline Lift.

Provide SS-1h or CSS-1h Asphalt for Tack at the rate of 3.6 tons applied 24.0 feet wide (Rate = 0.06 gallon per square yard), prior to application of 2.0” lift of Class Q3R Hot Mixed Asphalt Concrete.

Flush Seal

Provide SS-1h or CSS-1h Asphalt for Flush Seal at the rate of 5.1 tons applied 41.0 feet wide (Rate = 0.05 gallon per square yard).

Provide Sand for Flush Seal at the rate of 52.0 tons applied 22.0 feet wide with 1’ centerline gap (Rate = 8 pounds per square yard).

SUMMARY OF ASPHALT CONCRETE

Location	Alt. A Class Q3R Hot Mixed Asphalt Concrete With Specified Density (Ton)	Alt. A Class Q3R Hot Mixed Asphalt Concrete Without Specified (Ton)	Alt. B Class Q3R Hot Mixed Asphalt Concrete With Specified Density (Ton)	Alt. B Class Q3R Hot Mixed Asphalt Concrete Without Specified (Ton)
Section 1 - 05U5 1st Lift (2" Lift)				
24' Finished Roadway Width	13,713.0	-	14,083.2	-
6' Finished Shoulder w/ 2' Bevel	-	7,999.3	-	8,215.2
Section 1 Totals =	13,713.0	7,999.3	14,083.2	8,215.2
Section 1 - 05U5 2nd Lift (2" Lift)				
24' Finished Roadway Width	14,567.4	-	14,963.6	-
6' Finished Shoulder w/ 2' Bevel	-	8,497.6	-	8,728.8
Section 1 Totals =	14,567.4	8,497.6	14,963.6	8,728.8
Section 2 - PCN 07CC				
24' Finished Roadway Width	1,933.3	-	1,987.3	-
3.5' Finished Shoulder w/ 1.5' Bevel	-	684.7	-	703.8
Section 2 Totals =	1,933.3	684.7	1,987.3	703.8
Section 3- PCN 067R				
24' Finished Roadway Width	7,782.3	-	7,994.0	-
7' Finished Shoulder w/ 1.5' Bevel	-	5,026.1	-	5,162.9
Section 3 Totals =	7,782.3	5,026.1	7,994.0	5,162.9
Table of Additional Quantities Totals =	0.0	1,892.8	0.0	1,929.7
TOTALS =	**37,996.0**	**24,100.5**	**39,028.1**	**24,740.4**

TABLE OF ADDITIONAL QUANTITIES

Description	Base Course, Salvaged (Ton)	Alternate A		Alternate B		Q3R Alternate. A			Q3R 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)
		*Granular Material, Furnish (Ton)	*Blend, Haul and Stockpile Granular Material (Ton)	*Granular Material, Furnish (Ton)	*Blend, Haul and Stockpile Granular Material (Ton)	Class Q3R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)	Class Q3R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)			
PCN 07CC														
Transitions (Begin/End Projects)														
0 **All Asphalt** Intersecting Road, Private, Commercial Entrances & Historic Turnout (Refer to "Table of Approaches" sheets for locations)														
1 **Asphalt Radius** Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	5.0					25.3	1.2	0.3	26.0	1.0	0.3	0.1	0.1	0.9
0 **Asphalt Pad** Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)														
9 **No Asphalt** Farm & Field, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	175.0													
Cold milling (for calculating Blend, Haul and Stockpile Granular Material)														
Blend, Haul, & Stockpile Cold Milled Asphalt		446.0	892.0	427.4	854.8									
Spot Leveling, Strengthening, & Repair						123.9	5.6	1.2	123.9	4.5	1.2	0.3	-	-
Digouts						31.0	1.4	0.3	31.0	1.1	0.3		-	-
PCN 07CC TOTALS =	**180.0**	**446.0**	**892.0**	**427.4**	**854.8**	**180.2**	**8.2**	**1.8**	**180.9**	**6.6**	**1.8**	**0.4**	**0.1**	**0.9**
PCN 067R														
Transitions (Begin/End Projects)														
SD 65 Right Turn Lane on to US 12						32.6	1.5	0.3	33.5	1.2	0.3	0.1	0.1	1.2
0 **All Asphalt** Intersecting Road, Private, Commercial Entrances & Historic Turnout (Refer to "Table of Approaches" sheets for locations)														
8 **Asphalt Radius** Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	40.0					202.4	9.2	2.0	208.0	7.6	2.1	0.5	0.4	7.3
1 **Asphalt Pad** Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	15.0					11.0	0.5	0.1	11.2	0.4	0.1	0.0	0.0	0.4
29 **No Asphalt** Farm & Field, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	435.0													
Cold milling (for calculating Blend, Haul and Stockpile Granular Material)														
Blend, Haul, & Stockpile Cold Milled Asphalt		2278.5	4557.0	2187.7	4375.4									
Spot Leveling, Strengthening, & Repair						497.8	22.7	5.0	497.8	18.2	5.0	1.1	-	-
Digouts						124.0	5.6	1.2	124.0	4.5	1.2		-	-
Pipe Repair														
PCN 067R TOTALS =	**490.0**	**2278.5**	**4557.0**	**2187.7**	**4375.4**	**867.8**	**39.5**	**8.6**	**874.5**	**31.9**	**8.7**	**1.7**	**0.5**	**8.9**

N.A.B.I. denotes Not a Bid Item
Tonnage shown in the tables above for Class Q3R Hot Mixed Asphalt Concrete is based on a compacted depth as detailed in the pla
The quantities above are included in the Material Quantities table in the "Table of Material Quantities" sheet.
* Denotes Non-participating

TABLE OF ADDITIONAL QUANTITIES

Description	N.A.B.I. (FOR INFORMATION ONLY) Water For Granular Material & Water for Embankment (MGal)	Remove Asphalt Concrete Pavement (SqYd)	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)	Surface Preparation (Mile)	Water For Granular Material (MGal)	Asphalt for Prime (Tons)	Blotting Sand for Prime (Tons)	Unclassified Excavation, Digouts (CuYd)	Pipe Culvert Undercut (CuYd)	Contractor Furnished Borrow Excavation (CuYd)	Base Course (Ton)
PCN 05U5														
Transitions (Begin/End Projects) (6+80 to 7+00) & (499+00 to 499+20)			163	17.1	3.4	3.5								
Approach & Guardrail Paving - Lift #1 (Str.16-154-005) (Sta 99+16.0 to 104+04.4)			960	75.6	13.6	14.3								
Approach & Guardrail Paving - Lift #2 (Str.16-154-005) (Sta 99+16.4 to 104+04.4)			-	-	-	-								
All Asphalt 1 Intersecting Road, Private, Commercial Entrances & Historic Turnout (Refer to "Table of Approaches" sheets for locations)					12.1	12.4								
Asphalt Radius 15 Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	2.2				92.6	96.2								
Asphalt Pad 0 Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)														
No Asphalt 19 Farm & Field, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	8.2													
Cold milling stockpile (PCN 05HW) (for calculating Blend, Haul and Stockpile Granular Material)				10000.0	8455.3	8773.7								
Blend, Haul, & Stockpile Cold Milled Asphalt														
Surface Preparation							1.000	35.4	29.2	80.4				
PCN 05U5 TOTALS =	**10.4**	**0.0**	**1123.0**	**10092.7**	**8577.0**	**8900.1**	**1.000**	**35.4**	**29.2**	**80.4**	**0.0**	**0.0**	**0.0**	**0.0**
PROJECT TOTALS =	**29.3**	**466**	**141356**	**16263.8**	**11688.6**	**12121.1**	**1.000**	**35.4**	**29.2**	**80.4**	**311**	**16**	**20**	**621.7**

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The quantities above are included in the Material Quantities table in the "Table of Material Quantities" sheet.

* Denotes Non-participating

TABLE OF ADDITIONAL QUANTITIES

Description	N.A.B.I. (FOR INFORMATION ONLY) Water For Granular Material & Water for Embankment (MGal)	Remove Asphalt Concrete Pavement (SqYd)	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)	Surface Preparation (Mile)	Water For Granular Material (MGal)	Asphalt for Prime (Tons)	Blotting Sand for Prime (Tons)	Unclassified Excavation, Digouts (CuYd)	Pipe Culvert Undercut (CuYd)	Contractor Furnished Borrow Excavation (CuYd)	Base Course (Ton)
PCN 07CC														
Transitions (Begin/End Projects)			433	34.1										
0 **All Asphalt** Intersecting Road, Private, Commercial Entrances & Historic Turnout (Refer to "Table of Approaches" sheets for locations)														
1 **Asphalt Radius** Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	0.1				4.8	4.9								
0 **Asphalt Pad** Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)														
9 **No Asphalt** Farm & Field, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	2.5													
Cold milling (for calculating Blend, Haul and Stockpile Granular Material)			23624	1030.4	494.4	512.9								
Blend, Haul, & Stockpile Cold Milled Asphalt														
Spot Leveling, Strengthening, & Repair					23.4	23.4								
Digouts	1.8	93			5.9	5.9					62			123.9
PCN 07CC TOTALS =	**4.4**	**93**	**24057**	**1064.5**	**528.5**	**547.1**	**0.000**	**0.0**	**0.0**	**0.0**	**62**	**0**	**0**	**123.9**
PCN 067R														
Transitions (Begin/End Projects)			527	41.5										
SD 65 Right Turn Lane on to US 12			294	15.4	6.2	6.3								
0 **All Asphalt** Intersecting Road, Private, Commercial Entrances & Historic Turnout (Refer to "Table of Approaches" sheets for locations)														
8 **Asphalt Radius** Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	0.6				38.2	39.3								
1 **Asphalt Pad** Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	0.2				2.1	2.1								
29 **No Asphalt** Farm & Field, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	6.3													
Cold milling (for calculating Blend, Haul and Stockpile Granular Material)			115355	5049.7	2419.3	2508.9								
Blend, Haul, & Stockpile Cold Milled Asphalt														
Spot Leveling, Strengthening, & Repair					93.9	93.9								
Digouts	7.2	373			23.4	23.4					249			497.8
Pipe Repair	0.2											16	20	
PCN 067R TOTALS =	**14.5**	**373**	**116176**	**5106.6**	**2583.1**	**2673.9**	**0.000**	**0.0**	**0.0**	**0.0**	**249**	**16**	**20**	**497.8**

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TABLE OF ADDITIONAL QUANTITIES

Description	Base Course, Salvaged (Ton)	Alternate A		Alternate B		Q3R Alternate. A			Q3R 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)
		*Granular Material, Furnish (Ton)	*Blend, Haul and Stockpile Granular Material (Ton)	*Granular Material, Furnish (Ton)	*Blend, Haul and Stockpile Granular Material (Ton)	Class Q3R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)	Class Q3R Hot Mixed Asphalt Concrete (Ton)	PG 58-34 Asphalt Binder (Ton)	Hydrated Lime (Ton)			
PCN 05U5														
Transitions (Begin/End Projects) (6+80 to 7+00) & (499+00 to 499+20)						18.1	0.8	0.2	18.6	0.7	0.2	0.1	0.0	0.7
Approach & Guardrail Paving - Lift #1 (Str.16-154-005) (Sta 99+16.0 to 104+04.4)						72.0	3.3	0.7	76.0	2.8	0.8	0.2	-	-
Approach & Guardrail Paving - Lift #2 (Str.16-154-005) (Sta 99+16.4 to 104+04.4)						200.0	9.1	2.0	204.0	7.5	2.0	0.5	0.4	7.2
1 **All Asphalt** Intersecting Road, Private, Commercial Entrances & Historic Turnout (Refer to "Table of Approaches" sheets for locations)						64.2	2.9	0.6	65.9	2.4	0.7	0.1	0.1	2.3
15 **Asphalt Radius** Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	150.0					490.5	22.3	4.9	509.8	18.7	5.1	1.1	0.9	17.7
0 **Asphalt Pad** Intersecting Road, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)														
19 **No Asphalt** Farm & Field, Private, & Commercial Entrances (Refer to "Table of Approaches" sheets for locations)	570.0													
Cold milling stockpile (PCN 05HW) (for calculating Blend, Haul and Stockpile Granular Material)														
Blend, Haul, & Stockpile Cold Milled Asphalt		1515.7	3031.4	1192.6	2385.2									
Surface Preparation													-	-
PCN 05U5 TOTALS =	**720.0**	**1515.7**	**3031.4**	**1192.6**	**2385.2**	**844.8**	**38.4**	**8.4**	**874.3**	**32.1**	**8.8**	**2.0**	**1.5**	**27.9**
PROJECT TOTALS =	**1390.0**	**4240.2**	**8480.4**	**3807.7**	**7615.4**	**1892.8**	**86.1**	**18.8**	**1929.7**	**70.6**	**19.3**	**4.1**	**2.0**	**37.7**

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TABLE OF SWPPP QUANTITIES

Stationing		7+30		23+78.6		34+75		39+35		51+64		64+95		
MRM		233.00 + 0.477		233.00 + 0.165		232.37 + 0.585		232.37 + 0.497		232.37 + 0.264		232.37 + 0.018		
Structure Type		24" RCP		24" RCP		Twin 48" RCP		24" RCP		24" RCP		24" RCP		
P 0065(20)232 PCN 07CC Corson County	**Work**	Remove and Reset L & R End Sections. Remove and Reset 1 section Pipe R. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L. Install Object Markers.		Remove and Reset R End Section. Install Gabion R. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 2 Sections Pipe R Install Object Markers.		Remove and Reset L & R End Sections. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L. Install Object Markers.		Additional
Side		Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	Lt	Rt	
Estimated Seeding Disturbed Area (SqFt)		900	1200	1200	900		2592	900	1350	900	900	1200	900	**12942**
Estimated Seeding Disturbed Area (SqYd)		100	133	133	100	0	288	100	150	100	100	133	100	**1438**
Estimated Seeding Disturbed Area (ac.)		0.021	0.028	0.028	0.021	0.000	0.060	0.021	0.031	0.021	0.021	0.028	0.021	**0.301**
Wattle (ft)														100 **100**
Permanent Seed (lb)		0.6	0.8	0.8	0.6	0.0	1.6	0.6	0.9	0.6	0.6	0.8	0.6	**9**
Fertilizer (lb)		32	42	42	32	0	90	32	47	32	32	42	32	**452**
Fiber Mulching (lb)		42	56	56	42	0	120	42	62	42	42	56	42	**602**

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	27	76

TABLE OF SWPPP QUANTITIES

Stationing		24+58		42+85		64+65		73+15		106+97		115+30		126+77		132+85		156+62		180+11		191+85		210+20		221+18		222+08		244+80		251+80		260+39		272+46			**Total**
MRM		132.63 + 0.288		133.00 + 0.255		133.00 + 0.672		133.00 + 0.826		134.00 + 0.478		134.00 + 0.632		134.00 + 0.868		134.00 + 0.952		135.00 + 0.412		135.74 + 0.107		136.00 + 0.093		136.00 + 0.438		136.00 + 0.648		136.00 + 0.668		137.00 + 0.089		137.00 + 0.233		137.00 + 0.38		137.00 + 0.597			
Structure Type		24" RCP		60" RCP		Twin 72" RCP		18" RCP		30" RCP		24" RCP		30" RCP		18" RCP		30" RCP		36" RCP		30" RCP		6'x6' RCBC		Twin 48" RCP		24" RCP		24" RCP		18" RCP		36" RCP		Twin 36" RCP			
NH 0012(231)132 PCN 067R Corson County	**Work**	Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L &R. Install Object Markers.		Remove and Reset R End Sections. Install Gabion R. Install Object Markers.		Remove and Reset R End Sections. Install Gabion R. Install Object Markers.		Remove and Reset L & R End Sections. Clean out Plpe. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L & R. Install Gabion L. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L & R. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L. Install Object Markers.		Remove and Reset L End Section. Remove and Reset 1 Section Pipe L. Remove and Replace R End Sections. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L. Install Gabion L. Install Object Markers.		Remove and Reset L & R End Section. Remove and Reset 1 Section Pipe R. Remove and Replace 1 Section Pipe R. Install Gabion R. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L & R. Install Object Markers.		Repair joints. Fill and regrade inslope over box L & R with Contractor Furnished Borrow. Fill Voids. Install Object Markers.		Remove and Reset R End Sections. Fill Voids. Install Gabion R. Install Object Markers.		Remove and Reset L & R End Sections. Cleanout Pipe. Install Object Markers.		Remove and Reset L & R End Sections. Install Object Markers.		Landowner's pipe runs through culvert. Remove and Reset L & R End Sections. Install Object Markers.		Remove and Reset L End Section. Remove and Replace R End Section. Install Gabion R. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 3 Sections each Pipe L. Remove and Reset 1 Section each Pipe R Install Gabion. Install Object Markers.		Additional	
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	Lt	Rt	Lt	Rt		
Estimated Seeding Disturbed Area (SqFt)		1200	1200	1600	2205	0	2838	900	900	1638	1200	1200	1200	1200	900	1200	900	1200	900	900	2223	1200	1200	1000	1000	0	2214	900	900	900	900	900	900	900	1638	2000	2016		**44072**
Estimated Seeding Disturbed Area (SqYd)		133	133	178	245	0	315	100	100	182	133	133	133	133	100	133	100	133	100	100	247	133	133	111	111	0	246	100	100	100	100	100	100	100	182	222	224		**4898**
Estimated Seeding Disturbed Area (ac.)		0.028	0.028	0.037	0.051	0.000	0.066	0.021	0.021	0.038	0.028	0.028	0.028	0.028	0.021	0.028	0.021	0.028	0.021	0.021	0.052	0.028	0.028	0.023	0.023	0.000	0.051	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.038	0.046	0.047		**1.025**
Wattle (ft)																																						100	**100**
Permanent Seed (lb)		0.8	0.8	1.0	1.4	0.0	1.8	0.6	0.6	1.0	0.8	0.8	0.8	0.8	0.6	0.8	0.6	0.8	0.6	0.6	1.4	0.8	0.8	0.6	0.6	0.0	1.4	0.6	0.6	0.6	0.6	0.6	0.6	0.6	1.0	1.2	1.3		**29**
Fertilizer (ton)		42	42	56	77	0	99	32	32	57	42	42	42	42	32	42	32	42	32	32	78	42	42	35	35	0	77	32	32	32	32	32	32	32	57	69	71		**1538**
Fiber Mulching (lb)		56	56	74	102	0	132	42	42	76	56	56	56	56	42	56	42	56	42	42	104	56	56	46	46	0	102	42	42	42	42	42	42	42	76	92	94		**2050**

TABLE OF APPROACHES

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	28	76

Plotting Date: 08/20/2024

Project	Approach number	Station	Side	Type	None (N), Pad (P), Radius (R), or All (A)	1" Cold Milling Asphalt Concrete SqYd	3" Q3R Asphalt Concrete ALT. A Tons	3" Q3R Asphalt Concrete ALT. B Tons	Base Course Tons	Comment
PCN 07CC	1	0+30	L	Intersecting Road	R	-	25.3	26	5.0	100th Street
	2	0+30	R	Intersecting Road	N	-	-	-	25.0	100th Street
	3	9+00	L	Field/Farm Ent.	N	-	-	-	15.0	
	4	9+00	R	Field/Farm Ent.	N	-	-	-	15.0	
	5	34+76	L	Intersecting Road	N	-	-	-	25.0	Section Line
	6	34+76	R	Intersecting Road	N	-	-	-	25.0	Section Line
	7	45+00	L	Field/Farm Ent.	N	-	-	-	15.0	
	8	45+00	R	Commercial Entrance	N	-	-	-	25.0	SDDOT Stockpile
	9	54+00	L	Field/Farm Ent.	N	-	-	-	15.0	
	10	54+00	R	Field/Farm Ent.	N	-	-	-	15.0	
				PCN 07CC Total		**0.0**	**25.3**	**26.0**	**180.0**	
PCN 067R	1	18+78	L	Field/Farm Ent.	N	-	-	-	15.0	
	2	18+78	R	Field/Farm Ent.	N	-	-	-	15.0	
	3	37+00	R	Field/Farm Ent.	N	-	-	-	15.0	
	4	51+00	L	Field/Farm Ent.	N	-	-	-	15.0	
	5	51+00	R	Field/Farm Ent.	N	-	-	-	15.0	
	6	62+85	R	Intersecting Road	R	-	25.3	26	5.0	240th Ave.
	7	71+00	L	Field/Farm Ent.	N	-	-	-	15.0	
	8	72+75	R	Field/Farm Ent.	N	-	-	-	15.0	
	9	89+20	L	Field/Farm Ent.	N	-	-	-	15.0	
	10	89+20	R	Field/Farm Ent.	N	-	-	-	15.0	
	11	115+75	L	Intersecting Road	R	-	25.3	26	5.0	Section Line
	12	115+75	R	Intersecting Road	R	-	25.3	26	5.0	Section Line
	13	136+05	L	Field/Farm Ent.	N	-	-	-	15.0	
	14	136+05	R	Field/Farm Ent.	N	-	-	-	15.0	
	15	148+15	L	Field/Farm Ent.	N	-	-	-	15.0	
	16	148+15	R	Field/Farm Ent.	N	-	-	-	15.0	
	17	159+00	L	Field/Farm Ent.	N	-	-	-	15.0	
	18	159+00	R	Field/Farm Ent.	N	-	-	-	15.0	
	19	168+60	L	Intersecting Road	R	-	25.3	26	5.0	Section Line
	20	168+60	R	Intersecting Road	R	-	25.3	26	5.0	Section Line
	21	178+50	L	Field/Farm Ent.	N	-	-	-	15.0	
	22	178+50	R	Field/Farm Ent.	N	-	-	-	15.0	
	23	188+95	L	Field/Farm Ent.	N	-	-	-	15.0	
	24	188+95	R	Field/Farm Ent.	N	-	-	-	15.0	
	25	202+85	L	Field/Farm Ent.	N	-	-	-	15.0	
	26	202+85	R	Field/Farm Ent.	N	-	-	-	15.0	
	27	219+50	R	Field/Farm Ent.	N	-	-	-	15.0	
	28	221+56	L	Field/Farm Ent.	R	-	25.3	26	5.0	243rd Ave
	29	230+60	L	Field/Farm Ent.	N	-	-	-	15.0	
	30	230+60	R	Field/Farm Ent.	N	-	-	-	15.0	
	31	243+75	L	Field/Farm Ent.	N	-	-	-	15.0	
	32	249+53	L	Field/Farm Ent.	N	-	-	-	15.0	
	33	249+53	R	Field/Farm Ent.	P	-	11.0	11.2	15.0	Mailbox turnout (Mirrored Std. Plate 900.01 - 12' wide)
	34	262+75	L	Field/Farm Ent.	N	-	-	-	15.0	
	35	262+75	R	Field/Farm Ent.	N	-	-	-	15.0	
	36	265+35	L	Field/Farm Ent.	N	-	-	-	15.0	
	37	274+35	L	Intersecting Road	R	-	25.3	26	5.0	245th Ave
	38	274+35	R	Intersecting Road	R	-	25.3	26.0	5.0	245th Ave
				PCN 067R Total		**0.0**	**213.4**	**219.2**	**490.0**	

Project	Approach number	Station	Side	Type	None (N), Pad (P), Radius (R), or All (A)	1" Cold Milling Asphalt Concrete SqYd	3" Q3R Asphalt Concrete ALT. A Tons	3" Q3R Asphalt Concrete ALT. B Tons	Base Course Tons	Comment
PCN 05U5	1	9+21	L	Field/Farm	N	-	-	-	15.0	
	2	19+64	L	Field/Farm	N	-	-	-	15.0	
	3	28+88	L	Intersecting Road	R	-	25.3	26	5.0	Third Ave. W (24')
	4	32+55	L	Intersecting Road	R	-	25.3	26	5.0	Second Ave. W (24')
	5	34+69	R	Intersecting Road	R	-	42.9	44.1	5.0	220th Ave. (28')
	6	36+22	L	Intersecting Road	R	-	25.3	26	5.0	First Ave. W (24')
	7	40+08	L	Intersecting Road	R	-	30.7	37.2	5.0	Main St. (40')
	8	43+91	L	Intersecting Road	R	-	25.3	26	5.0	First Ave. E (24')
	9	45+72	L	Intersecting Road	N	-			15.0	Alley
	10	45+72	R	Commercial Entrance	N	-	-	-	15.0	Elevator
	11	47+51	L	Intersecting Road	R	-	25.3	26	5.0	Second Ave. E (24')
	12	51+21	L	Intersecting Road	R	-	25.3	26	5.0	Third Ave. (24')
	13	51+21	R	Commercial Entrance	N	-	-	-	15.0	Elevator
	14	54+74	L	Intersecting Road	R	-	25.3	26	5.0	Fourth Ave. E (24')
	15	58+40	L	Intersecting Road	R	-	25.3	26	5.0	Fifth Ave. E (24')
	16	73+89	R	Field/Farm	N	-	-	-	15.0	
	17	76+05	L	Intersecting Road	N	-	-	-	15.0	Cemetary
	18	117+83	L	Field/Farm	N	-	-	-	15.0	
	19	132+88	L	Historical Marker Turnout	A	-	64.2	65.9	-	Historical Marker Turnout
	20	140+94	L	Intersecting Road	N	-	-	-	15.0	Section Line
	21	140+94	R	Intersecting Road	R		42.9	44.1	5.0	222nd Ave. (28')
	22	177+35	L	Field/Farm	N	-	-	-	15.0	
	23	201+00	L	Field/Farm	N	-	-	-	15.0	
	24	232+25	L	Field/Farm	N	-	-	-	15.0	
	25	244+99	L	Field/Farm	N	-	-	-	15.0	
	26	250+15	L	Intersecting Road	R		42.9	44.1	5.0	224th Ave. (28')
	27	276+91	L	Field/Farm	N	-	-	-	15.0	
	28	276+98	R	Intersecting Road	R		42.9	44.1	5.0	East Lake Rd.(28')
	29	310+21	L	Field/Farm	N	-	-	-	15.0	
	30	359+37	L	Field/Farm	N	-	-	-	15.0	
	31	364+12	R	Intersecting Road	R		42.9	44.1	5.0	226th Ave.(28')
	32	400+30	L	Field/Farm	N	-	-	-	15.0	
	33	419+18	R	Field/Farm	N	-	-	-	15.0	
	34	466+43	L	Intersecting Road	R		42.9	44.1	5.0	228th Ave.(28')
	35	493+00	L	Field/Farm	N	-	-	-	15.0	
				PCN 05U5 Total		**0.0**	**554.7**	**575.7**	**360.0**	
				Project Total		**0.0**	**793.4**	**820.9**	**1030.0**	

PLOTTED FROM - TRM01NT04

FILE - ...\05U5_07CC_067R_TABLE OF APPROACHES.DGN

PLOT NAME - 28

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	29	76

TABLE OF CULVERT REPAIRS

Stationing				7+30		23+78.6		34+75		39+35		51+64		64+95											
MRM				233.00 + 0.477		233.00 + 0.165		232.37 + 0.585		232.37 + 0.497		232.37 + 0.264		232.37 + 0.018											
Existing Structure Type				24" RCP		24" RCP		Twin 48" RCP		24" RCP		24" RCP		24" RCP											
Existing End Treatment				Flared		Flared		Flared		Flared		Flared		Flared											
P 0065(20)232 PCN 07CC Corson County			**PROJECT TOTALS**	**Remove and Reset L & R End Sections. Remove and Reset 1 section Pipe R. Install Object Markers.**		**Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L. Install Object Markers.**		**Remove and Reset R End Section. Install Gabion R. Install Object Markers.**		**Remove and Reset L & R End Sections. Remove and Reset 2 Sections Pipe R Install Object Markers.**		**Remove and Reset L & R End Sections. Install Object Markers.**		**Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L. Install Object Markers.**									
Bid Item	**Bid Item Description**	**Unit**		**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt**	**Rt**	**Lt.**	**Rt.**	**Lt**	**Rt**										
110E0135	Remove Delineator	(Each)	**12**	1	1	1	1	1	1	1	1	1	1	1	1										
110E7500	Remove Pipe for Reset	(Ft)	**30**		6	6					12			6											
110E7510	Remove Pipe End Section for Reset	(Each)	**12**	1	1	1	1		2	1	1	1	1	1	1										
450E9000	Reset Pipe	(Ft)	**30**		6	6					12			6											
450E9001	Reset Pipe End Section	(Each)	**12**	1	1	1	1		2	1	1	1	1	1	1										
632E2510	Type 2 Object Marker Back to Back	Each	**14**	1	1	1	1	2	2	1	1	1	1	1	1										
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	**24**						24.0																
831E0110	Type B Drainage Fabric	(SqYd)	**68**						68																

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	30	76

TABLE OF CULVERT REPAIRS

Stationing				24+58		42+85		64+65		73+15		106+97		115+30		126+77		132+85		150+90		156+62		173+85		
MRM				132.63 + 0.288		133.00 + 0.255		133.00 + 0.672		133.00 + 0.826		134.00 + 0.478		134.00 + 0.632		134.00 + 0.868		134.00 + 0.952		135.00 + 0.303		135.00 + 0.412		135.74 + 0.		
Existing Structure Type				24" RCP		60" RCP		Twin 72" RCP		18" RCP		30" RCP		24" RCP		30" RCP		18" RCP		4'x6' RC Cattle Pass		30" RCP		Twin 8' x 8' RCBC		
Existing End Treatment				Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared		Flared				
NH 0012(231)132 PCN 067R Corson County			PROJECT TOTALS	Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L &R. Install Object Markers.		Remove and Reset R End Sections. Install Gabion R. Install Object Markers.		Remove and Reset R End Sections. Install Gabion R. Install Object Markers.		Remove and Reset L & R End Sections. Clean out Pipe. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L & R. Install Gabion L. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L & R. Install Object Markers.		Remve and Reset L & R End Sections. Remove and Reset 1 Section Pipe L. Install Object Markers.		Remove and Reset L End Section. Remove and Reset 1 Section Pipe L. Remove and Replace R End Sections. Install Object Markers.		Repair joints. Install Tie bars. Fill Voids. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L. Install Gabion L. Install Object Markers.		Install Object Markers.		
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.**		
110E0135	Remove Delineator	(Each)	**46**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
110E0500	Remove Pipe Culvert	(Each)	**6**																								
110E0510	Remove Pipe End Section	(Each)	**2**															1									
110E7500	Remove Pipe for Reset	(Ft)	**120**	6	6							6	6	6	6	6		6				6					
110E7510	Remove Pipe End Section for Reset	(Each)	**33**	1	1		1		2	1	1	1	1	1	1	1	1	1				1	1				
120E0600	Contractor Furnished Borrow Excavation	(CuYd)	**20**																								
250E0020	Incidental Work, Grading	(LS)	**1**																								
421E0100	Pipe Culvert Undercut	(CuYd)	**16**				3		7																		
450E0182	36" RCP Class 2, Furnish	(Each)	**6**																								
450E0190	36" RCP, Install	(Each)	**6**																								
450E2008	18" RCP Flared End, Furnish	(Each)	**1**															1									
450E2009	18" RCP Flared End, Install	(Each)	**1**															1									
450E2028	36" RCP Flared End, Furnish	(Each)	**1**																								
450E2029	36" RCP Flared End, Install	(Each)	**1**																								
450E4699	Tie Bolts for RCP	(Each)	**46**																	16							
450E8300	Culvert Joint Cleaning	(Ft)	**639**																	179							
450E8305	Repair Culvert Joint	(Ft)	**639**																	179							
450E8310	Chemical Grout Void Fill	(Gal)	**345**																	50							
450E8900	Cleanout Pipe Culvert	(Each)	**2**							1																	
450E8900	Cleanout for Culvert Treatment	(Each)	**3**																	1							
450E9000	Reset Pipe	(Ft)	**120**	6	6							6	6	6	6	6		6				6					
450E9001	Reset Pipe End Section	(Each)	**33**	1	1		1		2	1	1	1	1	1	1	1	1	1				1	1				
632E2510	Type 2 Object Marker Back to Back	Each	**70**	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	2		
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	**117**				15.5		43.0			6.0										4.5					
831E0110	Type B Drainage Fabric	(SqYd)	**335**				43		114			19										15					

TABLE OF CULVERT REPAIRS

Stationing				180+11		183+85		191+85		210+20		221+18		222+08		239+75		244+80		247+75		251+80		260+39		272+46	
MRM				135.74	+ 0.107	135.74	+ 0.177	136.00	+ 0.093	136.00	+ 0.438	136.00	+ 0.648	136.00	+ 0.668	136.00	+ 0.998	137.00	+ 0.089	137.00	+ 0.144	137.00	+ 0.233	137.00	+ 0.38	137.00	+ 0.597
Existing Structure Type				36" RCP		4'x6' RC Cattle Pass		30" RCP		6'x6' RCBC		Twin 48" RCP		24" RCP		Twin 8'x8' RCBC		24" RCP		4'x6' RC Cattle Pass		18" RCP		36" RCP		Twin 36" RCP	
Existing End Treatment				Flared		Flared		Flared				Flared		Flared				Flared		Flared		Flared		Flared		Flared	
NH 0012(231)132 PCN 067R Corson County			PROJECT TOTALS	Remove and Reset L & R End Section. Remove and Reset 1 Section Pipe R. Remove and Replace 1 Section Pipe R. Install Gabion R. Install Object Markers.		Repair joints. Install Tie bars. Fill Voids. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 1 Section Pipe L & R. Install Object Markers.		Repair joints. Fill and regrade inslope over box L & R with Contractor Furnished Borrow. Fill Voids. Install Object Markers.		Remove and Reset R End Sections. Fill Voids. Install Gabion R. Install Object Markers.		Remove and Reset L & R End Sections. Cleanout Pipe. Install Object Markers.		Install Object Markers.		Remove and Reset L & R End Sections. Install Object Markers.		Repair joints. Install Tie bars. Fill Voids. Install Object Markers.		Landowner's pipe runs through culvert. Remove and Reset L & R End Sections. Install Object Markers.		Remove and Reset L End Section. Remove and Replace R End Section. Install Gabion R. Install Object Markers.		Remove and Reset L & R End Sections. Remove and Reset 3 Sections each Pipe L. Remove and Reset 1 Section each Pipe R Install Gabion. Install Object Markers.	
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
110E0135	Remove Delineator	(Each)	**46**	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
110E0500	Remove Pipe Culvert	(Each)	**6**		6																						
110E0510	Remove Pipe End Section	(Each)	**2**																						1		
110E7500	Remove Pipe for Reset	(Ft)	**120**		6			6	6																	36	12
110E7510	Remove Pipe End Section for Reset	(Each)	**33**	1	1			1	1				2	1	1			1	1			1	1	1		2	2
120E0600	Contractor Furnished Borrow Excavation	(CuYd)	**20**							10	10																
250E0020	Incidental Work, Grading	(LS)	**1**																			1					
421E0100	Pipe Culvert Undercut	(CuYd)	**16**		6																						
450E0182	36" RCP Class 2, Furnish	(Each)	**6**		6																						
450E0190	36" RCP, Install	(Each)	**6**		6																						
450E2008	18" RCP Flared End, Furnish	(Each)	**1**																								
450E2009	18" RCP Flared End, Install	(Each)	**1**																								
450E2028	36" RCP Flared End, Furnish	(Each)	**1**																						1		
450E2029	36" RCP Flared End, Install	(Each)	**1**																						1		
450E4699	Tie Bolts for RCP	(Each)	**46**			16				-										14							
450E8300	Culvert Joint Cleaning	(Ft)	**639**			179				120										161							
450E8305	Repair Culvert Joint	(Ft)	**639**			179				120										161							
450E8310	Chemical Grout Void Fill	(Gal)	**345**			50				100		95								50							
450E8900	Cleanout Pipe Culvert	(Each)	**2**											1													
450E8900	Cleanout for Culvert Treatment	(Each)	**3**			1				1																	
450E9000	Reset Pipe	(Ft)	**120**		6			6	6																	36	12
450E9001	Reset Pipe End Section	(Each)	**33**	1	1			1	1				2	1	1			1	1			1	1	1		2	2
632E2510	Type 2 Object Marker Back to Back	Each	**70**	2	2	2	2	1	1	2	2	2	2	1	1	2	2	1	1	2	2	1	1	2	2	2	2
720E1010	PVC Coated Bank and Channel Protection Gabion	(CuYd)	**117**		6.0								24.0												6.0		12.0
831E0110	Type B Drainage Fabric	(SqYd)	**335**		19								68												19		38

TYPICAL SURFACING SECTIONS

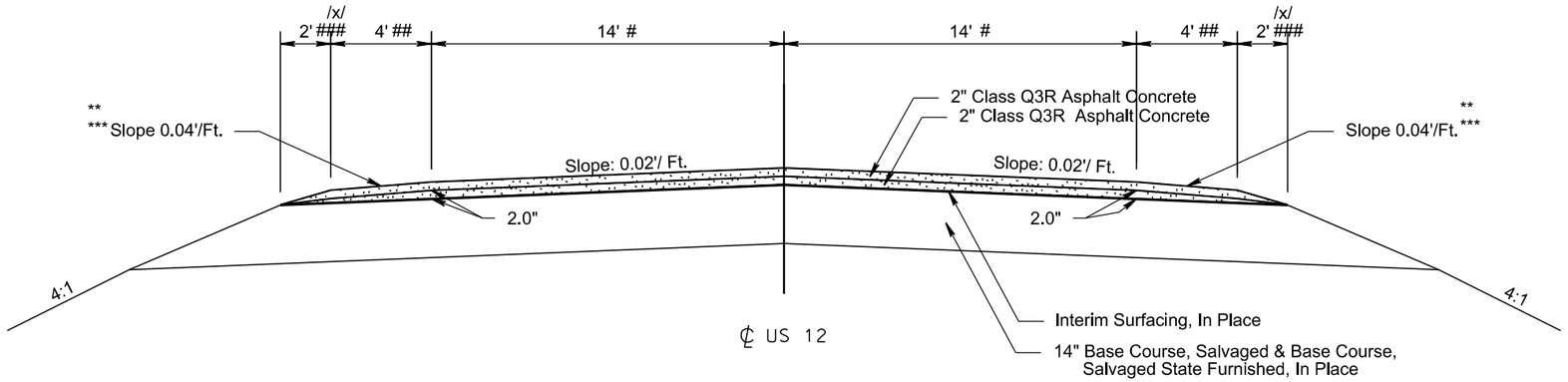
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	32	76

Plotting Date: 08/20/2024

Section 1 (PCN 05U5)

EM 0012(275)112

Asphalt Concrete Surfacing
Sta. 7+00 to to Sta. 100+78.23
Sta. 102+42.23 to to Sta. 499+00.00



Transition:
Sta. 6+80 to Sta. 7+00
- 12' to 14'
- 5.5' to 4'
- 1.25' to 2'

** - 0.02'/ft to 0.04'/ft

/x/ - Structure 16-154-005
Sta. 99+16.0 to 104+04.4
see "APPROACH AND GUARDRAIL LAYOUT" sheet for widening

Transition:
Sta. 499+00 to Sta. 499+20
- 2' to 1'

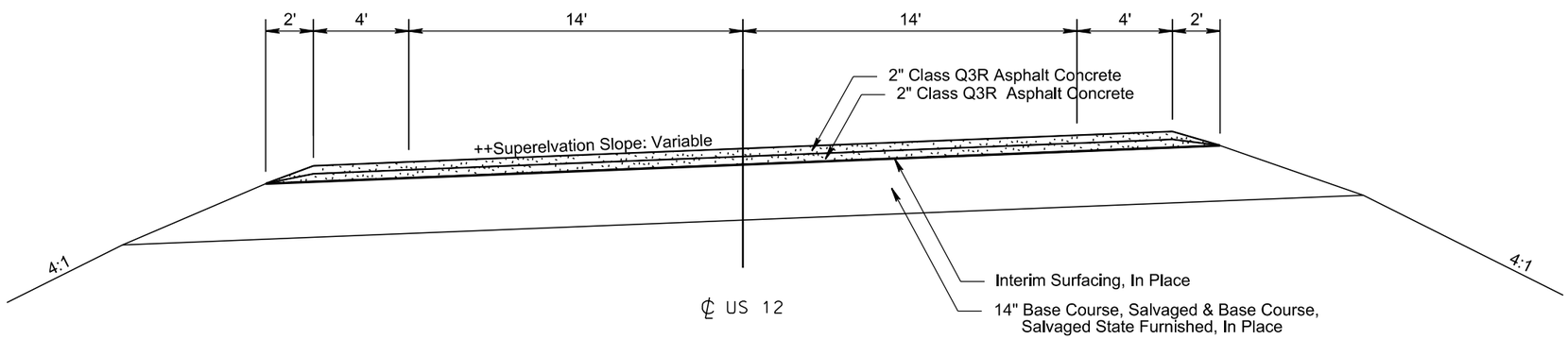
*** - 0.04'/ft to 0.02'/ft

(PCN 05U5)

EM 0012(275)112

Asphalt Concrete Surfacing

++Superelevation Areas



++See Table of Superelevated Curves

(Reverse Slope Rt. Curve)

PLOT NAME - 32

FILE - ...\05U5_TYPICAL SECTIONS.DGN

PLOTTED FROM - TRMOINT04

TYPICAL SURFACING SECTION

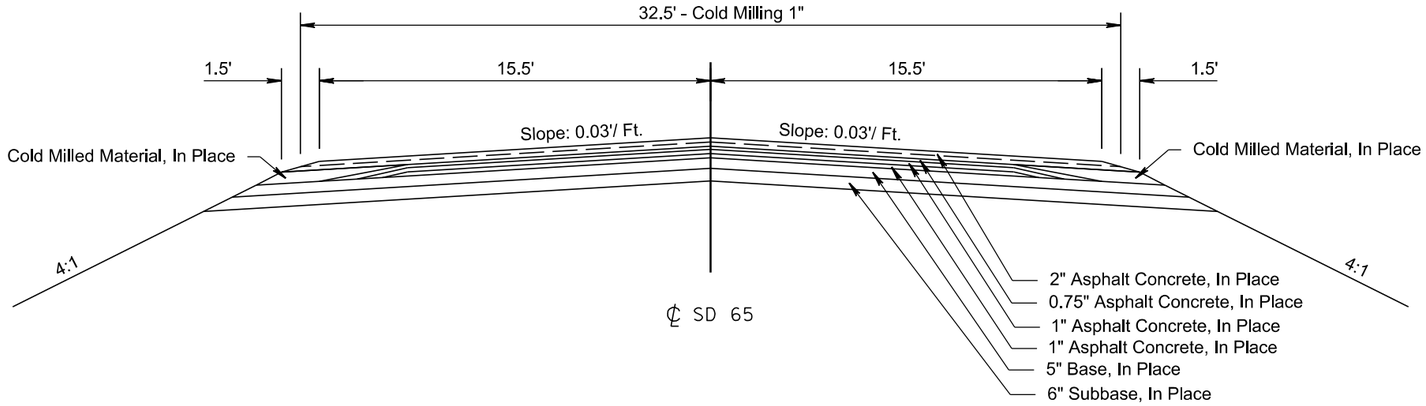
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	33	76

Plotting Date: 08/20/2024

Section 2 (PCN 07CC)

P 0065(20)232

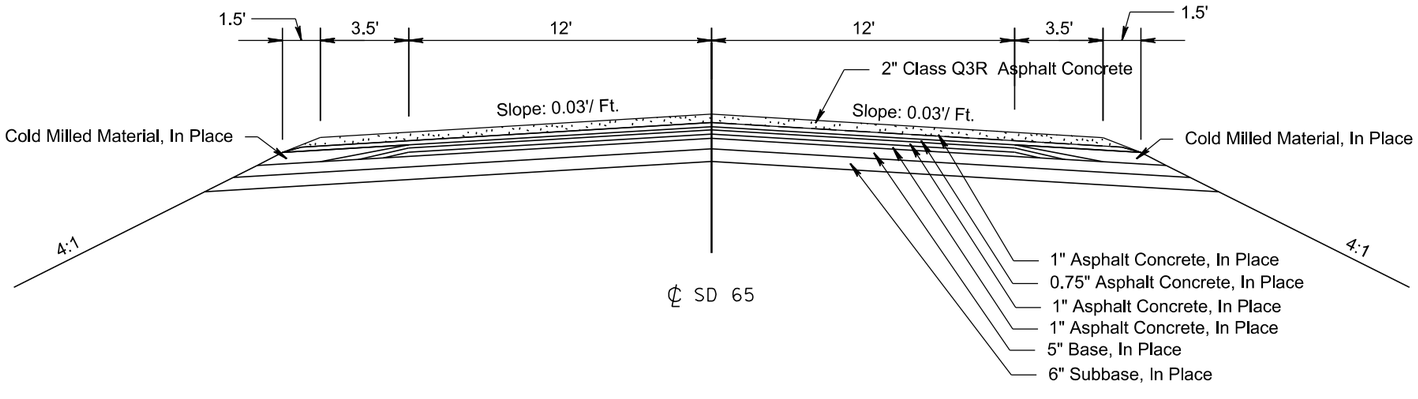
Sta. 0+32.2 to Sta. 50+83.99
Sta. 66+26.85 to Sta. 65+71.39
In Place & Cold Milling Section



Section 2 (PCN 07CC)

P 0065(20)232

Sta. 0+32.2 to Sta. 50+83.99
Sta. 66+26.85 to Sta. 67+714.39
Resurfacing Section



TYPICAL SURFACING SECTION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	34	76

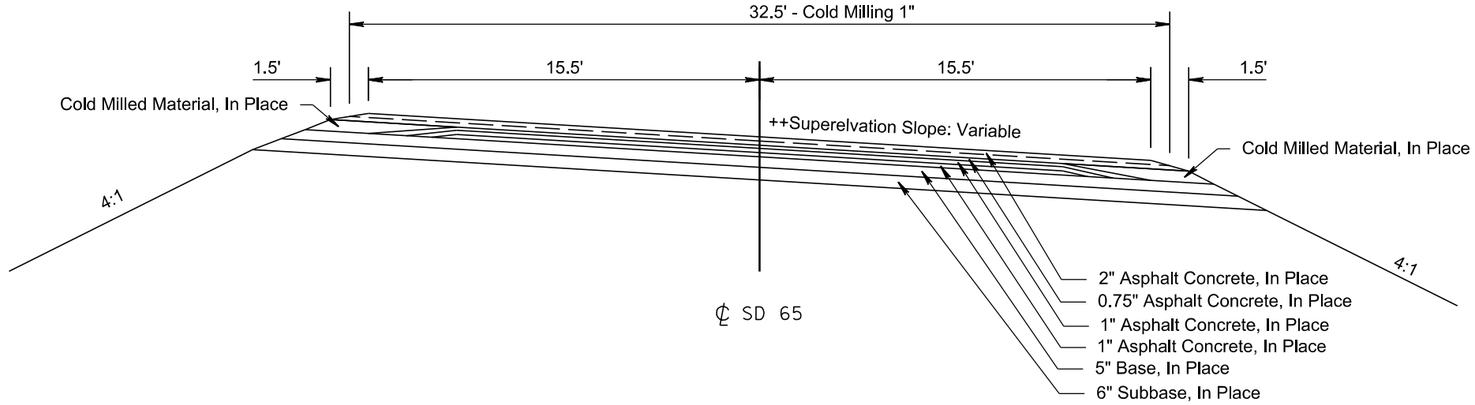
Plotting Date: 08/20/2024

Section 2 (PCN 07CC)

P 0065(20)232

++Superelevation Areas

In Place & Cold Milling Section



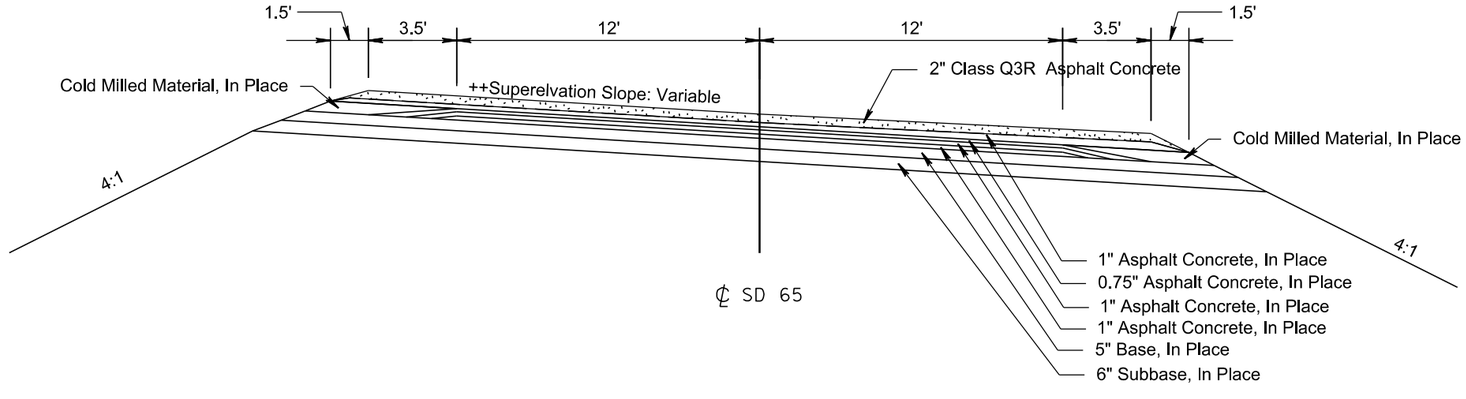
++See Table of Superelevated Curves

Section 2 (PCN 07CC)

P 0065(20)232

++Superelevation Areas

In Place & Cold Milling Section



++See Table of Superelevated Curves

PLOT NAME - 34

FILE ...\05U5_TYPICAL SECTIONS.DGN

PLOTTED FROM - TRMQINT04

TYPICAL SURFACING SECTION

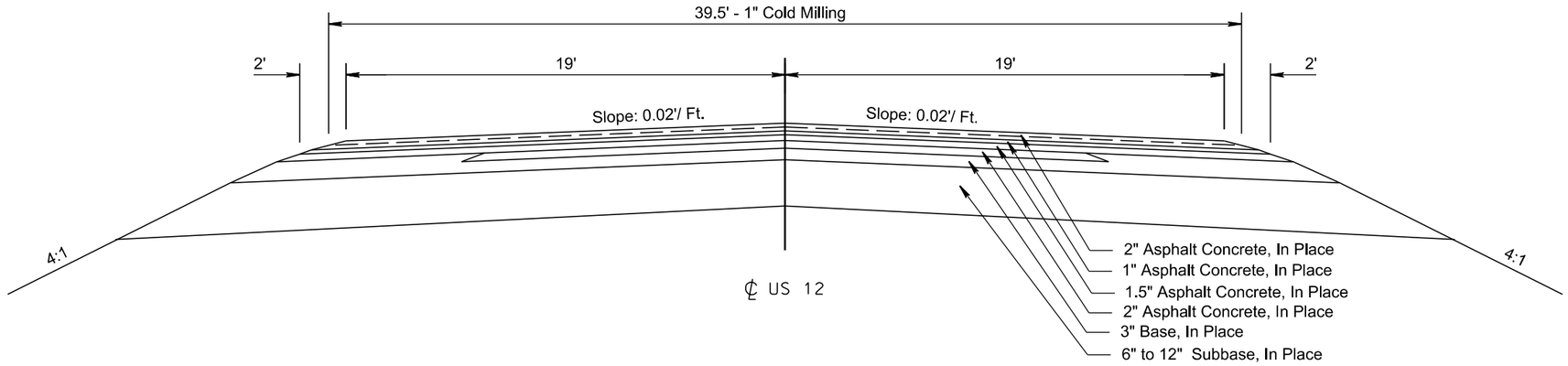
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	35	76

Plotting Date: 08/20/2024

Section 3 (PCN 067R)

NH 0012(231)132

Sta. 19+64.58 to Sta. a 2+00.00 (through Equation)
In Place & Cold Milling Section

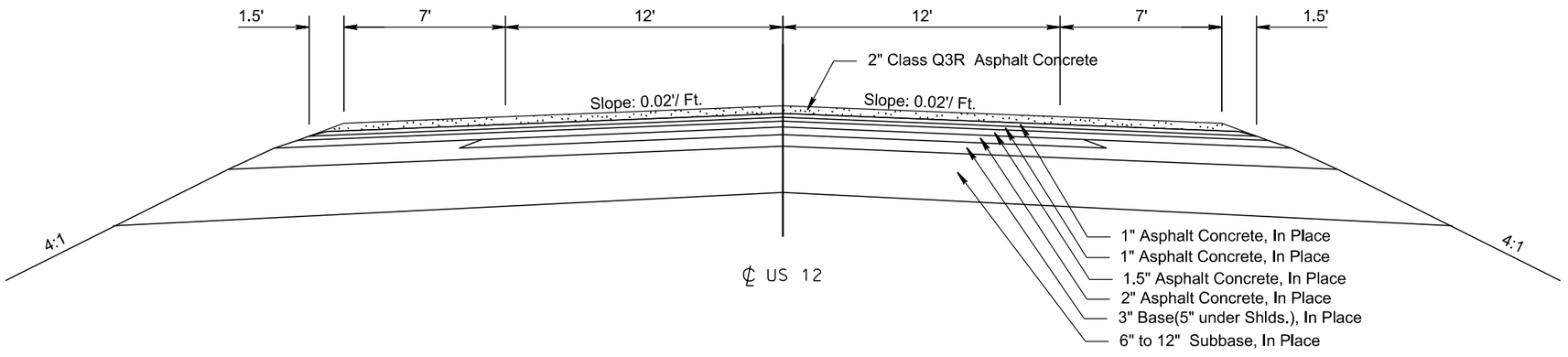


Transitions:
Sta. 18+64.58 to Sta. 19+64.58
Sta. a 0+00.00 to Sta. 2+00.00

Section 3 (PCN 067R)

NH 0012(231)132

Sta. 19+64.58 to Sta. 2+00.00 (through Equation)
Resurfacing Section



PLOT NAME - 35

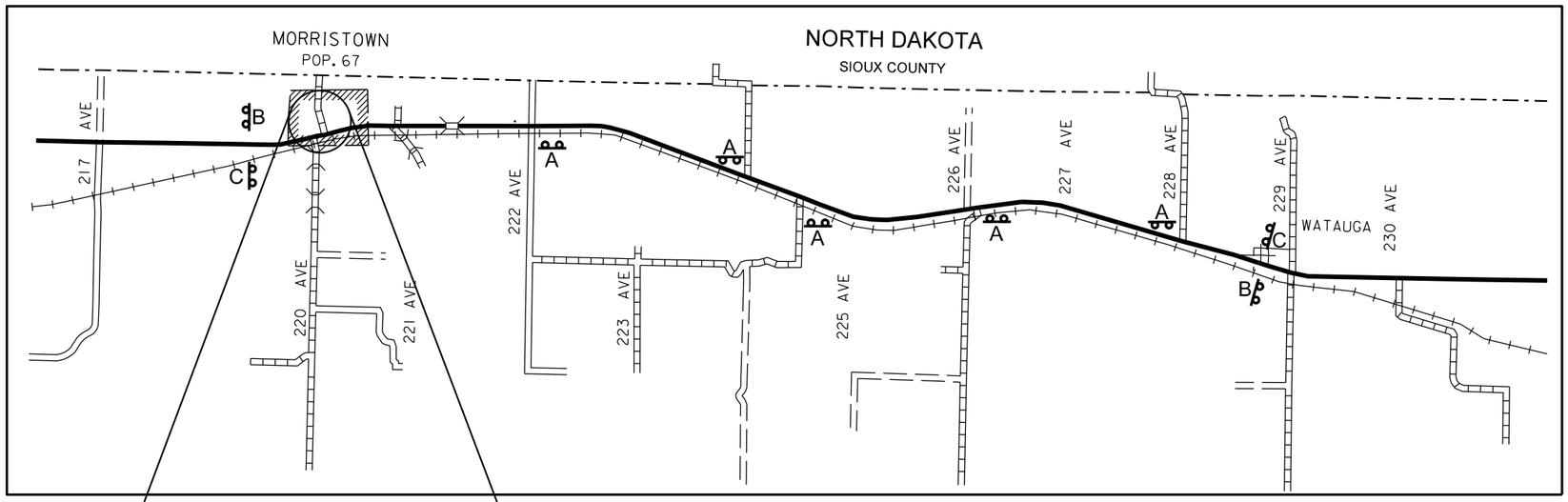
FILE ...\05U5_TYPICAL SECTIONS.DGN

PLOTTED FROM - TRMOINT04

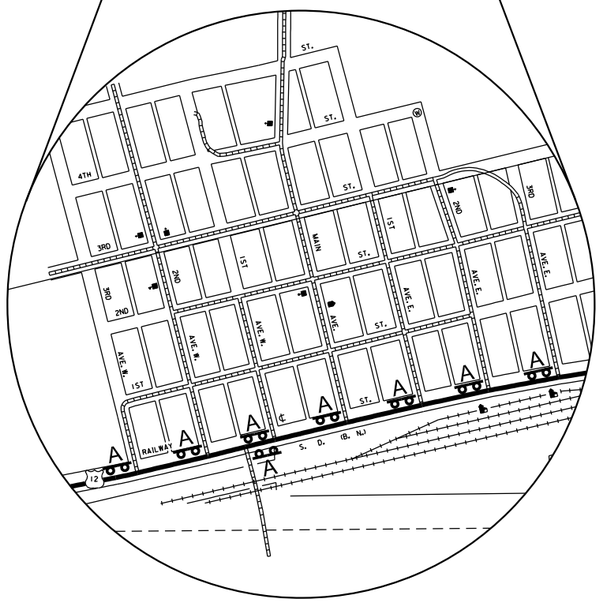
FIXED LOCATION SIGNS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	36	76

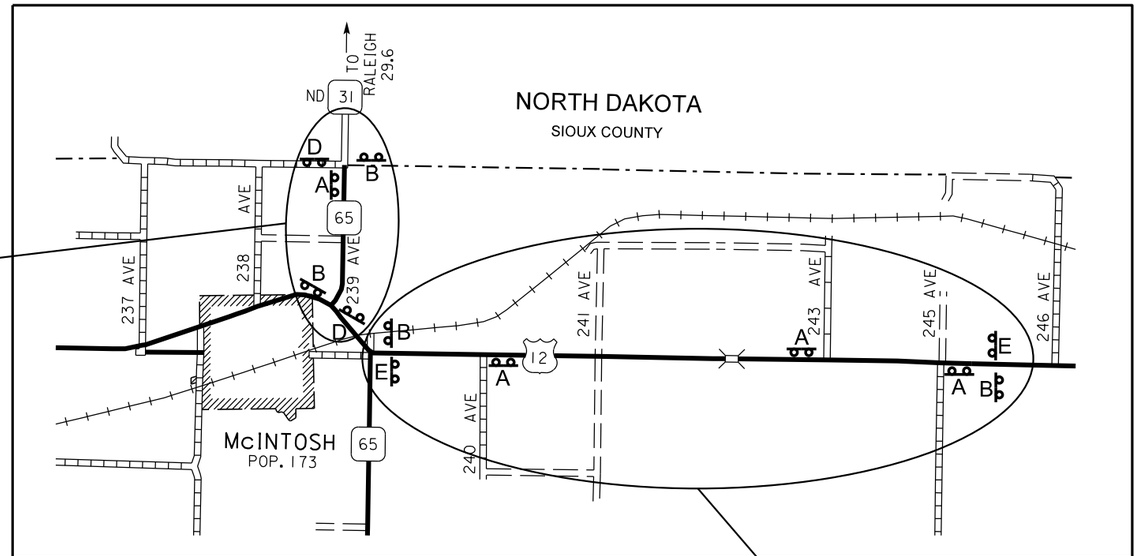
Plotting Date: 08/20/2024



PCN 05U5



PCN 07CC



PCN 067R

A — ROAD WORK AHEAD — W20-1 (48"X48")

B — END ROAD WORK — G20-2 (36"X18")

C — ROAD WORK NEXT 9 MILES — G20-1 (36"X18")

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

E — ROAD WORK NEXT 5 MILES — G20-1 (36"X18")

Notes:

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

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

PLOTTED FROM - TRMOINT04

FILE - ...\05U5_07CC_067R_TRAFFIC CONTROL.DGN

PLOT NAME - 36

CONTROL DATA

HORIZONTAL AND VERTICAL CONTROL POINTS

POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
12-128-81	MRM 128.00 +0.799	69’ R	HARN point 2.7 miles W of Mcintosh on US 12 (PID AC7895)	763880.14	1610954.94	2295.90
v428	Not on	Project	HARN point at Mcintosh (Corson Court House) (PID QS0624)	764158.030	1625607.520	2309.20
A65	1353+39	709’ L	U.S.B.M. standard disk stamped A 65 1934 and set in top concrete post. (PID DS0438)	764577.076	1630441.241	2271.74
12-145-75	MRM 145.00 +0.844	106’ R	HARN point 2.0 miles SE of Walker on US 12 (PID AC7920)	755519.410	1698680.370	2138.12
T119	500+21	314’ R	USC&GS Benchmark disk at Watauga stamped T 119 1934 and set in the top of a concrete post projecting 6 inches above ground. (PID QS0547)	764969.436	1575644.122	2253.24
BM7	498+99	64’ L	MRM 122.36 + 0.626 (iron rod)	765366.590	1575635.184	2254.92
BM6	465+90	121’ L	MRM 121.00 + 0.350 (iron rod)	766369.480	1572481.338	2273.82
12-114-76	117+57	99’ L	HARN point 1.5 Mile East of Morristown on US 12 (PID AC7873)	771832.432	1538671.707	2248.68
J119	MRM 107.00 +0.472	308’ L	USC&GS Benchmark disk set in top of concrete monument stamping: J 119 1934 (PID QS0538)	771183.898	1500596.452	2399.86

HORIZONTAL ALIGNMENT DATA

PCN 05U5 MAINLINE

Type	Station			Northing	Easting
POB	7+00.00			770868.688	1527694.941
		TL= 300.00	S 89°00'05" E		
PC	10+00.00			770863.460	1527994.896
PI	19+95.81	R = 7750.00	Delta = 14°38'38" L	770846.107	1528990.556
PT	29+80.77			771081.030	1529958.260
		TL= 1328.03	N 76°21'17" E		
PC	43+08.80			771394.327	1531248.806
PI	56+21.98	R = 11200.00	Delta = 13°22'29" R	771704.120	1532524.921
PT	69+23.22			771710.326	1533838.086
		TL= 9809.87	N 89°43'45" E		
PC	167+33.10			771756.681	1543647.850
PI	177+58.03	R = 5745.00	Delta = 20°13'51" R	771761.524	1544672.772
PT	187+61.62			771411.648	1545636.139
		TL= 11019.28	S 70°02'24" E		
PC	297+80.90			767650.052	1555993.501
PI	311+95.50	R = 5750.00	Delta = 27°38'33" L	767167.157	1557323.128
PT	325+55.01			767356.266	1558725.032
		TL= 5395.79	N 82°19'03" E		
PC	379+50.80			768077.597	1564072.389
PI	395+36.04	R = 7350.00	Delta = 24°20'31" R	768289.517	1565643.394
PT	410+73.44			767835.057	1567162.088
		TL= 9147.33	S 73°20'26" E		
POE	502+20.77			765212.670	1575925.465

HORIZONTAL ALIGNMENT DATA (continued)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	38	76

PCN 07CC MAINLINE

Type	Station			Northing	Easting
POB	0+00.00			772399.258	1629145.983
		TL= 5081.98	S 0°54'15" W		
TS	50+81.98			767317.912	1629065.789
SPI	53+48.85		Delta = 6°59'56" R	767051.070	1629061.578
SC	54+81.98			766918.815	1629043.219
PI	58+61.79	R = 1637.28	Delta = 26°07'14" R	766542.613	1628990.996
CS	62+28.39			766227.825	1628778.480
SPI	63+61.92		Delta = 6°59'56" R	766117.160	1628703.769
ST	66+28.39			765915.815	1628528.604
		TL= 117.60	S 41°01'21" W		
POE	67+45.99			765827.092	1628451.418

PCN 067R MAINLINE

Type	Station			Northing	Easting
POB	0+00.00			764488.581	1629631.824
		TL= 134.14	S 40°12'42" E		
TS	1+34.14			764386.141	1629718.429
SPI	4+68.01		Delta = 9°59'53" L	764131.179	1629933.978
SC	6+34.14			764024.206	1630062.416
PI	10+01.87	R = 1432.69	Delta = 28°47'27" L	763788.866	1630344.976
CS	13+54.06			763718.704	1630705.950
SPI	15+21.21		Delta = 9°59'53" L	763686.811	1630870.031
ST	18+54.06			763680.975	1631203.846
		TL= 7240.74	S 88°59'54" E		
PC	90+94.80			763554.409	1638443.480
PI	95+43.51	R = 171900.00	Delta = 0°17'57" L	763546.566	1638892.121
PT	99+92.22			763541.065	1639340.797
		TL= 15500.99	S 89°17'51" E		
PC	254+93.21			763351.028	1654840.624
PI	260+79.63	R = 17191.70	Delta = 3°54'26" R	763343.839	1655427.000
PT	266+65.60			763296.709	1656011.523
		TL= 175.34	S 85°23'25" E		
PC	268+40.93			763282.618	1656186.291
PI	274+36.26	R = 17188.73	Delta = 3°58'02" L	763234.772	1656779.699
EQNBK	280+31.12			763228.097	1657374.993
EQNAHD	a 0+00.00			763228.097	1657374.993
PT	a 0+00.00			763228.097	1657374.996
		TL= 180.90	S 89°21'27" E		
POE	a 1+80.91			763226.069	1657555.887

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 12A; SF = 0.99995087
The elevations shown on this sheet are based on NAVD 88.

TABLE OF SUPERELEVATED CURVES

EM 0012(275)112 PCN 05U5

STATION		TO	STATION		REMARKS
Sta.	7+00.00	to	Sta.	8+89.60	Normal Crown Section
Sta.	8+89.60	to	Sta.	10+27.60	Superelevation Transition 0° 44' 21" (R 7750.00') Curve Lt.
Sta.	10+27.60	to	Sta.	29+53.17	0.026 Superelevation Rate Point of Rotation at Centerline
Sta.	29+53.17	to	Sta.	30+91.17	Superelevation Transition
Sta.	30+91.17	to	Sta.	42+12.80	Normal Crown Section
Sta.	42+12.80	to	Sta.	43+32.80	Superelevation Transition 0° 30' 42" (R 11200.00') Curve Rt.
Sta.	43+32.80	to	Sta.	68+99.22	Remove Crown Point of Rotation at Centerline
Sta.	68+99.22	to	Sta.	70+19.22	Superelevation Transition
Sta.	70+19.22	to	Sta.	166+03.50	Normal Crown Section
Sta.	166+03.50	to	Sta.	167+65.50	Superelevation Transition 0° 59' 50" (R 5745.00') Curve Rt.
Sta.	167+65.50	to	Sta.	187+29.22	0.034 Superelevation Rate Point of Rotation at Centerline
Sta.	187+29.22	to	Sta.	188+91.22	Superelevation Transition
Sta.	188+91.22	to	Sta.	296+51.30	Normal Crown Section
Sta.	296+51.30	to	Sta.	298+13.30	Superelevation Transition 0° 59' 47" (R 5750.00') Curve Lt.
Sta.	298+13.30	to	Sta.	325+22.61	0.034 Superelevation Rate Point of Rotation at Centerline
Sta.	325+22.61	to	Sta.	326+84.61	Superelevation Transition
Sta.	326+84.61	to	Sta.	378+35.60	Normal Crown Section
Sta.	378+35.60	to	Sta.	379+79.60	Superelevation Transition 0° 46' 46" (R 7350.00') Curve Rt.
Sta.	379+79.60	to	Sta.	410+44.64	0.028 Superelevation Rate Point of Rotation at Centerline
Sta.	410+44.64	to	Sta.	411+88.64	Superelevation Transition
Sta.	326+84.61	to	Sta.	502+20.77	Normal Crown Section

NH 0012(231)132 PCN 067R

STATION		TO	STATION		REMARKS
Sta.	0+00.00	to	Sta.	1+54.67	Normal Crown Section
Sta.	1+54.67	to	Sta.	6+54.67	Superelevation Transition (Spiral) 4° 00' (R 1432.39') Curve Lt.
Sta.	6+54.67	to	Sta.	13+56.34	0.060 Superelevation Rate Point of Rotation at Centerline
Sta.	13+56.34	to	Sta.	18+46.34	Superelevation Transition (Spiral)
Sta.	18+46.34	to	Sta.	88+77.51	Normal Crown Section
Sta.	88+77.51	to	Sta.	97+77.51	0° 02' (R 171887.34') Curve Rt. Normal Crown Point of Rotation at Centerline
Sta.	97+77.51	to	Sta.	255+23.55	Normal Crown Section
Sta.	255+23.55	to	Sta.	266+93.55	0° 20' (R 17188.73') Curve Rt. Normal Crown Point of Rotation at Centerline
Sta.	266+93.55	to	Sta.	268+98.13	Normal Crown Section
Sta.	268+98.13	to	Sta.	280+48.14	0° 20' (R 17188.73') Curve Rt. Normal Crown Point of Rotation at Centerline
Sta.	280+48.14	to	Sta. a	2+01.24	Normal Crown Section

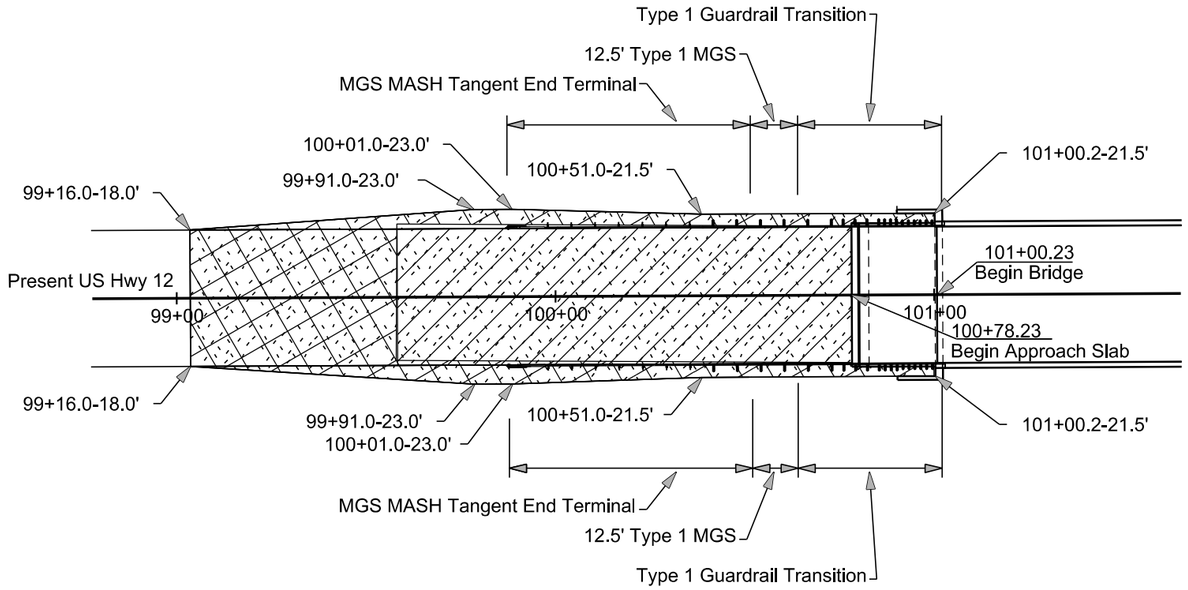
P 0065(20)232 PCN 07CC

STATION		TO	STATION		REMARKS
Sta.	7+00.00	to	Sta.	50+83.99	Normal Crown Section
Sta.	50+83.99	to	Sta.	54+83.99	Superelevation Transition (Spiral) 3° 30' (R 1637.02') Curve Rt.
Sta.	54+83.99	to	Sta.	62+26.85	0.060 Superelevation Rate Point of Rotation at Centerline
Sta.	62+26.85	to	Sta.	66+26.85	Superelevation Transition (Spiral)
Sta.	66+26.85	to	Sta.	67+45.14	Normal Crown Section

APPROACH AND GUARDRAIL LAYOUT

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	40	76

Plotting Date: 08/20/2024



Cold Milling (2" at bridge to 0" at 120')
480 SqYd each end

2" Class Q3R Hot Mixed Asphalt Concrete (1st lift)

2" Class Q3R Hot Mixed Asphalt Concrete (2nd lift)

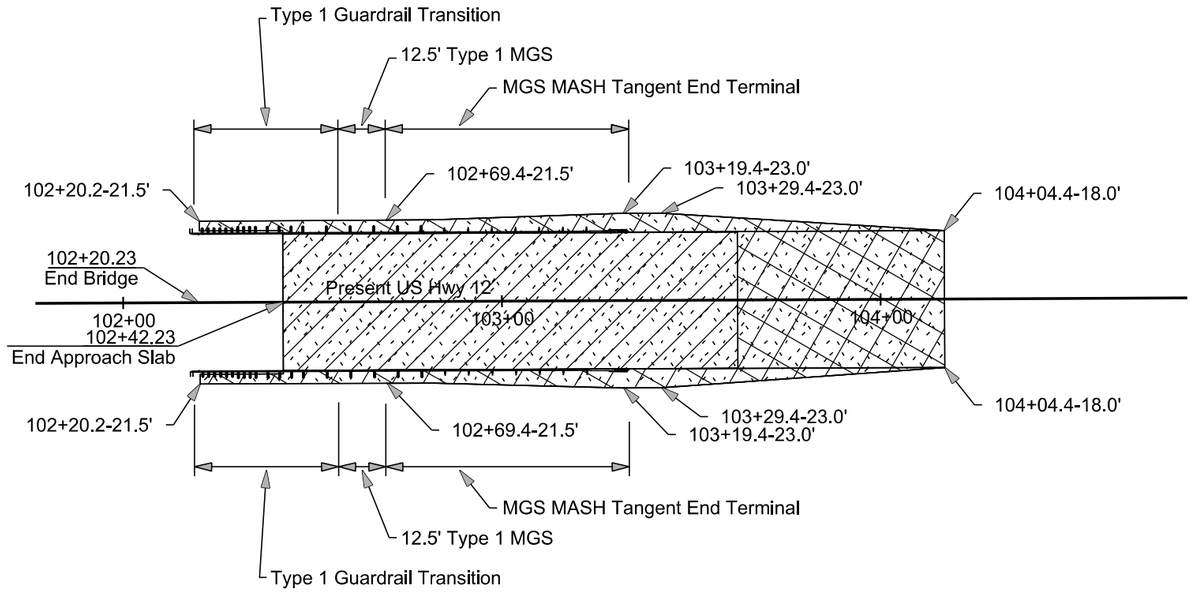


TABLE FOR SURFACING GUARDRAIL EMBANKMENT & RESETTING GUARDRAIL *

LOCATION	REMOVE TYPE 1 MGS FOR RESET	REMOVE TYPE 1 GUARDRAIL TRANSITION FOR RESET	REMOVE MGS TANGENT END TERMINAL FOR RESET	CLASS Q3R HOT MIXED ASPHALT CONCRETE 1ST LIFT ALT. A	CLASS Q3R HOT MIXED ASPHALT CONCRETE 2ND LIFT ALT. A	CLASS Q3R HOT MIXED ASPHALT CONCRETE 1ST LIFT ALT. B	CLASS Q3R HOT MIXED ASPHALT CONCRETE 2ND LIFT ALT. B	RESET TYPE 1 MGS	RESET MGS TANGENT END TERMINAL	RESET TYPE 1 GUARDRAIL TRANSITION
BRIDGE CORNER	Ft	Each	Each	Ton	Ton	Ton	Ton	Ft	Each	Each
STRUCTURE 63-142-180 STA. 99+16.0 to 104+04.4										
Begin Bridge L	12.5	1	1	18	50	19	51	12.5	1	1
Begin Bridge R	12.5	1	1	18	50	19	51	12.5	1	1
End Bridge L	12.5	1	1	18	50	19	51	12.5	1	1
End Bridge R	12.5	1	1	18	50	19	51	12.5	1	1
TOTALS:	**50**	**4**	**4**	**72**	**200**	**76**	**204**	**50**	**4**	**4**

* Guardrail Delineators (16) and Guardrail End Terminal Object Markers (4) shall be reset in accord with Standard Plate 632.40.
Any guardrail delineators or object markers lost, damaged or destroyed due to the Contractor's work operations shall be replaced in kind at no expense to the State.
Cost for this work shall be incidental to the contract unit prices for the various guardrail items.

PLOTTED FROM - TRM01NT04

PLOT NAME - 40

FILE - ...\98GR(PAVE).DGN

PROJECT SIGN TABULATION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	41	76

PCN 05U5 EM 0012(206)112

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	4	48" x 48"	16.0	64.0
W8-11	UNEVEN LANES	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	17	48" x 48"	16.0	272.0
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
SPECIAL	WAIT FOLLOW PILOT CAR	6	30" x 18"	3.8	22.8
G20-1	ROAD WORK NEXT 9 MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			798.0

PCN 07CC P 0065(20)232

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
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	2	48" x 48"	16.0	32.0
W8-15	GROOVED PAVEMENT	2	48" x 48"	16.0	32.0
W8-15P	MOTORCYCLE (plaque)	2	24" x 18"	3.0	6.0
W13-1P	ADVISORY SPEED (plaque)	2	30" x 30"	6.3	12.6
W20-1	ROAD WORK AHEAD	3	48" x 48"	16.0	48.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	2	48" x 48"	16.0	32.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
SPECIAL	WAIT FOLLOW PILOT CAR	1	30" x 18"	3.8	3.8
G20-1	ROAD WORK NEXT 1 MILE	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			344.4

PCN 067R NH 0012(231)132

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	2	48" x 48"	16.0	32.0
W8-7	LOOSE GRAVEL	4	48" x 48"	16.0	64.0
W8-11	UNEVEN LANES	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	7	48" x 48"	16.0	112.0
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	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	2	48" x 48"	16.0	32.0
SPECIAL	WAIT FOLLOW PILOT CAR	3	30" x 18"	3.8	11.4
G20-1	ROAD WORK NEXT 5 MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			594.6

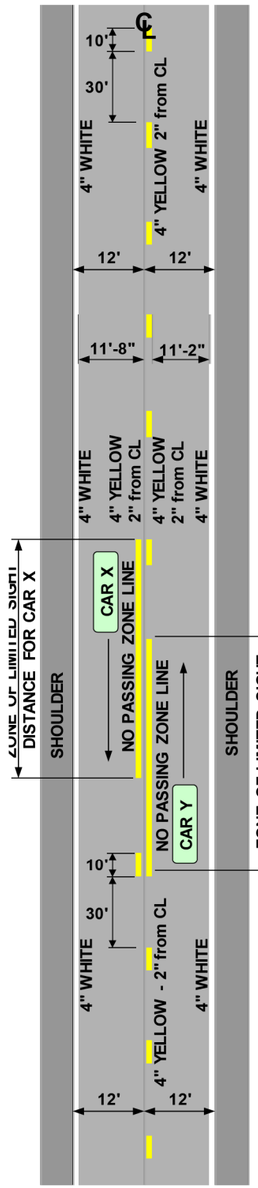
PROJECT TOTALS

SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-6	TRUCK CROSSING	6	48" x 48"	16.0	96.0
W8-7	LOOSE GRAVEL	10	48" x 48"	16.0	160.0
W8-11	UNEVEN LANES	10	48" x 48"	16.0	160.0
W8-15	GROOVED PAVEMENT	10	48" x 48"	16.0	160.0
W8-15P	MOTORCYCLE (plaque)	10	24" x 18"	3.0	30.0
W13-1P	ADVISORY SPEED (plaque)	10	30" x 30"	6.3	63.0
W20-1	ROAD WORK AHEAD	27	48" x 48"	16.0	432.0
W20-4	ONE LANE ROAD AHEAD	10	48" x 48"	16.0	160.0
W20-7	FLAGGER (symbol)	10	48" x 48"	16.0	160.0
W21-2	FRESH OIL	8	48" x 48"	16.0	128.0
W21-5	SHOULDER WORK	6	48" x 48"	16.0	96.0
SPECIAL	WAIT FOLLOW PILOT CAR	10	30" x 18"	3.8	38.0
G20-1	ROAD WORK NEXT 9 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 1 MILE	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 5 MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	6	36" x 18"	4.5	27.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			1737.0

PROJECT PAINT TABULATION

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	42	76

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 = 7.6 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)	
PAINT	QUANTITY
WHITE	700 GALLONS
YELLOW	124 GALLONS

Included in the above quantities are:					
Additional White (1 Application)			Additional Yellow (1 Application)		
Description		Gallons	Description		Gallons
4" Lines (Lane & Parking)	-	-	Transitions	- -	-
8" Lines	-	-	4" Skip Lines	-	-
12" Gore Lines	-	-	8" Lines	-	-
Crosswalks	- -	-	12" Lines	-	-
24" Stop Lines	-	-	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:		-			

Additional Quantities

Rates of Coverage:	SqFt/Gal
4", 8" and 12" Lines -	80
24" Lines and Bars -	50
Arrows, Messages and Solid Areas -	30

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

ESTIMATED QUANTITIES (BASED ON ONE APPLICATION)				
PAINT	PCN 05U5 GALLONS	PCN 07CC GALLONS	PCN 067R GALLONS	TOTALS GALLONS
WHITE	420	56	224	700
YELLOW	79	8	37	124

Surfacing Transition Layouts

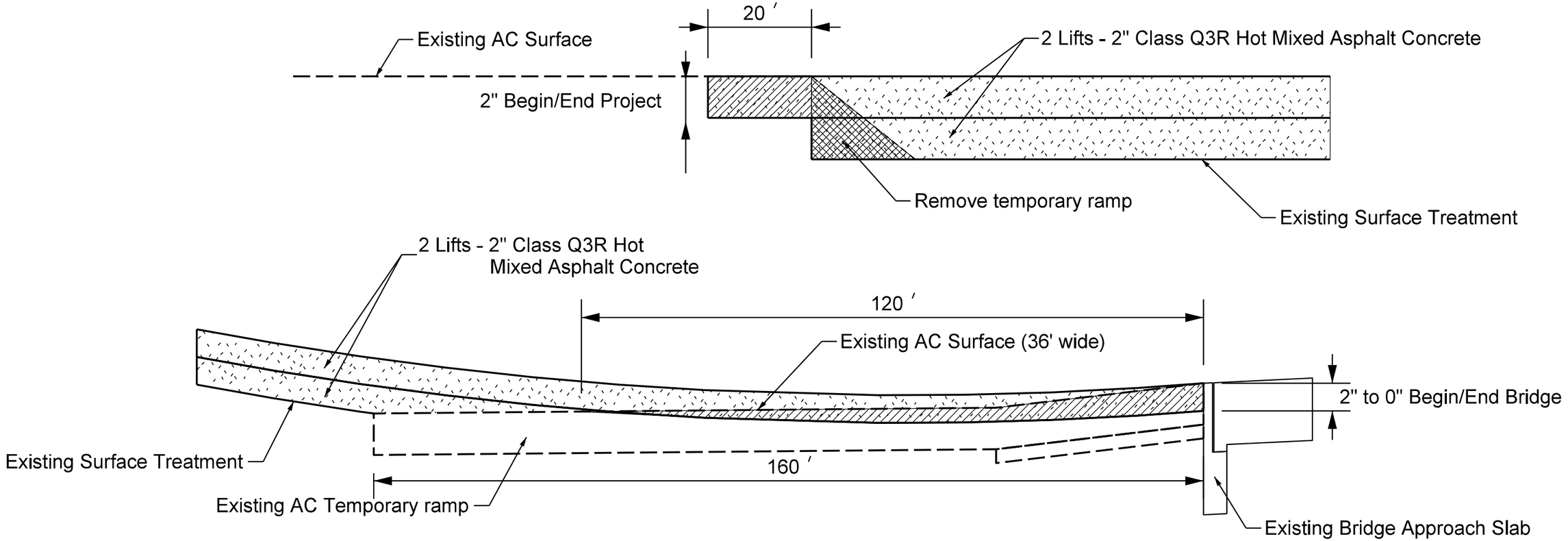
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	43	76

Plotting Date: 08/20/2024

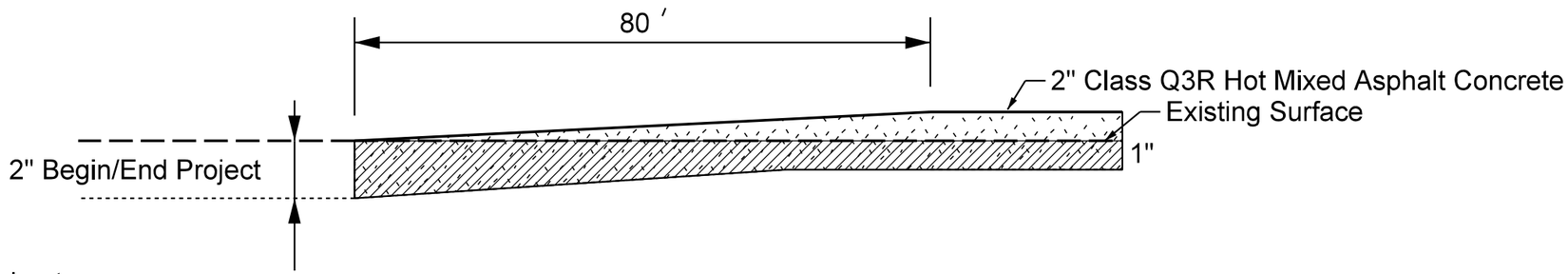
2" Class Q3R Hot Mixed Asphalt Concrete

Cold Milling Asphalt Concrete

PCN 05U5



PCN 07CC and PCN 067R



The cross hatched area is the approximate limits of cold milling asphalt transition.

Plot Scale - 1:20

Plotted From - TRMO1NT04

File - ...\05U5_Cold Milling Transition.dgn

PERMANENT VEHICLE CLASSIFICATION SYSTEM (PCN 067R)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	44	76

Plotting Date: 08/20/2024

PERMANENT VEHICLE CLASSIFICATION

The contractor will install a permanent vehicle classification system on US12 at approximately MRM 136 + 0.038 at the exact location of the current system to include the following:

1. The contractor will purchase and install 2 (one per lane) RoadTrax Class II BL (Brass Linguini) 8' piezo's for vehicle classification. The contractor will install the piezo's by sawing or routing them into the Asphalt Concrete surface (after the new surfacing is completed) to the measurements shown in drawing A. The contractor will supply all necessary equipment, manpower and materials to complete this installation. A sample of the major steps of the piezo installation is attached for information purpose only. Drawings B and C provide additional information about the BL piezo installation. The piezo will have enough passive cable length to reach the electronics cabinet (No Splices will be allowed). A representative of SDDOT Office of Inventory Management Traffic Section will be on site and direct the installation of the piezo's. The contractor must advise the SDDOT Office of Inventory Management traffic section at least 2 weeks prior to the date of installation of the piezo and will complete the piezo and loop installation at the same time and in a continuous manner. The final installation of the piezo must be approved by a representative of the SDDOT Office of Inventory Management Traffic Section. The SDDOT Engineer will determine if the weather is acceptable to install piezo' s (40 F and rising with no rain) and no piezo' s will be allowed to be installed after November 1. All saw cuts must be cleaned to the satisfaction of the SDDOT Engineer before sealing the cuts.

2. The contractor will install 4 traffic loops (6' X 6') (two per lane) by sawing or routing them into the Asphalt Concrete surface (after the new surfacing is completed) to the measurements shown in drawing A. The loops must have 4 turns of jacketed loop wire meeting the requirements of IMSA Specification No 51-1(1 conductor, PVC/Nylon with Tube Jacket 12 AWG). Home run shielded wire will be stranded 14AWG with DC resistance < 3.0 ohms per 1000 feet and has cross-link polyethylene insulation (XHHW). The contractor will supply all necessary equipment, manpower and materials to complete the loop installation. The final installation of the loops must be approved by a representative of the SDDOT Office of Inventory Management Traffic Section.

3. The contractor will provide a new electronics cabinet on the existing PCC concrete base located on the South Right of Way line near MRM 136 + 0.038. The contractor will remove and dispose of the old electronics cabinet. The new electronic cabinet will include aluminum two shelf cabinet with fan and thermostat, a cabinet light controlled by a door switch, lightning surge suppression and terminal blocks for 4 inductive loops and 2 piezo's. The electronic cabinet will be fitted with a #2 Corbin style lock and 2 keys. The new cabinet and base will have a water drain hole in the lowest corner of the cabinet and thru the concrete base so that water will freely drain from the cabinet. The new cabinet will have a door located on the south side. The contractor will install 110 V AC (100 Amp) electric service to the new electronics cabinet (there is existing 110 V AC (100 Amp) electric service at the old electronics cabinet Moreau-Grand Electric meter number 28888). The contractor will provide a Sierra Wireless RV55 cell modem to be used in the new electronics cabinet. The contractor will pay for all charges (installation and connect fees, lighting surge suppression, supplies, etc.) for electric service to be installed into the new electronics cabinet. The contractor will install and wire all piezo's, inductive loops, counter, electronics, software, and hardware and initialize the system. After the contactor determines the system to be operational then the SDDOT Office of Inventory Management Traffic Section will review for final approval.

4. The contractor will provide and install underground 3/4-inch conduit to a depth at least 24 inches below ground from the edge of the roadway to 2 existing electrical junction boxes located 2 feet off the edge of each shoulder and then through existing conduit to a new electronics cabinet.

5. The contractor will purchase one Peek ADR-3000 or equal with inputs for 2 piezo's and 4 inductive loops and install in the new electronics cabinet.

6. The basis of payment for the Permanent Vehicle Classification System will be the contract item "Permanent Vehicle Classification System". All costs associated with furnishing and installing a working vehicle classification system will be incidental to the contract unit price per each for "Permanent Vehicle Classification System".

Sample Major Steps of Piezo Installation

1. Carefully mark the slot to be cut, perpendicular to the flow of traffic. Ensure that the sensors
2. are properly positioned in the lane. Shorter sensors are positioned to one side; longer sensors are typically centered on the lane.

3. Cut a slot ¾" wide (+ 1/16") and 3/4" deep (-0", +1/4"). (19mm wide, + 1mm, 19 to 25mm deep). The slot should be ≈ 6" (150mm) longer than the sensor. The lead out should be centered in the slot. The lead out cable is typically 3/8" (9mm) wide and 3"(75mm) deep. It is normally done to the same specifications as the inductive loop and the homerun cables for these.

4. It is strongly recommended that a 3/4" (19mm) wide diamond blade be used for cutting the slot, or that blades be ganged together to get a single 3/4" (19mm) wide cut. The slot should be wet cut to minimize damage to the road.

5. Once all cutting is completed (including the inductive loops) sweep and wash out the debris left in the slot and ensure it is clean and dry. Use high pressure water, a power washer, or water and compressed air to clean ALL foreign matter out of the slot and 6" (150mm) on all sides of the slot. Remove all excess water and debris with a vacuum cleaner and/or sweeping.

6. Carefully dry the slot using torches, torpedo heaters, or natural evaporation, depending on weather conditions. The slot needs to be clean and dry to ensure the chemical bonding of the grout to the pavement.

7. Place a strip of 2" (50mm) wide duct tape along the pavement next to the slot. This facilitates leveling the grout and clean-up.

8. Lay the sensor on the tape next to the slot. Ensure that the sensor is straight and flat. Place the clips on the sensor, about every 6" (150mm). Slightly bend the end of the sensor down at a 30 deg angle, so that it is below the surface. Do the same at the end with the passive cable, bending the sensor about 1" (25mm) from the lead attachment.

9. Trial fit the sensor in the slot, carefully pressing down on the brass element on either side of the clips. Press down only far enough to make sure sensor and clips fit into the slot.

10. Block off the end of the slot where the cable exits using plumbers' putty or foam backer rod after sensor installation. Ensure that there is an adequate 'dam' so that the encapsulation material does not flow out. The dam MUST be about 3-5" (75-125mm) past the end of the lead attachment area. The installation grout must completely encapsulate the lead attachment area. If ducting or conduit is used for the lead in cable, it should not extend to the lead attachment. It must stop 3-5" (75-125mm) short of the lead attachment so that the lead attachment can be fully encapsulated.

11. Test the sensor for Capacitance, Dissipation Factor and Resistance, according to the directions enclosed with the packing slip in the delivery box. Record the test results and the sensor serial number. This information should be stored in the counter cabinet or returned to a data storage file. Then remove the sensor from slot.

12. Mix the grout according to the manufacturer's instructions. Be sure to pre-mix the resin combining the two parts since the filled materials have a tendency to settle. Fill the slot half full of encapsulation material and then place the sensor in the slot pressing the clips to the bottom of the slot. Then fill the rest of the slot with the remaining encapsulation material. Using a trowel, distribute the encapsulation material along the sensor, and smooth it out.

13. Remove the tape on the sides of the sensor as soon as the adhesive starts to cure.

14. Carefully remove the plumber's putty or backer rod used to form the dams at the end of the sensor.

15. Route the lead in cable through the slot cut for it, and cover with loop sealant or grout. NOTE: Hot Tar should not be used since the temperature is difficult to control and it can burn the cable.

16. When the encapsulation material is fully cured, grind the top of the encapsulation material flush with the road using an angle grinder. The profile should be flat and flush with the road, ensuring that there are no concave portions.

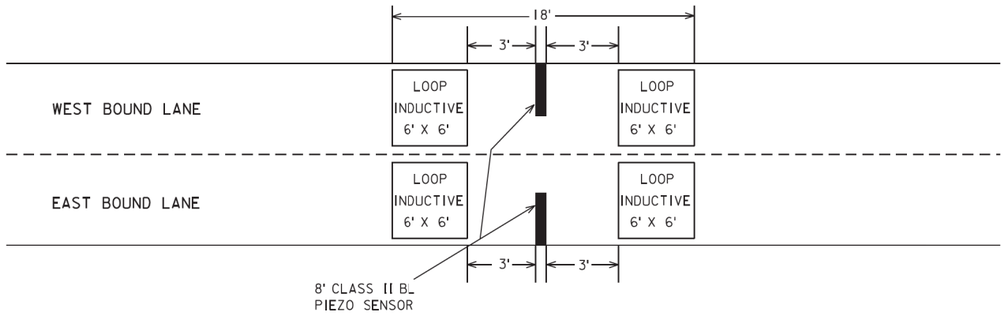
17. Clean up the site. When the encapsulation material is fully cured, it may be opened to traffic. Failure to wait for encapsulation material to fully cure may ruin the installation and cause it to fail prematurely.

PERMANENT VEHICLE CLASSIFICATION SYSTEM (PCN 067R)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	45	76

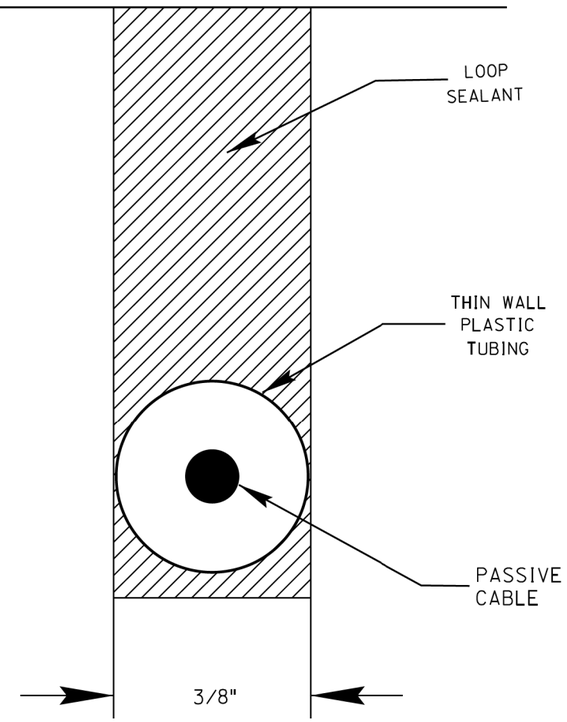
Plotting Date: 08/20/2024

DRAWING A



DRAWING B

A-A: THE PASSIVE CABLE WILL BE PUT IN A THIN WALL PLASTIC TUBE FOR ADDITIONAL PROTECTION.



PLOT NAME - 45

FILE - ...\067R_PERM_VEHICLE_CLASS.DGN

PLOTTED FROM - TRMOINT04

PERMANENT VEHICLE CLASSIFICATION SYSTEM (PCN 067R)

DRAWING C

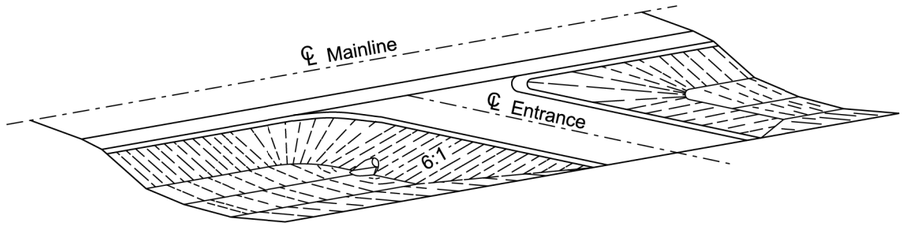
B-B: TYPICAL CROSS SECTION OF A BL SENSOR INSTALLATION.

DRAWING D

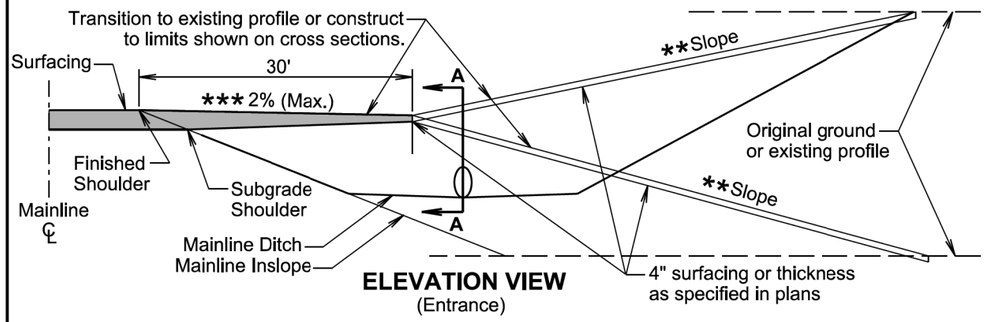
EDGE OF ROAD CONDUIT DETAILS

NOTES:

1. THE SENSOR LEAD SAW CUT IS EXTENTED TO THE END OF THE PAVEMENT, IN THE FINAL 1 FOOT, THE SAW BLADE IS DROPPED TO ITS MAXIMUM DEPTH.
2. THE EARTH IS EXCAVATED AND THE CONDUIT IS INSTALLED AS CLOSE TO THE EDGE OF PAVEMENT AS POSSIBLE.
3. AFTER PULLING THE SENSOR LEAD, THE END OF THE CONDUIT IS SEALED WITH AN END CAP OR OTHER MEANS.



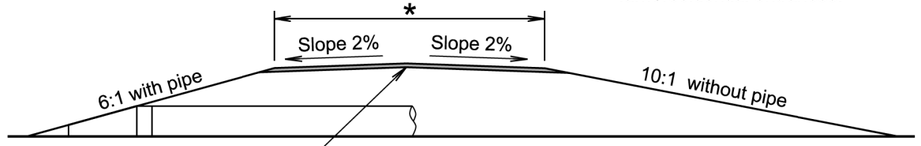
PERSPECTIVE OF ENTRANCE



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.

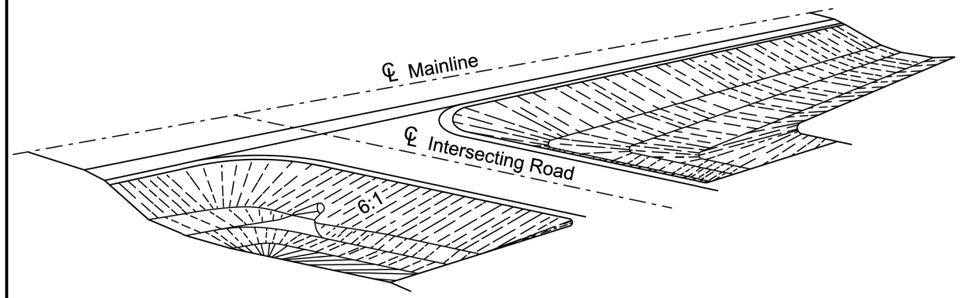
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

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

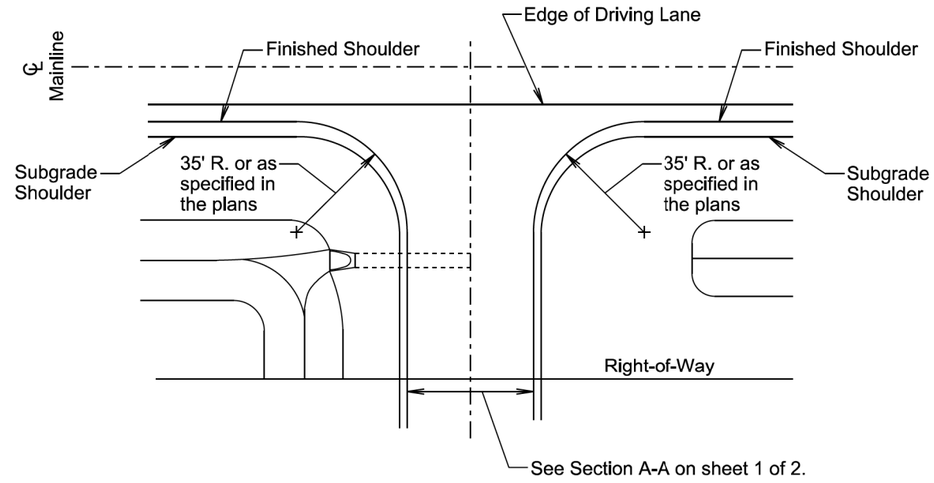
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

Published Date: 2025	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01 Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



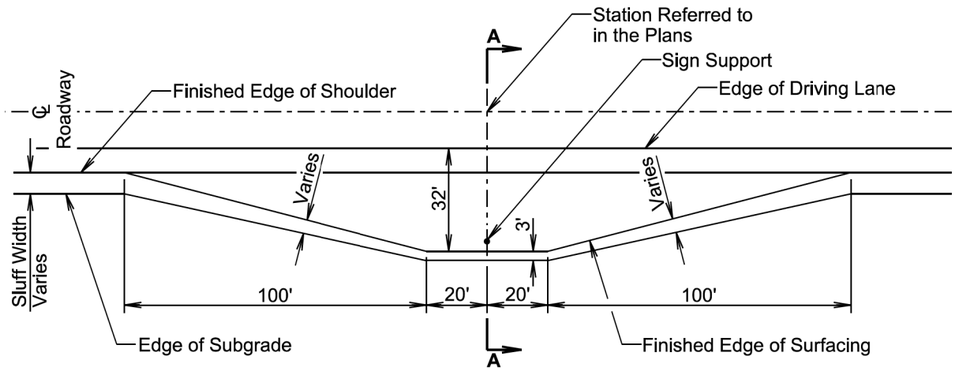
PLAN VIEW

GENERAL NOTES:

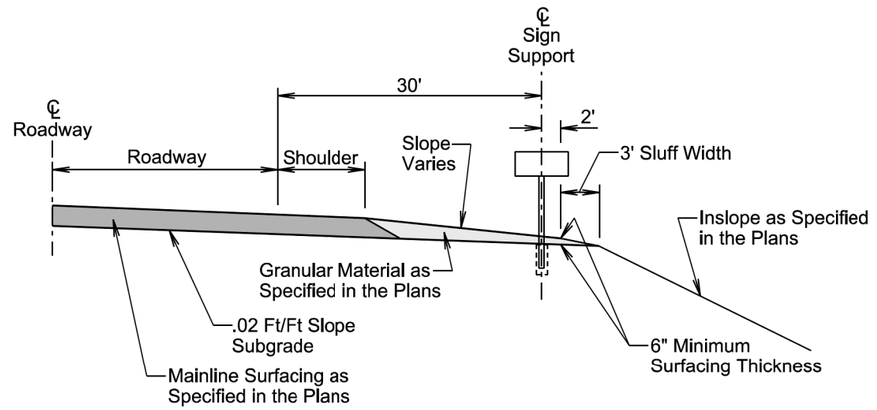
The 6:1 or 10:1 intersecting road inslope will transition to the existing intersecting road inslope near the right-of-way or at a location as determined by the Engineer.

November 19, 2021

Published Date: 2025	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01 Sheet 2 of 2



PLAN VIEW



SECTION A-A

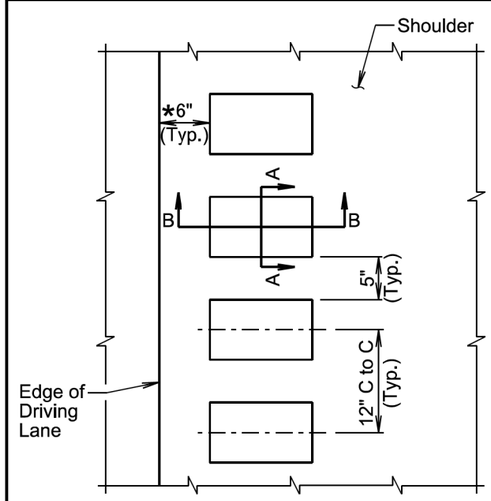
GENERAL NOTES:

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

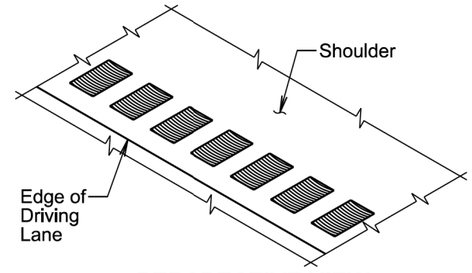
The minimum surfacing thickness within the turnout will be 6" as depicted in Section A-A.

September 14, 2018

Published Date: 2025	SDDOT	HISTORICAL MARKER TURNOUT	PLATE NUMBER 120.20
			Sheet 1 of 1

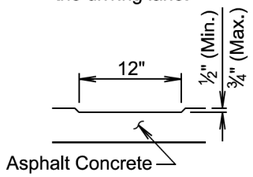


PLAN VIEW
(Typical Rumble Strip in Asphalt Concrete)

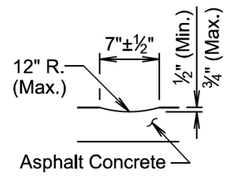


PERSPECTIVE VIEW
(Typical Rumble Strip in Asphalt Concrete)

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



SECTION B-B



SECTION A-A

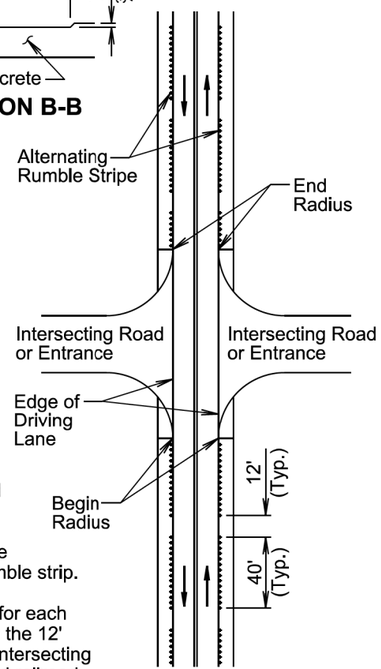
GENERAL NOTES:

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

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

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

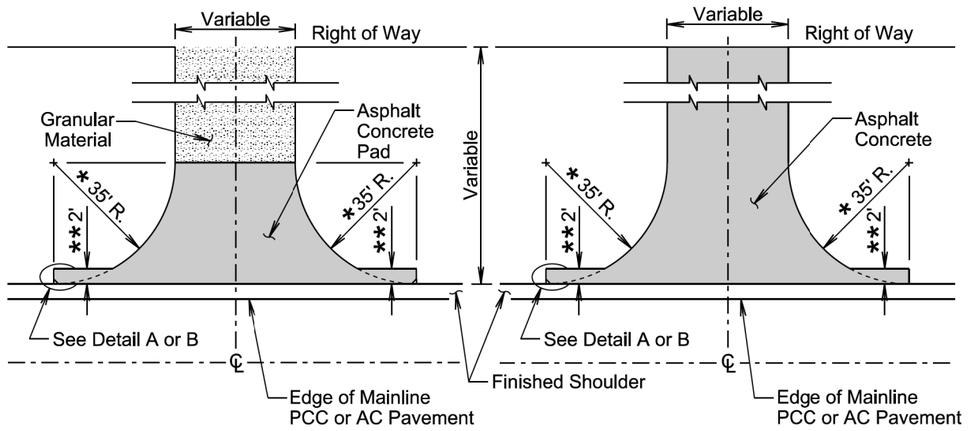
Measurement of the rumble strip will be to the nearest 0.1 of a mile for each shoulder. Measurement and payment of the rumble strip will include the 12' long segments without rumble strips and the segments adjacent to intersecting roads, entrances, turnouts, bridge decks, bridge approach slabs, and railroad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



PLAN VIEW

September 14, 2019

Published Date: 2025	SDDOT	12" RUMBLE STRIP IN ASPHALT CONCRETE ON NONDIVIDED HIGHWAY SHOULDERS	PLATE NUMBER 320.24
			Sheet 1 of 1



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

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

GENERAL NOTES:

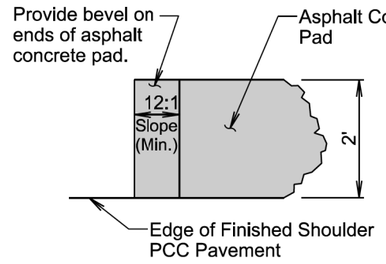
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

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

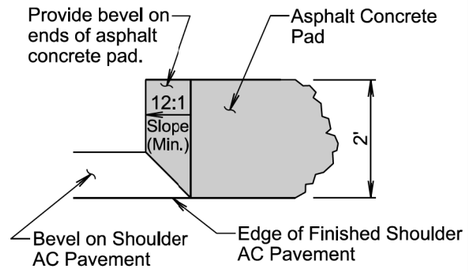
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete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

August 27, 2020

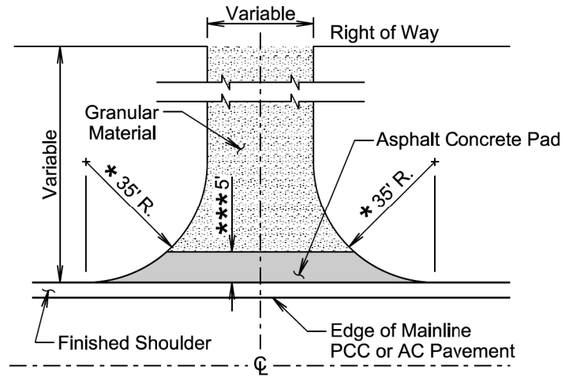
Published Date: 2025	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 1 of 2



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



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

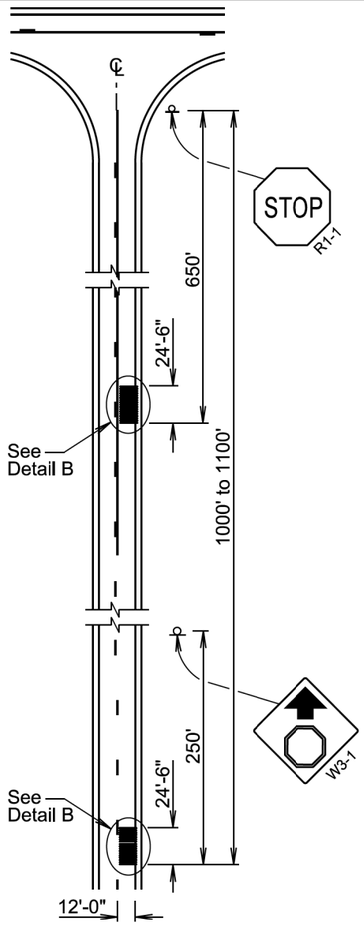


PLAN VIEW
(Entrance)

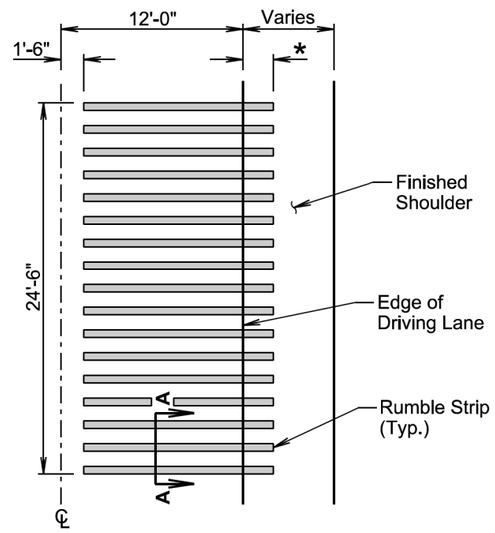
*** Not required if finished shoulder width is 4' or greater.

August 27, 2020

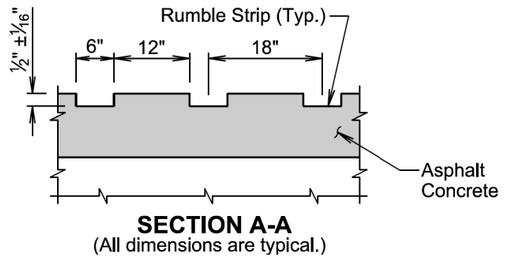
Published Date: 2025	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 2 of 2



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.

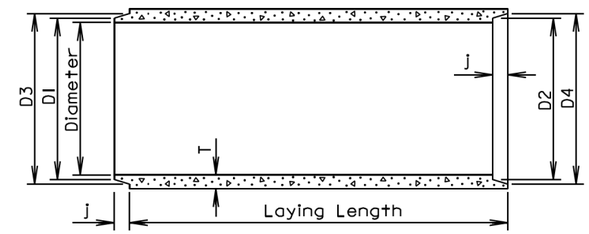
Measurement of the recessed transverse rumble strips will be to the nearest foot. Payment for constructing the recessed transverse rumble strips will be at the contract unit price per foot for "Grind 6" Transverse Rumble Strip in Asphalt Concrete".

January 22, 2021

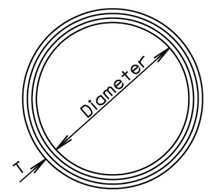
Published Date: 2025	SDDOT	TRANSVERSE RUMBLE STRIP IN ASPHALT CONCRETE HIGHWAY ADJACENT TO STOP CONTROLLED INTERSECTION	PLATE NUMBER 320.45 Sheet 1 of 1

TOLERANCES IN DIMENSIONS

Diameter: ±1.5% for 24" Dia. or less and ±1% or 3/8" whichever is more for 27" Dia. or greater.
Diameters at joints: ± 3/16" for 30" Dia. or less and ± 1/4" for 36" or greater.
Length of joint (j): ± 1/4".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than 1/2".



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

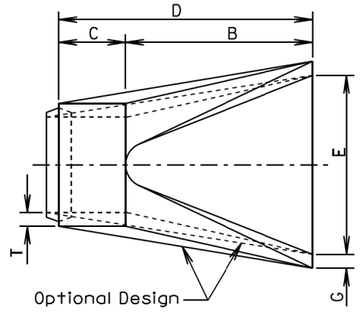
Construction of R.C.P. shall conform to the requirements of Section 990 of the Specifications.

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

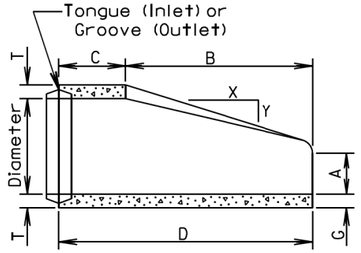
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 7/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 7/8	58 3/8	59 3/8	59 7/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 7/8	85 5/8	86 1/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

June 26, 2015

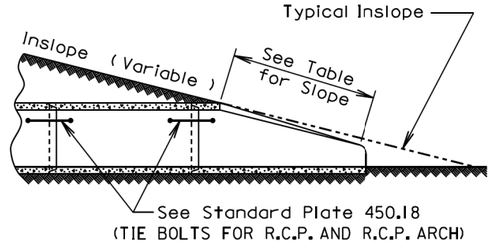
Published Date: 2025	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01 Sheet 1 of 1



TOP VIEW



LONGITUDINAL SECTION

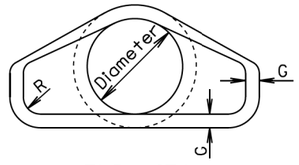


SLOPE DETAIL

GENERAL NOTES:

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

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



END VIEW

Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4:1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4:1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3:1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4:1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5:1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5:1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5:1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5:1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5:1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5:1	5	24	72	26	98	84	5	1 1/2
54	8240	2:1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9:1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7:1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8:1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8:1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6:1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5:1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

June 26, 2015

Published Date: 2025	SDDOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10
			Sheet 1 of 1

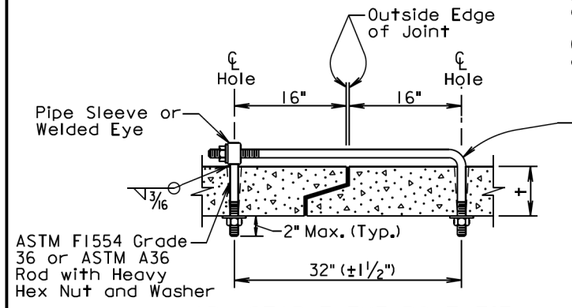
Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3 1/4	5/8	3/4
3 1/2-6 1/2	3/4	1
≥ 7	1	1 1/4

GENERAL NOTES:

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

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

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



ADJUSTABLE EYE BOLT TIE

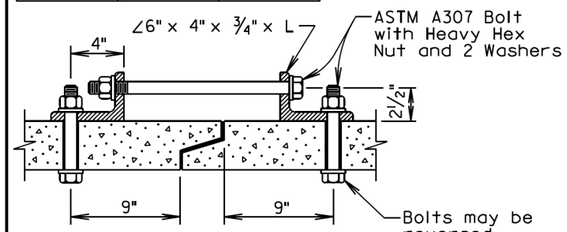
Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	3/4
> 48	6	1

GENERAL NOTES:

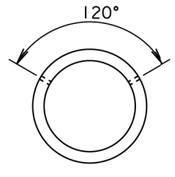
Angles shall conform to ASTM A36.

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

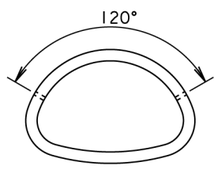
Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



ANGLE AND BOLT TIE



END VIEW
"CIRCULAR"



END VIEW
"ARCH"

GENERAL NOTES:

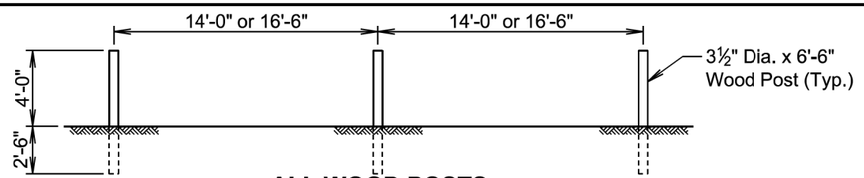
In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall 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, manhole, and junction boxes shall be tied with tie bolts.

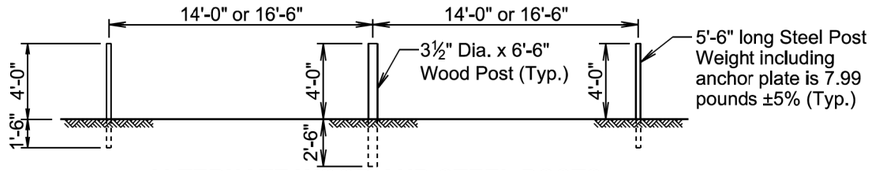
There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

February 28, 2013

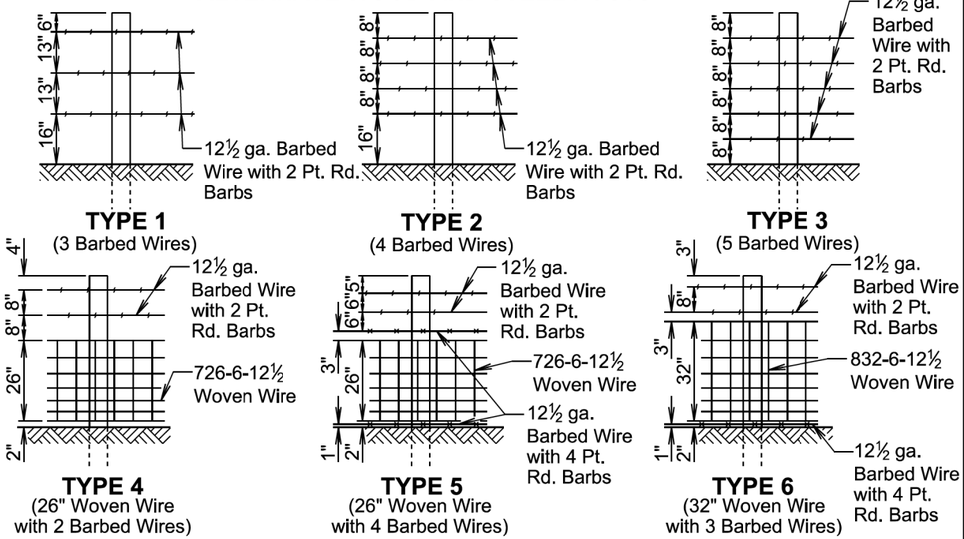
Published Date: 2025	SDDOT	TIE BOLTS FOR R.C.P. AND R.C.P. ARCH	PLATE NUMBER 450.18
			Sheet 1 of 1



ALL WOOD POSTS



ALTERNATE WOOD AND STEEL POSTS



TYPE 1 (3 Barbed Wires)

TYPE 2 (4 Barbed Wires)

TYPE 3 (5 Barbed Wires)

TYPE 4 (26" Woven Wire with 2 Barbed Wires)

TYPE 5 (26" Woven Wire with 4 Barbed Wires)

TYPE 6 (32" Woven Wire with 3 Barbed Wires)

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:

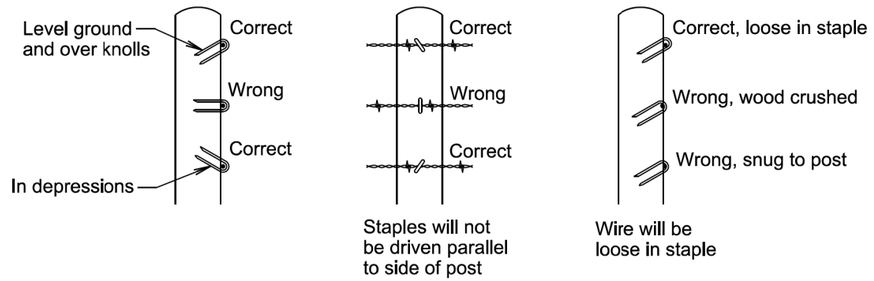
Fence types designated on the plans that are followed by the letter S will have smooth (barbless) wires.

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

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

June 26, 2019

Published Date: 2025	SDDOT	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.

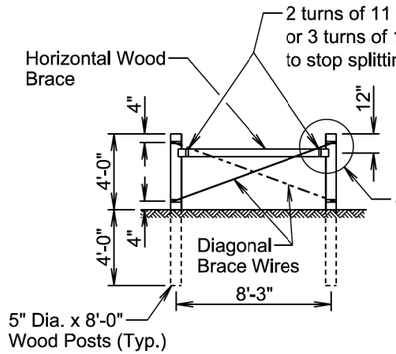
Right-of-Way fence other than on Interstate Projects will be constructed within one foot of the Right-of-Way on the Landowner's side except at bridge openings, cattle passes, and as otherwise directed by the Engineer.

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.

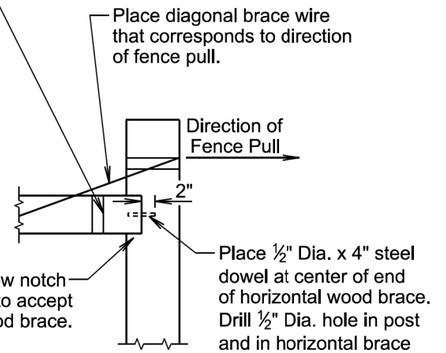
The gages of wire and wood post lengths and sizes are the minimum acceptable unless otherwise specified in the plans. The tolerances for steel posts will be as stated in AASHTO M281. Woven wire will conform to design and specifications of ASTM A116 and barbed wire will conform to ASTM A121.

June 26, 2019

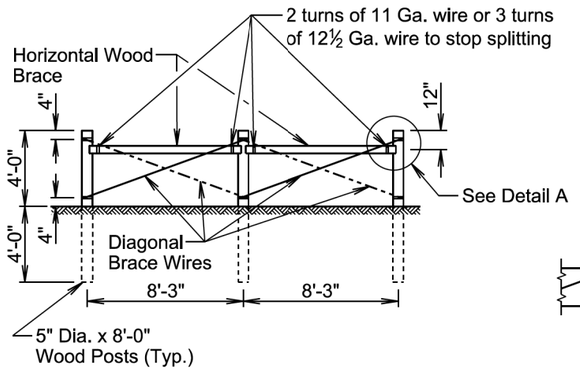
Published Date: 2025	SDDOT	STAPLE INSTALLATION AND GENERAL RIGHT-OF-WAY FENCE NOTES	PLATE NUMBER 620.02 Sheet 1 of 1



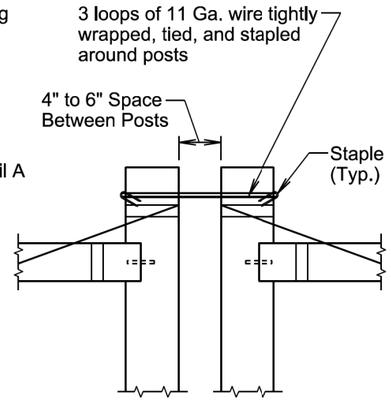
ELEVATION VIEW
(2 Post Panel)



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: 2025	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.

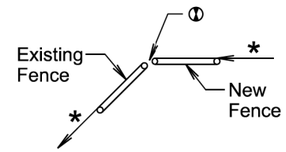
① See Detail B on Sheet 1 of 3.

GENERAL NOTE:

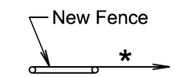
All radius of curvature stated for fence are at centerline of roadway.

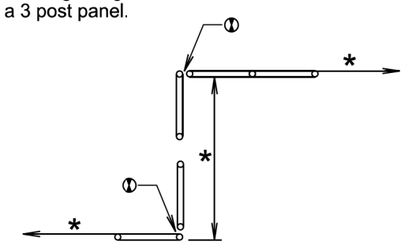
If fence length is less than 600' to next corner use a 2 post panel.

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

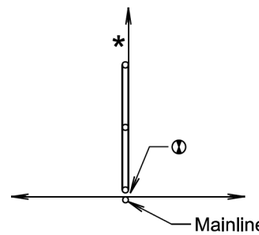


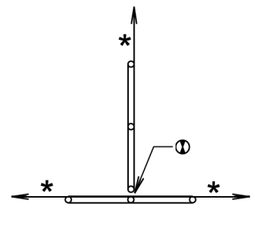
BEGIN OR END FENCE
(Where new fence ties into existing fence)



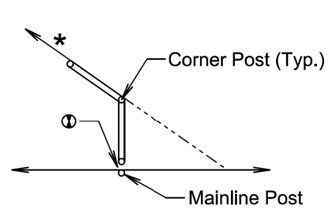


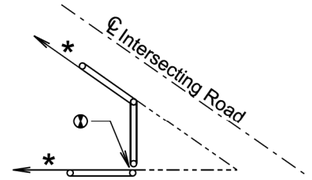
SHORT JOGS IN FENCE

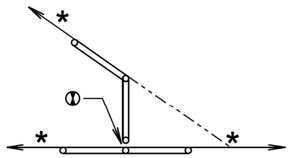




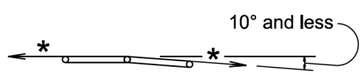
CROSS FENCE



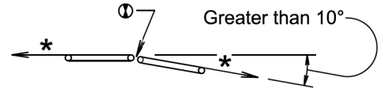




SHARP ANGLES IN CROSS FENCE



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

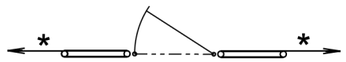


Additional fence panel is required when an angle in the mainline fence is greater than 10°.

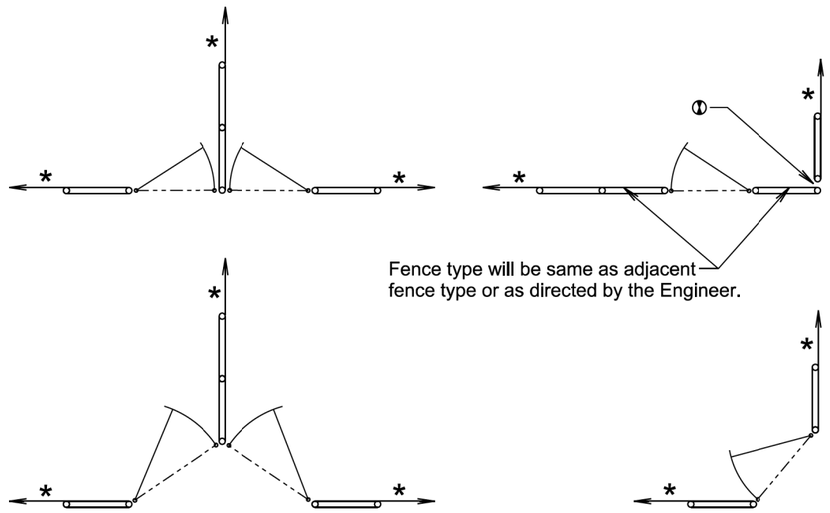
ANGLES IN MAINLINE FENCE

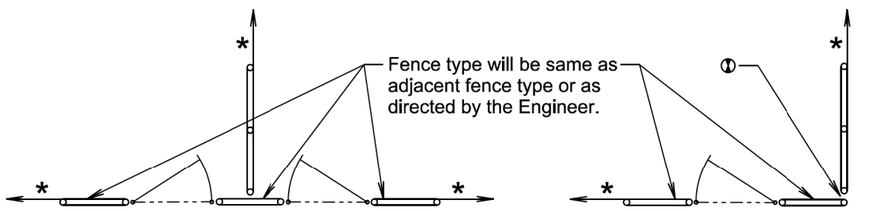
March 31, 2024

Published Date: 2025	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03 Sheet 2 of 3



ENTRANCE
(Not on corner)





DOUBLE ENTRANCES **ENTRANCES AT CORNERS**

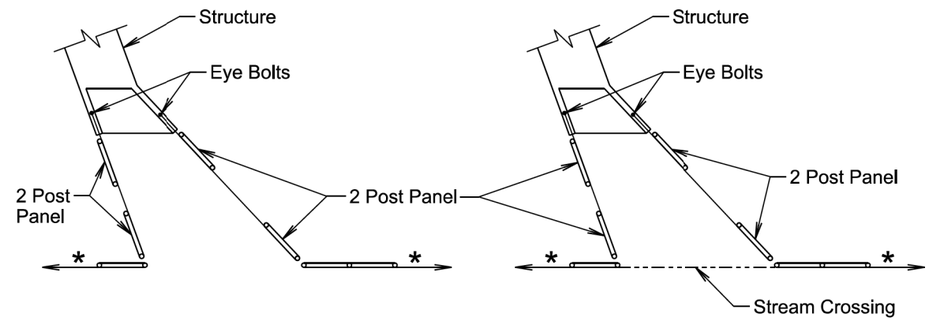
GATES

* 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.

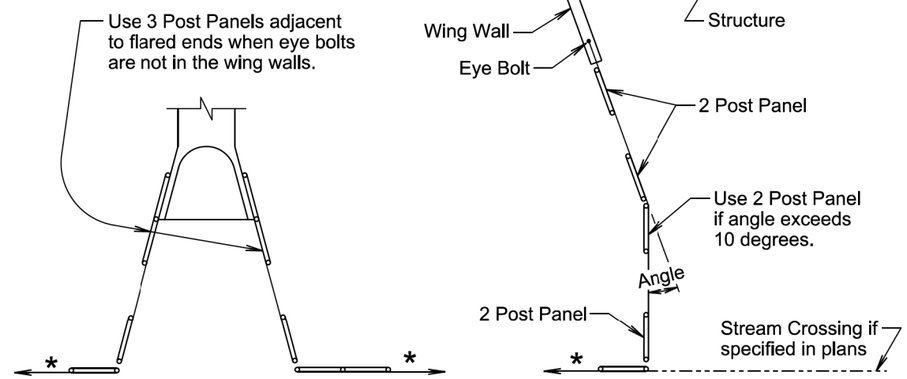
① See Detail B on Sheet 1 of 3.

March 31, 2024

Published Date: 2025	SDDOT	BRACE PANELS AND APPLICATIONS OF BRACE PANELS	PLATE NUMBER 620.03 Sheet 3 of 3



R.C. BOX CULVERT OR CATTLE PASS **STRUCTURE WITH STREAM CROSSING FENCE**

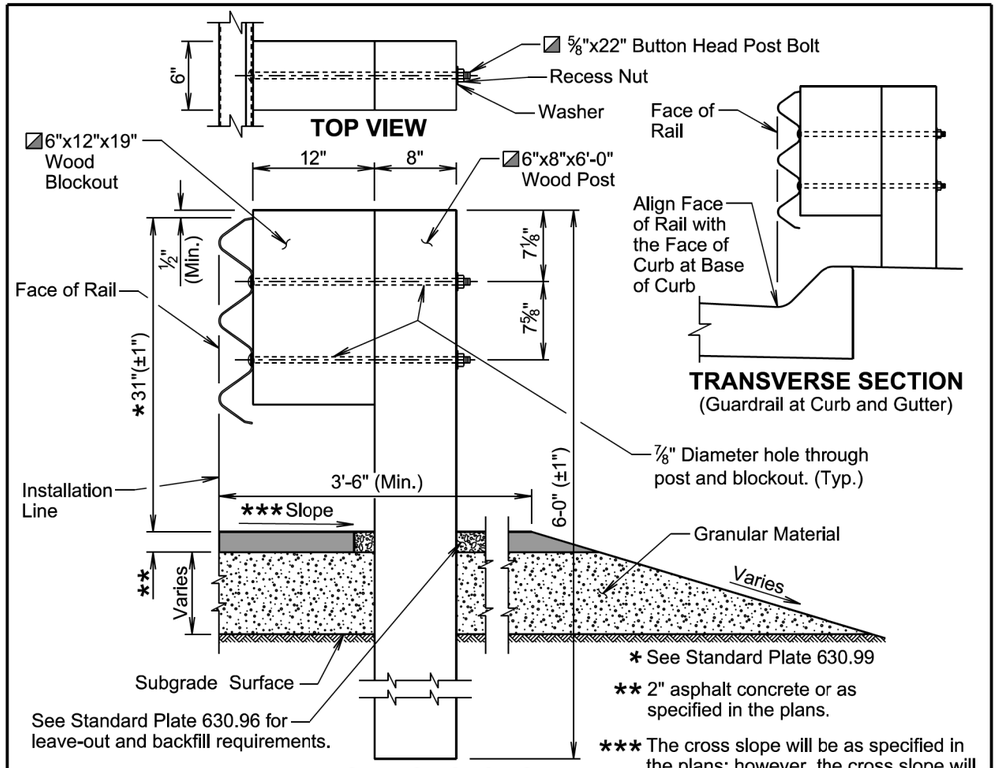


R.C. BOX CULVERT OR CATTLE PASS **BRIDGE**

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

June 26, 2019

Published Date: 2025	SDDOT	BRACE PANEL APPLICATIONS AT STRUCTURES	PLATE NUMBER 620.04 Sheet 1 of 1



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.

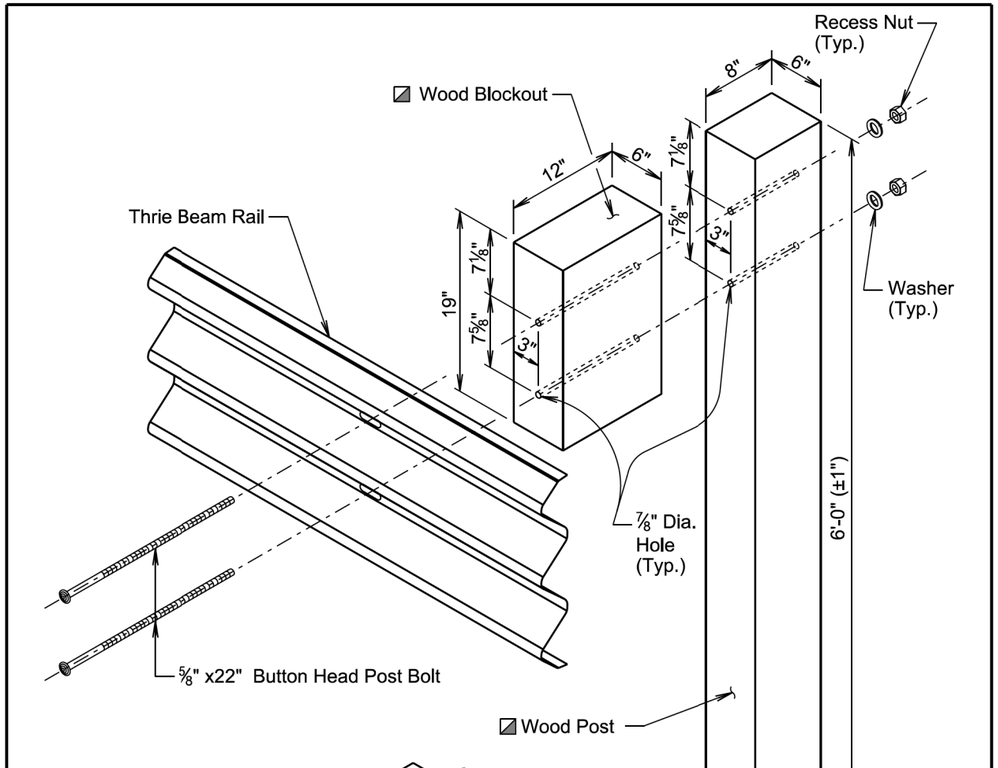
⧄ The post and blockout illustrated above is typical for single thrie beam guardrail. When other variations of posts and blockouts are specified on other standard plates (e.g. transitions) then the posts and blockouts will be as specified on the other standard plates or as specified in the plans.

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.

September 14, 2019

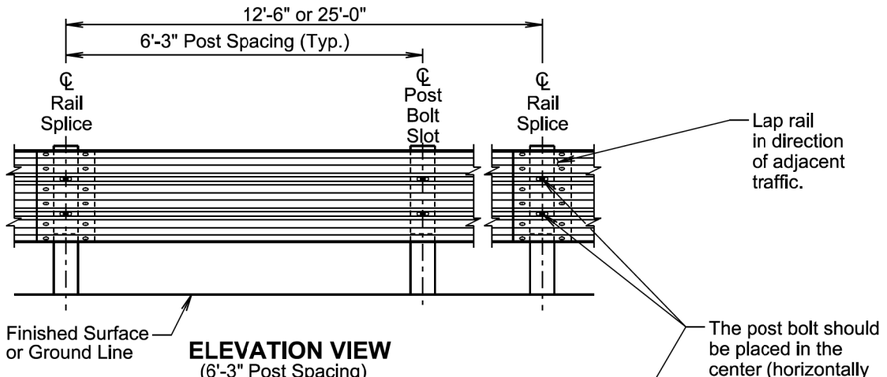
Published Date: 2025	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 1 of 5



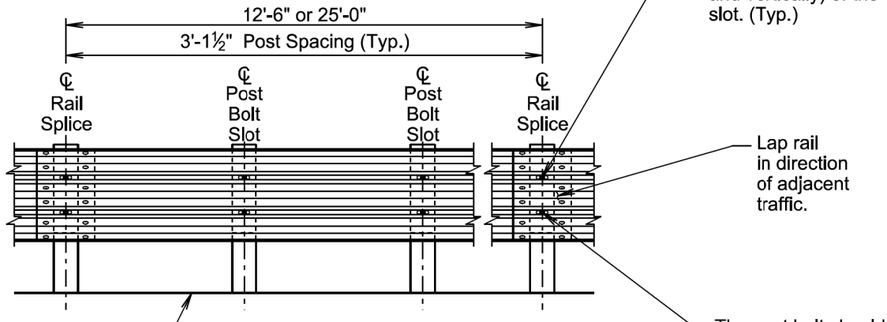
⧄ For single thrie beam guardrail use 6"x12"x19" wood blockout, ⅝"x22" button head post bolt, and 6"x8"x6'-0" wood post. For double (nested) thrie beam guardrail use 6"x8"x19" wood blockout, ⅝"x18" button head post bolt, and 6"x8"x7'-0" wood post.

September 14, 2019

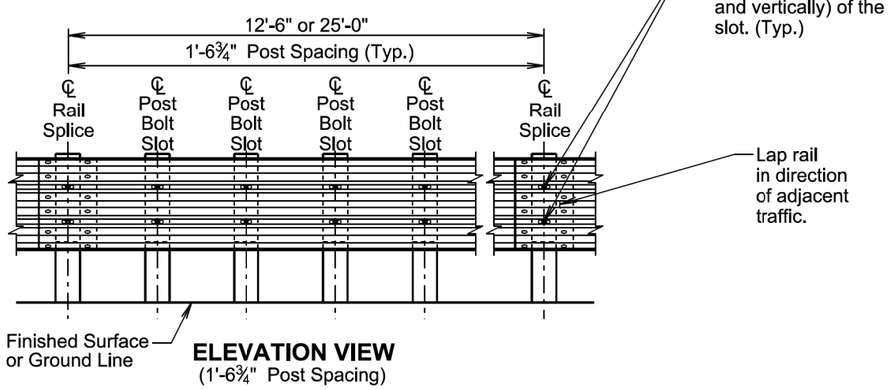
Published Date: 2025	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 2 of 5



ELEVATION VIEW
(6'-3" Post Spacing)



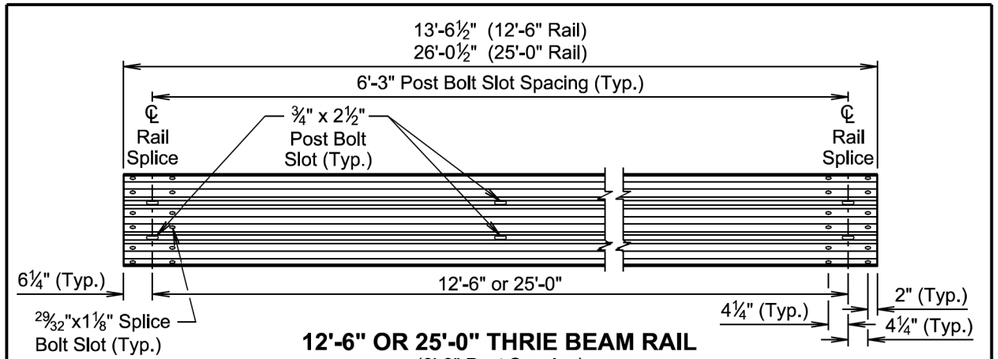
ELEVATION VIEW
(3'-1½" Post Spacing)



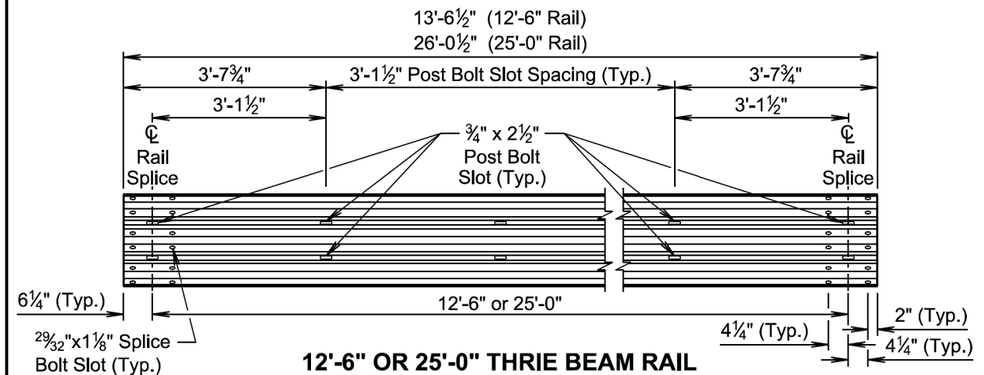
ELEVATION VIEW
(1'-6¾" Post Spacing)

September 14, 2019

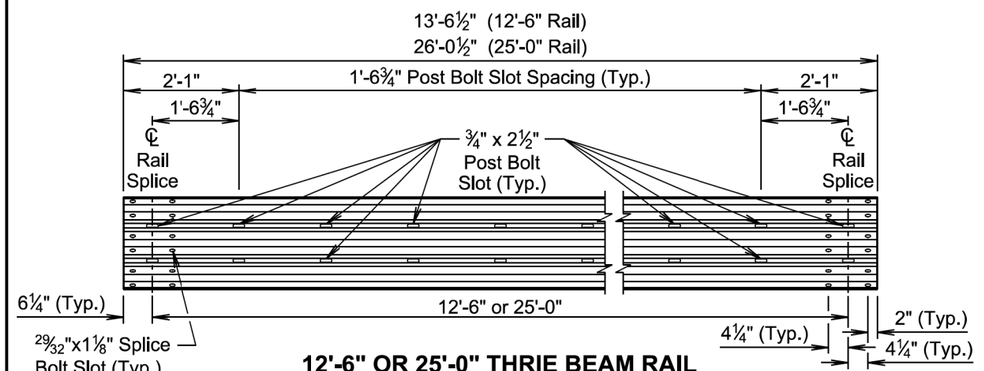
Published Date: 2025	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 3 of 5



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



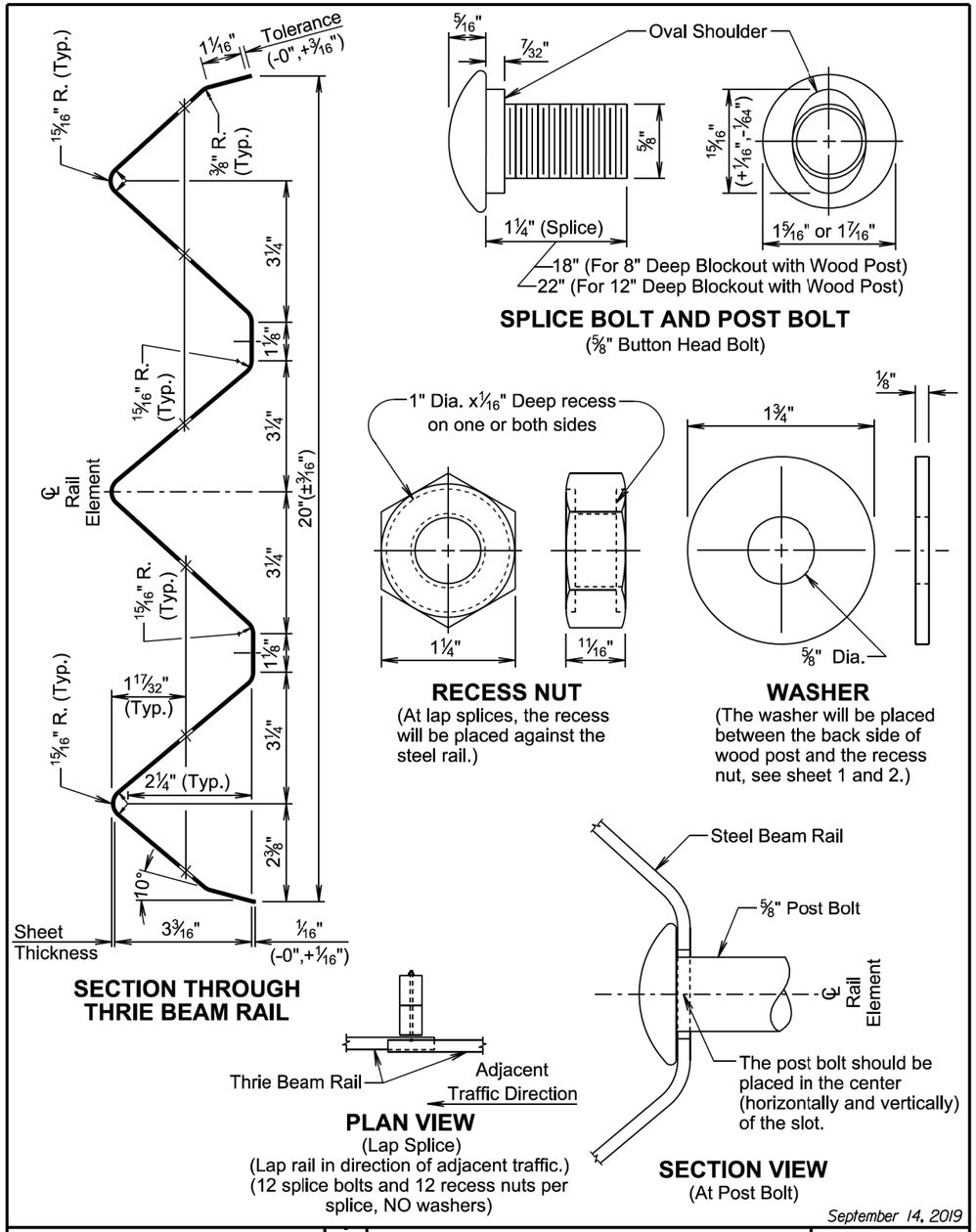
12'-6" OR 25'-0" THRIE BEAM RAIL
(3'-1½" Post Spacing)



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

September 14, 2019

Published Date: 2025	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 4 of 5



September 14, 2019

Published Date: 2025	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.

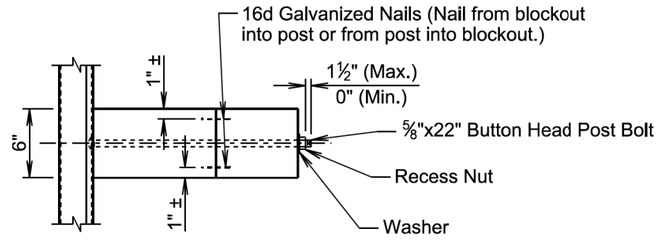
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

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.

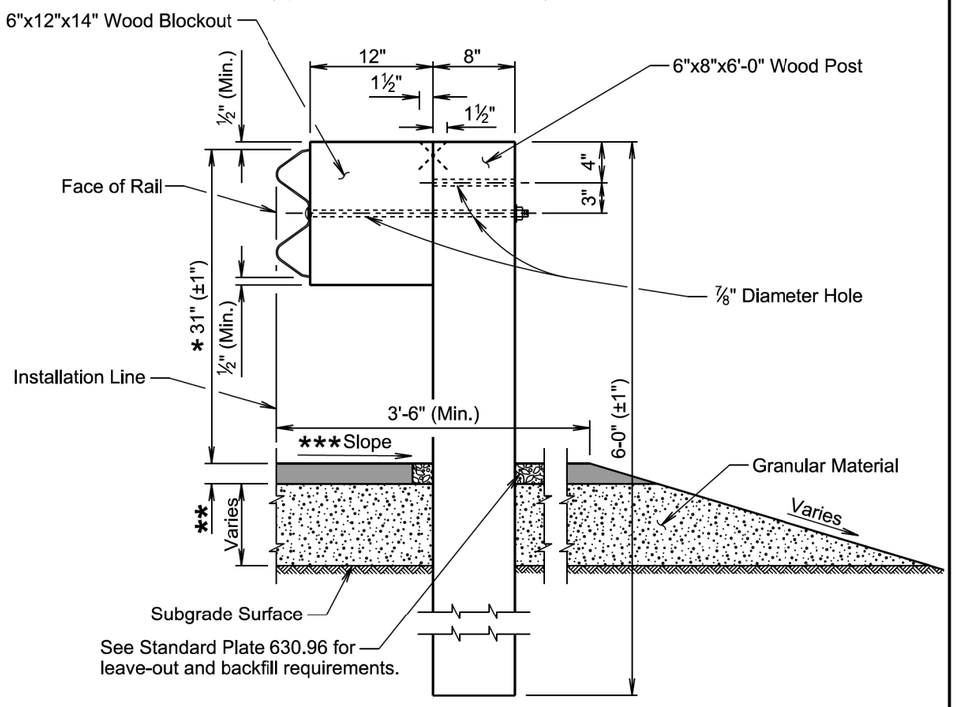
All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

September 14, 2019

Published Date: 2025	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 1 of 6



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



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

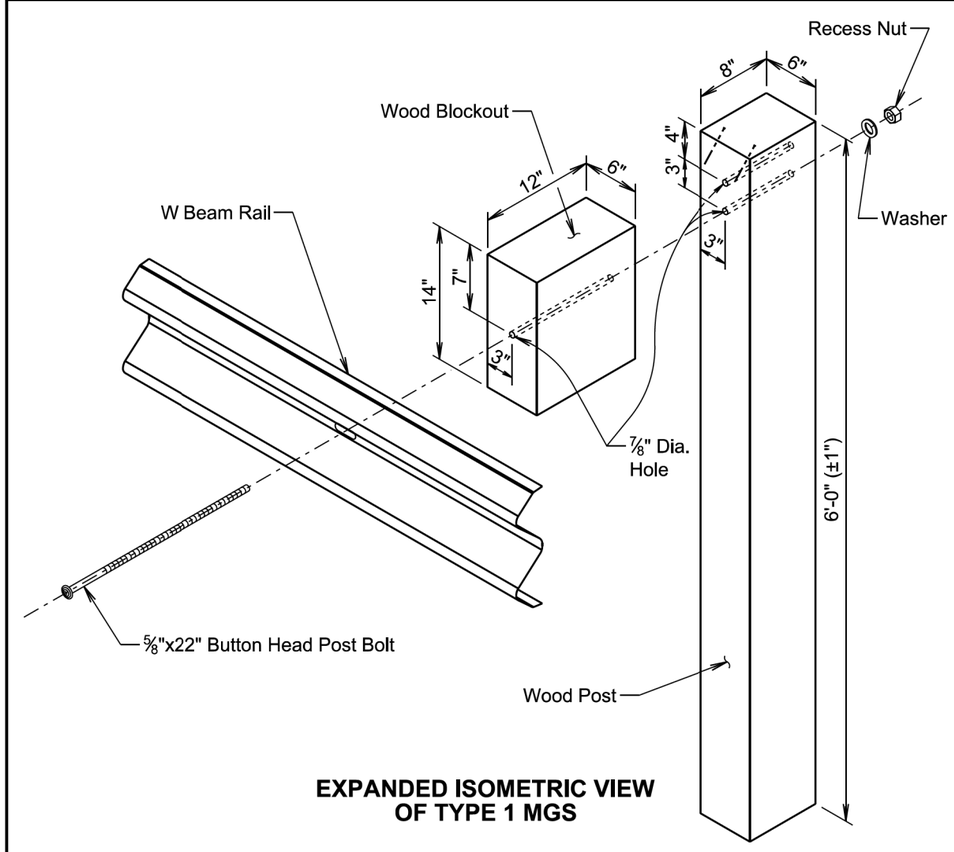
* See Standard Plate 630.99

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

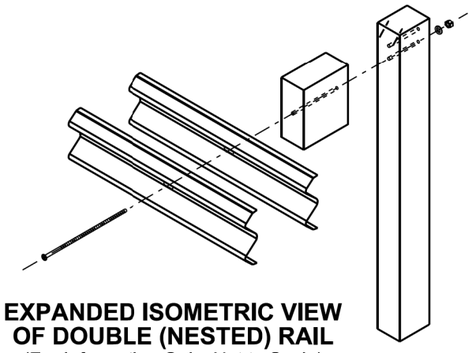
*** The cross slope will be as specified in the plans; however, the cross slope will not be steeper than a 10:1 slope.

September 14, 2019

Published Date: 2025	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 2 of 6



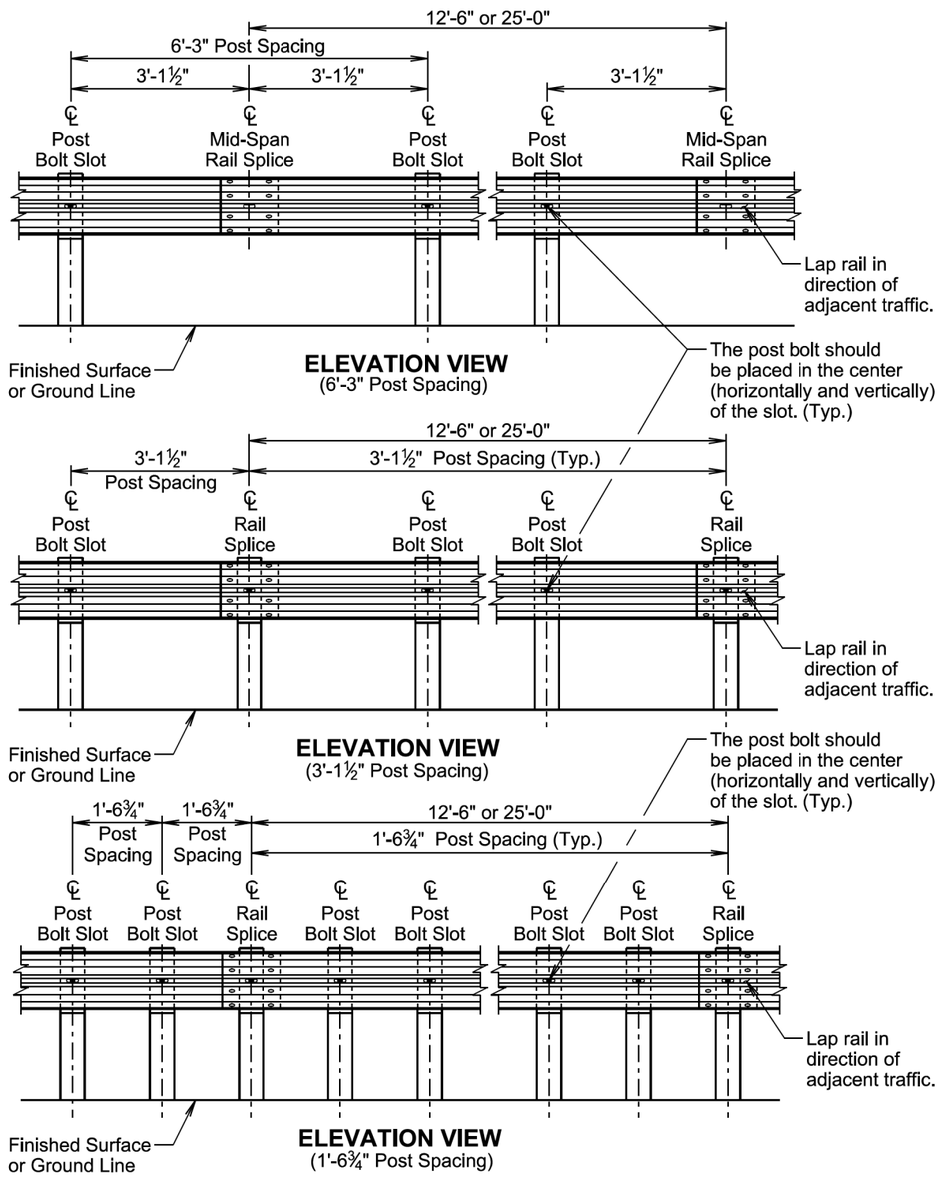
EXPANDED ISOMETRIC VIEW OF TYPE 1 MGS



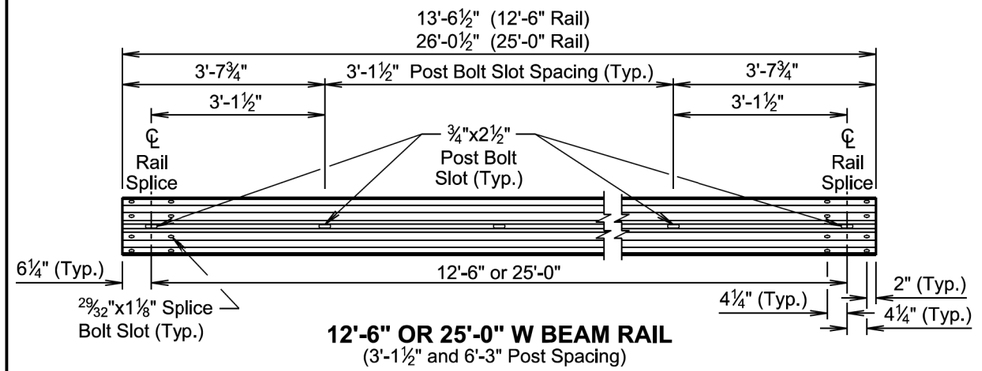
EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) RAIL
(For Information Only, Not to Scale)

September 14, 2019

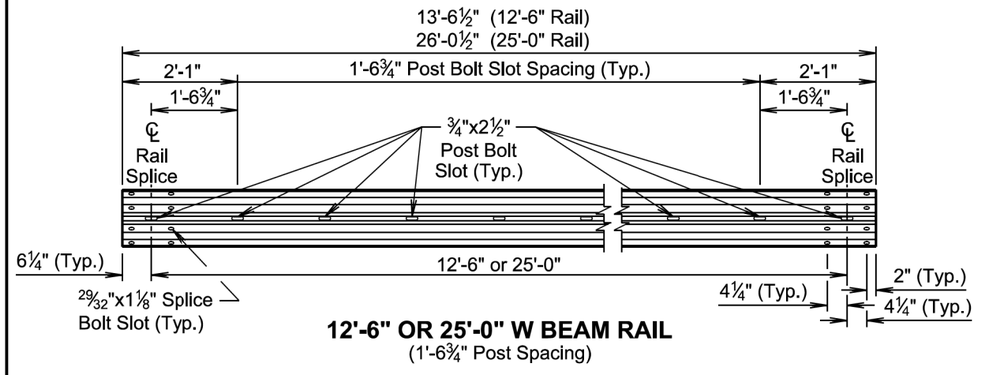
Published Date: 2025	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 3 of 6



September 14, 2019



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

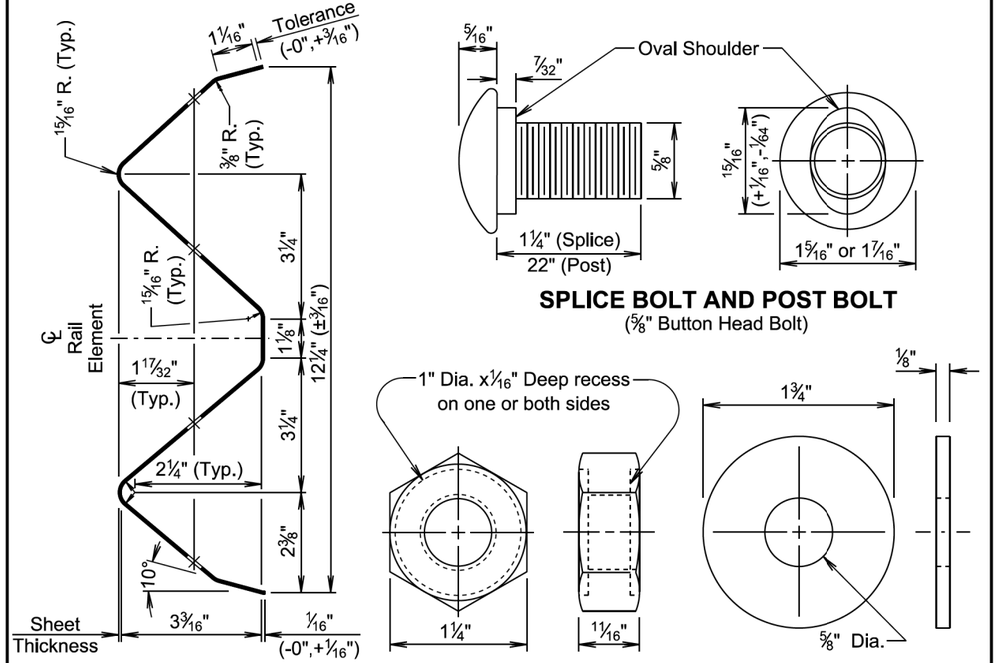


12'-6" OR 25'-0" W BEAM RAIL
(1'-6¾" Post Spacing)

September 14, 2019

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	60	76

Plotting Date: 08/20/2024



SECTION THROUGH W BEAM RAIL

SPLICE BOLT AND POST BOLT
(5/8" Button Head Bolt)

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

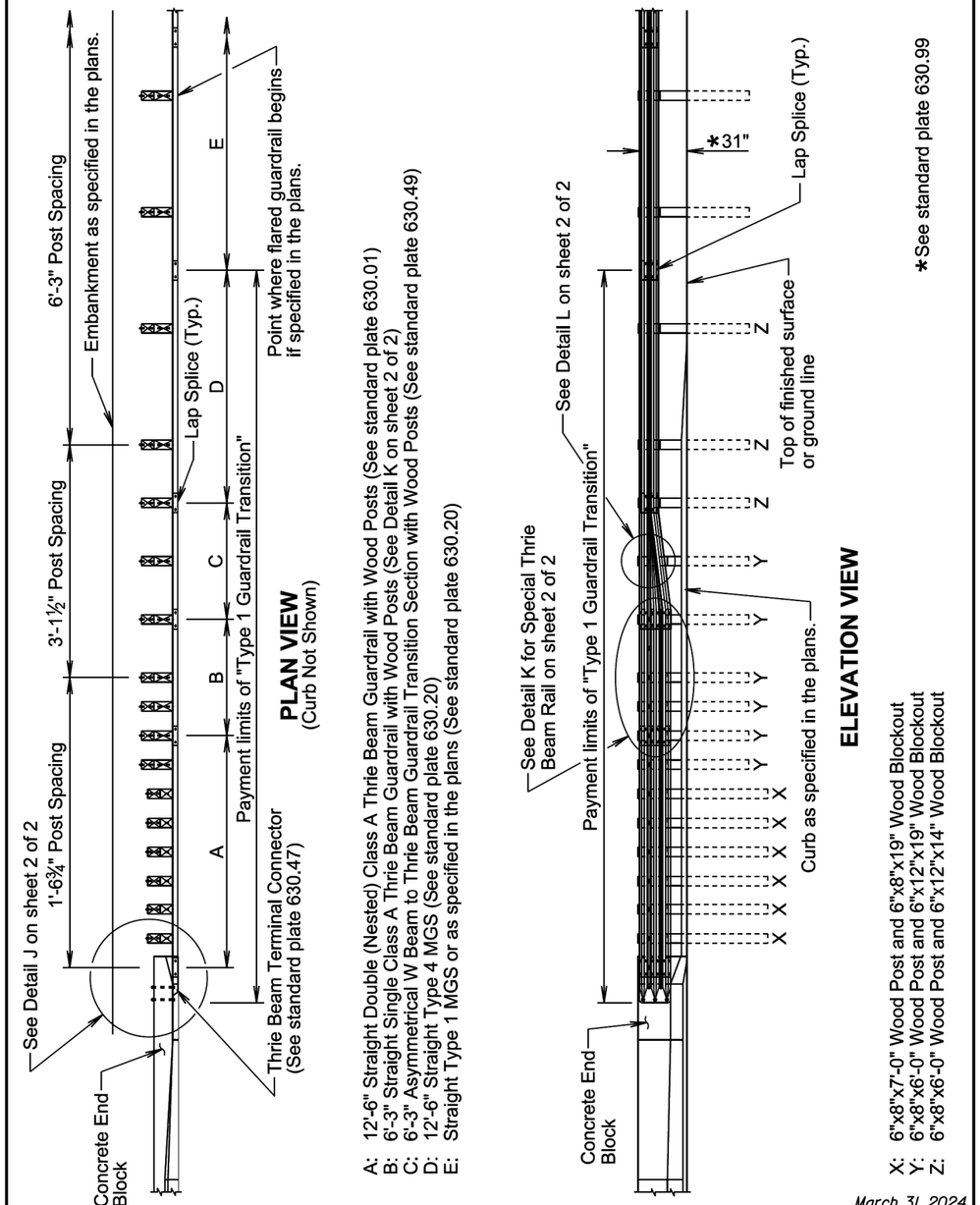
WASHER
(The washer will be placed between the back side of wood post and the recess nut, see sheet 2 and 3.)

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)

September 14, 2019

Published Date: 2025	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 6 of 6



PLAN VIEW
(Curb Not Shown)

A: 12'-6" Straight Double (Nested) Class A Thrie Beam Guardrail with Wood Posts (See standard plate 630.01)
B: 6'-3" Straight Single Class A Thrie Beam Guardrail with Wood Posts (See Detail K on sheet 2 of 2)
C: 6'-3" Asymmetrical W Beam to Thrie Beam Guardrail Transition Section with Wood Posts (See standard plate 630.49)
D: 12'-6" Straight Type 4 MGS (See standard plate 630.20)
E: Straight Type 1 MGS or as specified in the plans (See standard plate 630.20)

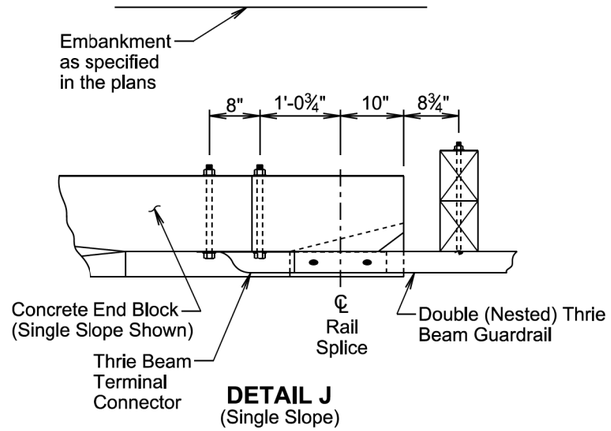
ELEVATION VIEW

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

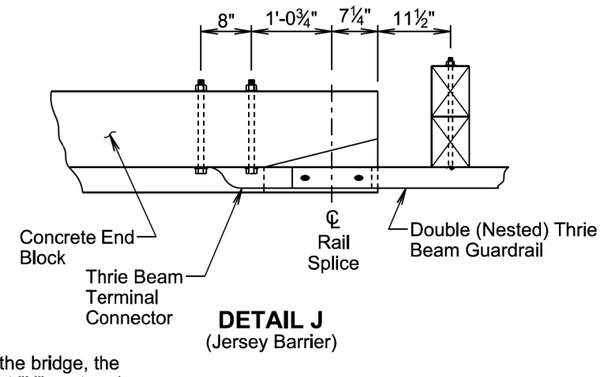
March 31, 2024

Published Date: 2025	SDDOT	TYPE 1 GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.50
			Sheet 1 of 3

PLOT NAME - 60
FILE - ...\S630020_6_S630501.DGN
-PLOTTED FROM - TRMOINT04

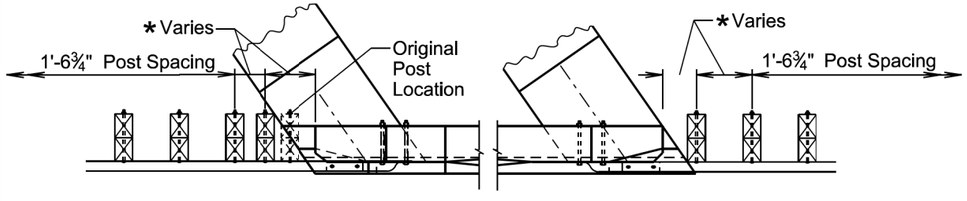


DETAIL J
(Single Slope)



DETAIL J
(Jersey Barrier)

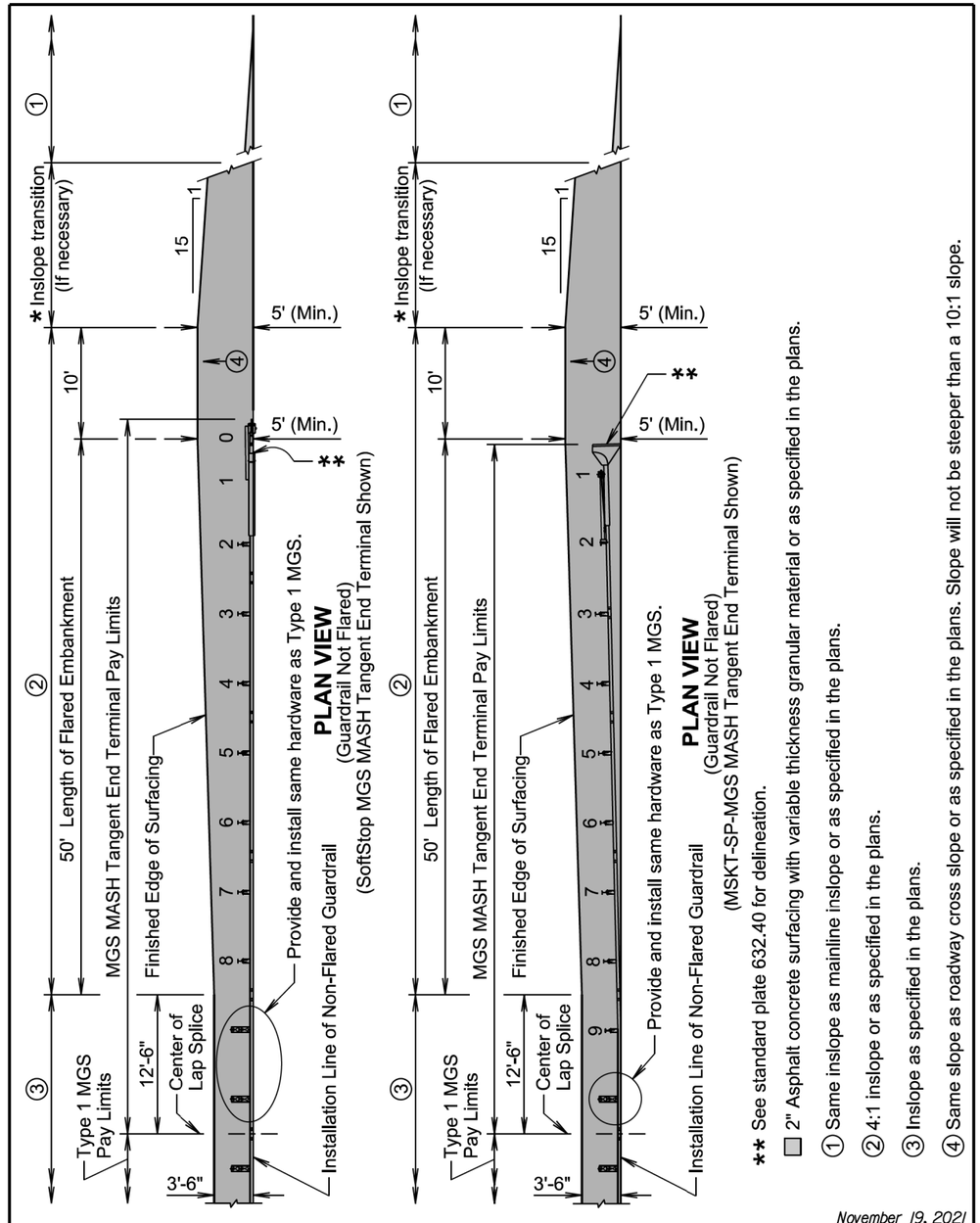
*Due to the skew of the bridge, the placement of the first "X" post and blockout will need to be moved from the original location. It will need to be installed as close as possible to the wingwall provided that the second "X" post and blockout is located in it's original location.



DETAIL J
(Skewed Bridge)

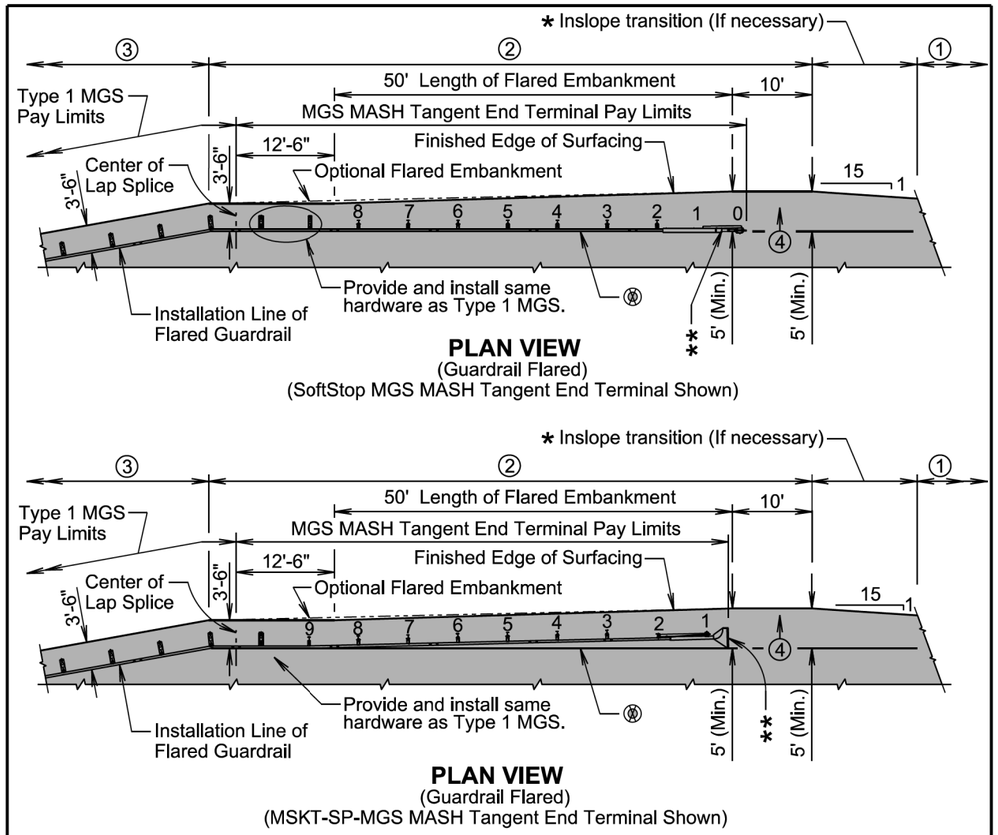
March 31, 2024

Published Date: 2025	SDDOT	TYPE 1 GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.50
			Sheet 2 of 3



November 19, 2021

Published Date: 2025	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89
			Sheet 1 of 2



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

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

GENERAL NOTES:

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

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

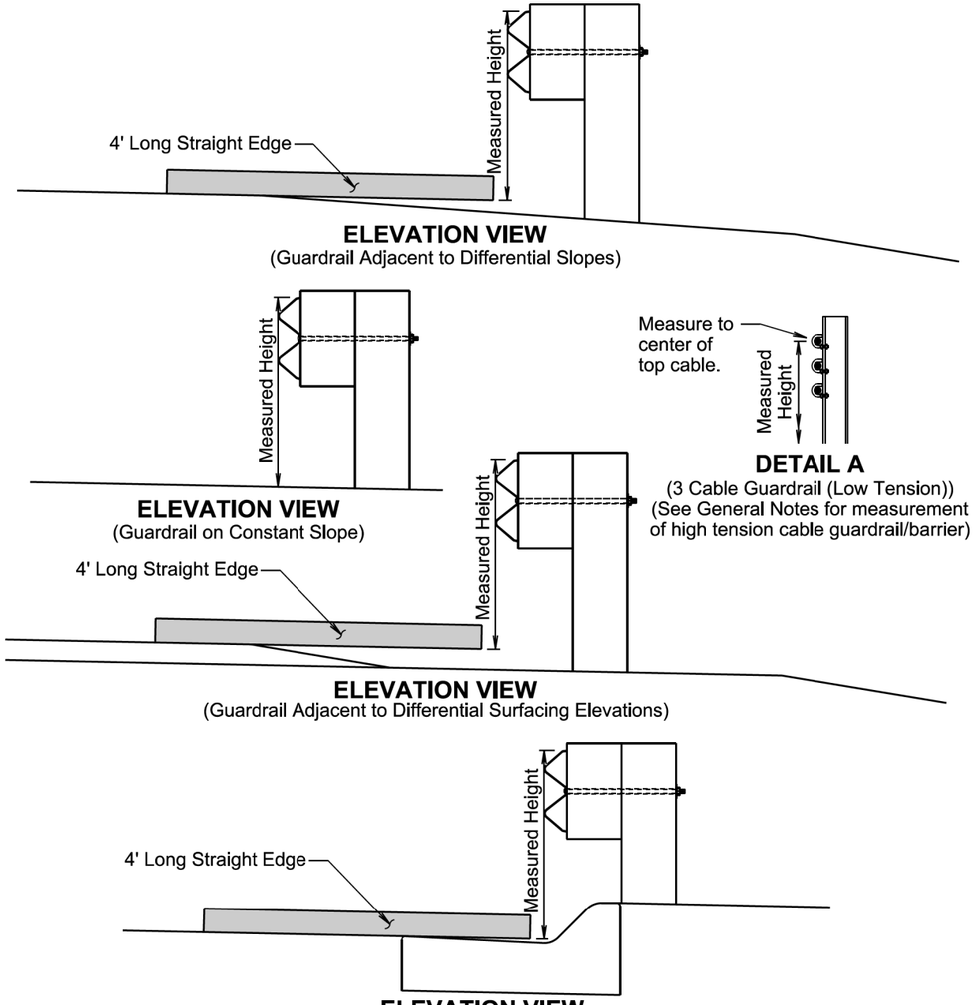
Ⓚ The installation reference line for MGS MASH tangent end terminals will always be parallel to the roadway.

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

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

November 19, 2021

Published Date: 2025	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89 Sheet 2 of 2



GENERAL NOTES:

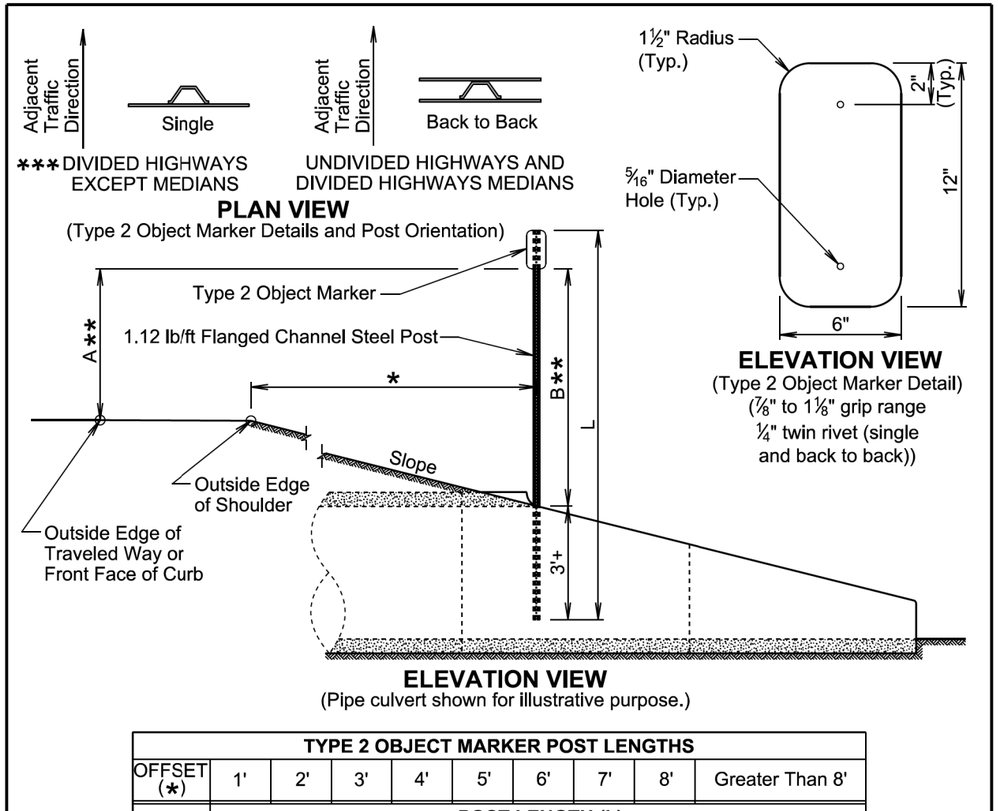
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

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: 2025	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.

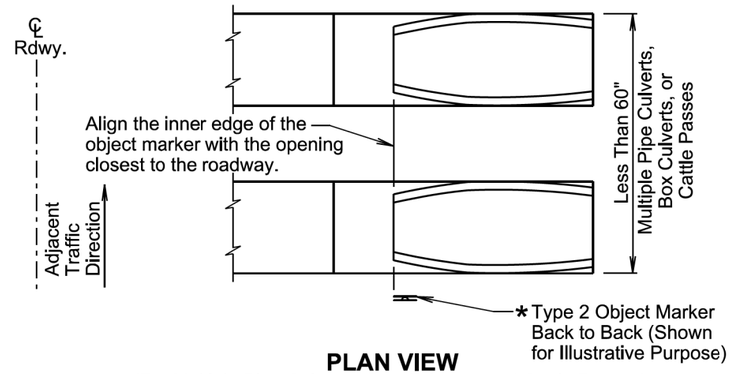
** Dimension A is 4 feet when the Offset * is 8 feet and less. Dimension B is 4 feet when Offset * is greater than 8 feet.

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.

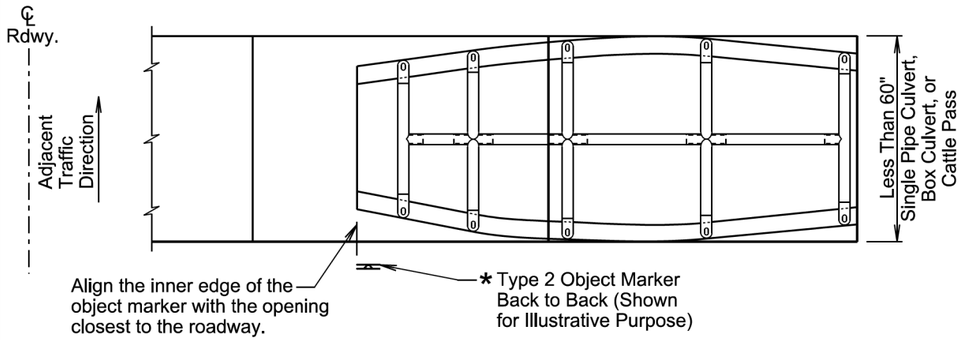
Payment for the type 2 object marker will be in conformance with Specification Section 632.5 B.

December 23, 2019

Published Date: 2025	SDDOT	TYPE 2 OBJECT MARKER (DIRECT DRIVE)	PLATE NUMBER 632.01 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)
(Pipe culvert shown for illustrative purpose.)
(Embankment is not shown.)

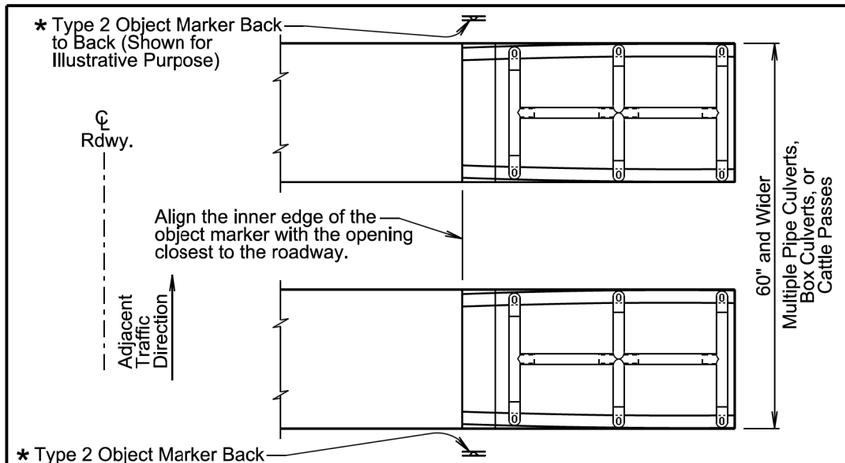
GENERAL NOTES:

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

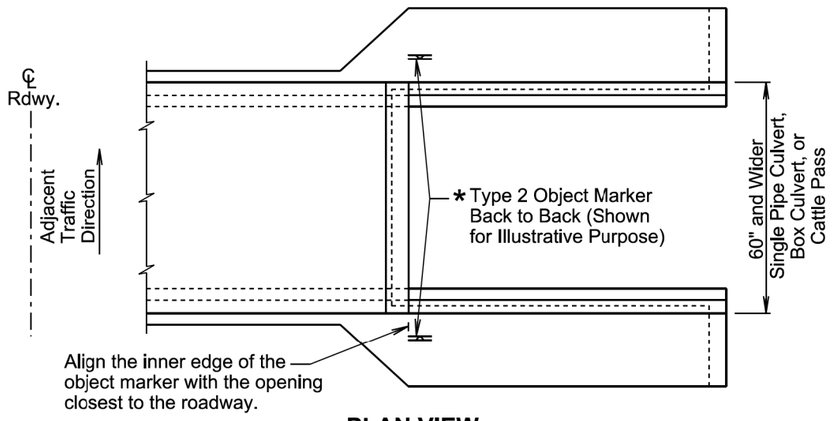
* The type 2 object markers will be installed at the locations shown above. The type 2 object markers, single faced or back to back, will be as specified in the plans.

December 23, 2019

Published Date: 2025	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.)

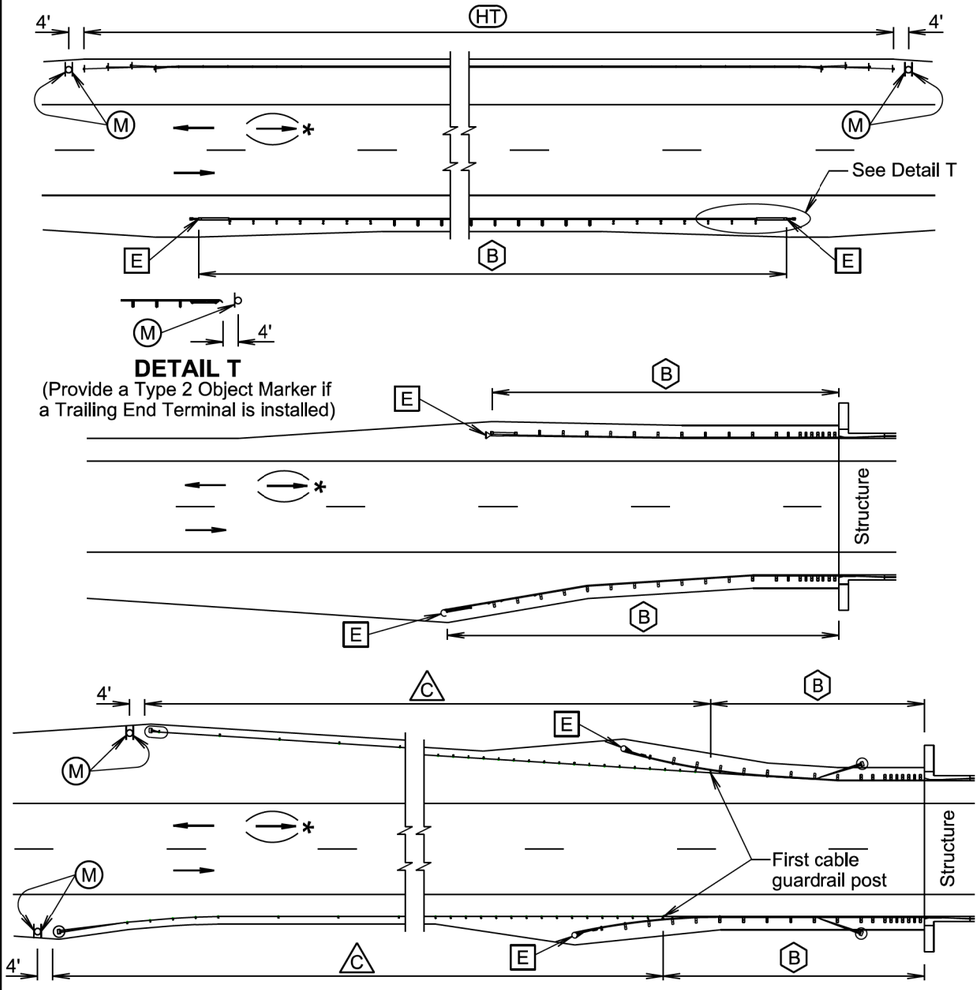
GENERAL NOTES:

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: 2025	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



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

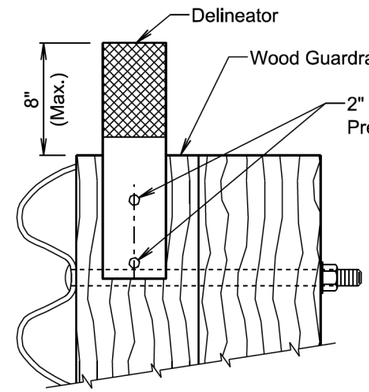
PLAN VIEW
(Typical Guardrail Layouts)

- (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

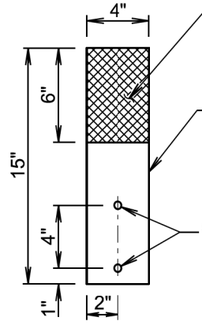
*For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

March 31, 2024

Published Date: 2025	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 1 of 4



(B) STEEL BEAM GUARDRAIL DELINEATION

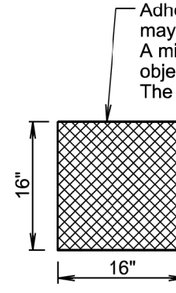


White or fluorescent yellow sheeting. Sheeting color will match edgeline color. A minimum of 16 square inches of sheeting area is required.

Guardrail delineators may be fabricated from 0.080" aluminum or flexible plastic. Dimensions of flexible delineators may vary by manufacturer.

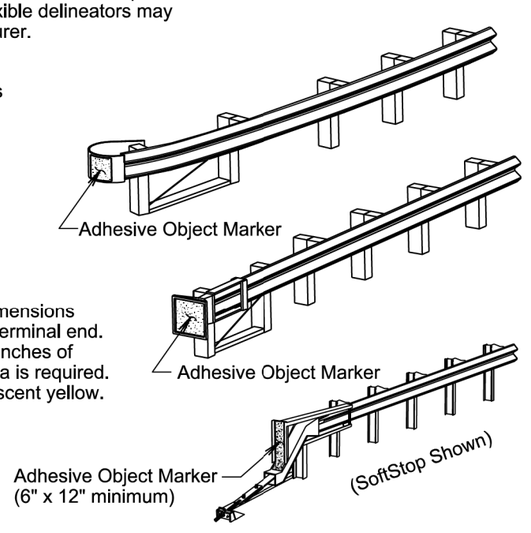
5/16" Diameter Holes

DELINEATOR
(For Steel Beam Guardrail)



Adhesive object marker dimensions may vary due to shape of terminal end. A minimum of 256 square inches of object marker sheeting area is required. The sheeting will be fluorescent yellow.

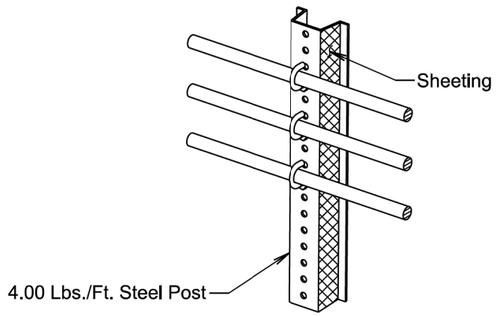
ADHESIVE OBJECT MARKER



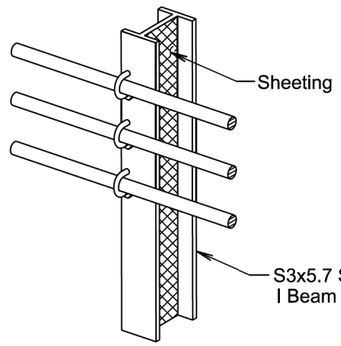
[E] GUARDRAIL END TERMINAL OBJECT MARKER

March 31, 2024

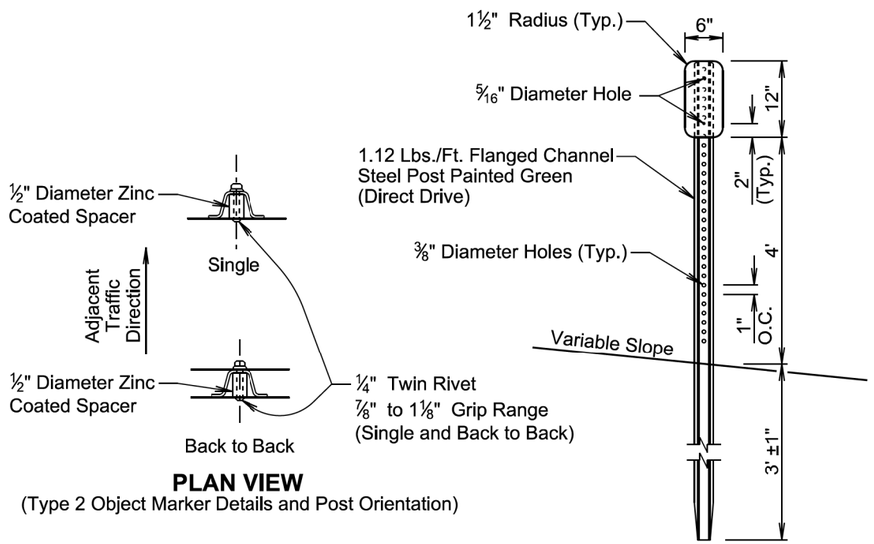
Published Date: 2025	SDDOT	DELINEATION GUARDRAIL	PLATE NUMBER 632.40
			Sheet 2 of 4



Ⓒ **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)

March 31, 2024

Published Date: 2025	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.

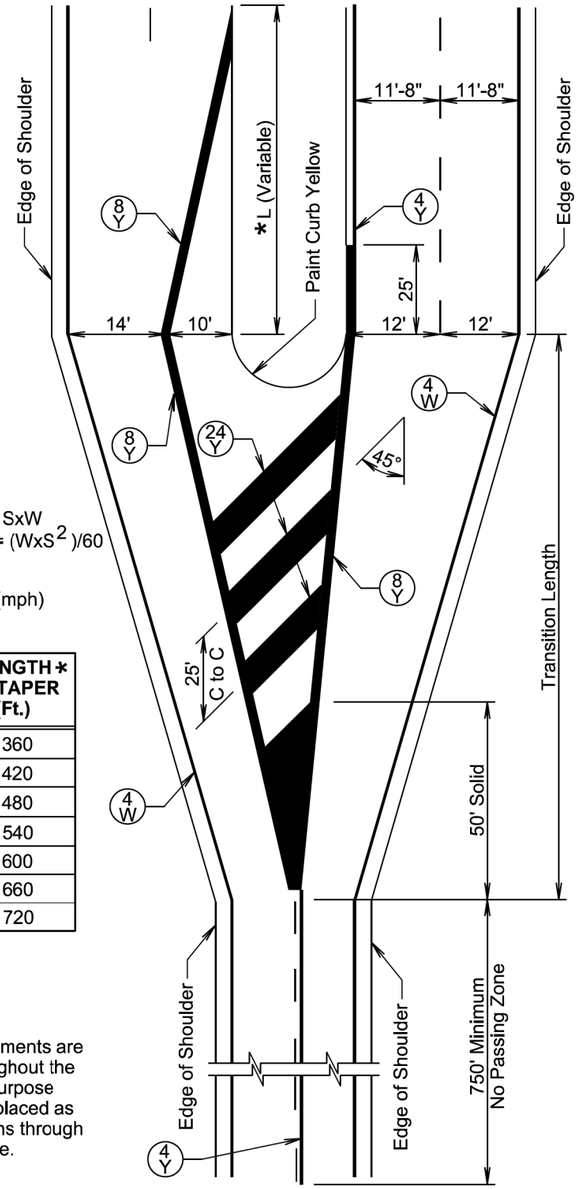
An adhesive object marker will be placed on the end of the W beam guardrail or MGS end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required on end terminals with sufficient surface 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 adjacent to the 3 cable guardrail (low tension) anchor, high tension cable guardrail anchor, and trailing end terminal at the location 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.

March 31, 2024

Published Date: 2025	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 4 of 4

KEY	ITEM
4W	4" White
4Y	4" Yellow
8Y	8" Yellow
24Y	24" Yellow



For 45 MPH and faster $L = SxW$
For 40 MPH and slower $L = (WxS^2)/60$

L = Length of Taper (Ft.)
S = 85th Percentile Speed (mph)
W = Width of Offset (Ft.)

85th PERCENTILE SPEED (mph)	LENGTH * OF TAPER (Ft.)
30	360
35	420
40	480
45	540
50	600
55	660
60	720

GENERAL NOTE:

Straight line angular alignments are shown on this plate throughout the transition for illustration purpose only. The striping will be placed as rounded/smooth transitions through areas of alignment change.

PLAN VIEW

June 26, 2019

Published Date: 2025	SDDOT	APPROACH PAVEMENT MARKINGS FOR TWO-LANE TO FOUR-LANE DIVIDED HIGHWAYS	PLATE NUMBER 633.03 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.

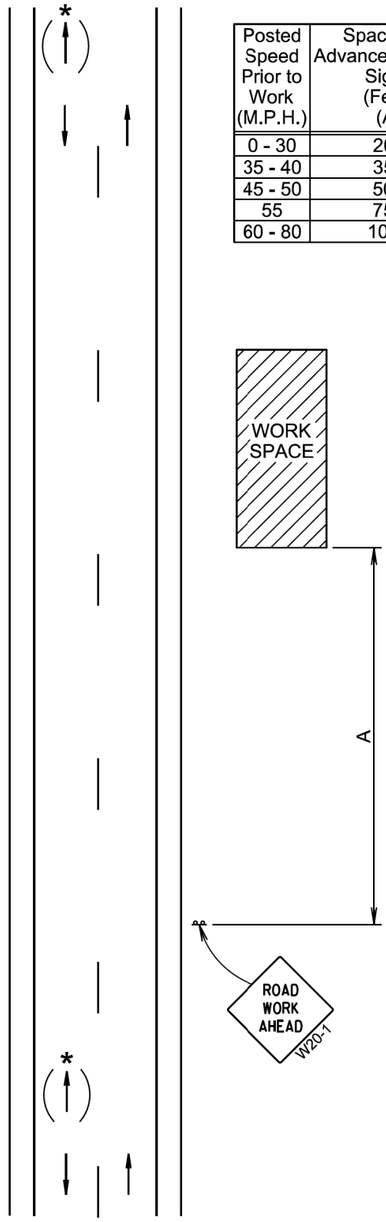
The signs illustrated will be used where there are distracting situations; such as: vehicles parked on shoulder, vehicles accessing the work site via the highway, and equipment traveling on or crossing the roadway to perform work operations.

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.

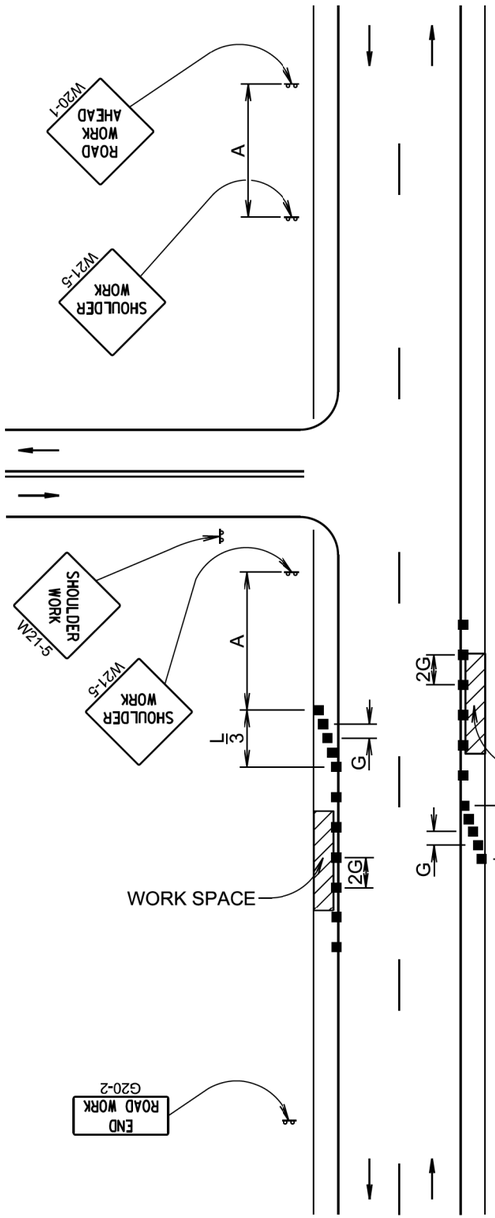
For short term, short duration, or mobile operations, all signs and channelizing devices may be eliminated if a vehicle with an activated flashing or revolving yellow light is used.

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



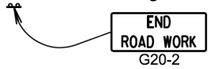
January 22, 2021

Published Date: 2025	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: 2025

SDDOT

WORK ON SHOULDERS

PLATE NUMBER 634.03

Sheet 1 of 1

*In situations where multiple work locations in a limited distance make it practical to place stationary signs, the distance between the advance warning sign and the work should not exceed 5 miles.

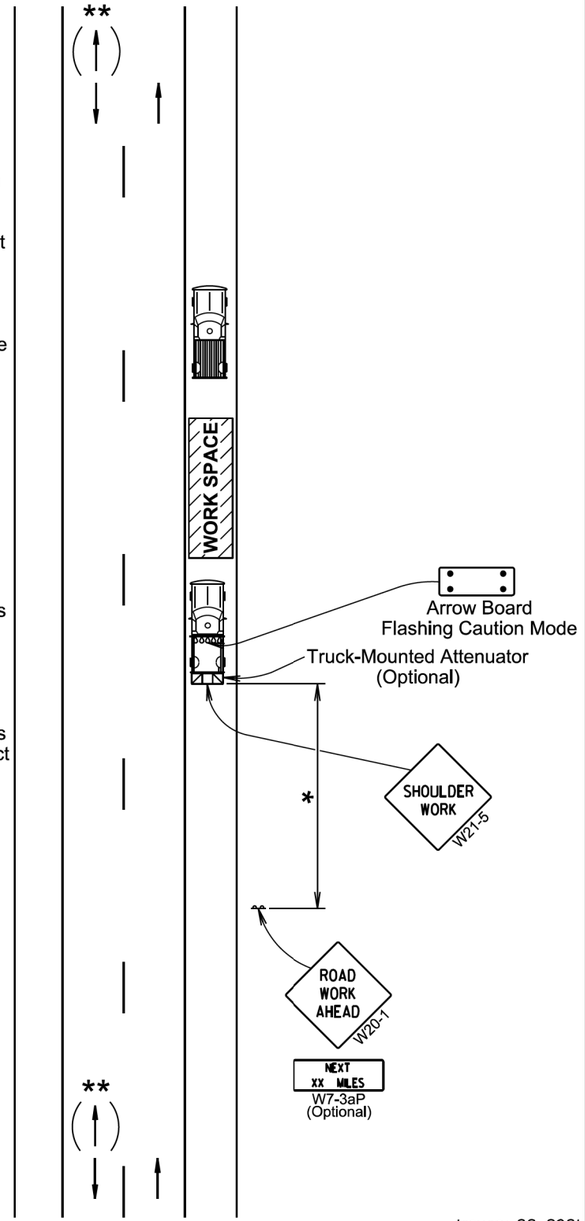
The ROAD WORK NEXT xx MILES sign may be used instead of the ROAD WORK AHEAD sign if the work locations occur over a distance of more than 2 miles.

Arrow board is required for intermittently and continuously moving mobile operations when work exceeds 1 hour.

**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.

In situations where the distance between the advance warning signs and the work is 2 miles to 5 miles, a Supplemental Distance plaque should be used with the ROAD WORK AHEAD sign.

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



January 22, 2021

Published Date: 2025

SDDOT

MOBILE OPERATIONS ON SHOULDERS

PLATE NUMBER 634.04

Sheet 1 of 1

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

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

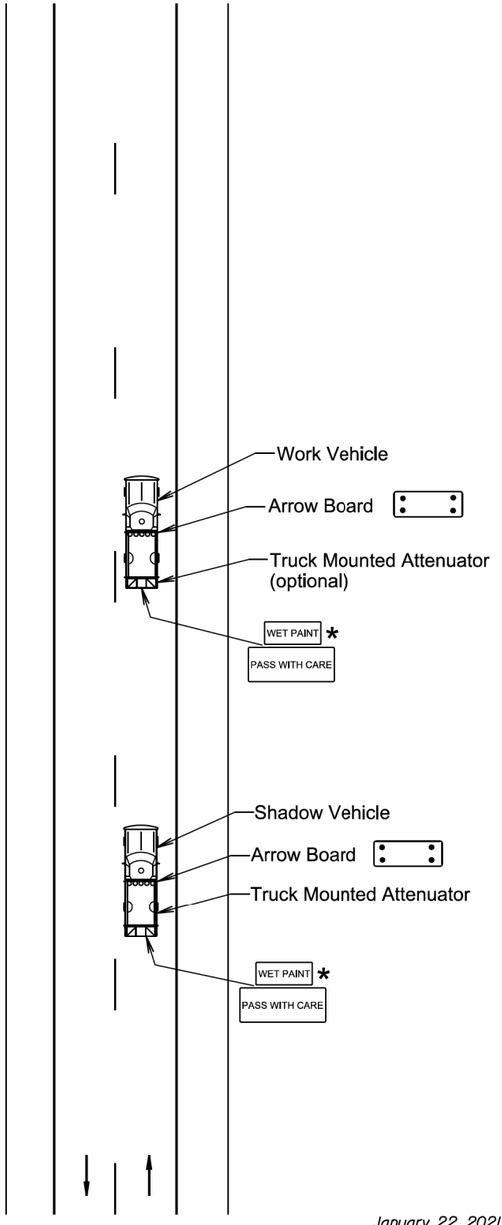
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

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

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

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

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



January 22, 2021

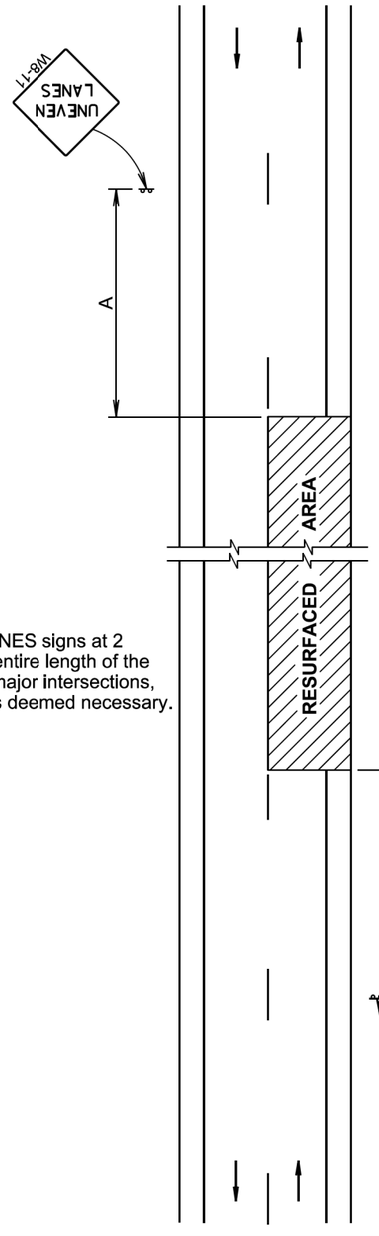
Published Date: 2025

SDDOT

MOBILE OPERATIONS ON 2-LANE ROAD

PLATE NUMBER 634.06

Sheet 1 of 1



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

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

January 22, 2021

Published Date: 2025

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.

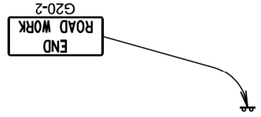
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

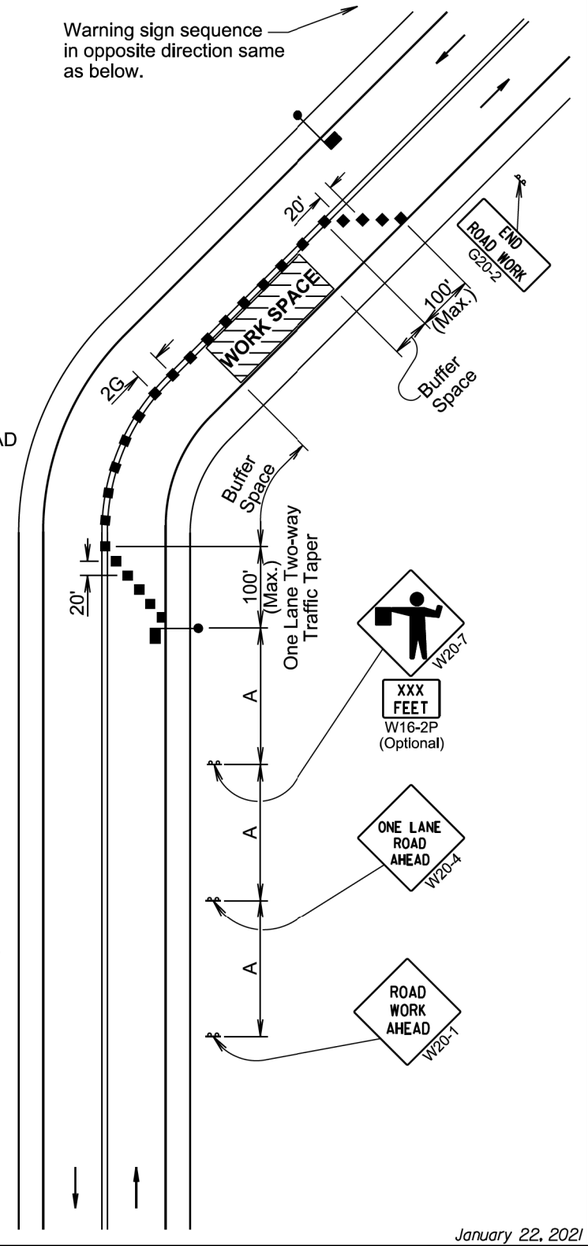
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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

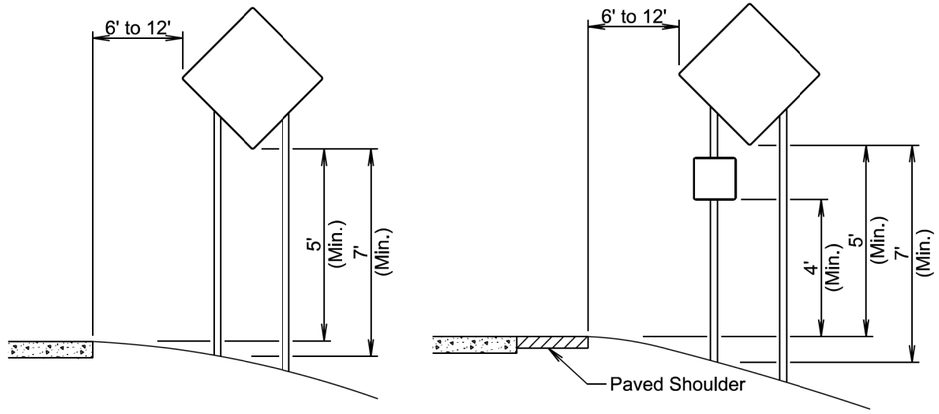
Published Date: 2025

SDDOT

LANE CLOSURE WITH FLAGGER PROVIDED

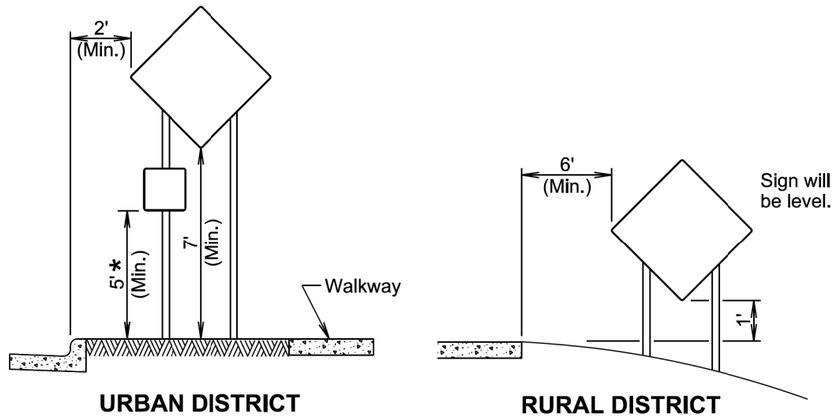
PLATE NUMBER 634.23

Sheet 1 of 1



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



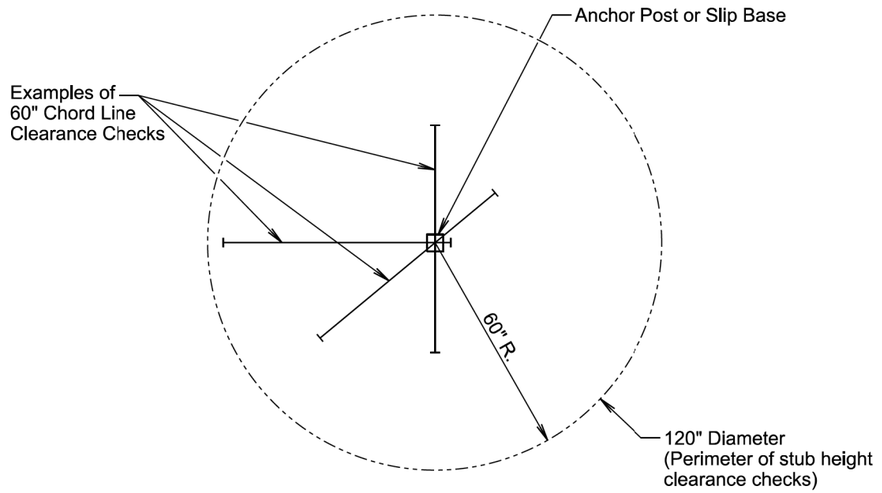
URBAN DISTRICT

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

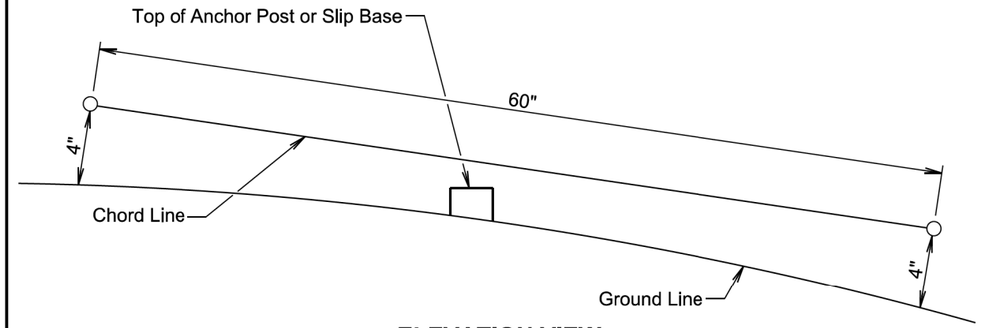
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2025	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

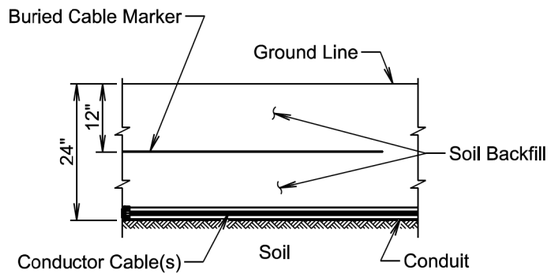
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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

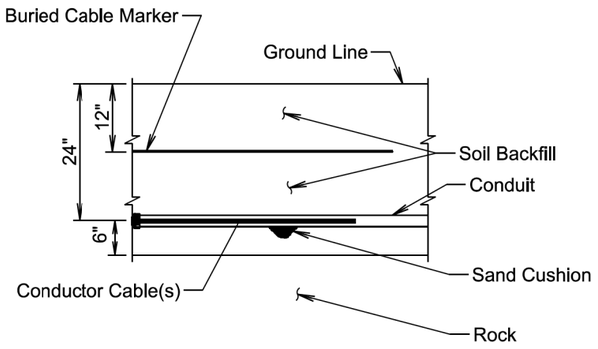
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

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



SECTION VIEW



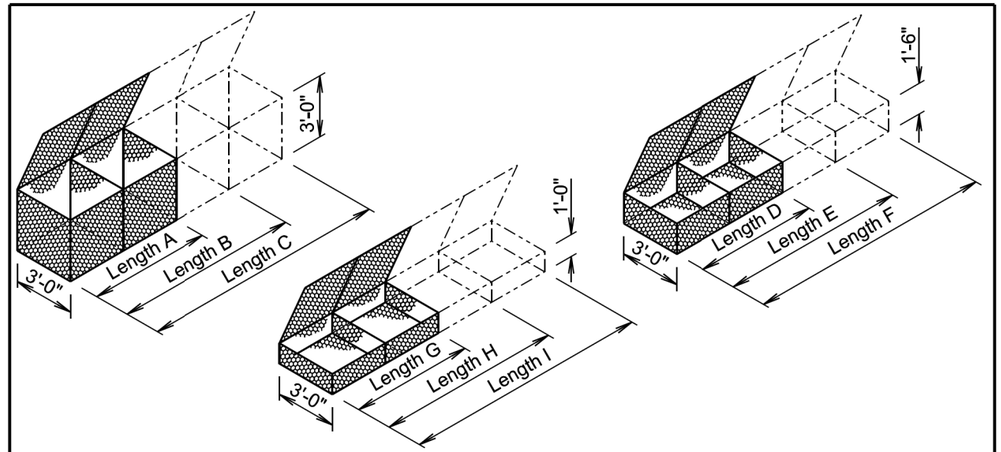
SECTION VIEW

GENERAL NOTE:

The Buried Cable Marker will be plastic, approximately 6" wide, and will be capable of sustaining a minimum of a 350% tolerance of elongation without tearing. The Buried Cable Marker will have a life expectancy approximately equal to that of the conductor(s) beneath it. A phrase indicating the presence of a buried electric circuit below will be printed in a contrasting color on the cable marker. The Buried Cable Marker will be subject to approval by the Engineer. All costs associated with furnishing and installing the Buried Cable Marker will be incidental to the contract unit price per foot for the bid item used for the electrical conductor.

November 19, 2022

Published Date: 2025	SDDOT	CONDUIT INSTALLATION	PLATE NUMBER 635.76
			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

Above dimensions subject to mill tolerances.

GENERAL NOTES:

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.

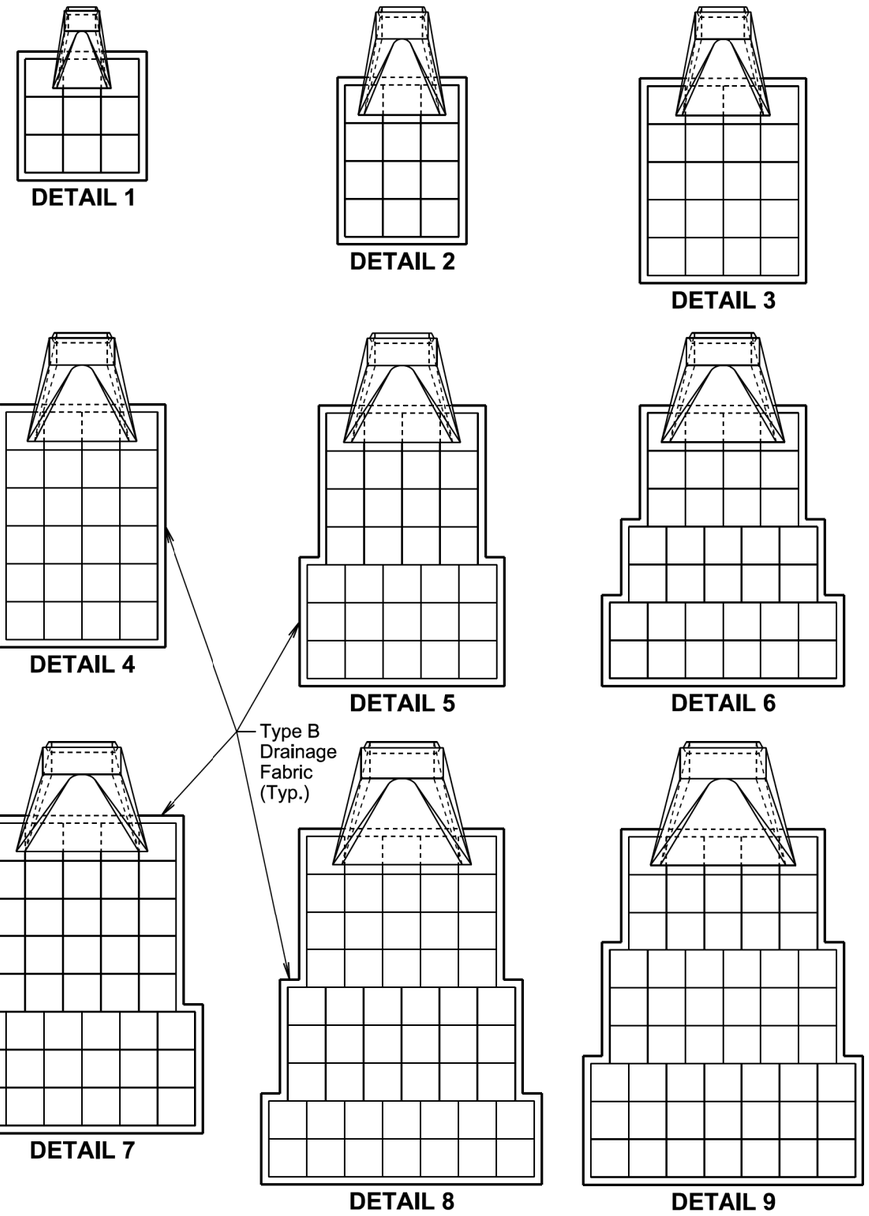
Wire lacing or interlocking type fasteners will be used for gabion assembly and final construction of gabion structures. Interlocking fasteners for galvanized gabions will be high tensile 0.120 inch diameter galvanized steel wire measured after galvanizing. The galvanizing will conform to ASTM A641-92, 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: 2025	SDDOT	BANK AND CHANNEL PROTECTION GABIONS	PLATE NUMBER 720.01
			Sheet 1 of 1



February 14, 2020

Published Date: 2025

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

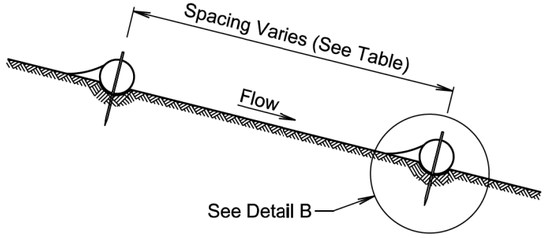
Published Date: 2025

SDDOT

BANK AND CHANNEL PROTECTION GABION PLACEMENT UNDER PIPE END SECTIONS

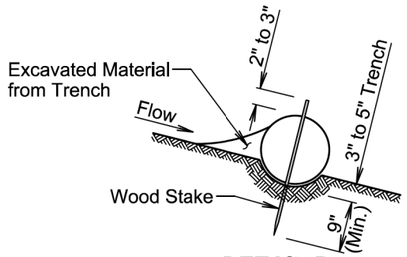
PLATE NUMBER 720.03

Sheet 2 of 2

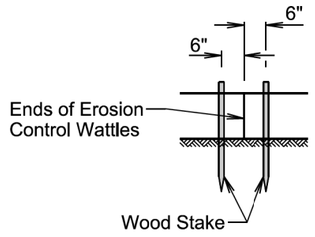


ELEVATION VIEW
(Cut or Fill Slope Installation)

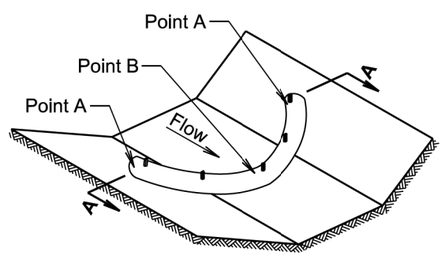
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



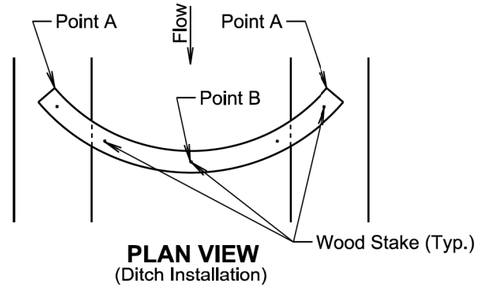
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

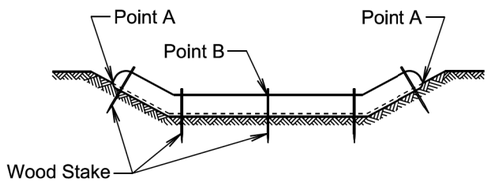


ISOMETRIC VIEW
(Ditch Installation)



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: 2025	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.

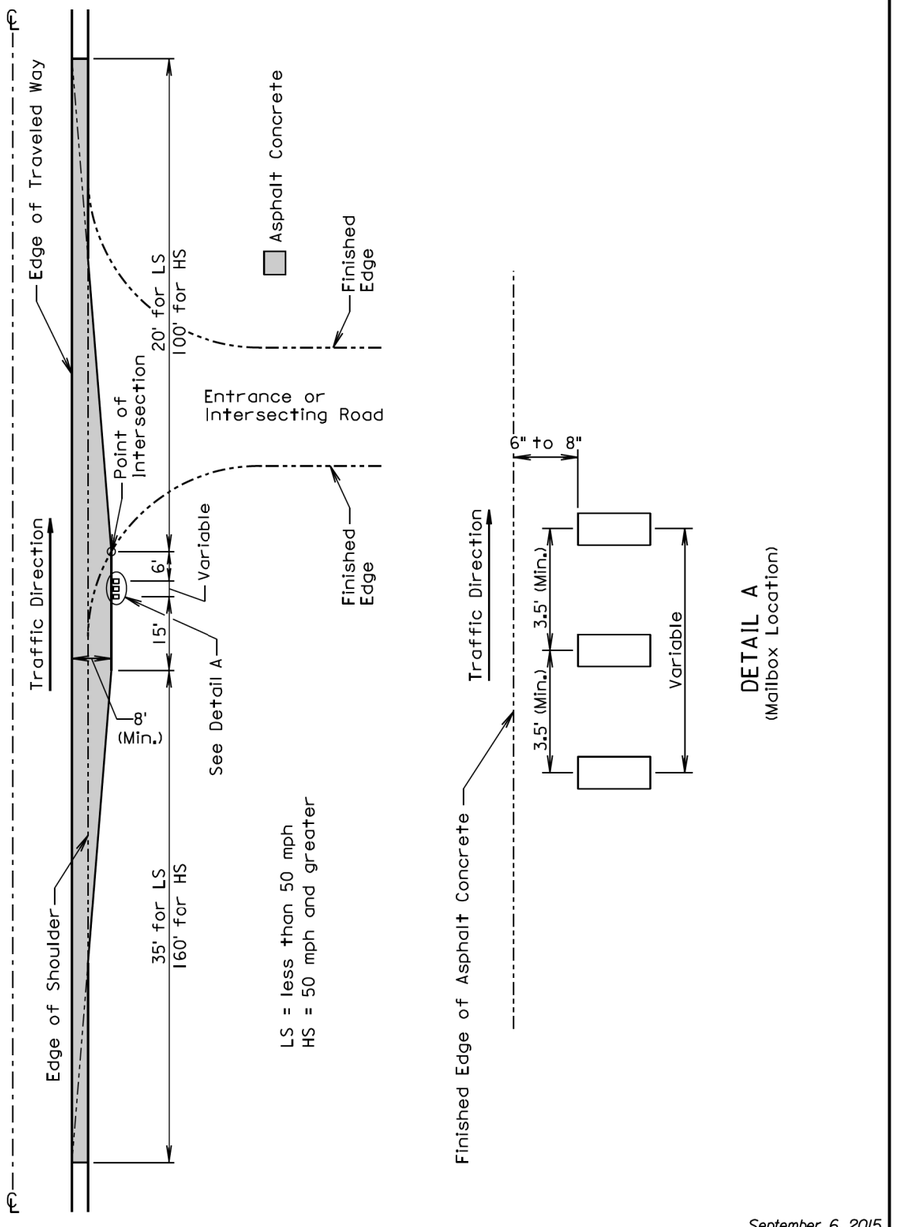
All costs for removing the erosion control wattle from the project including labor, equipment, and materials will be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

February 14, 2020

Published Date: 2025	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

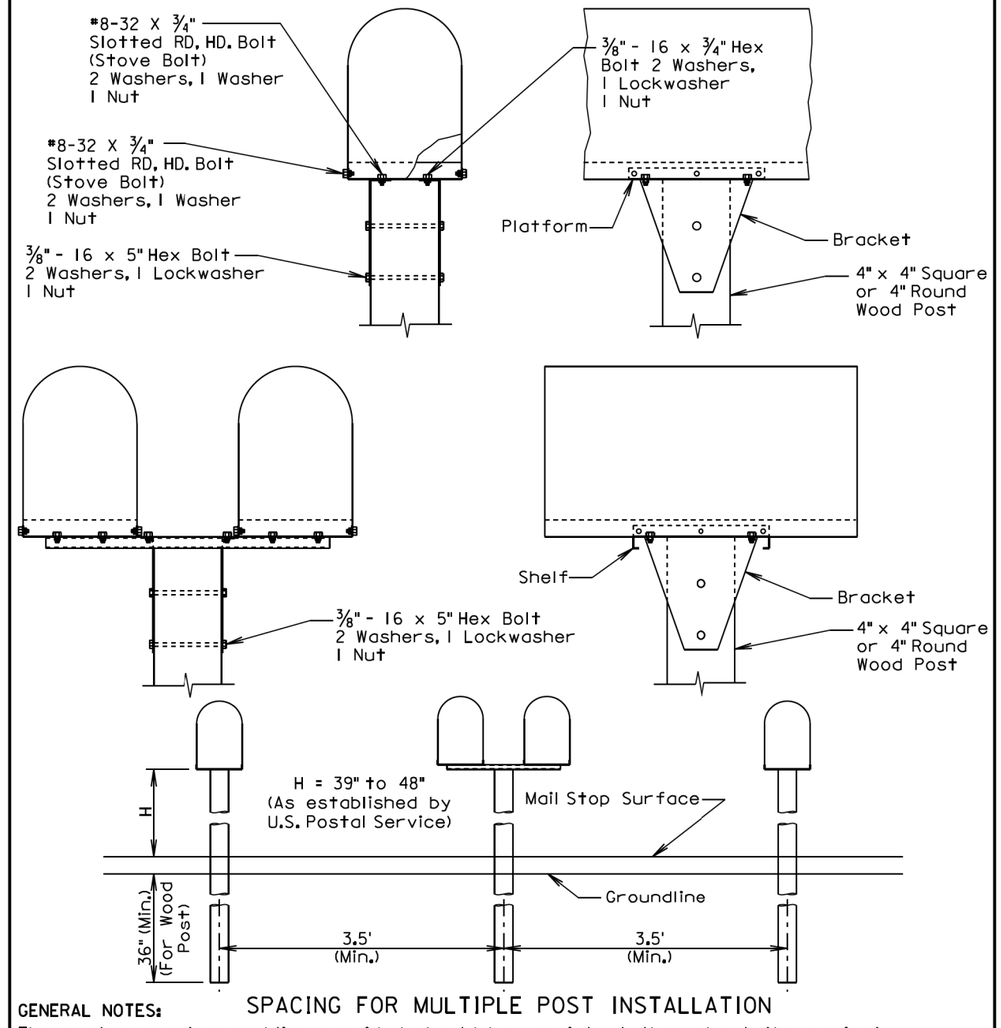
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	EM 0012(206)112, P 0065(20)232, NH 0012(231)132	75	76

Plotting Date: 08/20/2024



September 6, 2015

Published Date: 2025	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.

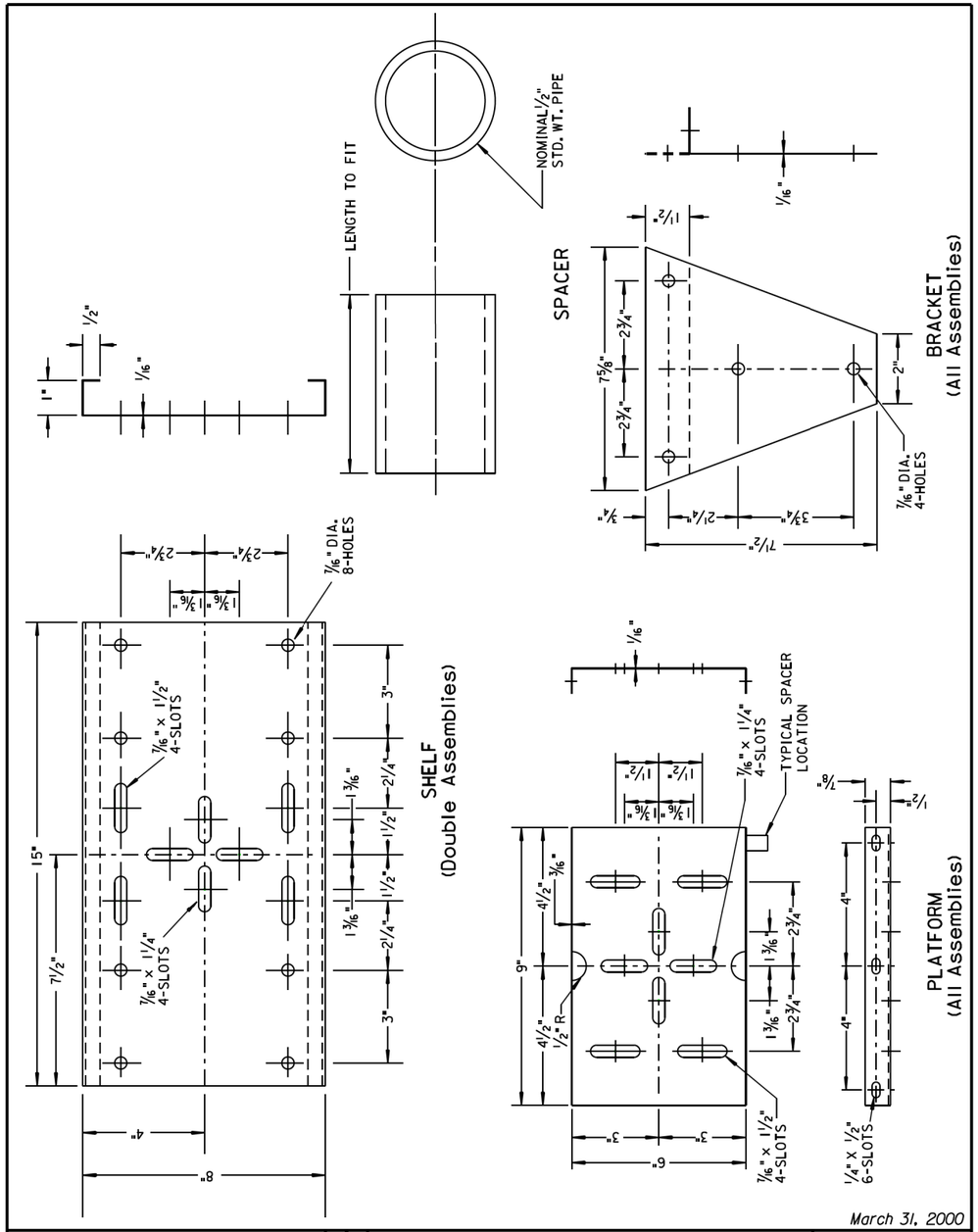
September 6, 2013

Published Date: 2025	SDDOT	SINGLE AND DOUBLE MAILBOX ASSEMBLIES	PLATE NUMBER 900.02
			Sheet 1 of 1

PLOT NAME - 75

FILE - ...\S900001_S900002.DGN

PLOTTED FROM - TRM01NT04



March 31, 2000

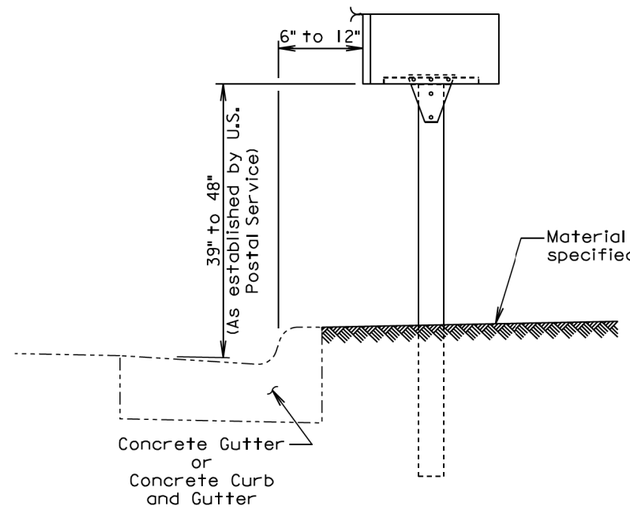
Published Date: 2025

SDDOT

MAILBOX SUPPORT HARDWARE

PLATE NUMBER 900.03

Sheet 1 of 1



ELEVATION VIEW

GENERAL NOTES:

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

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.

February 10, 2014

Published Date: 2025

SDDOT

MAILBOX ADJACENT TO CONCRETE GUTTER OR CONCRETE CURB AND GUTTER

PLATE NUMBER 900.05

Sheet 1 of 1