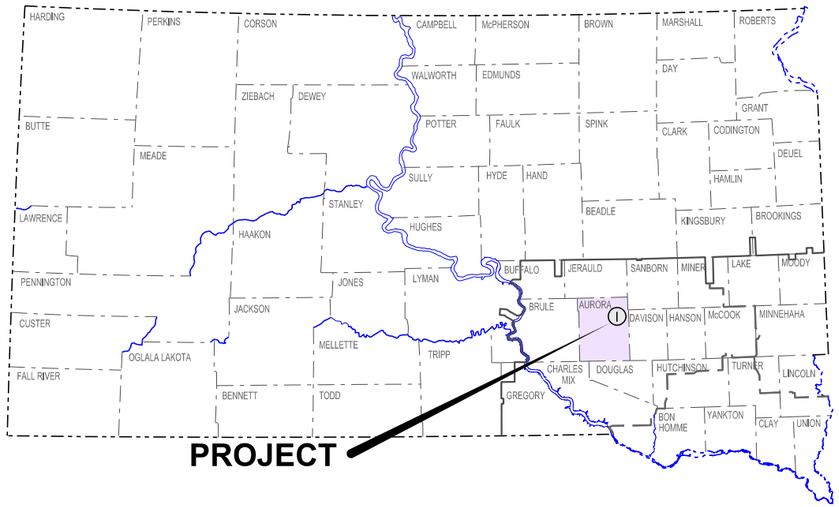


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

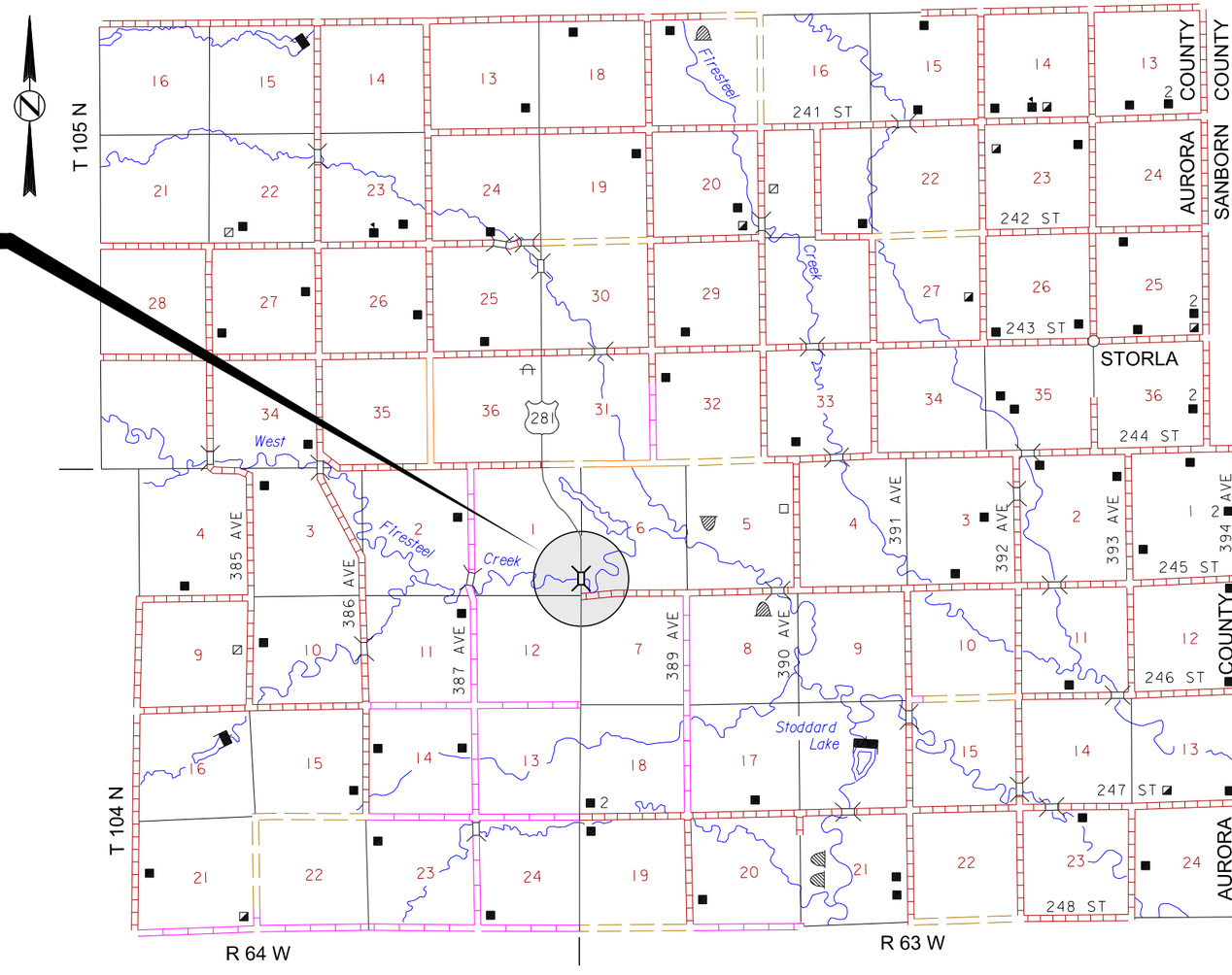
PROJECT NH 0281(129)79
US HIGHWAY 281
AURORA COUNTY

BRIDGE DECK OVERLAY, BARRIER CURB REPAIR,
CONCRETE BARRIER & END BLOCKS, APPROACH PAVEMENT,
PAVEMENT MARKING & GUARDRAIL
PCN 08K8

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0281(129)79	1	53

Plotting Date: 02/20/2026

INDEX OF SHEETS



STR. NO. 02-180-06B
Comp. I Beam Bridge
118'-6"=0.022 Mile
MRM 79.94

DESIGN DESIGNATION	
ADT(2024)	1,194
ADT(2044)	1,774
DHV	229
D	50%
T DHV	15.1%
T ADT	33.1%
V	65 MPH

STORM WATER PERMIT
Receiving Waters:
West Firesteel Creek
Area Disturbed: 0.8 Acre
Total Project Area: 4 Acres
Latitude: 43.8346
Longitude: -98.4447

4

May 6, 2026

PLOT SCALE - 1:70000
PLOTTED FROM - TRM11NT15
PLOT NAME - 1
FILE - ...\PRJ2026\AUR008K8\TITL08K8.DGN

ESTIMATE OF QUANTITIES & ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0281(129)79	2	53

PCN 08K8

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4100	Construction Schedule, Category I	Lump Sum	LS
110E0730	Remove Beam Guardrail	225.0	Ft
110E0800	Remove W Beam Guardrail End Terminal	4	Each
120E0600	Contractor Furnished Borrow	667	CuYd
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E1010	Base Course	50.0	Ton
320E1200	Asphalt Concrete Composite	200.0	Ton
332E0010	Cold Milling Asphalt Concrete	1,452	SqYd
630E0500	Type 1 MGS	200.0	Ft
630E1500	Type 1 Guardrail Transition	4	Each
630E2017	MGS MASH Flared End Terminal	4	Each
632E2220	Guardrail Delineator	16	Each
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	1,237	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	486	Ft
634E0010	Flagging	50.0	Hour
634E0110	Traffic Control Signs	195.4	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0600	4" Temporary Pavement Marking Tape Type I	144	Ft
634E0640	Temporary Pavement Marking	1,460	Ft
734E0010	Erosion Control	Lump Sum	LS

STR. NO. 02-180-06B

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
110E0020	Remove Bridge Railing	237	Ft
460E0010	Class A45 Concrete, Bridge Barrier	15.8	CuYd
460E0174	Concrete Patching Material, Miscellaneous	68.6	CuFt
460E0300	Breakout Structural Concrete	4.6	CuYd
460E0380	Install Dowel in Concrete	216	Each
480E0200	Epoxy Coated Reinforcing Steel	1,486	Lb
480E5000	Galvanic Anode	96	Each
550E0010	Low Slump Dense Concrete Bridge Deck Overlay	33	CuYd
550E0100	Concrete Removal Type 1A	395.0	SqYd
550E0105	Concrete Removal Type 2A	98.8	SqYd
550E0110	Concrete Removal Type 1B	110.0	SqYd
550E0120	Concrete Removal Type 1C	55.0	SqYd
550E0130	Concrete Removal Type 1D	55.0	SqYd
550E0140	Concrete Removal Type B	20.0	Ft
550E0200	Class A45 Concrete Fill	11.5	CuYd
550E0500	Finishing and Curing	395.0	SqYd

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/doing-business/environmental/about-environmental/

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

If a Contractor needs access to state waters for extraction, the Contractor must obtain a water right, through the application of a Temporary Permit to Use Public Waters before work begins.

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.

The Contractor will not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

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 (SDDANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Temporary permit to use public waters for highway construction purposes application can be found on the SDDANR website:
https://danr.sd.gov/OfficeOfWater/WaterRights/PermitForms/default.aspx

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.

ENVIRONMENTAL COMMITMENTS (CONTINUED)

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.

Cost 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) for all work included within the project limits and all department designated sources and designated option material sources, stockpile sites, storage areas, and waste sites provided within the plans.

Action Taken/Required:

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

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

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

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

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

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

TABLE FOR REMOVAL AND INSTALLATION OF GUARDRAIL AND RELATED ITEMS

LOCATION	REMOVE BEAM GUARDRAIL	REMOVE W BEAM GUARDRAIL END TERMINAL	CONTRACTOR FURNISHED BORROW EXCAVATION	BASE COURSE	ASPHALT CONCRETE COMPOSITE	TYPE 1 MGS	TYPE 1 GUARDRAIL TRANSITION	MGS MASH FLARED END TERMINAL
BRIDGE CORNER								
STR. NO. 02-180-06B MRM 79.94								
NE Corner of Bridge	43.75	1	42	12	14	25	1	1
NW Corner of Bridge	68.75	1	79	13	20	75	1	1
SE Corner of Bridge	68.75	1	349	13	20	75	1	1
SW Corner of Bridge	43.75	1	197	12	14	25	1	1
TOTALS:	**225**	**4**	**667**	**50**	**68**	**200**	**4**	**4**

TABLE OF GUARDRAIL DELINEATORS & OBJECT MARKERS

LOCATION	GUARDRAIL END TERMINAL OBJECT MARKER (ADHESIVE)	GUARDRAIL DELINEATOR	
	N.A.B.I.	BEAM / MGS	
	E #	B #	
BRIDGE CORNER		Yellow	White
STR. NO. 02-180-06B MRM 79.94			
NE Corner of Bridge	1		4
NW Corner of Bridge	1		4
SE Corner of Bridge	1		4
SW Corner of Bridge	1		4
TOTALS	**4**	**-**	**16**
		16	

- For **KEY**, Refer to Standard Plate 632.40.

N.A.B.I. = Not A Bid Item - Cost is incidental to the contract unit prices for the various items.

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 Project Engineer to modifications that will be necessary to avoid utility impacts.

UTILITY CONTACTS:

Mr. Ryan Cuny
Golden West Telecom Cooperative Inc.
525 E 4th St
Dell Rapids, SD 57702
O: (605) 428-1125
C: (605) 864-0613
E: RyanCuny@GoldenWest.com

Brian J Bultje
Central Electric Cooperative
1420 North Main
P.O. Box 850
Mitchell, SD 57301
O: (605) 996-7516
F: (605) 996-0869
C: (605) 680-0931
E: BrianB@CentralEC.Coop

Jordan Brown
East River Electric Power Cooperative, Inc
P.O. Box 227
211 S. Harth Ave.
Madison, SD 57042
O: (605) 256-8231
C: (605) 291-9302
E: JBrown@EastRiver.Coop

REMOVE AND REPLACE TOPSOIL

Prior to beginning surfacing operations, a 4" depth of topsoil will be salvaged from the inslopes as indicated on the typical sections. Following completion of surfacing operations, topsoil will be replaced on the inslope up to the asphalt concrete edge.

The estimated amount of topsoil to be removed and replaced is:

Str. No.	Location	Description	Estimated Quantity CuYds
02-180-06B	NE Corner	GR Embankment	42
02-180-06B	NW Corner	GR Embankment	42
02-180-06B	SE Corner	GR Embankment	95
02-180-06B	SW Corner	GR Embankment	90
		Total:	**269 CuYds**

Cost for removing and replacing the topsoil will be included in the contract lump sum price for Remove and Replace Topsoil.

SHOULDER WORK

Vegetation and accumulated material on or adjacent to the existing roadway edge will be removed by the Contractor, to the satisfaction of the Engineer. Any remaining windrow of accumulated material will be spread evenly on the inslope adjacent to the shoulder, to the satisfaction of the Engineer, following completion of the guardrail embankment surfacing operations.

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

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. Plans quantity for Contractor Furnished Borrow Excavation as shown in the Estimate of Quantities will be the basis of payment for this item.

The Contractor will be allowed to place topsoil in lieu of fill material if the fill depth is one foot or less. By doing this the Contractor will not be required to remove and replace the four inches of in place topsoil.

Compaction of the fill material will be to the satisfaction of the Engineer.

It is not anticipated that water for compaction will be required; however, if in the opinion of the Engineer the fill material is extremely dry, water may be ordered and placed to the satisfaction of the Engineer. Cost for water will be incidental to the contract unit price per cubic yard for Contractor Furnished Borrow Excavation.

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

REMOVE GRANULAR MATERIAL

A small quantity of in place granular material will be removed as specified in the plans and may be used as Base Course on the project.

Cost for removing the granular material will be included in the contract unit price per square yard for Cold Milling Asphalt Concrete.

COLD MILLING ASPHALT CONCRETE

Milling will be daylighted to the outside edge of the roadway.

Cold milling operations ahead of asphalt concrete laydown will be limited by particular job conditions and be subject to approval of the Engineer.

The requirement for a traveling stringline will be waived.

If resurfacing as per the typical section cannot be placed immediately after cold milling, then temporary asphalt mix ramps will be placed as directed by the Engineer. Cost for placing and removing the temporary ramps will be incidental to the contract unit prices for the various items.

SURFACING THICKNESS DIMENSIONS

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

ASPHALT CONCRETE COMPOSITE

Asphalt for Prime will not be required.

Asphalt for flush seal SS-1h or CSS-1h will be applied to the top of Asphalt Concrete Composite. Asphalt for flush seal will be applied at a rate of 0.05 gallon per square yard. The Asphalt for flush seal will be applied for the full width of the top layer of Asphalt Concrete Composite including bevels. Sand for flush seal will not be required.

FLUSH SEAL

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

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.

EROSION CONTROL

Permanent Seeding

Type G Permanent Seed Mixture will consist of the following:

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

Mulching (Grass Hay or Straw)

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

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.

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

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

The areas to be seeded, inoculated and mulched are estimated at 0.92 acre.

Cost for material, labor and equipment necessary for seeding, inoculating and mulching will be incidental to the contract lump sum price for Erosion Control.

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.

Guardrail removal will be limited to the side of the roadway where bridge work is underway.

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 existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost of this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

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

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

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

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

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

A Type 3 Barricade will be installed at the end of a lane closure taper as detailed in these plans.

FLAGGING

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

TEMPORARY PAVEMENT MARKING

Temporary flexible vertical markers (tabs) may be used as detailed in the specifications.

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

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

TEMPORARY PAVEMENT MARKING Continued

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

PAVEMENT MARKING PAINT

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

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

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

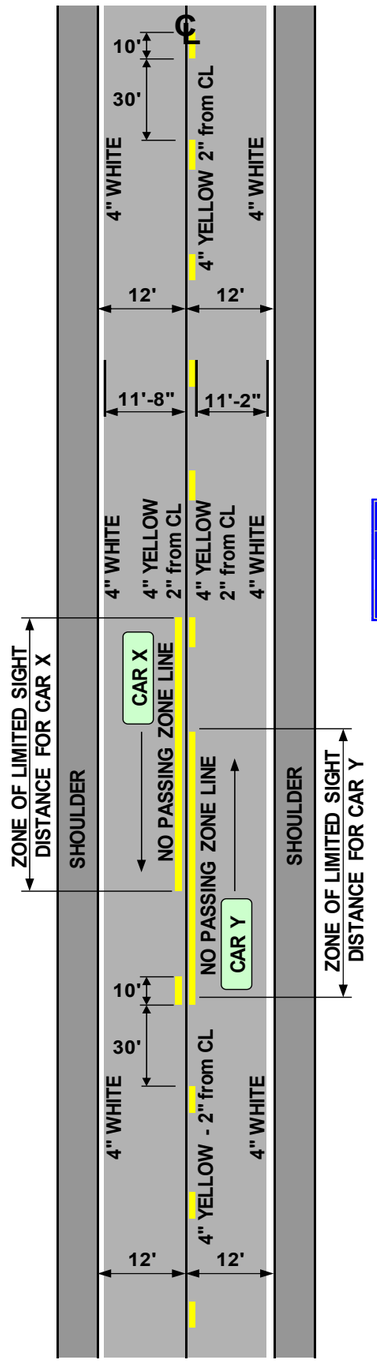
Reflective media will consist of glass beads. Reflective media will require a Certificate of Compliance for Certification for each source and lot. Acceptance sampling will not be required.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

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

TWO LANE ROADWAY



PAVEMENT MARKING

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

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

ESTIMATED QUANTITIES	
HIGH BUILD	4"
WHITE	1237'
YELLOW	486'

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R1-1	STOP	2	30"	5.2	10.4
W1-4	REVERSE CURVE (L or R)	1	48" x 48"	16.0	16.0
W3-1	STOP AHEAD (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)	2	48" x 48"	16.0	32.0
W21-2	FRESH OIL	2	48" x 48"	16.0	32.0
G20-2	END ROAD WORK	2	36" x 18"	4.5	9.0
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			195.4

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

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

Flagger

Channelizing Device

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

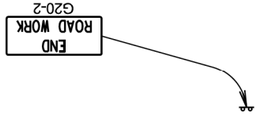
The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

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

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

The channelizing devices will be drums or 42" cones.

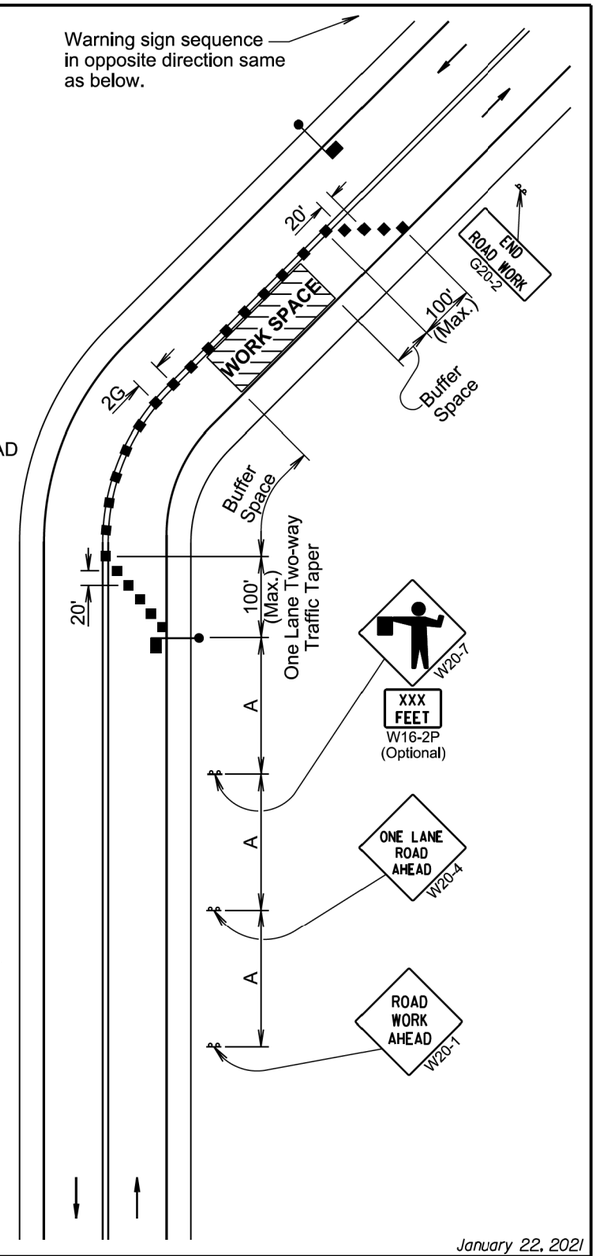
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



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

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

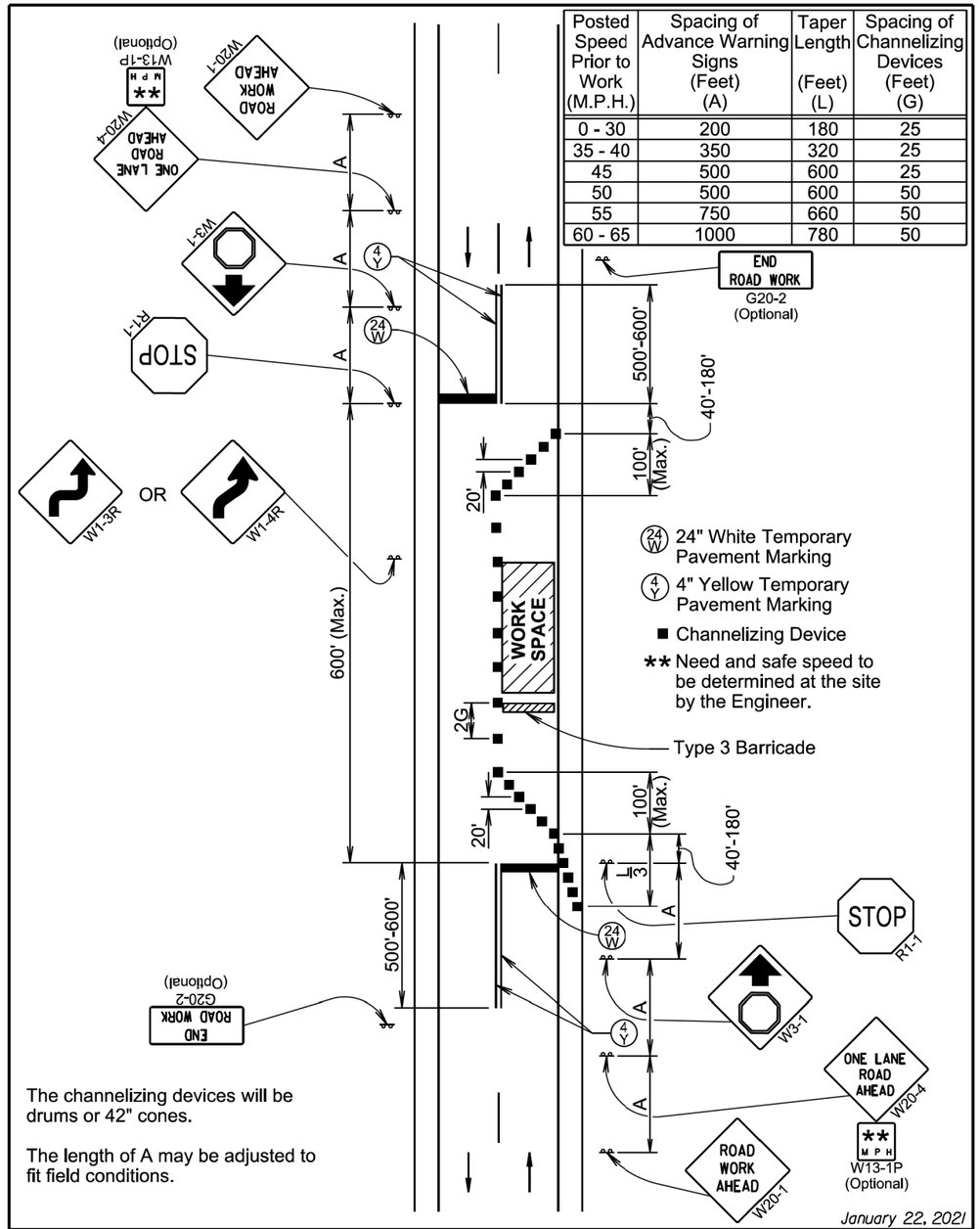
The length of A may be adjusted to fit field conditions.



January 22, 2021

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

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



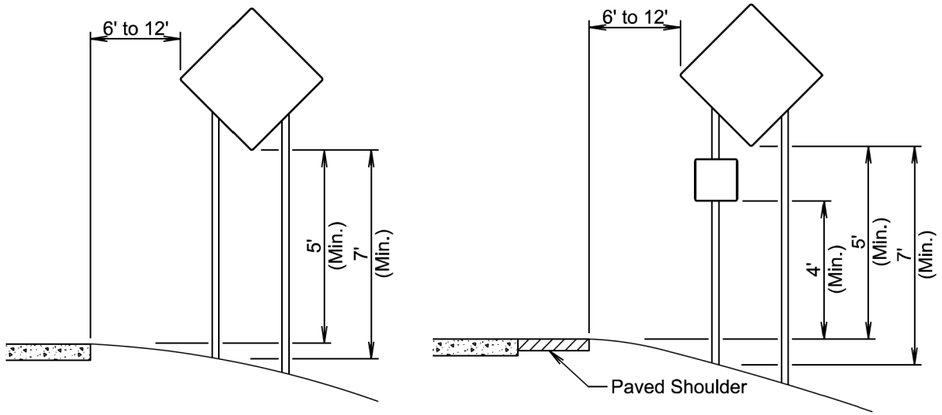
The channelizing devices will be drums or 42" cones.

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

January 22, 2021

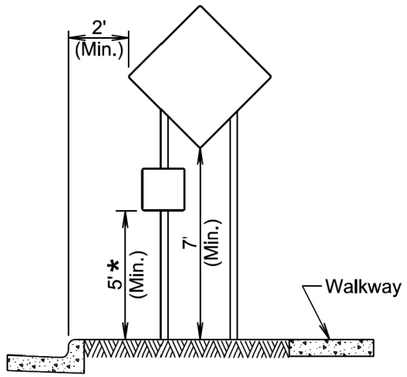
Published Date: 2026	SDDOT	LANE CLOSURE USING STOP SIGNS	PLATE NUMBER 634.25
			Sheet 1 of 1

Plot Scale - 1:85.259
Plotted From - TRM13315
Plot Name - $$dolname$$
File - ...\08K8 PM TC.dgn

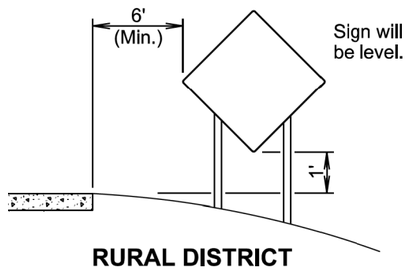


RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

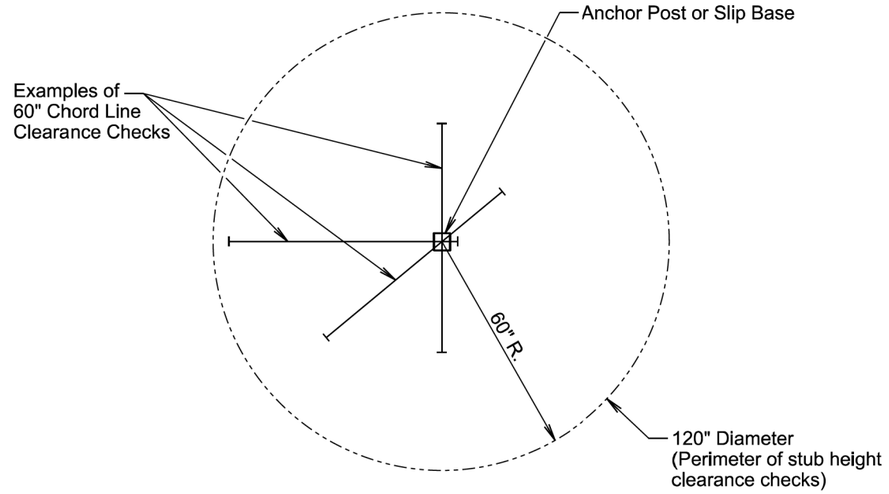


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

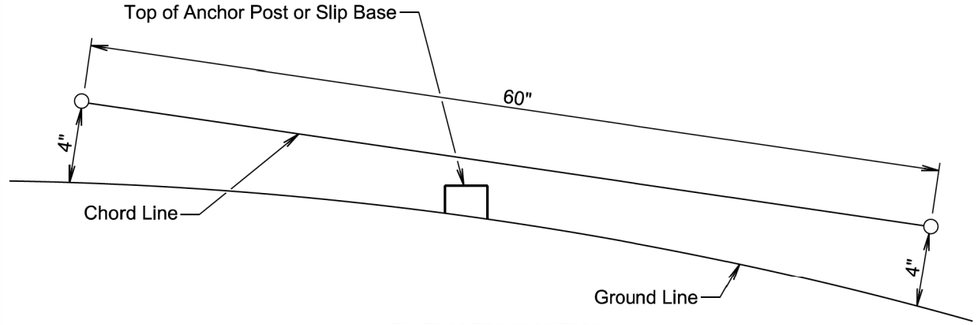
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2026	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

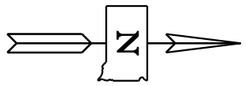
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

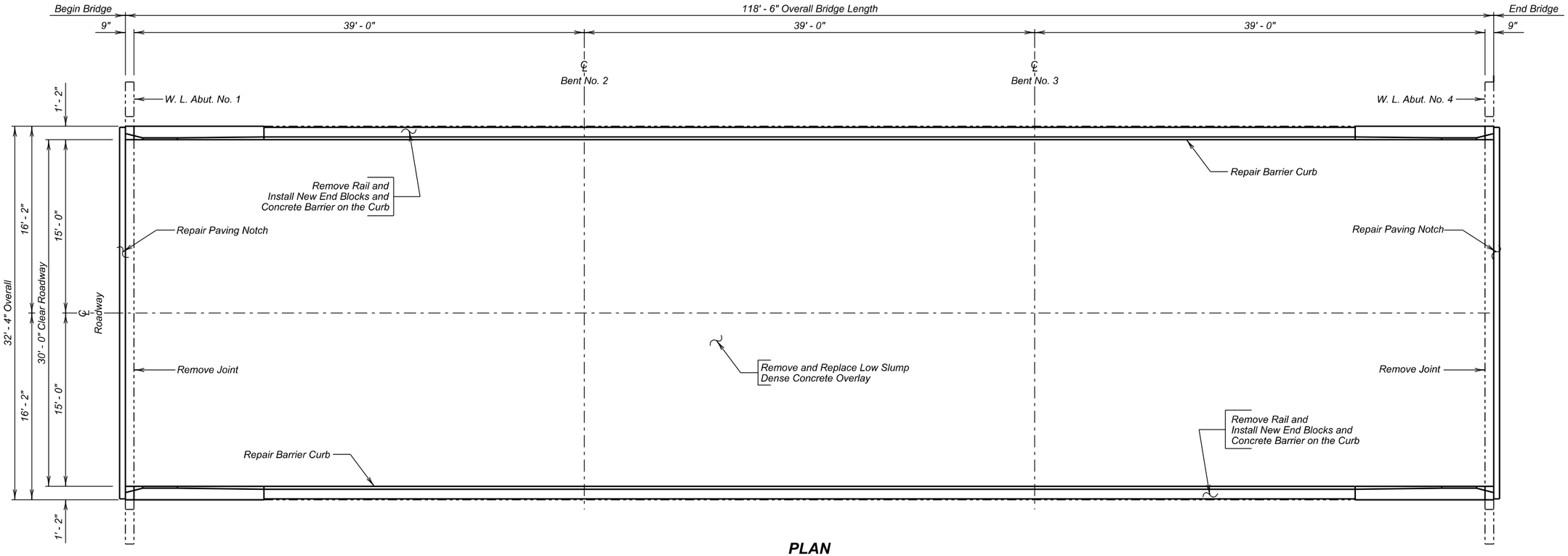
January 22, 2021

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

Plot Scale - 1:85.259
Plotted From - TRM113315
Plot Name - $$dolnames$$
File - ...\08K8 PM TC.dgn

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	10	53





PLAN

-X031-

INDEX OF BRIDGE SHEETS -

LAYOUT FOR UPGRADE

FOR

118' - 6" I BEAM BRIDGE

30' - 0" ROADWAY — 0° SKEW
OVER W. BR. FIRESTEEL CREEK — SEC. 1/6-T104N-R64/63W
STR. NO. 02-180-06B — NH 0281(129)79
PCN 08K8

AURORA COUNTY

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2025

1 OF 25

-X031-

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	KR	Steve A Johnson BRIDGE ENGINEER
AURO08K8	08K8RA01		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	11	53

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
110E0020	Remove Bridge Railing	237	Ft
460E0010	Class A45 Concrete, Bridge Barrier	15.8	CuYd
460E0174	Concrete Patching Material, Miscellaneous	68.6	CuFt
460E0300	Breakout Structural Concrete	4.6	CuYd
460E0380	Install Dowel in Concrete	216	Each
480E0200	Epoxy Coated Reinforcing Steel	1486	Lb
480E5000	Galvanic Anode	96	Each
550E0010	Low Slump Dense Concrete Bridge Deck Overlay	33	CuYd
550E0100	Concrete Removal Type 1A	395.0	SqYd
550E0105	Concrete Removal Type 2A	98.8	SqYd
550E0110	Concrete Removal Type 1B	110.0	SqYd
550E0120	Concrete Removal Type 1C	55.0	SqYd
550E0130	Concrete Removal Type 1D	55.0	SqYd
550E0140	Concrete Removal Type B	20.0	Ft
550E0200	Class A45 Concrete Fill	11.5	CuYd
550E0500	Finishing and Curing	395.0	SqYd

SPECIFICATIONS

1. Design Specifications: AASHTO Standard Specifications for Highway Bridges 17th Edition using Working Stress Design.

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

DETAILS AND DIMENSIONS OF EXISTING BRIDGE

1. All details and dimensions of the existing bridge, contained in these plans, are based on the original construction plans and shop plans. It is the Contractor's responsibility to inspect and verify the actual field conditions and any necessary as-built dimensions affecting the satisfactory completion of the work required for this project.

2. The stationing shown in the original construction plans is reversed from the current project. As such, labels for the begin and end of bridge as well as the substructure units are reversed.

NOTICE - LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure is a paint containing lead. The Contractor should plan operations accordingly and inform employees of the hazards of lead exposure.

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure will be accomplished with the traffic control shown in the plans. Alternate sequence of operations may be submitted by the Contractor for approval by the Engineer a minimum of two weeks prior to the pre-construction meeting.

1. Accomplish all Concrete Removal Type 1A, 1B, 1C, 1D, 2A, and B and place Class A45 Concrete Fill to the satisfaction of the Engineer for the first phase of construction.

2. Remove the steel rail for the first phase of construction.

3. Break out and remove concrete on the barrier curb face and area of new end block. Remove the existing material in the paving notches located at the beginning and end of the bridge and any delaminated concrete adjacent to the paving notches for the first phase of construction.

4. Install dowels and galvanic anodes as necessary for the first phase of construction.

5. Place concrete bridge barrier on top of the existing bridge curb and place new end blocks at the bridge ends to allow for the attachment of thrie beam approach railing for the first phase of construction.

6. Place Low Slump Dense Concrete Bridge Deck Overlay to the elevations shown in the plans and fill in the paving notches.

7. Apply Commercial Texture Finish to the newly constructed barrier, curb, and end block surfaces as outlined in the plans for the first phase of construction.

8. Switch traffic and repeat steps 1 through 7 for the second phase of construction.

GENERAL CONSTRUCTION - BRIDGE

1. All reinforcing steel will conform to ASTM A615, Grade 60.

2. All exposed concrete corners and edges will be chamfered ¾-inch unless noted otherwise in the plans. Match the existing chamfer if the existing chamfer differs.

3. Use 2-inch clear cover on all reinforcing steel except as shown otherwise.

4. The Contractor will only imprint one year-plate on the structure. The year plate will contain the date the existing bridge was built and will be located as specified and detailed on Standard Plate No. 460.02.

5. Barrier curbs and end blocks will be built normal to the grade.

6. Requests for construction joints or reinforcing steel splices at points other than those shown, must be submitted to the Engineer for prior approval. If additional splices are approved, no payment will be allowed for the added quantity of reinforcing steel.

7. Snap ties, if used in the barrier curb formwork, will be corrosion resistant. The corrosion resistant ties will be inert in concrete and compatible with reinforcing steel.

8. All lap splices are contact lap splices unless noted otherwise.

REMOVAL OF EXISTING BRIDGE RAIL

1. The existing rail, rail posts, wood spacer blocks, and W-beam rail on the bridge will be completely removed by the Contractor and disposed of in accordance with the Environmental Commitments. If the Contractor elects to salvage the rail materials for personal use, the material must be removed from view of the ROW to the satisfaction of the Engineer prior to project completion.

2. The existing rail anchor bolts protruding from the concrete will be cut off and ground flush with the concrete surface as approved by the Engineer. The exposed ends will be coated with a zinc-rich galvanizing paint in conformance with ASTM A780.

3. The bridge railing to be removed consists of the steel rail, wood spacer blocks, w-beam rail, and any hardware attaching the railing to the bridge. Payment limits for this item will be as shown by the plans. The cost of all labor, tools, materials, and incidentals necessary to cut and remove the steel rail, cut off the anchor bolts, and paint their exposed ends will be incidental to the contract price per foot for Remove Bridge Railing.

PAVING NOTCH

1. This work will consist of removing material from the existing paving notch and filling the notch with Low Slump Dense Concrete.

2. All broken out material will be disposed of by the Contractor. Disposal of discarded material will be in accordance with the Environmental Commitment Notes shown elsewhere in the plans.

3. The cost of removing and disposing of the existing paving notch material will be incidental to the contract unit price per cubic yard for Low Slump Dense Concrete Bridge Deck Overlay.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
FOR
118' - 6" I BEAM BRIDGE

STR. NO. 02-180-06B
DECEMBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	AP	Steve A Johnson BRIDGE ENGINEER
AURO08K8	08K8RA02		

CONCRETE BREAKOUT

1. The existing curbs and curb portions will be broken out to the limits shown on the plans. Breakout limits will be defined with a 3/4" deep sawcut (unless specified otherwise in these plans), where practical, as approved by the Engineer. Reinforcing steel that is exposed and is scheduled for use in the new construction will be cleaned and straightened to the satisfaction of the Engineer. Care will be taken not to damage the existing reinforcing steel that is to be reused in the new construction during concrete breakout. Any reinforcing steel that is damaged during concrete breakout will be replaced or repaired, as approved by the Engineer, by the Contractor at no cost to the Department.

2. All broken out concrete and discarded reinforcing steel will become the property of the Contractor and will be disposed of at a site obtained by the Contractor and approved by the Engineer. An appropriate site will be as described in the Environmental Commitment Notes in the plans.

3. During concrete removal operations, no concrete will be allowed to fall into Firesteel Creek.

4. The contract unit price per cubic yard for Breakout Structural Concrete will include breaking out concrete, cleaning, straightening reinforcing steel, and disposal of all broken out material.

INSTALL DOWELS IN CONCRETE

1. Holes drilled in the existing concrete will be true and normal or as shown in the plans. Drilling holes using a core drill will not be allowed. Care will be taken not to damage the existing reinforcing steel. It is likely that some of the existing reinforcing steel shown in the original construction plans may have been placed out of position during original construction. Therefore, prior to the start of drilling any holes in the concrete, an effort will be made by Department forces to mark on the concrete surface where practical any locations of the in-place reinforcing steel. Despite this precaution, the Contractor can still expect to encounter and have to drill through reinforcing steel or shift the dowel spacing as approved by the Engineer to miss the existing reinforcing steel. If the Contractor shifts the dowel spacing, the unused drill holes will be completely filled with epoxy resin as approved by the Engineer.

2. The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV. (Equivalent to ASTM C881, Type IV). Grade 1, 2 or 3 may be used for vertical dowels.

3. The diameter of the drilled holes will not be less than 1/8-inch greater, nor more than 3/8-inch greater than the diameter of the dowels or as per the Manufacturer's recommendations. 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 epoxy injection.

4. 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 1/3 to 1/2 full of epoxy, or as recommended by the Manufacturer, prior to insertion of the steel bar. Rotate the steel bar during installation to eliminate voids and ensure complete bonding of the bar. Insertion of the bars by the dipping or painting method will not be allowed.

5. No loads will be applied to the epoxy grouted dowel bars until the epoxy resin has had sufficient time to cure as specified by the epoxy resin manufacturer.

6. Dowel bars will be deformed bars conforming to ASTM A615, Grade 60.

7. The cost of epoxy resin, dowels, installation, and other incidental items will be incidental to the contract unit price per each for Install Dowel in Concrete.

GALVANIC ANODE

1. The Contractor will furnish and place galvanic anodes in the concrete repair areas where existing concrete is in contact with new concrete for the barrier upgrades.

2. The galvanic anodes will be supplied as one of the following:

   a. Galvashield XP2
      Vector Corrosion Technologies
      800 Winchester Road, Suite 175
      Lexington, KY 40505
      Phone: (813) 830-7566

   b. Sentinel Silver
      Euclid Chemical Company
      19215 Redwood Road
      Cleveland, OH 44110
      Phone: (800) 321-7628

   c. Sika FerroGard 670
      Sika Corporation US
      201 Polito Avenue
      Lyndhurst, NJ 07071
      Phone: (800) 933-7452

3. The anodes will be placed in accordance with manufacturer's recommendations and as approved by the Engineer. The anodes have not been shown on the drawings. The Contractor will provide shop drawings of the galvanic anode installation including locations of the individual anodes to the Office of Bridge Design.

4. The anodes will be placed with a minimum 3/4-inch cover and will be set in embedding mortar per the manufacturer's recommendations. The anodes will be fully encased in the concrete repair material. Where adequate cover does not exist, a concrete pocket will be chipped out behind the anode to provide sufficient cover. The Contractor may need to chip around the reinforcing bar locally at the anode installation to make the electrical connection. The reinforcing steel at the connection location will be cleaned per the manufacturer's recommendations to provide sufficient electrical connection and mechanical bond.

5. The electrical continuity of the connections and reinforcing steel will be confirmed per the manufacturer's recommendations.

6. In area of concrete repair where anodes are placed, the epoxy coating on the reinforcing steel will not require touch up.

7. The Contractor will provide manufacturer's product literature and installation instructions to the Engineer 10 days prior to installation.

8. All costs associated with placing anodes including labor, equipment, materials, and incidentals will be included in the contract unit price per each for Galvanic Anode.

9. The Contractor has the option of providing galvanic strip anodes in place of the Galvanic Anodes for the curb repair. The galvanic strip anodes will conform to the same requirements listed above for Galvanic Anode. The use of galvanic strip anodes in place of Galvanic Anodes will be at no additional cost to the Department. The galvanic strip anodes will be supplied as the following or an approved equivalent as approved by the Office of Bridge Design:

   Galvashield DAS
   Vector Corrosion Technologies
   800 Winchester Road, Suite 175
   Lexington, KY 40505
   Phone: (813) 830-7566

AS - BUILT ELEVATION SURVEY

The Contractor will be responsible for producing an as-built elevation survey soon after construction is complete and before the bridge is completely opened to traffic. The Contractor will be responsible for recording the as-built deck elevations at the locations shown by the table of as-built elevations shown in the plans. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer. The elevations will be based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88). The Engineer will provide the Contractor with a description, elevation and location of the nearest benchmark that has a NAVD88 established elevation for the Contractor's use. The Contractor will be responsible for establishing a NAVD88 elevation for the benchmark provided in the plans. All costs associated with obtaining the NAVD88 elevations at the locations shown in the table and for the benchmark shown in the plans, including all equipment, labor and any incidentals required will be incidental to the contract lump sum price for Bridge Elevation Survey.

NOTES (CONTINUED)
FOR
118' - 6" I BEAM BRIDGE

STR. NO. 02-180-06B
DECEMBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	AP	Steve A Johnson BRIDGE ENGINEER
AURO08K8	08K8RA03		

LOW SLUMP DENSE CONCRETE BRIDGE DECK OVERLAY

1. The preparation for resurfacing consists of Concrete Removal Type 1A on the entire bridge deck; 2A as specified by the Engineer; and Type 1B, Type 1C, Type 1D, and Type B over the deck surface as detailed on the plan sheets. Such removal will be in conformance with these plans and Section 550 of the Construction Specifications.

2. Concrete Removal Type 1A will consist of removing the existing concrete overlay to a depth of 2 ¼ inches. There are some specific areas, identified on the Deck Profile plan sheets that require removal in excess of 2 ¼ inches.

3. Extreme care will be taken during Removal Type 1B, 1C, 1D, and B to ensure that the existing reinforcing steel is not damaged. In the event reinforcing steel damage inadvertently occurs, the Bridge Construction Engineer will be immediately notified. Any damaged reinforcing steel will be repaired by the Contractor, as approved by the Engineer, at no additional cost to the Department.

4. Removal Type 2A, 1B, 1C, 1D, and B and Class A45 Concrete Fill may not be encountered and may be omitted from the project as determined by the Engineer.

5. Concrete Removal Type 1C, Concrete Removal Type 1D, and Class A45 Concrete Fill are not anticipated to exceed the plan shown quantities. If the Engineer determines that Concrete Removal Type 1C, Concrete Removal Type 1D, and/or Class A45 Concrete Fill in excess of the plan quantity shown is necessary, payment for the additional quantity will conform with Section 550.5 of the Construction Specifications.

6. Concrete used in the Low Slump Dense Concrete Bridge Deck Overlay will meet the requirements of Section 550 of the Construction Specifications. Class A45 Concrete Fill will be an approved A45 Concrete Mix Design mixed and proportioned in accordance with Section 460 of the Construction Specifications with the following modifications: the course aggregate gradation will be in accordance with Section 820 of the Construction Specifications and the size #3 will be substituted in lieu of sizes #1 and #15. In addition, both the Low Slump Dense Concrete Bridge Deck Overlay and Class A45 Concrete Fill will conform to the following Alkali Silica Reactivity (ASR) requirements:

   a. Fine aggregates from sources that have not been tested by the Department will be submitted to the Department's Materials and Surfacing Central Materials Laboratory for ASR testing 30 days prior to performing the concrete mix design.

   b. When a fine aggregate supplier changes location within the pit, the fine aggregate from the new location in the pit will be submitted for testing.

   c. When more than one source of fine aggregate is blended to meet the gradation specifications, the expansion value of the blended sands will be used. Blended sources will be treated as a new source, and it will be the responsibility of the Contractor to submit the blended samples for testing 30 days prior to performing the concrete mix design.

   d. ASR testing will be performed in accordance with ASTM C1260, except that the gradation of the material used for testing will be as produced from the source. The fine aggregate will only be sampled at the source by a Department representative or in the presence of a Department representative.

   e. The Department will use the running average of the last three known expansion test results or less for determining acceptability of the source. Additional testing, when requested by the Contractor, will be performed by the Department at the Contractor's expense.

   f. A list of known fine aggregate sources and the average corresponding 14-day expansion values as of October 2025 is provided below in Table 1.

Table 1 Fine Aggregate Sources, October 2025

Source	Location	Expansion Value
Bachman	Winner, SD	0.335*
Bitterman	Delmont, SD	0.316*
Concrete Materials	Corson, SD	0.146
Concrete Materials – Vellek Pit	Yankton, SD	0.442**
Croell	Hot Springs, SD	0.089
Croell	Wasta, SD	0.212
Emme Sand & Gravel	Oneil, NE	0.217
Fisher S&G – Blair Pit	W of Vale, SD	0.171
Fisher S&G – Mickelson Pit	E of Nisland, SD	0.129
Fisher S&G –Vallery Pit	Nisland, SD	0.110
Fisher S&G	Rapid City, SD	0.092
Fisher S&G	Spearfish, SD	0.053
Fisher S&G	Wasta, SD	0.159
Fuchs	Pickstown, SD	0.275*
Henning – Tilstra	Ash Creek, MN	0.199
Higman	Hudson, SD	0.187
Jensen	Herried, SD	0.276*
L.G. Everist	Akron, IA	0.257*
L.G. Everist	Brookings, SD	0.297*
L.G. Everist – Ode Pit	E Sioux Falls, SD	0.222
L.G. Everist – Nelson Pit	NE Sioux Falls, SD	0.156
L.G. Everist	Hawarden, IA	0.211
L.G. Everist	Summit, SD	0.184
Mark's S&G – Moerke Pit	Underwood, MN	0.165
Morris – Birdsall	Blunt, SD	0.229
Morris – Leesman	Blunt, SD	0.231
Morris – Richards Pit	Onida, SD	0.188
Morris – Shawn's Pit	E of Sturgis, SD	0.186
Northern Concrete Agg.	Rauville, SD	0.113
Northern Concrete Agg.	Luverne, MN	0.154
Opperman – Gunvordahl Pit	Burke, SD	0.363*
Opperman – Cahoy Pit	Herrick, SD	0.307*
Opperman – Jones Pit	Burke, SD	0.321*
Opperman – Randall Pit	Pickstown, SD	0.250*
Pete Lien & Sons	Creston, SD	0.158
Pete Lien & Sons	Oral, SD	0.157
Pete Lien & Sons	Wasta, SD	0.255*
Simon Materials – Beltline Pit	Scottsbluff, NE	0.277*
Thorpe Pit	Britton, SD	0.098
Valley S&G – Van Beek Pit	Rock Valley, IA	0.228
Wagner Building Supplies	Pickstown (Wagner), SD	0.251*
Winter Brothers – Whitehead Pit	Brookings, SD	0.197

* Consult Table 2 for these sources.
** These sources will not be used.

   g. The values in Table 1 are intended for use in bidding. If a pit, previously tested by SDDOT, with a test value less than 0.250 is discovered after letting to be 0.250 or greater, then the Department will accept financial responsibility if higher costs are incurred due to a higher required percentage of fly ash and/or a higher amount of Lithium Nitrate is added to the concrete mix.

   h. Based on coarse aggregate composition and expansion test results, the Contractor will use Table 2 to determine the percentage of cement to be replaced with Class F Modified Fly Ash (in accordance with Section 605 of the Construction Specifications) and/or specified rate of Lithium Nitrate (30% solution by weight) to be provided in the concrete mix for the Low Slump Dense Concrete Bridge Deck Overlay and Class A45 Concrete Fill. Fine aggregate with a 14-day expansion value of 0.400 or greater will not be used.

NOTES (CONTINUED)
FOR
118' - 6" I BEAM BRIDGE

STR. NO. 02-180-06B
DECEMBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	AP	BRIDGE ENGINEER
AURO08K8	08K8RA04		

LOW SLUMP DENSE CONCRETE BRIDGE DECK OVERLAY CONTINUED

Table 2 Cement Replacement

Coarse Aggregate	Fine Aggregate Expansion Value	Cement Type	Fly Ash	Lithium Nitrate
Limestone or Granite	< 0.250	Type I or II	-----	2.0 gal/ cuyd
		Type I or II	20% Min.	-----
Limestone or Granite	≥ 0.250	Type I or II	-----	3.0 gal/ cuyd
		Type I or II	25%	-----
Quartzite	< 0.250	Type I or II	-----	3.0 gal/cuyd
		Type I or II	25%	-----
Quartzite	≥ 0.250	Type I or II	-----	3.5 gal/ cuyd
		Type I or II	25%	1.5 gal/ cuyd
		Type I or II	30%	-----

i. Grout for bonding new concrete to old concrete will meet the requirements of Section 550 of the Construction Specifications.

j. All material, labor, equipment, and incidental costs to meet ASR requirements will be included in the contract unit price per cubic yard for Low Slump Dense Concrete Bridge Deck Overlay or Class A45 Concrete Fill.

7. Lithium Nitrate proposed for use must be approved by the Concrete Engineer.

8. No traffic will be allowed to operate on the scarified portion of the bridge deck. If it appears that the entire Low Slump Dense Concrete Bridge Deck Overlay cannot be completed prior to winter, Concrete Removal Type 1A, 1B, 1C, 1D, and B will not be done until work resumes in the spring. In the event scarification has been started and due to unforeseen circumstances, it becomes impossible to complete the placement of the overlay on the entire surface of the structure prior to winter the Office of Bridge Design will be notified. Recommendations for handling winter traffic will then be made. These recommendations may include, but are not limited to, filling extra depth removal areas with Class A45 Concrete, placing an asphalt overlay on the uncompleted area so that the entire roadway width may be opened to traffic, removal of the asphalt overlay when work is resumed and scarifying an additional 1/4" of depth on the bridge deck. The cost of this work, including asphalt overlay, scarification, Class A45 Concrete, extra low slump dense concrete and all other items incidental to this work, will be at the expense of the Contractor.

9. The paving notch will be cleaned by abrasive blasting as approved by the Engineer. Reinforcing steel will be placed in the paving notch according to the plans. The modified paving notch will be filled with Low Slump Dense Concrete during the placement of the Low Slump Dense Concrete Bridge Deck Overlay.

10. It will be necessary for the Contractor to shape the surface of the Low Slump Dense Concrete Bridge Deck Overlay within one foot of the curb to ensure that water drains to the deck drains or off the ends of the bridge.

SURFACE FINISH

1. All of the surfaces visible to the traveling public on the new concrete barriers on curb and end blocks will be given a Class B Commercial Texture Finish in accordance with Section 460.3 L.1.c. of the Construction Specifications. Visible surfaces include the front face and top of the barrier on curb; front and top face of the curb repair; and all faces of the end blocks.

2. The concrete surfaces requiring the application of the Commercial Texture Finish will be prepared in accordance with the manufacturer's recommendations. The Contractor will submit a product data sheet, or an approved equal, documenting all pertinent information regarding preparation of the concrete surfaces, materials and equipment required, mixing requirements, and application procedures to the Engineer in advance of the application of the Commercial Texture Finish for review and approval.

3. For informational purposes the amount of surface area requiring the Class B Commercial Texture Finish is 80 square yards for Phase 1 and 80 square yards for Phase 2.

4. Any damage to the Commercial Texture Finish during the construction including abrasion from traffic due to the traffic control will be repaired by the Contractor, as approved by the Engineer, at no expense to the Department.

5. The cost of the Commercial Texture Finish will be included in the contract unit price per cubic foot for Concrete Patching Material, Miscellaneous or Class A45 Concrete, Bridge Barrier as appropriate for the material placed. This payment will be full compensation for furnishing all materials, labor, tools and equipment necessary or incidental to the application of this finish.

CURB SPALL REPAIR

1. Concrete used in vertical patching applications on the curbs where forms are not practical will consist of one of the following products, or equal as approved by the Office of Bridge Design.

   a. HD 25 VO
   Dayton Superior
   1125 Byers Road
   Miamisburg, OH 45342
   Phone: (800) 745-3700
   Website: www.daytonsuperior.com

   b. MasterEmaco N 400RS
   BASF Building Systems
   889 Valley Park Drive
   Shakopee, MN 55379
   Phone: (800) 433-9517
   Website: www.buildingsystems.basf.com

   c. Meadow-Patch 20
   W.R.Meadows, Inc.
   P.O. Box 338
   Hampshire, IL 60140-0338
   Phone: (847) 214-2100
   Website: www.wrmeadows.com

   d. Speed Crete Red Line
   The Euclid Chemical Company
   19218 Redwood Rd.
   Cleveland, OH 44110
   Phone: (800) 321-7628
   Website: www.euclidchemical.com

2. The concrete patch material will be applied and cured as recommended by the Manufacturer and as approved by the Engineer.

3. The cost of furnishing and placing vertical patching material including all labor, equipment, tools, and any incidentals necessary to complete the work will be paid for at the contract unit price per cubic foot for Concrete Patching Material, Miscellaneous.

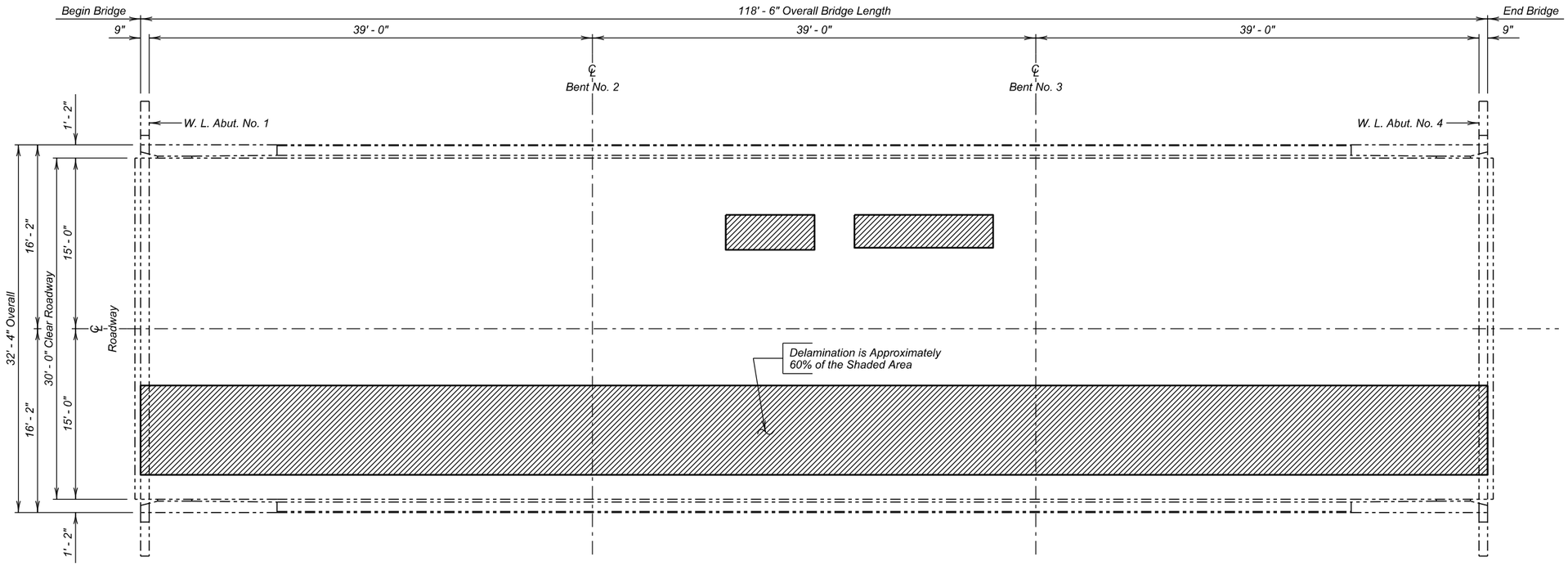
4. The Contractor will have the option of forming and pouring the curb repair with an approved A45 mix meeting the requirement for bridge barrier curbs mixed and proportioned in accordance with Section 460 of the Construction Specifications with the following modifications: the coarse aggregate gradation will be in accordance with Section 820 of the Construction Specifications and size #3 will be substituted in lieu of sizes #1 and #15. The use of an A45 mix in lieu of the specified patching materials will be at no additional cost to the Department.

NOTES (CONTINUED)
FOR
118' - 6" I BEAM BRIDGE

STR. NO. 02-180-06B
DECEMBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	AP	Steven A. Johnson BRIDGE ENGINEER
AURO08K8	08K8KA05		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	15	53



PLAN

LEGEND -

Shaded area indicate approximate location of unsound concrete requiring Concrete Removal Type 1B.

DECK DELAMINATION DETAILS

FOR

118' - 6" I BEAM BRIDGE

30' - 0" ROADWAY — 0° SKEW

OVER W. BR. FIRESTEEL CREEK — SEC. 1/6-T104N-R64/63W

STR. NO. 02-180-06B — NH 0281(129)79

AURORA COUNTY

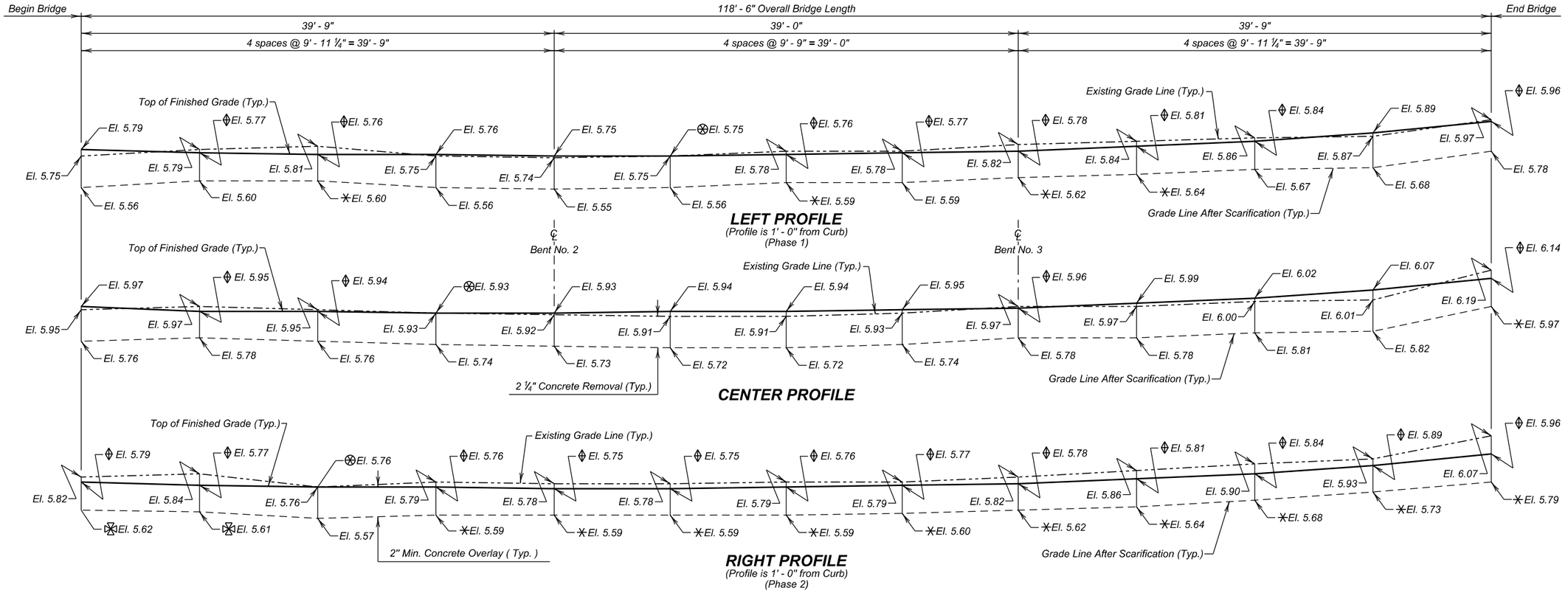
S. D. DEPT. OF TRANSPORTATION

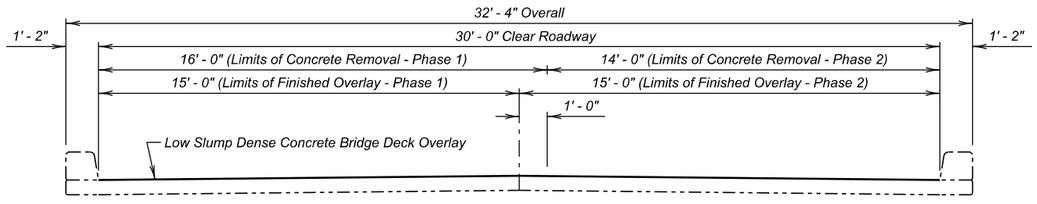
DECEMBER 2025

6 OF 25

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	KR	Steve A Johnson BRIDGE ENGINEER
AURO08K8	08K8RA06		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	16	53





TYPICAL SECTION

NOTE :

Add 1400.00 all elevations shown on profiles.

⊗ Existing Elevation is the same as the Finished Surface Elevation.

◈ Existing Elevation is higher than the Finished Surface Elevation.

✳ Scarify in excess of 2 ¼" in these areas. Extreme care will be taken not to damage the existing reinforcing steel.

⊠ Concrete removal in these locations is in excess of 2¼" and will require type 1C Concrete Removal to obtain the elevations noted. Type 1A Concrete Removal can be used up to a depth of 2¼" provided reinforcing steel is located. Reinforcing steel location will be coordinated with the Department prior to construction. Removal type will be determined by the Engineer.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	
		Phase I	Phase 2
Low Slump Dense Concrete Deck Overlay	CuYd	16.2	15.6
Concrete Removal Type 1A	SqYd	210.7	184.3
Concrete Removal Type 2A	SqYd	52.7	46.1
Concrete Removal Type 1B	SqYd	22.0	88.0
Concrete Removal Type 1C	SqYd	11.0	44.0
Concrete Removal Type 1D	SqYd	11.0	44.0
Concrete Removal Type B	Ft	10.0	10.0
Class A45 Concrete Fill	CuYd	2.3	9.2
Finishing and Curing	SqYd	197.5	197.5

Survey Reference:

Location Description: SE side of structure in NB lane
Elevation 1406.57

0' 0.25' 0.5' 1.00'

VERTICAL SCALE

LOW SLUMP DENSE CONCRETE OVERLAY DETAILS

FOR

118' - 6" I BEAM BRIDGE

30' - 0" ROADWAY — 0° SKEW
OVER W. BR. FIRESTEEL CREEK — SEC. 1/6-T104N-R64/63W
STR. NO. 02-180-06B — NH 0281(129)79

AURORA COUNTY

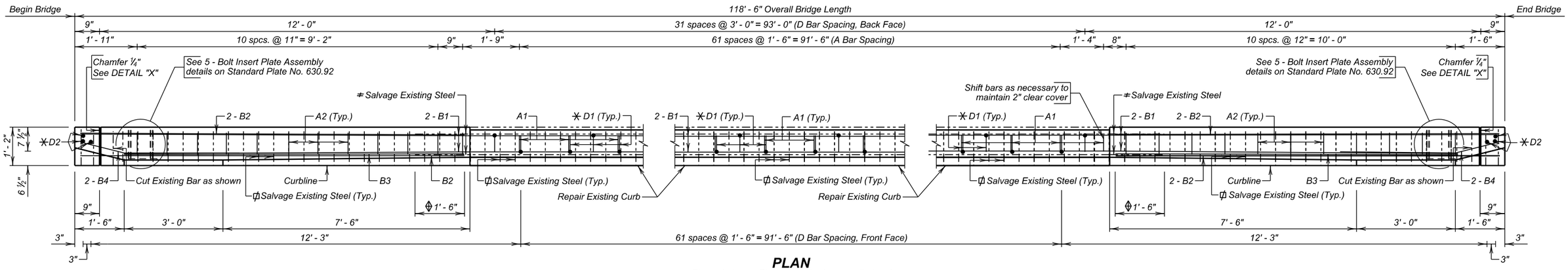
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2025

7 OF 25

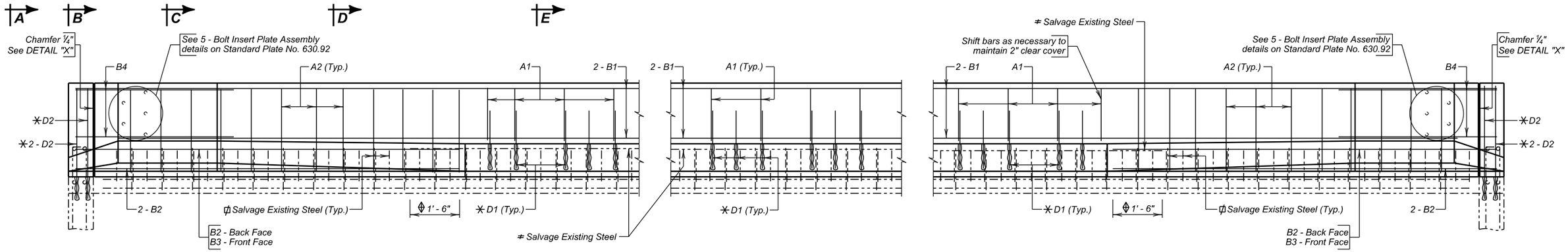
DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	KR	Steven A Johnson BRIDGE ENGINEER
AURO08K8	08K8RA07		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	17	53



PLAN

(Phase 1 shown, Phase 2 similar by opposite hand)

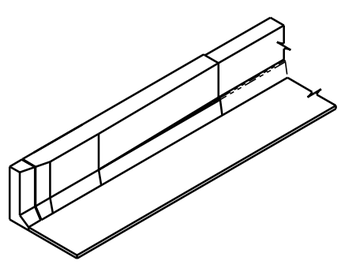


ELEVATION

NOTES -

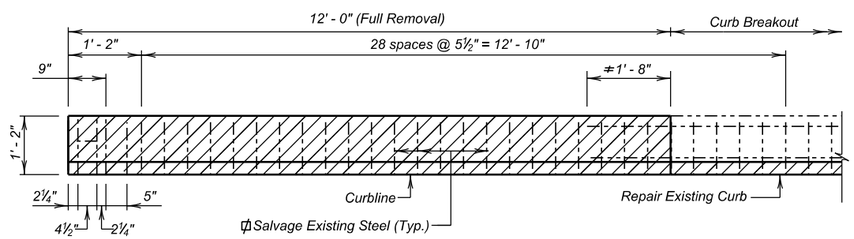
If existing reinforcing steel is struck while drilling holes for Dowels, the spacing can be shifted 2" longitudinally, 1" transversely, or as approved by the Engineer to miss existing reinforcing steel.

- ⍁ Bend existing bars where necessary to maintain 2" clear cover.
- ✳ D1 and D2 Dowels are to be drilled in and grouted with epoxy.
- ≠ Extend existing B bars into new section (1'- 8")
- ⧫ Min. Lap = 1' - 6"



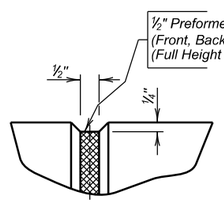
ISOMETRIC VIEW

(Shown with New Low Slump Overlay in Place)



PARTIAL PLAN

(Showing Curb Breakout for New End Block at Abut. No. 1)



DETAIL "X"

END BLOCK, RAIL, AND CURB MODIFICATION (A)

FOR

118' - 6" I BEAM BRIDGE

30' - 0" ROADWAY — 0° SKEW

OVER W. BR. FIRESTEEL CREEK — SEC. 1/6-T104N-R64/63W

STR. NO. 02-180-06B — NH 0281(129)79

AURORA COUNTY

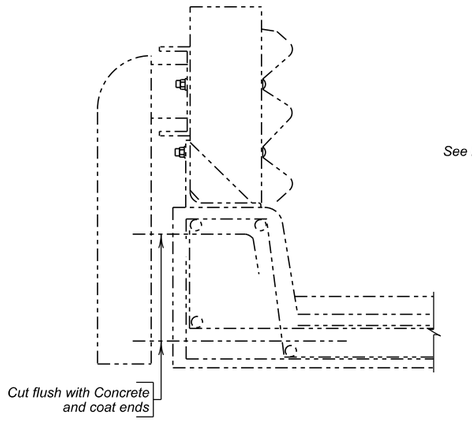
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2025

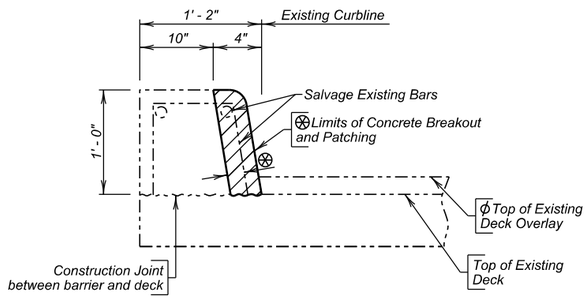
8 OF 25

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	KR	Steve A Johnson BRIDGE ENGINEER
AURO08K8	08K8RA08		

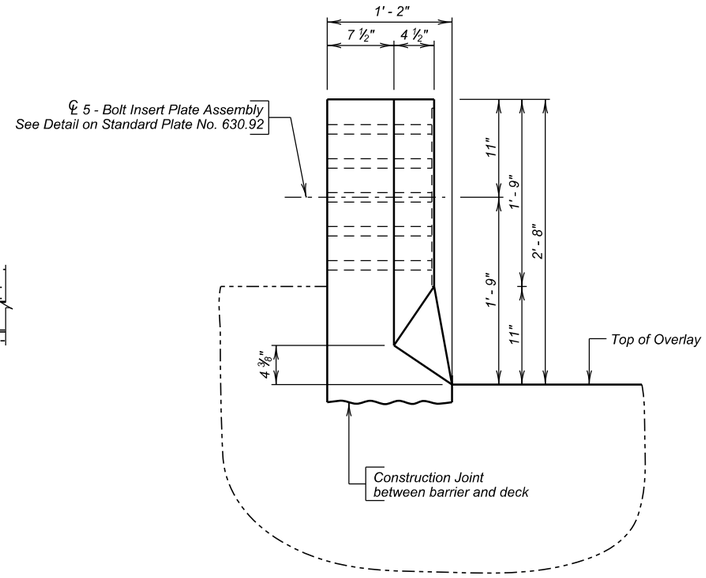
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	18	53



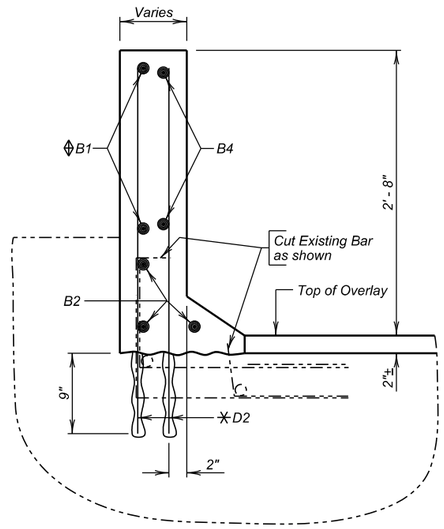
EXISTING RAIL AND CURB



TYPICAL CURB BREAKOUT SECTION



VIEW A - A



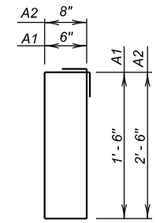
SECTION B - B

(Concrete shading not shown for clarity)

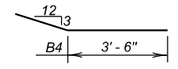
- ⌀ Bend existing bars where necessary to maintain 2" clear cover.
- ✳ D1 and D2 Dowels are to be drilled in and grouted with epoxy.
- ≠ Extend existing B bars into new section (1'- 6")
- ⧫ Min. Lap = 1' - 6"
- ⊛ Breakout Limits will be to sound concrete or a minimum of 2" beyond the backface of the existing reinforcing steel tie, whichever is greater.
- ϕ Existing overlay will be removed and replaced with this project. It is shown here for reference.
- ✠ Rotate bars where necessary to maintain 2" clear cover.

REINFORCING SCHEDULE

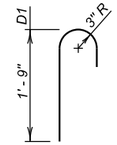
	Mk.	No.	Size	Length	Type	Bending Details
Phase 1	A1	62	4	4' - 9"	T2	
	A2	22	4	7' - 1"	T2	
	⧫ B1	12	4	40' - 5"	Str.	
	B2	6	4	11' - 8"	Str.	
	B3	2	4	10' - 4"	Str.	
	B4	4	4	4' - 10"	19A	
	△ D1	94	6	2' - 6"	1A	
	△ D2	6	6	3' - 5"	Str.	
Phase 2	A1	62	4	4' - 9"	T2	
	A2	22	4	7' - 1"	T2	
	⧫ B1	12	4	40' - 5"	Str.	
	B2	6	4	11' - 8"	Str.	
	B3	2	4	10' - 4"	Str.	
	B4	4	4	4' - 10"	19A	
	△ D1	94	6	2' - 6"	1A	
	△ D2	6	6	3' - 5"	Str.	



Type T2



Type 19A



Type 1A

NOTES :

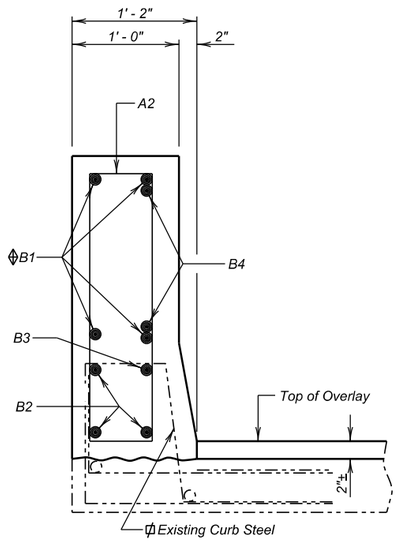
△ Dowels
All bars are epoxy coated.
All dimensions are out to out of bars.

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY PHASE I	QUANTITY PHASE 2
	Remove Bridge Railing	Ft	118.5	118.5
	Class A45 Concrete, Bridge Barrier	CuYd	7.9	7.9
	Concrete Patching Material, Miscellaneous	CuFt	34.3	34.3
	Breakout Structural Concrete	CuYd	2.3	2.3
	Install Dowel in Concrete	Each	100	100
★	Epoxy Coated Reinforcing Steel	Lb	699	699
	Galvanic Anode	Each	48	48

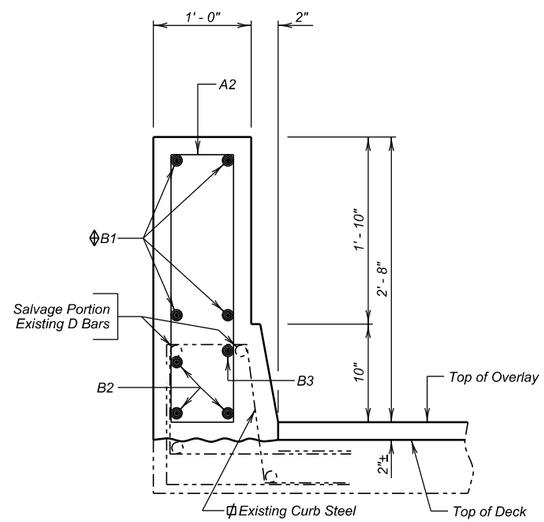
★ Does not include the following quantities for D1 & D2 bars as these are incidental to the contract unit price per each for Install Dowel in Concrete.

	PHASE I	PHASE 2
Epoxy Coated Reinforcing Steel Dowel	384 Lb	384 Lb



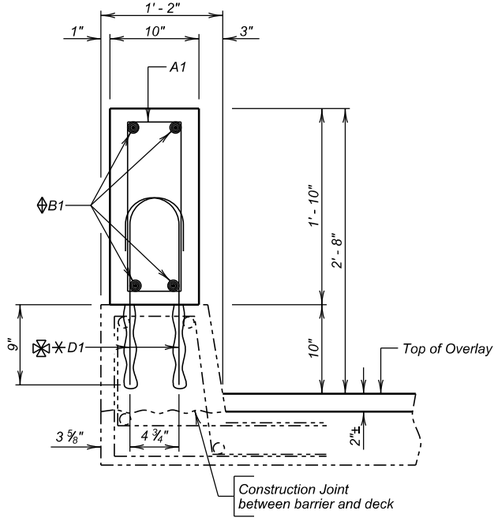
SECTION C - C

(Concrete shading not shown for clarity)



SECTION D - D

(Concrete shading not shown for clarity)



SECTION E - E

(Concrete shading not shown for clarity)

END BLOCK, RAIL, AND CURB MODIFICATION (B)

FOR

118' - 6" I BEAM BRIDGE

30' - 0" ROADWAY — 0° SKEW

OVER W. BR. FIRESTEEL CREEK — SEC. 1/6-T104N-R64/63W

STR. NO. 02-180-06B — NH 0281(129)79

AURORA COUNTY

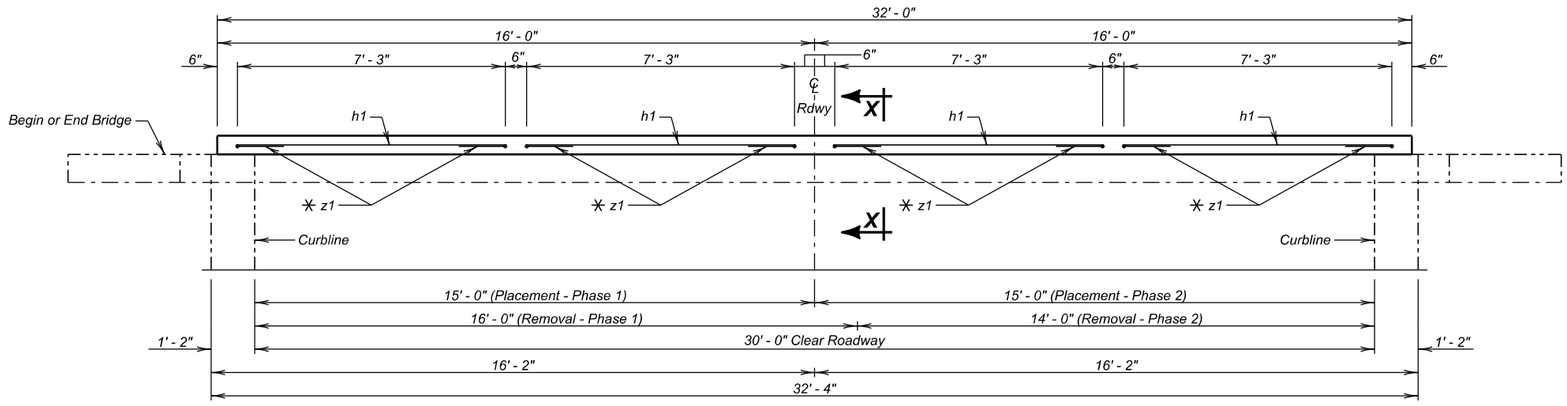
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2025

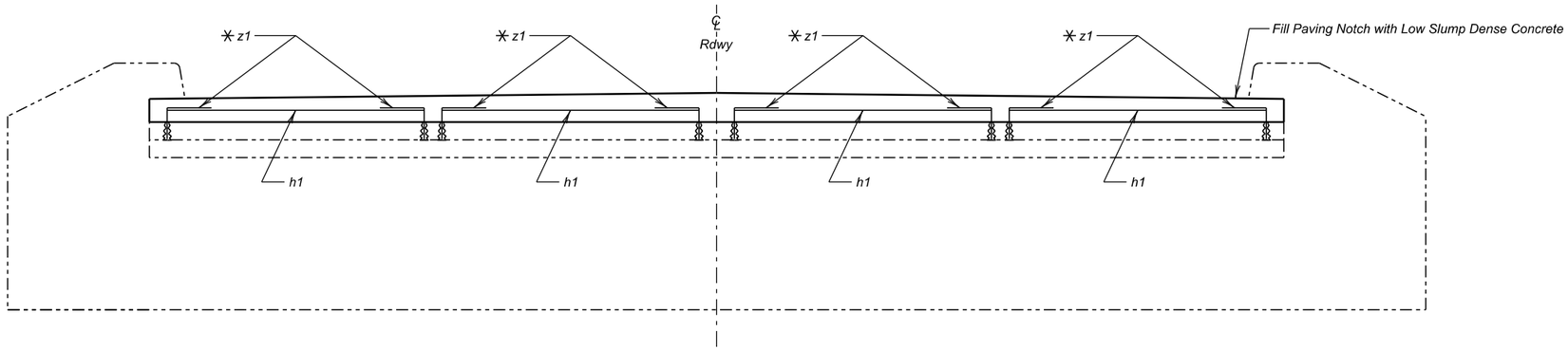
9 OF 25

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	KR	Steve A Johnson BRIDGE ENGINEER
AURO08K8	08K8RA09		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	19	53

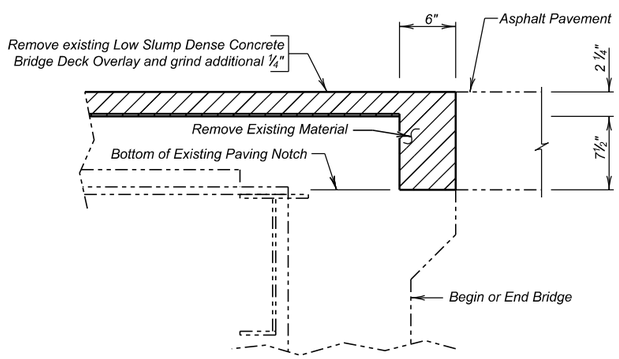


PLAN
(Other Side Similar by Opposite Hand)



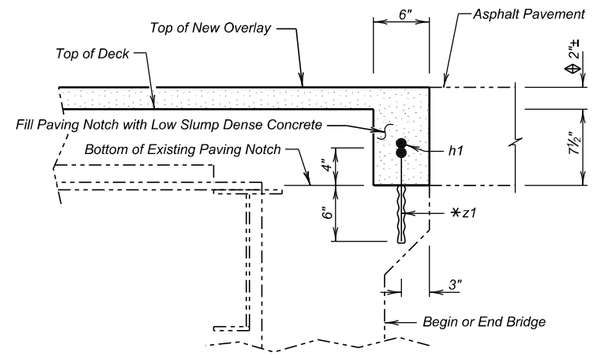
ELEVATION
(Bridge Barrier Not Shown)

z1 bars are to be drilled in and grouted with epoxy
See low slump profiles for elevations



SECTION X - X
(Concrete Removal Shown)

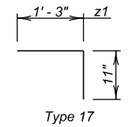
Shaded Area Indicates Area of Concrete Removal



SECTION X - X
(Section after Reconstruction)

REINFORCING SCHEDULE
For Two Paving Notches

Mk.	No.	Size	Length	Type	Bending Details
h1	8	6	7' - 3"	Str.	
℄ z1	16	5	2' - 2"	17	



NOTES :

℄ Dowels
All bars are epoxy coated.
All dimensions are out to out of bars.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	
		PHASE I	PHASE 2
Low Slump Dense Concrete Bridge Deck Overlay	CuYd	0.4	0.4
Install Dowel in Concrete	Each	8	8
★ Epoxy Coated Reinforcing Steel	Lb	44.0	44.0

★ Does not include the following quantities for z1 bars as these are incidental to the contract unit price per each for Install Dowel in Concrete.

	PHASE I	PHASE 2
Epoxy Coated Reinforcing Steel Dowel	19 Lbs	19 Lbs

PAVING NOTCH REPAIR DETAILS

FOR

118' - 6" I BEAM BRIDGE

30' - 0" ROADWAY — 0° SKEW
OVER W. BR. FIRESTEEL CREEK — SEC. 1/6-T104N-R64/63W
STR. NO. 02-180-06B — NH 0281(129)79

AURORA COUNTY

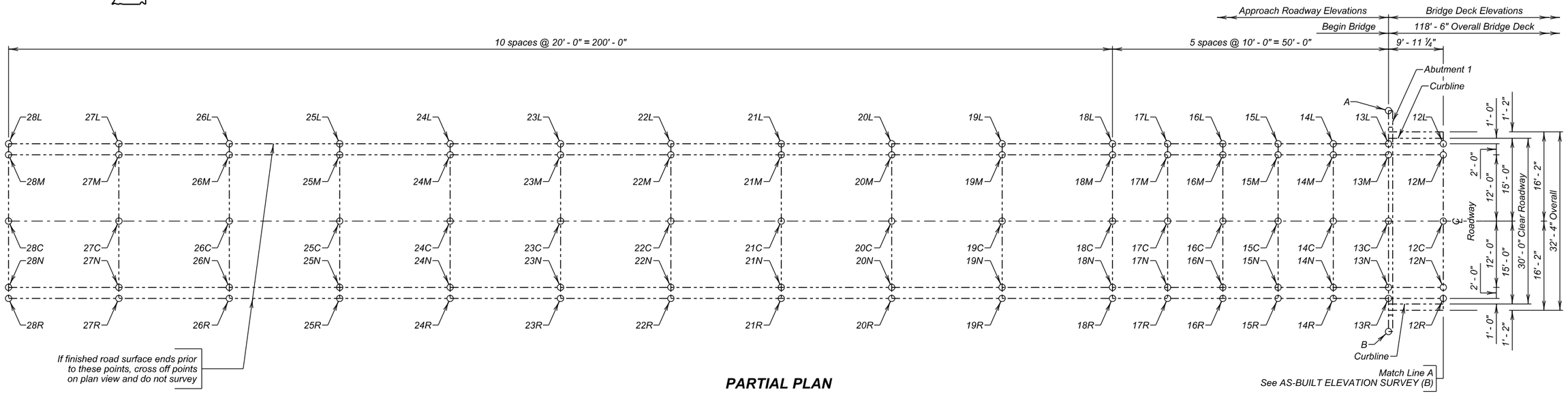
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2025

10 OF 25

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	JB	Steve A Johnson BRIDGE ENGINEER
AURO08K8	08K8BA10		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	20	53



PARTIAL PLAN

Table of Elevations - Approach Roadway

Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
28L		28M		28C		28N		28R	
27L		27M		27C		27N		27R	
26L		26M		26C		26N		26R	
25L		25M		25C		25N		25R	
24L		24M		24C		24N		24R	
23L		23M		23C		23N		23R	
22L		22M		22C		22N		22R	
21L		21M		21C		21N		21R	
20L		20M		20C		20N		20R	
19L		19M		19C		19N		19R	
18L		18M		18C		18N		18R	
17L		17M		17C		17N		17R	
16L		16M		16C		16N		16R	
15L		15M		15C		15N		15R	
14L		14M		14C		14N		14R	

Table of Elevations - Bridge Deck

Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
13L		13M		13C		13N		13R	
12L		12M		12C		12N		12R	

Bridge Ends	
Location	Elevation
A	
B	

Benchmark Description:

Location Description: SE side of structure in NB lane
Elevation 1406.57

NOTE:

The As-Built Elevations will be based on the National Geodetic Survey North American Vertical Datum of 1988 and will be recorded at the locations shown by the table on this sheet. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer.

AS-BUILT ELEVATION SURVEY (A)

FOR

118' - 6" I BEAM BRIDGE

30' - 0" ROADWAY — 0° SKEW
OVER W. BR. FIRESTEEL CREEK — SEC. 1/6-T104N-R64/63W
STR. NO. 02-180-06B — NH 0281(129)79

AURORA COUNTY

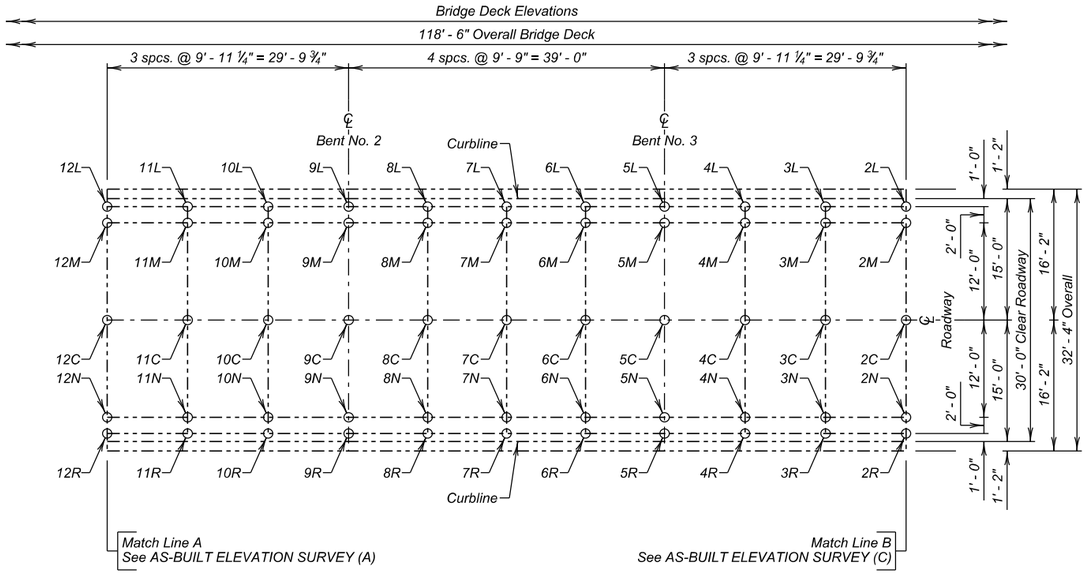
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2025

11 OF 25

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	KR	Steve A Johnson BRIDGE ENGINEER
AURO08K8	08K8RA11		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	21	53



PARTIAL PLAN

Benchmark Description:

Location Description: SE side of structure in NB lane
Elevation 1406.57

Table of Elevations - Approach Roadway									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
12L		12M		12C		12N		12R	
11L		11M		11C		11N		11R	
10L		10M		10C		10N		10R	
9L		9M		9C		9N		9R	
8L		8M		8C		8N		8R	
7L		7M		7C		7N		7R	
6L		6M		6C		6N		6R	
5L		5M		5C		5N		5R	
4L		4M		4C		4N		4R	
3L		3M		3C		3N		3R	
2L		2M		2C		2N		2R	

NOTE:

The As-Built Elevations will be based on the National Geodetic Survey North American Vertical Datum of 1988 and will be recorded at the locations shown by the table on this sheet. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer.

AS-BUILT ELEVATION SURVEY (B)

FOR

118' - 6" I BEAM BRIDGE

30' - 0" ROADWAY — 0° SKEW
OVER W. BR. FIRESTEEL CREEK — SEC. 1/6-T104N-R64/63W
STR. NO. 02-180-06B — NH 0281(129)79

AURORA COUNTY

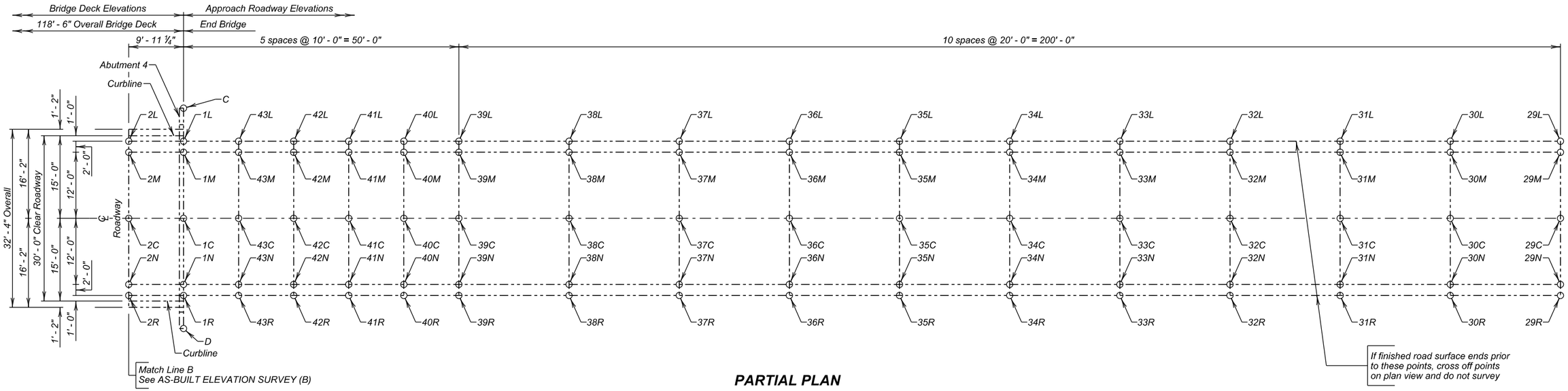
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2025

12 OF 25

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	KR	Steve A Johnson BRIDGE ENGINEER
AURO08K8	08K8RA12		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	22	53



PARTIAL PLAN

Table of Elevations - Approach Roadway									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
43L		43M		43C		43N		43R	
42L		42M		42C		42N		42R	
41L		41M		41C		41N		41R	
40L		40M		40C		40N		40R	
39L		39M		39C		39N		39R	
38L		38M		38C		38N		38R	
37L		37M		37C		37N		37R	
36L		36M		36C		36N		36R	
35L		35M		35C		35N		35R	
34L		34M		34C		34N		34R	
33L		33M		33C		33N		33R	
32L		32M		32C		32N		32R	
31L		31M		31C		31N		31R	
30L		30M		30C		30N		30R	
29L		29M		29C		29N		29R	

Table of Elevations - Bridge Deck									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
2L		2M		2C		2N		2R	
1L		1M		1C		1N		1R	

Bridge Ends	
Location	Elevation
C	
D	

Benchmark Description:

Location Description: SE side of structure in NB lane
Elevation 1406.57

NOTE:

The As-Built Elevations will be based on the National Geodetic Survey North American Vertical Datum of 1988 and will be recorded at the locations shown by the table on this sheet. The completed table will be given to the Engineer who will forward a copy to the Bridge Maintenance Engineer in the Office of Bridge Design and the Region Bridge Engineer.

AS-BUILT ELEVATION SURVEY (C)

FOR

118' - 6" I BEAM BRIDGE

30' - 0" ROADWAY — 0° SKEW
OVER W. BR. FIRESTEEL CREEK — SEC. 1/6-T104N-R64/63W
STR. NO. 02-180-06B — NH 0281(129)79

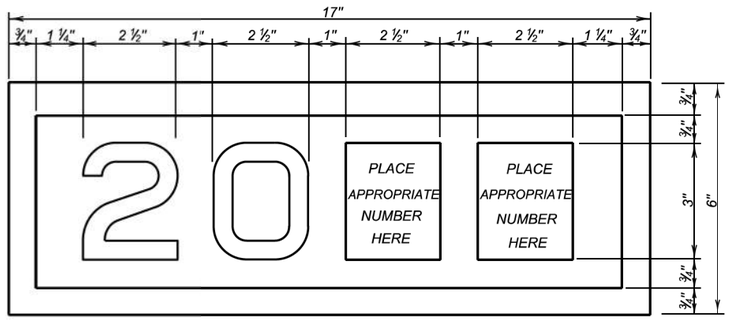
AURORA COUNTY

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2025

13 OF 25

DESIGNED BY	CK. DES. BY	DRAFTED BY	
AP	TJM	KR	Steve A Johnson BRIDGE ENGINEER
AURO08K8	08K8RA13		



YEAR PLATE DETAILS

GENERAL NOTES:

1. Year plates of the general dimensions shown will be constructed on all box culverts and bridges. The year plates will be constructed in reverse and attached to the forms in such a manner that the finished imprint in the concrete does not exceed one-half (1/2) inch in depth.

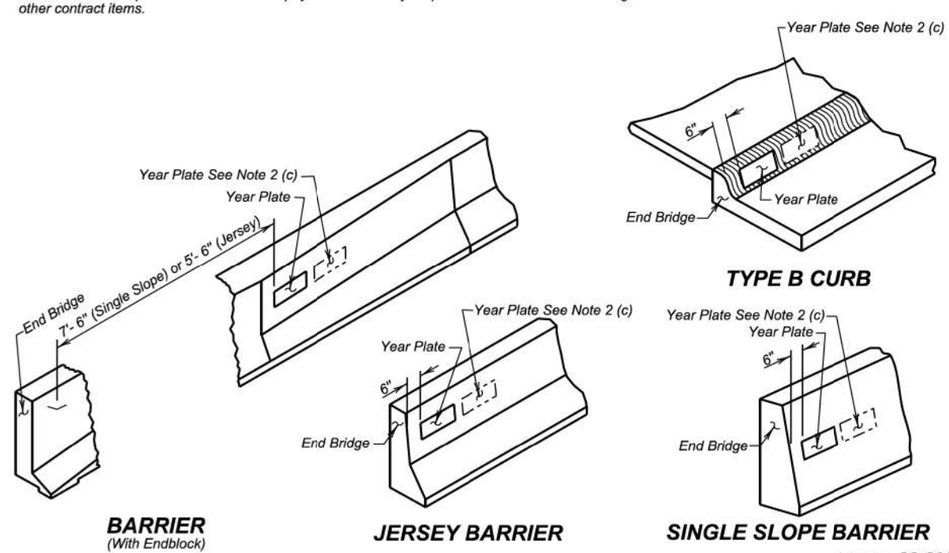
2. Year plates will be located on structure(s) as follows:

   a. On cast-in-place box culverts the year plates will be four and one - half (4 ½) inches below the top of the upstream parapet wall and centered laterally on the upstream face. On precast box culverts the year plate will be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate will be centered in an adjacent barrel.

   b. On bridges with six (6) inch curbs, "Jersey" shaped barriers with no endblocks, or "Single Slope" shaped barriers with no endblocks, the year plate will be centered vertically on the curb face approximately six (6) inches from the end of the bridge, or as designated by the Engineer. On bridges with barrier endblocks, the year plate will be centered on the upper sloped portion of the barrier approximately 5'- 6" for "Jersey" shaped barriers from the end of the bridge and 7'-6" for "Single Slope" shaped barriers from the end of bridge, or as designated by the Engineer. There will be one year plate at each end of the bridge on opposite sides.

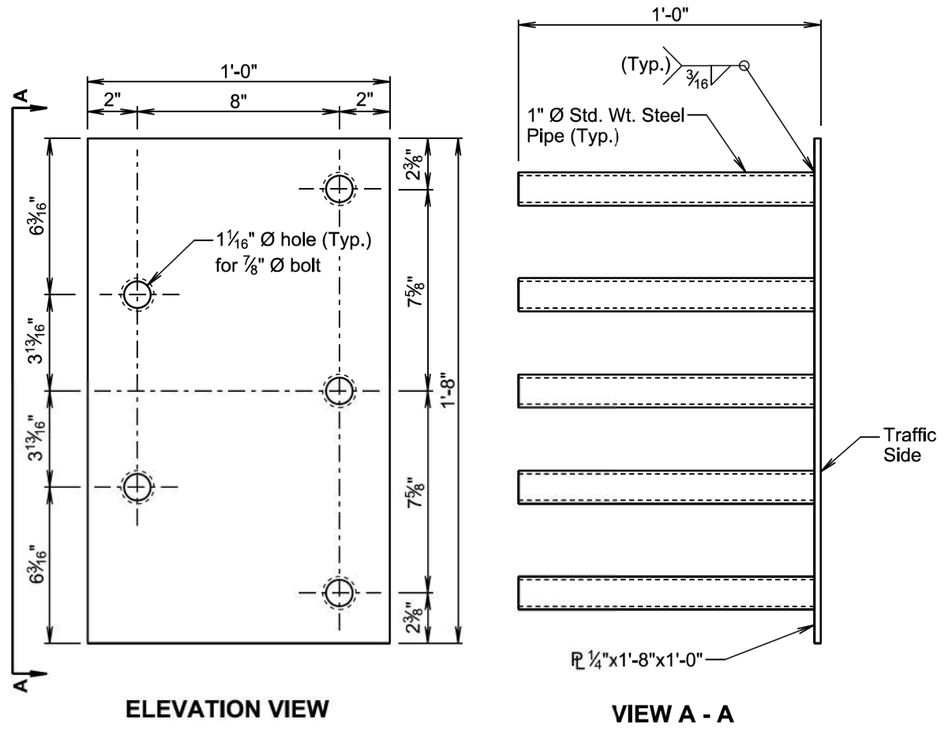
   c. When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date will be placed as listed above and the other located adjacent to it. Both year plates will be shown at each end of the bridge on opposite sides.

3. There will be no separate measurement or payment made for year plates on box culverts and bridges. All costs for this work will be incidental to other contract items.



January 22, 2021

Published Date: 2026	SDDOT	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1



ELEVATION VIEW **VIEW A - A**

GENERAL NOTES:

Steel plate for the insert assembly will conform to ASTM A709, Grade 36. The steel pipes will conform to ASTM A53, Grade B or ASTM A500, Grade B or C.

Welding and weld inspection will be in conformance with AWS D1.1 - (Current Year) Structural Welding Code - Steel.

After fabrication, galvanize in accordance with AASHTO M111 (ASTM A123).

Bolts, nuts, and washers will be provided with each assembly. Bolts will be galvanized and conform to the requirements of ASTM A307, F3125 Grade A325, or A449. Plain washers will be galvanized and conform to ASTM F844.

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

The cost of the 5 bolt insert plate assembly complete in place including welding and galvanizing will be incidental to the contract unit price per cubic yard for "Class A45 Concrete, Miscellaneous", "Class A45 Concrete, Bridge Deck", or "Class A45 Concrete, Bridge Repair", as applicable.

April 8, 2025

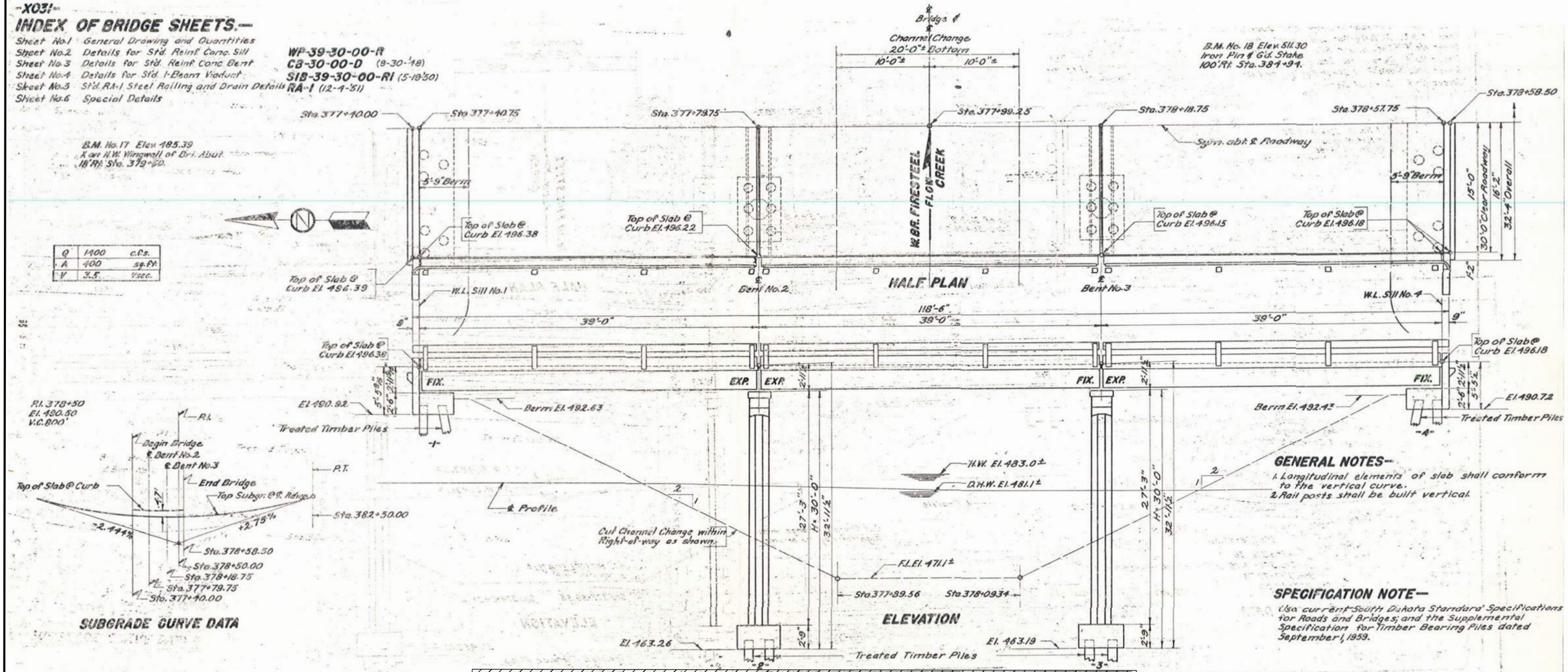
Published Date: 2026	SDDOT	5 BOLT INSERT PLATE ASSEMBLY	PLATE NUMBER 630.92
			Sheet 1 of 1

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	24	53

-X03!-

INDEX OF BRIDGE SHEETS.—

WP-39-30-00-R
CB-30-00-D (9-30-48)
SIB-39-30-00-RI (5-19-50)
RA-I (12-4-51)



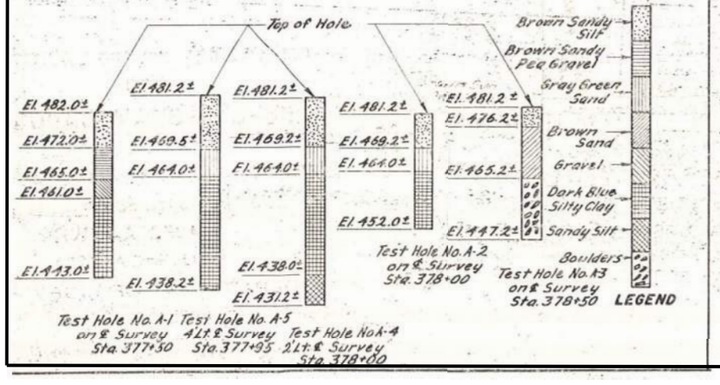
GENERAL NOTES—

1. Longitudinal elements of slab shall conform to the vertical curve.
2. Rail posts shall be built vertical.

SPECIFICATION NOTE—

Use current South Dakota Standard Specifications for Roads and Bridges; and the Supplemental Specification for Timber Bearing Piles dated September 1, 1959.

TEST HOLE DATA



ESTIMATED QUANTITIES

Item	C.I.P. Conc. Cu. Yds.	Steel — Lbs. Reinf.	Steel — Lbs. Struct.	Treated Timber Piles Bearing Units	Treated Timber Piles # Lin. Ft.	Excavation — Cu. Yds. Struct.	Excavation — Cu. Yds. Unclass.
Superstructure-3-38 Spans	80.1	17670	35885	239.2			
Substructure-Sills No. 1 & No. 4	37.2	5720			24 @ 50' = 1200	30	
Substructure-Bents No. 2 & No. 3	43.3	8090			24 @ 40' = 960	120	
Totals	161.7	31480	35885	239.2	# 2160	150	# 3000

* One treated timber test pile shall be driven at Sills No. 1 & No. 4 and Bents No. 2 & No. 3 before the remaining piles are ordered.

A See Grading Plans for Unclassified Excavation.

PILE NOTE:— Piles driven at Sills No. 1 & No. 5 including test piles shall obtain their full bearing (18 Tons) in the natural ground below the new embankment elevations 482.2± and 481.5± respectively. Prebored holes thru the fill are required and shall be a minimum diameter 2" larger than the nominal diameter (3' from butt) of the pile.

*INCIDENTAL WORK:— In place, Sta. 379+62 to Sta. 380+33, old 71' Pony Truss Bridge with 16' Roadway. Remove floor, matchmark and dismantle old 70' truss span, being careful not to injure the structural properties of steel members in the bridge. Salvaged material shall be placed neatly on the right-of-way as directed by the ENGINEER, to be picked up by County Forces for reuse. Remove old substructure to 1' below present ground line. Satisfactory broken concrete shall be used as slope protection on the upstream side of new Abutment wings. All other broken concrete and salvaged materials shall be disposed of as directed by the ENGINEER.

ORIGINAL CONSTRUCTION PLANS

GENERAL DRAWING AND QUANTITIES FOR 118'-6" I-BEAM VIADUCT

30'-0" ROADWAY

OVER W. BR. FIRESTEEL CREEK SEC. 1/6-T104N-R64/63W

STA. 377+40.00 TO 378+58.50 F045-3(3)

AURORA COUNTY

STR. NO. 02-180-06B SOUTH DAKOTA H20-44

DEPARTMENT OF HIGHWAYS

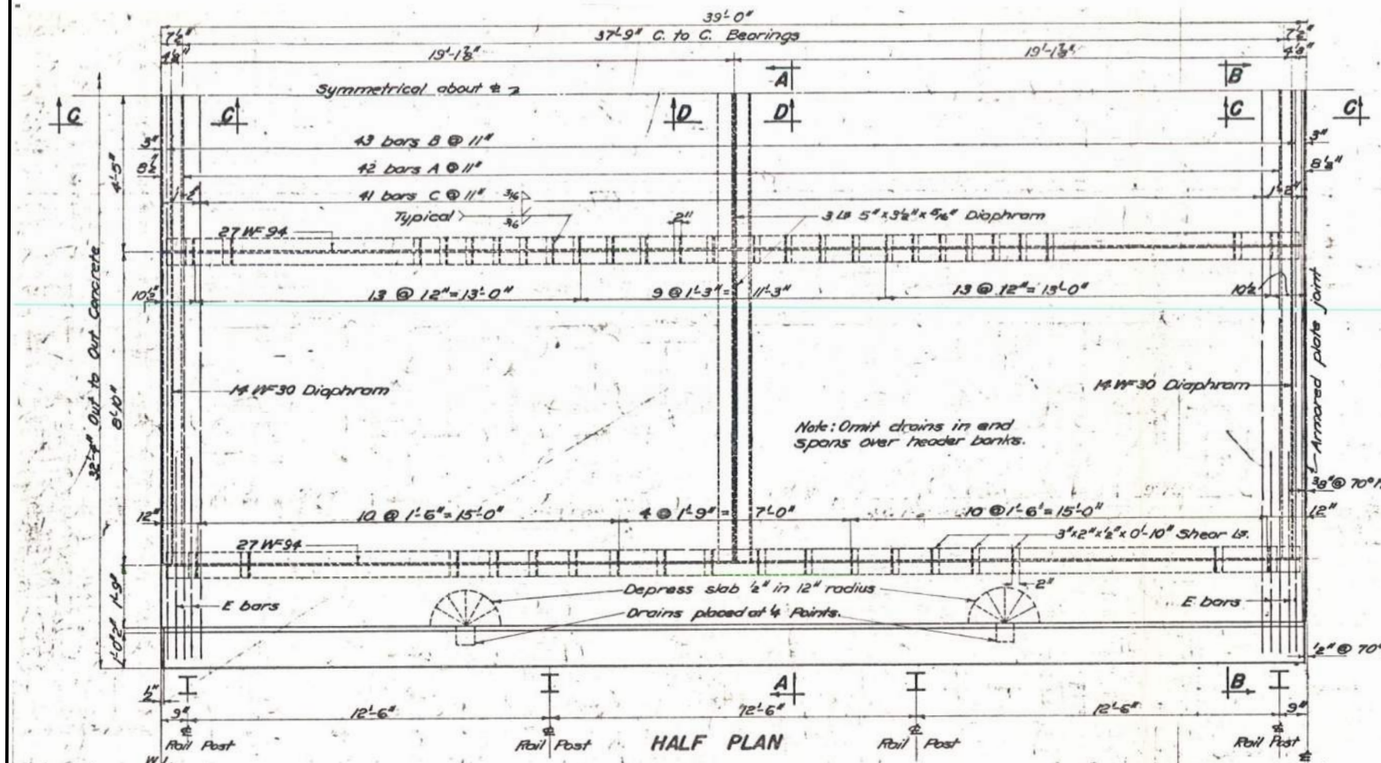
DEC. 1959

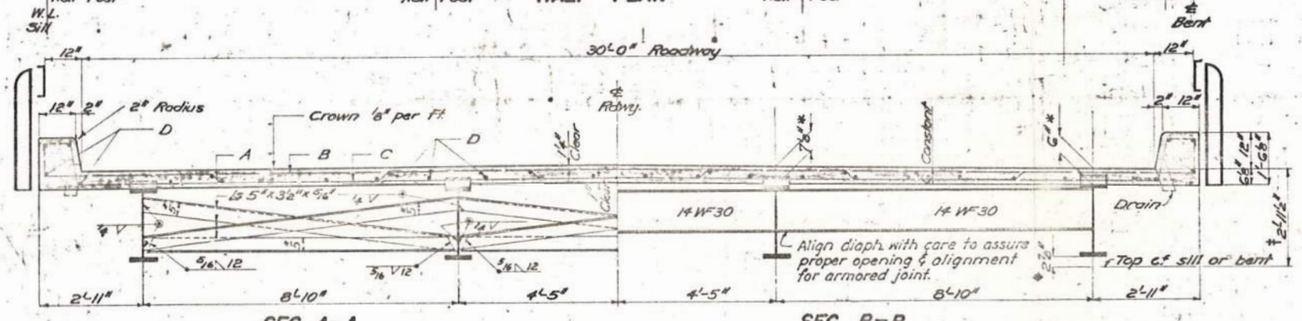
-X03!-

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	W.C.P.	J.O.	J. R. Starr BRIDGE ENGINEER

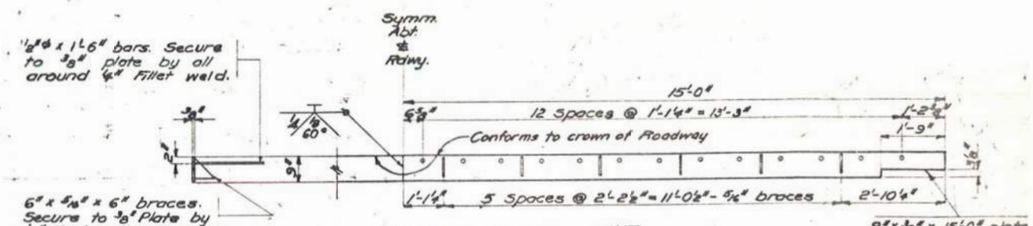
15 OF 25

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	25	53



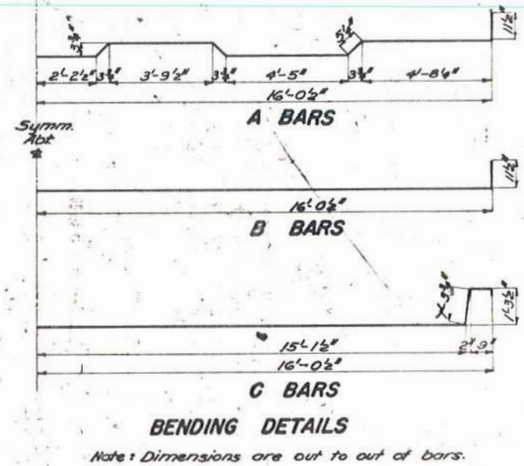


* Dimensions shown apply only at ℄ of bearings. Intermediate points must be increased for ordinates shown in DEAD LOAD DEFLECTION DIAGRAM plus or minus any irregularity or deflection in beam when erected.



ARMORED PLATE JOINT

Armor plate shall be adjusted to grade before welding to diaphram.

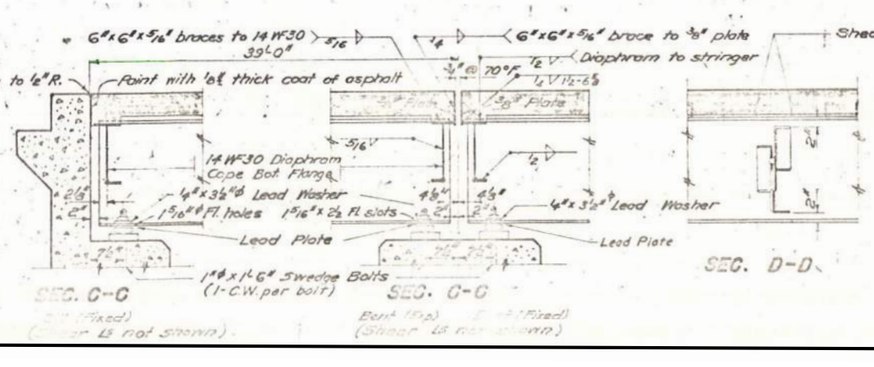


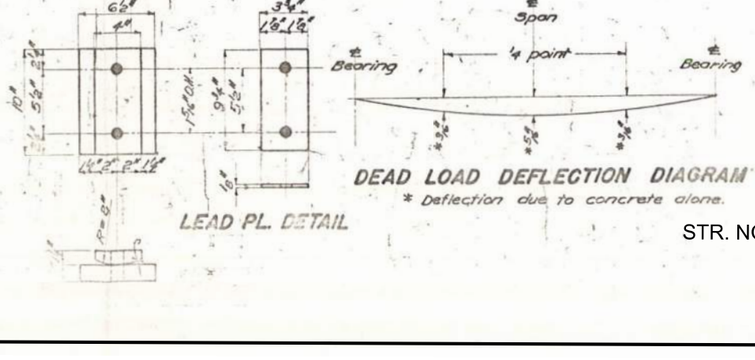
BENDING DETAILS

Note: Dimensions are out to out of bars.

REINF. STEEL			
MARK	NO.	SIZE	LENGTH
A	42	⅝"ϕ	34'-9"
B	43	⅝"ϕ	34'-0"
C	41	⅝"ϕ	34'-9"
D	32	⅝"ϕ	38'-6"
E	8	¼"ϕ	6'-0"

ESTIMATED QUANTITIES	
ITEM	
Concrete, Cl. A	Cu. Yds.
Steel, Reinforcing	Lbs.
Steel, Structural	Lbs.
Railing	Lin. Ft.





* Deflection due to concrete alone.

* See sheet of "Special Details" for these dimensions if bridge is on other than level grade.
* Vary this dimension in accordance with variation of dimensions marked †.

GENERAL NOTES:

Cost of welding shall be absorbed in the unit price bid for structural steel.

Lead plates and lead washers shall be paid for under the item of structural steel.

All exposed steel surfaces shall be painted one shop coat of red lead paint and two field coats of aluminum or other approved paint.

Beams do not require mill cambering.

Cost of canvas and red lead under bearing plates shall be absorbed in the unit price bid for Cl. "A" Concrete.

All exposed concrete edges shall be chamfered unless otherwise noted.

See Standard Railing Sheet for details of railing and drains.

Design Loading: H20-44 (T-3-45) A.A.S.H.O.

Unit stresses: Re-steel fs = 20,000 p.s.i. (In end [illegible])
Concrete fc = 1,350 p.s.i.

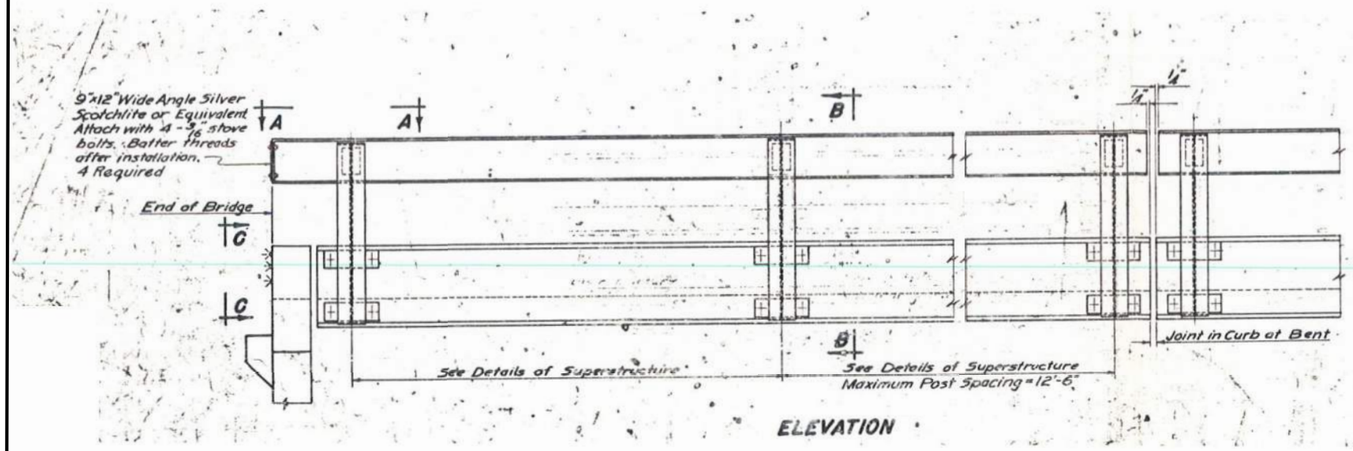
Class "A" Concrete shall develop a minimum allowable compressive strength of 4,000 p.s.i. at 28 days.

ORIGINAL CONSTRUCTION PLANS

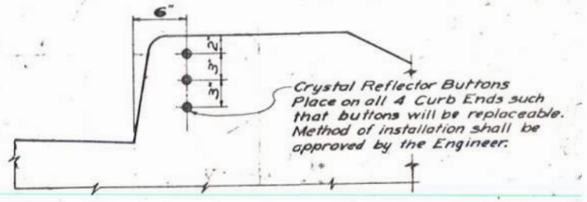
DETAILS FOR
STANDARD I-BEAM VIADUCT
COMPOSITE SECTION
30'-0" ROADWAY 39'-0" SPAN
SOUTH DAKOTA
STATE HIGHWAY COMMISSION

STR. NO. 02-180-06B

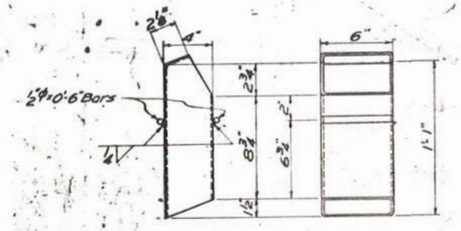
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	26	53



ELEVATION

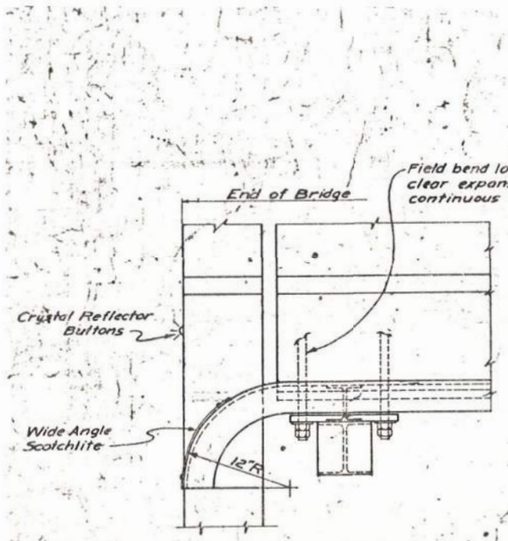


SECTION C-C

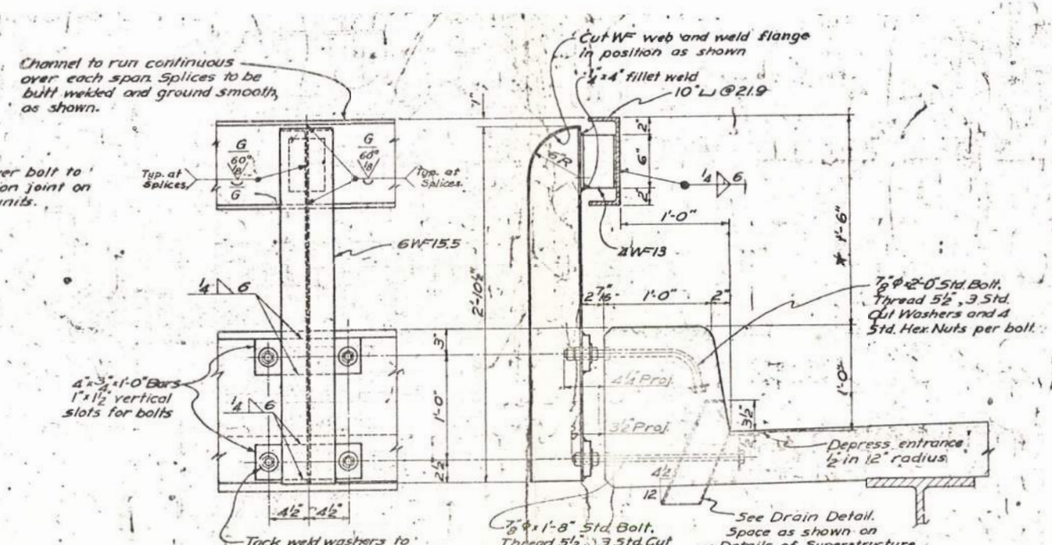


DETAIL OF DRAIN

Drains shall be constructed of 10 gage sheet metal with welded joints.



SECTION A-A



SECTION B-B

GENERAL NOTES.–

Cost of Anchor Bolts, Nuts, & Washers shall be absorbed in the unit price bid for Railing.

Cost of Scotchlite (or equiv.) shall be absorbed in the unit price bid for Railing.

Cost of Crystal Reflector Buttons shall be absorbed in the unit price bid for Class A Concrete.

Railing shall be painted with one shop coat of Red Lead Paint and two field coats of Aluminum or other approved paint. Cost of painting of Railing shall be absorbed in the unit price bid for Railing.

All Railing Posts shall be constructed vertical.

Railing anchor bolts shall be bent at the acute angle end of skewed spans to provide a minimum cover of 1½" of concrete.

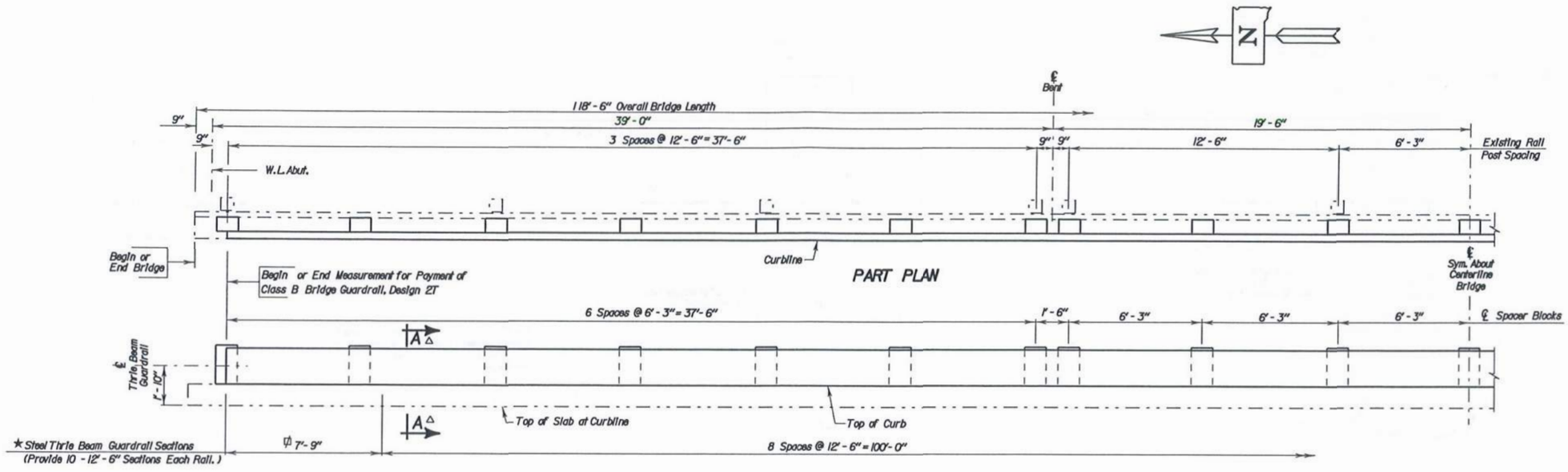
Cost of welding shall be absorbed in the unit price bid for Railing.

ORIGINAL CONSTRUCTION PLANS

STANDARD
RAILING AND DRAIN DETAILS
FOR
STANDARD I-BEAM VIADU
SOUTH DAKOTA
STATE HIGHWAY COMMISSIO
1947

STR. NO. 02-180-06B

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	27	53



ELEVATION

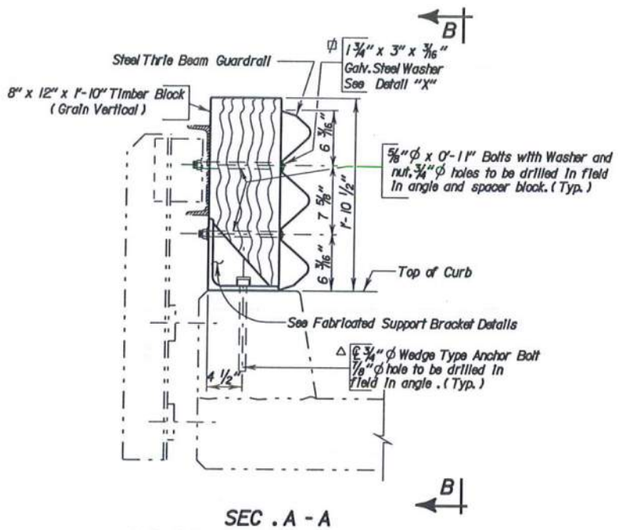
℄ NOTE: Cut Thrie Beam to fit in this area.
△ NOTE: See Sheet No. 5 of 8 for SEC. A - A .
★ See Bridge Guardrail Design 2T notes.

ORIGINAL CONSTRUCTION PLANS

LAYOUT OF CLASS B BRIDGE GUARDRAIL
DESIGN 2T FOR
118' - 6" I - BEAM BRIDGE
30' - 0" ROADWAY 0°SKEW
OVER W. BR. FIRESTEEL CREEK SEC. 16-T104N-R64/63W
STR. NO. 02-180-06B P 0281(72)71
STATION 377+40 TO STATION 378+58.5
AURORA COUNTY
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2005

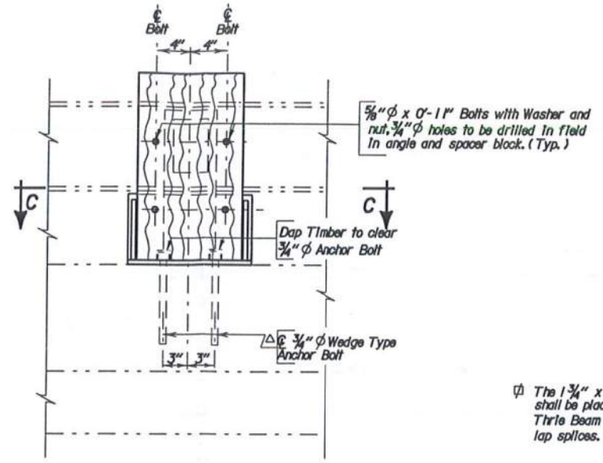
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	CJD	CJD/EJA	BRIDGE ENGINEER
AUR06947	6947CD04		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	28	53



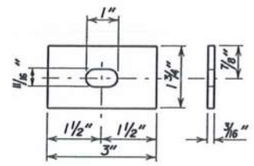
SEC. A - A

△ See Bridge Guardrail Design 2T notes for requirements for Wedge Type Anchor Bolts.



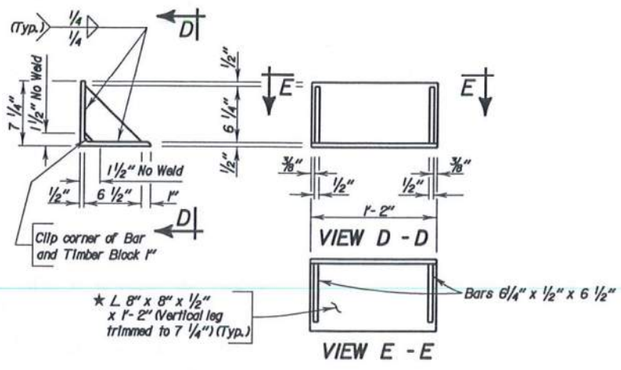
VIEW B - B

(Steel Thrie Beam Guardrail not shown)



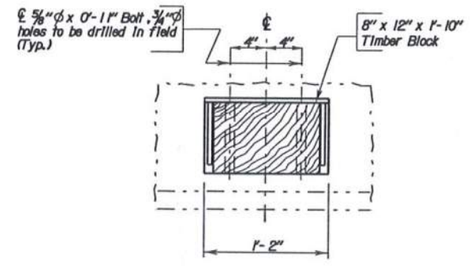
DETAIL " X "

℄ The 1¾" x 3" x 3/16" Galvanized Plate Washer shall be placed on the traffic side of the Thrie Beam Section adjacent to traffic on all lap splices.



FABRICATED SUPPORT BRACKET

★ See Bridge Guardrail Design 2T notes



SEC. C - C

(Steel Thrie Beam Guardrail, Rail Post and Channel Rail Not Shown)

ORIGINAL CONSTRUCTION PLANS

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Remove Bridge Railing	Ft.	231.0
Class B Bridge Guardrail, Design 2T	Ft.	231.0

DETAILS OF CLASS B BRIDGE GUARDRAIL
DESIGN 2T FOR

118' - 6" I - BEAM BRIDGE

30' - 0" ROADWAY 0° SKEW

OVER W. BR. FIRESTEEL CREEK SEC. 16-T104N-R64/63W

STR. NO. 02-180-06B P 0281(72)71

STATION 377+40 TO STATION 378+58.5

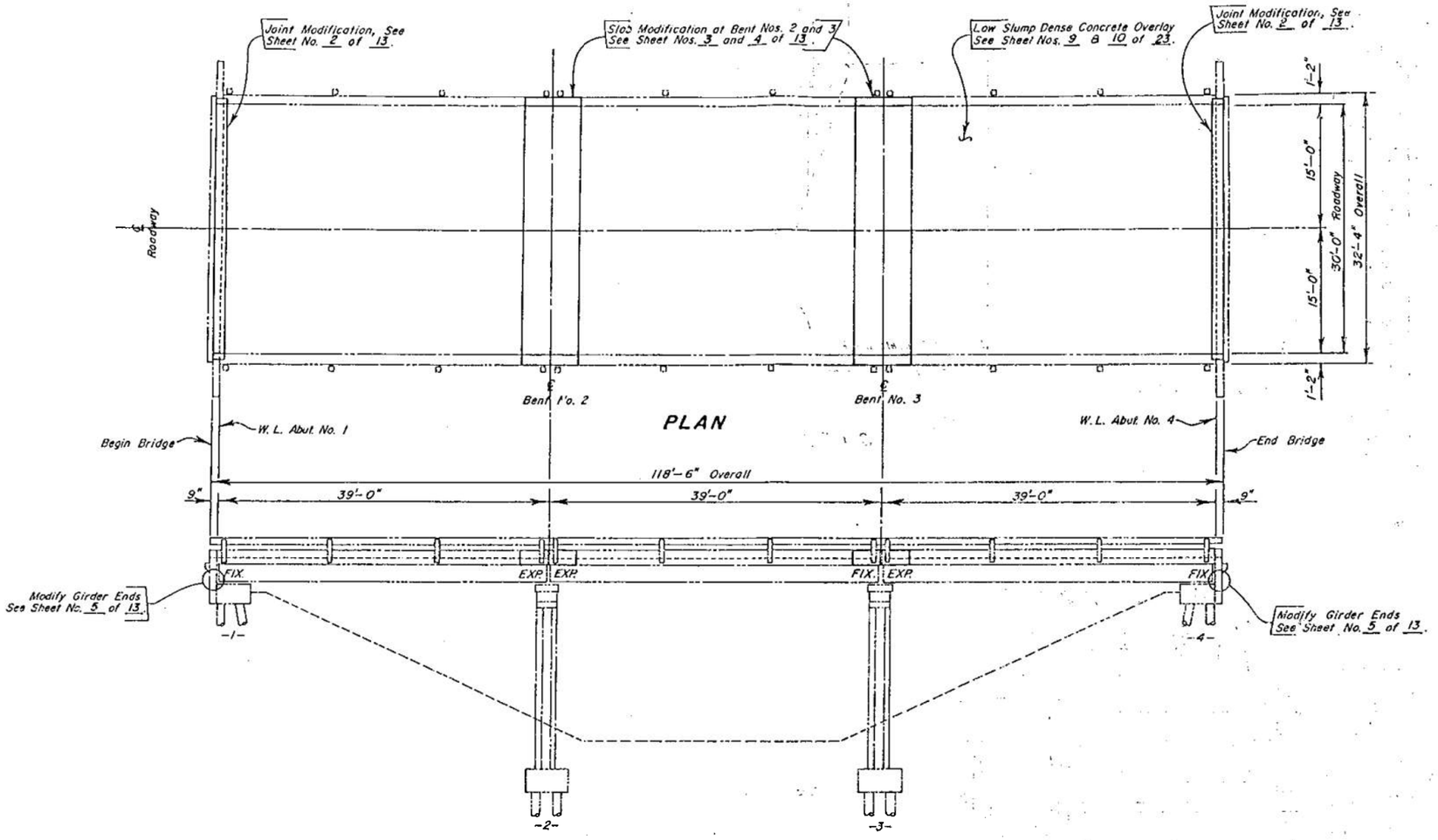
AURORA COUNTY

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2005

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	CJD	CJD/EJA	John C Cole BRIDGE ENGINEER
AUR06947	6947CD05		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	29	53



ELEVATION

ORIGINAL CONSTRUCTION PLANS

LAYOUT

FOR

118'-6" COMPOSITE I-BEAM BRIDGE

30'-0" ROADWAY

OVER W. BR. FIRESTEEL CREEK SEC. 16-T104N-R64/63W

STA. 377+40.00 TO 378+58.50

STR. NO. 02-180-068 P 0281(45)79

AURORA COUNTY

S. D. DEPT. OF TRANSPORTATION

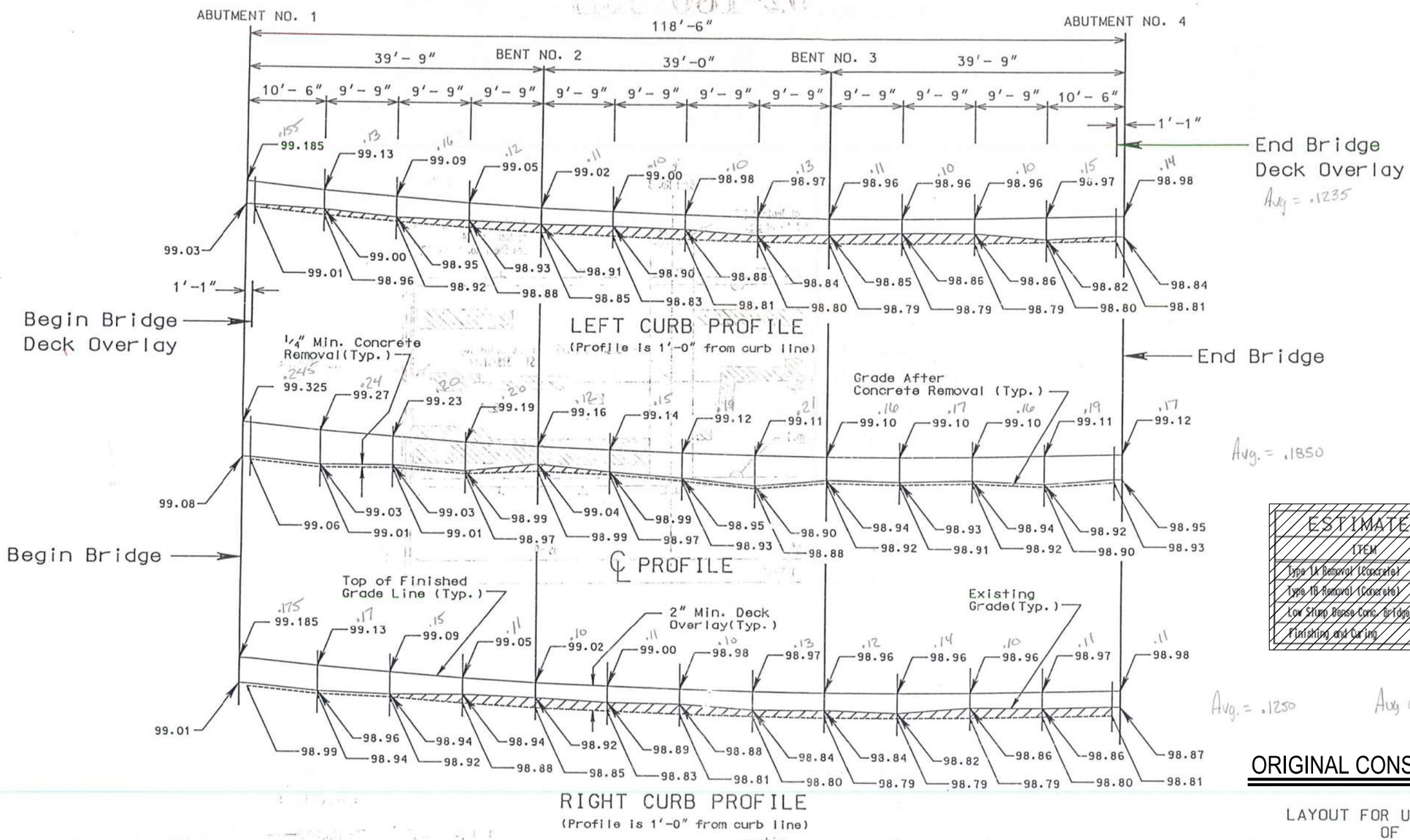
PCEMS 3579 APRIL 1992

20 OF 25

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
C.D.	C.D.		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	30	53

STR. NO. 02-180-06B



ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Type 1A Removal (Concrete)	Sq. Yd.	387.8
Type 1B Removal (Concrete)	Sq. Yd.	61.7
Low Slump Dense Conc. Bridge Deck Overlay	Cu. Yd.	32.3
Finishing and Curing	Sq. Yd.	397.8

0' .25' .5' 1'
VERTICAL SCALE

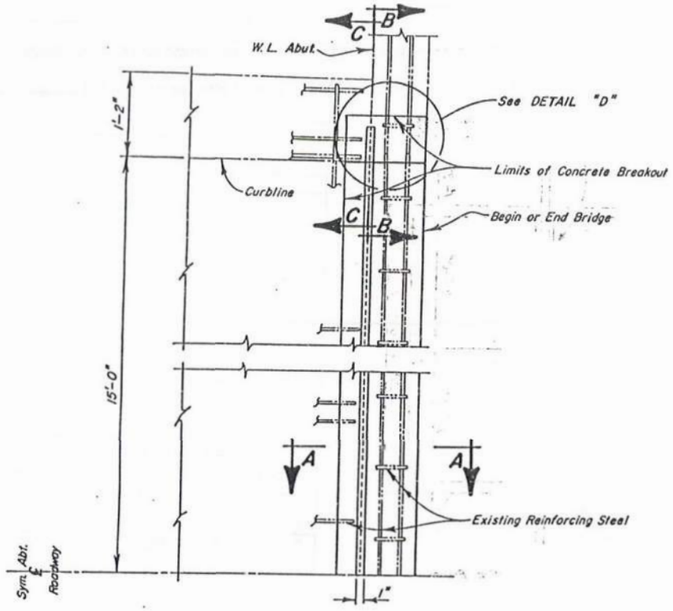
NOTE: Add 900.00 to all elevations shown on profiles.
Scarify in excess of 1/4" in these areas.

ORIGINAL CONSTRUCTION PLANS

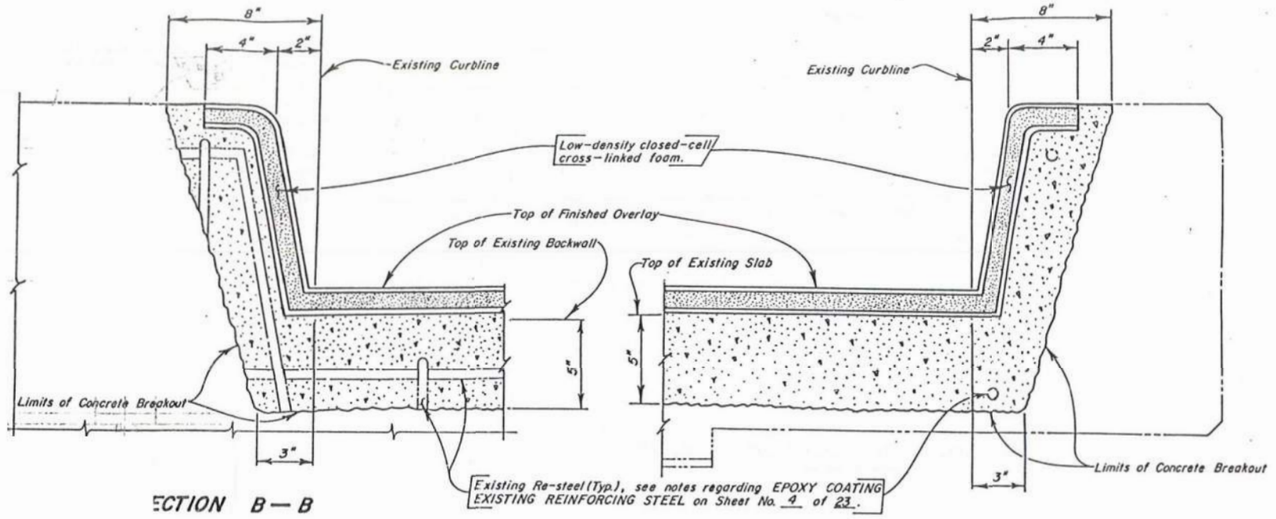
LAYOUT FOR UPGRADING
OF
118'-6" COMPOSITE I-BEAM BRIDGE

30'-0" ROADWAY
OVER W. BR. FIRESTEEL CREEK SEC. 1/6-T104N-R64/63W
STA. 377+40.00 TO 378+58.50
STR. NO. 02-180-06B AURORA COUNTY H20-44
S.D. DEPT. OF TRANSPORTATION
NOVEMBER 1992

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	31	53

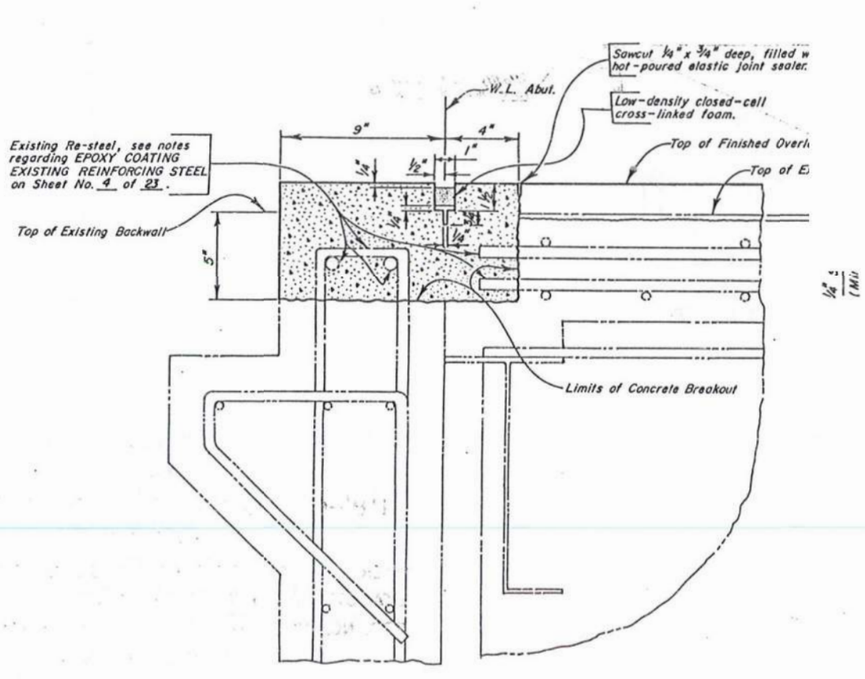


PARTIAL PLAN

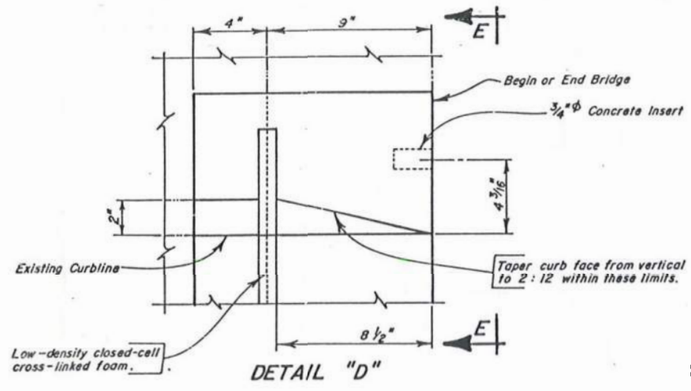


ECTION B—B

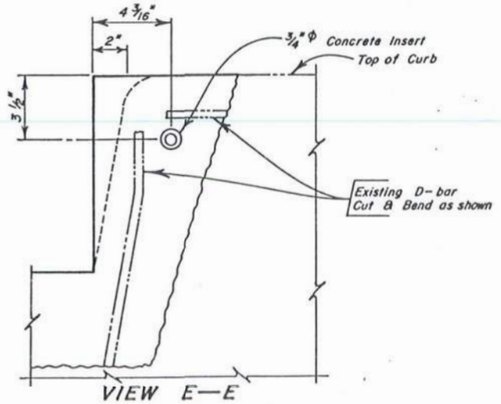
SECTION C—C



SECTION A—A



DETAIL "D"



VIEW E—E

ESTIMATED QUANTITIES (For Two Abuts.)		
ITEM	UNIT	QUANTITY
Epoxy A/S Concrete, Bridge Repair	Cu. yd.	0.8
Breakout Structural Concrete	Cu. Yd.	0.5
Bridge Joint Sealant	Each	2

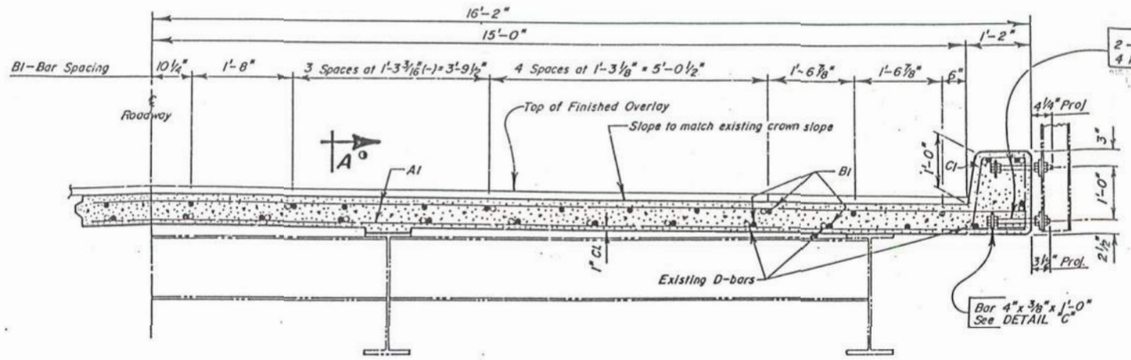
ORIGINAL CONSTRUCTION PLANS

DETAILS OF JOINT MODIFICATION AT ABUTMENTS
FOR
118'-6" COMPOSITE I-BEAM BRIDGE
30'-0" ROADWAY
OVER W. BR. FIRESTEEL CREEK SEC. 1/6-T104N-R64/63W
STA. 377+40.00 TO 378+58.50
STR. NO. 02-180-06B P 0281(45)79
AURORA COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 1992

22 OF 25

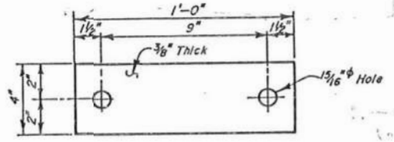
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
C.D.	C.D.		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	32	53

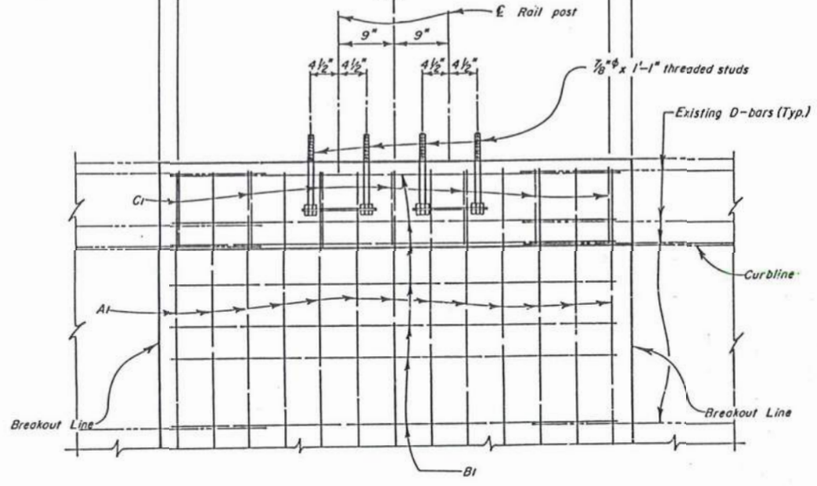


① See Sheet No. 4 of 13 for Section A-A.

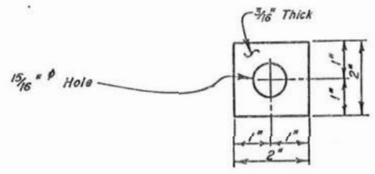
TRANSVERSE HALF SECTION AT BENTS
(Phase 2 Shown)



DETAIL "C"



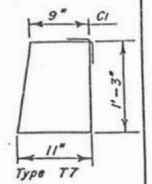
PLAN VIEW OF CURB AT BENTS
(Rail post not shown)



DETAIL "B"

REINFORCING SCHEDULE (For Two Bents)

MK.	No.	Size	Length	Type	Bending Details
A1	104	5	17'-1"	Str.	
B1	100	5	6'-2"	Str.	
C1	28	4	5'-0"	T7	



NOTE:
All reinforcing steel is to be Epoxy Coated.
All dimensions are out to out of bars.

ESTIMATED QUANTITIES (For Two Bents)

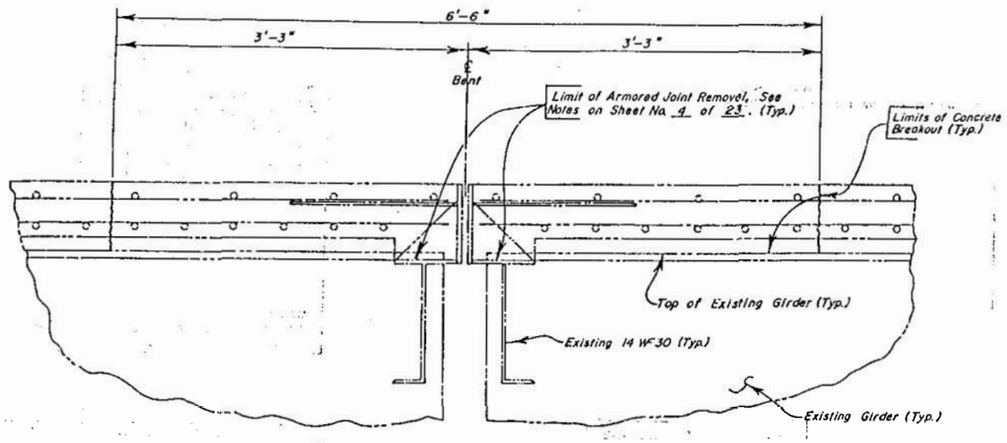
ITEM	UNIT	QUANTITY
Class A #5 Concrete, Bridge Repair	Cu. Yd.	8.8
Epoxy Coated Reinforcing Steel	Lb.	2593
Breakout Structural Concrete	Cu. Yd.	8.4

ORIGINAL CONSTRUCTION PLANS

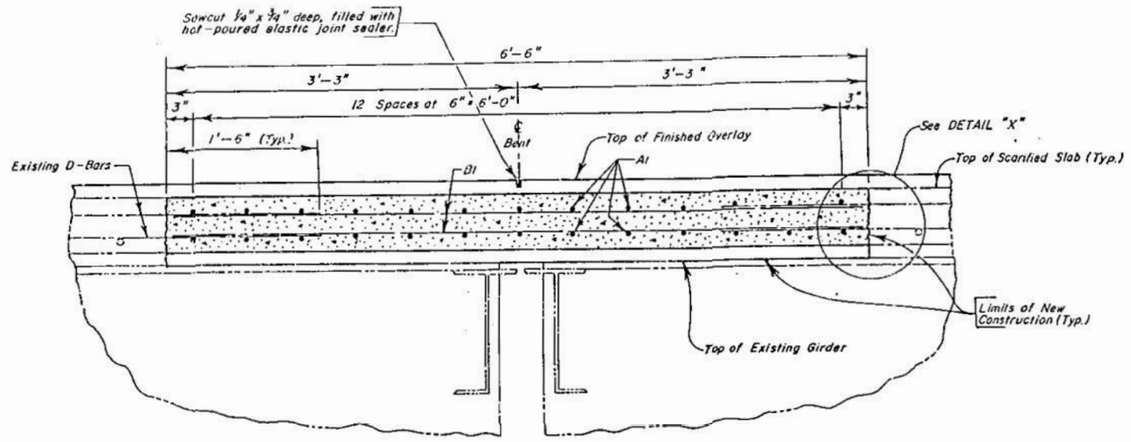
SLAB MODIFICATION AT BENT NOS. 2 & 3
FOR
118'-6" COMPOSITE I-BEAM BRIDGE
30'-0" ROADWAY
OVER W. BR. FIRESTEEL CREEK SEC. 16-T104N-R64/63W
STA. 377+40.00 TO 378+58.50
STR. NO. 02-180-068 P 0281(45)79
AURORA COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 1992

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
E.J.A. / C.D.	C.D.		BRIDGE ENGINEER

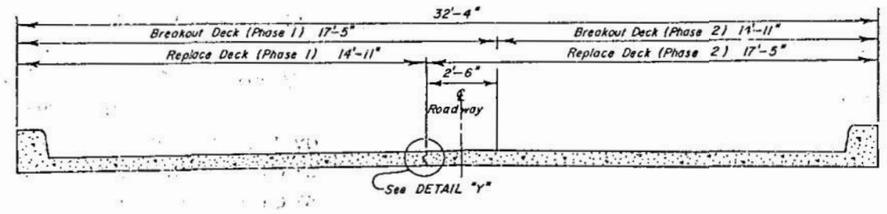
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	33	53



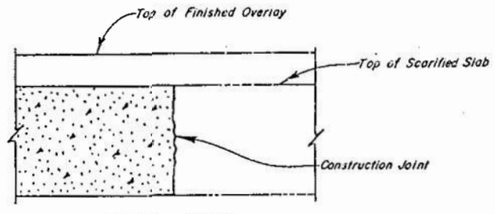
SECTION A—A
(Removal Shown)



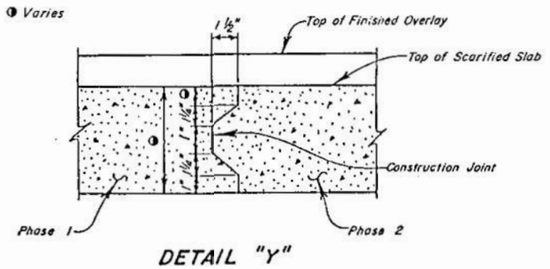
SECTION A—A
(New Construction Shown)



TYPICAL CONSTRUCTION SEQUENCE AT BENTS



DETAIL "X"



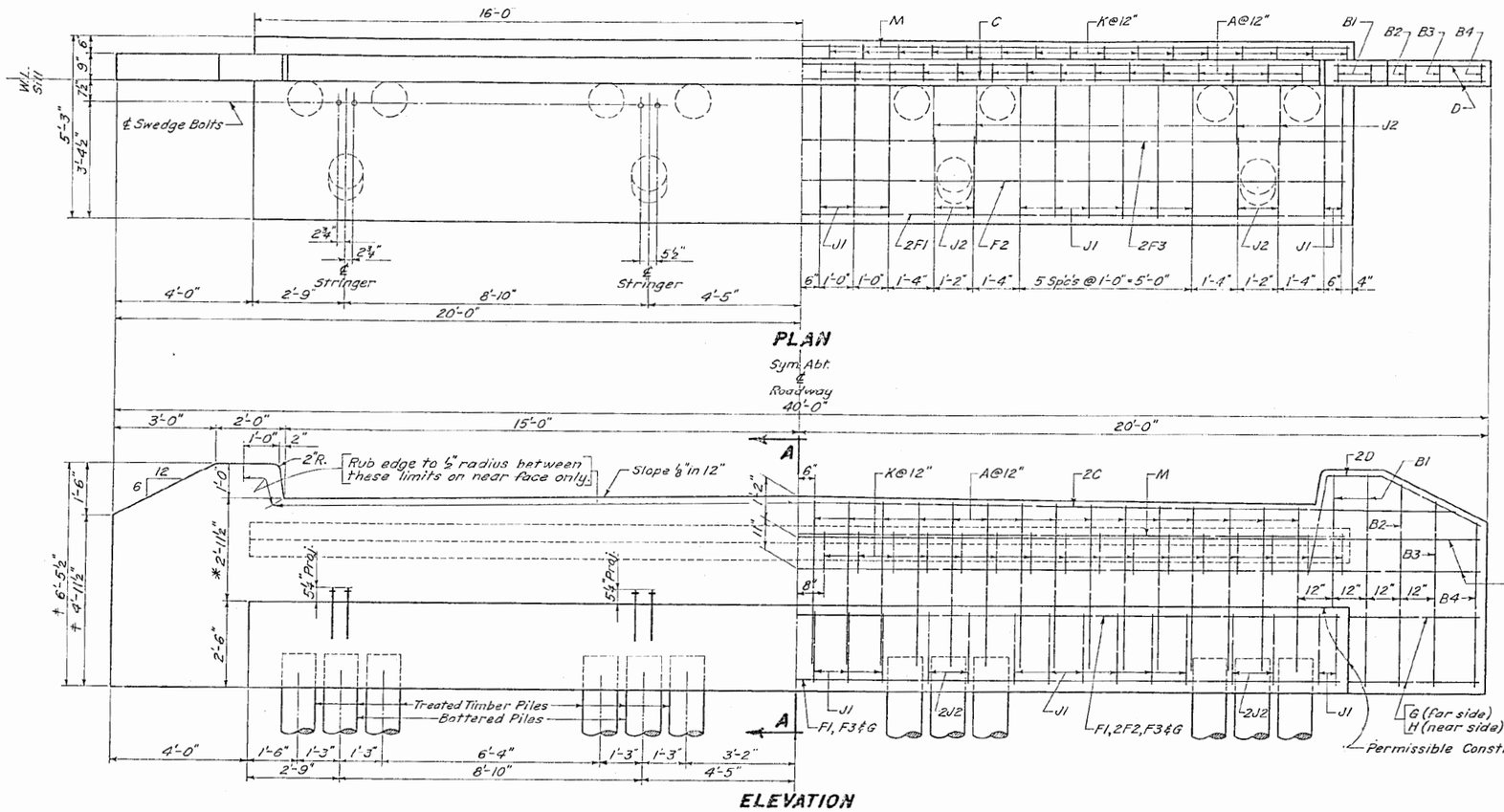
DETAIL "Y"

ORIGINAL CONSTRUCTION PLANS

SLAB MODIFICATION AT BENT NOS. 2 & 3
FOR
118'-6" COMPOSITE I-BEAM BRIDGE
30'-0" ROADWAY
OVER W. BR. FIRESTEEL CREEK SEC. 1/6-T104N-R64/63W
STA. 377+40.00 TO 378+58.50
STR. NO. 02-180-068 P 0281(45)79
AURORA COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 1992

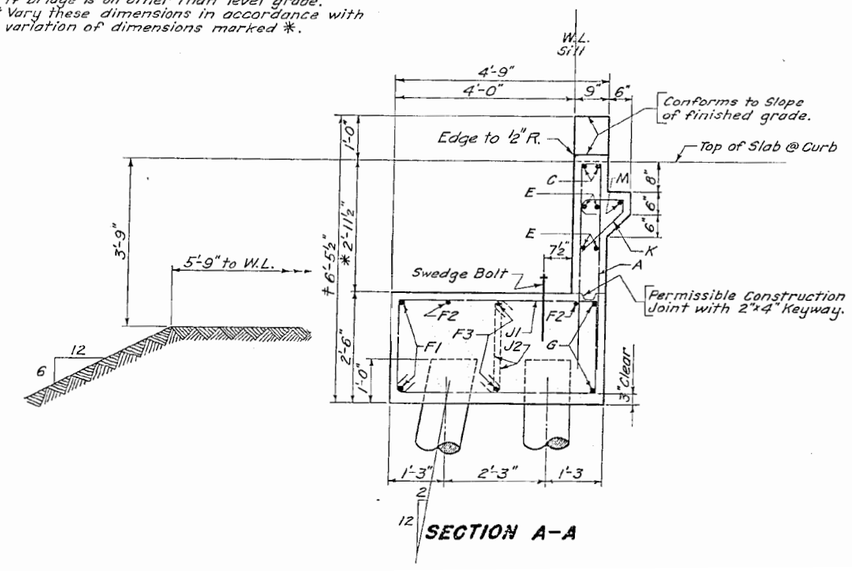
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
E.J.A. / C.D.	C.D.		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	NH 0281(129)79	34	53



ELEVATION

* See sheet of "Special Details" for these dimensions if bridge is on other than level grade.
† Vary these dimensions in accordance with variation of dimensions marked *.

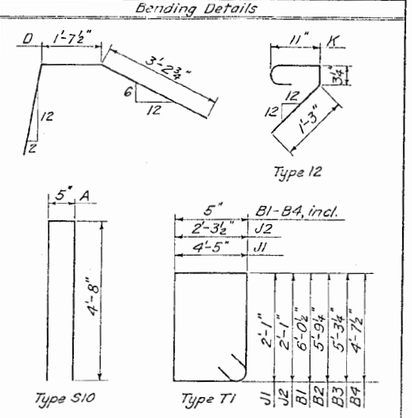


SECTION A-A

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
A	30	½"ø	9'-9"	S10
B1	4	½"ø	14'-0"	T1
B2	2	½"ø	13'-6"	T1
B3	2	½"ø	12'-6"	T1
B4	2	½"ø	11'-3"	T1
C	2	¾"ø	38'-0"	St.
D	4	⅝"ø	7'-9"	Bent
E	4	¼"ø	39'-9"	St.
F1	2	1¼"□	31'-6"	St.
F2	2	⅝"ø	31'-6"	St.
F3	2	¾"ø	31'-6"	St.
G	2	1¼"□	39'-6"	St.
H	4	½"ø	5'-6"	St.
J1	22	½"ø	14'-0"	T1
J2	16	½"ø	9'-9"	T1
K	32	½"ø	3'-0"	12
M	1	½"ø	31'-6"	St.

Bending Details



Reinforcing steel dimensions are out to out of bar.

GENERAL NOTES.—

All exposed edges shall be chamfered 1" except as shown.
Use 2" clear cover on all reinforcing except as shown.
See General Drawing for length of Treated Timber Piles.
Piling shall develop a minimum bearing value of 15 Tons per pile.
Unit Stresses: Concrete f_c = 1350 p.s.i.
Reinf. Steel f_s = 20,000 p.s.i. (int. Grade.)
Design Loading: H20-44 (1949) A.A.S.H.O.
All reinforcing steel bars shall conform to A.S.T.M. A305-50T and A15-50T (Intermediate Grade).
All swedge bolts shall be 1"ø x 1'-6" with hexagon nut and cut washer. (Listed as Structural Steel in Superstructure).

ESTIMATED QUANTITIES

ITEM		Quantity
Class "A" Concrete	Cu. Yds.	18.8
Reinforcing Steel	Lbs.	1860
Structure Excavation	Cu. Yds.	16
Treated Timber Piles	No.	12

ORIGINAL CONSTRUCTION PLANS

DETAILS FOR

STANDARD REINFORCED CONCRETE SILL

FOR 39' SIMPLE COMPOSITE I-BEAM SPANS

30'-0" ROADWAY 0° SKEW

STR. NO. 02-180-06B SOUTH DAKOTA (25) OF (25)

STATE HIGHWAY COMMISSION

APRIL 1952 H20-44

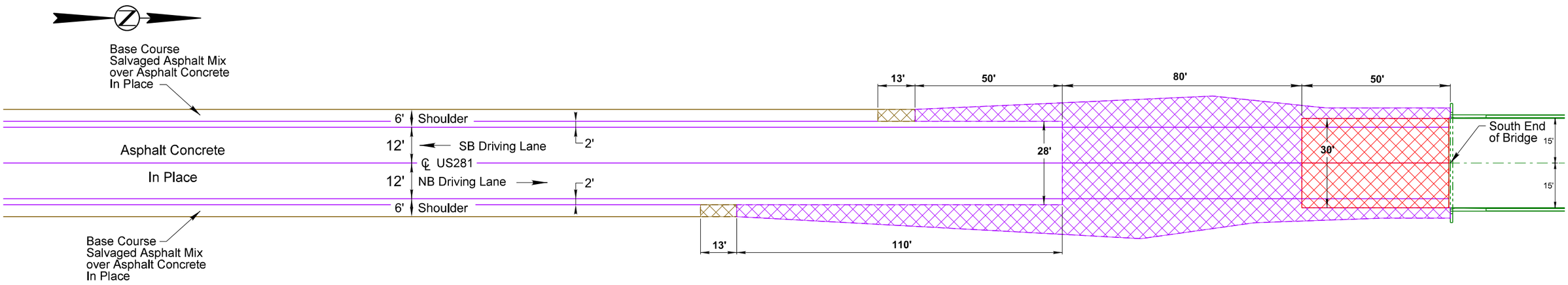
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	H.A.		

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0281(129)79	35	53

Plotting Date: 02/27/2026 Rev. 2/27/26 MR

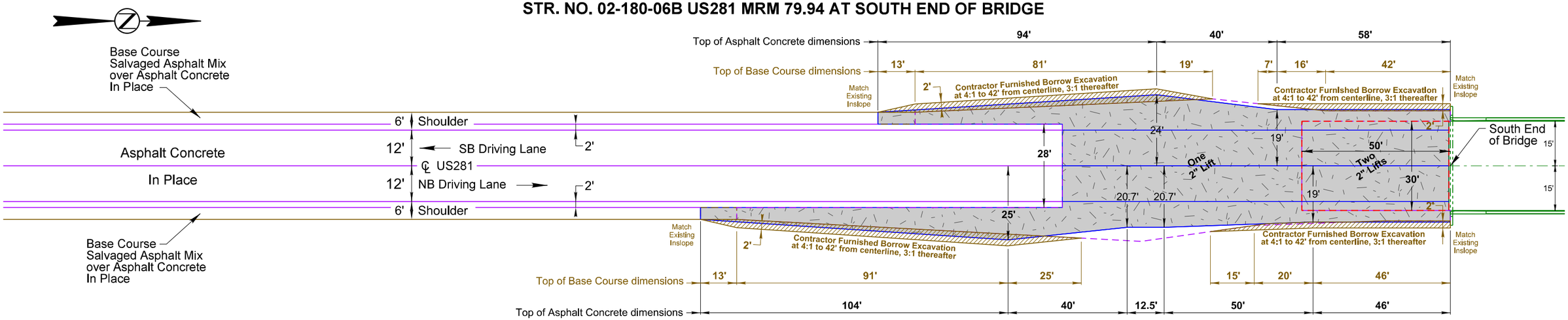
COLD MILLING ASPHALT CONCRETE

STR. NO. 02-180-06B US281 MRM 79.94 AT SOUTH END OF BRIDGE



ASPHALT CONCRETE RESURFACING

STR. NO. 02-180-06B US281 MRM 79.94 AT SOUTH END OF BRIDGE



Estimated Quantities	Str. No.	02-180-06B			
At South End of Bridge	Location	NBL & Shoulder		SBL & Shoulder	
Item		Quantity	Unit	Quantity	Unit
Contractor Furnished Borrow Excavation		349	CuYd	197	CuYd
Cold Milling Asphalt Concrete		399	SqYd	327	SqYd
Base Course		13	Ton	12	Ton
Asphalt Concrete Composite		53 ***	Ton	47 **	Ton

*** Cost for Remove Granular Material will be included in the contract unit price per square yard for Cold Milling Asphalt Concrete.**

**** Includes 14 Tons for guardrail embankment resurfacing and 33 Tons for mainline resurfacing.**

***** Includes 20 Tons for guardrail embankment resurfacing and 33 Tons for mainline resurfacing.**

Remove Granular Material * (2" Depth) (may be reused as Base Course)

Cold Milling Asphalt Concrete (2" Depth - depth varies, refer to profiles)

Cold Milling Asphalt Concrete (4" Depth - depth varies, refer to profiles)

Base Course (4" Depth)

Asphalt Concrete Composite

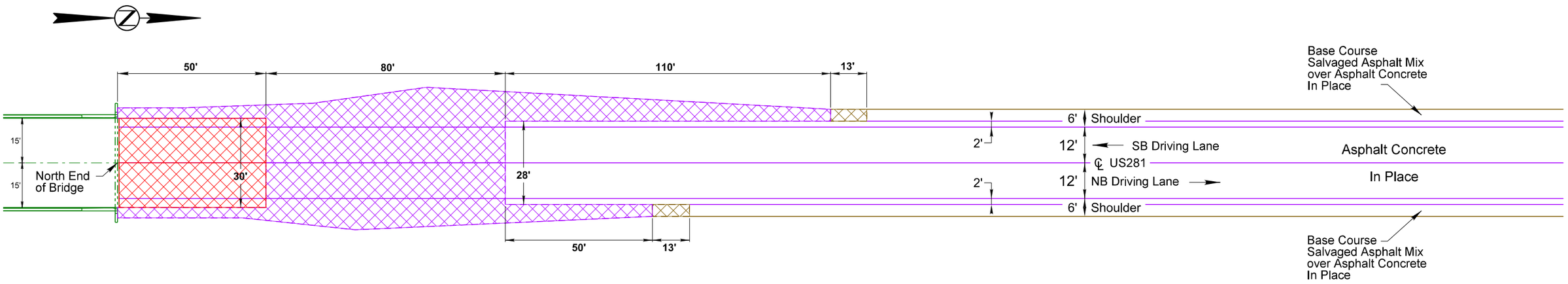
PLOT SCALE - 1:33.3333
PLOTTED FROM - TRM1INT15
PLOT NAME - 1
FILE - ...\PRJ\2026\AUR0@8K8\PLAN\@8K8.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0281(129)79	36	53

Plotting Date: 02/27/2026 Rev. 2/27/26 MR

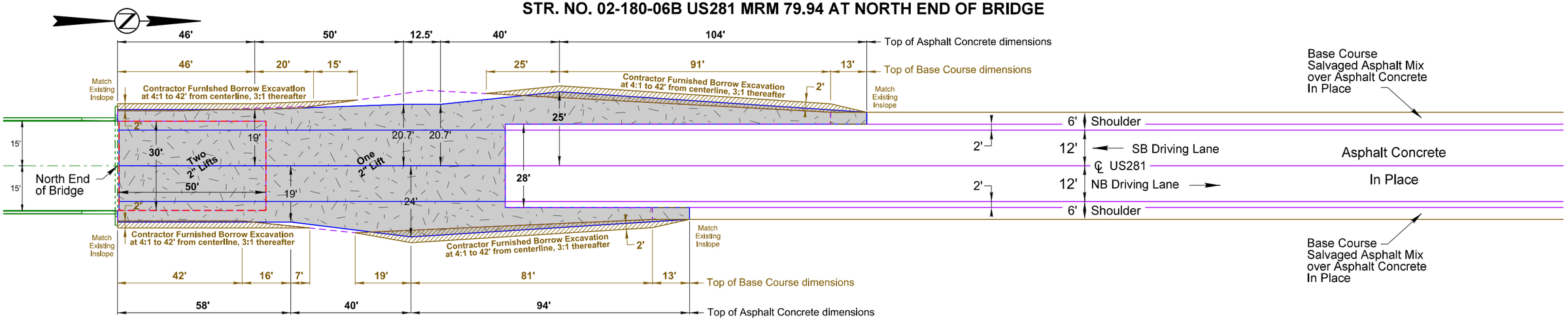
COLD MILLING ASPHALT CONCRETE

STR. NO. 02-180-06B US281 MRM 79.94 AT NORTH END OF BRIDGE



ASPHALT CONCRETE RESURFACING

STR. NO. 02-180-06B US281 MRM 79.94 AT NORTH END OF BRIDGE



Estimated Quantities	Str. No.	02-180-06B			
At North End of Bridge	Location	NBL & Shoulder		SBL & Shoulder	
Item		Quantity	Unit	Quantity	Unit
Contractor Furnished Borrow Excavation		42	CuYd	79	CuYd
Cold Milling Asphalt Concrete		327	SqYd	399	SqYd
Base Course		12	Ton	13	Ton
Asphalt Concrete Composite		47 **	Ton	53 ***	Ton

*** Cost for Remove Granular Material will be included in the contract unit price per square yard for Cold Milling Asphalt Concrete.**

**** Includes 14 Tons for guardrail embankment resurfacing and 33 Tons for mainline resurfacing.**

***** Includes 20 Tons for guardrail embankment resurfacing and 33 Tons for mainline resurfacing.**

Remove Granular Material * (2" Depth) (may be reused as Base Course)

Cold Milling Asphalt Concrete (2" Depth - depth varies, refer to profiles)

Cold Milling Asphalt Concrete (4" Depth - depth varies, refer to profiles)

Base Course (4" Depth)

Asphalt Concrete Composite

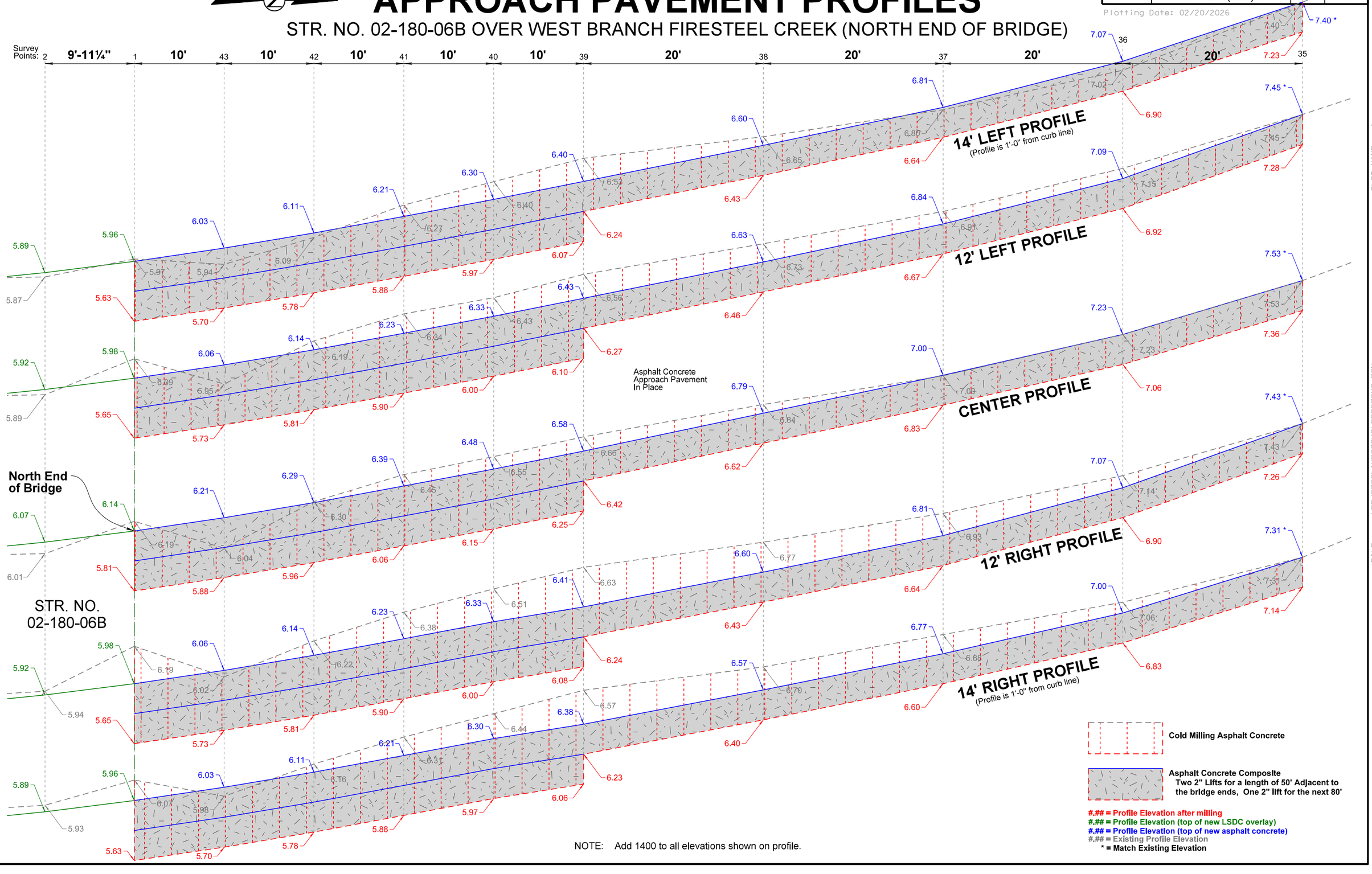
PLOT SCALE - 1:33.3333
PLOTTED FROM - TRM1INT15
PLOT NAME - 1
FILE - ...\PRJ2026\AUR0@8K8\PLAN@8K8.DGN

APPROACH PAVEMENT PROFILES

STR. NO. 02-180-06B OVER WEST BRANCH FIRESTEEL CREEK (NORTH END OF BRIDGE)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0281(129)79	37	53

Plotting Date: 02/20/2026



NOTE: Add 1400 to all elevations shown on profile.

Cold Milling Asphalt Concrete

Asphalt Concrete Composite
Two 2" Lifts for a length of 50' Adjacent to the bridge ends, One 2" lift for the next 80'

#.## = Profile Elevation after milling
#.## = Profile Elevation (top of new LSDC overlay)
#.## = Profile Elevation (top of new asphalt concrete)
#.## = Existing Profile Elevation
* = Match Existing Elevation

PLOT SCALE - 1:9.6

PLOT NAME - 4

FILE - ...\PRJ2026\AUR008K8\PROF\008K8.DGN

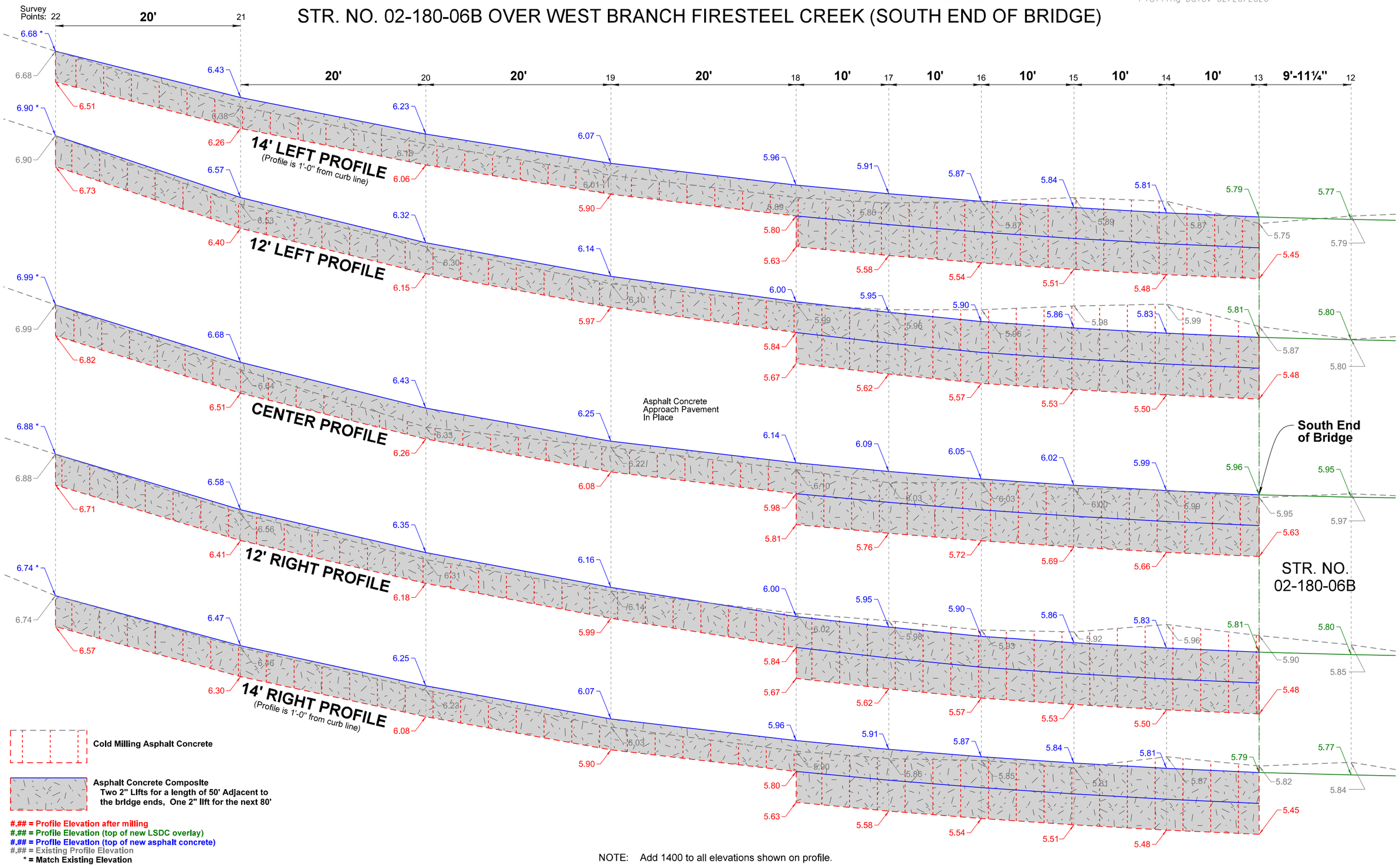
PLOTTED FROM - TRM11NT15

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0281(129)79	38	53

Plotting Date: 02/20/2026

APPROACH PAVEMENT PROFILES

STR. NO. 02-180-06B OVER WEST BRANCH FIRESTEEL CREEK (SOUTH END OF BRIDGE)



Cold Milling Asphalt Concrete

Asphalt Concrete Composite
Two 2" Lifts for a length of 50' Adjacent to the bridge ends, One 2" lift for the next 80'

#.## = Profile Elevation after milling
#.## = Profile Elevation (top of new LSDC overlay)
#.## = Profile Elevation (top of new asphalt concrete)
#.## = Existing Profile Elevation
* = Match Existing Elevation

NOTE: Add 1400 to all elevations shown on profile.

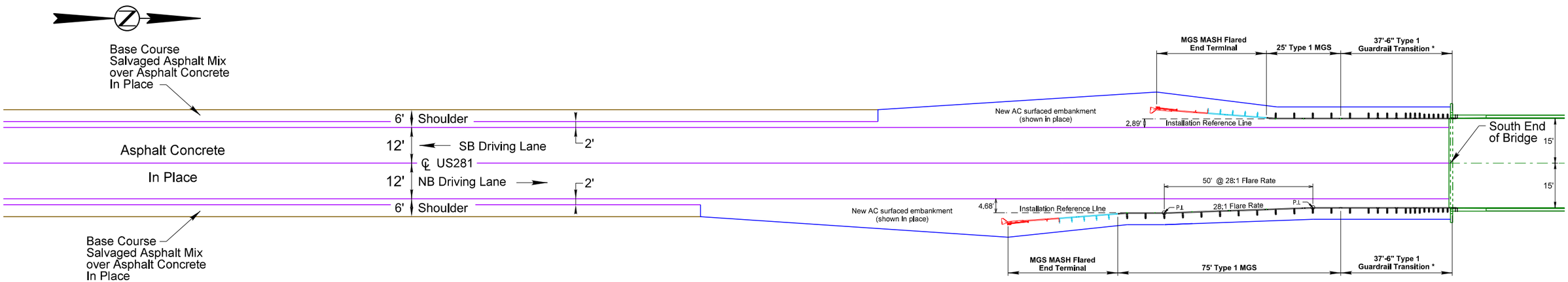
PLOT SCALE - 1:9.6
PLOTTED FROM - TRM11NT15
PLOT NAME - 5
FILE - ...\PRJ2026\AUR0008K8\PROF08K8.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0281(129)79	39	53

Plotting Date: 02/20/2026

INSTALLATION OF GUARDRAIL

STR. NO. 02-180-06B US281 MRM 79.94 AT SOUTH END OF BRIDGE



* 7¼" of guardrail overlaps onto structure

PLOT SCALE - 1:33.3333
PLOT NAME - 6
FILE - ...\PRJ2026\AUR008K8\PLAN\08K8.DGN
PLOTTED FROM - TRM1INT15

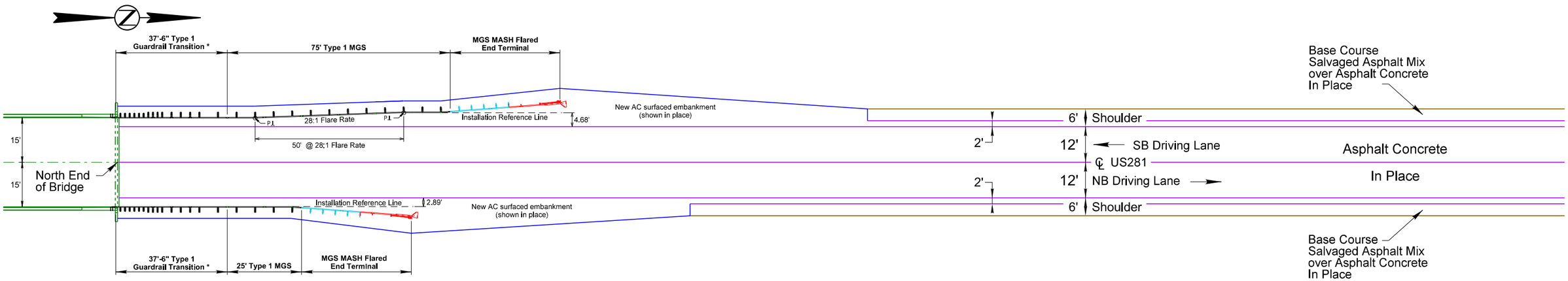
PLOT SCALE - 1:33.3333

INSTALLATION OF GUARDRAIL

STR. NO. 02-180-06B US281 MRM 79.94 AT NORTH END OF BRIDGE

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	NH 0281(129)79	40	53

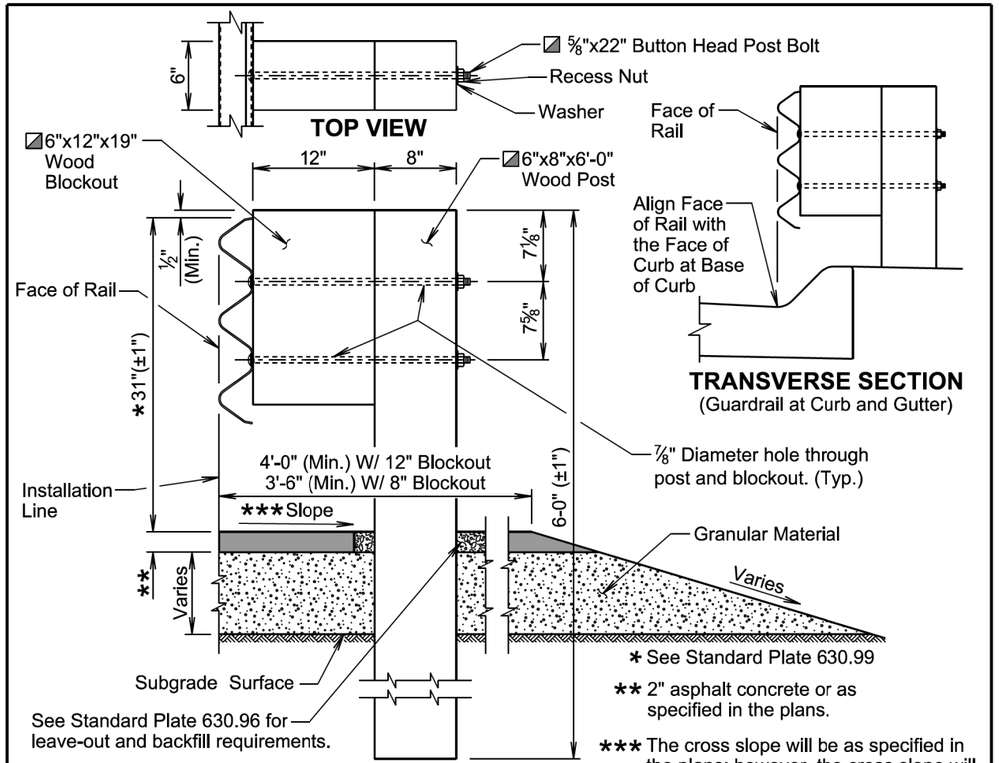
Plotting Date: 02/20/2026



* 7¼" of guardrail overlaps onto structure

PLOTTED FROM - TRM1INT15
PLOT NAME - 7
FILE - ...\PRJ2026\AUR0808K8\PLAN0808K8.DGN

PLOT SCALE - 1:200



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.

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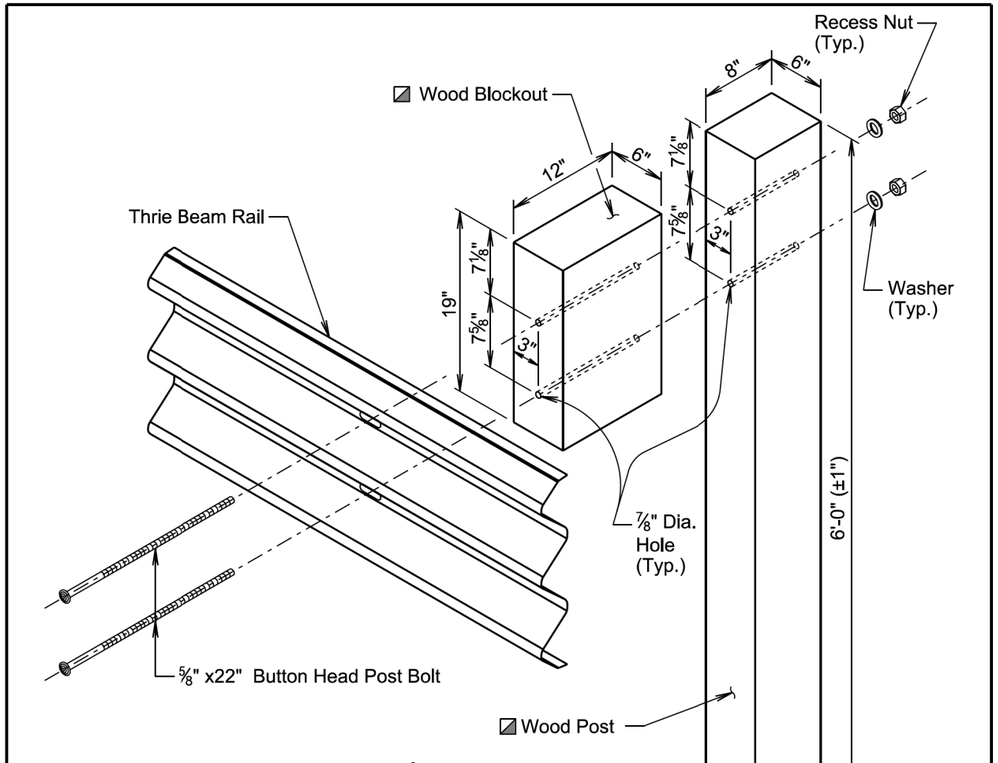
Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 1 of 5



EXPANDED ISOMETRIC VIEW AT MIDSPAN OF THRIE BEAM GUARDRAIL

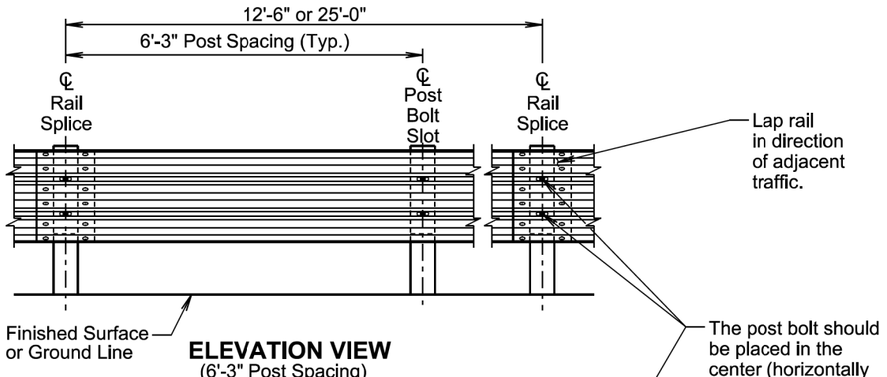
EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) THRIE BEAM GUARDRAIL AT MIDSPAN
(For Information Only, Not to Scale)

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

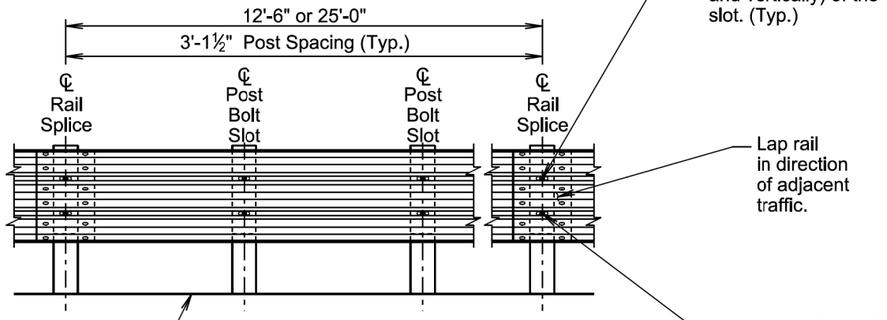
April 8, 2025

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

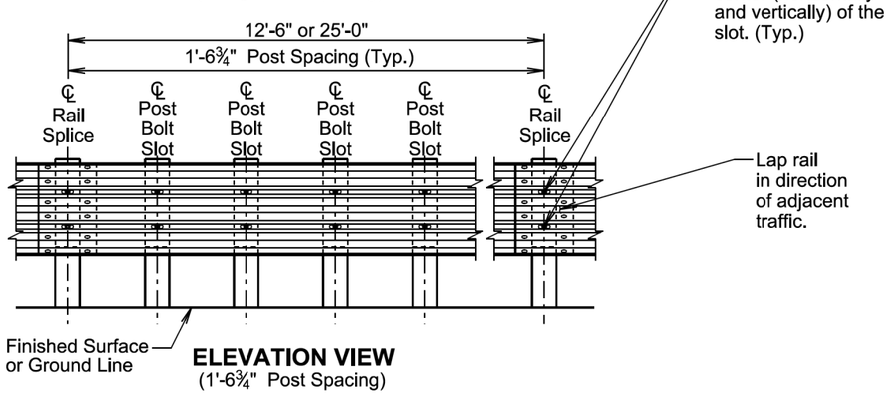
PLOT NAME - 1
FILE -...\STD PLATES\STD 630 PLATES.DGN
-PLOTTED FROM - TRM11NT15



ELEVATION VIEW
(6'-3" Post Spacing)



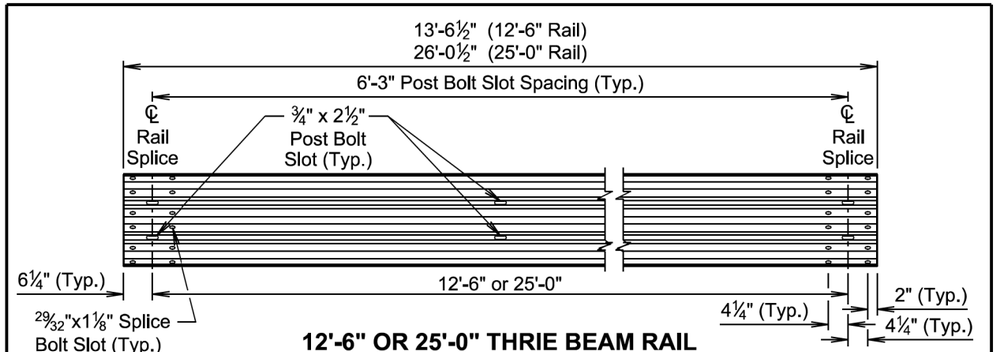
ELEVATION VIEW
(3'-1½" Post Spacing)



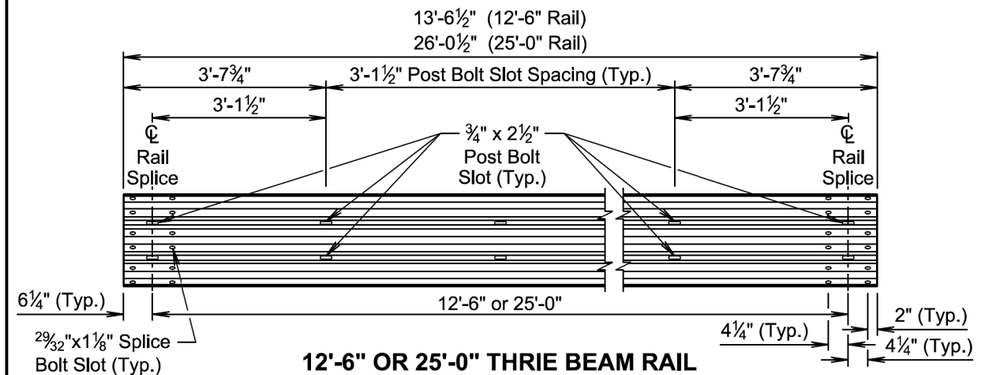
ELEVATION VIEW
(1'-6¾" Post Spacing)

April 8, 2025

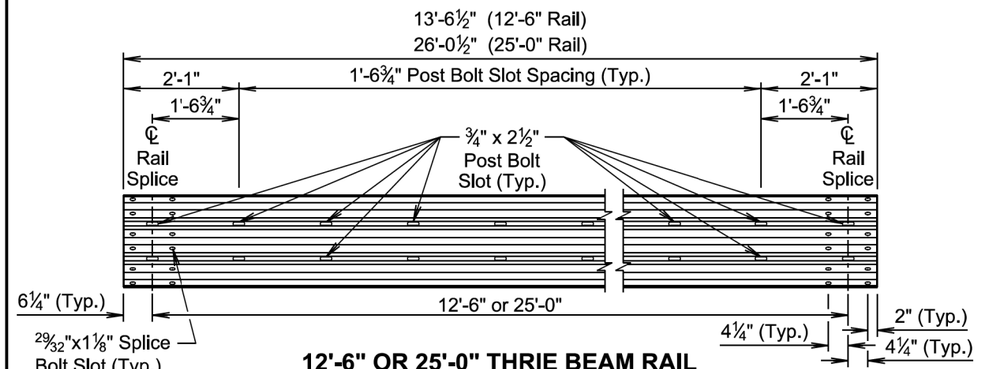
Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 3 of 5



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



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

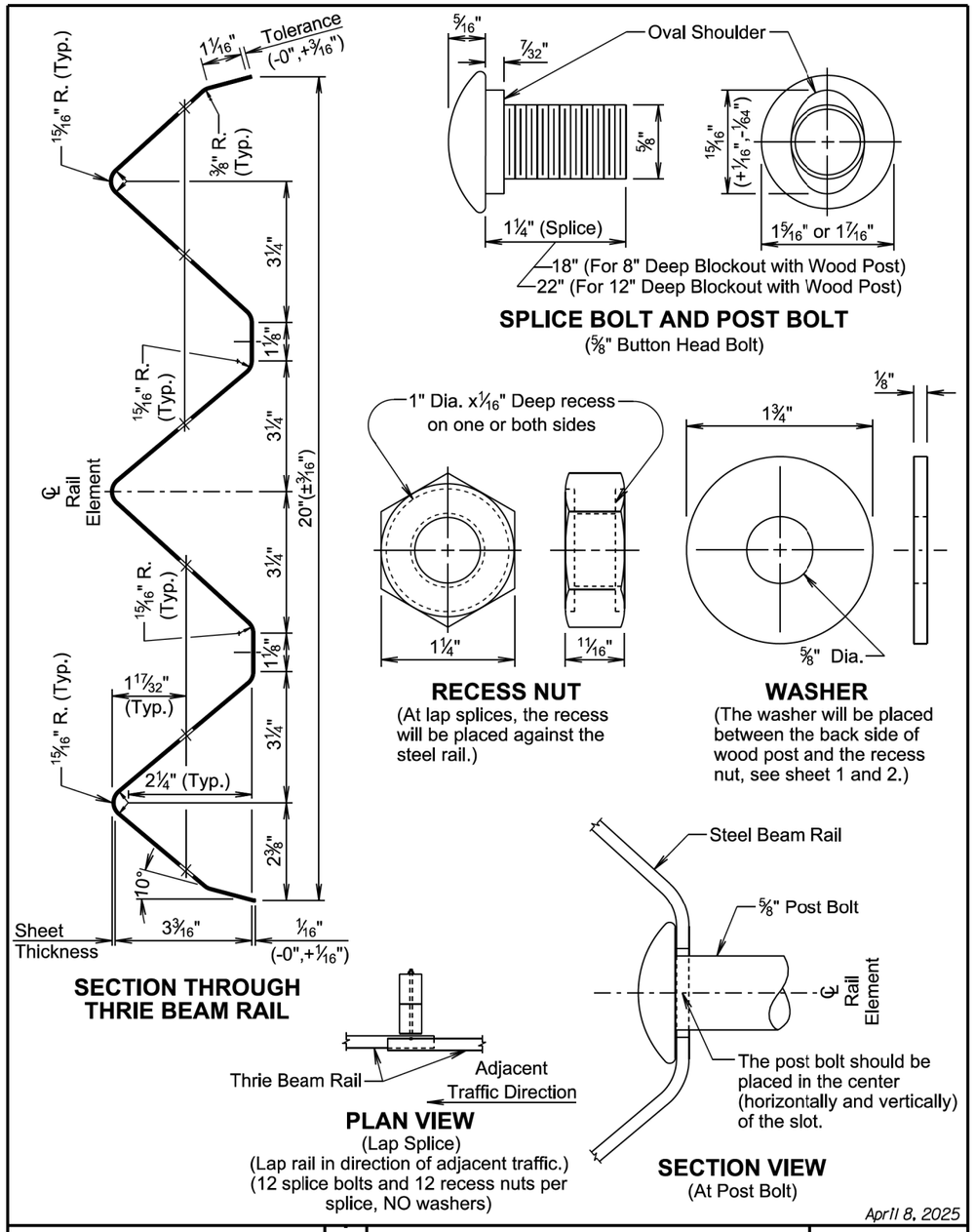


12'-6" OR 25'-0" THRIE BEAM RAIL
(1'-6¾" Post Spacing)

April 8, 2025

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

PLOT SCALE - 1:200
PLOT NAME - 2
FILE - ...\STD PLATES\STD 630 PLATES.DGN
_PLOTTED FROM - TRM11NT15



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

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

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

SECTION THROUGH THRIE BEAM RAIL

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

SECTION VIEW
(At Post Bolt)

April 8, 2025

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

PLOT SCALE - 1:200
PLOT NAME - 3
FILE - ...\STD PLATES\STD 630 PLATES.DGN
.PLOTTED FROM - TRM11NT15

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

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

GENERAL NOTES:

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

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

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

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

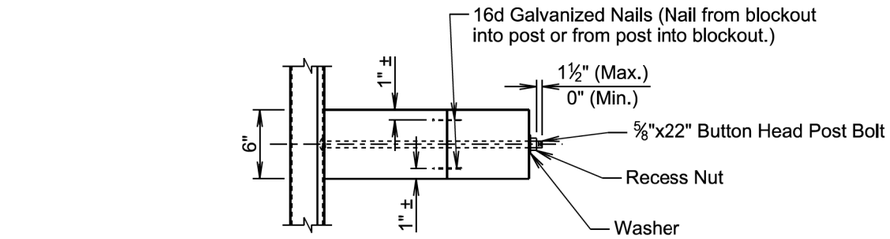
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

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

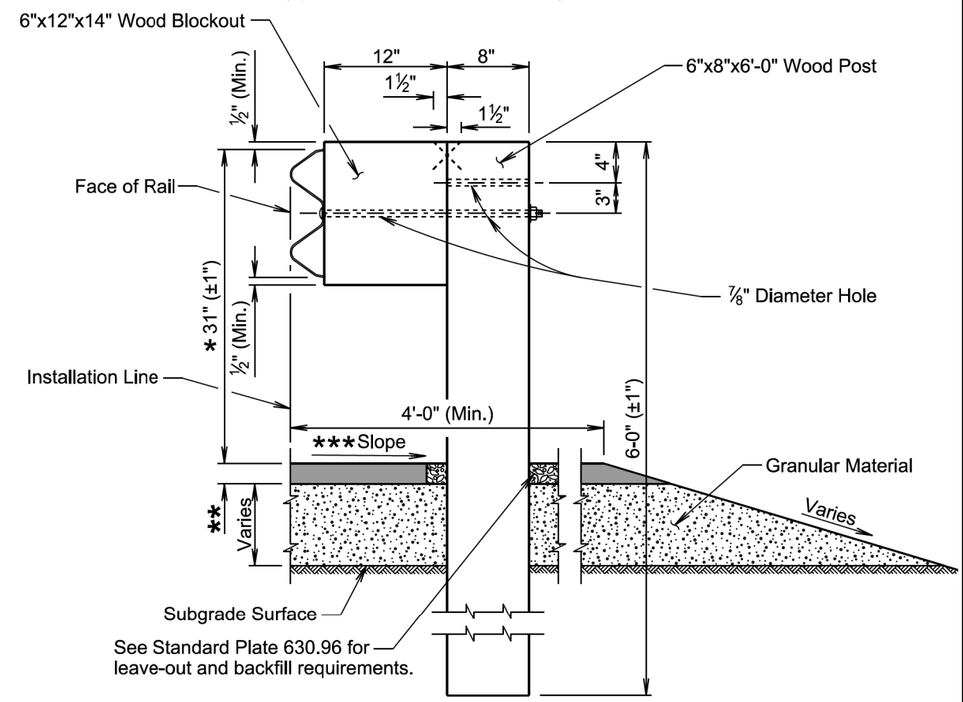
All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 1 of 6



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



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

* See Standard Plate 630.99

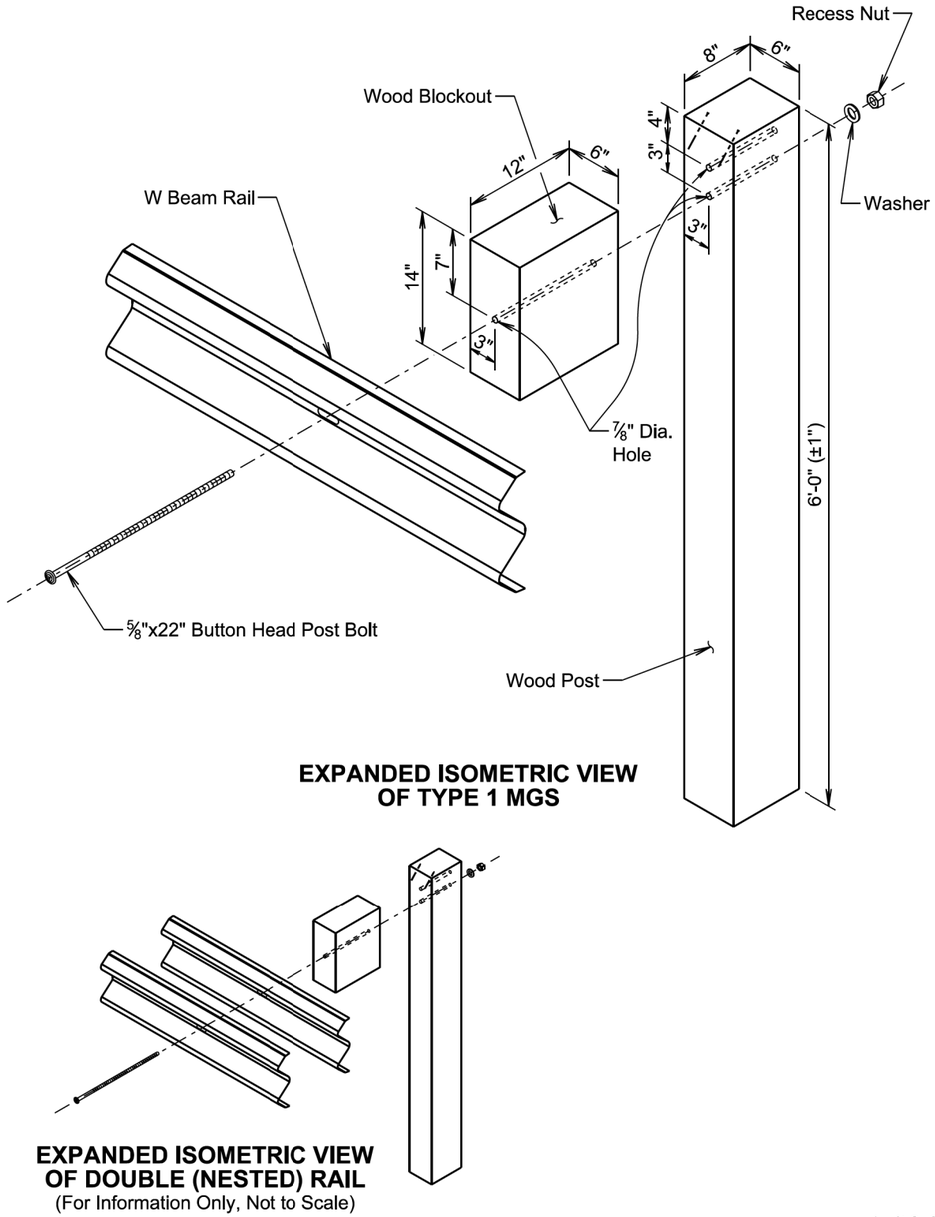
** 2" asphalt concrete or as specified in the plans.

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

April 8, 2025

Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 2 of 6

PLOT SCALE - 1:200
PLOT NAME - 4
FILE ...\STD PLATES\STD 630 PLATES.DGN
.PLOTTED FROM - TRM1INT15

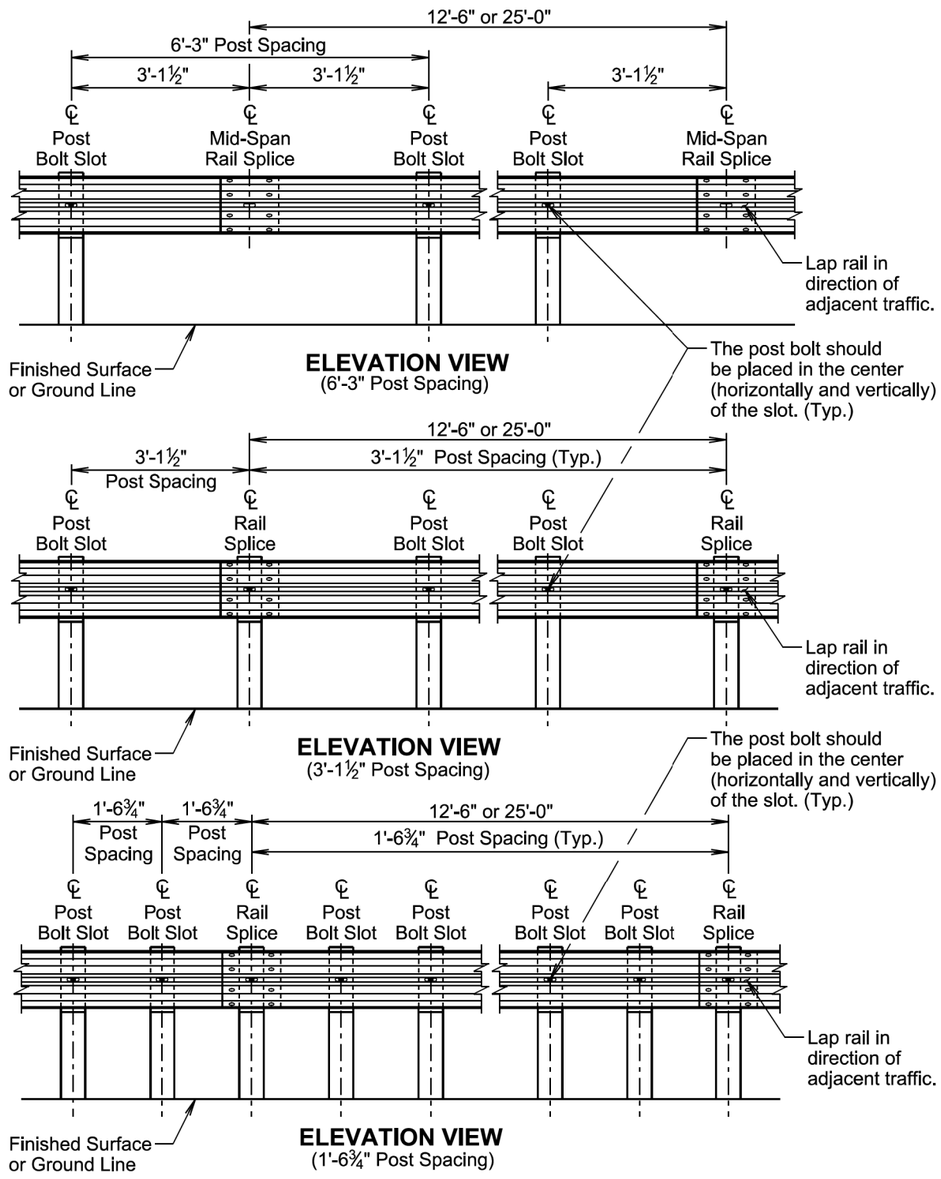


EXPANDED ISOMETRIC VIEW OF TYPE 1 MGS

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

April 8, 2025

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



ELEVATION VIEW
(6'-3" Post Spacing)

ELEVATION VIEW
(3'-1½" Post Spacing)

ELEVATION VIEW
(1'-6¾" Post Spacing)

April 8, 2025

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

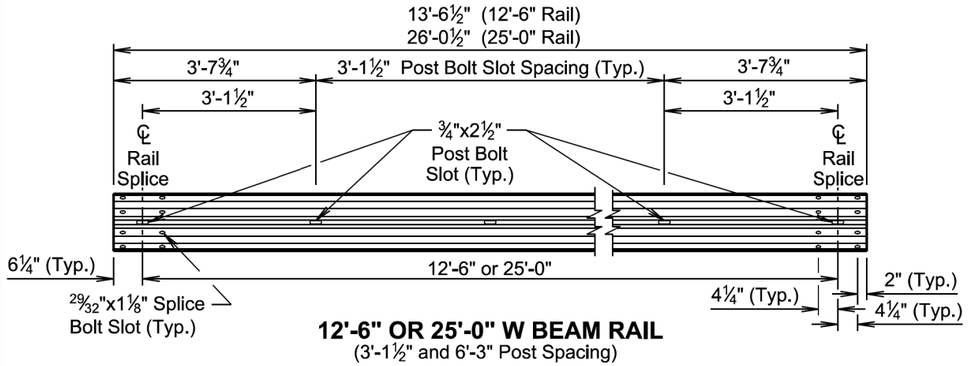
PLOT SCALE - 1:200

PLOTTED FROM - TRM11NT15

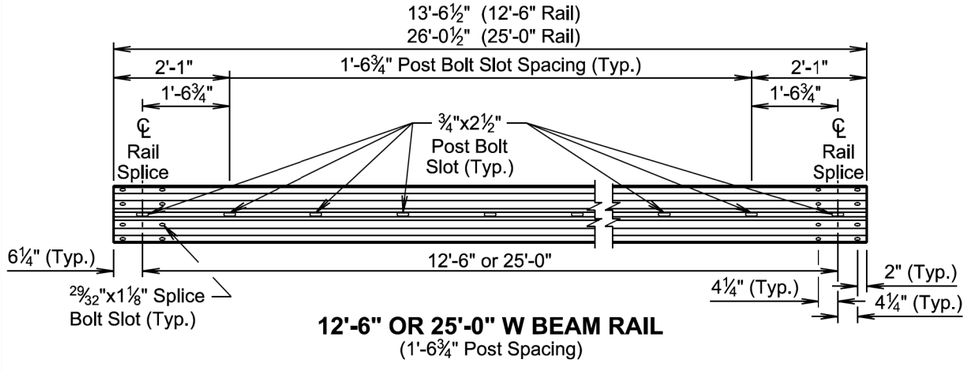
PLOT NAME - 5

FILE - ...\STD PLATES\STD 630 PLATES.DGN

PLOT SCALE - 1:200



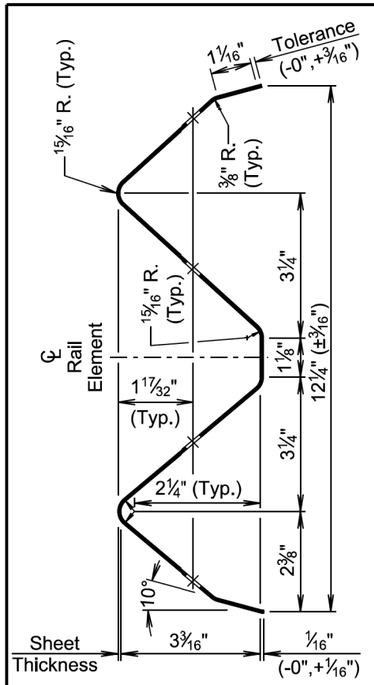
12'-6" OR 25'-0" W BEAM RAIL
(3'-1½" and 6'-3" Post Spacing)



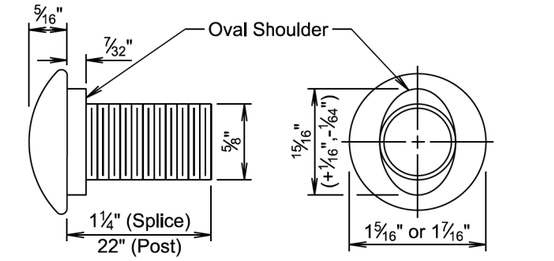
12'-6" OR 25'-0" W BEAM RAIL
(1'-6¾" Post Spacing)

April 8, 2025

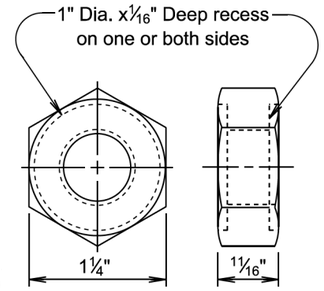
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 5 of 6



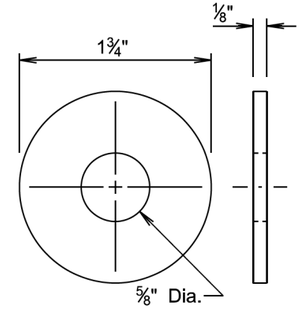
SECTION THROUGH W BEAM RAIL



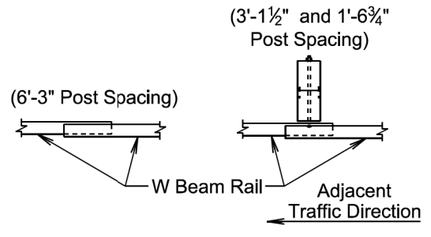
SPLICE BOLT AND POST BOLT
(⅝" Button Head Bolt)



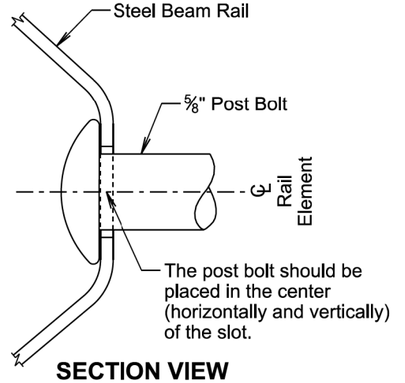
RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)



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



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

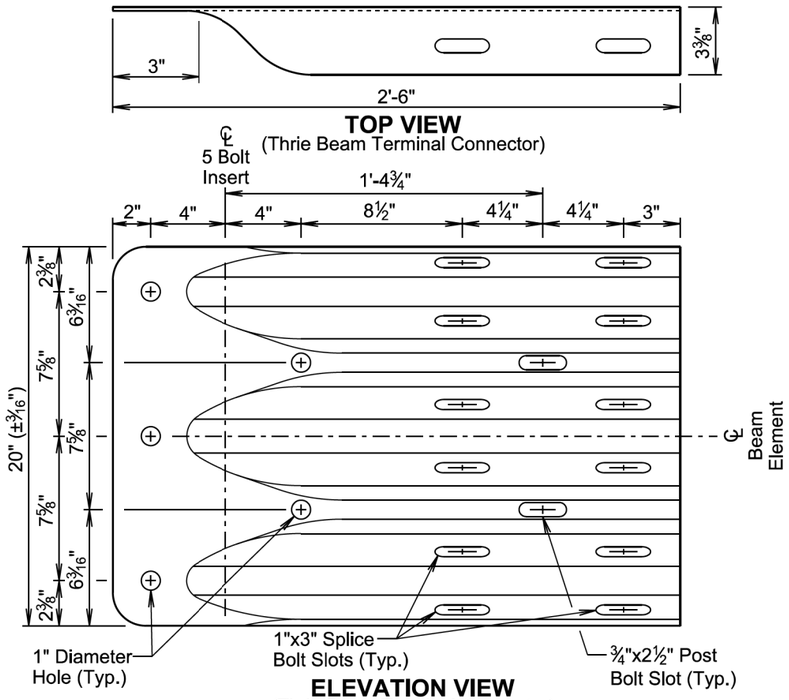


SECTION VIEW
(At Post Bolt)

April 8, 2025

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

PLOT NAME - 6
FILE - ...\STD PLATES\STD 630 PLATES.DGN
.PLOTTED FROM - TRMI1NT15



GENERAL NOTES:

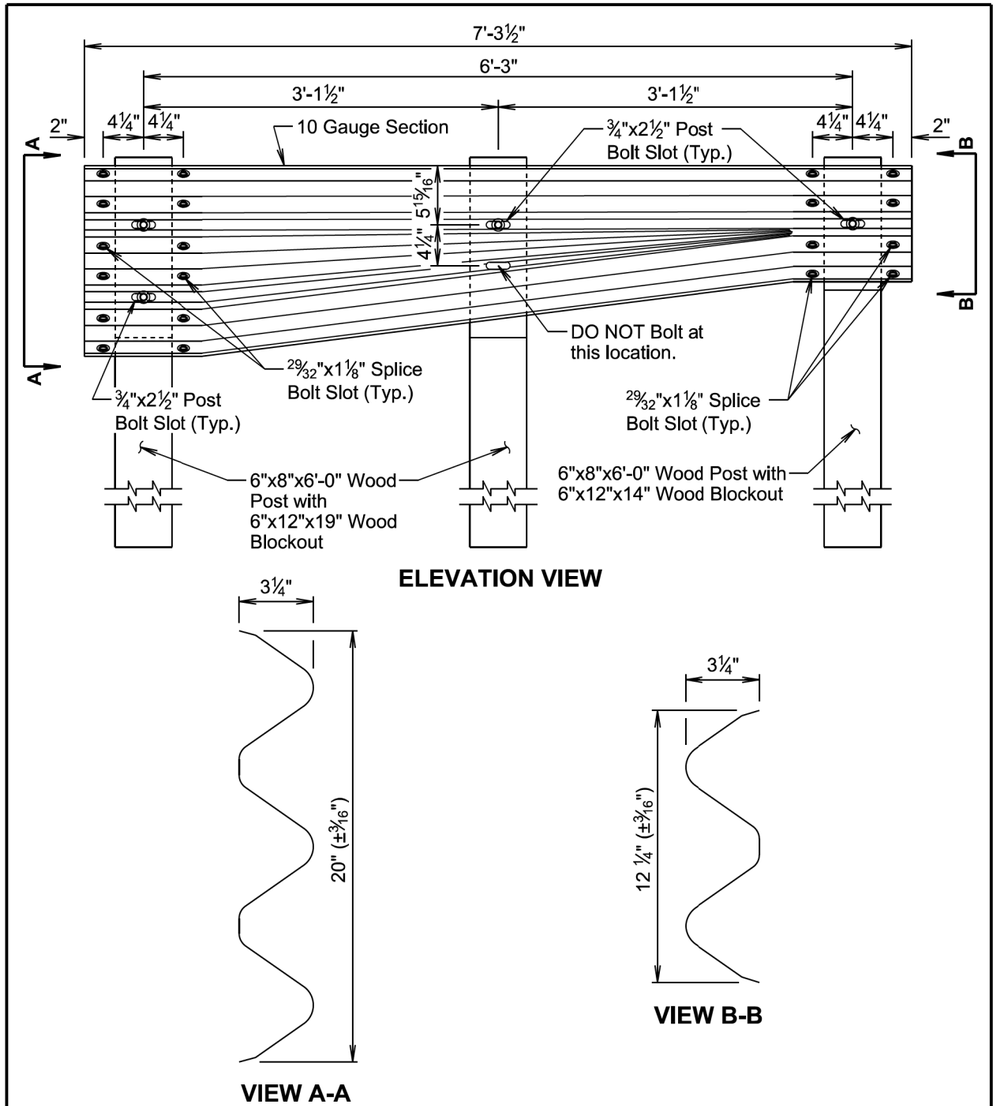
Thrie Beam Terminal Connectors will be 10 gauge.

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

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

September 14, 2019

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



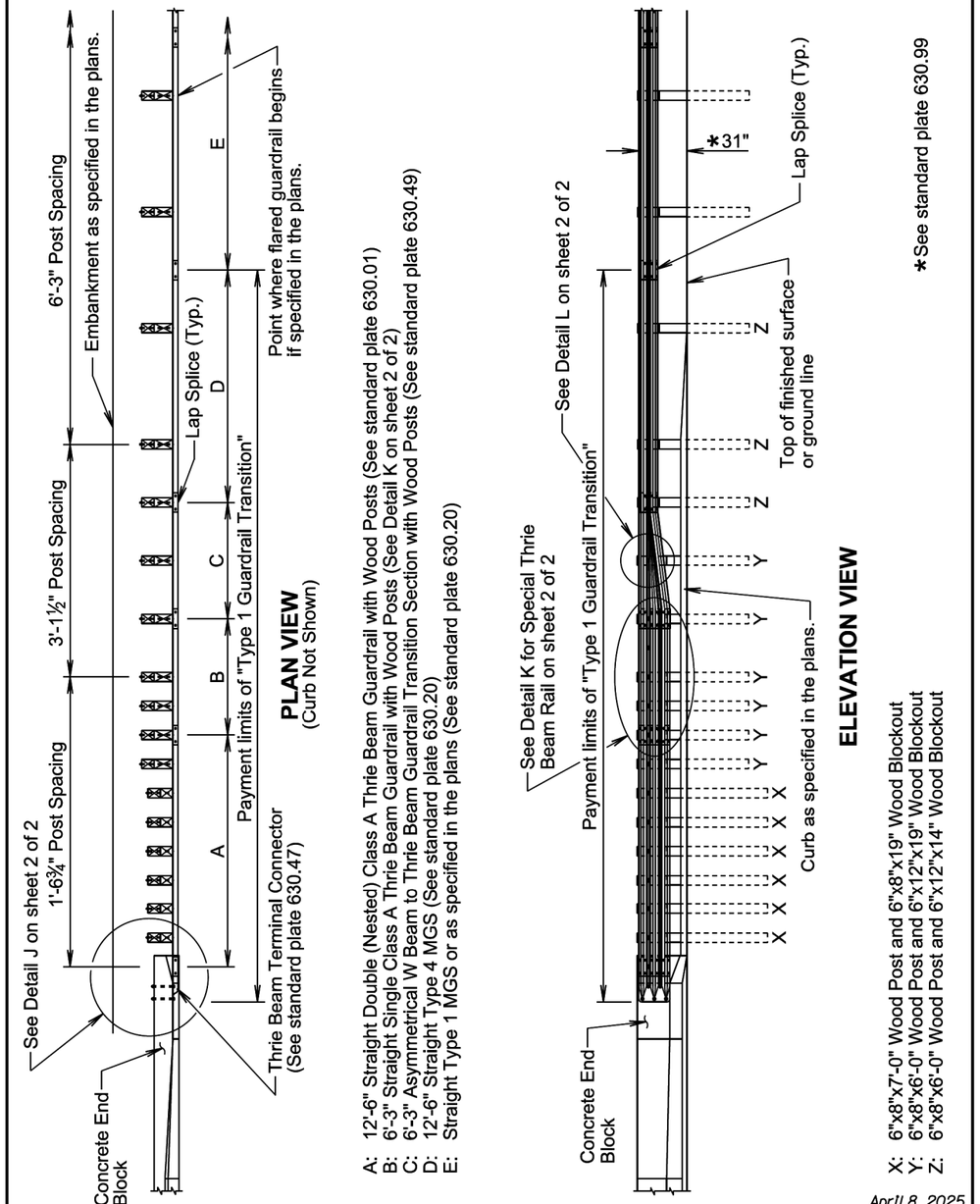
GENERAL NOTES:

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

September 14, 2019

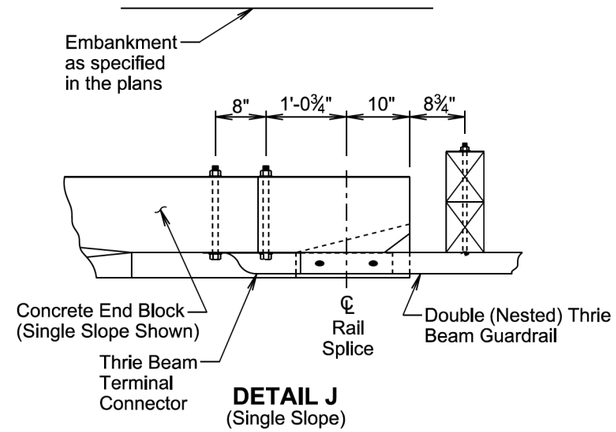
Published Date: 2026	SDDOT	ASYMMETRICAL W BEAM TO THRIE BEAM GUARDRAIL TRANSITION SECTION	PLATE NUMBER 630.49 Sheet 1 of 1

PLOT SCALE - 1:200
PLOT NAME - 7
FILE - ...\STD PLATES\STD 630 PLATES.DGN
PLOTTED FROM - TRM11NT15

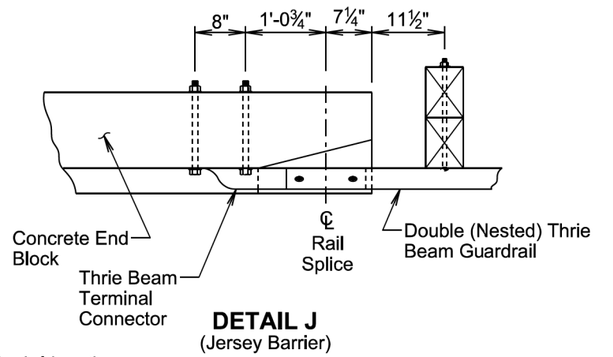


April 8, 2025

Published Date: 2026	SDDOT	TYPE 1 GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.50
			Sheet 1 of 3

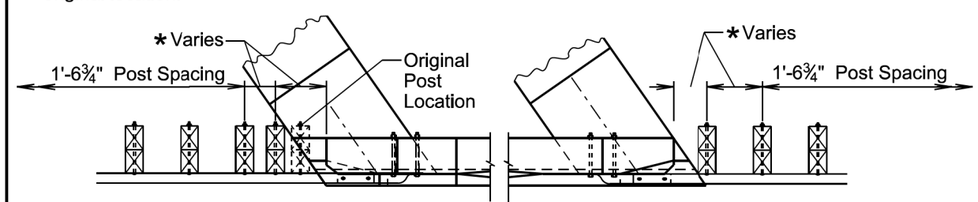


DETAIL J
(Single Slope)



DETAIL J
(Jersey Barrier)

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



DETAIL J
(Skewed Bridge)

April 8, 2025

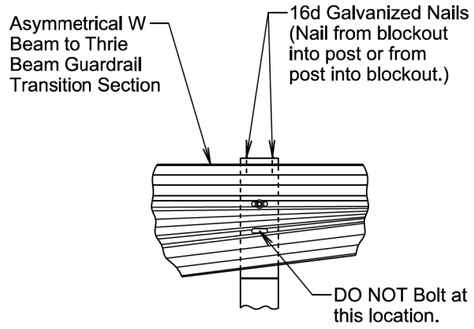
Published Date: 2026	SDDOT	TYPE 1 GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.50
			Sheet 2 of 3

PLOT SCALE - 1:200

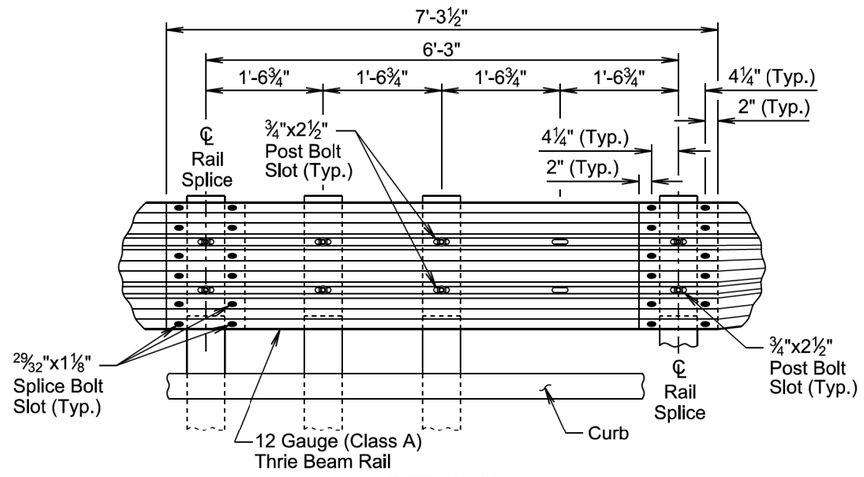
PLOT NAME - 8

FILE ...\STD PLATES\STD 630 PLATES.DGN

.PLOTTED FROM - TRM1INT15



DETAIL L



DETAIL K
(Special Thrie Beam Rail)

GENERAL NOTES:

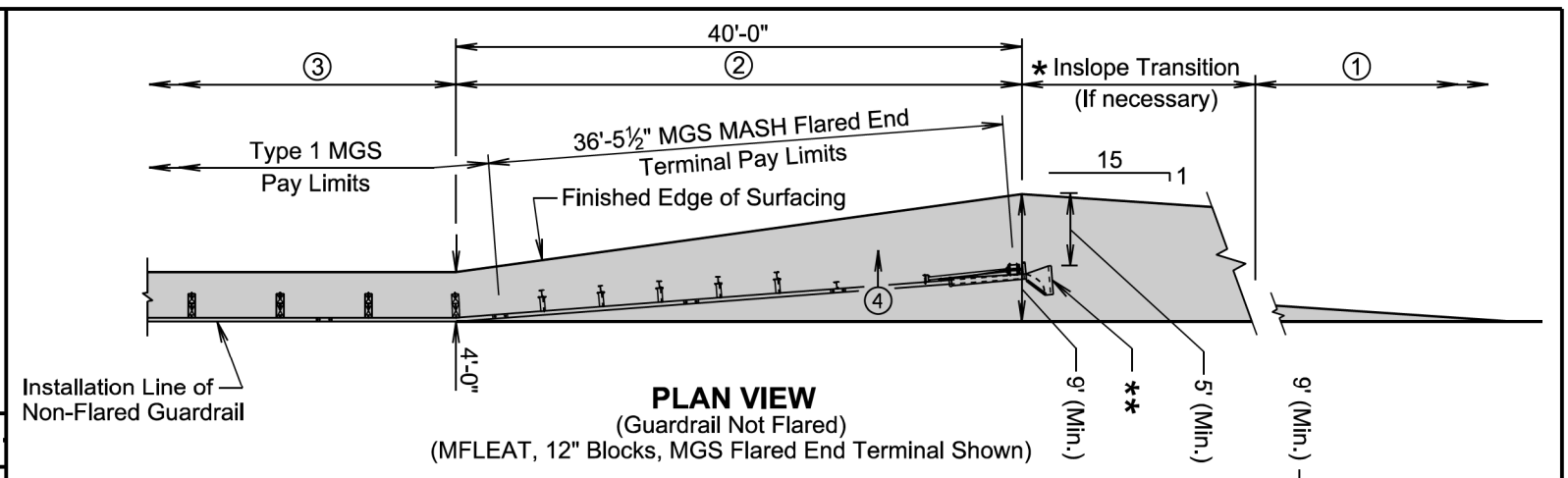
Throughout the type 1 guardrail transition, slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot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

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

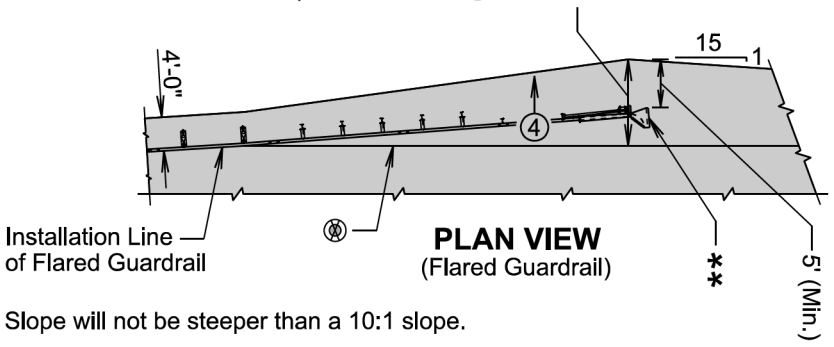
April 8, 2025

Published Date: 2026	SDDOT	TYPE 1 GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.50
			Sheet 3 of 3

PLOT SCALE - 1:200
PLOT NAME - 9
FILE - ...\STD PLATES\STD 630 PLATES.DGN
.PLOTTED FROM - TRMI1NT15



PLAN VIEW
(Guardrail Not Flared)
(MFLEAT, 12" Blocks, MGS Flared End Terminal Shown)



PLAN VIEW
(Flared Guardrail)

** See standard plate 632.40 for delineation.

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

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

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

③ Inslope as specified in the plans.

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

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.

Published Date: 2026

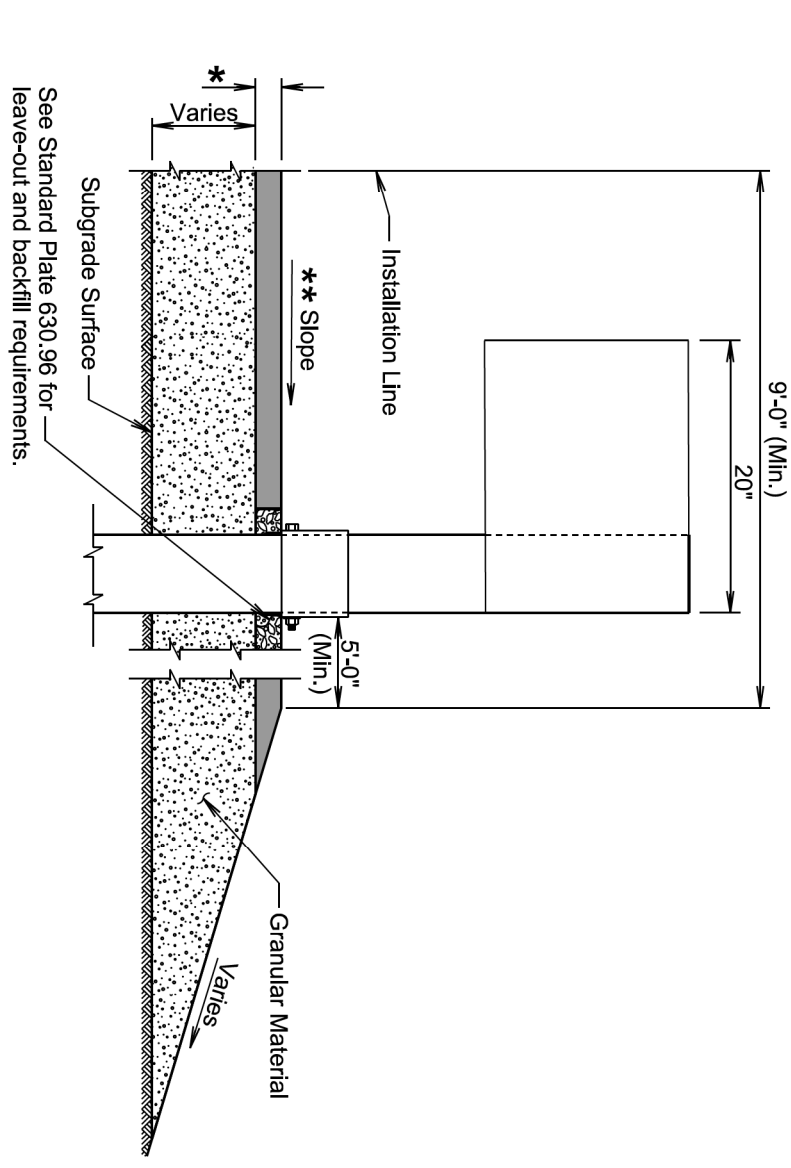
SDDOT

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

PLATE NUMBER 630.87

Sheet 1 of 2

April 8, 2025



TRANSVERSE SECTION
(MFLEAT MGS Flared End Terminal Shown)

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

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

Published Date: 2026

SDDOT

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

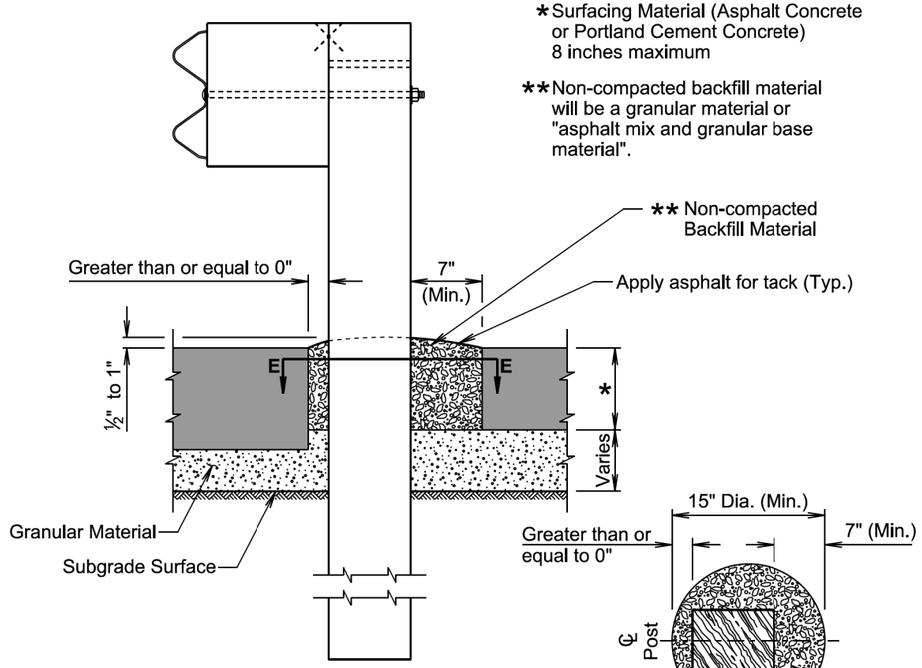
PLATE NUMBER 630.87

Sheet 2 of 2

April 8, 2025

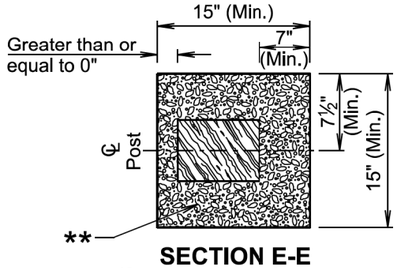
STATE OF SOUTH DAKOTA | PROJECT NH 0281(129)79 | SHEET 50 | TOTAL SHEETS 53

Plotting Date: 02/03/2026



TRANSVERSE SECTION
(Wood post shown for illustrative purpose only)

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



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

GENERAL NOTES:

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

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

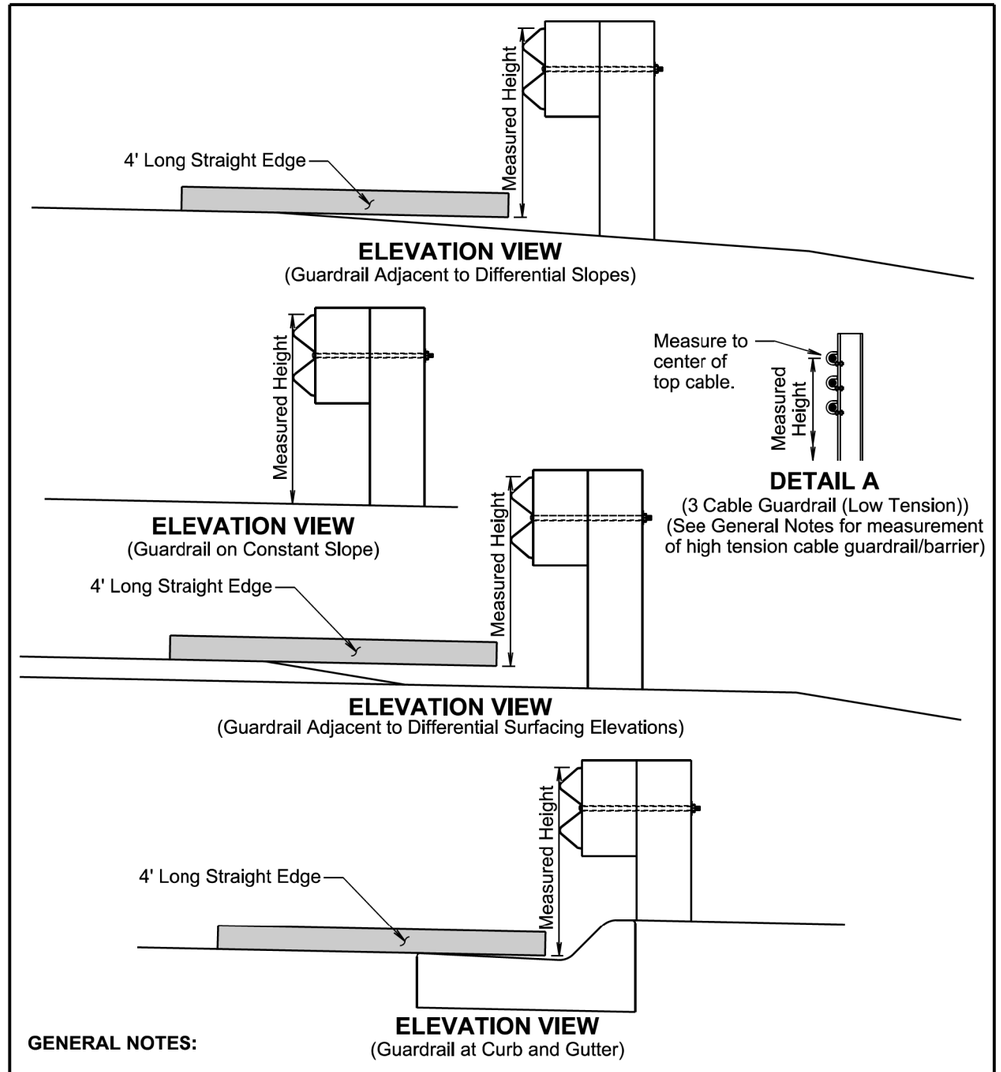
The backfill material will be mounded ½ inch to 1 inch above the top of the adjacent surfacing as illustrated above.

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

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

November 19, 2021

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



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.

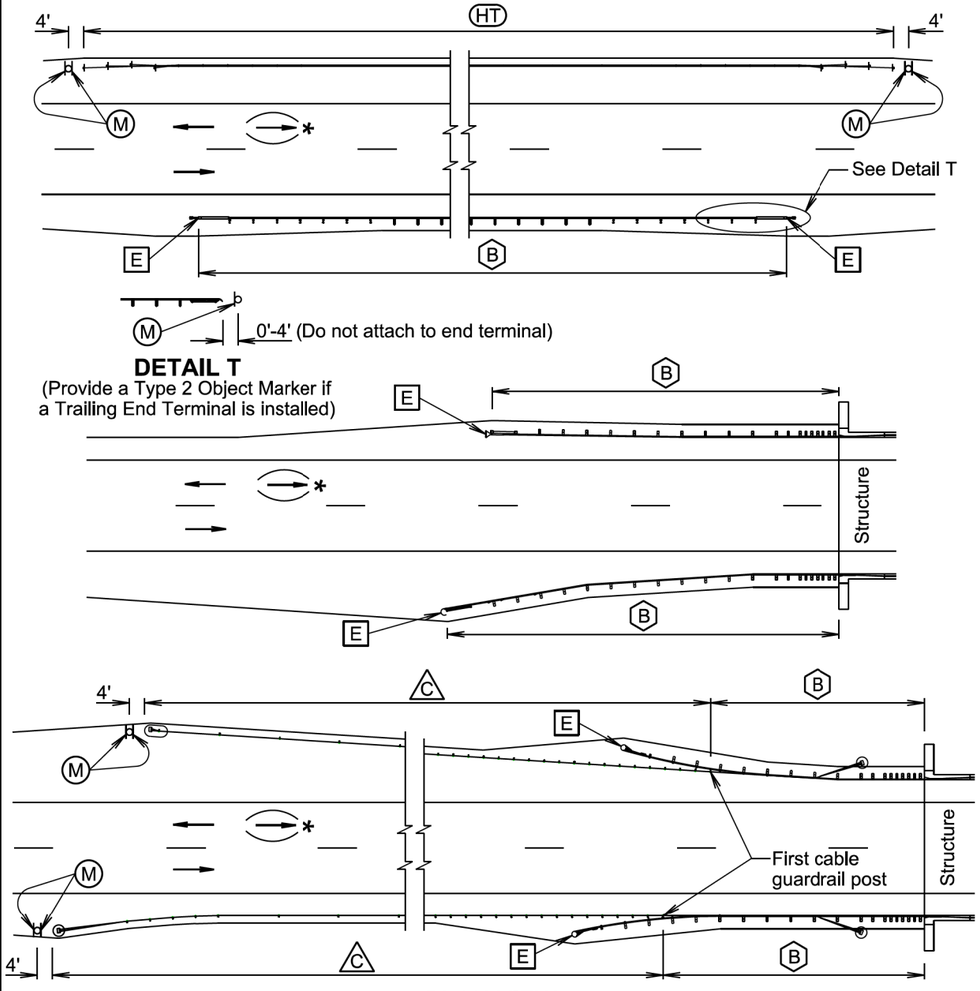
When measuring height of 3 cable guardrail (low tension) the height will be measured to the center of the top cable. See Detail A.

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

September 14, 2019

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

PLOT SCALE - 1:200
PLOT NAME - 11
FILE - ...\STD PLATES\STD 630 PLATES.DGN
PLOTTED FROM - TRM11NT15



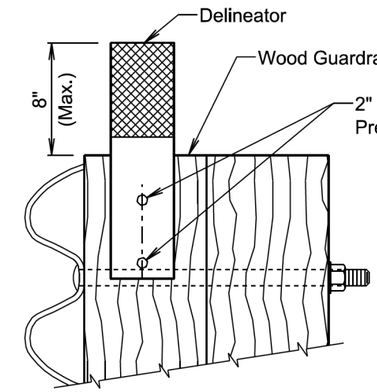
PLAN VIEW
(Typical Guardrail Layouts)

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

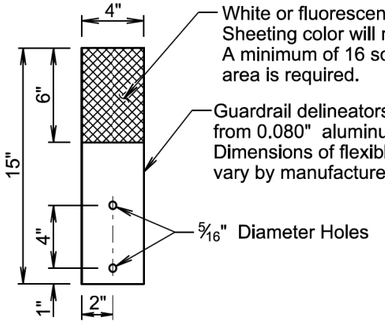
*For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

April 8, 2025

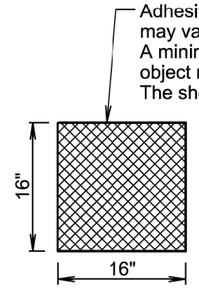
Published Date: 2026	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 1 of 4



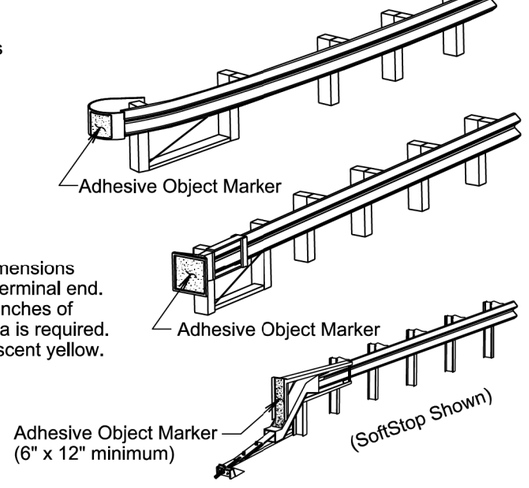
(B) STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



ADHESIVE OBJECT MARKER

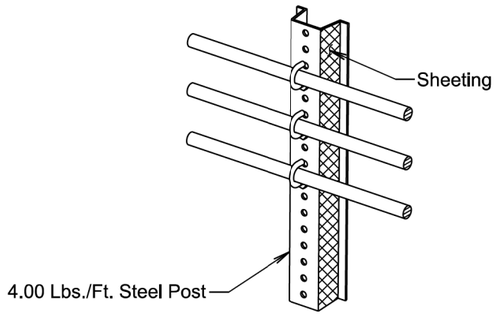


[E] GUARDRAIL END TERMINAL OBJECT MARKER

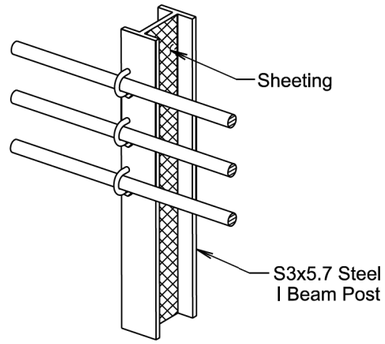
April 8, 2025

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

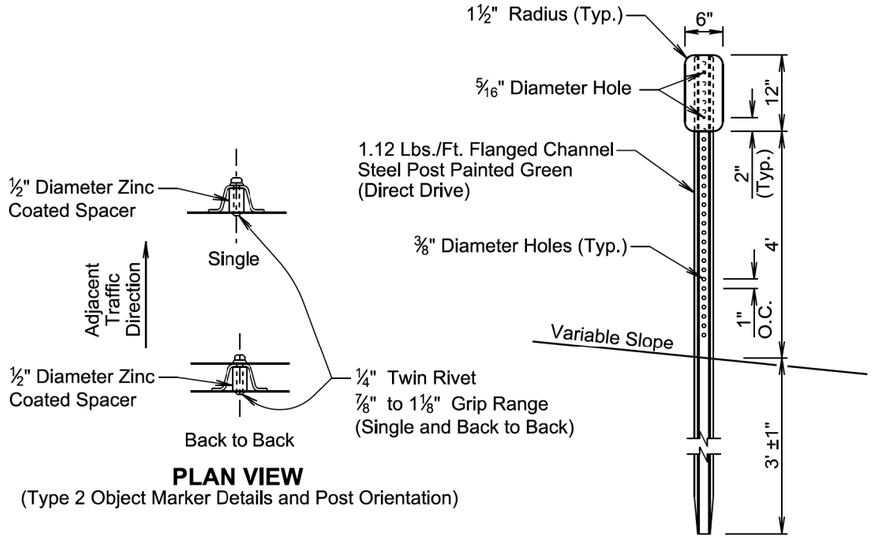
PLOT SCALE - 1:200
PLOT NAME - 12
FILE - ...\STD PLATES\STD 632 PLATES.DGN
.PLOTTED FROM - TRMIINT15



Ⓒ 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



Ⓒ 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



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

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

April 8, 2025

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

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

April 8, 2025

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

PLOT SCALE - 1:200
PLOT NAME - 13
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PLOTTED FROM - TRM11INT15