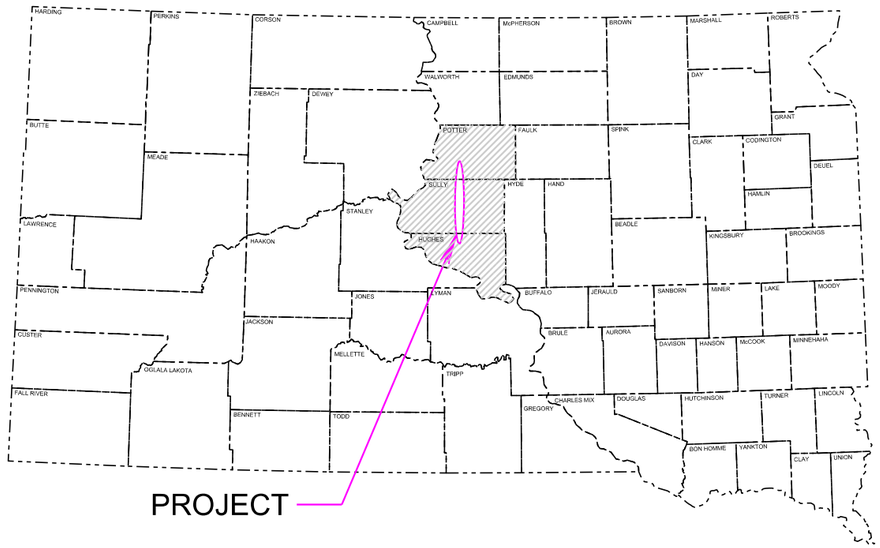


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT NH 0083(92)138 & NH 0212(212)219

US HIGHWAYS 83 & 212

HUGHES, SULLY & POTTER COUNTIES

ASPHALT CONCRETE SURFACING OF SHOULDERS AND GUARDRAIL REPLACEMENT

PCN 08YD & 09AX

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(92)138 NH 0212(212)219	1	46

Plotting Date: 07/16/2024

INDEX OF SHEETS

STATION EQUATION
STA 1863+39 (BACK, US 83)
= STA 3038+34 (AHEAD, US 212)

BEGIN NH 0083(92)138
STA 4+00
MRM 138.73+0.076

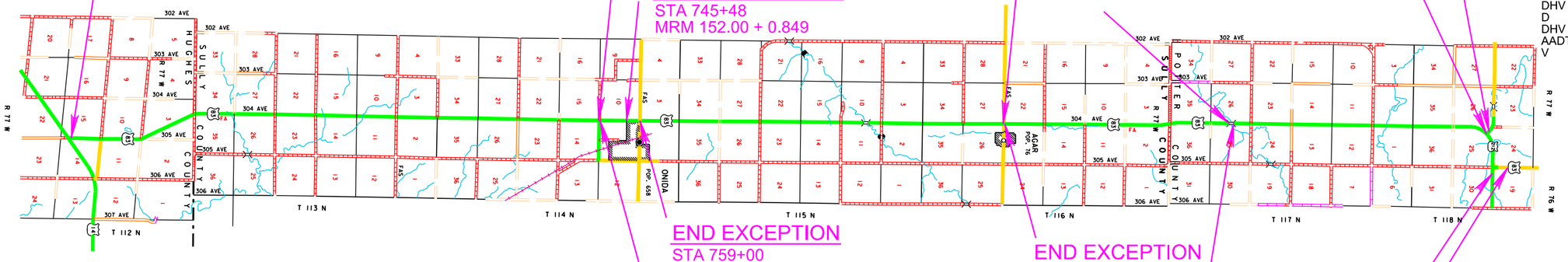
BEGIN NH 0212(212)219
STA 3035+50
MRM 219.42

BEGIN EXCEPTION
STA 701+16

BEGIN EXCEPTION
STA 745+48
MRM 152.00 + 0.849

BEGIN EXCEPTION
STA 1229+41

BEGIN EXCEPTION
STA 1525+60



END EXCEPTION
STA 759+00
MRM 153.10 + 0.070

END EXCEPTION
STA 703+13

END EXCEPTION
STA 1230+73

END EXCEPTION
STA 1526+90

END NH 0083(92)138
STA 1869+39
MRM 175.15 + 0.090

END NH 0212(212)219
STA 3087+60
MRM 220.20 + 0.046

DESIGN DESIGNATION (US 83)

AADT (2022)	1667
AADT (2042)	2732
DHV	353
D	50%
DHV T%	10%
AADT T%	22.0%
V	65 mph

DESIGN DESIGNATION (US 212)

AADT (2022)	2071
AADT (2042)	2736
DHV	353
D	50%
DHV T%	5.6%
AADT T%	12.3%
V	65 mph

US HIGHWAY 83

Gross Length	186,539 Feet	35.329 Miles
Length of Exceptions	1,811 Feet	0.343 Miles
Net Length	184,728 Feet	34.986 Miles

US HIGHWAY 212

Gross Length	5,210 Feet	0.987 Miles
Length of Exceptions	0 Feet	0 Miles
Net Length	5,210 Feet	0.987 Miles

STORM WATER PERMIT
None Required

9

November 20, 2024

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(92)138 NH 0212(212)219	2	46

ESTIMATE OF QUANTITIES

PCN 08YD

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
110E0750	Remove Guardrail Terminal Anchor	4	Each
110E4290	Salvage Beam Guardrail	350.0	Ft
120E0100	Unclassified Excavation, Digouts	1,747	CuYd
120E0600	Contractor Furnished Borrow	160	CuYd
120E6200	Water for Granular Material	811.3	MGal
210E1000	Shoulder Preparation	70.024	Mile
260E1030	Base Course, Salvaged	6,902.3	Ton
* 260E4090	Granular Material, State Furnished	3,000.0	Ton
270E0022	Salvage Asphalt Mix Material	926.1	Ton
270E0110	Salvage and Stockpile Granular Material	7,556.8	Ton
270E0112	Salvage Granular Material	21,317.7	Ton
* 270E0210	Haul and Stockpile Granular Material	21,317.7	Ton
* 270E0220	Blend and Stockpile Granular Material	9,590.5	Ton
* 270E0230	Haul and Stockpile Asphalt Mix Material	926.1	Ton
320E3000	Compaction Sample	6	Each
320E5010	Saw and Seal Shoulder Joint	369,697	Ft
330E0010	MC-70 Asphalt for Prime	446.1	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	89.5	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	73.9	Ton
330E1000	Blotting Sand for Prime	10.0	Ton
330E2000	Sand for Flush Seal	1,013.4	Ton
332E0010	Cold Milling Asphalt Concrete	2,112	SqYd
600E0300	Type III Field Laboratory	1	Each
630E0500	Type 1 MGS	162.5	Ft
630E1501	Type 1 Retrofit Guardrail Transition	4	Each
630E2017	MGS MASH Flared End Terminal	4	Each
632E2220	Guardrail Delineator	16	Each
633E1200	High Build Waterborne Pavement Marking Paint, White	1,575	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	335	Gal
633E1272	High Build Waterborne Pavement Marking Paint, Arrow	7	Each
633E1286	High Build Waterborne Pavement Marking Paint, Message	1	Each
633E5100	Grooving for Durable Pavement Marking, 4"	414,700	Ft
633E5105	Grooving for Durable Pavement Marking, 8"	815	Ft
633E5125	Grooving for Durable Pavement Marking, Arrow	7	Each
633E5135	Grooving for Durable Pavement Marking, Message	1	Word
634E0010	Flagging	500.0	Hour
634E0020	Pilot Car	200.0	Hour
634E0110	Traffic Control Signs	385.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
734E0010	Erosion Control	Lump Sum	LS
900E0010	Refurbish Single Mailbox	2	Each

*** - Denotes Non-Participating**

PCN 08YD SURFACING ALTERNATE A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0005	PG 58-34 Asphalt Binder	2,419.0	Ton
320E1070	Class HR Asphalt Concrete	46,370.7	Ton

PCN 08YD SURFACING ALTERNATE B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0005	PG 58-34 Asphalt Binder	1,991.5	Ton
320E1070	Class HR Asphalt Concrete	48,079.0	Ton

PCN 09AX

Revised 2024-08-14 JPJ

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3320	Checker	Lump Sum	LS
120E0100	Unclassified Excavation, Digouts	46	CuYd
120E6200	Water for Granular Material	26.0	MGal
210E1000	Shoulder Preparation	1.850	Mile
260E1030	Base Course, Salvaged	654.5	Ton
270E0022	Salvage Asphalt Mix Material	1,267.9	Ton
* 270E0220	Blend and Stockpile Granular Material	1,267.9	Ton
* 270E0230	Haul and Stockpile Asphalt Mix Material	1,267.9	Ton
320E3000	Compaction Sample	6	Each
320E5010	Saw and Seal Shoulder Joint	9,780	Ft
330E0010	MC-70 Asphalt for Prime	11.9	Ton
330E0100	SS-1h or CSS-1h Asphalt for Tack	2.5	Ton
330E0210	SS-1h or CSS-1h Asphalt for Flush Seal	2.1	Ton
330E1000	Blotting Sand for Prime	10.0	Ton
330E2000	Sand for Flush Seal	26.9	Ton
633E1200	High Build Waterborne Pavement Marking Paint, White	64	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	104	Gal
633E1272	High Build Waterborne Pavement Marking Paint, Arrow	2	Each
633E1286	High Build Waterborne Pavement Marking Paint, Message	2	Each
633E5100	Grooving for Durable Pavement Marking, 4"	24,600	Ft
633E5105	Grooving for Durable Pavement Marking, 8"	815	Ft
633E5125	Grooving for Durable Pavement Marking, Arrow	2	Each
633E5135	Grooving for Durable Pavement Marking, Message	2	Word
634E0010	Flagging	200.0	Hour
634E0020	Pilot Car	60.0	Hour
634E0110	Traffic Control Signs	312.2	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS

*** - Denotes Non-Participating**

PCN 09AX SURFACING ALTERNATE A

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0005	PG 58-34 Asphalt Binder	63.4	Ton
320E1070	Class HR Asphalt Concrete	1,227.0	Ton

PCN 09AX SURFACING ALTERNATE B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
320E0005	PG 58-34 Asphalt Binder	53.1	Ton
320E1070	Class HR Asphalt Concrete	1,272.2	Ton

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

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

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

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

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT 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 E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

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

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

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

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

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

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

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

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

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

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

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

SEQUENCE OF OPERATIONS

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

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.

INCIDENTS

An incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic such as a crash, hazardous materials spill, or other event.

The Contractor will set up a meeting prior to start of work to plan and coordinate responses to an incident. The Contractor will invite the Department of Transportation, the South Dakota Highway Patrol, the Hughes, Potter, and Sully County Sheriffs and local emergency response entities to the meeting.

The Contractor will assist to maintain traffic as required by these plan notes and as agreed to at that meeting.

Emergency vehicle access through the project will be considered and discussed at the meeting.

The Contractor may be required to modify messages on portable changeable message signs or relocate portable changeable message signs, and to provide flaggers to direct or detour traffic. The Contractor should be prepared to relocate advance warning signs if determined to be necessary for a major traffic incident lasting more than two hours. Fixed location ground mounted signs may be covered and additional portable signs provided.

No additional payment will be made for the modification of portable changeable message sign messages or the relocation of portable changeable message signs. Cost for the relocation of an advance warning sign due to an incident will be 50% of the designated sign rate. Flaggers will be paid for at the contract unit price per hour for "Flagging".

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 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.

The Contractor will be allowed a maximum of 2 flagger-controlled work zones at one time, unless an alternative traffic control plan is submitted and approved by the Engineer. Flagger controlled work zones will be a maximum of 3 miles in length (each) and separated by a minimum of 3 miles between work zones.

When work is in progress within an intersection, Flaggers will be required to direct traffic.

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".

The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.

A mobile work operation will be allowed provided the 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.

TRAFFIC CONTROL SIGNS

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS PCN 08YD

		CONVENTIONAL ROAD			
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
W8-17	SHOULDER DROP-OFF (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
W21-5	SHOULDER WORK	4	48" x 48"	16.0	64.0
SPECIAL	WAIT FOLLOW PILOT CAR	10	30" x 18"	3.8	38.0
G20-1	ROAD WORK NEXT 14 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 22 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 35 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 PCN 08YD SQFT			385.0

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS PCN 09AX

		CONVENTIONAL ROAD			
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
W8-17	SHOULDER DROP-OFF (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-4	ONE LANE ROAD AHEAD	2	48" x 48"	16.0	32.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
W21-2	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	4	30" x 18"	3.8	15.2
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS PCN 09AX SQFT			312.2

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".

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".

CHECKING SPREAD RATES

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

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

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

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

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

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

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

SURFACING THICKNESS DIMENSIONS

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

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

INTERSECTING ROADS AND ENTRANCES

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

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

COLD MILLING ASPHALT CONCRETE

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

Cold milling asphalt concrete will be performed at intersecting road approaches, as shown in the Table of Additional Quantities. Milling depth will be 2 inches. Cold milling asphalt is estimated to produce 235.2 tons of cold milled asphalt concrete material. This estimated quantity will be blended according to the Blend and Stockpile Granular Material plan note. Costs associated with hauling and stockpiling the cold milled material will be incidental to Cold Milling Asphalt Concrete.

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 and Base Course, Salvaged.

Included in the Estimate of Quantities are 25 cubic yards of Unclassified Excavation, Digouts per mile for the removal of the unstable material throughout the project.

Included in the Estimate of Quantities are 50 tons of Base Course, Salvaged per mile for backfill of Unclassified Excavation, Digouts.

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

SHOULDER WORK

Prior to cold milling or asphalt concrete resurfacing, SDDOT personnel will mow and/or spray the shoulders to kill existing vegetation. The Contractor will notify the Pierre Area Office at (605) 773-5294 at least three weeks prior to beginning work on this project so SDDOT personnel can mow and/or spray along the shoulder and inslopes. The Department will not be responsible for the effectiveness of the mowing or spraying.

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

Cost for shoulder work including removal and replacement of topsoil will be incidental to the contract unit prices for the various items. Separate measurement and payment will not be made.

SHOULDER PREPARATION

Prior to placement of asphalt concrete on the shoulders, the existing shoulder material will be watered and compacted to obtain a uniform and stable surface according to Section 260.3 D. The cross slope and inslope requirements will meet what is shown in the typical sections. Cost for this work will be incidental to the contract unit price per mile for Shoulder Preparation.

Included in the Estimate of Quantities are 10.64 MGals per mile per shoulder of Water for Granular Material for shaping and recompaction.

The SDDOT Office of Inventory Management & Research has two weigh-in-motion installations located on US 083, MRM 140+0.066 and MRM 165+0.140.

The Contractor will field verify the depth and location of the weigh-in-motion utilities prior to Shoulder Preparation.

The Contractor will not damage the existing loops, load cells, pull boxes, conduit, or electronics cabinet. Any loops, load cells, pull boxes, conduit, or electronics cabinet damaged during the construction project will be replaced by the Contractor at the Contractors expense. The weigh – in – motion sites are visible on the roadway. SDDOT Office of Inventory Management & Research will aid in locating the traffic counter installation. Contact 605-773-6644, or 605-773-3278 to notify office of request to locate ATR.

The high tension cable guardrail system near Stations 70+00 to 73+00 (Left) will remain in place and is not be disturbed during construction. Due to complex wiring and equipment at the nearby Weigh In Motion station, excavation will be minimized in this area. A modified cross-section is found in the Typical Sections of these plans, and the corresponding material quantities are found in the Table of Additional Quantities.

The Contractor may need to alter their means and methods to accomplish the required installation through this zone. Hand work may be required. The Contractor is responsible for repairing any damage caused to the high tension cable guardrail system during construction. The Contractor will repair any such damage at Contractor's expense.

The costs for additional labor required near this area are incidental to the various contract items.

SALVAGE ASPHALT MIX MATERIAL

The Los Angeles Abrasion Loss value on the aggregate used for the in-place asphalt concrete was 26. This value was obtained from testing during construction of the in-place asphalt concrete.

From PCN 08YD, an estimated 926.1 tons (464 Cubic Yards); and from PCN 09AX, an estimated 1,267.9 tons (635 Cubic Yards); 2,194.0 tons (1,099 Cubic Yards) total, of asphalt mix material will be salvaged from the existing highway and stockpiled at a state furnished stockpile site. The quantity of salvageable material is estimated from the in-place surfacing typical sections. The location of the stockpile is described in the Haul and Stockpile Asphalt Mix Material plan note.

The Contractor will ensure that no vegetation, topsoil, subgrade, or other foreign material is incorporated into the salvaged asphalt mix material. All costs associated with salvaging the asphalt concrete material will be incidental to the contract unit price per ton for Salvage Asphalt Mix Material.

SALVAGE AND STOCKPILE GRANULAR MATERIAL

From PCN 08YD, an estimated 28,874.5 tons (15,278 Cubic Yards) of granular base material will be salvaged from the existing highway according to the in-place surfacing typical sections. PCN 09AX does not yield any salvageable granular base material.

For PCN 08YD, an estimated 6,902.3 tons; and for PCN 09AX, an estimated 654.5 tons; an estimated total of 7,556.8 tons of salvaged granular material will be stockpiled at a site furnished by the Contractor and satisfactory to the Engineer for use as Base Course, Salvaged on this project. This salvaged material will be processed to meet the requirements of Section 884.2 D.8 prior to stockpiling.

An estimated 21,317.7 tons of salvaged granular material will be hauled and stockpiled at locations as specified by the Haul and Stockpile Granular Material plan note.

The Contractor will ensure that no vegetation, topsoil, subgrade, or other foreign material is incorporated into the granular base material.

The quantity of salvaged granular base material may vary from the plans.

The quantity of salvageable material is estimated from the in-place surfacing typical sections. This estimated quantity was included in the Salvage and Stockpile Granular Material quantities.

HAUL AND STOCKPILE ASPHALT MIX MATERIAL

Salvaged asphalt concrete material estimated at 2,194.0 tons (926.1 tons form PCN 08YD and 1,267.9 tons from PCN 09AX, for informational purposes only) produced from this project will be hauled and stockpiled in the northeast corner of Section 26, Township 118 North, Range 77 West of the 5th P.M, Potter County, South Dakota near the west junction of US212 and US83 at the state furnished stockpile site. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

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

All other costs for hauling and stockpiling the salvaged material will be incidental to the contract unit price per ton for Haul and Stockpile Asphalt Mix Material.

HAUL AND STOCKPILE GRANULAR MATERIAL

9,888.5 tons of salvaged granular material will be hauled and stockpiled in the northwest quarter of Section 26, Township 118 North, Range 76 West of the 5th P.M, Potter County, South Dakota at the Gettysburg SDDOT Maintenance Shop. This salvaged granular material will be crushed to meet the requirements of Section 884.2 D.8 prior to stockpiling.

6,000 tons of salvaged granular material will be hauled and stockpiled in the southeast quarter of Section 15, Township 112 North, Range 77 West of the 5th P.M, Hughes County, South Dakota near the weigh scale site at the east junction of US14 and US83 within the state furnished stockpile site. This salvaged granular material will be crushed to meet the requirements of Section 884.2 D.8 prior to stockpiling.

The excess salvaged granular material not used on the project estimated at 5,429.2 tons will be hauled and stockpiled in the northeast corner of Section 26, Township 118 North, Range 77 West of the 5th P.M, Potter County, South Dakota near the west junction of US212 and US83 at the state furnished stockpile site. This material will be blended according to the Blend and Stockpile Granular Material plan note.

The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned sites.

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 stockpiling.

All other costs for crushing, hauling, and stockpiling the salvaged material will be incidental to the contract unit price per ton for Haul and Stockpile Granular Material.

BLEND AND STOCKPILE GRANULAR MATERIAL

An estimated 10,858.4 tons of asphalt concrete material and granular material will be blended and stockpiled in the northeast corner of Section 26, Township 118 North, Range 77 West of the 5th P.M, Potter County, South Dakota near the west junction of US212 and US83. The Contractor will have approval from the Engineer of the stockpile location prior to stockpiling the material within the aforementioned site.

The material to be blended will be made up of an estimated 2,194.0 tons (for informational purposes only) of salvaged asphalt concrete (926.1 tons from PCN 08YD, and 1,267.9 tons from PCN 09AX), an estimated 235.2 tons of cold milled asphalt concrete material produced from this project (PCN 08YD), a quantity of 3,000 tons (for informational purposes only) of state furnished salvaged asphalt concrete material not used as RAP on the project, and 5,429.2 tons (for informational purposes only) of salvaged granular material produced from this project (PCN 08YD).

The state furnished salvaged asphalt concrete material is stockpiled in the northeast corner of Section 26, Township 118 North, Range 77 West of the 5th P.M, Potter County, South Dakota near the west junction of US212 and US83. This material has been stockpiled since the summer of 2022.

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

The salvaged asphalt mix material produced on this project and from the state furnished stockpile site will be crushed to meet the requirements of Section 884.2 D.2 prior to blending into the stockpile.

Salvaged asphalt concrete material and salvaged granular material will be uniformly blended to the satisfaction of the Engineer.

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

All costs for crushing the salvaged asphalt mix material, stockpiling, and blending the materials will be incidental to the contract unit price per ton for Blend and Stockpile Granular Material.

BASE COURSE, SALVAGED

Base Course, Salvaged will be obtained from the salvaged granular material on the shoulders and may be used without further gradation testing.

All other requirements for Base Course, Salvaged will apply.

CLASS HR ASPHALT CONCRETE

Virgin mineral aggregate for Class HR Asphalt Concrete Alternate A will conform to the requirements for Class E, Type 1.

Virgin mineral aggregate for Class HR Asphalt Concrete Alternate B will consist of a minimum of 80 percent crushed limestone ledge rock and will conform to the requirements for Class E, Type 1.

An estimated 7,139.7 tons (Alternate A; 6,955.6 tons from PCN 08YD, and 184.1 tons form PCN 09AX), or 7,402.7 tons (Alternate B; 7211.9 tons from PCN 08YD, and 190.8 tons from PCN 09AX) of RAP is needed for the Class HR mixture. The Class HR Asphalt Concrete will include 15 percent RAP in the mixture. RAP for the Class HR Asphalt Concrete is located in the northeast corner of Section 26, Township 118 North, Range 77 West of the 5th P.M, Potter County, South Dakota near the west junction of US212 and US83 at the state furnished stockpile site. This material has been stockpiled since the summer of 2022.

When directed by the Engineer, the Contractor will saw and remove a total of three undamaged compaction cores (4” dia. min.) per asphalt concrete lift from designated area(s) and repair the hole(s) to the satisfaction of the Engineer. All costs associated with the compaction cores will be incidental to the contract unit price per each for Compaction Sample.

All other requirements for Class HR Asphalt Concrete will apply.

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 6′ wide in each shoulder, leaving the 2′ bevel on each shoulder free of sand.

BLOTTING SAND FOR PRIME

Included in the Estimate of Quantities are 10 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)

RATES OF MATERIALS

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

SECTION 1

PCN 08YD

Sta. 4+00 to Sta. 70+00
Sta. 73+00 to Sta. 701+16
Sta. 703+13 to Sta. 745+48
Sta. 761+50 to Sta. 1229+41
Sta. 1230+73 to Sta. 1523+36 (RT)
Sta. 1230+73 to Sta. 1523+86 (LT)
Sta. 1528+71 to Sta. 1843+04

Water for Granular Material	10.64	MGal
Base Course, Salvaged	50	Tons
Salvage and Stockpile Granular Material	420	Tons
PG 58-34 Asphalt Binder (Alternate A)	34	Tons
Class HR Asphalt Concrete (Alternate A)	652	Tons
PG 58-34 Asphalt Binder (Alternate B)	28	Tons
Class HR Asphalt Concrete (Alternate B)	676	Tons

SECTION 2

PCN 08YD

Sta. 759+00 to Sta. 761+50
Sta. 1523+36 to Sta. 1525+60 (RT)
Sta. 1523+86 to Sta. 1525+60 (LT)
Sta. 1526+90 to Sta. 1528+71
Sta. 1843+04 to Sta. 1860+62 (LT)
Sta. 1843+04 to Sta. 1863+39 (RT)
Sta. 1865+86 to Sta. 1869+39 (RT)
Sta. 1865+97 to Sta. 1869+39 (LT)

PCN 09AX

Sta. 3039+33 to Sta. 3087+60 (RT)
Sta. 3040+95 to Sta. 3082+20 (LT)

Water for Granular Material	13.22	MGal
Base Course, Salvaged	319	Tons
Salvage Asphalt Mix Material	684	Tons
PG 58-34 Asphalt Binder (Alternate A)	34	Tons
Class HR Asphalt Concrete (Alternate A)	652	Tons
PG 58-34 Asphalt Binder (Alternate B)	28	Tons
Class HR Asphalt Concrete (Alternate B)	676	Tons

Notes on specific items:

Unclassified Excavation, Digouts 25 Cubic Yards

Water for Granular Material 10.64 MGal for Shoulder Preparation (Section 1); 13.22 MGal for Shoulder Preparation and for Base Course, Salvaged; (Section 2).

Base Course, Salvaged 50 Tons for backfill of digouts (Section 1); 319 Tons for backfill of digouts and for shoulder construction (Section 2).

MC-70 Asphalt for Prime 6.26 tons
Applied 9 feet wide
(Rate = 0.30 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Tack 1.27 tons
Applied 8.5 feet wide
(Rate = 0.06 gallon per square yard).

SS-1h or CSS-1h Emulsified Asphalt for Flush Seal 1.00 tons
Applied 8 feet wide
(Rate = 0.05 gallon per square yard).

Sand for Flush Seal 14.08 tons
Applied 6 feet wide
(Rate = 8 lbs. per square yard).

CLASS HR ASPHALT CONCRETE

ALTERNATE A

Crushed Aggregate	554 tons
Salvaged Asphalt Concrete	98 tons
PG 58-34 Asphalt Binder	34 tons
Total	686 tons

ALTERNATE B

Crushed Aggregate	575 tons
Salvaged Asphalt Concrete	101 tons
PG 58-34 Asphalt Binder	28 tons
Total	704 tons

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

EROSION CONTROL

The estimated area requiring erosion control is 12,000 square feet. That site is a guardrail reconstruction at the Artichoke Creek bridge near MRM 167.73, US 83. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, topsoil removal and replacement, seeding, fertilizing, and mulching will be incidental to the contract lump sum price for “Erosion Control”.

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

REMOVE AND REPLACE TOPSOIL

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

The estimated amount of topsoil to be removed and replaced is 148 CuYd.

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

PERMANENT SEEDING

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

Type C Permanent Seed Mixture will consist of the following:

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

MYCORRHIZAL INOCULUM

Mycorrhizal inoculum will consist of mycorrhizal fungi spores and mycorrhizal fungi-infected root fragments in a solid carrier. The carrier may include organic materials, calcinated clay, or other materials consistent with application and good plant growth. The supplier will provide certification of the fungal species claimed and the live propagule count. The inoculum will include a minimum 25% the fungal species *Rhizophagus intraradices*. The remaining 75% may include other endomycorrhizal fungal species.

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract 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
LALRISE Prime and Max WP	Lallemand Specialties Inc. Milwaukee, WI Phone: 1-844-590-7781 www.lallemandplantcare.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% (P_2O_5) available phosphate, a minimum of 4% (K_2O) 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
Nature Safe	Nature Safe Fertilizers Irving, TX Phone: 1-605-759-5622 www.naturesafe.com

FIBER MULCHING

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

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

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

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

All costs for the additional tackifier added to the fiber mulch including labor, equipment, and materials will be incidental to the contract lump sum price for “Erosion Control”.

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

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

CONTRACTOR FURNISHED BORROW EXCAVATION

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

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

Contractor Furnished Borrow is necessary to accommodate the MGS Guardrail System installations.

The existing embankments are to be reshaped according to the details provided in these plans.

Seeding of all disturbed areas will be done by the Contractor.

Payment for the aforementioned work including labor, equipment, materials, and incidentals will be incidental to the various bid items of the contract.

SALVAGE BEAM GUARDRAIL

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

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

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

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.

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.

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

The Contractor will be required to paint all existing pavement markings including centerline, edge line, lane lines, messages, and arrows. See tables below.

All costs for painting arrows or words will be in the contract unit price per each for “High Build Waterborne Pavement Marking Paint, Arrow” and per word for “High Build Waterborne Pavement Marking Paint, Message”.

PCN 08YD

Station	Marking Type
696+00	Arrow Right
698+50	Arrow Right
701+00	Arrow Right
703+00	Arrow Left
705+50	Arrow Left
708+00	Arrow Left
1862+68	Message "ONLY"
1863+00	Arrow Left

PCN 09AX

Station	Marking Type
3084+28	Message "ONLY"
3084+60	Arrow Left
3085+60	Arrow Left
3085+92	Message "ONLY"

GROOVING FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

The Contractor will establish a positive means for the removal of the grinding and/or grooving residue. Residue from dry grooving will be vacuumed. Solid residue will be removed from the pavement surfaces before being blown by traffic action or wind. The Contractor will conduct this work to control and minimize airborne dust and similar debris that may become a hazard to motor vehicle operation or nuisance to property owners. Residue from wet grooving will not be permitted to flow across lanes being used by public traffic or into gutter or drainage facilities. Residue, whether in solid or slurry form, will be disposed of in a manner that will prevent it from reaching any waterway in a concentrated state. All costs for removal of grinding and/or grooving residue will be included in the contract unit price per foot, each, or word for “Grooving for Durable Pavement Marking” contract items.

Unless otherwise specified in the plans, the Contractor will groove the surface for High Build Waterborne Pavement Marking Paint as specified in these plans and as per the manufacturer’s instructions.

The grooving will be completed within the following tolerances:

Description	Specification	Tolerance
Depth of Groove	Marking Thickness[1] + 15 mils	+ 5 mils
Width of Groove	5 to 6 inches	
Length of Skip Lines[2]	10 foot 6 inches	± 3 inch
Tapers at ends of lines	6 to 9 inches	
Between Double Lines	4 inches	± 1/2 inch

[1] Marking thickness will include the thickness of marking material and reflective media.
[2] Additional length may be required as specified in the plans.

The equipment will be capable of the following:

- Grooving the total width of the groove in one pass or uniform depths with multiple passes.
- Grooving without causing damage to the pavement joints or joint sealant material.
- Provide uniform alignment and depth.
- Moving continuously to permit a mobile traffic work operation.

If damage occurs, including, but not limited to, joints, joint sealant material, and backer rod, the grooving operation will be stopped and modifications will be made to the grooving operation to prevent further damage. The Contractor will be required to use specially prepared circular diamond blade cutting heads to prevent damage at the joints. Damage caused will be repaired or replaced by the Contractor, as directed by the Engineer. No additional payment will be made for the repair work or any reapplication of the pavement marking in the area of the repair.

Grooving on bridge decks will start and stop a sufficient distance from the expansion joints so no damage occurs in these areas. Markings on bridge decks will be surface applied.

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.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4” line = 22.5 Gals/Mile
Dashed 4” line = 6.2 Gal/Mile
Glass Beads = 8 Lbs/Gal.

All cost for materials, labor, and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

MARKINGS WITHIN SINUSOIDAL CENTERLINE RUMBLE STRIPES

Sinusoidal rumble stripes exist on US83.

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

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

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”.

Single mailboxes will be refurbished at Sta. 709+73 L and Sta. 1423+40 L.

TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(92)138 NH 0212(212)219	12	46

Plotting Date: 07/15/2024

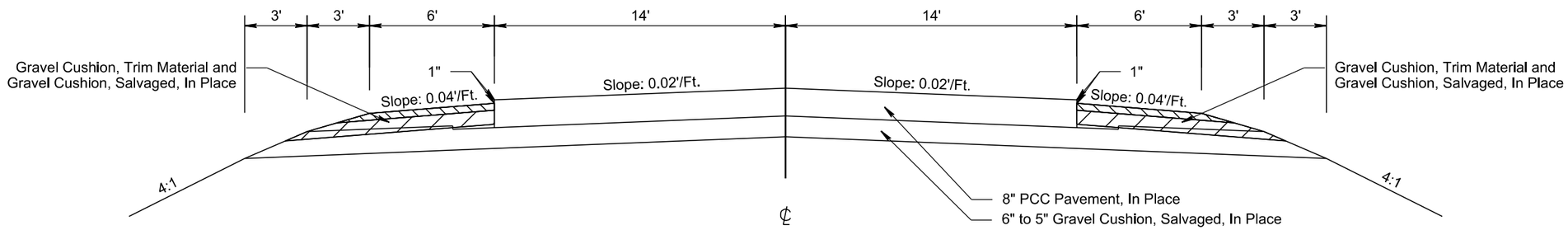
4" Shoulder Preparation

Salvage and Stockpile Granular Material

Section 1

Sta. 4+00 to Sta. 70+00
Sta. 73+00 to Sta. 701+16
Sta. 703+13 to Sta. 745+48
Sta. 761+50 to Sta. 1229+41
Sta. 1230+73 to Sta. 1523+36 (RT)
Sta. 1230+73 to Sta. 1523+86 (LT)
Sta. 1528+71 to Sta. 1843+04

In Place Section



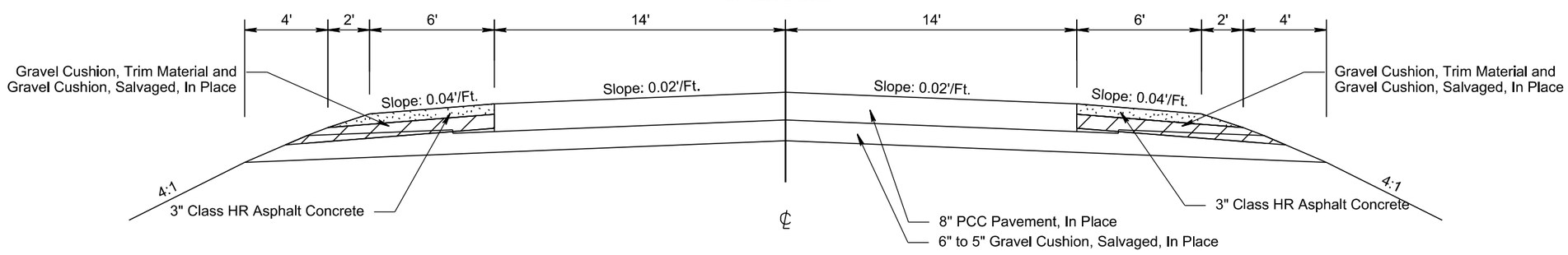
Bridge:
Sta. 1531+88.89 to Sta. 1533+19.89

Section 1

Sta. 4+00 to Sta. 70+00
Sta. 73+00 to Sta. 701+16
Sta. 703+13 to Sta. 745+48
Sta. 761+50 to Sta. 1229+41
Sta. 1230+73 to Sta. 1523+36 (RT)
Sta. 1230+73 to Sta. 1523+86 (LT)
Sta. 1528+71 to Sta. 1843+04

Surfacing Exception:
Sta. 701+16 to Sta. 703+13
Sta. 745+48 to Sta. 759+00
Sta. 1229+41 to Sta. 1230+73
Sta. 1525+60 to Sta. 1526+90

In Place Section



TYPICAL SURFACING SECTIONS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(92)138 NH 0212(212)219	13	46

Plotting Date: 07/15/2024

PLOT SCALE - 1:6.00001

PLOT NAME - 2

FILE - ...\08YD_TYPSECT_JPJ_FROM_TJDI.DGN

PLOTTED FROM - TRPR22410

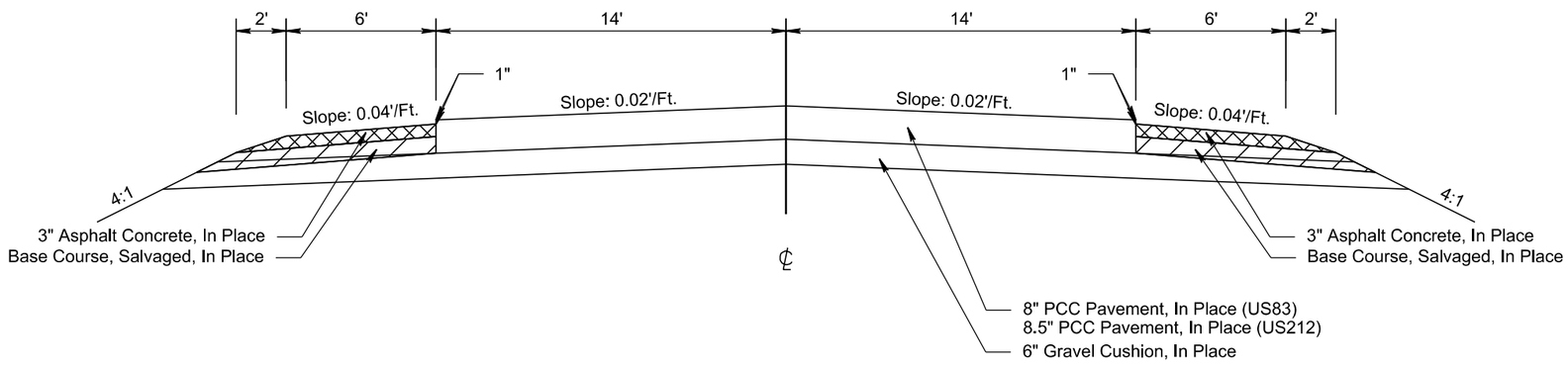
Salvage Asphalt Mix Material

4" Shoulder Preparation

Base Course, Salvaged

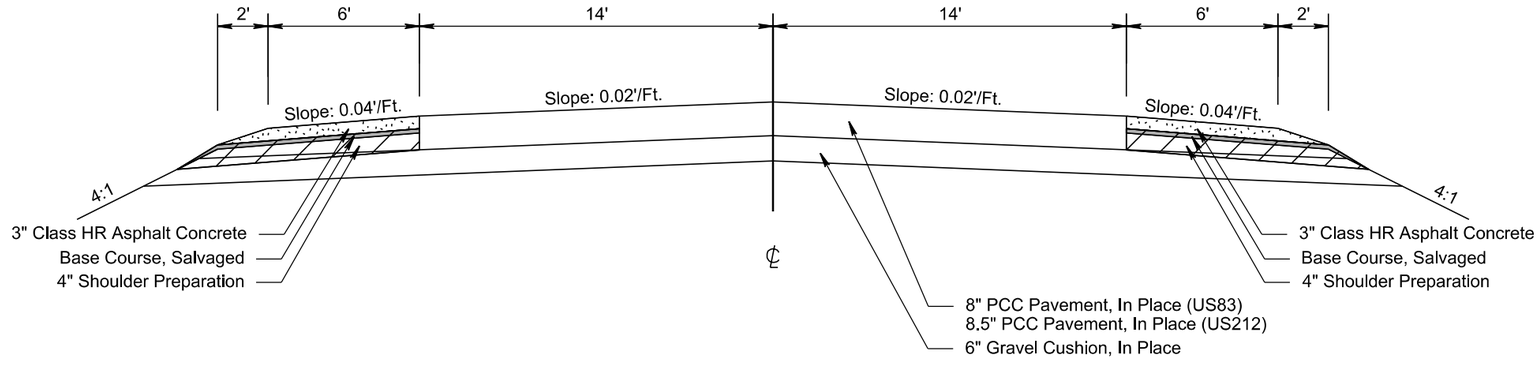
Section 2

Sta. 759+00 to Sta. 761+50
Sta. 1523+36 (RT) to Sta. 1525+60
Sta. 1523+86 (LT) to Sta. 1525+60
Sta. 1526+90 to Sta. 1528+71
Sta. 1843+04 to Sta. 1869+39
Sta. 3035+50 to Sta. 3087+60 - US212
In Place Section



Section 2

Sta. 759+00 to Sta. 761+50
Sta. 1523+36 (RT) to Sta. 1525+60
Sta. 1523+86 (LT) to Sta. 1525+60
Sta. 1526+90 to Sta. 1528+71
Sta. 1843+04 to Sta. 1869+39
Sta. 3035+50 to Sta. 3087+60 - US212
In Place Section



TYPICAL SURFACING SECTIONS

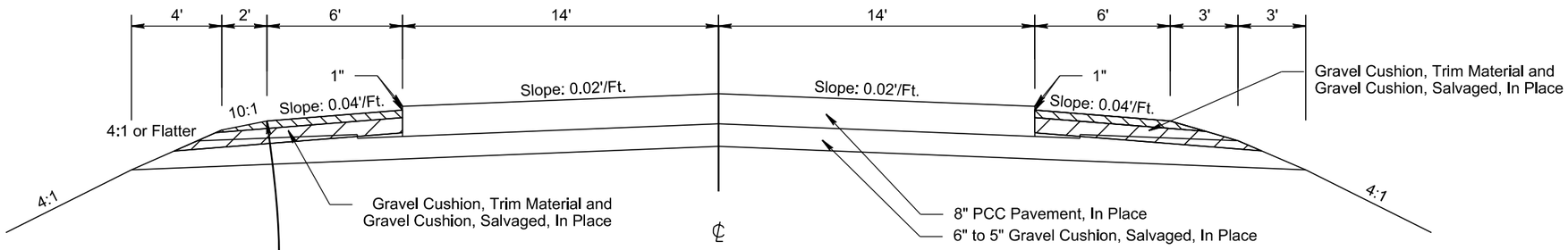
4" Shoulder Preparation

Salvage and Stockpile Granular Material

Base Course, Salvaged

Special Section through Cable Guardrail at WIM Station

Sta. 70+00 to Sta. 73+00
In Place Section

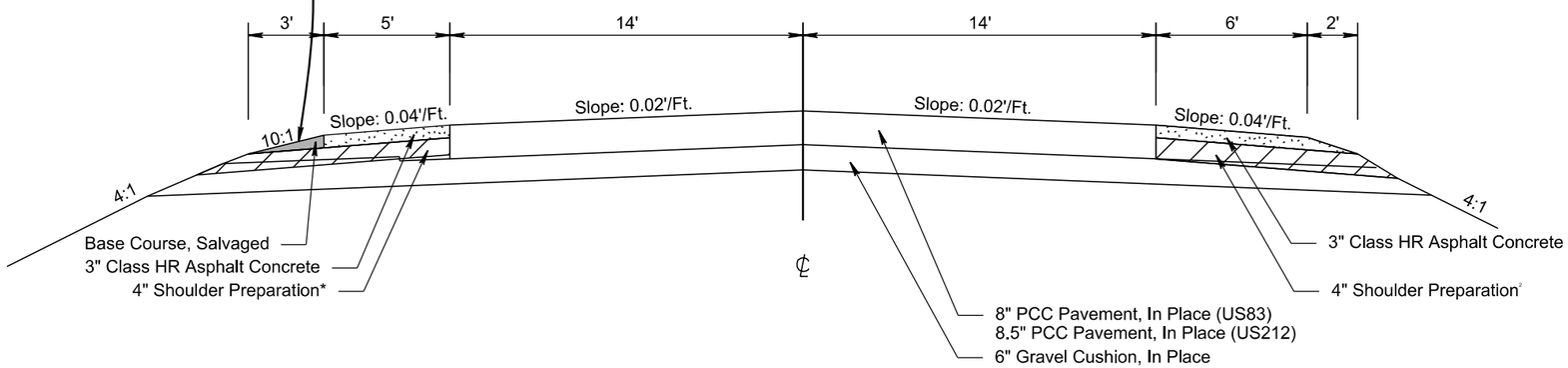


*NOTE: OMIT SHOULDER PREPARATION TO AVOID TRAFFIC LOOP CONDUITS AT STA 56+81.50 LT, STA 58+81.50 LT, STA 70+81.50 TO STA 71+13.58 LT, AND STA 71+08 TO STA 71+44 RT AS SHOWN ON THE ORIGINAL PLAN SHEETS (COPIES INCLUDED IN THIS PLAN SET). ANY DAMAGE TO THE HIGH TENSION CABLE GUARDRAIL AND TRAFFIC LOOPS WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

DO NOT DISTURB HIGH TENSION CABLE GUARDRAIL

Special Section Through Cable Guardrail at WIM Station

Sta. 70+00 to Sta. 73+00
Resurfacing Section



PLOT SCALE - 1:6.00001

PLOT NAME - 3

FILE - ...\08YD_TYPSECT_JPJ_FROM_TJDI.DGN

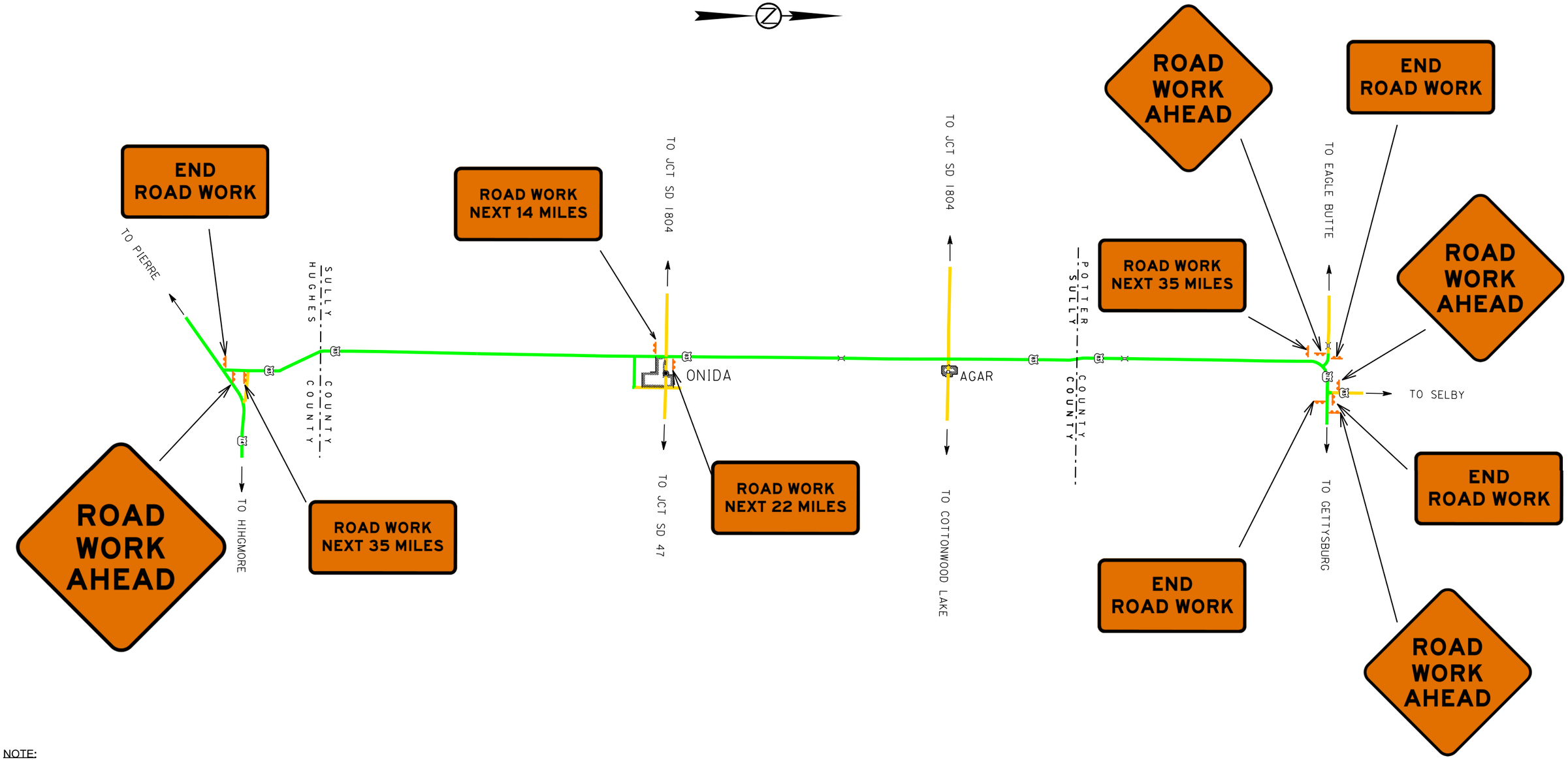
PLOTTED FROM - TRPR22410

FIXED LOCATION SIGNING

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(92)138 NH 0212(212)219	15	46

Plotting Date: 07/16/2024

PCN 08YD & 09AX



NOTE:

SIGN GRAPHICS ARE NOT TO SCALE. REFER TO THE ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS IN THE PLAN NOTES FOR SIGN DIMENSIONS.

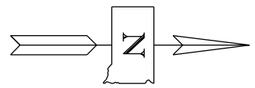
THE ENGINEER WILL DETERMINE THE EXACT LOCATIONS OF THE SIGNS IN THE FIELD.

GUARDRAIL LAYOUT

STRUCTURE 54-160-224 OVER ARTICHOKE CREEK
MRM 167.73
POTTER COUNTY

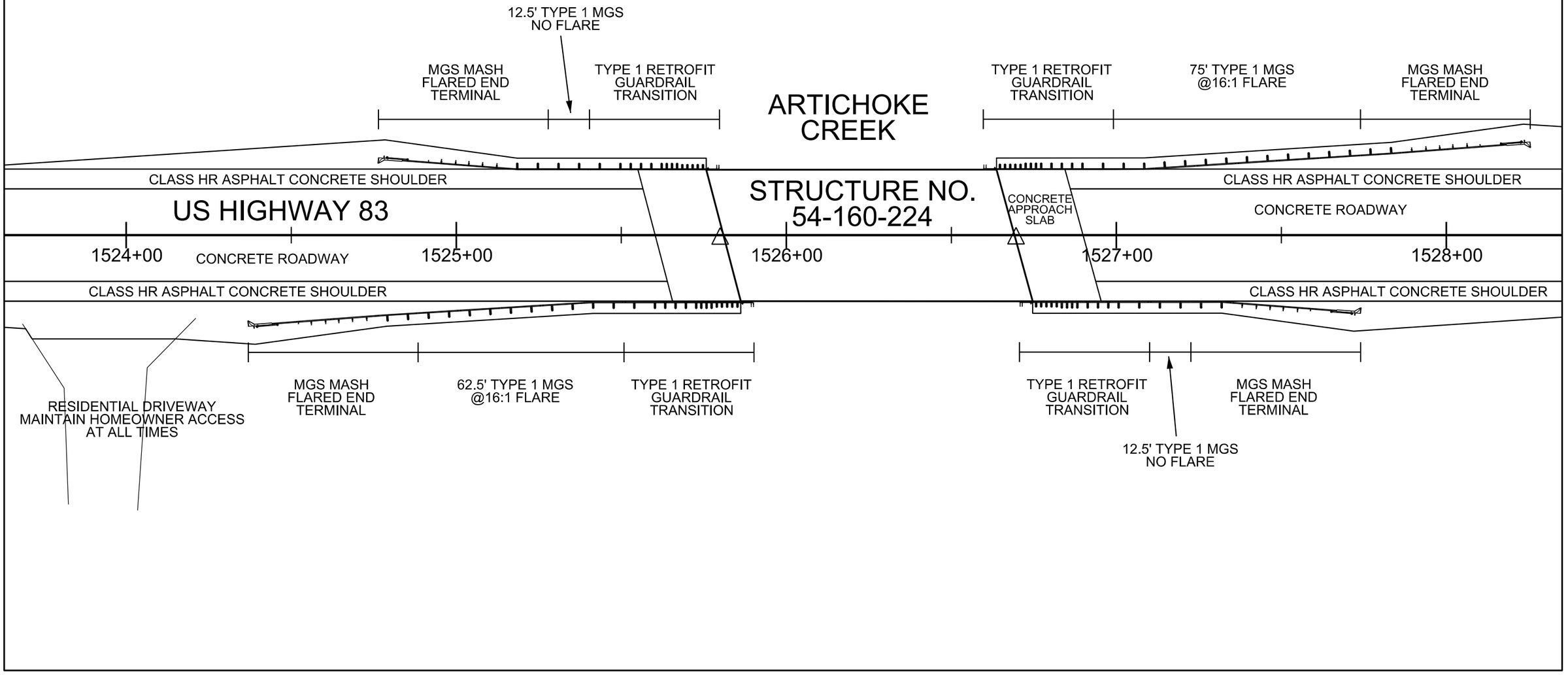
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(92)138 NH 0212(212)219	16	46

Plotting Date: 07/16/2024



QUANTITY TABLE FOR INFORMATION ONLY

PCN 08YD Structure 54-160-224 MRM 167.73	Remove Beam Guardrail 110E0730 (Ft)	Remove Guardrail Terminal Anchor 110E0750 (Each)	Contractor Furnished Borrow 120E0600 (CuYd)	Water for Granular Material 120E6200 (MGal)	Base Course, Salvaged 260E1030 (Ton)	Salvage Asphalt Mix Material 270E0022 (Ton)	Haul and Stockpile Asphalt Mix Material 270E0230 (Ton)	PG 58-34 Asphalt Binder 320E0005 ALTERNATE A (Ton)	Class HR Asphalt Concrete 320E1070 ALTERNATE A (Ton)	PG 58-34 Asphalt Binder 320E0005 ALTERNATE B (Ton)	Class HR Asphalt Concrete 320E1070 ALTERNATE B (Ton)	MC-70 Asphalt for Prime 330E0010 (Ton)	SS-1h or CSS-1h Asphalt for Flush Seal 330E0210 (Ton)	Sand for Flush Seal 330E2000 (Ton)	Type 1 MGS 630E0500 (Ft)	Type 1 Retrofit Guardrail Transition 630E1501 (Each)	MGS MASH Flared End Terminal 630E2017 (Each)	Guardrail Delineator 632E2220 (Each)
NB entry (SE) leg	93.75	1	25	0.5	49.6	19.4	19.4	1.3	26.0	1.1	27.0	0.3	0.1	1.0	75	1	1	4
NB departure (NE) leg	81.25	1	10	0.2	25.4	9.0	9.0	0.7	12.7	0.6	13.7	0.1	0	0.5	12.5	1	1	4
SB entry (NW) leg	93.75	1	115	0.6	61.5	16.8	16.8	1.5	28.7	1.2	29.8	0.3	0.1	1.1	62.5	1	1	4
SB entry (SW) leg	81.25	1	10	0.1	14.2	11.8	11.8	0.6	12.2	0.5	12.6	0.1	0	0.5	12.5	1	1	4
TOTALS:	**350**	**4**	**160**	**1.4**	**150.7**	**57.0**	**57.0**	**4.1**	**79.6**	**3.4**	**83.1**	**0.8**	**0.2**	**3.1**	**162.5**	**4**	**4**	**16**



Plot Scale - 1:60

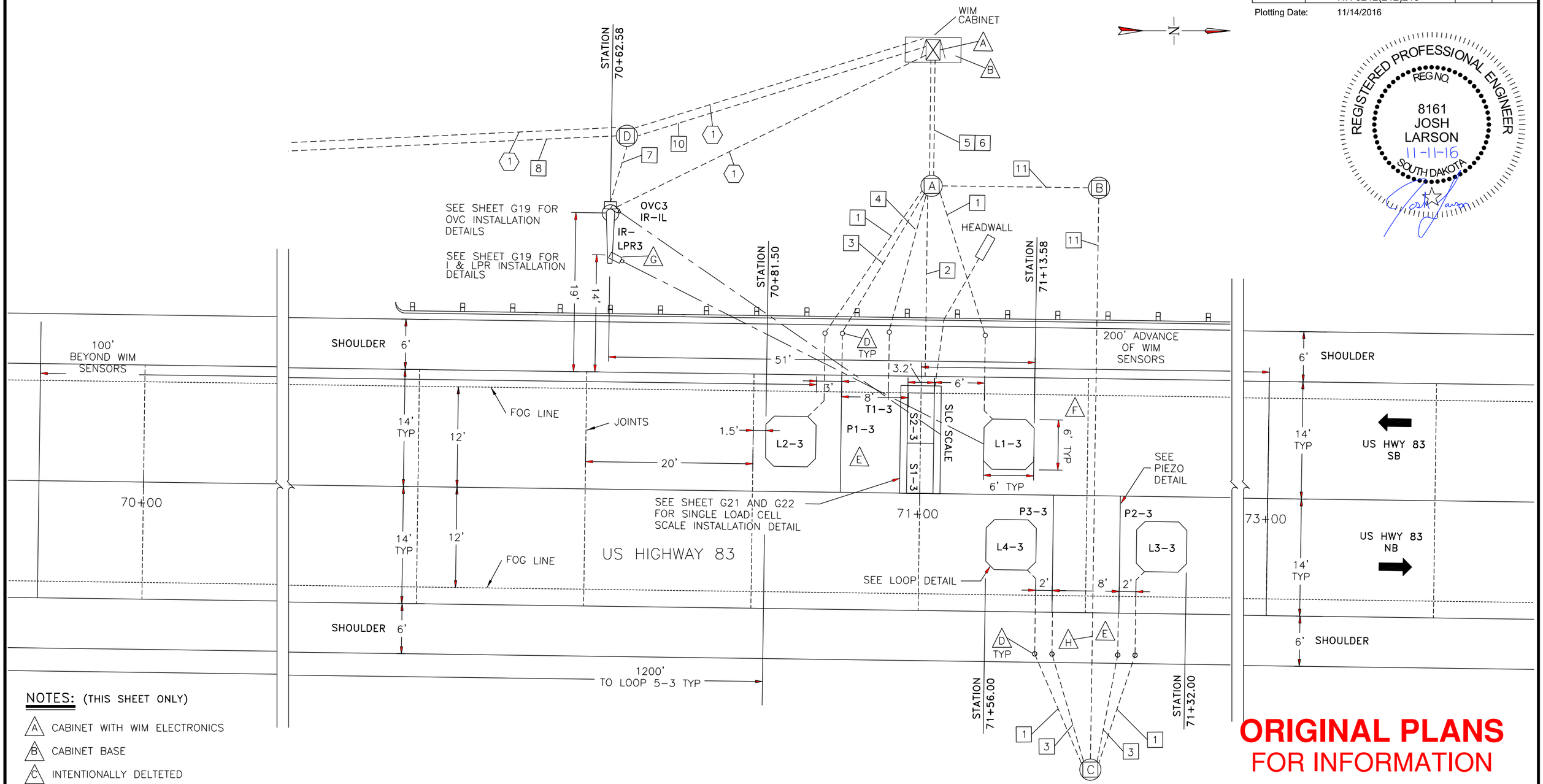
Plotted From - TRPR22410

File - ...\06YD Guardrail at 54-160-224.dgn

DETAIL LAYOUT FOR NEW MAINLINE WIM SENSORS (DETAIL E)

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0083(92)138 NH 0212(212)219	17	46

Plotting Date: 11/14/2016



NOTES: (THIS SHEET ONLY)

A. CABINET WITH WIM ELECTRONICS

B. CABINET BASE

C. INTENTIONALLY DELTETED

D. DRILL THROUGH SHOULDER FOR CONDUIT.

E. PAVEMENT ON EITHER SIDE OF EACH PIEZO MUST BE FREE OF JOINTS AND CRACKS FOR 4'. PAVEMENT ON EACH SIDE OF THE LOOP MUST BE FREE OF JOINTS AND CRACKS FOR 18".

F. SITE CONDITIONS AS PER ASTM E1318-09 FOR ALL LANES.

G. POLE LOCATION MUST ALLOW ADEQUATE RIGHT-OF-WAY OR PROTECT WITH GUARDRAIL OR USE OF BREAK-AWAY POLE AS REQUIRED BY LOCAL CONSTRUCTION CODES.

H. CONDUIT SHALL BE PLACED USING BORING, JACKING OR ALTERNATIVE METHOD THAT DOES NOT REQUIRE THE SURFACE OF THE ROAD TO BE CUT.

ORIGINAL PLANS
FOR INFORMATION

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	MyG/RCz	MyG	DPr	Nov 11/11

NOT TO SCALE

SIZE: B

DIMENSIONS IN: FEET

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
SITE LAYOUT
VIRTUAL WEIGH STATION
BLUNT, SOUTH DAKOTA

DWG. No. **C11875003**

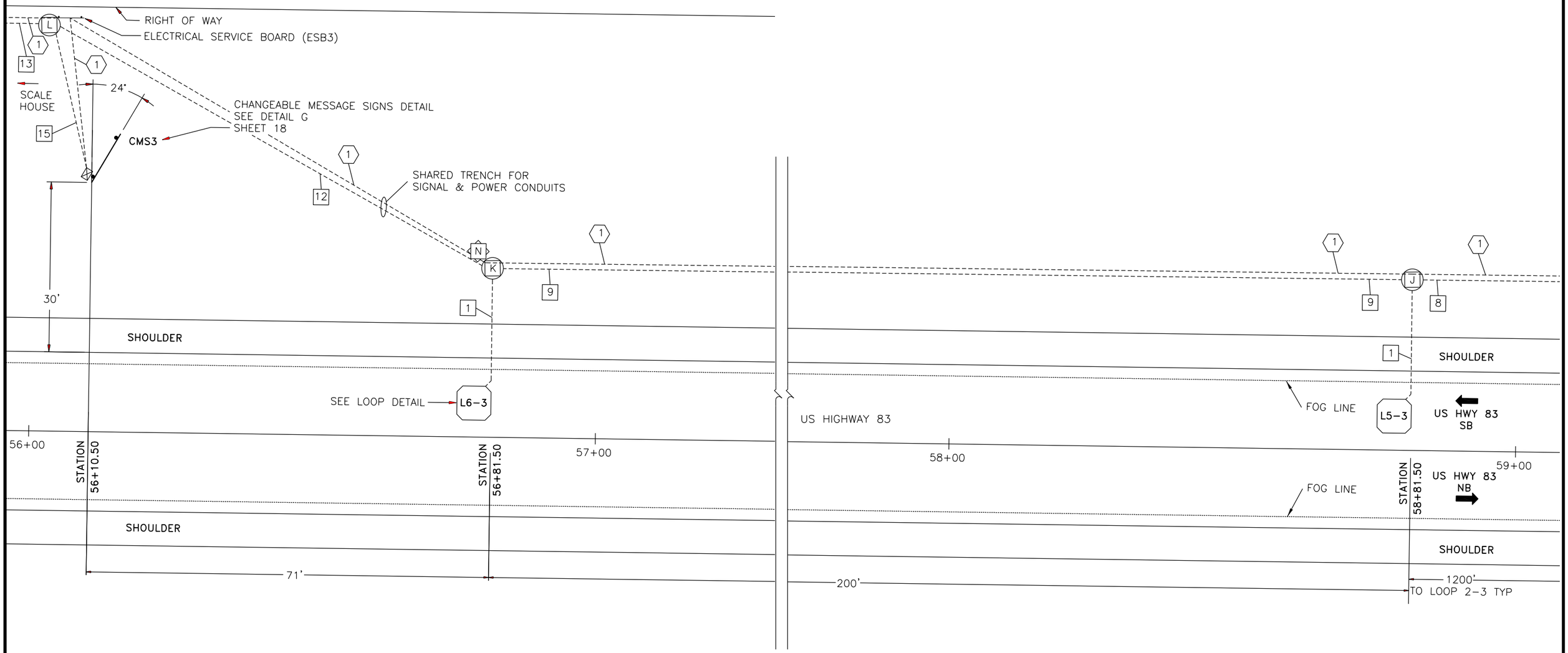
REV.: A

CAD FILE: C11875003.DWG

DETAIL F – CHANGEABLE MESSAGE SIGNS

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	NH 0083(92)138 NH 0212(212)219	18	46

Plotting Date: 11/14/2016



REGISTERED PROFESSIONAL ENGINEER
REG NO.
8161
JOSH
LARSON
11-11-16
SOUTH DAKOTA

ORIGINAL PLANS
FOR INFORMATION

REV.	DESCRIPTION	DWN/DSN	APPR.	APPR.	DATE
A	INITIAL RELEASE	MyG/RCz	MyG	DPr	Nov 11/11

NOT TO SCALE

SIZE: B

DIMENSIONS IN: FEET

INTERNATIONAL ROAD DYNAMICS INC.
SASKATOON SASKATCHEWAN CANADA

DWG. TITLE:
SITE LAYOUT
VIRTUAL WEIGH STATION
BLUNT, SOUTH DAKOTA

DWG. No. **C11875003**

REV.: A

CAD FILE: C11875003.DWG

LEFT SHOULDER				PROJECT STATIONING PCN 08YD		RIGHT SHOULDER			
Station Begin	**Station End**	**Surfacing Length (Ft)**	**Exceptions (Ft)**			**Station Begin**	**Station End**	**Surfacing Length (Ft)**	**Exceptions (Ft)**
4+00	70+00	6,600		Begin project to WIM station	Section 1	4+00	70+00	6,600	
70+00	73+00			WIM Station on LT side	Additional Quantities	70+00	73+00		
73+00	701+16	62,816		WIM Station to 186th Street	Section 1	73+00	701+16	62,816	
701+16	703+13		197	Concrete Intersection at 186th Street		701+16	703+13		197
703+13	745+48	4,235		186th St to Onida	Section 1	703+13	745+48	4,235	
745+48	759+00		1,352	City of Onida		745+48	759+00		1,352
759+00	761+50	250		Asphalt concrete shoulder transitions in Onida	Section 2	759+00	761+50	250	
761+50	1229+41	46,791		Onida to 176th Street	Section 1	761+50	1229+41	46,791	
1229+41	1230+73		132	Concrete Intersection at 176th Street near Agar		1229+41	1230+73		132
1230+73	1523+86	29,313		176th Street to Guardrail	Section 1	1230+73	1523+36	29,263	
1523+86	1525+55	169		Guardrail surfacing	Section 2	1523+36	1525+65	229	
1525+55	1526+85		130	Structure No. 54-160-224		1525+65	1526+95		130
1526+85	1528+71	186		Guardrail surfacing	Section 2	1526+95	1528+71	176	
1528+71	1843+04	31,433		Guardrail to paved shoulder section	Section 1	1528+71	1843+04	31,433	
1843+04	1860+62	1,758		Left shoulder meets PC of shoulder in west quadrant of US 83 S & US 212 W Junction	Section 2				
				Right shoulder terminates at jog in US 83.	Section 2	1843+04	1863+39	2,035	
1860+62	1863+39			(Information): Left shoulder follows an intersection curve; see PCN 09AX Table of Additional Quantities. Jog in US 83 stationing as PCN 09AX takes precedence.	Additional Quantities (PCN 09AX)				
1863+39	1865+97			PCN 08YD stationing resumes at US 83 split from US 212. Both shoulders are along intersection curve radii and are reported in the Table of Additional Quantities	Additional Quantities	1863+39	1865+86		
1865+97	1869+39	342		Tangent sections from PCs at Junction US 83 N & US 212 E to end of project	Section 2	1865+86	1869+39	353	
		Surfacing Length	**Exceptions**					**Surfacing Length**	**Exceptions**
		183,893	1,811	TOTALS (feet)				184,181	1,811
		34.828	0.343	TOTALS (miles)				34.883	0.343

LEFT SHOULDER				PROJECT STATIONING PCN 09AX		RIGHT SHOULDER			
Station Begin	**Station End**	**Surfacing Length (Ft)**	**Exceptions (Ft)**			**Station Begin**	**Station End**	**Surfacing Length (Ft)**	**Exceptions (Ft)**
3035+50	3038+34			Begin project: Both shoulders follow intersection curves. See Table of Additonal Quantities.	Additional Quantities	3035+50	3038+84		
3038+34	3040+95			Junction US 83 S & US 212 W through PC of intersection curve on Left side. See Table of Additional Quantities.	Additional Quantities				
				Junction US 83 S & US 212 W through a 99-foot-long concrete pad on Right shoulder. Omit shoulder surfacing through concrete pad.		3038+34	3039+33		
3040+95	3082+20	4,125		Right shoulder to end of project. Left shoulder to PC at Junction US 83 N.	Section 2	3039+33	3087+60	4,827	
3082+20	3087+60			(Information): Left shoulder follows intersection curves through US 83 N & US 212 E Junction. See PCN 08YD Table of Additional Quantites. End of project.	Additional Quantities (PCN 08YD)				
		Surfacing Length	**Exceptions**					**Surfacing Length**	**Exceptions**
		4,125	0	TOTALS (feet)				4,827	0
		0.781	0.000	TOTALS (miles)				0.914	0.000

TABLE OF APPROACHES (Sheet 1 of 5)

PCN 08YD

Station	L or R	Description	Pave to ROW	Cold Mill	6-foot Shoulder Only
06+65	L	Commercial Driveway	1		
10+72	L	Commercial Driveway	1		
12+22	L	Commercial Driveway	1		
12+22	R	Field Entrance			1
16+39	L	Field Entrance			1
42+71	L	198th Street - Gravel Road with Bituminous Approach	1	1	
42+71	R	198th Street - Bituminous Road with Bituminous Approach	1	1	
47+28	R	Residential Driveway			1
50+90	R	Residential Driveway			1
69+12	L	Field Entrance			1
69+12	R	Field Entrance			1
95+70	L	197th Street - Gravel Road with Bituminous Approach	1	1	
95+70	R	197th Street/ 305th Avenue - Earthen Roadways with Gravel Approach			1
112+33	L	Field Entrance			1
112+33	R	Field Entrance			1
126+40	L	Field Entrance			1
126+40	R	Field Entrance			1
154+67	L	Field Entrance			1
154+67	R	Field Entrance			1
172+24	L	196th Street - Gravel Road with Gravel Approach	1		
172+24	R	196th Street - Gravel Road with Gravel Approach	1		
183+00	L	Field Entrance			1
183+00	R	Field Entrance			1
207+00	L	Field Entrance			1
211+93	R	Field Entrance			1
222+62	L	Residential Driveway			1
225+12	L	Residential Driveway			1
225+12	R	Agricultural Driveway			1
240+00	R	Field Entrance			1
251+55	R	Field Entrance			1
257+40	L	Field Entrance			1
277+86	L	194th Street - Gravel Road with Gravel Approach	1		
277+86	R	194th Street - Gravel Road with Gravel Approach	1		
286+87	L	Residential Driveway			1
304+36	L	Field Entrance			1
304+36	R	Field Entrance			1
330+85	L	193rd Street - Gravel Road with Bituminous Approach	1	1	
330+85	R	193rd Street - Gravel Road with Gravel Approach	1		
338+60	L	Field Entrance			1
357+18	L	Field Entrance			1
		PCN 08YD Sheet 1 Totals	**12**	**4**	**28**

TABLE OF APPROACHES (Sheet 2 of 5)

PCN 08YD

Station	L or R	Description	Pave to ROW	Cold Mill	6-foot Shoulder Only
357+18	R	Field Entrance			1
383+63	L	Field Entrance			1
383+63	R	Field Entrance			1
410+07	L	Field Entrance			1
410+07	R	Field Entrance			1
425+00	L	Field Entrance			1
425+00	R	Field Entrance			1
436+50	L	191st Street - Gravel Road with Gravel Approach	1		
436+50	R	191st Street - Gravel Road with Gravel Approach	1		
463+40	L	Field Entrance			1
463+40	R	Field Entrance			1
490+30	L	190th Street - Gravel Road with Gravel Approach	1		
490+30	R	Field Entrance			1
516+76	L	Field Entrance			1
516+76	R	Field Entrance			1
528+30	R	Field Entrance			1
543+22	L	Field Entrance			1
543+22	R	Field Entrance			1
550+76	R	Field Entrance			1
564+79	R	Field Entrance			1
584+00	L	Field Entrance			1
584+00	R	Agricultural Driveway			1
596+18	L	188th Street - Gravel Road with Bituminous Approach	1	1	
596+18	R	188th Street - Earthen Road with Gravel Approach			1
619+00	L	Field Entrance			1
619+00	R	Field Entrance			1
622+76	R	Field Entrance			1
641+65	L	Field Entrance			1
646+11	L	Industrial Driveway			1
649+06	L	187th Street - Gravel Road with Gravel Approach	1		
649+06	R	187th Street - Gravel Road with Gravel Approach	1		
670+67	L	Field Entrance			1
670+67	R	Field Entrance			1
705+75	L	Residential Driveway			1
709+73	R	Agricultural Driveway			1
720+58	L	Agricultural Driveway			1
720+58	R	Field Entrance			1
725+25	L	Residential Driveway			1
726+81	R	Residential Driveway			1
728+88	R	Agricultural Driveway			1
		PCN 08YD Sheet 2 Totals	**6**	**1**	**34**

TABLE OF APPROACHES (Sheet 3 of 5)

PCN 08YD

Station	L or R	Description	Pave to ROW	Cold Mill	6-foot Shoulder Only
730+73	L	Industrial Driveway			1
732+76	R	Agricultural Driveway			1
735+18	L	Industrial Driveway			1
761+70	L	Residential Driveway			1
767+20	L	Residential Driveway			1
775+65	L	Field Entrance			1
775+65	R	Field Entrance			1
789+30	L	Agricultural Driveway			1
859+23	L	183rd Street - Earthen Road with Gravel Approach			1
859+23	R	183rd Street - Earthen Road with Gravel Approach			1
865+50	L	Field Entrance			1
865+50	R	Field Entrance			1
912+03	L	182nd Street - Gravel Road with Gravel Approach	1		
912+03	R	182nd Street - Gravel Road with Gravel Approach	1		
938+22	R	Field Entrance			1
939+80	L	Field Entrance			1
949+75	R	Field Entrance			1
964+94	L	Agricultural Driveway			1
964+94	R	181st Street - Earthen Road with Gravel Approach			1
976+94	L	Field Entrance			1
1017+50	L	180th Street - Gravel Road with Bituminous Approach	1	1	
1017+50	R	180th Street - Gravel Road with Gravel Approach	1		
1038+80	L	Field Entrance			1
1070+61	L	179th Street - Gravel Road with Bituminous Approach	1	1	
1070+61	R	179th Street - Gravel Road with Bituminous Approach	1	1	
1096+85	L	Field Entrance			1
1096+85	R	Field Entrance			1
1123+88	L	Field Entrance			1
1150+86	L	Field Entrance			1
1150+86	R	Field Entrance			1
1162+65	R	Field Entrance			1
1169+47	R	Agricultural Driveway			1
1177+08	L	179th Street - Gravel Road with Bituminous Approach	1	1	
1177+08	R	Field Entrance			1
1203+80	L	Field Entrance			1
1216+65	R	Agricultural Driveway			1
1233+20	L	Commercial Driveway			1
1256+55	L	Field Entrance			1
1283+08	L	175th Street - Gravel Road with Bituminous Approach	1	1	
1283+08	R	175th Street - Gravel Road with Bituminous Approach	1	1	
		PCN 08YD Sheet 3 Totals	**9**	**6**	**31**

TABLE OF APPROACHES (Sheet 4 of 5)

PCN 08YD

Station	L or R	Description	Pave to ROW	Cold Mill	6-foot Shoulder Only
1309+75	L	Field Entrance			1
1335+95	L	174th Street - Earthen Road with Gravel Approach			1
1335+95	R	174th Street - Gravel Road with Gravel Approach	1		
1362+45	L	Field Entrance			1
1389+00	L	173rd Street - Earthen Road with Gravel Approach			1
1389+00	R	173rd Street - Earthen Road with Gravel Approach			1
1407+00	R	Field Entrance			1
1409+60	R	Field Entrance			1
1412+20	R	Field Entrance			1
1415+10	L	Field Entrance			1
1423+40	L	Residential Driveway			1
1428+64	L	Field Entrance			1
1446+52	L	172nd Street - Gravel Road with Gravel Approach	1		
1446+52	R	172nd Street - Gravel Road with Bituminous Approach	1	1	
1473+20	L	Field Entrance			1
1473+20	R	Field Entrance			1
1499+69	L	Field Entrance			1
1499+69	R	Field Entrance			1
1519+75	L	Field Entrance			1
1523+70	R	Residential Driveway			1
1531+80	L	Field Entrance			1
1531+80	R	Field Entrance			1
1544+20	L	Field Entrance			1
1552+59	L	170th Street - Gravel Road with Gravel Approach	1		
1552+59	R	170th Street - Gravel Road with Gravel Approach	1		
1556+15	L	Residential Driveway			1
1578+85	L	Field Entrance			1
1578+85	R	Field Entrance			1
1605+60	L	169th Street - Earthen Road with Gravel Approach			1
1605+60	R	169th Street - Earthen Road with Gravel Approach			1
1632+20	L	Field Entrance			1
1632+20	R	Industrial Driveway			1
1658+61	L	Field Entrance			1
1658+61	R	Field Entrance			1
1666+60	L	Field Entrance			1
1685+35	L	Field Entrance			1
1685+35	R	Field Entrance			1
1698+55	L	Field Entrance			1
1705+65	R	Field Entrance			1
1711+51	L	167th Street - Gravel Road with Gravel Approach	1		
		PCN 08YD Sheet 4 Totals	**6**	**1**	**34**

TABLE OF APPROACHES (Sheet 5 of 5)

PCN 08YD

Station	L or R	Description	Pave to ROW	Cold Mill	6-foot Shoulder Only
1711+51	R	167th Street - Gravel Road with Gravel Approach	1		
1722+45	R	Field Entrance			1
1725+60	L	Field Entrance			1
1737+70	R	Field Entrance			1
1739+90	L	Residential Driveway			1
1739+90	R	Residential Driveway			1
1750+80	L	Field Entrance			1
1750+80	R	Field Entrance			1
1764+02	L	Field Entrance			1
1764+02	R	Field Entrance			1
1772+40	L	Field Entrance			1
1772+40	R	Field Entrance			1
1782+05	L	Field Entrance			1
1806+95	L	Field Entrance			1
1806+95	R	Field Entrance			1
1816+88	L	Field Entrance			1
1816+88	R	Field Entrance			1
1827+55	R	Field Entrance			1
1839+90	R	Field Entrance			1
1847+20	L	Field Entrance			1
1863+39	R	Field Entrance			1
1866+95	L	Commercial Driveway			1
		PCN 08YD Sheet 5 Totals	**1**	**0**	**21**

	Pave to ROW	Cold Mill	6-foot Shoulder Only
PCN 08YD Totals	**34**	**12**	**148**

PCN 09AX

Station	L or R	Description	Pave to ROW	Cold Mill	6-foot Shoulder Only
3058+02	L	Field Entrance			1
3078+85	L	Commercial Driveway			1
3081+92	R	Field Entrance			1
3084+99	R	305th Avenue - Gravel Road with Gravel Approach	1		
		PCN 09AX Totals	**1**	**0**	**3**

TABLE OF MATERIAL QUANTITIES (Sheet 1 of 2)

PCN 08YD	Remove Guardrail Terminal Anchor 110E0750 (Each)	Salvage Beam Guardrail 110E4290 (Ft)	Unclassified Excavation, Digouts 120E0100 (CuYd)	Contractor Furnished Borrow 120E0600 (CuYd)	Water for Granular Material 120E6200 (MGal)	Shoulder Preparation 210E1000 (Mile)	Base Course, Salvaged 260E1030 (Ton)	Salvage Asphalt Mix Material 270E0022 (Ton)	Salvage and Stockpile Granular Material 270E0110 (Ton)	Haul and Stockpile Granular Material 270E0210 (Ton)	Blend and Stockpile Granular Material 270E0220 (Ton)	Haul and Stockpile Asphalt Mix Material 270E0230 (Ton)
Section 1	0	0	1,716	0	763.1	68.622	3,431.1	0	28,817.2	21,317.7	5,429.2	0
Section 2	0	0	27	0	14.9	1.088	347.3	745.0	0	0	745.0	745.0
Additional Quantities	4	350	4	160	33.3	0.314	3,123.9	181.1	57.3	0	416.3	181.1
TOTAL MATERIAL QUANTITIES PCN 08YD	**4**	**350**	**1,747**	**160**	**811.3**	**70.024**	**6,902.3**	**926.1**	**28,874.5**	**21,317.7**	**6,590.5**	**926.1**

PCN 08YD	PG 58-34 Asphalt Binder 320E0005 ALTERNATE A (Ton)	Class HR Asphalt Concrete 320E1070 ALTERNATE A (Ton)	PG 58-34 Asphalt Binder 320E0005 ALTERNATE B (Ton)	Class HR Asphalt Concrete 320E1070 ALTERNATE B (Ton)	MC-70 Asphalt for Prime 330E0010 (Ton)	SS-1h or CSS-1h Asphalt for Tack 330E0100 (Ton)	SS-1h or CSS-1h Asphalt for Flush Seal 330E0210 (Ton)	Sand for Flush Seal 330E2000 (Ton)	Cold Milling Asphalt Concrete 332E0010 (SqYd)	Type 1 MGS 630E0500 (Ft)	Type 1 Retrofit Guardrail Transition 630E1501 (Each)	MGS MASH Flared End Terminal 630E2017 (Each)	Guardrail Delineator 632E2220 (Each)
Section 1	2,333.1	44,741.5	1,921.4	46,388.5	429.4	87.3	68.4	966.2	0	0	0	0	0
Section 2	37.0	710.0	30.5	736.2	6.8	1.4	1.1	15.3	0	0	0	0	0
Additional Quantities	48.9	919.2	39.6	954.3	9.9	0.8	4.4	31.9	2,112	162.5	4	4	16
TOTAL MATERIAL QUANTITIES PCN 08YD	**2,419.0**	**46,370.7**	**1,991.5**	**48,079.0**	**446.1**	**89.5**	**73.9**	**1,013.4**	**2,112**	**162.5**	**4**	**4**	**16**

TABLE OF MATERIAL QUANTITIES (Sheet 2 of 2)

PCN 09AX	Remove Guardrail Terminal Anchor 110E0750 (Each)	Salvage Beam Guardrail 110E4290 (Ft)	Unclassified Excavation, Digouts 120E0100 (CuYd)	Contractor Furnished Borrow 120E0600 (CuYd)	Water for Granular Material 120E6200 (MGal)	Shoulder Preparation 210E1000 (Mile)	Base Course, Salvaged 260E1030 (Ton)	Salvage Asphalt Mix Material 270E0022 (Ton)	Salvage and Stockpile Granular Material 270E0110 (Ton)	Haul and Stockpile Granular Material 270E0210 (Ton)	Blend and Stockpile Granular Material 270E0220 (Ton)	Haul and Stockpile Asphalt Mix Material 270E0230 (Ton)
Section 2	0	0	42	0	23.2	1.695	540.7	1,159.9	0	0	1,159.9	1,159.9
Additional Quantities	0	0	4	0	2.8	0.155	113.8	108.0	0	0	108.0	108.0
TOTAL MATERIAL QUANTITIES PCN 09AX	**0**	**0**	**46**	**0**	**26.0**	**1.850**	**654.5**	**1,267.9**	**0**	**0**	**1,267.9**	**1,267.9**

PCN 09AX	PG 58-34 Asphalt Binder 320E0005 ALTERNATE A (Ton)	Class HR Asphalt Concrete 320E1070 ALTERNATE A (Ton)	PG 58-34 Asphalt Binder 320E0005 ALTERNATE B (Ton)	Class HR Asphalt Concrete 320E1070 ALTERNATE B (Ton)	MC-70 Asphalt for Prime 330E0010 (Ton)	SS-1h or CSS-1h Asphalt for Tack 330E0100 (Ton)	SS-1h or CSS-1h Asphalt for Flush Seal 330E0210 (Ton)	Sand for Flush Seal 330E2000 (Ton)	Cold Milling Asphalt Concrete 332E0010 (SqYd)	Type 1 MGS 630E0500 (Ft)	Type 1 Retrofit Guardrail Transition 630E1501 (Each)	MGS MASH Flared End Terminal 630E2017 (Each)	Guardrail Delineator 632E2220 (Each)
Section 2	57.0	1,105.6	47.8	1,146.3	10.6	2.2	1.7	23.9	0	0	0	0	0
Additional Quantities	6.4	121.4	5.3	125.9	1.3	0.3	0.4	3.0	0	0	0	0	0
TOTAL MATERIAL QUANTITIES PCN 09AX	**63.4**	**1,227.0**	**53.1**	**1,272.2**	**11.9**	**2.5**	**2.1**	**26.9**	**0**	**0**	**0**	**0**	**0**

TABLE OF ADDITIONAL QUANTITIES (Sheet 1 of 2)

PCN 08YD	Remove Guardrail Terminal Anchor 110E0750 (Each)	Salvage Beam Guardrail 110E4290 (Ft)	Unclassifed Excavation, Digouts 120E0100 (CuYd)	Contractor Furnished Borrow 120E0600 (CuYd)	Water for Granular Material 120E6200 (MGal)	Shoulder Preparation 210E1000 (Mile)	Base Course, Salvaged 260E1030 (Ton)	Salvage Asphalt Mix Material 270E0022 (Ton)	Salvage and Stockpile Granular Material 270E0110 (Ton)	Haul and Stockpile Granular Material 270E0210 (Ton)	Blend and Stockpile Granular Material 270E0220 (Ton)	Haul and Stockpile Asphalt Mix Material 270E0230 (Ton)
Approaches - Pave to ROW (34 ea; 12 with Cold Milling)	0	0	0	0	5.2	0	544.0	0	0	0	235.2	0
Approaches - Pave Shoulder only (148 ea)	0	0	0	0	22.7	0	2,368.0	0	0	0	0	0
WIM Station Sta. 70+00 to 73+00	0	0	0	0	1.3	0.114	5.7	0	47.7	0	0	0
186th Street Exception 701+16 to 703+13	0	0	0	0	0.4	0.036	0	0	9.6	0	0	0
Shoulder Tapers at Onida 758+50 to 761+50	0	0	0	0	0.2	0.009	6.1	17.6	0	0	17.6	17.6
Guardrail at Structure 54-160-224	4	350	0	160	1.4	0	150.7	57.0	0	0	57.0	57.0
Intersection Radii at Easterly Junction of US 83 (N) and US 212 (E)	0	0	4	0	2.1	0.155	49.4	106.5	0	0	106.5	106.5
TOTAL ADDITIONAL QUANTITIES	**4**	**350**	**4**	**160**	**33.3**	**0.314**	**3,123.9**	**181.1**	**57.3**	**0**	**416.3**	**181.1**

PCN 08YD	PG 58-34 Asphalt Binder 320E0005 ALTERNATE A (Ton)	Class HR Asphalt Concrete 320E1070 ALTERNATE A (Ton)	PG 58-34 Asphalt Binder 320E0005 ALTERNATE B (Ton)	Class HR Asphalt Concrete 320E1070 ALTERNATE B (Ton)	MC-70 Asphalt for Prime 330E0010 (Ton)	SS-1h or CSS-1h Asphalt for Tack 330E0100 (Ton)	SS-1h or CSS-1h Asphalt for Flush Seal 330E0210 (Ton)	Sand for Flush Seal 330E2000 (Ton)	Cold Milling Asphalt Concrete 332E0010 (SqYd)	Type 1 MGS 630E0500 (Ft)	Type 1 Retrofit Guardrail Transition 630E1501 (Each)	MGS MASH Flared End Terminal 630E2017 (Each)	Guardrail Delineator 632E2220 (Each)
Approaches - Pave to ROW (34 ea; 12 with Cold Milling)	34.0	632.4	27.2	656.2	6.8	0	3.4	23.8	2,112	0	0	0	0
Approaches - Pave Shoulder only (148 ea)	0	0	0	0	0	0	0	0	0	0	0	0	0
WIM Station Sta. 70+00 to 73+00	3.9	74.3	3.2	77.1	0.7	0.1	0.1	1.6	0	0	0	0	0
186th Street Exception 701+16 to 703+13	0.8	15.0	0.7	15.6	0.4	0.4	0.4	0.8	0	0	0	0	0
Shoulder Tapers at Onida 758+50 to 761+50	0.9	16.7	0.7	17.4	0.2	0.1	0.1	0.4	0	0	0	0	0
Guardrail at Structure 54-160-224	4.1	79.6	3.4	83.1	0.8	0	0.2	3.1	0	162.5	4	4	16
Intersection Radii at Easterly Junction of US 83 (N) and US 212 (E)	5.2	101.2	4.4	104.9	1.0	0.2	0.2	2.2	0	0	0	0	0
TOTAL ADDITIONAL QUANTITIES	**48.9**	**919.2**	**39.6**	**954.3**	**9.9**	**0.8**	**4.4**	**31.9**	**2,112**	**162.5**	**4**	**4**	**16**

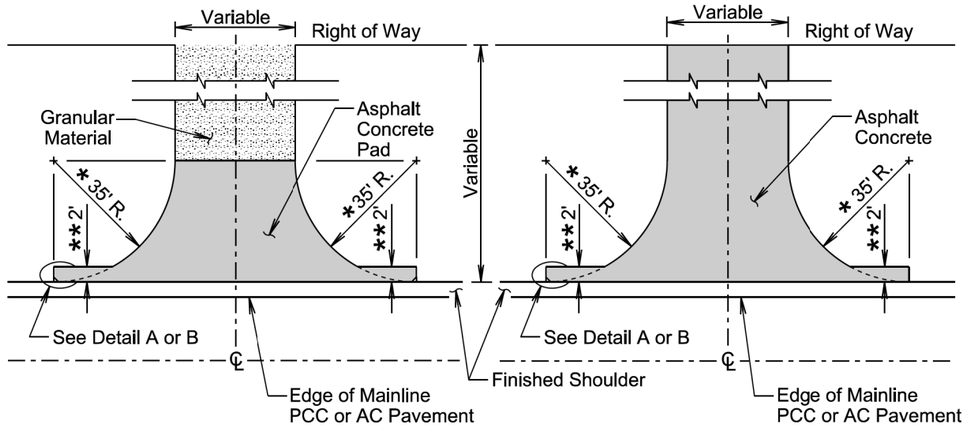
TABLE OF ADDITIONAL QUANTITIES (Sheet 2 of 2)

PCN 09AX	Remove Guardrail Terminal Anchor 110E0750 (Each)	Salvage Beam Guardrail 110E4290 (Ft)	Unclassifed Excavation, Digouts 120E0100 (CuYd)	Contractor Furnished Borrow 120E0600 (CuYd)	Water for Granular Material 120E6200 (MGal)	Shoulder Preparation 210E1000 (Mile)	Base Course, Salvaged 260E1030 (Ton)	Salvage Asphalt Mix Material 270E0022 (Ton)	Salvage and Stockpile Granular Material 270E0110 (Ton)	Haul and Stockpile Granular Material 270E0210 (Ton)	Blend and Stockpile Granular Material 270E0220 (Ton)	Haul and Stockpile Asphalt Mix Material 270E0230 (Ton)
Approach - Pave to ROW (1 ea)	0	0	0	0	0.2	0	16.0	0	0	0	0	0
Approaches - Pave Shoulder Only (3 ea)	0	0	0	0	0.5	0	48.0	0	0	0	0	0
Extra width at RT shoulder 3039+33 to 3039+77	0	0	0	0	0	0	0.5	1.6	0	0	1.6	1.6
Intersection Radii at Westerly Junction of US 83 (S) and US 212 (W)	0	0	4	0	2.1	0.155	49.3	106.4	0	0	106.4	106.4
TOTAL ADDITIONAL QUANTITIES	**0**	**0**	**4**	**0**	**2.8**	**0.155**	**113.8**	**108.0**	**0**	**0**	**108.0**	**108.0**

PCN 09AX	PG 58-34 Asphalt Binder 320E0005 ALTERNATE A (Ton)	Class HR Asphalt Concrete 320E1070 ALTERNATE A (Ton)	PG 58-34 Asphalt Binder 320E0005 ALTERNATE B (Ton)	Class HR Asphalt Concrete 320E1070 ALTERNATE B (Ton)	MC-70 Asphalt for Prime 330E0010 (Ton)	SS-1h or CSS-1h Asphalt for Tack 330E0100 (Ton)	SS-1h or CSS-1h Asphalt for Flush Seal 330E0210 (Ton)	Sand for Flush Seal 330E2000 (Ton)	Cold Milling Asphalt Concrete 332E0010 (SqYd)	Type 1 MGS 630E0500 (Ft)	Type 1 Retrofit Guardrail Transition 630E1501 (Each)	MGS MASH Flared End Terminal 630E2017 (Each)	Guardrail Delineator 632E2220 (Each)
Approach - Pave to ROW (1 ea)	1.0	18.6	0.8	19.3	0.2	0	0.1	0.7	0	0	0	0	0
Approaches - Pave Shoulder Only (3 ea)	0	0	0	0	0	0	0	0	0	0	0	0	0
Extra width at RT shoulder 3039+33 to 3039+77	0.1	1.5	0.1	1.6	0.1	0.1	0.1	0.1	0	0	0	0	0
Intersection Radii at Westerly Junction of US 83 (S) and US 212 (W)	5.3	101.3	4.4	105.0	1.0	0.2	0.2	2.2	0	0	0	0	0
TOTAL ADDITIONAL QUANTITIES	**6.4**	**121.4**	**5.3**	**125.9**	**1.3**	**0.3**	**0.4**	**3.0**	**0**	**0**	**0**	**0**	**0**

NOTES ABOUT ADDITIONAL QUANTITIES: Approaches with paving to ROW – Quantities for approximately 176 SqYd of Cold Milling Asphalt Concrete (where needed); 19.6 Tons of Blend and Stockpile Granular Material; 1.0 Tons of Asphalt Binder (Alternate A); 18.6 Tons Class HR Asphalt Concrete (Alternate A); 0.8 Tons of Asphalt Binder (Alternate B); 19.3 Tons of Class HR Asphalt Concrete (Alternate B); 0.2 Tons of MC-70 Asphalt for Prime; 0.1 Tons of SS-1h of CSS-1h Asphalt for Flush Seal; and 0.7 Tons of Sand for Flush Seal per approach are estimated.
All approaches – Quantities for Base Course Salvaged are calculated at 16.0 Tons per approach. Water for Granular Material is calculated at 4% by weight.

The data presented in the Tables of Additional Quantities are reported in the Table of Material Quantities sheet of these plans.



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:

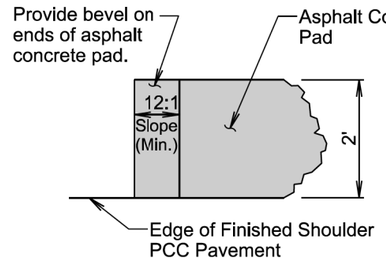
The precise construction limits for situations other than shown above will be determined by the Engineer during construction.

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

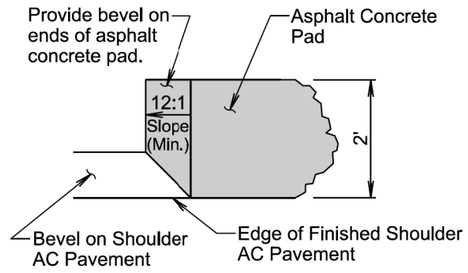
** The Contractor may adjust the screed of the paver during mainline paving operations to provide the 2-foot asphalt concrete pad or the Contractor may provide the 2-foot asphalt concrete pad during paving of the intersecting roads as shown above. The Engineer may eliminate the 2-foot asphalt concrete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

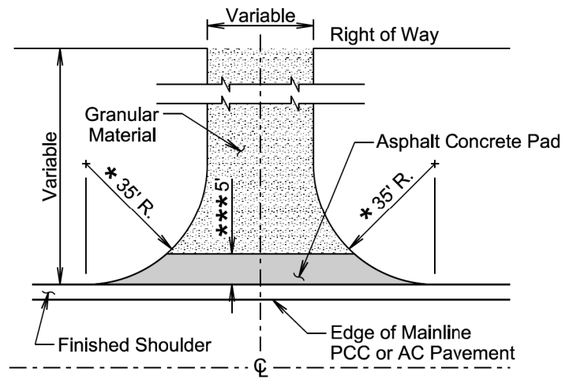
Published Date: 2025	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 1 of 2



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



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

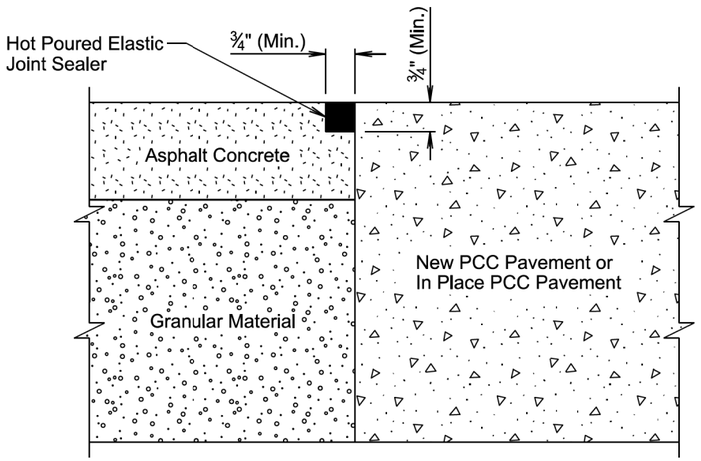


PLAN VIEW
(Entrance)

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

August 27, 2020

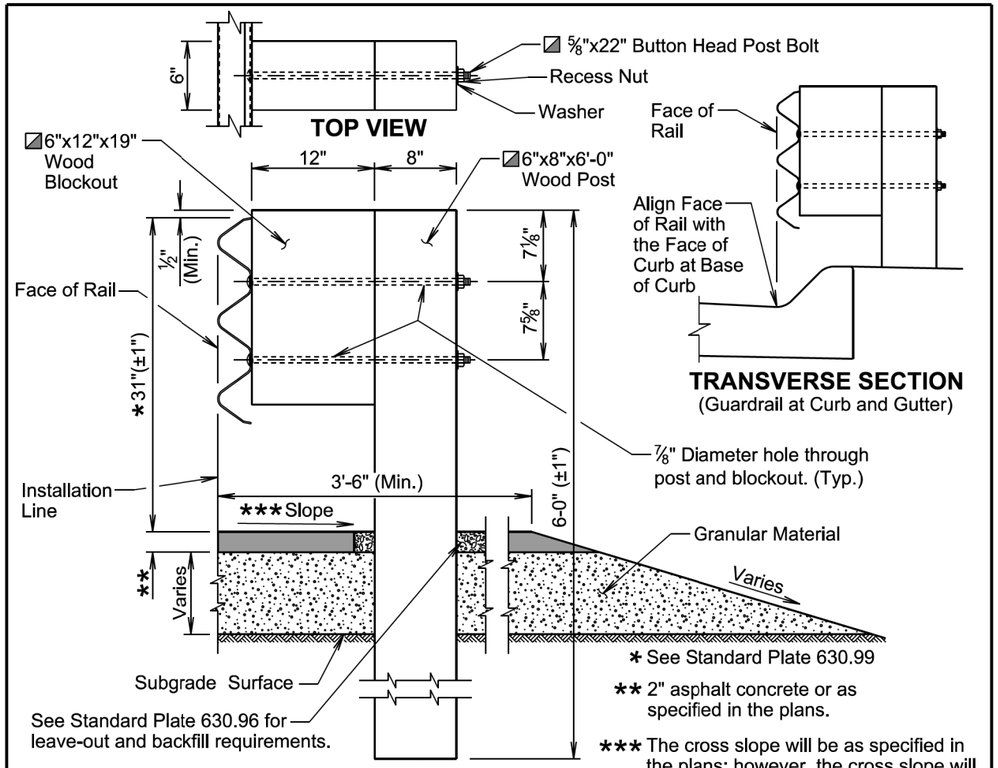
Published Date: 2025	SDDOT	SURFACING OR RESURFACING OF INTERSECTING ROADS AND ENTRANCES (MAINLINE AND SHOULDERS: PCC OR AC PAVEMENT)	PLATE NUMBER 320.04 Sheet 2 of 2



TRANSVERSE SECTION
(Asphalt Concrete Shoulder Joint)

September 14, 2019

Published Date: 2025	SDDOT	ASPHALT CONCRETE SHOULDER JOINT ADJACENT TO PCC PAVEMENT	PLATE NUMBER 320.15 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.

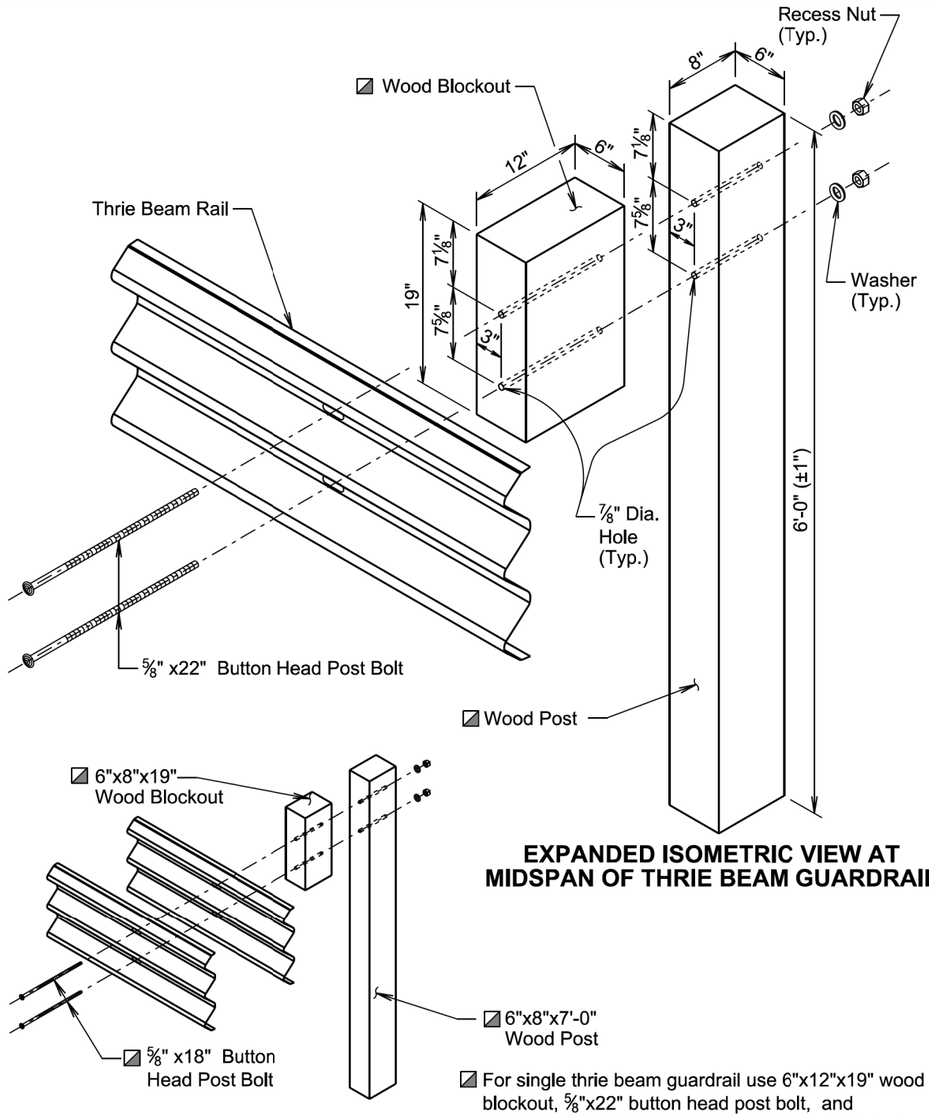
☑ The post and blockout illustrated above is typical for single thrie beam guardrail. When other variations of posts and blockouts are specified on other standard plates (e.g. transitions) then the posts and blockouts will be as specified on the other standard plates or as specified in the plans.

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



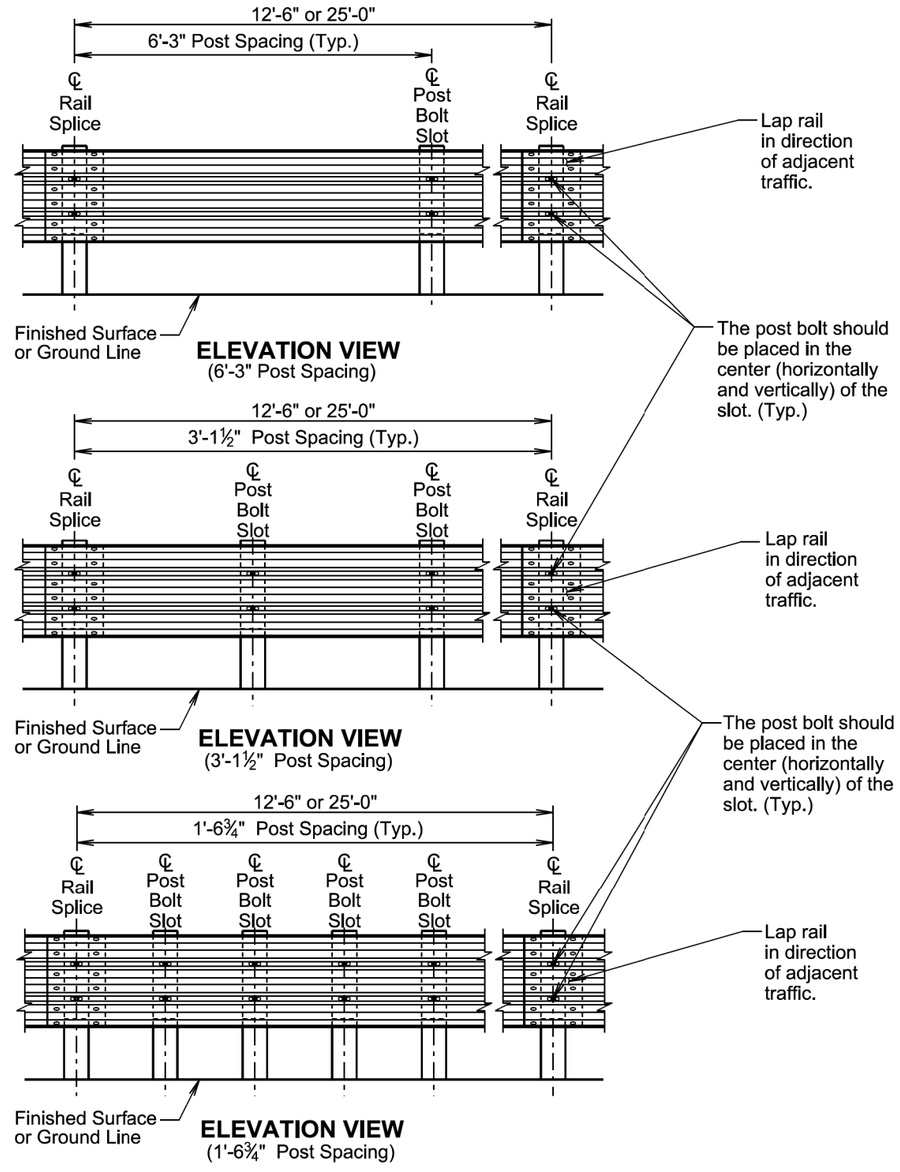
EXPANDED ISOMETRIC VIEW AT MIDSPAN OF THRIE BEAM GUARDRAIL

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

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

September 14, 2019

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

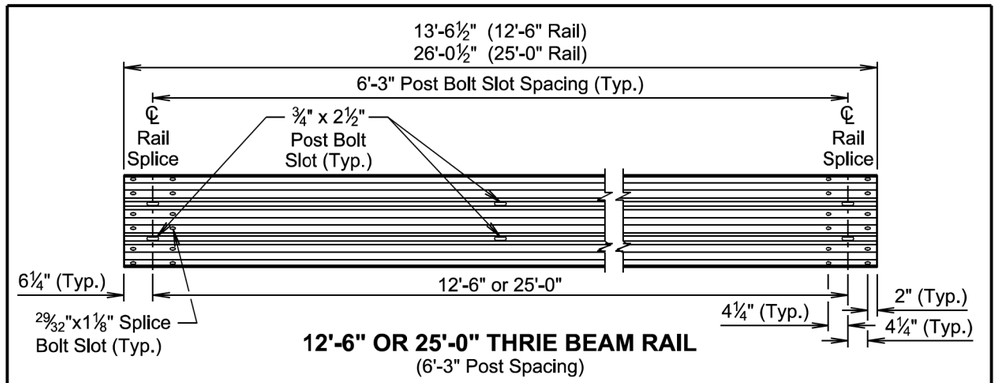


September 14, 2019

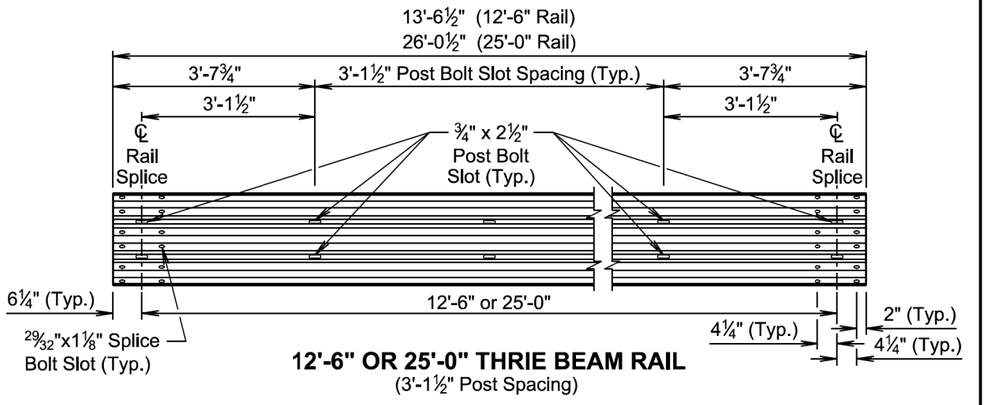
Published Date: 2025	SDDOT	***THRIE BEAM GUARDRAIL***	***PLATE NUMBER*** 630.01 *Sheet 3 of 5*

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(92)138 NH 0212(212)219	32	46

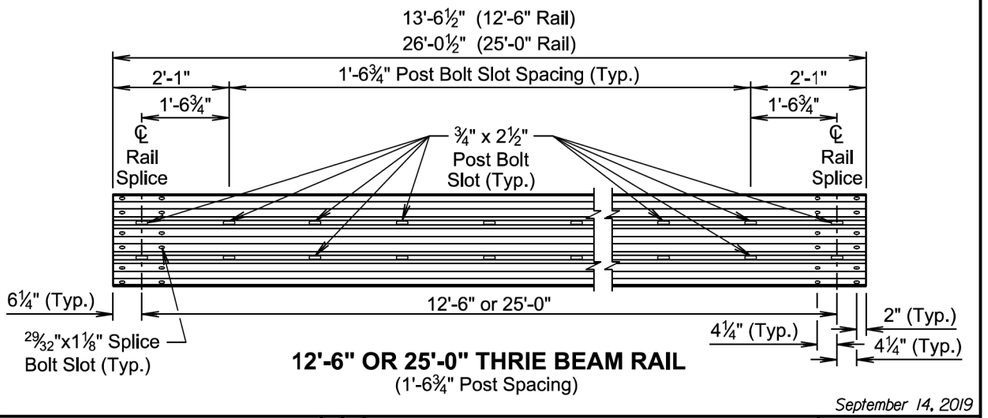
Plotting Date: 07/15/2024



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



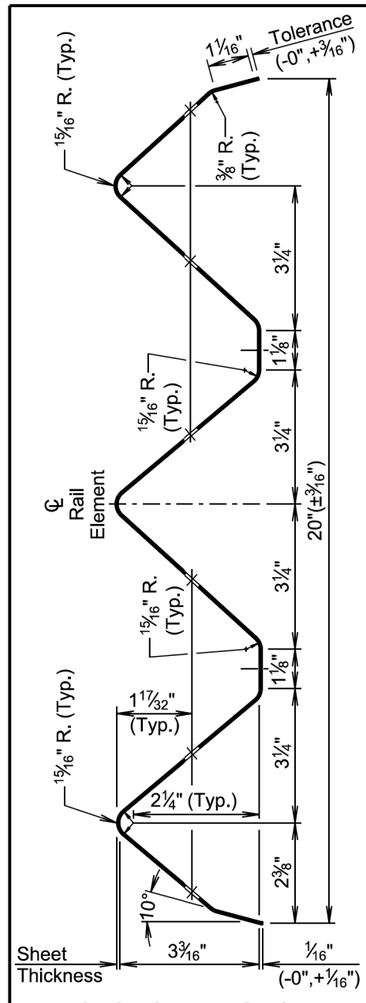
12'-6" OR 25'-0" THRIE BEAM RAIL
(3'-1½" Post Spacing)



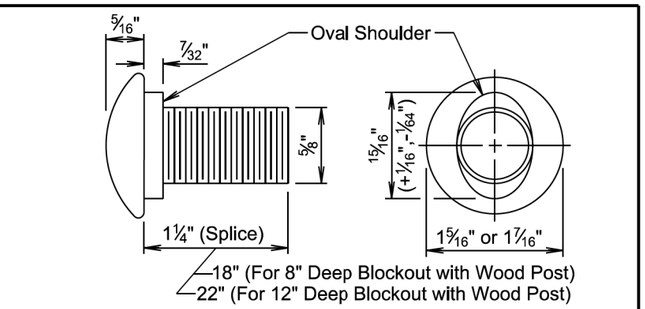
12'-6" OR 25'-0" THRIE BEAM RAIL
(1'-6¾" Post Spacing)

September 14, 2019

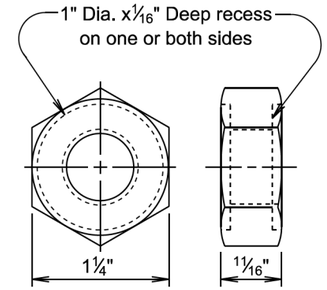
Published Date: 2025	SDDOT	***THRIE BEAM GUARDRAIL***	***PLATE NUMBER 630.01*** *Sheet 4 of 5*



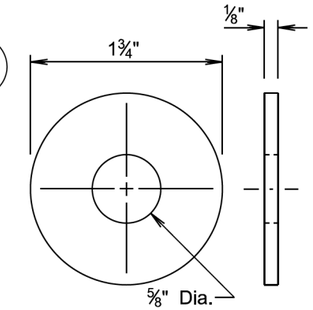
SECTION THROUGH THRIE BEAM RAIL



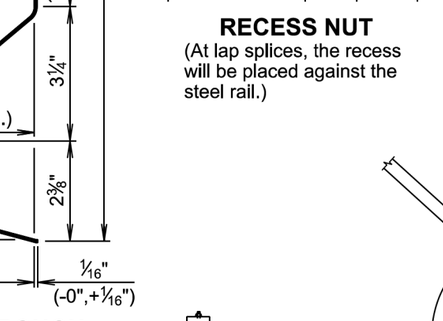
SPLICE BOLT AND POST BOLT
(⅝" Button Head Bolt)



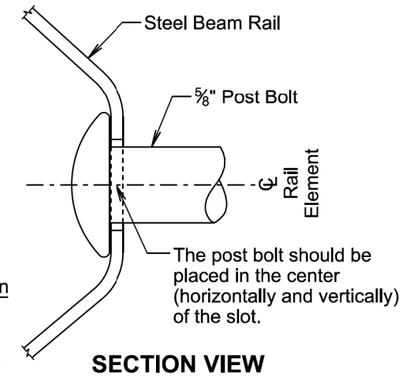
RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)



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



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



SECTION VIEW
(At Post Bolt)

September 14, 2019

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

- Plotted From - TRPR222410
Plot Scale - 1:200
File - ...\CAD\08YD Std Plates.dgn

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.

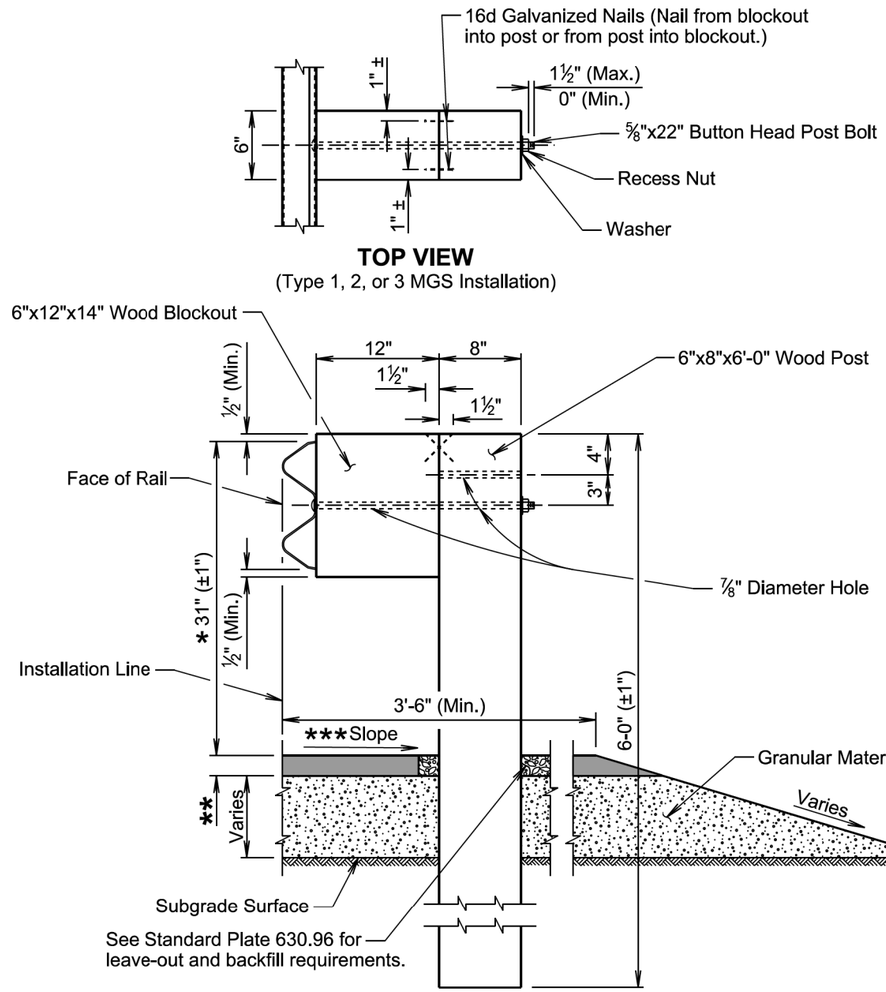
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

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



* See Standard Plate 630.99

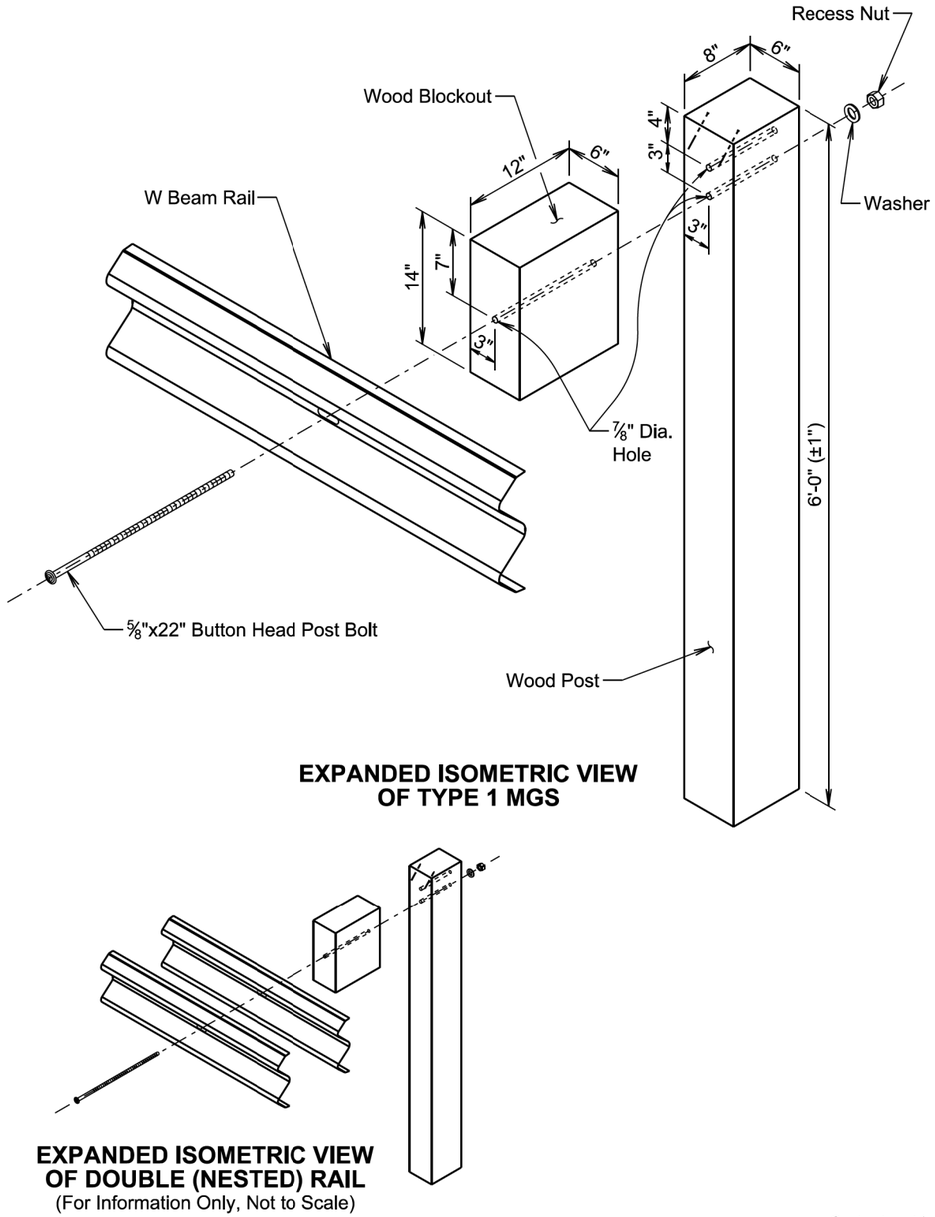
** 2" asphalt concrete or as specified in the plans.

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

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

September 14, 2019

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

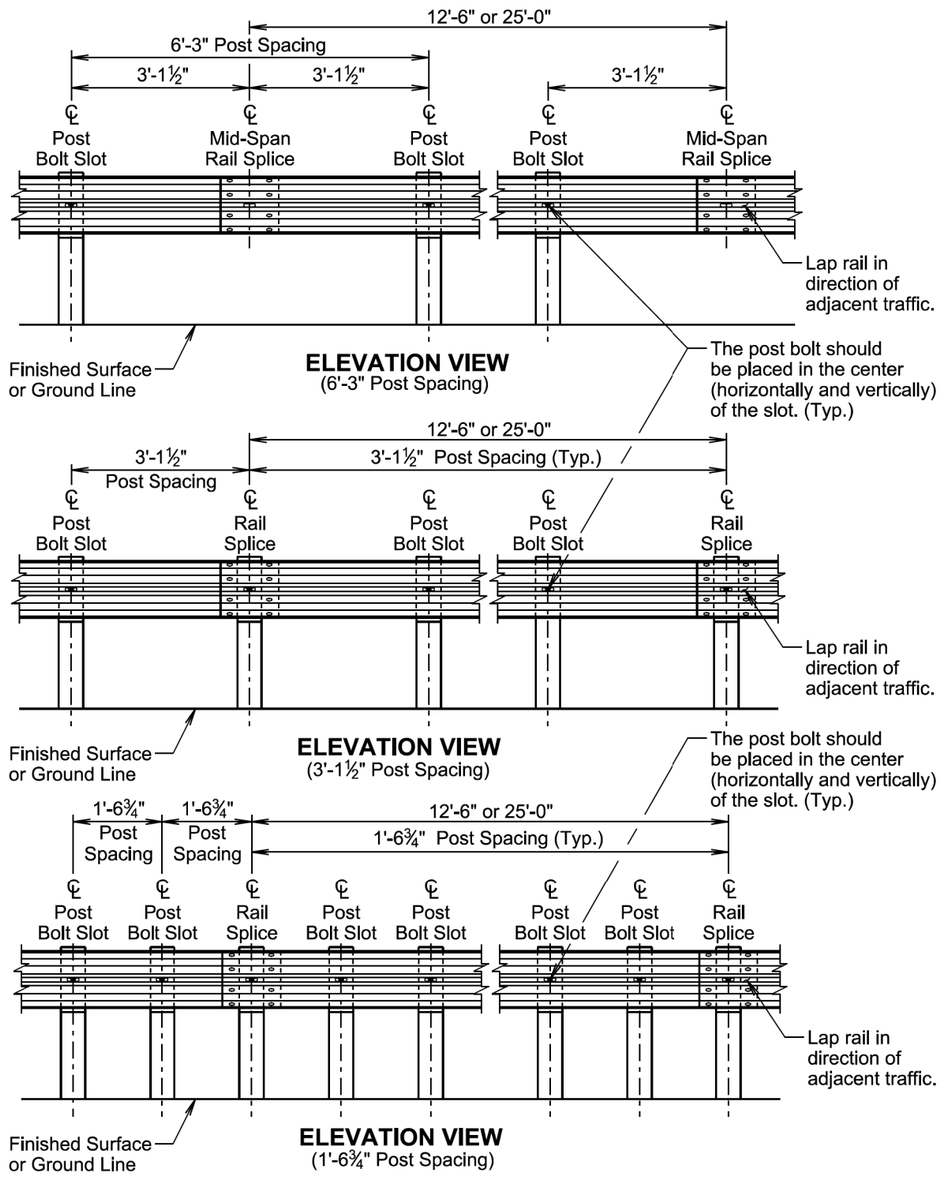


EXPANDED ISOMETRIC VIEW OF TYPE 1 MGS

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*



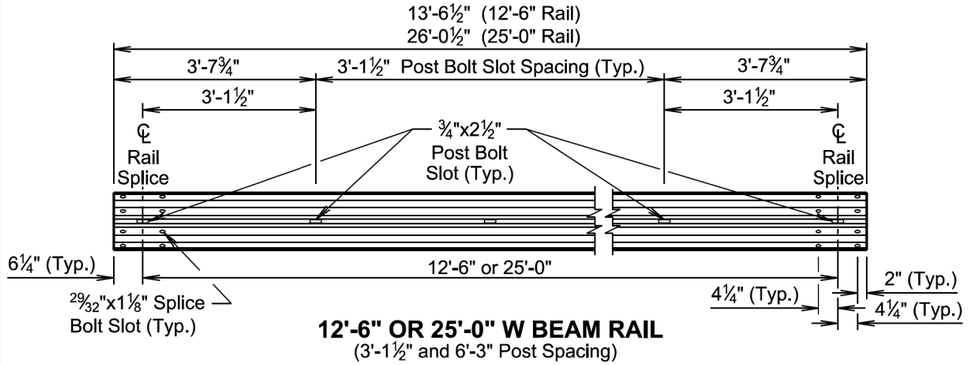
ELEVATION VIEW
(6'-3" Post Spacing)

ELEVATION VIEW
(3'-1½" Post Spacing)

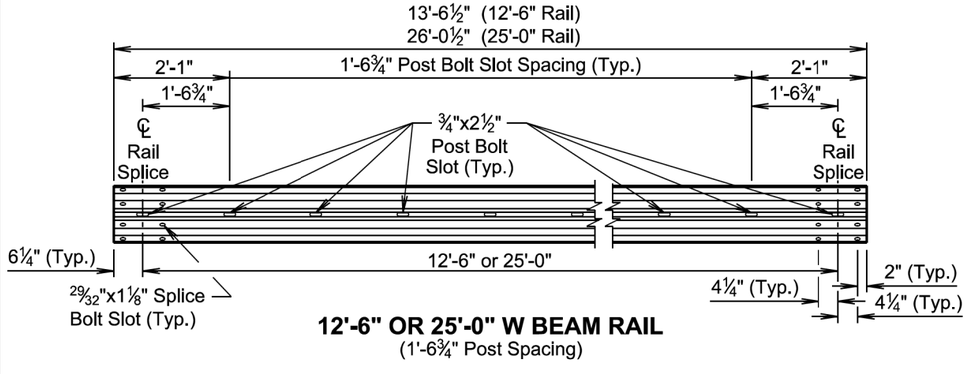
ELEVATION VIEW
(1'-6¾" Post Spacing)

September 14, 2019

Published Date: 2025	SDDOT	***MIDWEST GUARDRAIL SYSTEM (MGS)***	***PLATE NUMBER 630.20*** *Sheet 4 of 6*



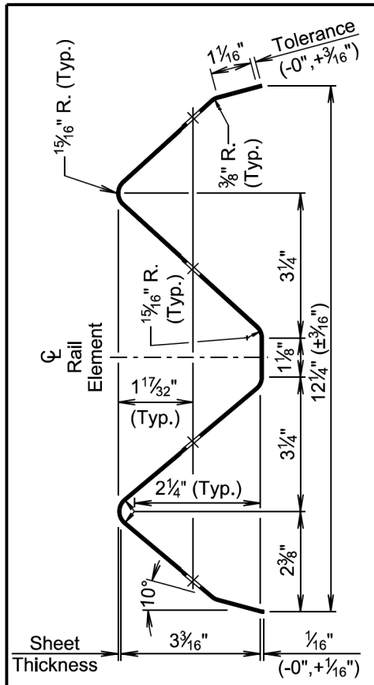
12'-6" OR 25'-0" W BEAM RAIL
(3'-1½" and 6'-3" Post Spacing)



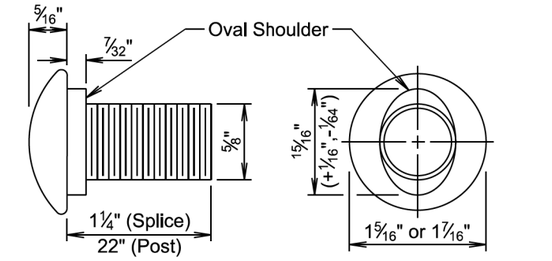
12'-6" OR 25'-0" W BEAM RAIL
(1'-6¾" Post Spacing)

September 14, 2019

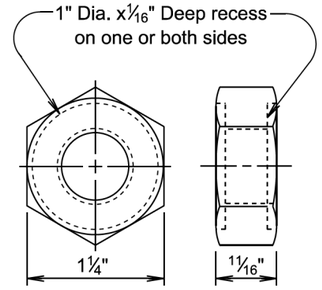
Published Date: 2025	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 5 of 6



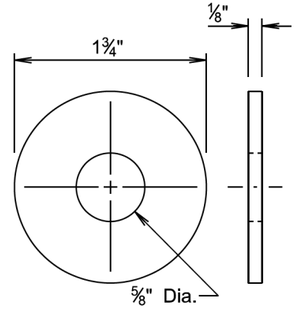
SECTION THROUGH W BEAM RAIL



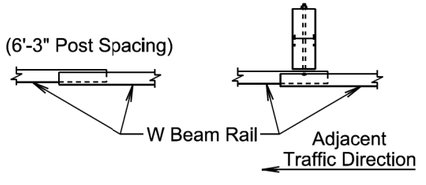
SPLICE BOLT AND POST BOLT
(⅝" Button Head Bolt)



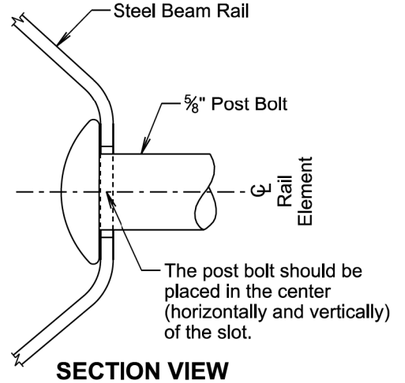
RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)



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



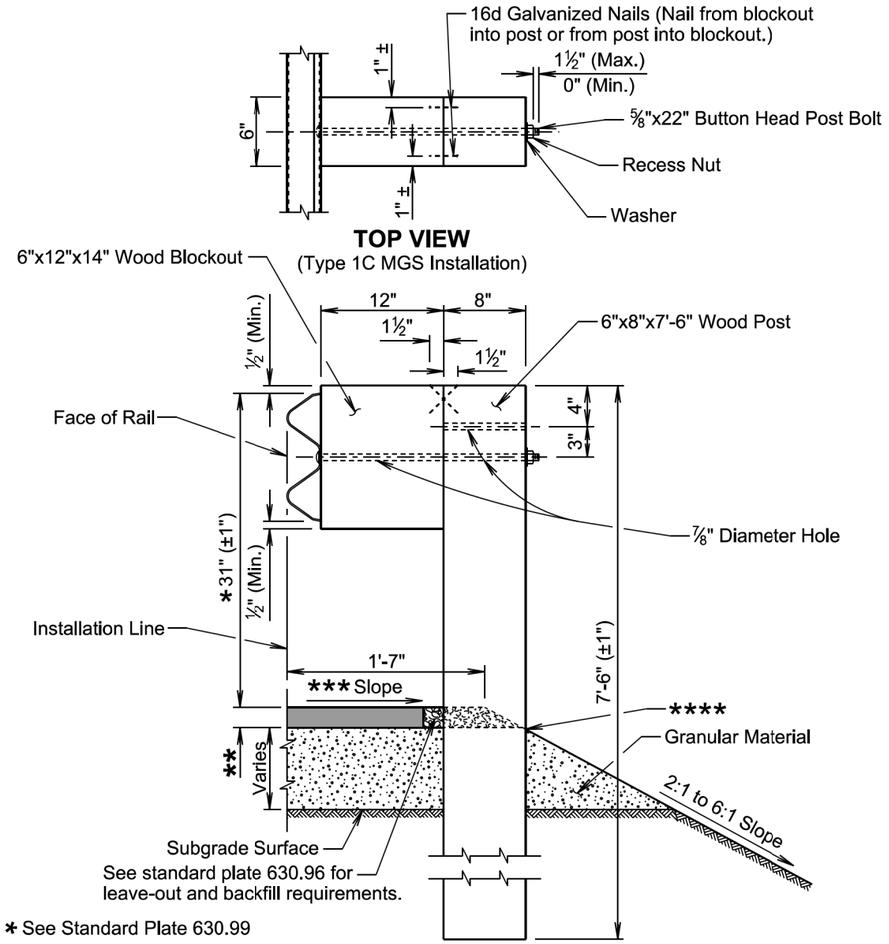
PLAN VIEW
(Lap Splice)
(Lap rail in direction of adjacent traffic.)
(8 splice bolts and 8 recess nuts per splice, NO washers)



SECTION VIEW
(At Post Bolt)

September 14, 2019

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



* See Standard Plate 630.99

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

TRANSVERSE SECTION
(Type 1C MGS Installation)

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

**** For guardrail post installation purposes, the asphalt concrete sluff will end at this location. It will not be allowed to extend down the slope of the granular material.

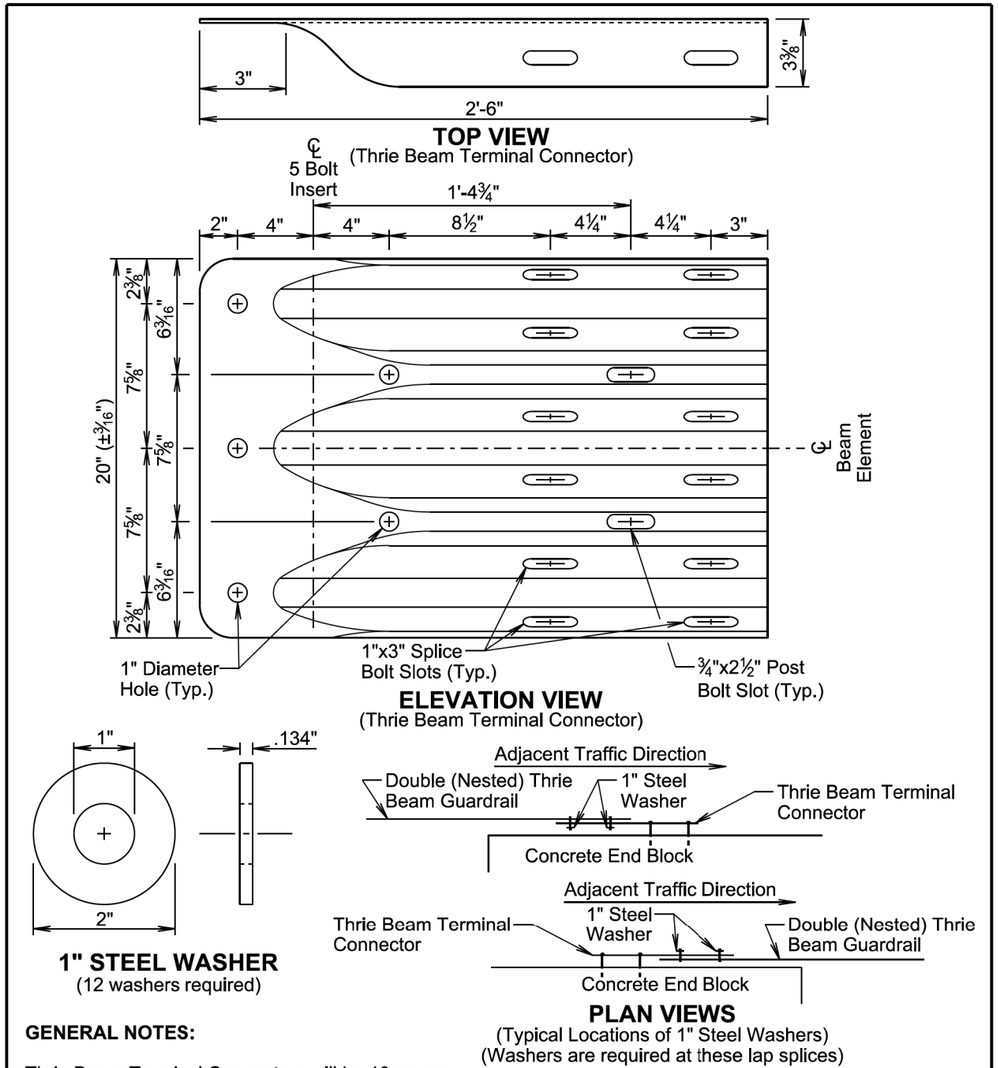
GENERAL NOTES:

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

Topsoil is not shown in the transverse section drawing.

November 19, 2021

Published Date: 2025	SDDOT	***TYPE 1C MIDWEST GUARDRAIL SYSTEM (MGS) INSTALLATION AT BREAK POINT OF SLOPE***	***PLATE NUMBER*** 630.25 *Sheet 1 of 1*



GENERAL NOTES:

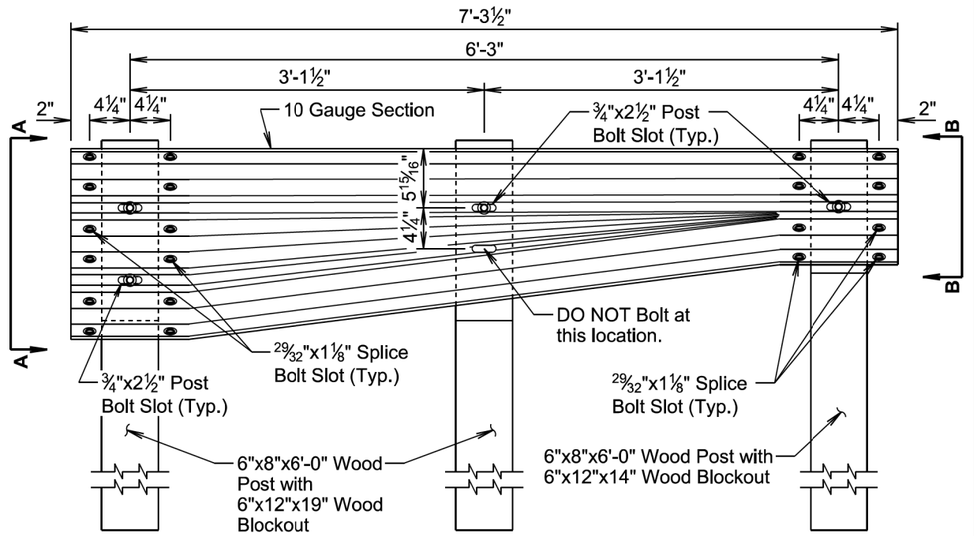
Thrie Beam Terminal Connectors will be 10 gauge.

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

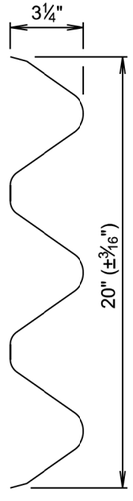
There will be no separate payment for furnishing and installing the thrie beam terminal connector. All costs for furnishing and installing the thrie beam terminal connector will be incidental to the contract unit price of the respective guardrail item it is attached to.

September 14, 2019

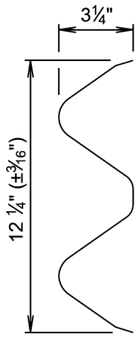
Published Date: 2025	SDDOT	***THRIE BEAM TERMINAL CONNECTOR***	***PLATE NUMBER*** 630.47 *Sheet 1 of 1*



ELEVATION VIEW



VIEW A-A



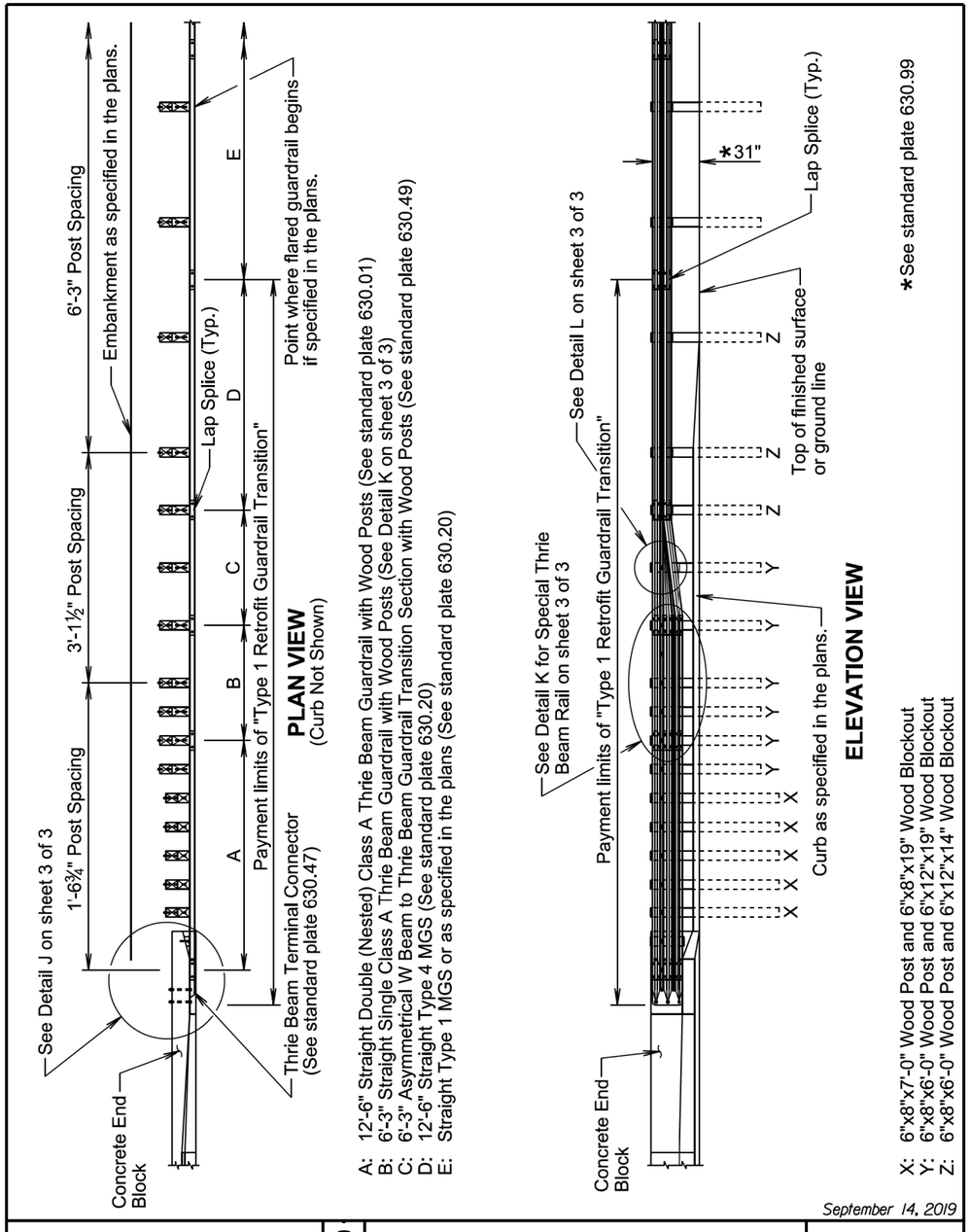
VIEW B-B

GENERAL NOTES:

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

September 14, 2019

Published Date: 2025	SDDOT	***ASYMMETRICAL W BEAM TO THRIE BEAM GUARDRAIL TRANSITION SECTION***	*PLATE NUMBER* 630.49 *Sheet 1 of 1*

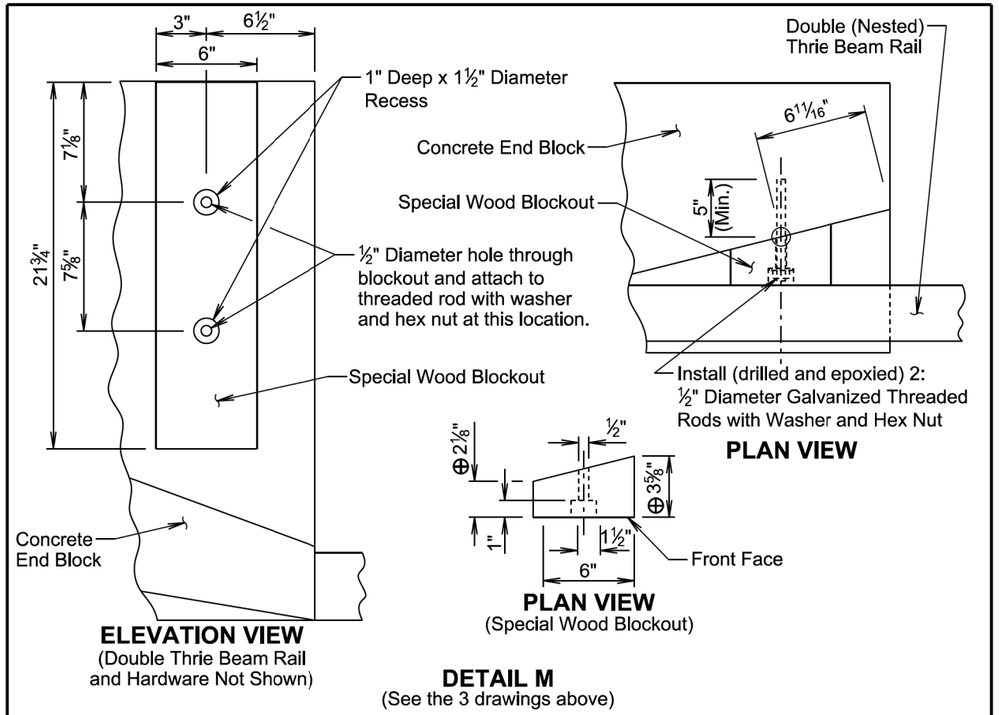


September 14, 2019

Published Date: 2025	SDDOT	***TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))***	*PLATE NUMBER* 630.51 *Sheet 1 of 3*

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(92)138 NH 0212(212)219	38	46

Plotting Date: 07/15/2024



ELEVATION VIEW
(Double Thrie Beam Rail and Hardware Not Shown)

DETAIL M
(See the 3 drawings above)

GENERAL NOTES FOR INSTALLING THREADED RODS INTO CONCRETE:

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

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

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

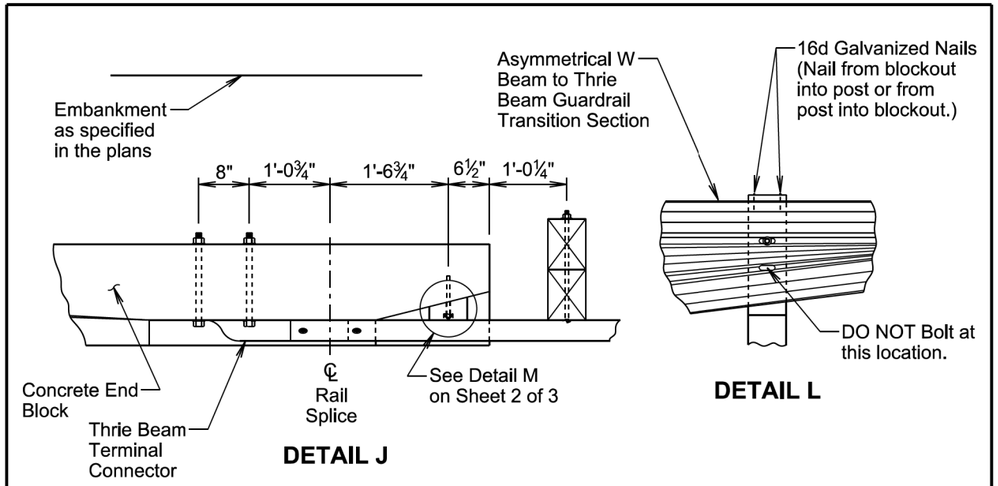
The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, Grade 3 (Equivalent to ASTM C881, Type IV, Grade 3).

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

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

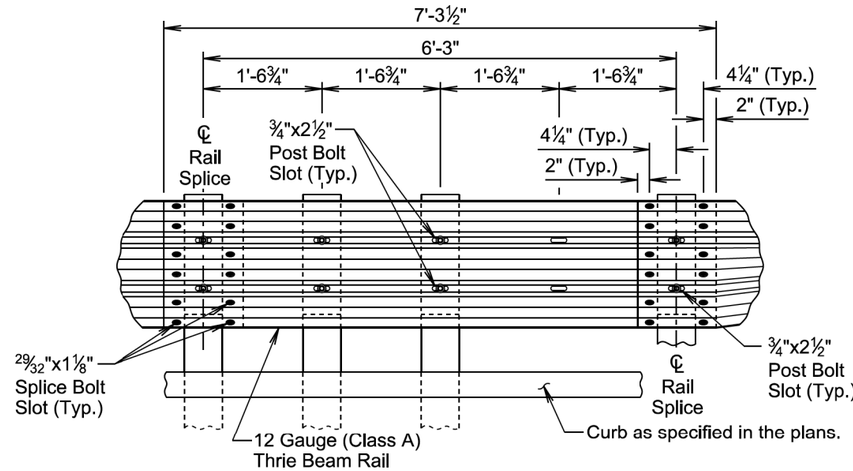
September 14, 2019

Published Date: 2025	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51 Sheet 2 of 3



DETAIL J

DETAIL L



DETAIL K
(Special Thrie Beam Rail)

GENERAL NOTES:

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

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

September 14, 2019

Published Date: 2025	SDDOT	TYPE 1 RETROFIT GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.51 Sheet 3 of 3

Plot Scale - 1:200
- Plotted From - TRPR22410
File - ...\CAD\08YD Std Plates.dgn

ISOMETRIC VIEW

GENERAL NOTES:

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

New bolts, if required, will be galvanized and conform to the requirements of ASTM A307, F-1554 Grade A325, or A449. Plain washers will be galvanized and conform to ASTM F844.

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

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

November 19, 2022

Published Date: 2025	SDDOT	GUARDRAIL ATTACHMENT TO BRIDGE ENDBLOCKS	PLATE NUMBER 630.93 Sheet 1 of 1

** See standard plate 632.40 for delineation.

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

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

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

③ Inslope as specified in the plans.

④ Same slope as roadway cross slope or as specified in the plans.

GENERAL NOTES:

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

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

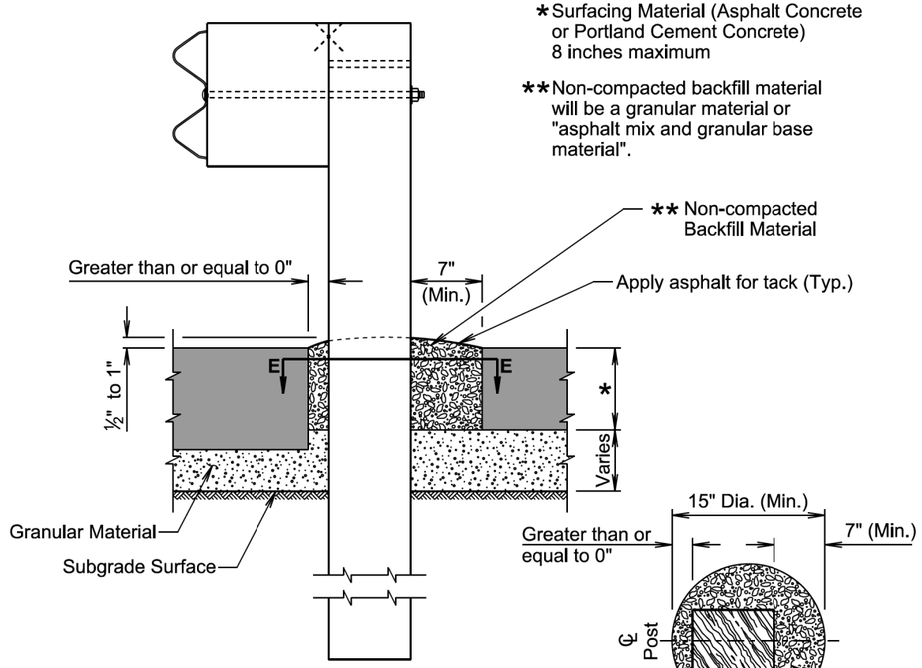
Ⓡ The installation reference line for flared guardrail end terminals will always be parallel to the roadway.

Asphalt concrete will be the same type used elsewhere on the project or will be as specified in the plans. If asphalt concrete is not specified in the plans, the 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.

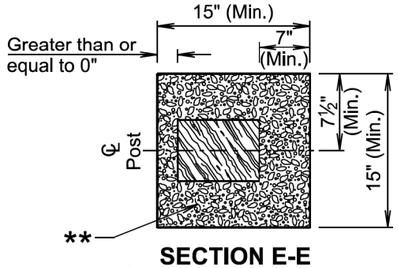
June 26, 2019

Published Date: 2025	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH FLARED END TERMINAL	PLATE NUMBER 630.87 Sheet 1 of 1



TRANSVERSE SECTION
(Wood post shown for illustrative purpose only)

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



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

GENERAL NOTES:

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

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

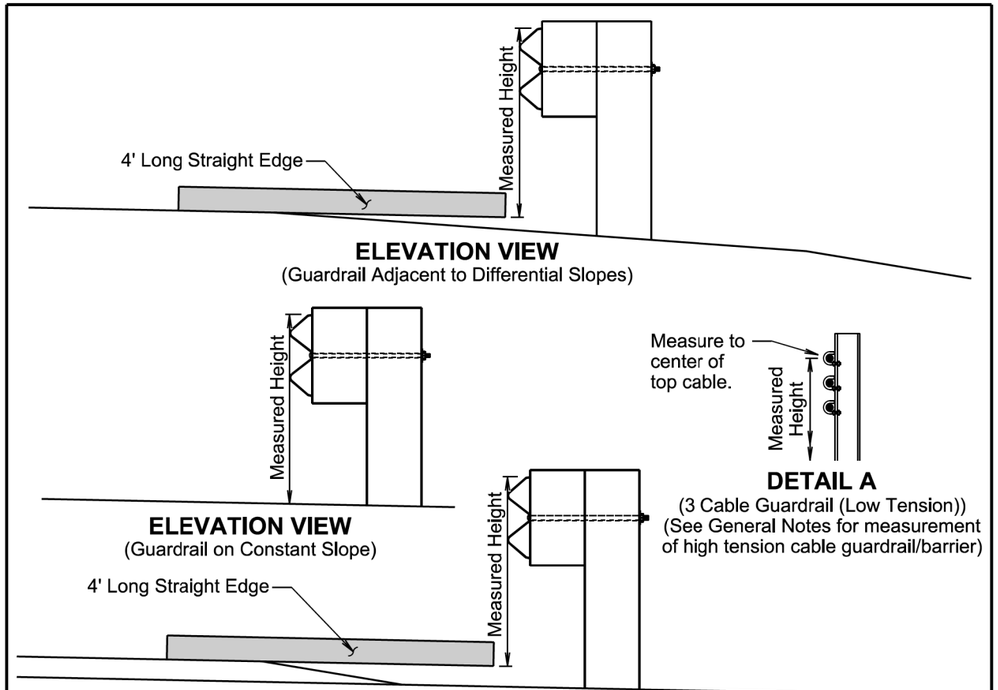
The backfill material will be mounded ½ inch to 1 inch above the top of the adjacent surfacing as illustrated above.

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

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

November 19, 2021

Published Date: 2025	SDDOT	GUARDRAIL POST INSTALLED IN ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE	PLATE NUMBER 630.96
			Sheet 1 of 1

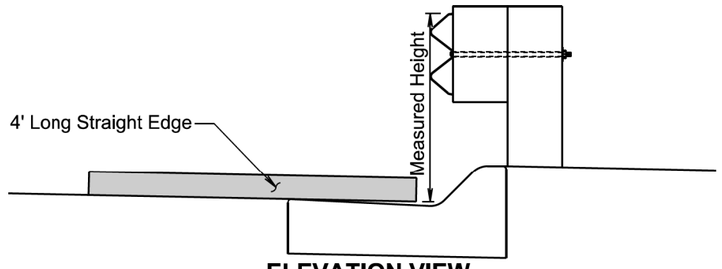


ELEVATION VIEW
(Guardrail Adjacent to Differential Slopes)

ELEVATION VIEW
(Guardrail on Constant Slope)

DETAIL A
(3 Cable Guardrail (Low Tension))
(See General Notes for measurement of high tension cable guardrail/barrier)

ELEVATION VIEW
(Guardrail Adjacent to Differential Surfacing Elevations)



ELEVATION VIEW
(Guardrail at Curb and Gutter)

GENERAL NOTES:

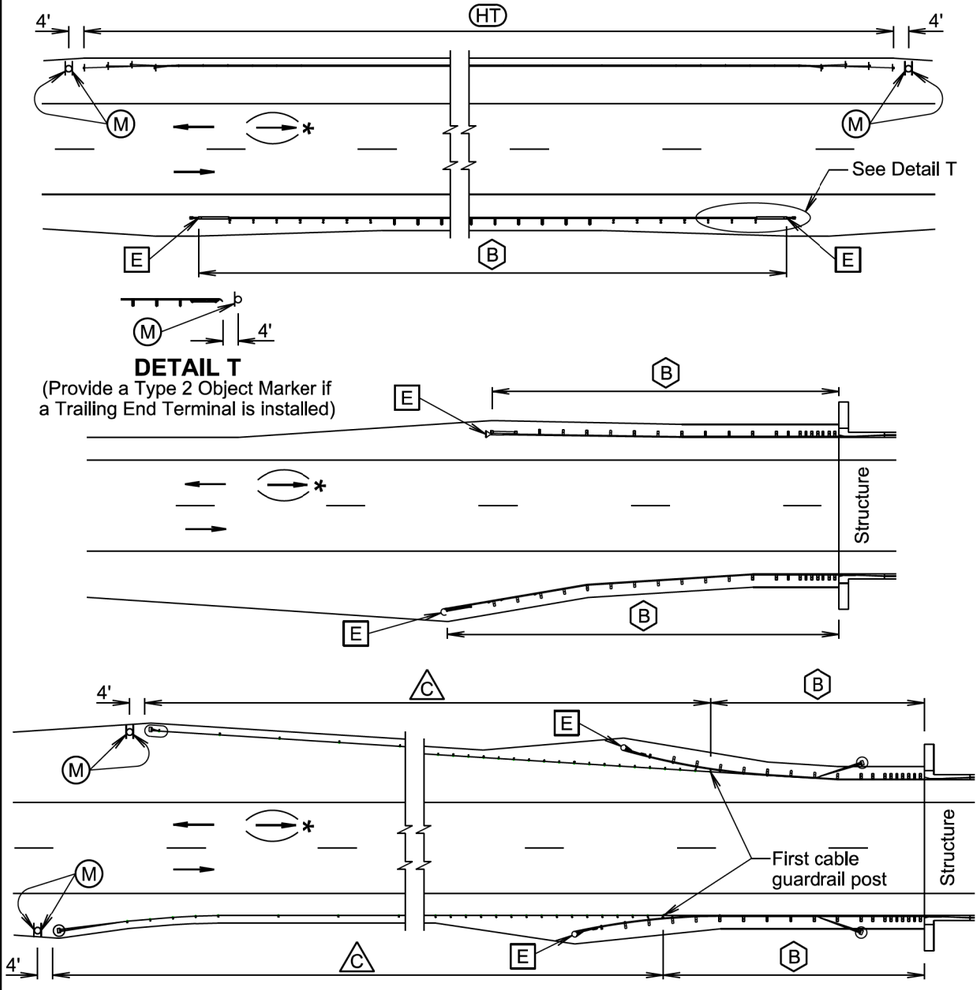
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

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.

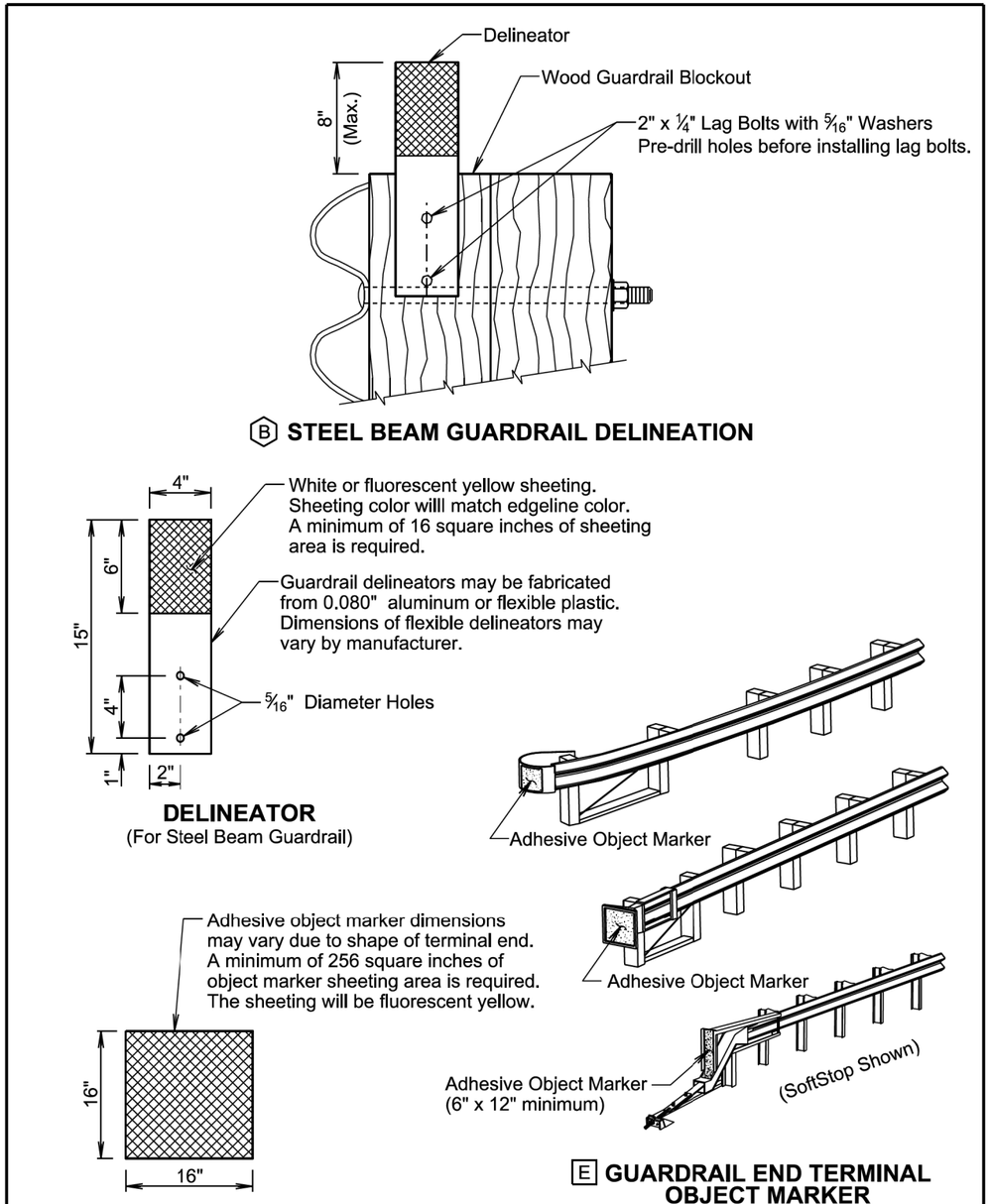
September 14, 2019

Published Date: 2025	SDDOT	MEASURING GUARDRAIL HEIGHT	PLATE NUMBER 630.99
			Sheet 1 of 1



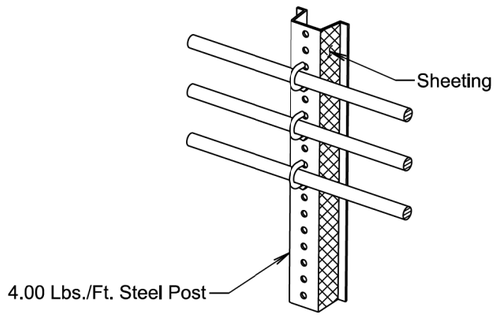
March 31, 2024

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

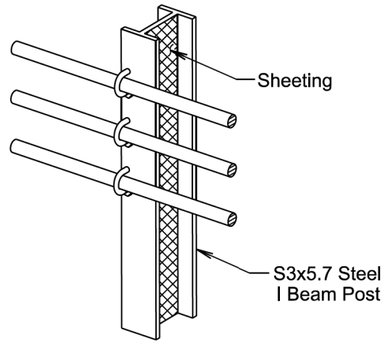


March 31, 2024

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



Ⓒ 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



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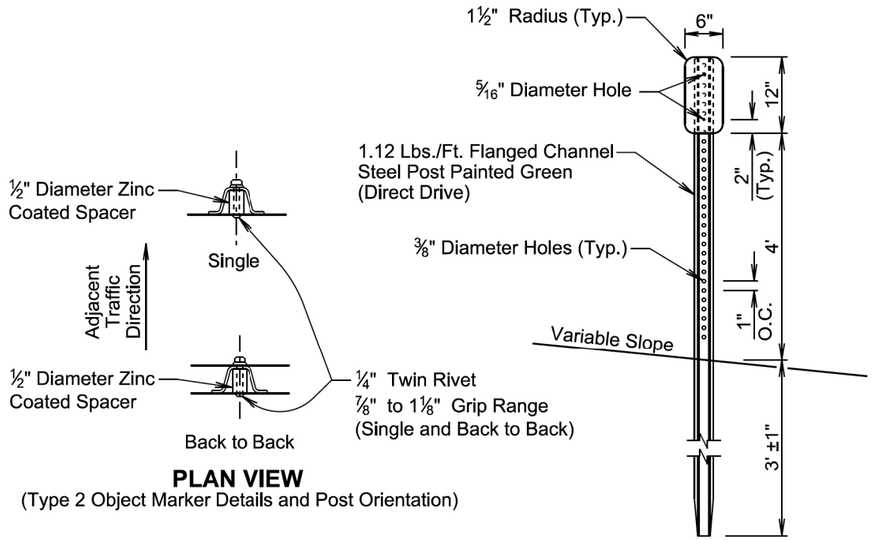


PLAN VIEW
(Type 2 Object Marker Details and Post Orientation)

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".

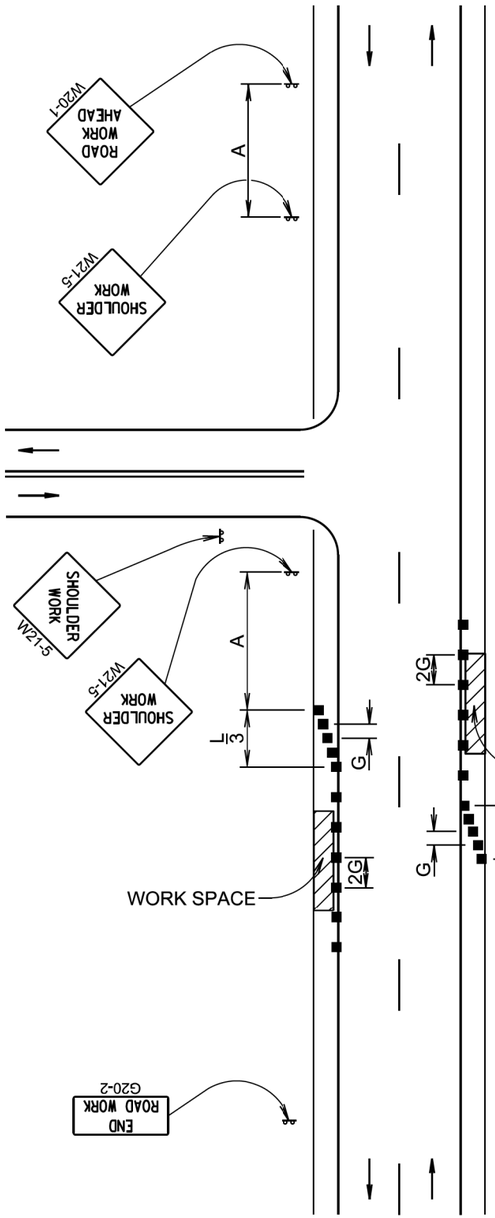
All costs for furnishing and installing the reflective sheeting on the cable spacers or post caps for the high tension cable guardrail will be incidental to the respective high tension cable guardrail contract item.

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



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

END ROAD WORK
G20-2

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.

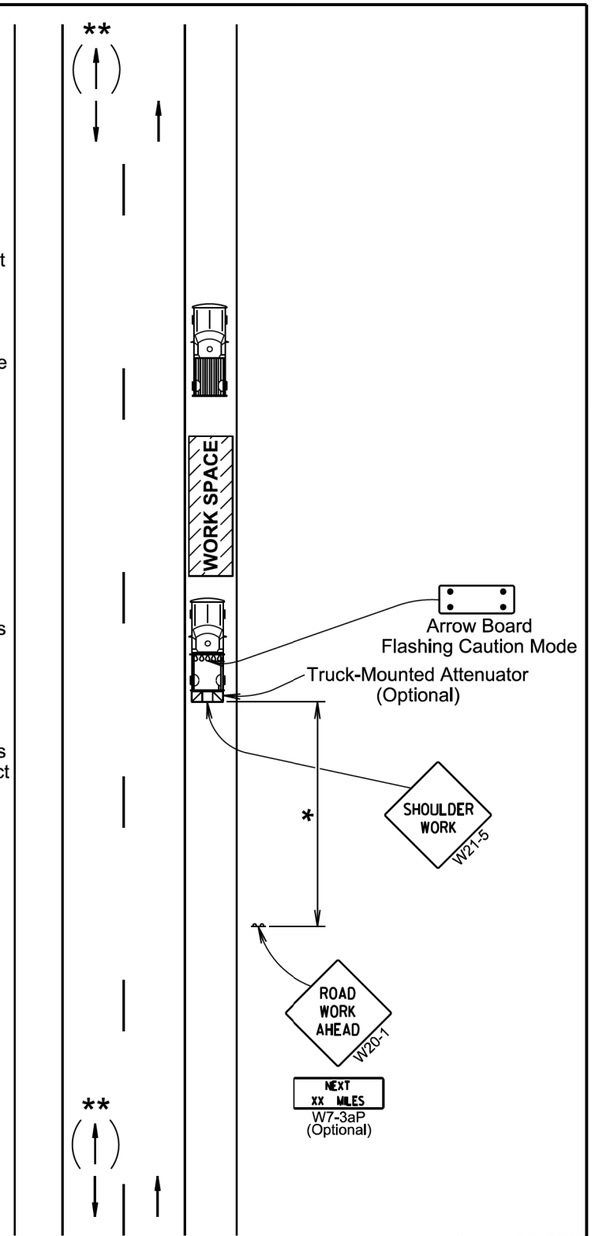
Worker signs (W21-1 or W21-1a) may be used instead of SHOULDER WORK signs.

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.

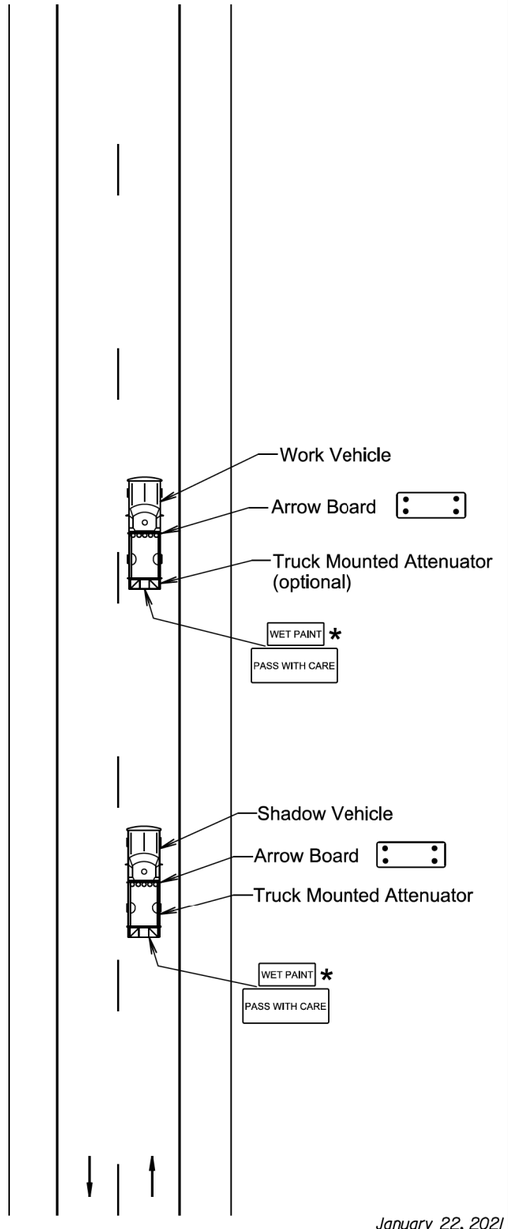
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

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)	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.

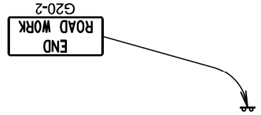
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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.

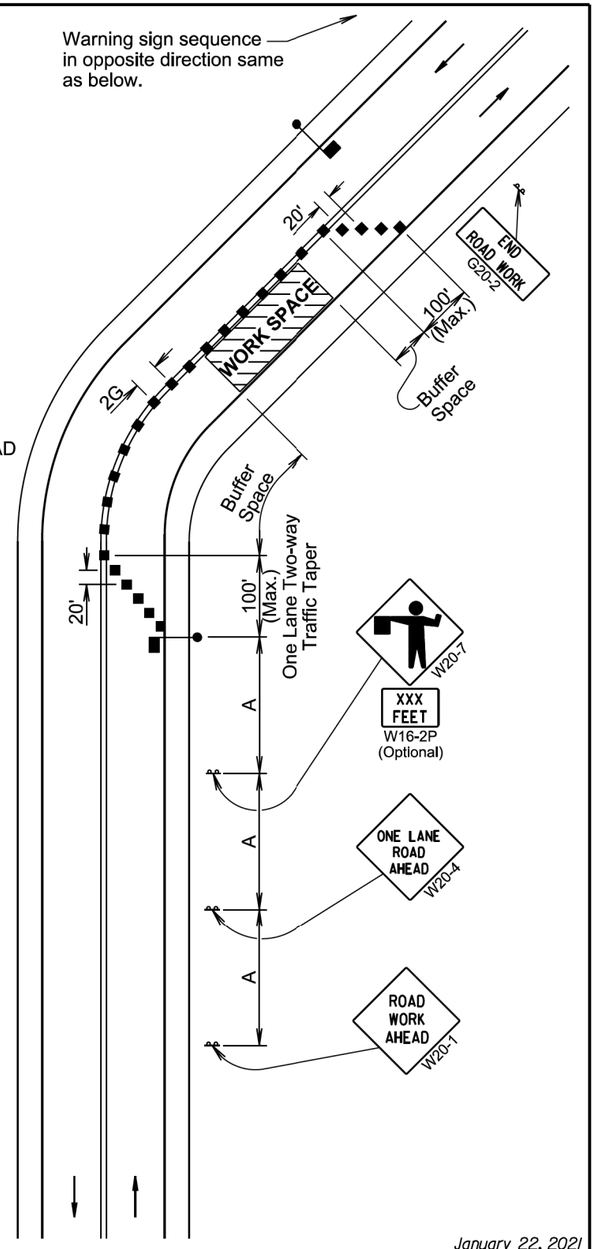
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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

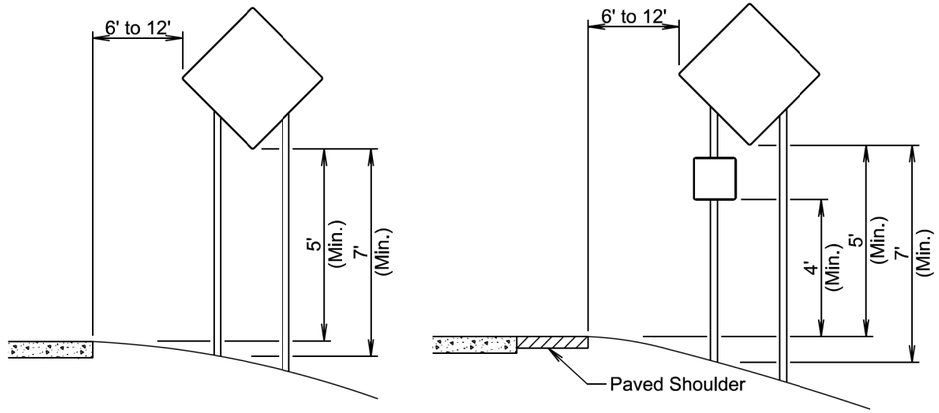
The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

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



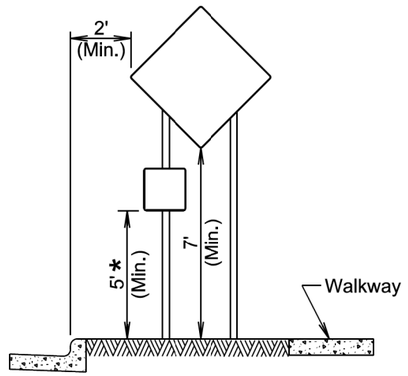
January 22, 2021

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

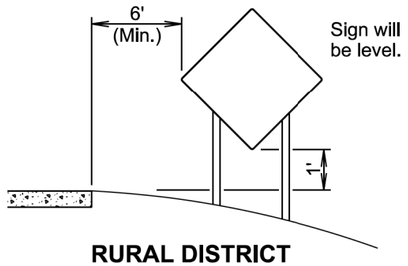


RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

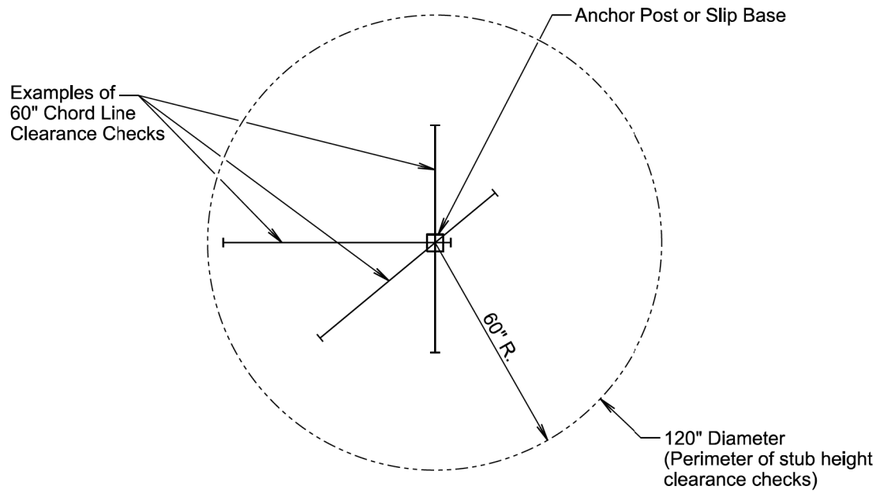


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

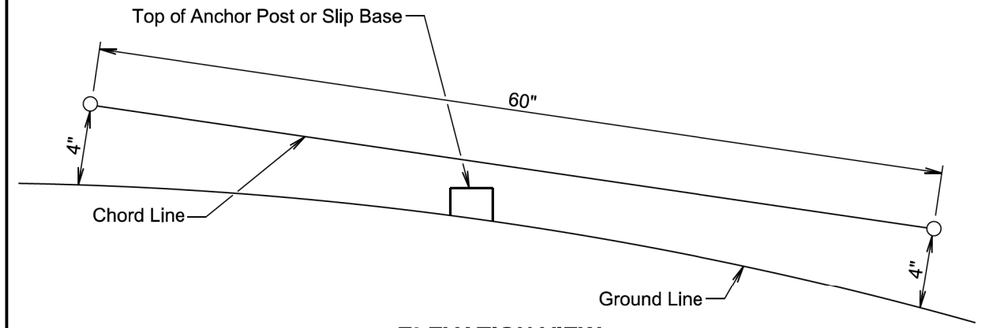
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

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.

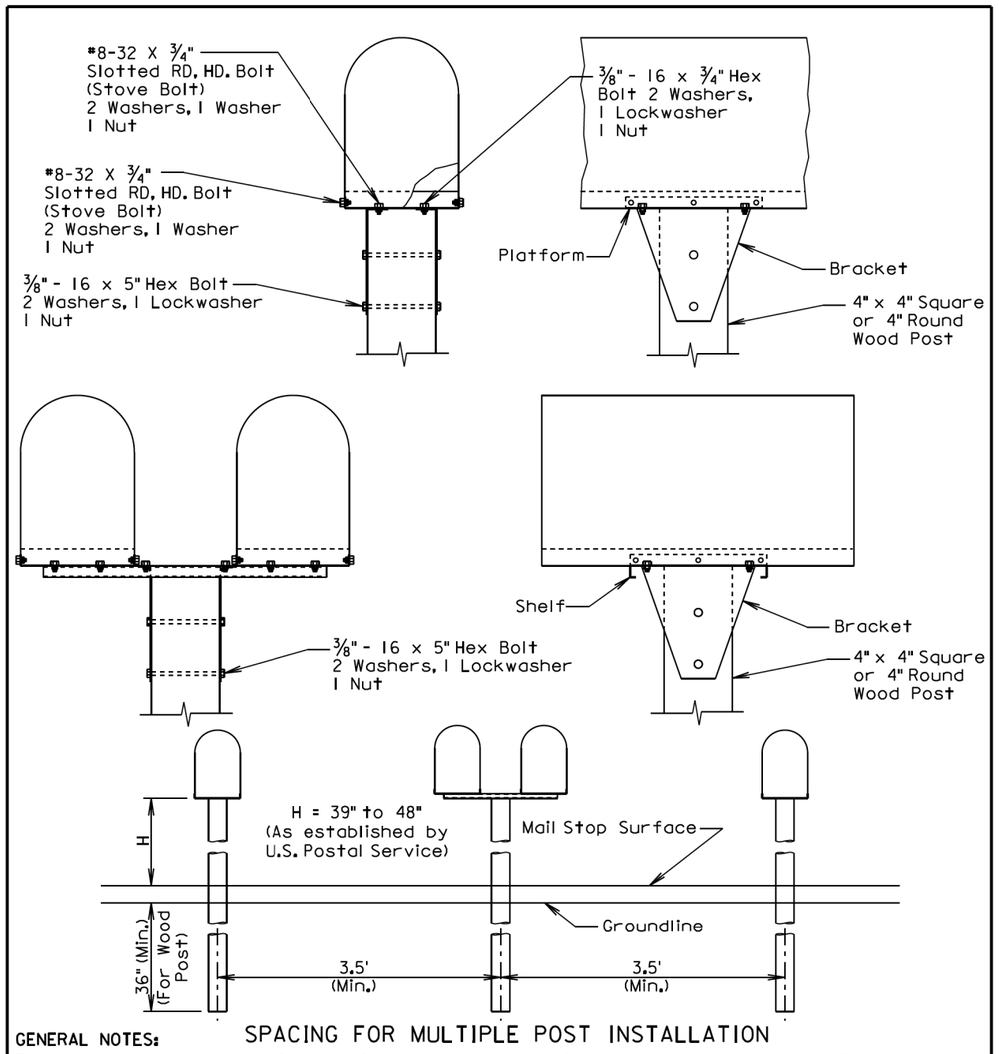
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0083(92)138 NH 0212(212)219	46	46

Plotting Date: 07/15/2024



SPACING FOR MULTIPLE POST INSTALLATION

GENERAL NOTES:

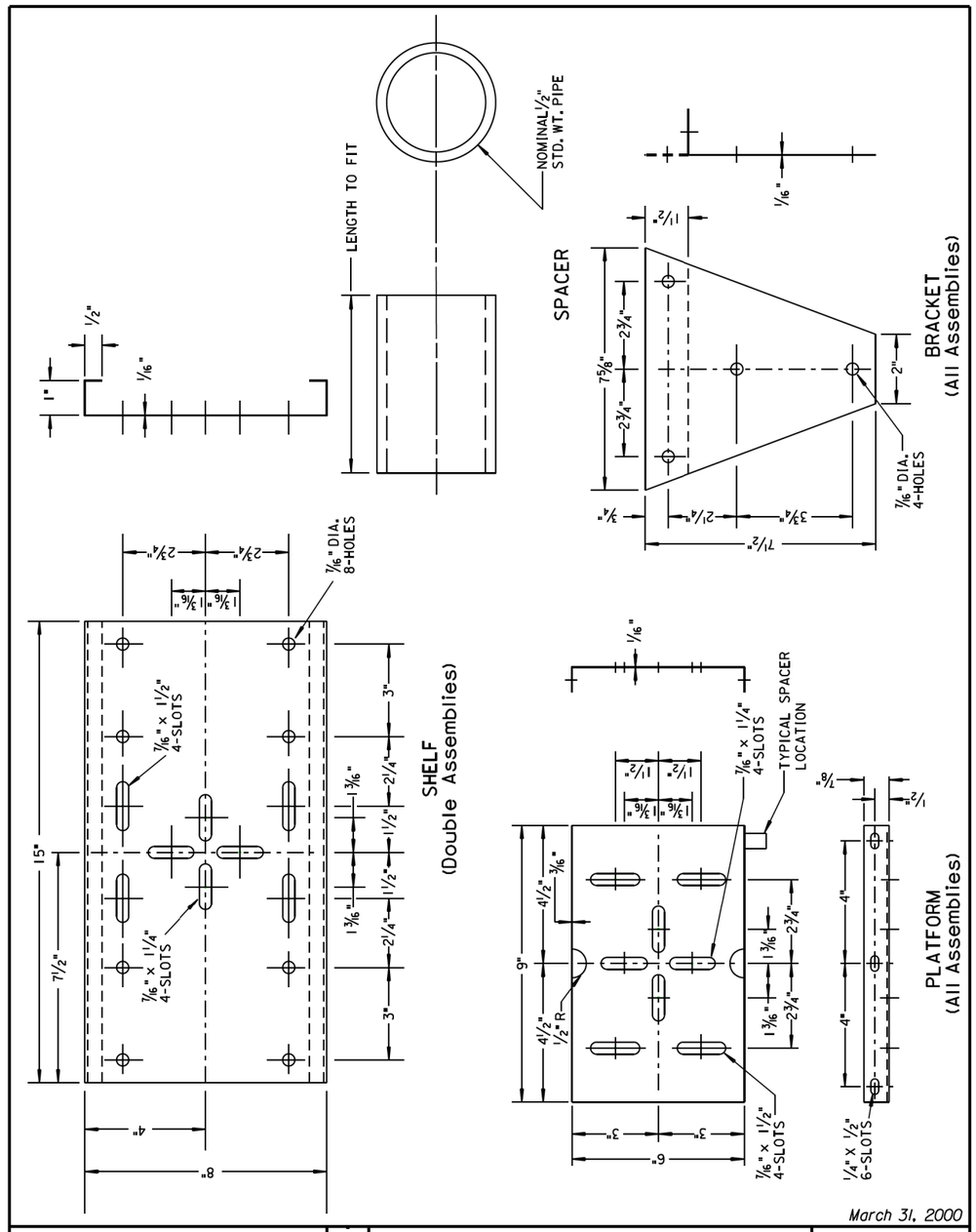
The post support assemblies provided should be consistant throughout the project. Single and double mailboxes may be in any sequence.

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*



March 31, 2000

Published Date: 2025	SDDOT	***MAILBOX SUPPORT HARDWARE***	***PLATE NUMBER*** 900.03 *Sheet 1 of 1*