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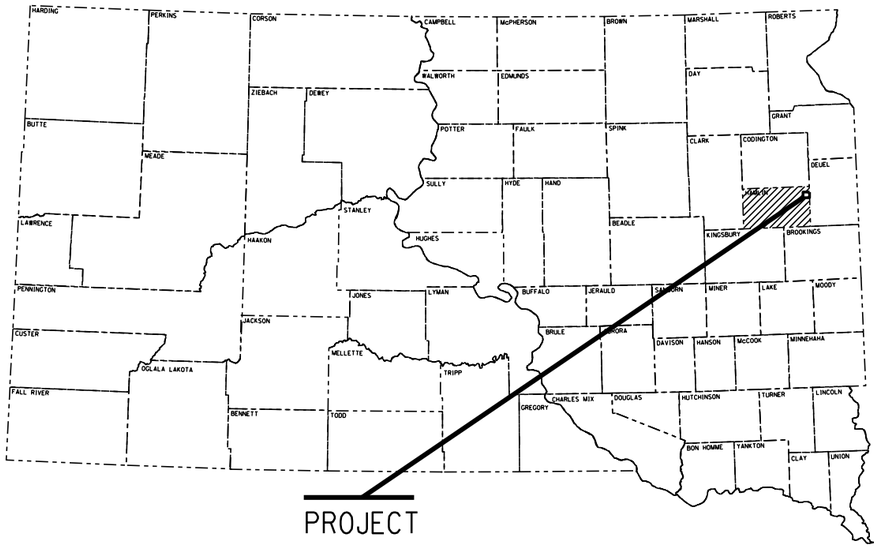


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

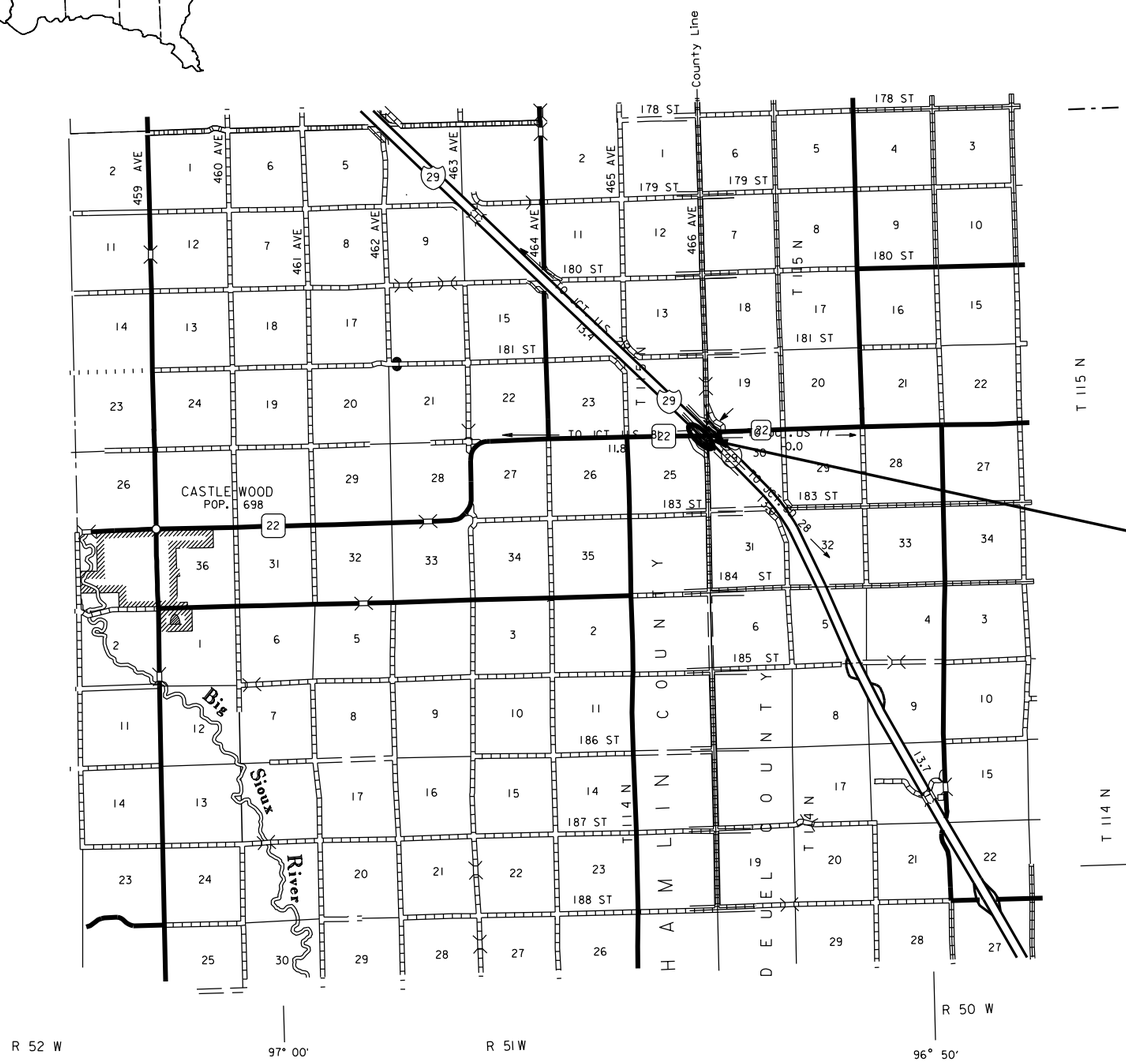
PROJECT IM 0296(35)164
INTERSTATE 29 SBL
HAMLIN COUNTY

ABUTMENT REPAIR, RESET BEARING, MEMBRANE, JOINTS, APPROACH SLAB, APPROACH SURFACING, AND GUARDRAIL
PCN 09TA

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	1	124

Plotting Date: 05/05/2026

INDEX OF SHEETS



Project Location
Str. No. 29-299-040
I-29 SBL
MRM 164.65

DESIGN DESIGNATION

AADT (2023)	4277
AADT (2042)	6429
DHV	804
D	50%
DHV T%	9.8%
AADT T%	21.4%
V	80 M.P.H.

STORM WATER PERMIT
NONE REQUIRED

July 15, 2026

PLOTTED FROM - TRAB10200

PLOT NAME - 1

FILE - ...\HAML09TA\09TA TITLE SHEET.DGN

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

Revised
05/07/2026 2:25:42 PM

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0296(35)164	2	124

GENERAL QUANTITIES – 09TA

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E4200	Construction Schedule, Category II	Lump Sum	LS
110E0700	Remove 3 Cable Guardrail	280	Ft
110E0730	Remove Beam Guardrail	145.1	Ft
110E0740	Remove 3 Cable Guardrail Anchor Assembly	2	Each
110E1010	Remove Asphalt Concrete Pavement	1,263.4	SqYd
110E1100	Remove Concrete Pavement	121.4	SqYd
110E1693	Remove Erosion Control Wattle	25	Ft
110E1700	Remove Silt Fence	138	Ft
110E6410	Remove Type 1 MGS for Reset	262.0	Ft
110E6501	Remove Type 1 Retrofit Guardrail Transition for Reset	1	Each
110E7700	Remove Drop Inlet Frame and Grate Assembly for Reset	2	Each
120E0010	Unclassified Excavation	13	CuYd
120E0600	Contractor Furnished Borrow Excavation	102	CuYd
210E1000	Shoulder Preparation	0.095	Mile
230E0100	Remove and Replace Topsoil	Lump Sum	LS
260E1010	Base Course	49.5	Ton
320E1200	Asphalt Concrete Composite	207.4	Ton
320E5010	Saw and Seal Shoulder Joint	432	Ft
380E0010	6" Nonreinforced PCC Pavement	16.0	SqYd
380E0110	11" Nonreinforced PCC Pavement	121.4	SqYd
380E0800	PCC Shoulder Pavement	466.5	SqYd
380E6110	Insert Steel Bar in PCC Pavement	294	Each
410E2600	Membrane Sealant Expansion Joint	152.0	Ft
480E0200	Epoxy Coated Reinforcing Steel	80	Lb
630E0500	Type 1 MGS	250.0	Ft
630E2018	MGS MASH Tangent End Terminal	2	Each
630E2110	Beam Guardrail Post and Block	51	Each
630E5010	Reset Type 1 MGS	262.0	Ft
630E5300	Reset Type 1 Guardrail Transition	1	Each
632E2220	Guardrail Delineator	16	Each
633E3000	Durable Pavement Marking, 4" White	450	Ft
633E3005	Durable Pavement Marking, 4" Yellow	100	Ft
633E5050	Surface Preparation for Pavement Marking	550	Ft
634E0110	Traffic Control Signs	298.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	1	Each
634E0420	Type C Advance Warning Arrow Board	1	Each
634E0525	Linear Delineation System Panel, Barrier Mounted	37	Each
634E0640	Temporary Pavement Marking	3,800	Ft
634E0700	Traffic Control Movable Concrete Barrier	39	Each
634E0750	Temporary Concrete Barrier End Protection	1	Each

GENERAL QUANTITIES – 09TA CONTINUED

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
634E0755	Remove and Reset Temporary Concrete Barrier End Protection	1	Each
634E0760	Temporary Concrete Barrier End Protection Module Set or Repair Kit	1	Each
634E1002	Detour and Restriction Signing	622.6	SqFt
634E1255	Contractor Furnished Vehicle Speed Feedback Sign	1	Each
670E7000	Reset Drop Inlet Frame and Grate Assembly	2	Each
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	100	Ft
734E0602	Low Flow Silt Fence	550	Ft
734E0610	Mucking Silt Fence	38	CuYd

STRUCTURE 29-299-040 QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
110E0010	Remove Concrete Bridge Approach Slab	346.5	SqYd
120E0010	Unclassified Excavation	9	CuYd
120E3120	Bridge Berm Repair	1	Each
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
410E0300	Modify Girder End	5	Each
410E0550	Jack Superstructure, Steel Girder Bridge	Lump Sum	LS
410E1000	Bearing, Furnish	1	Each
410E1001	Bearing, Install	1	Each
410E2220	Replace Expansion Device	1	Each
410E2600	Membrane Sealant Expansion Joint	67.4	Ft
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS
430E0200	Bridge End Embankment	4	CuYd
430E0300	Granular Bridge End Backfill	26.6	CuYd
430E0510	Approach Slab Underdrain Excavation	4.0	CuYd
430E0700	Precast Concrete Headwall for Drain	4	Each
460E0010	Class A45 Concrete, Bridge Barrier	9.4	CuYd
460E0150	Concrete Approach Slab for Bridge	313.3	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	54.3	SqYd
460E0300	Breakout Structural Concrete	8.2	CuYd
460E0310	Breakout and Replace Grout Pad	1	Each
460E0380	Install Dowel in Concrete	32	Each
480E0200	Epoxy Coated Reinforcing Steel	653	Lb
480E0504	No. 4 Rebar Splice	47	Each
480E0505	No. 5 Rebar Splice	46	Each
480E0506	No. 6 Rebar Splice	74	Each
480E5000	Galvanic Anode	83	Each
680E0040	4" Underdrain Pipe	136	Ft
680E2500	Porous Backfill	7.7	Ton

ENVIRONMENTAL COMMITMENTS

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

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

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

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

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT B4: BALD EAGLE

Bald eagles are known to occur in this area.

Action Taken/Required:

If a nest is observed within one mile of the project site, notify the Project Engineer immediately so that he/she can consult with the Environmental Office for an appropriate course of action.

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

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

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:

< https://sdleastwanted.sd.gov/maps/default.aspx>

< South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04 >

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation.

Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, “No Dumping Allowed”.

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

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey.

A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

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

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

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

SHPO/THPO review does not relieve the Contractor of the responsibility 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.

SCOPE OF WORK

Work on this project involves abutment repair, reset bearing, membrane, joints, approach slab, approach surfacing, and guardrail on I-29 southbound at structure number 29-299-040.

SEQUENCE OF OPERATIONS

Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work. An alternate sequence will be submitted for review a minimum of one week prior to potential implementation.

The Contractor will perform the work as follows:

1. Install Temporary Traffic Control
2. Remove Guardrail
    a. Guardrail will only be removed for one phase at a time. New or reset guardrail will be in place before switching phases.
3. Abutment and Approach Work
    a. Reference "SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS" in Str. No. 29-299-040 Plans
        i. Complete b and c below before switching traffic in step 10 of the Bridge Work Sequence
    b. Place Concrete Shoulder
    c. Pave Asphalt Shoulder
    d. Install Guardrail
4. Install Permanent Pavement Markings
5. Remove Temporary Traffic Control

GENERAL TRAFFIC CONTROL

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

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

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

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

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

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

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

At no time will a vertical drop-off of greater than 3 inches be left overnight adjacent to the traveled way. The Contractor will utilize embankment material to ensure a 3-inch vertical drop-off is not exceeded. The slope of the embankment material will not be steeper than a 4:1 within 30 feet of the traveled way.

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

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

Construction vehicles will exit or enter the construction work zone at locations identified by the Engineer. At no time will construction vehicles utilize the maintenance crossovers or the Interstate median to exit or enter Interstate traffic.

LANE CLOSURES

Interstate lane closures will be removed when work will not be occurring for a period of 3 or more calendar days. Activities that do not involve workers being present, such as curing time for concrete, constitute work. Lane closures will not be set up on a Friday if no work will be occurring on Saturday or Sunday. In these cases, the lane closure will be installed on Monday.

WORK ZONE SPEED REDUCTION

The Department is required to obtain a speed reduction resolution prior to the installation of any SPEED LIMIT (R2-1) signs shown on standard plate 634.63. To provide adequate time for the resolution to be enacted, the Contractor will inform the Engineer a minimum of 3 weeks prior to the scheduled installation of any work zone speed reduction signs on the project. The information provided by the Contractor will include the anticipated date of sign installation, the newly reduced speed limit, the location of the work zone, and the anticipated completion date of work requiring the speed reduction.

OVERWIDTH RESTRICTION AND DETOUR SIGNING

The Contractor will furnish and install the overwidth restriction signing signs as shown in these plans. Prior to installing the signs, the Contractor will mark the sign locations and review them with the Engineer. Overwidth restriction signing signs will be installed on fixed location, ground mounted, breakaway supports. It will be the responsibility of the Contractor to maintain and reinstall these signs during the project as required by the construction progress. Upon completion of the project, the Contractor will remove the overwidth restriction signing signs.

All costs for furnishing the signs, posts, and mounting hardware, and for installing, maintaining, covering, and removing the overwidth restriction signing signs will be incidental to the contract unit price per square foot for "Detour and Restriction Signing".

CONTRACTOR FURNISHED SPEED MONITORING RADAR TRAILER

The Contractor will provide 1 radar speed feedback trailers to monitor traffic speeds on designated routes at locations specified in the field by the Engineer.

The radar speed feedback sign assembly will include a speed limit sign mounted in conjunction with the radar speed feedback display. The speed display will not flash vehicle speeds exceeding the speed limit or any other messages.

All costs associated with furnishing, maintaining, transporting, relocating if necessary, and removing the radar speed feedback trailers from locations specified by the Engineer will be incidental to the contract unit price per each for "Contractor Furnished Speed Monitoring Radar Trailer".

INCIDENTS

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

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

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

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

TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS

Concrete barriers will be provided by the State and are available for pickup from the SDDOT Watertown Maintenance Yard located at 5000 U.S. Highway 212 Watertown. The barriers will be hauled back to the SDDOT Watertown Maintenance Yard when they are no longer needed on the project. Contact the Watertown Area Office (605-882-5166) a minimum 5 days prior to pick up.

Barriers to be adjusted or moved will be disconnected from adjacent barriers to minimize damage to connecting pins. Pins damaged by the Contractor will be replaced at no cost to the Department.

Concrete barrier sections will be placed as depicted in the plans to comply with clear zone requirements and as required by the Engineer. The barriers will be pinned and bolted together as directed by the Engineer.

All costs associated with picking the barriers up from the SDDOT Maintenance Yard, transporting, setting, connecting, and hauling them back to the SDDOT Maintenance Yard will be incidental to the contract unit price per each for Traffic Control Movable Concrete Barrier.

After the initial placement, the concrete barriers may need to be adjusted. Adjustment of the barriers, where they do not need to be loaded on a truck for transport, will be incidental to the contract unit price per each for Traffic Control Movable Concrete Barrier.

GUARDRAIL REMOVE FOR RESET

Median guardrail will be removed for reset and paid for as shown in the Table of Guardrail Removal and Installation. A Type 1 Retrofit will be removed from the structure and reset as a Type 1 Guardrail Transition.

It is anticipated that the posts removed from the median will not be in usable condition. A quantity for Beam Guardrail Post and Block is provided for the purpose of resetting the median guardrail.

TEMPORARY CONCRETE BARRIER END PROTECTION

Crash attenuators meeting the requirements of NCHRP 350 or MASH TL-3 will be furnished and installed by the Contractor. Attachment of the attenuators to the concrete barriers will be by approved methods.

All costs associated with furnishing, transporting, initial setup, connecting, maintaining, and removing the crash attenuators will be incidental to the contract unit price per each for Temporary Concrete Barrier End Protection.

All costs associated with moving and resetting crash attenuators to accommodate traffic flows after initial set-up will be paid for at the contract unit price per each for Remove & Reset Temporary Concrete Barrier End Protection. All costs associated with removing from initial placement and resetting at a new location will be incidental to the contract unit price per each. No additional payment will be made for crash attenuators that are not immediately reset at a new location on the project and stored on-site until they are either reset or removed from the project as determined by the Engineer. No additional payment will be made for minor adjustments.

The Contractor will have replacement hardware available so that in the event the crash attenuator is hit and made unusable, the crash attenuator can be made functional within 24 hours. The cost of replacement will be incidental to the contract unit price per each for Temporary Concrete Barrier Module Set or Repair Kit. No payment will be made for the Temporary Concrete Barrier Module Set or Repair Kit if no repairs are necessary. Upon completion of the project, crash attenuators will remain the property of the Contractor.

BARRIER MOUNTED LINEAR DELINEATION SYSTEM PANELS

A linear delineation system (LDS) panel will be attached to each barrier section. The color will be the same as the nearest pavement marking, white along outside edgelines or yellow for the left side on one way traffic sections. The LDS will be 34 inches long and 6 inches in height and be constructed of aluminum formed into a shape to provide retroreflective properties across a wide range of angles. It will be sheeted with sheeting meeting the requirements of ASTM D4956 Type XI. The panels will be evenly spaced, with the top of the panel 4 inches below the top of the barrier. Installation will be as per the manufacturer's recommendations. This will allow for easy removal for replacement of damaged panels or to replace with an alternate color. The Contractor will furnish and install one panel along each side of the barrier if any panels are missing from the barriers. Replacement of damaged linear delineation system panels will be furnished and replaced by the Contractor. The LDS panel may be replaced by a 4" x 8" delineator of the appropriate color mounted on the top of the Traffic Control Movable Concrete Barrier at the discretion of the Engineer. All costs associated with furnishing, installing, and replacing, if needed, will be incidental to the contract unit price per each for Linear Delineation System Panel, Barrier Mounted.

All LDS panels will remain attached to the barrier sections and will become the property of the State of South Dakota upon completion of the project.

The Contractor will verify the number of LDS panels that will need to be installed or replaced on the Traffic Control Movable Concrete Barriers. The contract amount of LDS panels is an estimate and the full contract amount may not be needed.

Maintaining the linear delineation system, including moving LDS panels from one side of the barrier to the other side of the barrier to match the applicable color of the nearest pavement marking will be incidental to the contract lump sum price for Traffic Control, Miscellaneous.

PRESS RELEASE ANNOUNCEMENTS

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

UTILITIES

The Contractor will contact the involved utility companies through South Dakota One Call (1-800-781-7474) prior to starting work. It will be the responsibility of the Contractor to coordinate work with the utility owners to avoid damage to existing facilities.

If utilities are identified near the improvement area through the SD One Call Process as required by South Dakota Codified Law 49-7A and Administrative Rule Article 20:25, the Contractor will contact the Engineer to determine modifications that will be necessary to avoid utility impacts.

CONTRACTOR FURNISHED BORROW EXCAVATION

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

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

SHRINKAGE FACTOR: Embankment +40

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station to	Station	Excavation (CuYd)	* Contractor Furnished Borrow Exc. (CuYd)	Total Excavation (CuYd)
291+17	292+57	13	102	115
	Totals:	13	102	115

* The quantities for these items are in the Estimate of Quantities under their respective contract items.
** The quantities for these items are for information only.

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	13
Total:	13

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

When plan quantities are used for payment, the Unclassified Excavation quantity will be used for final payment and the plans quantity of Topsoil and salvaged surfacing items listed in the Table of Unclassified Excavation will not be adjusted according to field measurements.

The following paragraphs are general earthwork information and information in regard to computing the Unclassified Excavation quantity when final cross sections are taken in the field:

The Excavation quantities from individual balances and the Table of Unclassified Excavation have been reduced by the volume of in place surfacing that will be removed and/or salvaged.

The volume of in place Concrete Surfacing and Asphalt Surfacing removed and/or cold milled will NOT be paid for as Unclassified Excavation.

The Excavation quantities from individual balances and the table above have been reduced by the volume of in place concrete pavement and asphalt pavement that will be removed and/or cold milled.

REMOVE AND REPLACE TOPSOIL

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

The estimated amount of topsoil to be removed and replaced is 150 CuYd.

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

SHOULDER PREPARATION

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

It is anticipated that excess material may need to be removed prior to placement of PCC Shoulder Pavement. The Contractor will ensure excess in place granular material is removed to achieve the required elevation for the placement of the PCC Shoulder Pavement. Payment for the removal of excess in place granular material will be incidental to the contract unit price per mile for “Shoulder Preparation”. This material may be reused at the discretion of the engineer.

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

ASPHALT CONCRETE COMPOSITE

Asphalt Concrete Composite will include MC-70 asphalt for prime placed at the rate of 0.30 gallons per square yard. The asphalt for prime will be applied to the Base Course for the full width of the bottom layer of Asphalt Concrete Composite plus one foot additional on the outside shoulder. Blotting sand for prime required for maintenance of traffic will be applied at a rate of 10 pounds per square yard.

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

An additional 10 tons of Asphalt Concrete Composite have been included in the estimate for use as directed by the engineer for repair/strengthening median shoulder.

PCC SHOULDER PAVEMENT

In lieu of an automatic subgrader operating from a preset grade line, a motor grader or other suitable equipment may be used to bring the gravel cushion to final grade prior to placement of the concrete.

The median and outside shoulder may be poured monolithic with the mainline pavement.

Provide a heavy carpet drag finish, a metal-tine finish will not be required on the shoulders. A metal-tine finish may be applied to the shoulders poured monolithic with the mainline.

If the shoulders are poured monolithic with the mainline pavement a sawed joint with tie bars will be constructed between the mainline pavement and the shoulders.

TABLE OF CONCRETE PAVEMENT REMOVAL

Location	Remove Concrete Pavement
I-29 Mainline	SqYd
Sta. 295+15.82 to Sta. 295+35.82	60.7
Sta. 299+08.57 to Sta. 299+28.57	60.7
Total	121.4

11" NONREINFORCED PCC PAVEMENT

The aggregate may require screening as determined by the Engineer.

The concrete mix used in the PCC Pavement will conform to Section 380.

There will be no direct payment for trimming of the gravel cushion or base course for PCC pavement. The trimming will be considered incidental to the related items required for PCC Pavement. Trimming will be performed as required by Section 380.3 C of the Specifications.

All driving surfaces of the mainline paving will be longitudinally tined from 6" each side of centerline pavement markings to 6" inside the outside pavement markings. All other areas will be textured as directed by the Engineer.

CURING OF CONCRETE

Portland Cement Concrete Pavement, Concrete Curb & Gutter, Concrete Gutter, and Concrete Fillet will be cured with Linseed Oil Base Emulsion Compound. All costs for Curing of Concrete will be incidental to the contract unit price per various Portland Cement Concrete bid items.

PAVEMENT MARKING PAINT

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

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

STEEL BAR INSERTION

The Contractor will insert the Steel Bars (No. 5 x 24-inch epoxy coated deformed tie bars) into drilled holes in the existing concrete pavement. Anchoring of the steel bars in the drilled holes will conform to the Specifications.

The steel bars will be cut to the specified length by sawing or shearing and will be free from burring or other deformations.

Epoxy coated deformed steel bars will be inserted on 30-inch centers in the longitudinal joint and will be placed a minimum of 15 inches from the existing transverse contraction joint.

EROSION CONTROL

The estimated area requiring erosion control is 14,400 square feet. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, fertilizing, and mulching will be incidental to the contract lump sum price for "Erosion Control".

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

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

Fertilizing

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

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

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

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

Permanent seeding

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

Type G Permanent Seed Mixture will consist of the following:

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

Fiber mulching

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

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

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

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

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

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

Table of fiber mulching

Station	Location	Quantity (Lb)
291+00 to 295+50 R	Inslope	750
	Additional Quantity:	100
	Total:	850

EROSION CONTROL WATTLE

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

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

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

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

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

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

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (Inch)	Quantity (Ft)
294+00 R	Inslope	12	50
	Additional Quantity:	12	50
		Total:	100

LOW FLOW SILT FENCE

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

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

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

TABLE OF LOW FLOW SILT FENCE

Route and MRM	Location	Quantity (Ft)
I-29 SB – 164.70 R	Inslope	500
	Additional Quantity:	50
	Total:	550

TABLE OF MATERIAL QUANTITIES

LOCATIONS:	UNCLASSIFIED EXCAVATION CuYd	BASE COURSE Ton	REMOVE ASPHALT CONCRETE PAVEMENT SqYd	ASPHALT CONCRETE COMPOSITE Ton	11" NONREINFORCED PCC PAVEMENT SqYd	PCC SHOULDER PAVEMENT SqYd	INSERT STEEL BAR IN PCC PAVEMENT Each
Str. No. 29-299-040	13.0	49.5	1,263.4	197.4	115.6	466.5	294.0
Additional Quantity From Notes				10.0			
Totals	13.0	49.5	1,263.4	207.4	115.6	466.5	294.0

TABLE OF GUARDRAIL REMOVAL AND INSTALLATION

		110E0700 Remove 3 Cable Guardrail (FT)	110E0730 Remove Beam Guardrail (FT)	110E0740 Remove 3 Cable Guardrail Anchor Assembly (Each)	110E6410 Remove Type 1 MGS for Reset Ft	110E6501 Remove Type 1 Retrofit Guardrail Transition For Reset (Each)	630E0500 Type 1 MGS (FT)	630E2018 MGS MASH Tangent End Terminal (Each)	630E2110 Beam Guardrail Post and Block (Each)	630E5010 Reset Type 1 MGS (FT)	630E5300 Reset Type 1 Guardrail Transition (Each)	632E2220 Guardrail Delineator (Each)
STR. NO. 29-299-040	Median Shoulder SB	0.0	64.1	0	262.0	1	0.0	1	51	262.0	1	8
	Outside Shoulder SB	280.0	81.0	2	0.0	0	250.0	1	0	0.0	0	8
	TOTAL	**280.0**	**145.1**	**2**	**262.0**	**1**	**250.0**	**2**	**51**	**262.0**	**1**	**16**

The above quantities are included in the Estimate of Quantities.

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

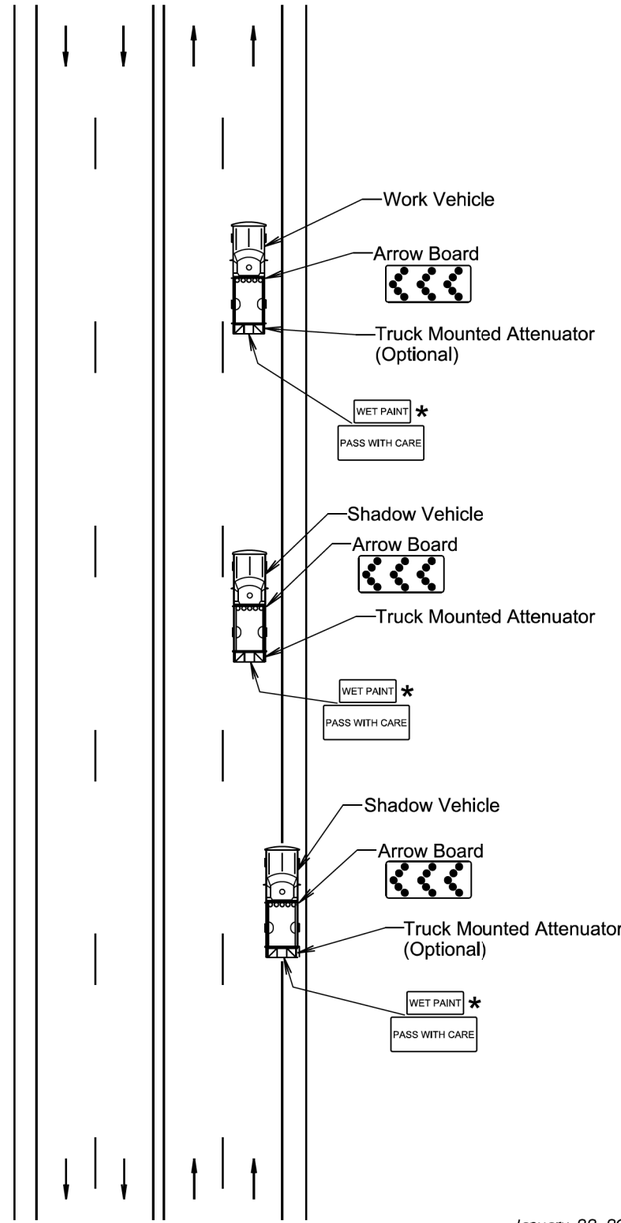
Vehicle-mounted signs will be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs will be covered or turned from view when work is not in progress.

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

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

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

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



January 22, 2021

Published Date: 2026

SDDOT

MOBILE OPERATIONS ON MULTI-LANE HIGHWAYS

PLATE NUMBER 634.08

Sheet 1 of 1

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)
0 - 30	200
35 - 40	350
45 - 50	500
55	750
60 - 65	1000
	(A) (B) (C)
70 - 80	1000 1500 2640

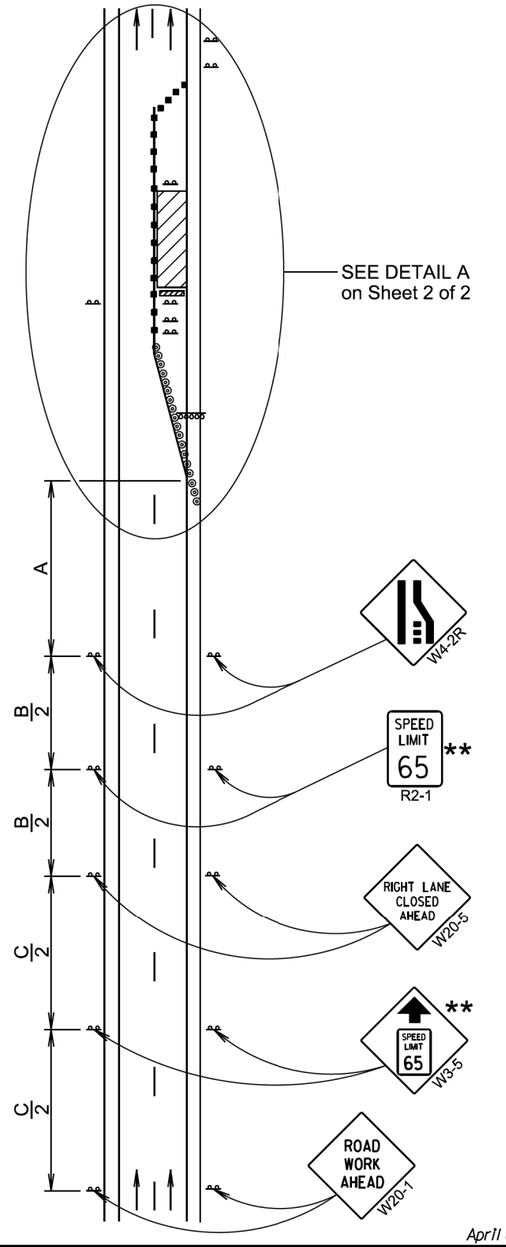
** Speed appropriate for location.

◎ Reflectorized Drum

▪ Channelizing Device

ROAD WORK AHEAD sign is only required in advance of the first lane closure.

High speed is defined as having a posted speed limit greater than 45 mph.



April 8, 2025

Published Date: 2026

SDDOT

WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS

PLATE NUMBER 634.63

Sheet 1 of 2

PLOT SCALE - 1:200

PLOTTED FROM - TRAB10200

PLOT NAME - 1

FILE - ...\STDPLATEPAGESEED_09TA_TRAFFIC_CONTROL.DGN

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)	Taper Length (Feet) (L)
0 -30	25	180
35 - 40	25	320
45	25	600
50	50 *	600
55	50 *	660
60 - 65	50 *	780
70 - 80	50 *	960

* Spacing is 40' for 42" cones.

** Speed appropriate for location.

*** Use speed limit designated for the condition when workers are present in the work space. Signs will be covered or removed when workers are not present.

◎ Reflectorized Drum

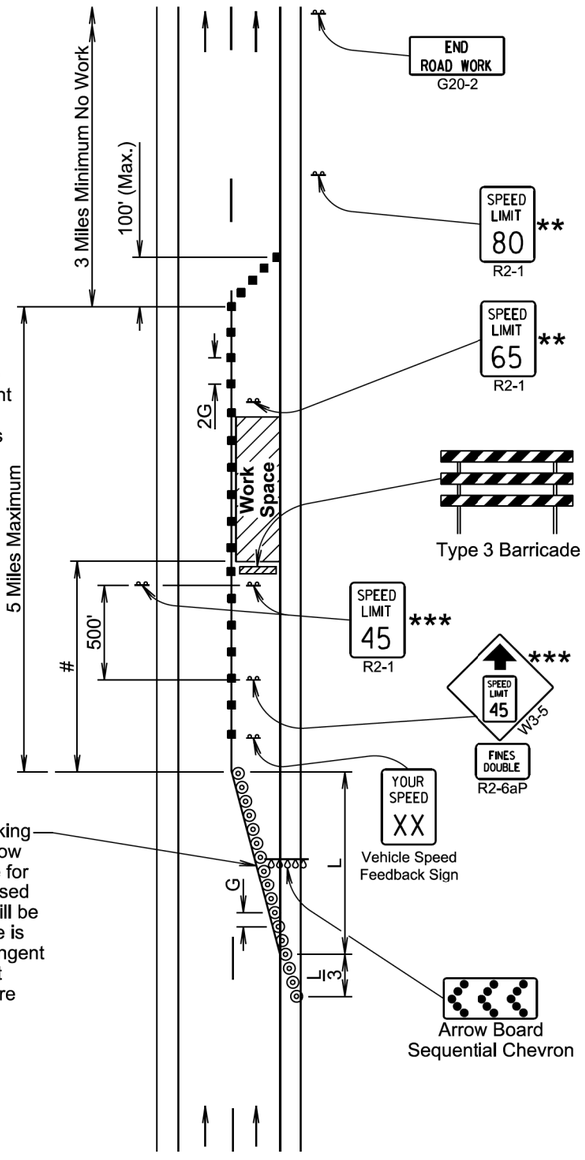
■ Channelizing Device

The Work Space will be a minimum of 500' from the end of the taper.

The channelizing devices will be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

4" white temporary pavement marking tape for right lane closures, 4" yellow temporary pavement marking tape for left lane closures, or temporary raised pavement markers at 5' spacing will be installed in the taper when the lane is closed overnight, and along the tangent section where the skip lines do not exist and the lane is closed for more than 3 days.



DETAIL A

April 8, 2025

Published Date: 2026	SDDOT	WORK ZONE SPEED REDUCTION FOR INTERSTATE AND HIGH SPEED MULTI-LANE HIGHWAYS	PLATE NUMBER 634.63 Sheet 2 of 2

Posted Speed Prior to Work (M.P.H.)	Length of Longitudinal Buffer Space (Feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820
80	910

◎ Reflectorized Drum

■ Channelizing Device

(4W) 4" White Temporary Pavement Marking

Temporary pavement markings will be used if traffic control must remain overnight.

This procedure also applies when work is being performed in the lane adjacent to the median on a divided highway. Under these conditions, LEFT LANE CLOSED signs and the corresponding LANE REDUCTION symbol signs will be used.

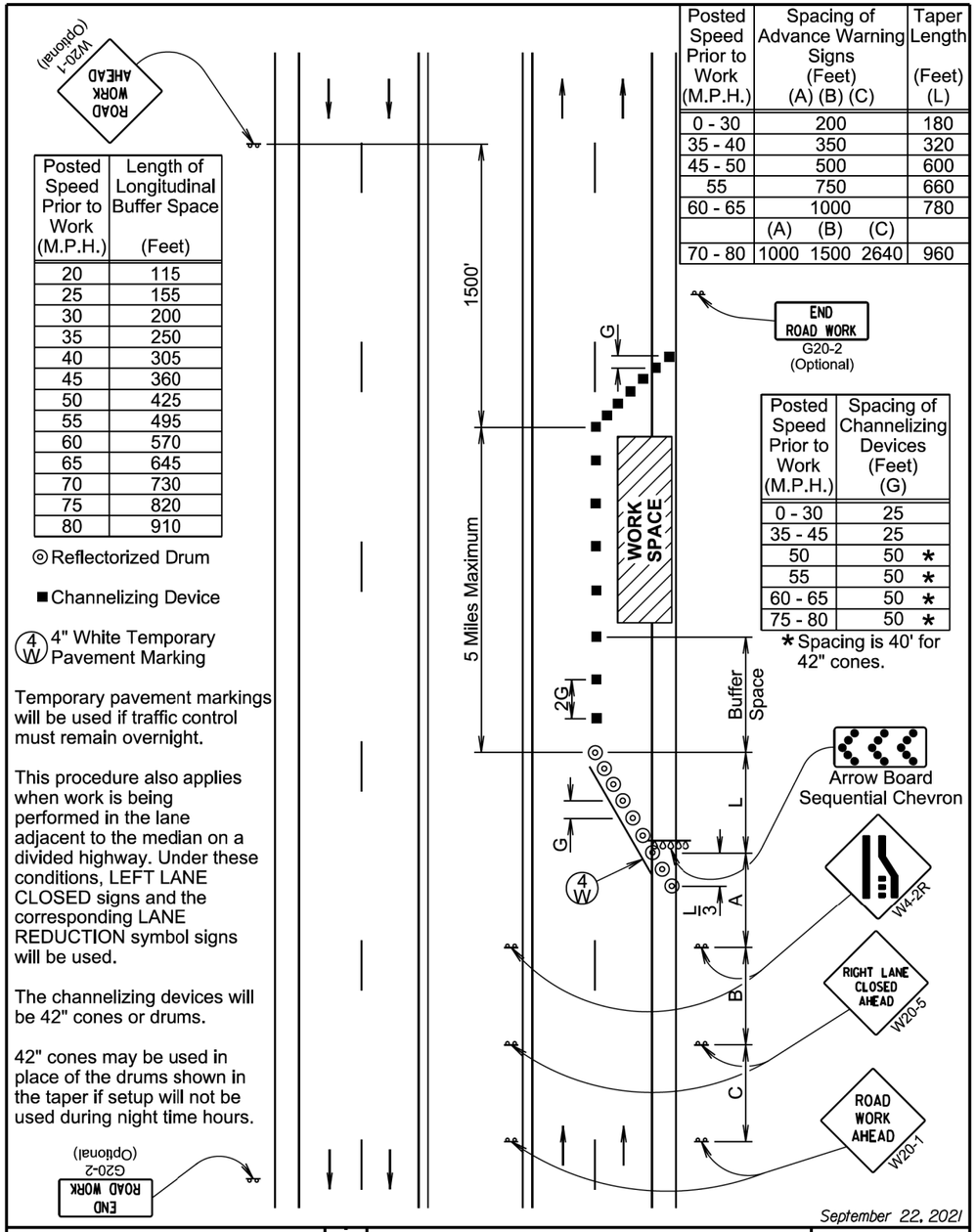
The channelizing devices will be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B) (C)	
70 - 80	1000 1500 2640	960

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 45	25
50	50 *
55	50 *
60 - 65	50 *
75 - 80	50 *

* Spacing is 40' for 42" cones.



September 22, 2021

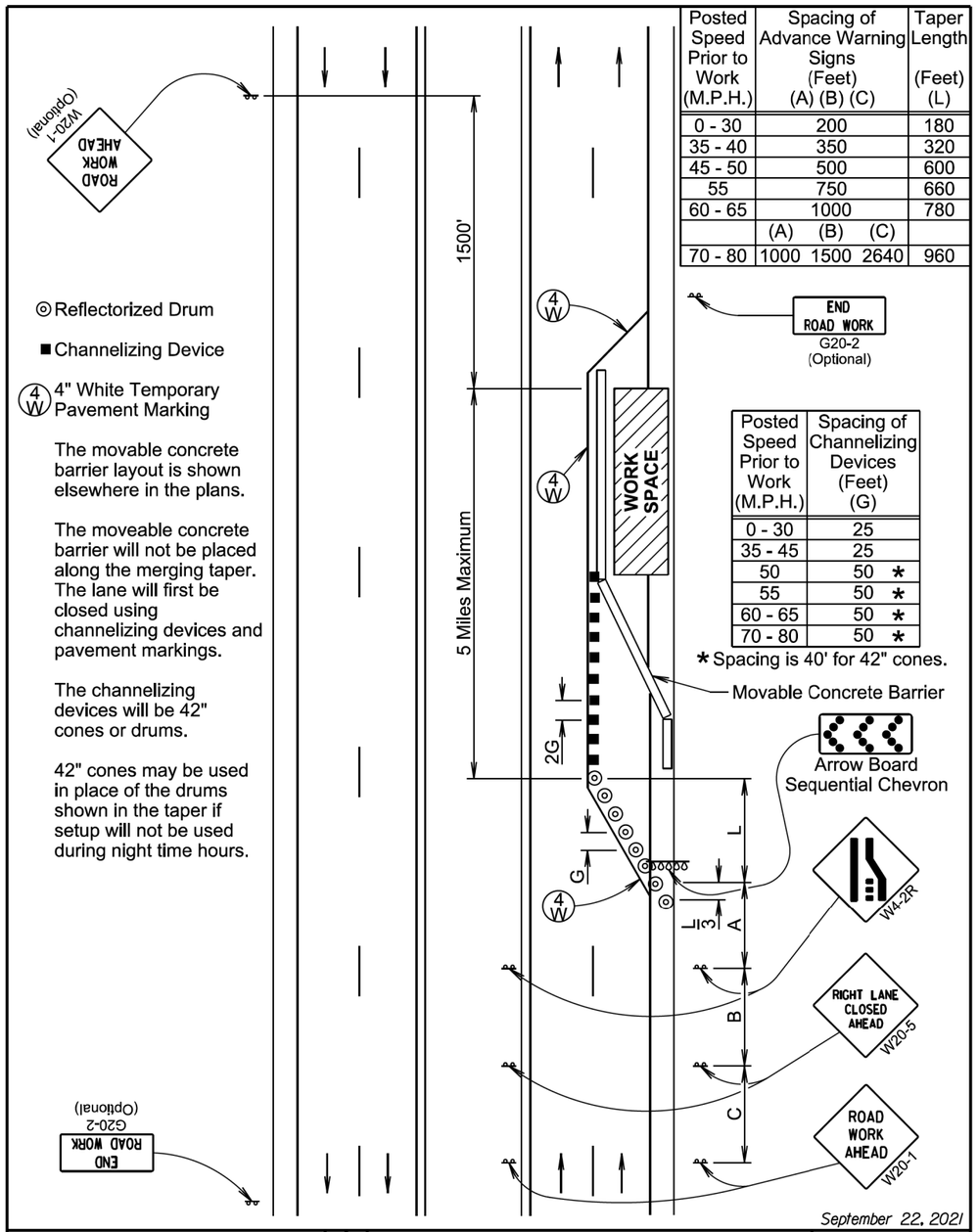
Published Date: 2026	SDDOT	LANE CLOSURE WITHOUT BARRIER	PLATE NUMBER 634.64 Sheet 1 of 1

PLOT SCALE - 1:200

PLOT NAME - 2

FILE - ...\STDPLATEPAGESEED_09TA_TRAFFIC_CONTROL.DGN

PLOTTED FROM - TRAB10200



◎ Reflectorized Drum

■ Channelizing Device

(4W) 4" White Temporary Pavement Marking

The movable concrete barrier layout is shown elsewhere in the plans.

The moveable concrete barrier will not be placed along the merging taper. The lane will first be closed using channelizing devices and pavement markings.

The channelizing devices will be 42" cones or drums.

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

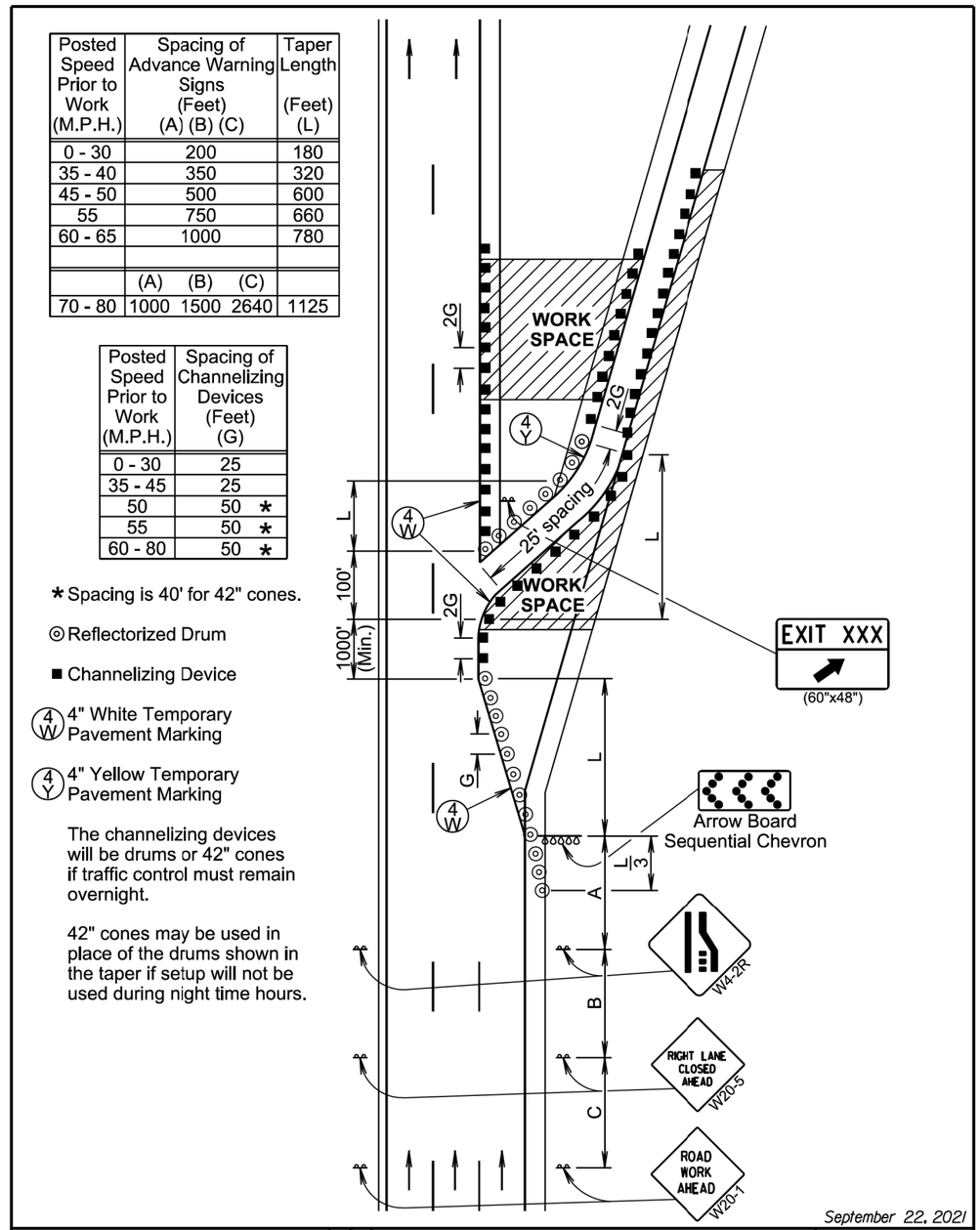
Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B) (C)	
70 - 80	1000 1500 2640	960

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 45	25
50	50 *
55	50 *
60 - 65	50 *
70 - 80	50 *

* Spacing is 40' for 42" cones.

September 22, 2021

Published Date: 2026	SDDOT	LANE CLOSURE WITH BARRIER	PLATE NUMBER 634.65
			Sheet 1 of 1



Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A) (B) (C)	Taper Length (Feet) (L)
0 - 30	200	180
35 - 40	350	320
45 - 50	500	600
55	750	660
60 - 65	1000	780
	(A) (B) (C)	
70 - 80	1000 1500 2640	1125

Posted Speed Prior to Work (M.P.H.)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	25
35 - 45	25
50	50 *
55	50 *
60 - 80	50 *

* Spacing is 40' for 42" cones.

◎ Reflectorized Drum

■ Channelizing Device

(4W) 4" White Temporary Pavement Marking

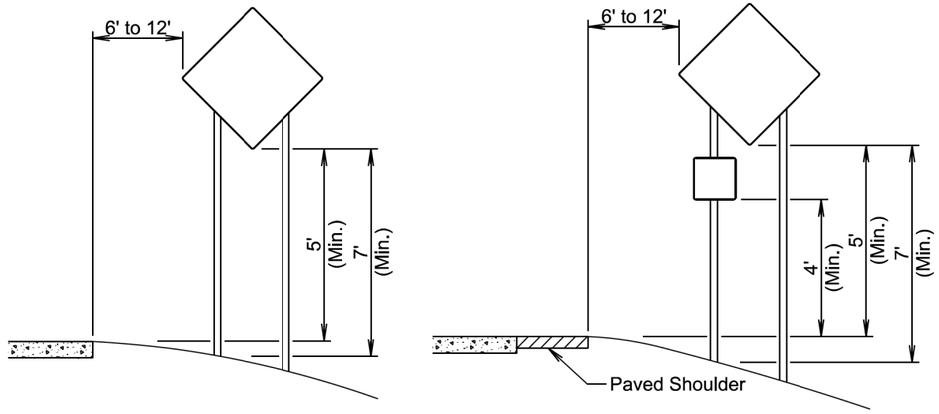
(4Y) 4" Yellow Temporary Pavement Marking

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

42" cones may be used in place of the drums shown in the taper if setup will not be used during night time hours.

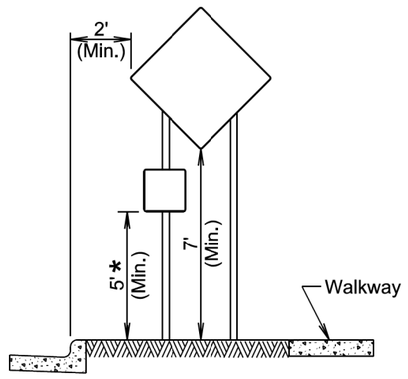
September 22, 2021

Published Date: 2026	SDDOT	WORK IN VICINITY OF EXIT RAMP	PLATE NUMBER 634.68
			Sheet 1 of 1

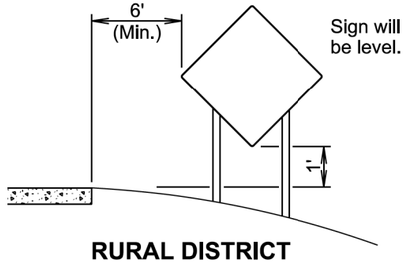


RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

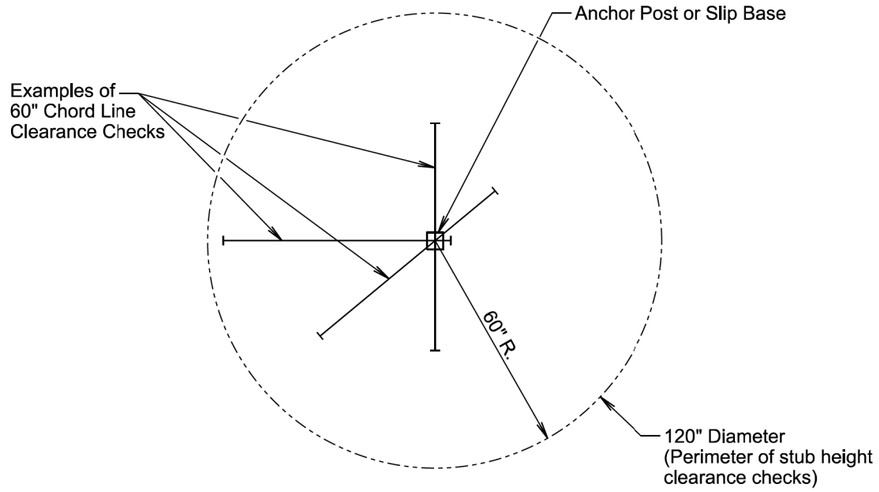


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

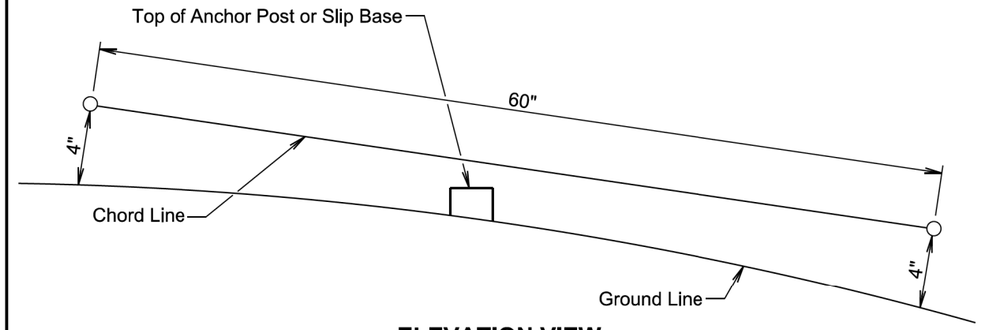
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

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



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

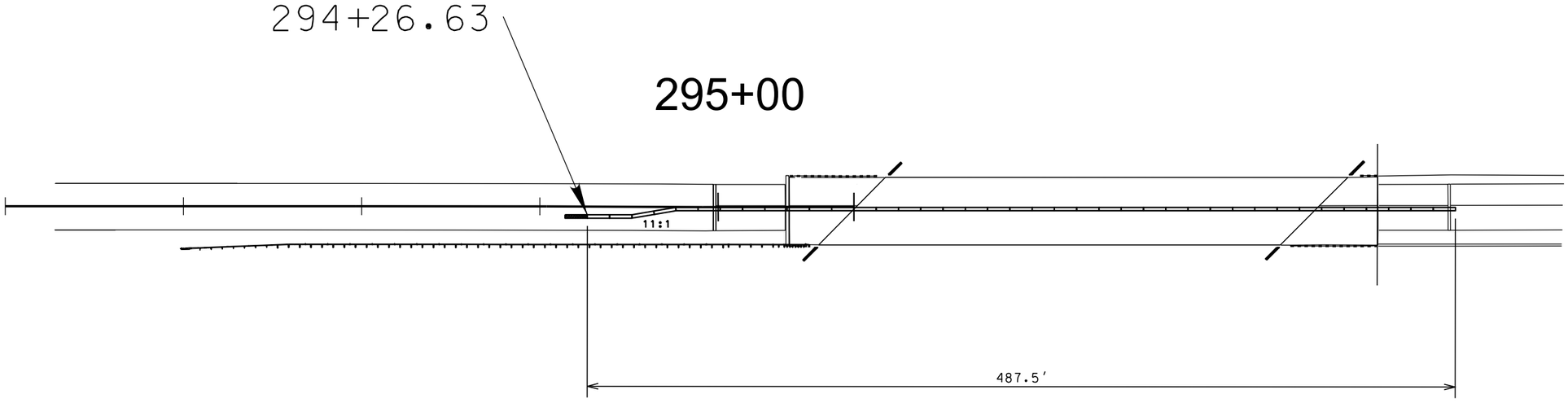
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	15	124
Plotting Date: 04/16/2026			

Movable Concrete Barrier Layout
Str. No. 29–299–040

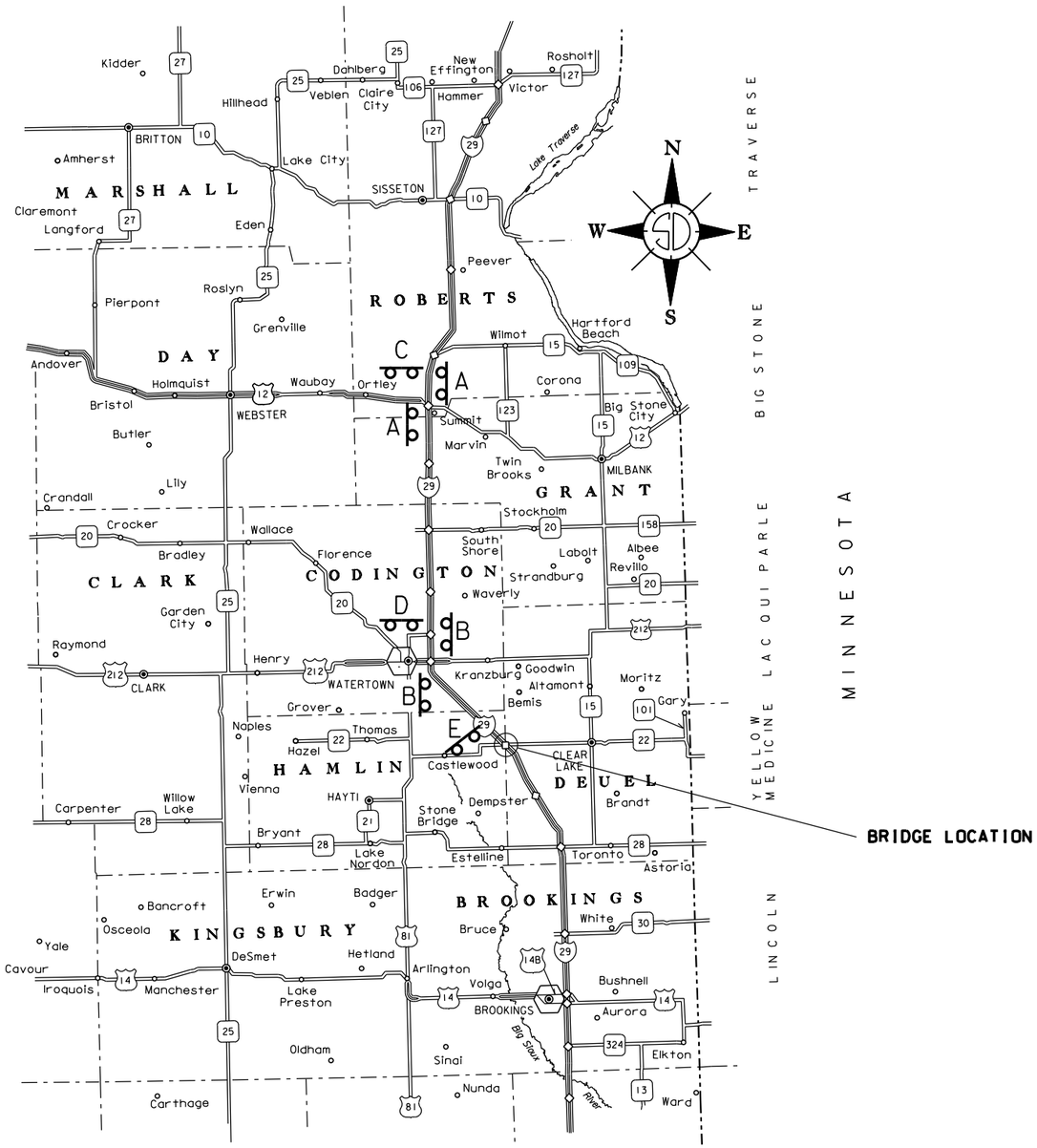


Barrier will be adjusted across centerline
by the Contractor as required for construction

Crash Attenuator that meets the Test Level 3 crash testing reqirements of NCHRP Report 350 or MASH

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	16	124
Plotting Date: 05/04/2026			

OVERWIDTH SIGN LAYOUT



NO VEHICLES OVER 13 FT WIDE

NO VEHICLES OVER 13 FT WIDE signs will be placed on I 29 before Exit 164

WIDTH RESTRICTION
13 FT MAX
INTERSTATE 29 SOUTH
14 MILES AHEAD
USE ALT ROUTE

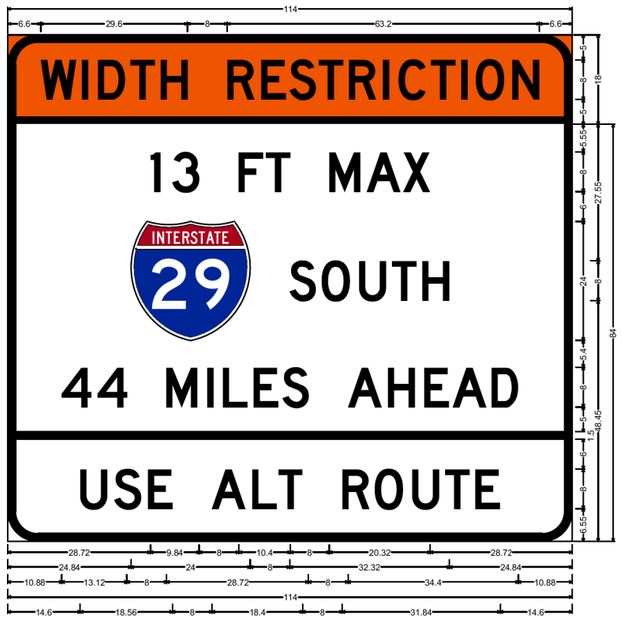
WIDTH RESTRICTION
13 FT MAX
INTERSTATE 29 SOUTH
44 MILES AHEAD
USE ALT ROUTE

PLOT SCALE - 1:88265.8

PLOTTED FROM - TRAB10200

PLOT NAME - 5

FILE - ...\OVERWIDTH\OVERWIDTH_LAYOUT.DGN



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	17	124

Plotting Date: 05/04/2026

OVERWIDTH SIGN LAYOUT

PLOT SCALE - 1:88265.8

PLOTTED FROM - TRAB10200

PLOT NAME - 1

FILE - ...\OVERWIDTH\OVERWIDTH_LAYOUT.DGN

A

6.00" Radius, 1.50" Border, Black on Orange;
"WIDTH RESTRICTION", D 2K;

6.00" Radius, 1.50" Border, Black on White;
"13 FT MAX", D 2K; "SOUTH", D 2K; "44 MILES AHEAD", D 2K; "USE ALT ROUTE", D 2K;
Table of widths and spaces

	W		I		D		T		H
6.60	7.12	1.20	1.28	1.92	5.44	1.04	4.96	1.20	5.44

	R		E		S		T		R		I		C		T		I		O		N	
8.00	5.44	1.36	4.96	0.80	5.44	0.64	4.96	1.20	5.44	1.36	1.28	1.76	5.44	1.04	4.96	1.20	1.28	1.76	5.68	1.76	5.44	6.60

	1		3		F		T		M		A		X	
28.72	2.00	2.40	5.44	8.00	4.96	0.48	4.96	8.00	6.24	1.20	6.80	0.64	5.44	28.72

	29		S		O		U		T		H	
24.84	24.00	8.00	5.44	1.20	5.68	1.76	5.44	1.20	4.96	1.20	5.44	24.84

	4		4		M		I		L		E		S		A		H		E		A		D	
10.88	6.00	1.12	6.00	8.00	6.24	1.92	1.28	1.92	4.96	1.20	4.96	0.80	5.44	8.00	6.80	1.20	5.44	1.92	4.96	0.64	6.80	1.20	5.44	10.88

-0.00	114.00	0.00

	U		S		E		A		L		T		R		O		U		T		E	
14.60	5.44	1.36	5.44	1.36	4.96	8.00	6.80	1.20	4.96	0.48	4.96	8.00	5.44	1.20	5.68	1.76	5.44	1.20	4.96	1.20	4.96	14.60

B

6.00" Radius, 1.50" Border, Black on Orange;
"WIDTH RESTRICTION", D 2K;

6.00" Radius, 1.50" Border, Black on White;
"13 FT MAX", D 2K; "SOUTH", D 2K; "14 MILES AHEAD", D 2K; "USE ALT ROUTE", D 2K;
Table of widths and spaces

	W		I		D		T		H
6.60	7.12	1.20	1.28	1.92	5.44	1.04	4.96	1.20	5.44

	R		E		S		T		R		I		C		T		I		O		N	
8.00	5.44	1.36	4.96	0.80	5.44	0.64	4.96	1.20	5.44	1.36	1.28	1.76	5.44	1.04	4.96	1.20	1.28	1.76	5.68	1.76	5.44	6.60

	1		3		F		T		M		A		X	
28.72	2.00	2.40	5.44	8.00	4.96	0.48	4.96	8.00	6.24	1.20	6.80	0.64	5.44	28.72

	29		S		O		U		T		H	
24.84	24.00	8.00	5.44	1.20	5.68	1.76	5.44	1.20	4.96	1.20	5.44	24.84

	1		4		M		I		L		E		S		A		H		E		A		D	
12.88	2.00	1.12	6.00	8.00	6.24	1.92	1.28	1.92	4.96	1.20	4.96	0.80	5.44	8.00	6.80	1.20	5.44	1.92	4.96	0.64	6.80	1.20	5.44	12.88

-0.00	114.00	0.00

	U		S		E		A		L		T		R		O		U		T		E	
14.60	5.44	1.36	5.44	1.36	4.96	8.00	6.80	1.20	4.96	0.48	4.96	8.00	5.44	1.20	5.68	1.76	5.44	1.20	4.96	1.20	4.96	14.60

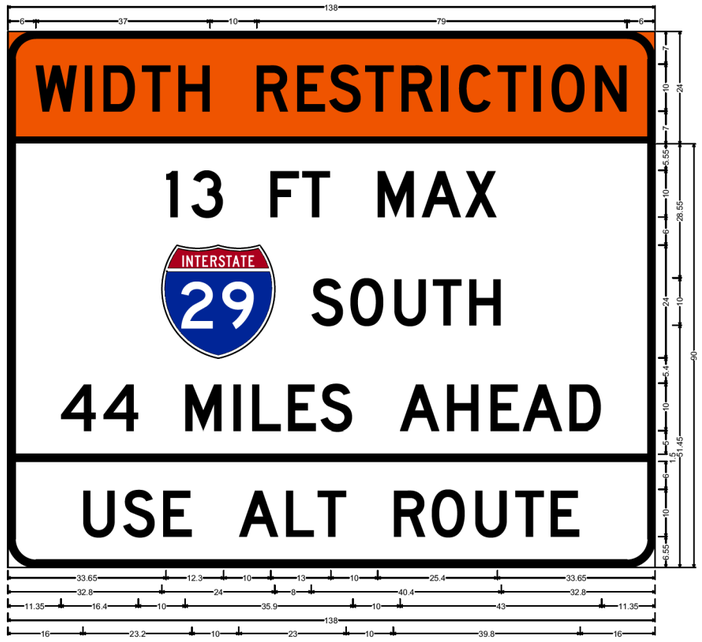
E

3.00" Radius, 1.50" Border, Black on Orange;
"OVERWIDTH", D 2K; "VEHICLES", D 2K; "EXIT NOW", D 2K;
Table of widths and spaces

	O		V		E		R		W		I		D		T		H	
13.00	7.10	1.30	7.60	1.50	6.20	1.70	6.80	0.80	8.90	1.50	1.60	2.40	6.80	1.30	6.20	1.50	6.80	13.00

	V		E		H		I		C		L		E		S	
17.65	7.60	1.50	6.20	1.70	6.80	2.40	1.60	2.20	6.80	2.20	6.20	1.50	6.20	1.00	6.80	17.65

	E		X		I		T		N		O		W	
17.35	6.20	1.00	6.80	1.70	1.60	1.50	6.20	10.00	6.80	2.20	7.10	1.30	8.90	17.35



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	18	124

Plotting Date: 05/04/2026

OVERWIDTH SIGN LAYOUT

C

6.00" Radius, 1.50" Border, Black on Orange;
"WIDTH RESTRICTION", D 2K;

6.00" Radius, 1.50" Border, Black on White;
"13 FT MAX", D 2K; "SOUTH", D 2K; "44 MILES AHEAD", D 2K; "USE ALT ROUTE", D 2K;
Table of widths and spaces

	W		I		D		T		H
6.00	8.90	1.50	1.60	2.40	6.80	1.30	6.20	1.50	6.80

	R		E		S		T		R		I		C		T		I		O		N	
10.00	6.80	1.70	6.20	1.00	6.80	0.80	6.20	1.50	6.80	1.70	1.60	2.20	6.80	1.30	6.20	1.50	1.60	2.20	7.10	2.20	6.80	6.00

	1		3		F		T		M		A		X	
33.65	2.50	3.00	6.80	10.00	6.20	0.60	6.20	10.00	7.80	1.50	8.50	0.80	6.80	33.65

			S		O		U		T		H	
32.80	24.00	8.00	6.80	1.50	7.10	2.20	6.80	1.50	6.20	1.50	6.80	32.80

	4		4		M		I		L		E		S		A		H		E		A		D	
11.35	7.50	1.40	7.50	10.00	7.80	2.40	1.60	2.40	6.20	1.50	6.20	1.00	6.80	10.00	8.50	1.50	6.80	2.40	6.20	0.80	8.50	1.50	6.80	11.35

	—	
-0.00	138.00	0.00

	U		S		E		A		L		T		R		O		U		T		E	
16.00	6.80	1.70	6.80	1.70	6.20	10.00	8.50	1.50	6.20	0.60	6.20	10.00	6.80	1.50	7.10	2.20	6.80	1.50	6.20	1.50	6.20	16.00

D

6.00" Radius, 1.50" Border, Black on Orange;
"WIDTH RESTRICTION", D 2K;

6.00" Radius, 1.50" Border, Black on White;
"13 FT MAX", D 2K; "SOUTH", D 2K; "14 MILES AHEAD", D 2K; "USE ALT ROUTE", D 2K;
Table of widths and spaces

	W		I		D		T		H
6.00	8.90	1.50	1.60	2.40	6.80	1.30	6.20	1.50	6.80

	R		E		S		T		R		I		C		T		I		O		N	
10.00	6.80	1.70	6.20	1.00	6.80	0.80	6.20	1.50	6.80	1.70	1.60	2.20	6.80	1.30	6.20	1.50	1.60	2.20	7.10	2.20	6.80	6.00

	1		3		F		T		M		A		X	
33.65	2.50	3.00	6.80	10.00	6.20	0.60	6.20	10.00	7.80	1.50	8.50	0.80	6.80	33.65

			S		O		U		T		H	
32.80	24.00	8.00	6.80	1.50	7.10	2.20	6.80	1.50	6.20	1.50	6.80	32.80

	1		4		M		I		L		E		S		A		H		E		A		D	
13.85	2.50	1.40	7.50	10.00	7.80	2.40	1.60	2.40	6.20	1.50	6.20	1.00	6.80	10.00	8.50	1.50	6.80	2.40	6.20	0.80	8.50	1.50	6.80	13.85

	—	
-0.00	138.00	0.00

	U		S		E		A		L		T		R		O		U		T		E	
16.00	6.80	1.70	6.80	1.70	6.20	10.00	8.50	1.50	6.20	0.60	6.20	10.00	6.80	1.50	7.10	2.20	6.80	1.50	6.20	1.50	6.20	16.00

6.00" Radius, 1.50" Border, Black on White;
"NO VEHICLES", D 2K; "OVER 13 FT WIDE", D 2K 90% spacing;
Table of widths and spaces

	N		O		V		E		H		I		C		L		E		S	
19.60	6.80	2.20	7.10	10.00	7.60	1.50	6.20	1.70	6.80	2.40	1.60	2.20	6.80	2.20	6.20	1.50	6.20	1.00	6.80	19.60

	O		V		E		R		1		3		F		T		W		I		D		E	
6.66	7.10	1.17	7.60	1.35	6.20	1.53	6.80	9.00	2.50	2.70	6.80	9.00	6.20	0.54	6.20	9.00	8.90	1.35	1.60	2.16	6.80	1.98	6.20	6.66

PLOT SCALE - 1:88265.8

PLOTTED FROM - TRAB10200

PLOT NAME - 3

FILE - ...\OVERWIDTH\OVERWIDTH_LAYOUT.DGN

ITEMIZED LIST FOR 09TA TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R2-1	SPEED LIMIT 45	2	36" x 48"	12.0	24.0
R2-1	SPEED LIMIT 65	3	36" x 48"	12.0	36.0
R2-1	SPEED LIMIT 80	1	36" x 48"	12.0	12.0
R2-6aP	FINES DOUBLE (plaque)	1	36" x 24"	6.0	6.0
W3-5	SPEED REDUCTION AHEAD (45 MPH)	1	48" x 48"	16.0	16.0
W3-5	SPEED REDUCTION AHEAD (65 MPH)	2	48" x 48"	16.0	32.0
W4-2	LEFT or RIGHT LANE ENDS (symbol)	2	48" x 48"	16.0	32.0
W20-1	ROAD WORK AHEAD	3	48" x 48"	16.0	48.0
W20-5	LEFT or RIGHT LANE CLOSED AHEAD	4	48" x 48"	16.0	64.0
E5-1bP	EXIT 164	1	60" x 30"	12.5	12.5
G20-2	END ROAD WORK	2	48" x 24"	8.0	16.0
		EXPRESSWAY / INTERSTATE TRAFFIC CONTROL SIGNS SQFT			**298.5**

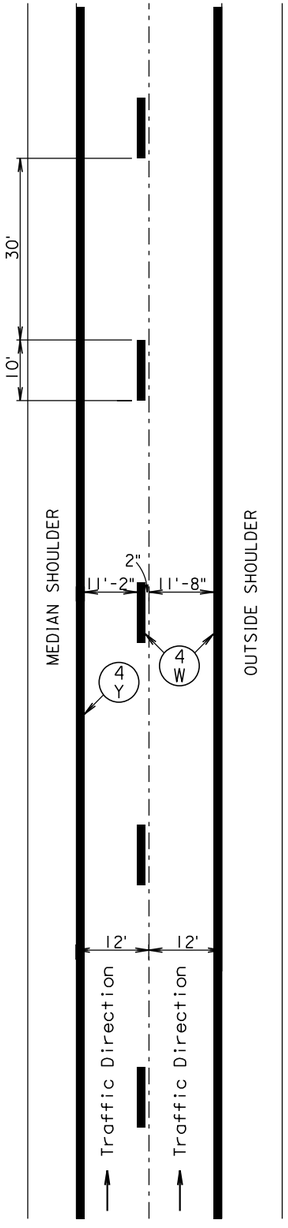
ITEMIZED LIST FOR 09TA DETOUR AND RESTRICTION SIGNING

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT	EXPRESSWAY / INTERSTATE NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R5-5C?	NO VEHICLES OVER 13 FT WIDE					1	126" x 42"	36.8	36.8
R5-5C?	OVERWIDTH VEHICLES EXIT NOW					1	96" x 66"	44.0	44.0
SPECIAL	WIDTH RESTRICTION 13 FT WIDE 44 MILES AHEAD	2	114" x 102"	80.8	161.6				
SPECIAL	WIDTH RESTRICTION 13 FT WIDE 14 MILES AHEAD	2	114" x 102"	80.8	161.6				
SPECIAL	WIDTH RESTRICTION 13 FT WIDE 44 MILES AHEAD					1	138" x 114"	109.3	109.3
SPECIAL	WIDTH RESTRICTION 13 FT WIDE 14 MILES AHEAD					1	138" x 114"	109.3	109.3
		CONVENTIONAL ROAD DETOUR AND RESTRICTION SIGNING SQFT			**323.2**	**EXPRESSWAY / INTERSTATE DETOUR AND RESTRICTION SIGNING SQFT**			**299.4**

PLOT SCALE - 1:200
PLOTTED FROM - TRAB10200

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	20	124
Plotting Date: 10/15/2025			

FOUR LANE
PAVEMENT MAKING
ONLY ONE DIRECTION SHOWN



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

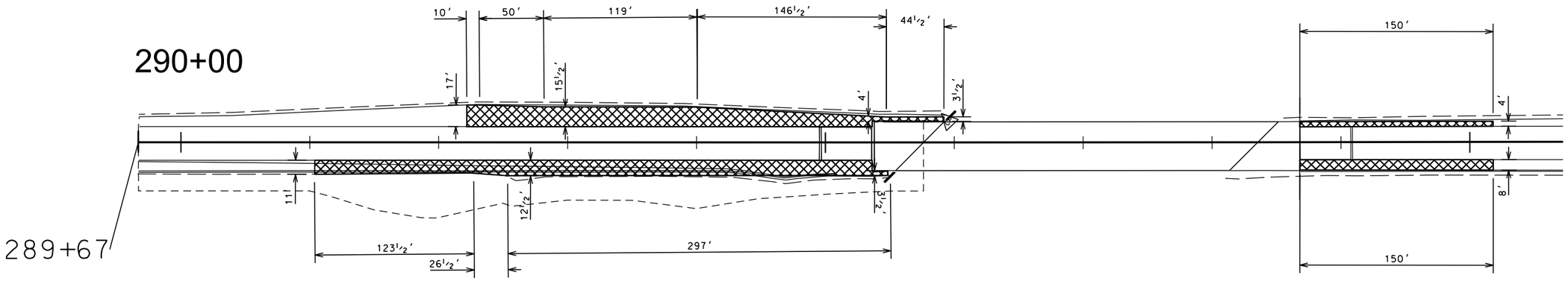
ESTIMATE OF QUANTITIES		
DURABLE PAVEMENT MARKINGS	QUANTITY	
WHITE	450	FEET
YELLOW	100	FEET
TOTAL	550	FEET

PLOT NAME - 1
FILE - ...\STDPLATEPAGESEED_091A_PAVEMENT_MARKINGS.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	21	124

Plotting Date: 03/16/2026

Remove Asphalt Concrete Pavement
Str. No. 29–299–040

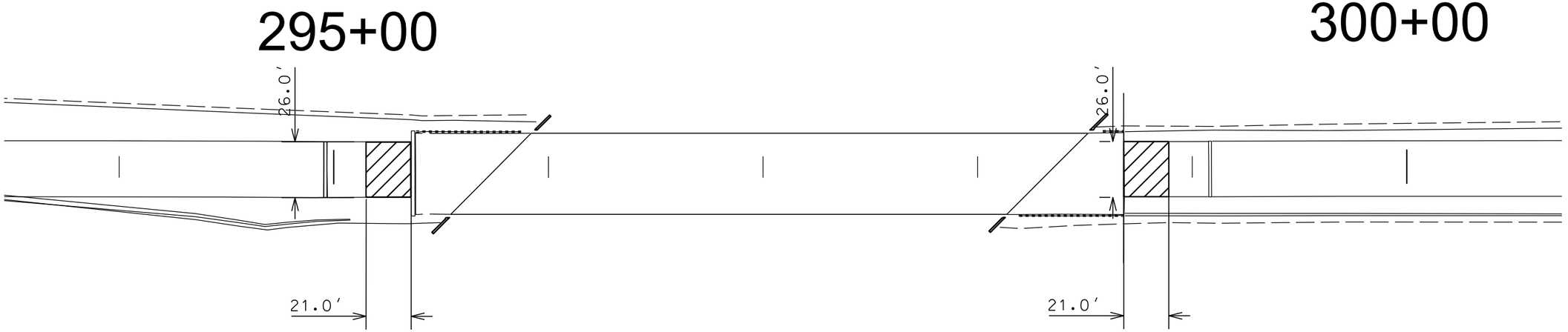


Estimated Quantities	Str. No.	29-299-040			
	Location	SBL Median		SBL Outside	
Item		Quantity	Unit	Quantity	Unit
Remove Asphalt Concrete Pavement		689.3	SqYd	574.1	SqYd

Remove Asphalt Concrete Pavement

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	22	124
Plotting Date: 03/26/2026			

Remove and Replace Concrete Pavement
Str. No. 29–299–040



Remove and Replace Concrete Pavement

PLOT SCALE - 1:69.1998

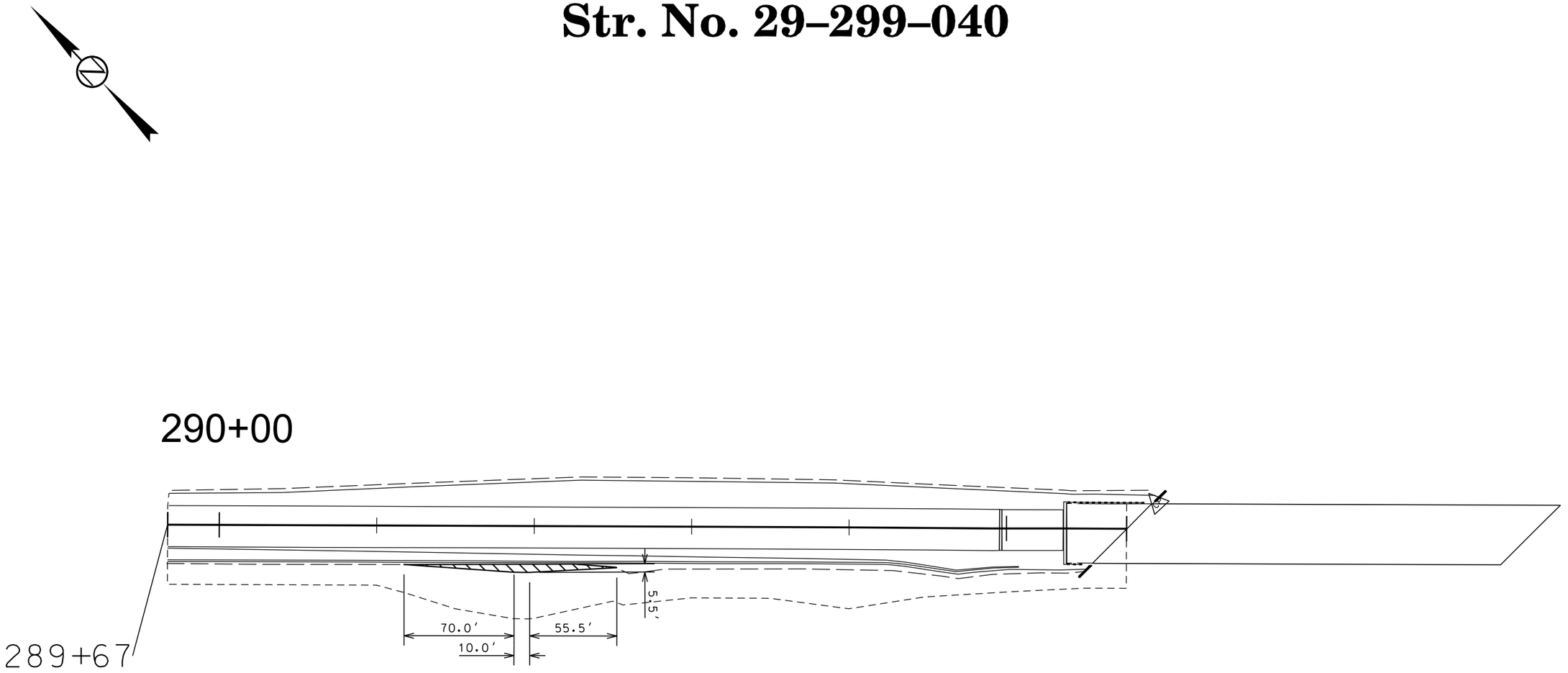
PLOTTED FROM - TRAB10200

PLOT NAME - 3

FILE -...\GUARDRAIL\E09TA.DGN

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	23	124
Plotting Date: 03/26/2026			

Guardrail Excavation and Embankment
Str. No. 29–299–040

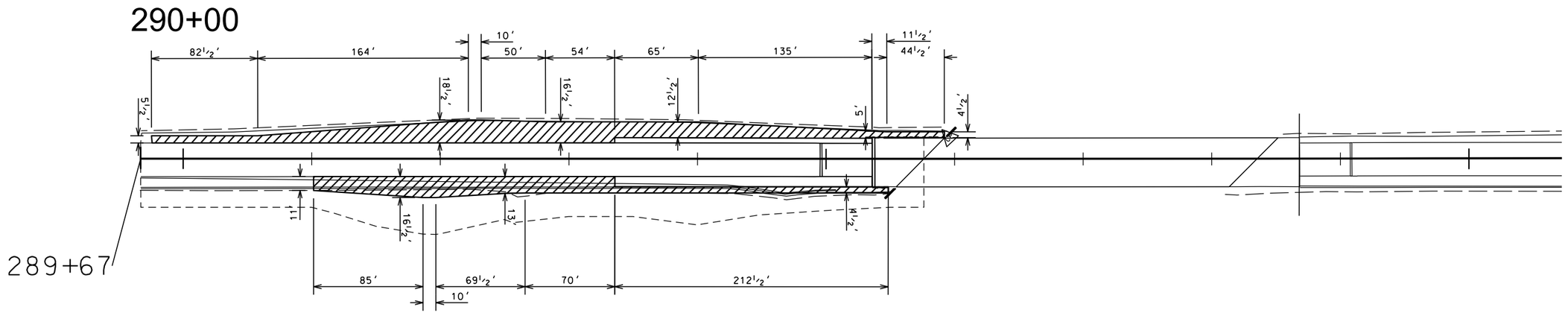


Unclassified Excavation
Guardrail Embankment – 20.5" of base course

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	24	124

Plotting Date: 03/16/2026

Asphalt Concrete Composite
Str. No. 29–299–040



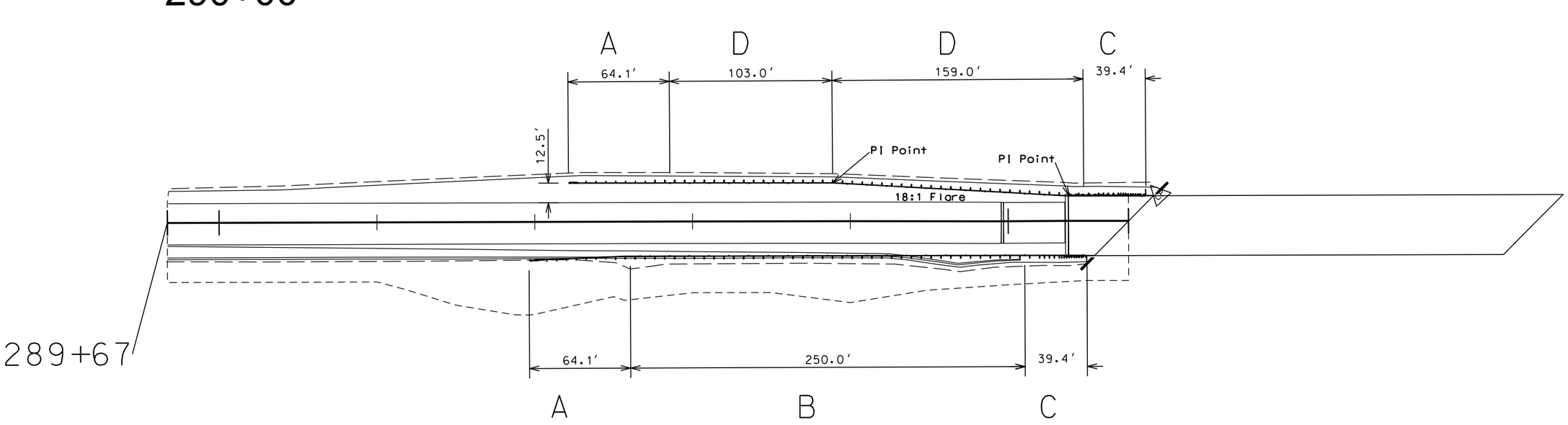
Estimated Quantities	Str. No.	29-299-040			
	Location	SBL Median		SBL Outside	
Item		Quantity	Unit	Quantity	Unit
3" Asphalt Concrete Composite		119.0	Ton	78.4	Ton

3" Asphalt Concrete Composite

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	25	124

Plotting Date: 03/26/2026

Guardrail Layout
Str. No. 29–299–040



A – MGS MASH Tangent End Terminal

B – Type 1 MGS

C – Type 1 Guardrail Transition

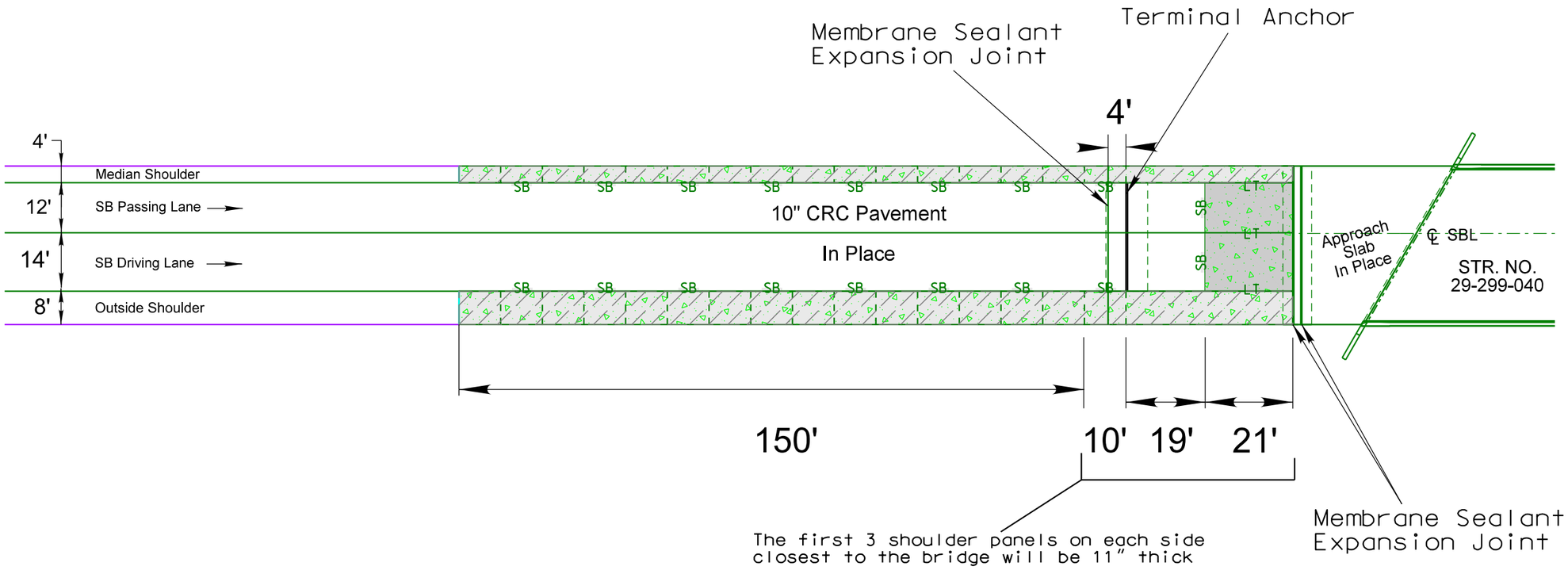
D – Remove and Reset Type 1 MGS

Revised
05/11/2026 8:51:42 AM

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0296(35)164	26	124

Plotting Date: 05/11/2026

Shoulder Strengthening & PCC Pavement
Str. No. 29–299–040 SBL at Begin Bridge



Estimated Quantities	Str. No.	29-299-040			
	Location	Phase 1		Phase 2	
Item		Quantity	Unit	Quantity	Unit
11" Nonreinforced PCC Pavement		28.0	SqYd	32.7	SqYd
PCC Shoulder Pavement (11" Depth)		22.2	SqYd	44.4	SqYd
PCC Shoulder Pavement (8" Depth)		66.7	SqYd	133.3	SqYd
Insert Steel Bar in PCC Pavement		83	Each	84	Each
Membrane Sealant Expansion Joint		32	Ft	44	Ft

LEGEND:
Sawed Longitudinal Joint with Tie Bars or
Longitudinal Construction Joint With Tie Bars — LT — LT — LT —
Transverse Contraction Joints
Placed approximately every 10' in PCC Shoulders - - - - - - - - - - - - - - -
Steel Bar Insertion in Longitudinal or Transverse Joints — SB — SB —

Transverse contraction joints within these areas will not have dowel bar assemblies. All other transverse contraction joints will have dowel bar assemblies.

PCC Shoulder Pavement (8" depth - Shoulder Strengthening)

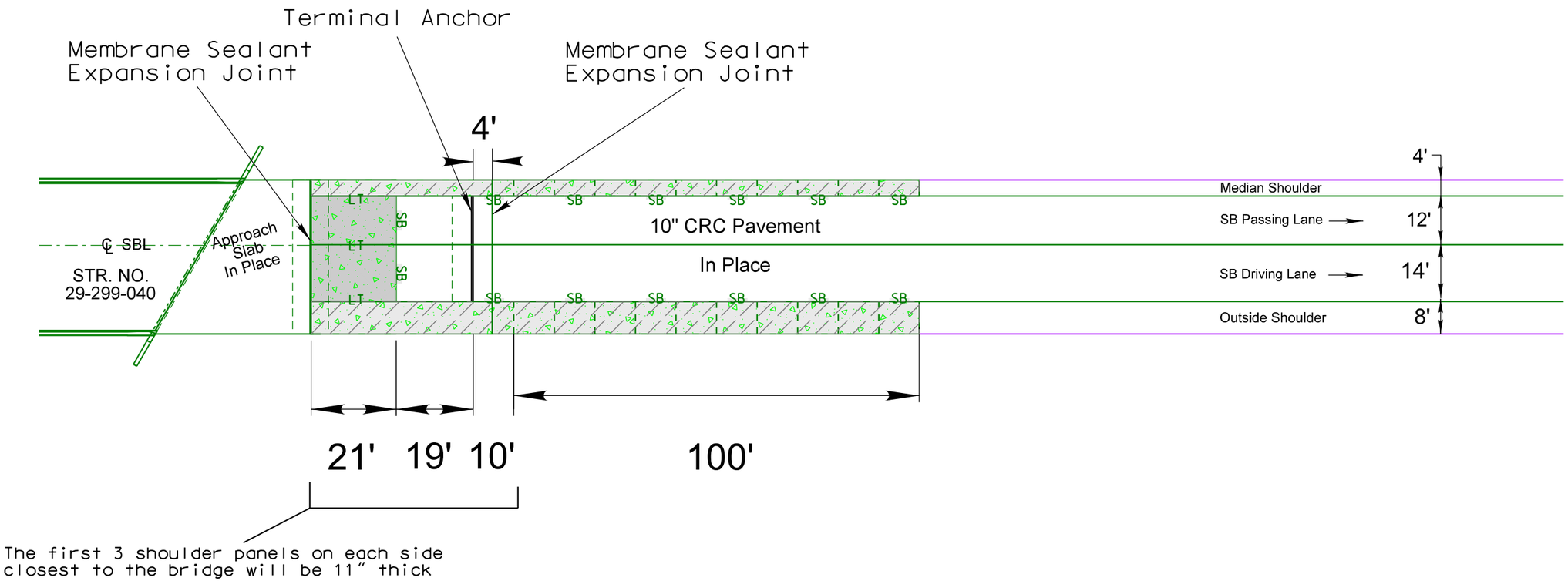
11" Nonreinforced PCC Pavement (adjacent to Sleeper Slab)

Revised
05/11/2026 8:52:44 AM

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0296(35)164	27	124

Plotting Date: 05/11/2026

Shoulder Strengthening & PCC Pavement
Str. No. 29–299–040 SBL at End Bridge



Estimated Quantities	Str. No.	29-299-040			
	Location	Phase 1		Phase 2	
Item		Quantity	Unit	Quantity	Unit
11" Nonreinforced PCC Pavement		28.0	SqYd	32.7	SqYd
PCC Shoulder Pavement (11" Depth)		22.2	SqYd	44.4	SqYd
PCC Shoulder Pavement (8" Depth)		44.4	SqYd	88.9	SqYd
Insert Steel Bar in PCC Pavement		63	Each	64	Each
Membrane Sealant Expansion Joint		32	Ft	44	Ft

LEGEND:
Sawed Longitudinal Joint with Tie Bars or
Longitudinal Construction Joint With Tie Bars — LT — LT — LT —
Transverse Contraction Joints
Placed approximately every 10' in PCC Shoulders - - - - - - - - - - - - - - - -
Steel Bar Insertion in Longitudinal or Transverse Joints — SB — SB —

Transverse contraction joints within these areas will not have dowel bar assemblies. All other transverse contraction joints will have dowel bar assemblies.

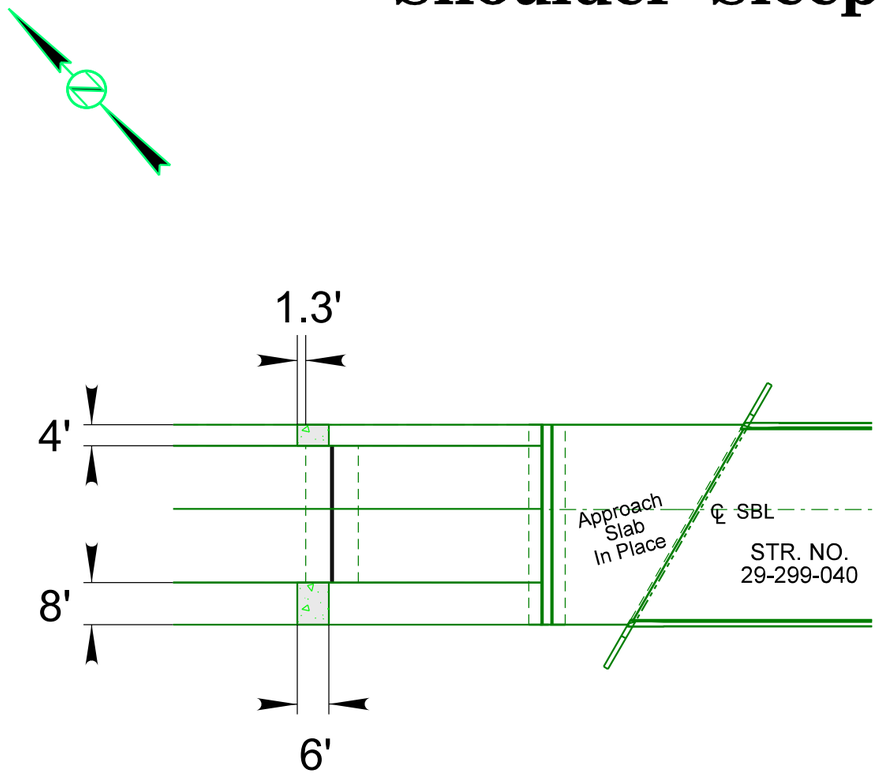
PCC Shoulder Pavement (8" depth - Shoulder Strengthening)

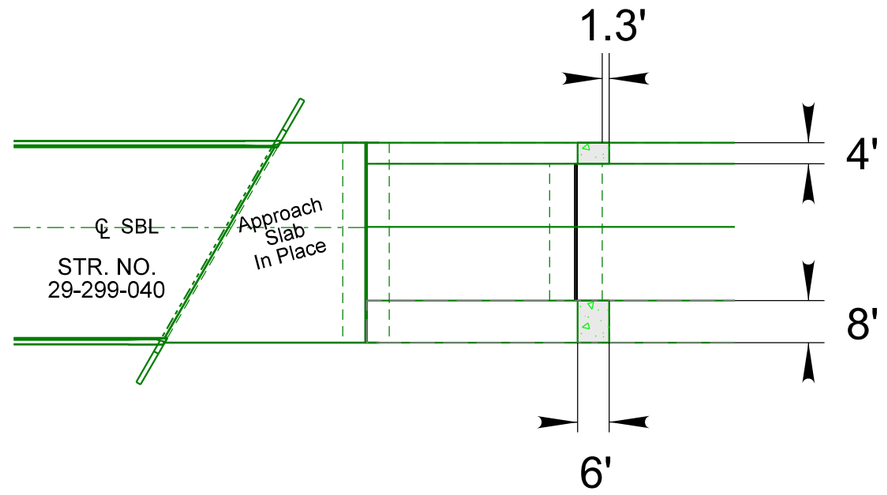
11" Nonreinforced PCC Pavement (adjacent to Sleeper Slab)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	IM 0296(35)164	28	124

Plotting Date: 04/27/2026

Shoulder Sleeper Slab Installation





Estimated Quantities	Str. No.	29-299-040			
	Location	Phase 1		Phase 2	
Item		Quantity	Unit	Quantity	Unit
6" Nonreinforced PCC Pavement		5.3	SqYd	10.7	SqYd
Epoxy Coated Reinforcing Steel		30	Lbs	50	Lbs

A 6" sleeper slab will be installed on the shoulders in the locations show in the plans. Concrete will be paid for as "6" Nonreinforced PCC Pavement" reinforcing steel will be paid for as "Epoxy Coated Reinforcing Steel".

The 6" sleeper slabs will be dowelled to the existing sleeper slab in accordance to Standard Plate 380.20.

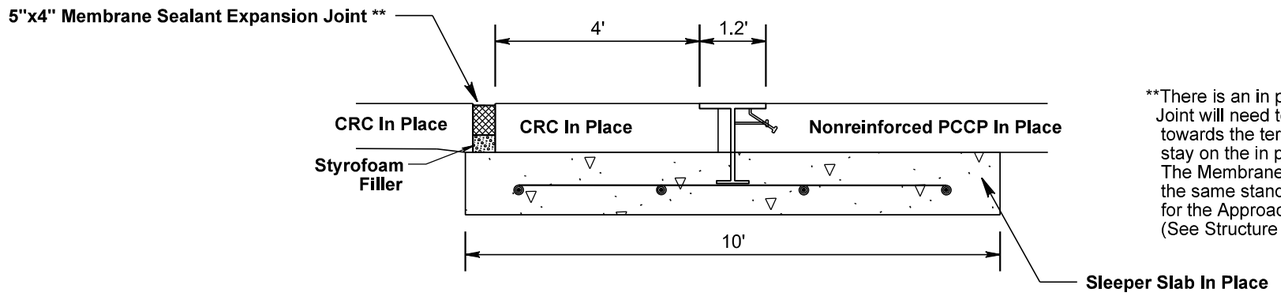
LEGEND:

Sleeper Slab (6" thick)

Existing Sleeper Slab

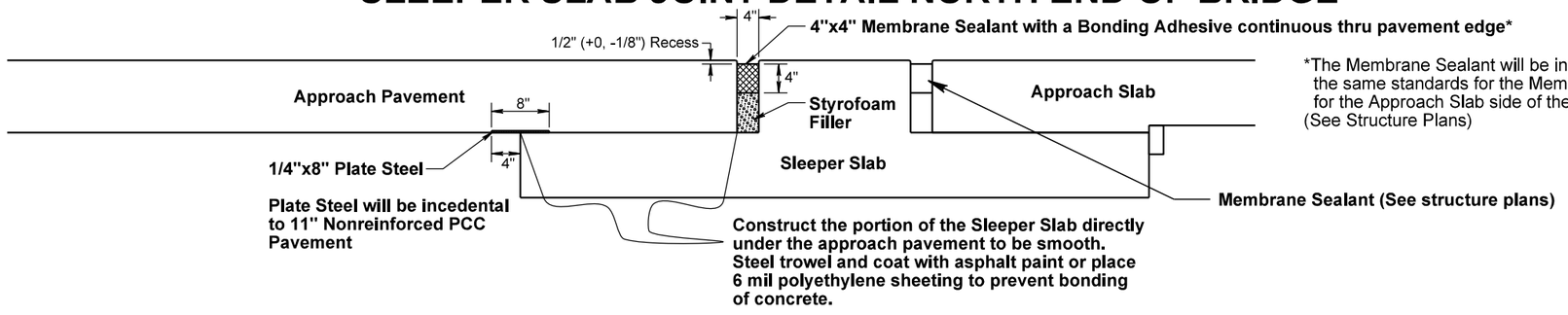
MEMBRANE SEALANT LAYOUTS

TERMINAL ANCHOR JOINT DETAIL NORTH END OF BRIDGE (SOUTH END OF BRIDGE REVERSED)



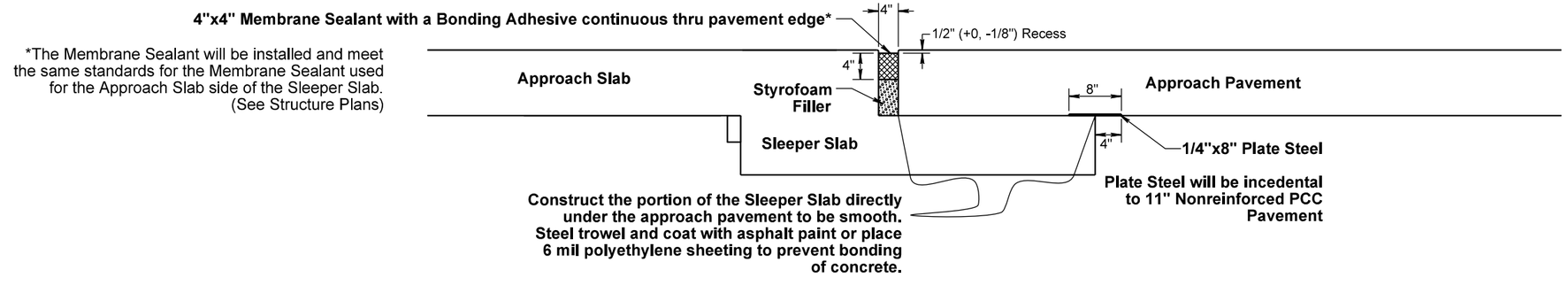
**There is an in place saw cut joint at this location already. Joint will need to be cut to a 5" width. Joint will be cut towards the terminal anchor side to ensure both slabs stay on the in place sleeper slab. The Membrane Sealant will be installed and meet the same standards for the Membrane Sealant used for the Approach Slab side of the Sleeper Slab. (See Structure Plans)

SLEEPER SLAB JOINT DETAIL NORTH END OF BRIDGE



*The Membrane Sealant will be installed and meet the same standards for the Membrane Sealant used for the Approach Slab side of the Sleeper Slab. (See Structure Plans)

SLEEPER SLAB JOINT DETAIL SOUTH END OF BRIDGE

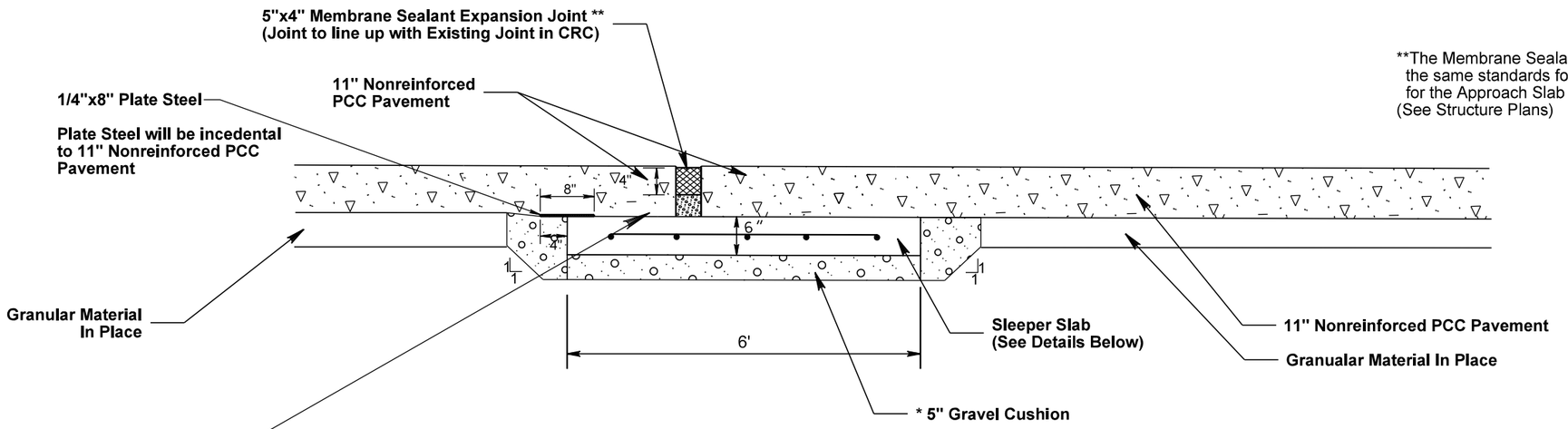


*The Membrane Sealant will be installed and meet the same standards for the Membrane Sealant used for the Approach Slab side of the Sleeper Slab. (See Structure Plans)

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	30	124

Plotting Date: 04/23/2026

SHOULDER SLEEPER SLAB AT TERMINAL ANCHOR LAYOUT

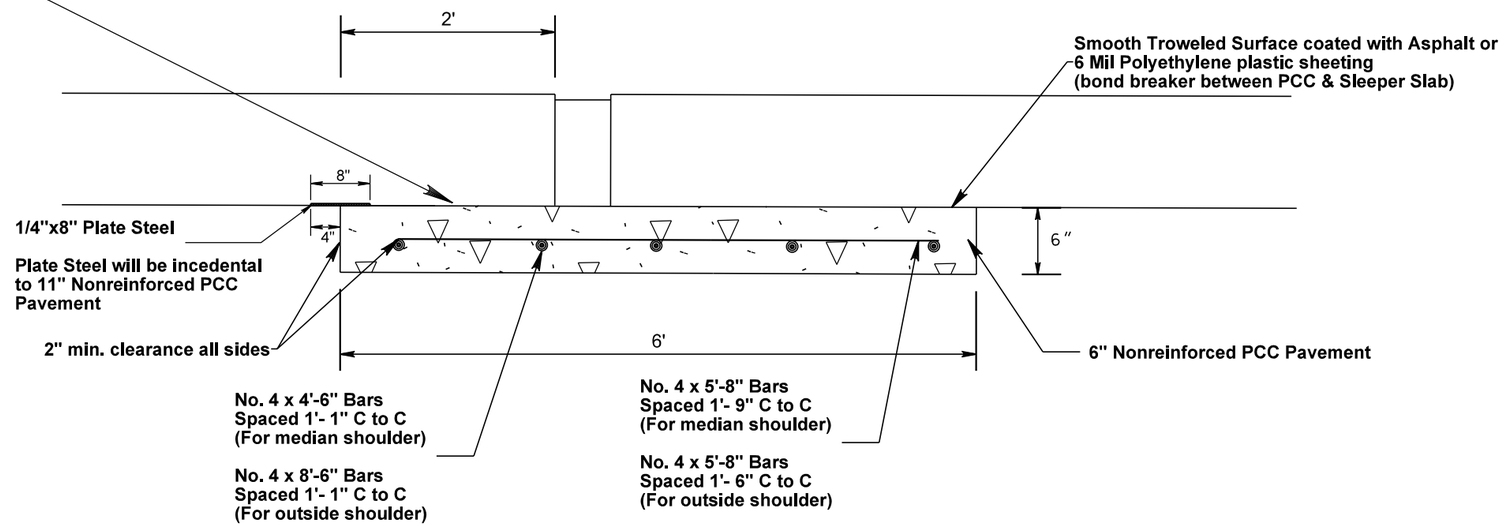


**The Membrane Sealant will be installed and meet the same standards for the Membrane Sealant used for the Approach Slab side of the Sleeper Slab. (See Structure Plans)

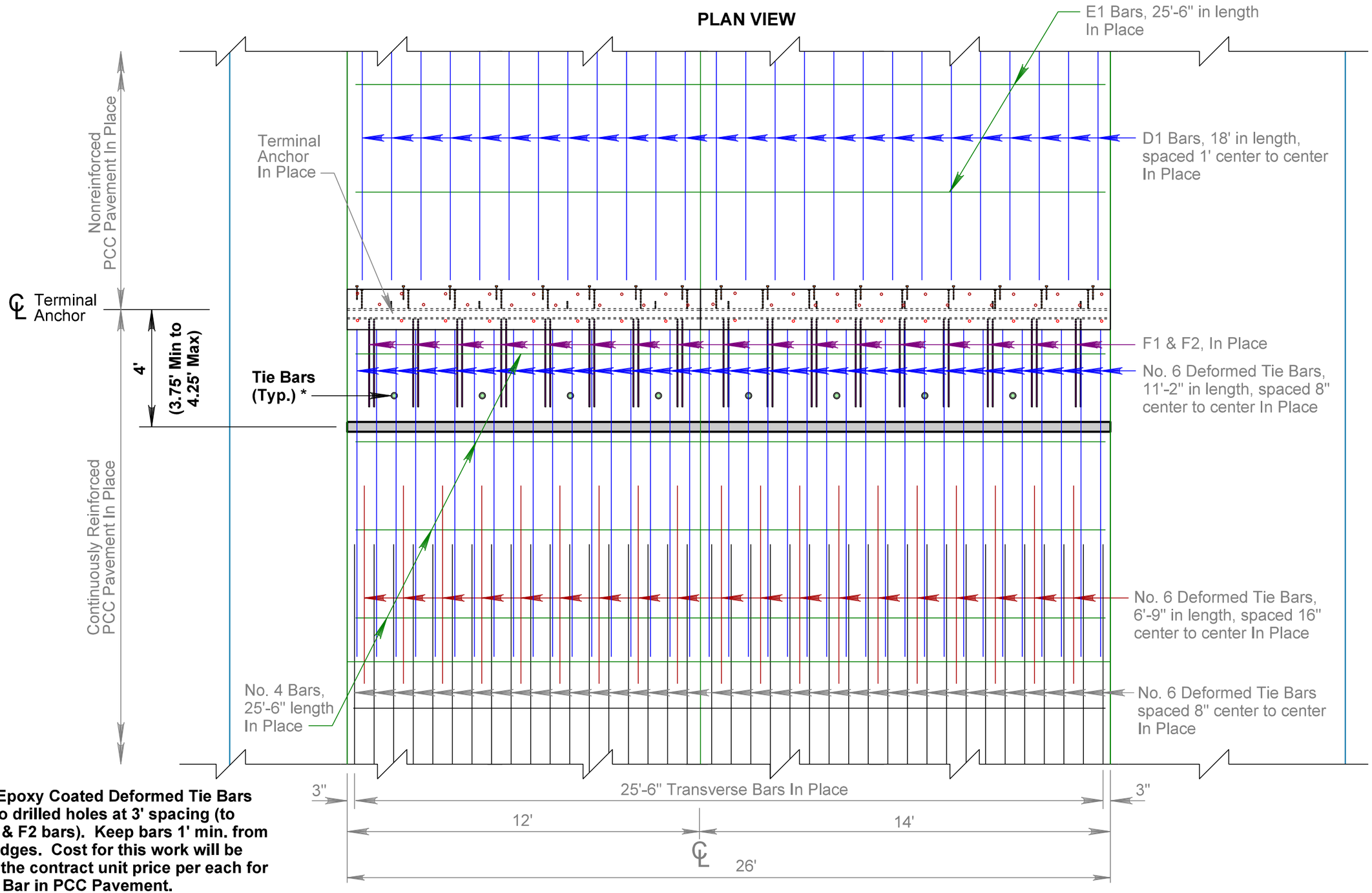
*** Cost to remove material and for installation of Gravel Cushion to the limits shown above for the shoulder sleeper slab will be incidental to the contract unit price per square yard for 6" Nonreinforced PCC Pavement. The granular material for Gravel Cushion will be meeting the requirement of Section 882.**

Construct the portion of the Sleeper Slab directly under the approach pavement to be smooth. Steel trowel and coat with asphalt paint or place 6 mil polyethylene sheeting to prevent bonding of concrete.

SLEEPER SLAB DETAILS

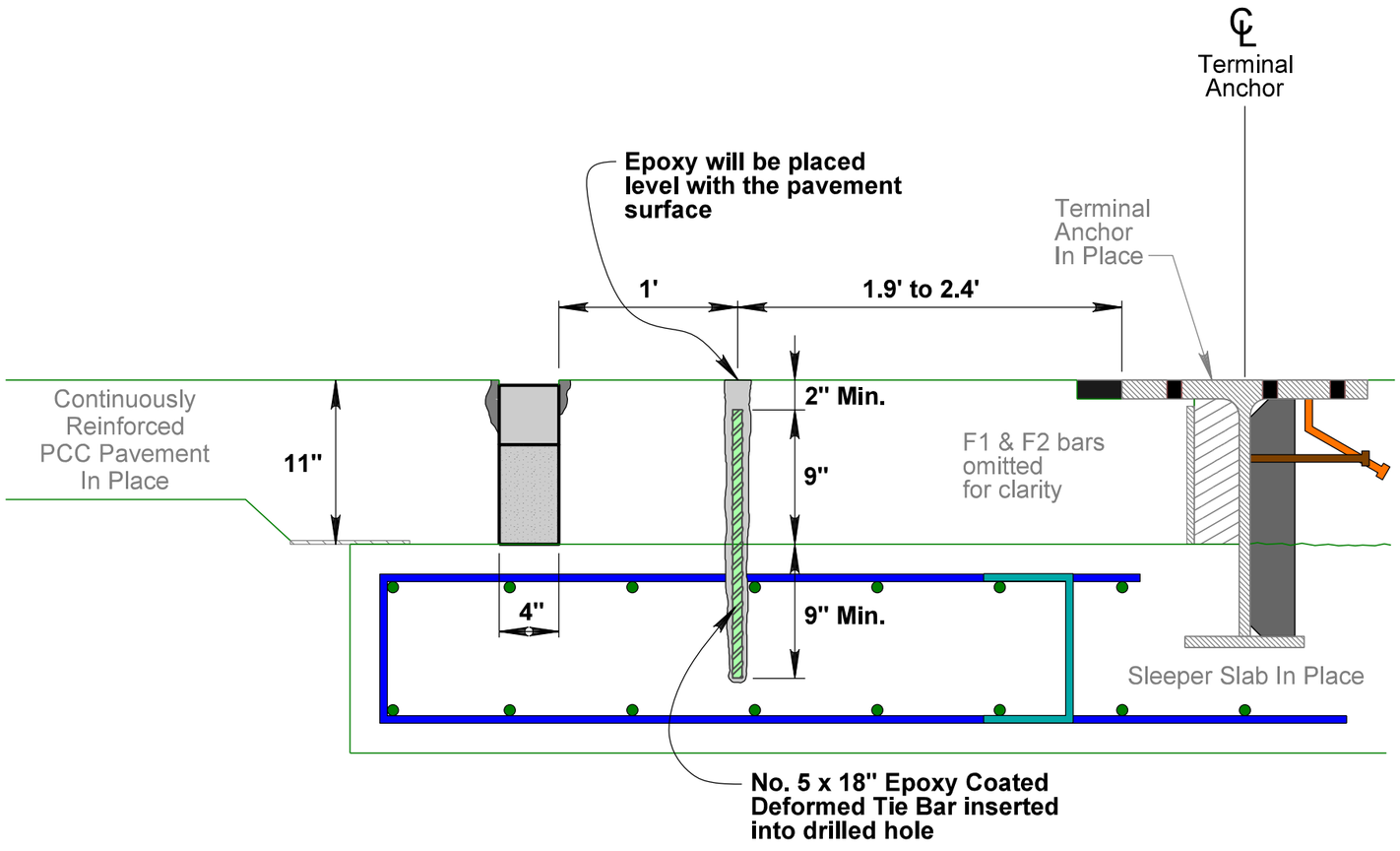


INSTALL VERTICAL TIE BARS



*** No. 5 x 18" Epoxy Coated Deformed Tie Bars inserted into drilled holes at 3' spacing (to straddle F1 & F2 bars). Keep bars 1' min. from pavement edges. Cost for this work will be included in the contract unit price per each for Insert Steel Bar in PCC Pavement.**

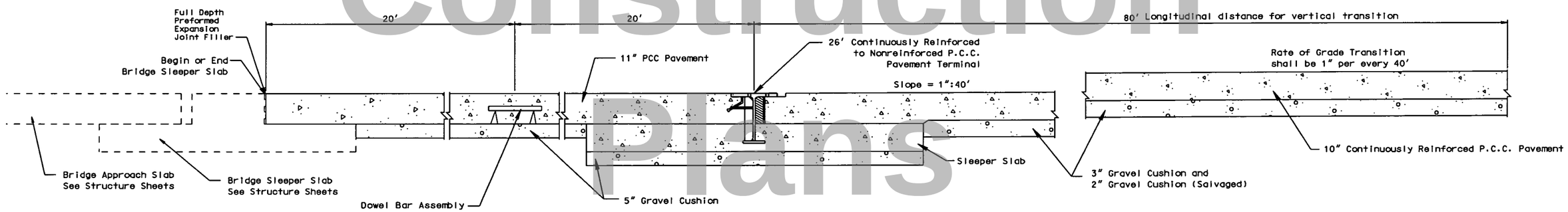
INSTALL VERTICAL TIE BARS



PLACEMENT OF CONTINUOUSLY REINFORCED TO NONREINFORCED PCC PAVEMENT TERMINAL ADJACENT TO BRIDGE APPROACH SLAB AT:

STA. 294+95.82
STA. 426+82.98
STA. 429+54.07
STA. 582+59.01
STA. 586+16.99

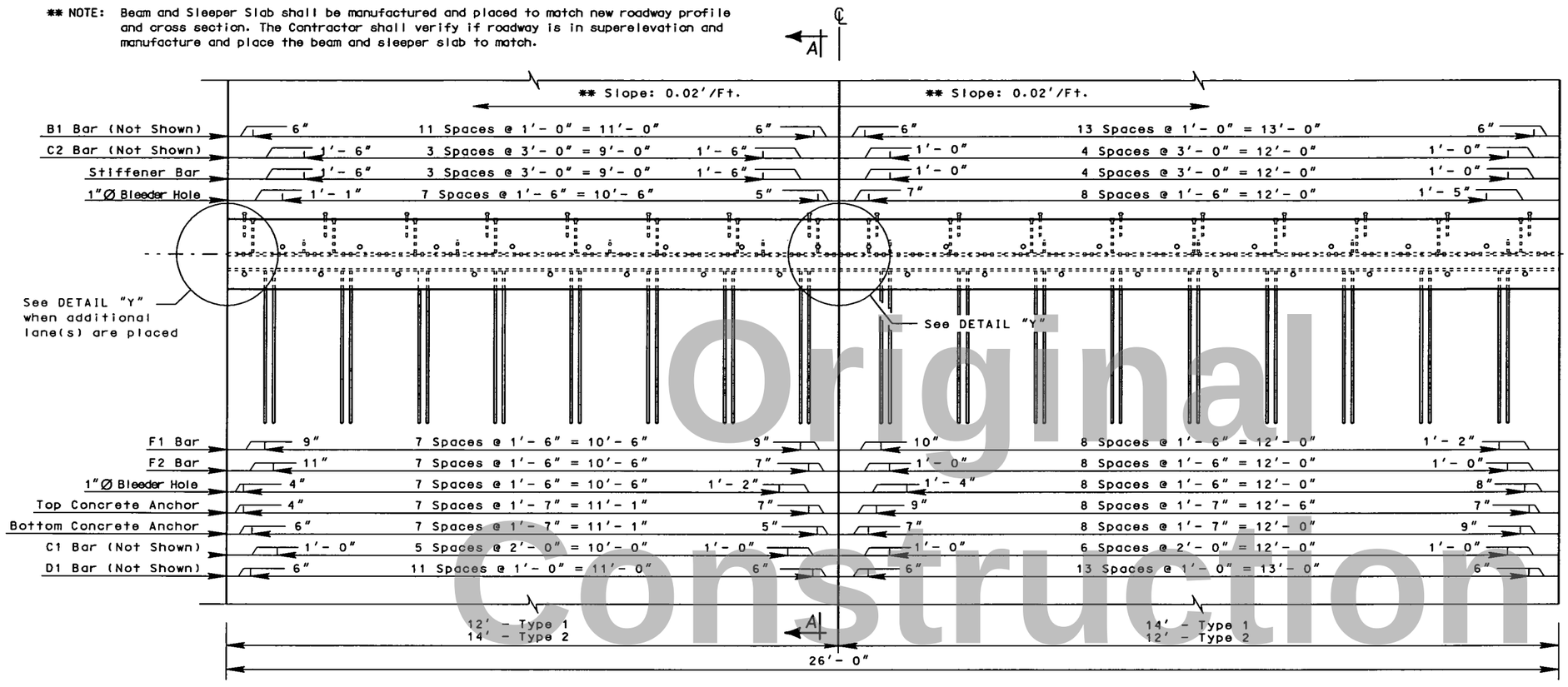
(Longitudinal Section at Centerline of Pavement)



STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	IM 0296(35)164	34	124

26′ CONTINUOUSLY REINFORCED TO NONREINFORCED PCC PAVEMENT TERMINAL

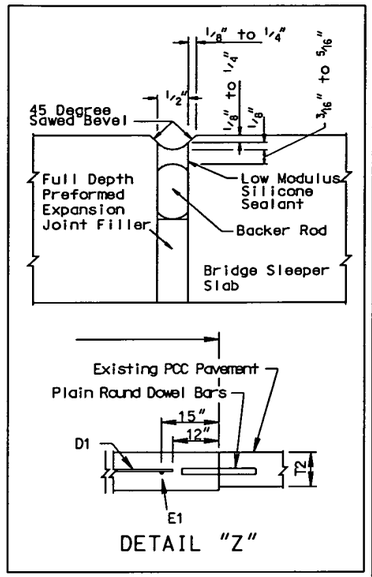
** NOTE: Beam and Sleeper Slab shall be manufactured and placed to match new roadway profile and cross section. The Contractor shall verify if roadway is in superelevation and manufacture and place the beam and sleeper slab to match.



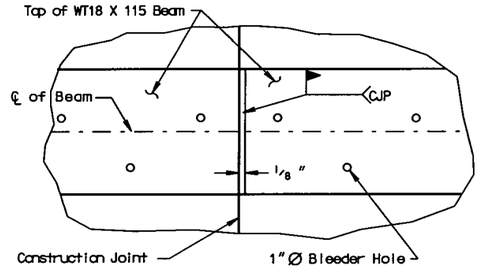
PLAN (Type 1)

Note: Type 2 - The pavement terminal shown in the plan view shall have the crown point moved 2′

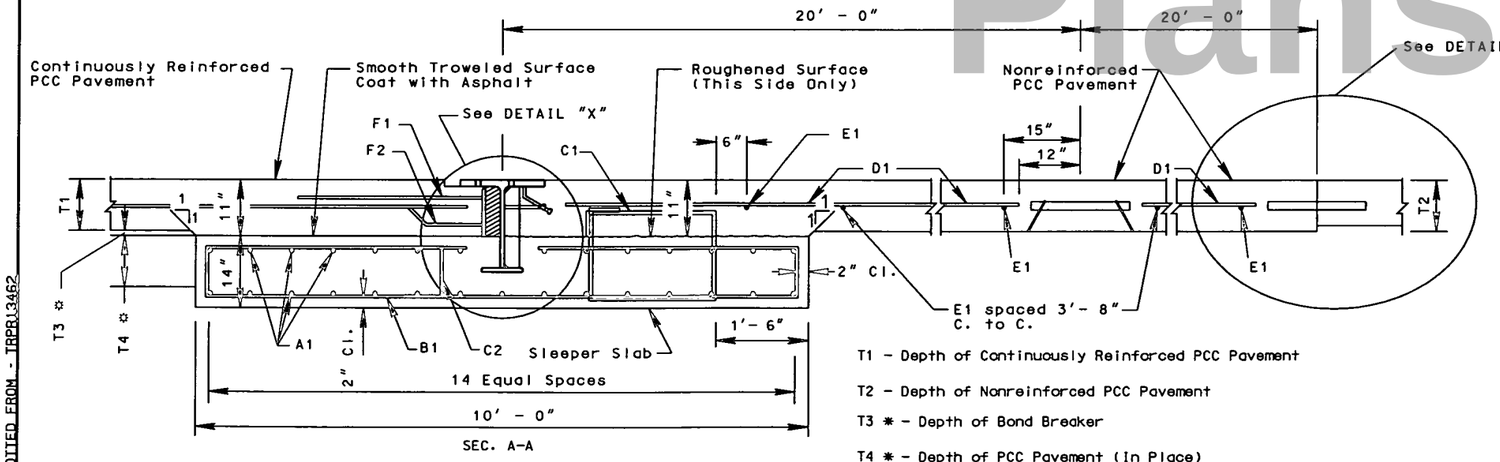
End View
See Detail "X"



DETAIL "Z"



DETAIL "Y"



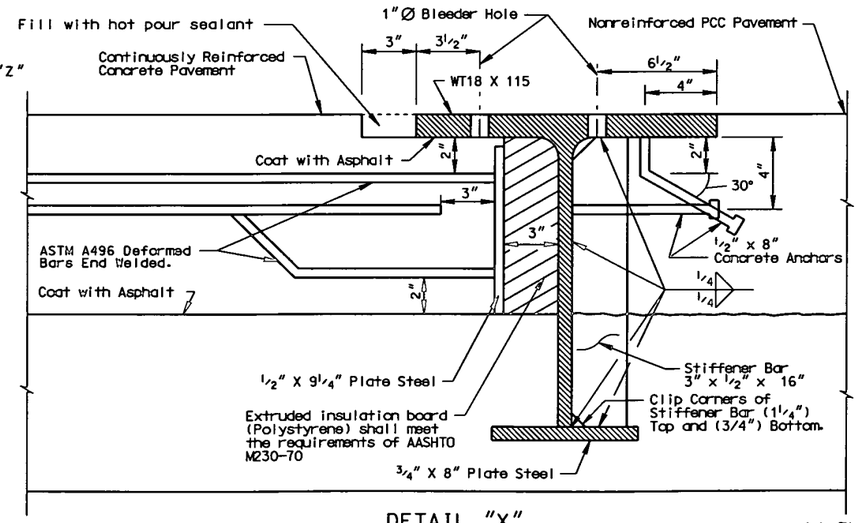
T1 - Depth of Continuously Reinforced PCC Pavement

T2 - Depth of Nonreinforced PCC Pavement

T3 * - Depth of Bond Breaker

T4 * - Depth of PCC Pavement (In Place)

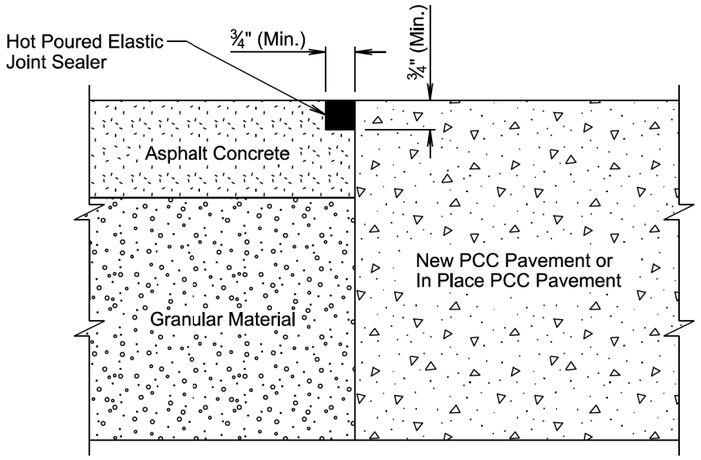
* To be used in Unbonded Overlay Only



DETAIL "X"

PCC PAVEMENT CONTINUOUSLY REINFORCED 1 of 6

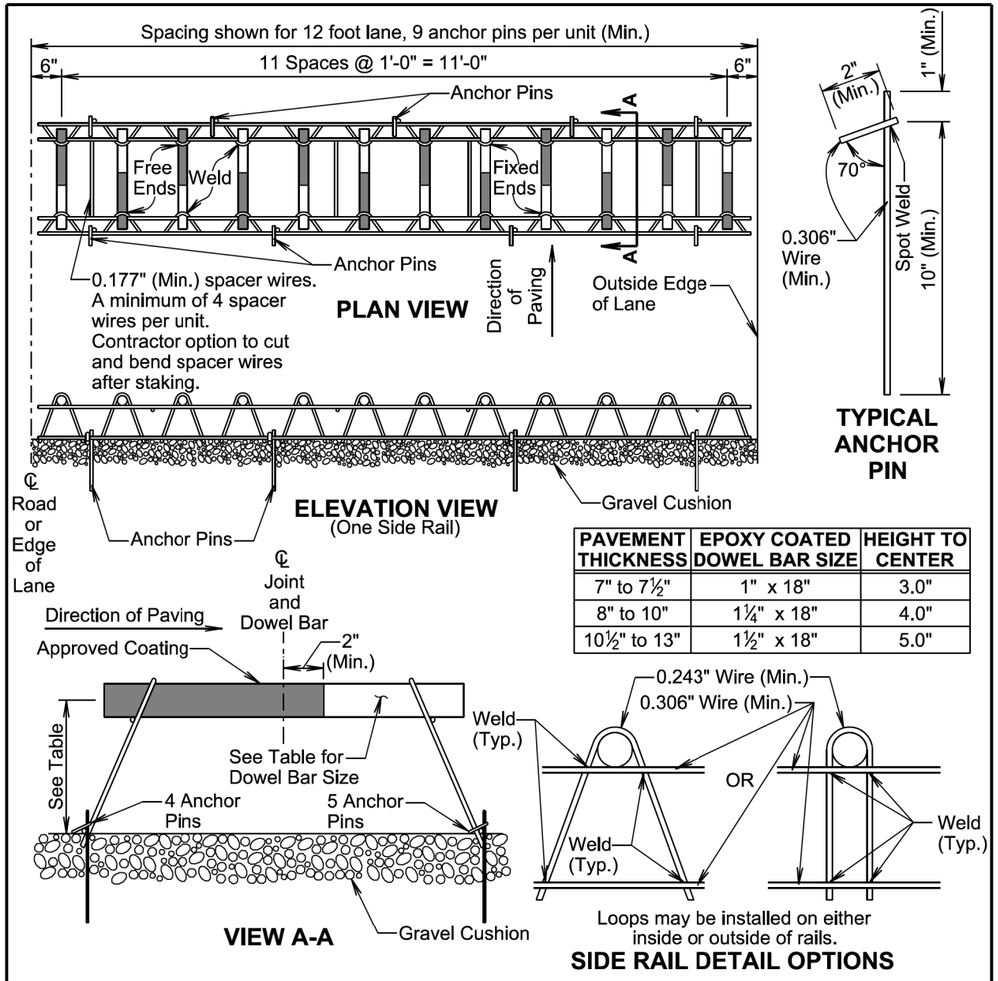
July 31, 2002



TRANSVERSE SECTION
(Asphalt Concrete Shoulder Joint)

September 14, 2019

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



PAVEMENT THICKNESS	EPOXY COATED DOWEL BAR SIZE	HEIGHT TO CENTER
7" to 7½"	1" x 18"	3.0"
8" to 10"	1¼" x 18"	4.0"
10½" to 13"	1½" x 18"	5.0"

GENERAL NOTES:

Longitudinal joint tie bars will be placed a minimum of 15 inches from the transverse contraction joint.

The transverse contraction joints will be sawed perpendicular to the centerline of the roadway. The transverse sawed joint will be centered over the dowel bars.

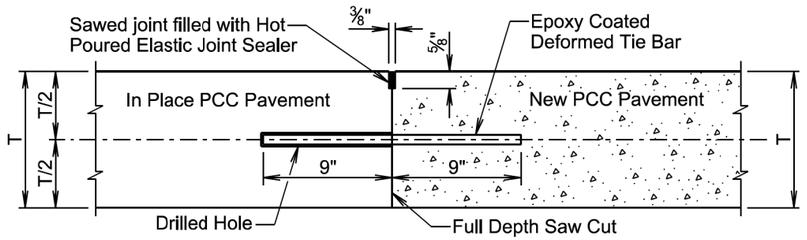
Supporting devices as shown on this sheet, or equivalent as approved by the Engineer, will be used to maintain proper horizontal and vertical alignment of the dowel bars.

All dowel bar alignment tolerances will be as shown in the PCC Pavement Dowel Bar Alignment Tolerances standard plate.

November 19, 2022

Published Date: 2026	SDDOT	*PCC PAVEMENT DOWEL BAR ASSEMBLY FOR TRANSVERSE CONTRACTION JOINTS 12 Bar Assembly on Granular Base Material*	*PLATE NUMBER* 380.04
			Sheet 1 of 1

DETAIL A
TRANSVERSE CONSTRUCTION JOINT WITH TIE BARS



T = In Place PCC Pavement and New PCC Pavement Thickness

GENERAL NOTES:

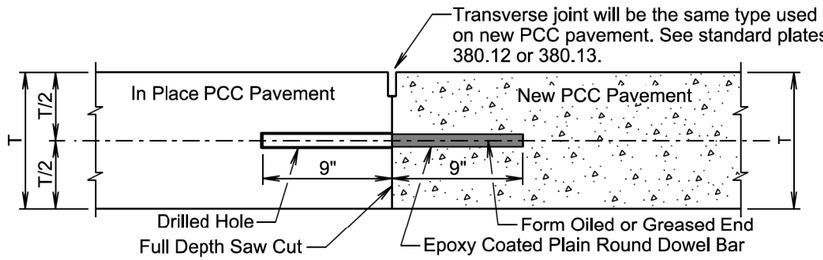
The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project.

See sheet 2 of 2 of this standard plate to determine if Detail A will be used.

The tie bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

No. 9 epoxy coated deformed tie bars will be used in 10 inch thickness and less PCC Pavement and No. 11 epoxy coated deformed tie bars will be used in 10.5 inch thickness and greater PCC Pavement. The tie bar spacing will be 18 inches center to center and will be a minimum of 3 inches and a maximum of 9 inches from the pavement edges.

DETAIL B
TRANSVERSE CONSTRUCTION JOINT WITH DOWEL BARS



GENERAL NOTES: T = In Place PCC Pavement and New PCC Pavement Thickness

The term "In Place PCC Pavement" in the above drawing indicates that the in place PCC pavement was placed on a previous project or current project.

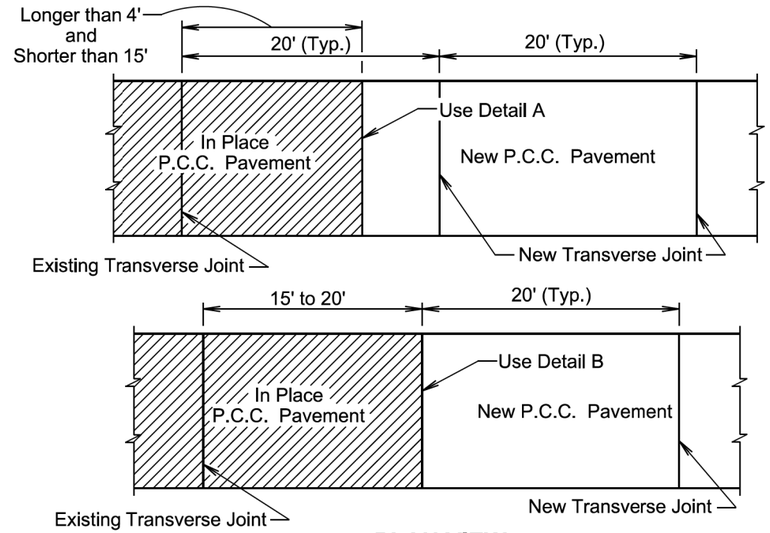
See sheet 2 of 2 of this standard plate to determine if Detail B will be used.

The plain round dowel bars will be embedded a minimum depth of 9 inches into the in place PCC pavement and anchored with an epoxy resin adhesive or a non-shrink grout.

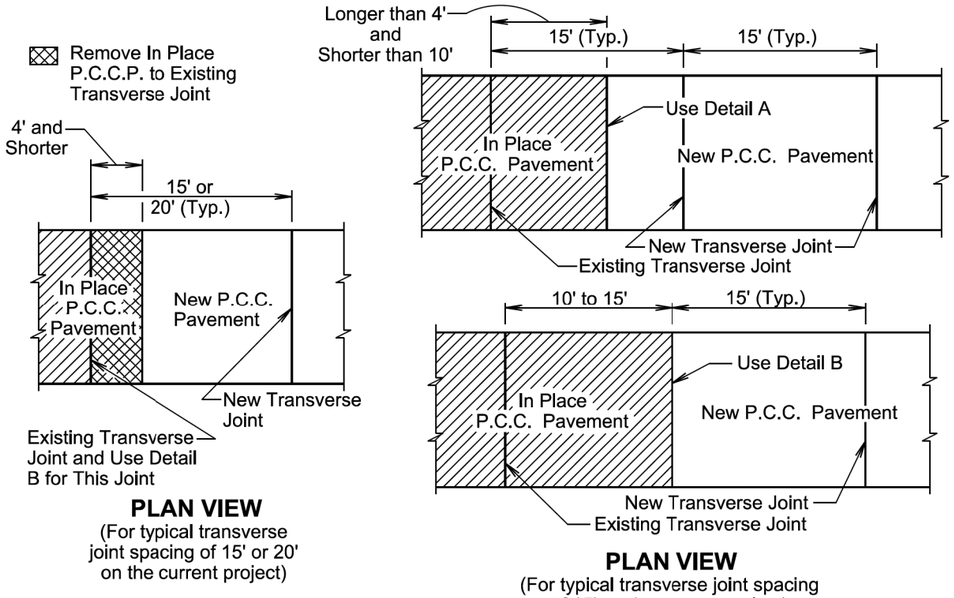
The epoxy coated plain round dowel bar size, number, and spacing will be the same as detailed on the corresponding dowel bar assembly standard plate (380.04, 380.05, 380.06, or 380.07). The epoxy coated plain round dowel bars will be a minimum of 3 inches and a maximum of 6 inches from the pavement edges.

January 22, 2023

Published Date: 2026	SDDOT	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.15
			Sheet 1 of 2



PLAN VIEW
(For typical transverse joint spacing of 20' on the current project)



PLAN VIEW
(For typical transverse joint spacing of 15' or 20' on the current project)

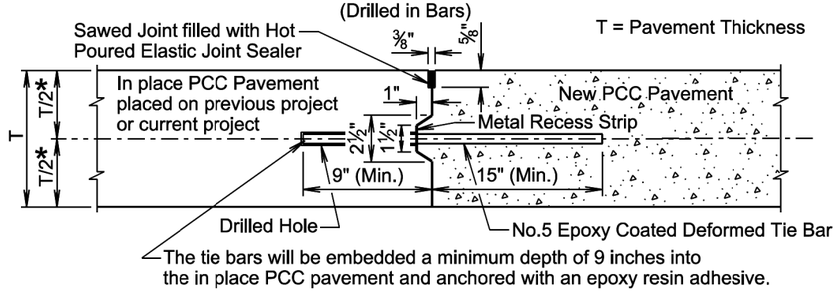
PLAN VIEW
(For typical transverse joint spacing of 15' on the current project)

January 22, 2023

Published Date: 2026	SDDOT	PCC PAVEMENT TRANSVERSE CONSTRUCTION JOINTS WITH TIE BARS OR DOWEL BARS	PLATE NUMBER 380.15
			Sheet 2 of 2

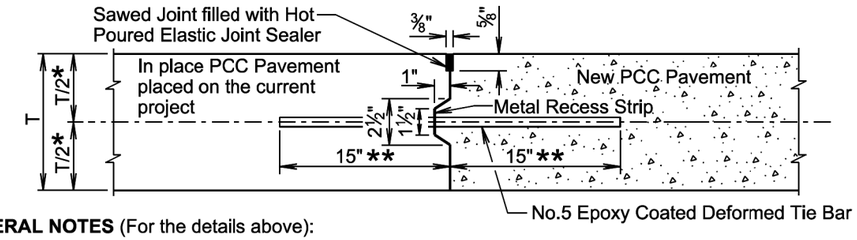
LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(Drilled in Bars)



LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS

(Inserted or Formed in Bars)



GENERAL NOTES (For the details above):

The epoxy coated deformed tie bars will be spaced in accordance with the following tables:

TIE BAR SPACING 48" MAXIMUM	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

TIE BAR SPACING 30" MAXIMUM	
Transverse Contraction Joint Spacing	Number of Tie Bars
5' to 7'	2
7.5' to 9.5'	3
10' to 12'	4
12.5' to 14.5'	5
15' to 17'	6
17.5' to 19.5'	7
20' to 22'	8

The tie bars will be placed a minimum of 15 inches from transverse contraction joints.

The required number of tie bars as shown in the table will be uniformly spaced within each panel. The uniformly spaced tie bars will be spaced a maximum of 48 inches center to center for a female keyway and will be spaced a maximum of 30 inches center to center for a vertical face and male keyway. The maximum tie bar spacing will apply to tie bars within each panel.

The keyway illustrated in the above details depict a female keyway.

The keyway is optional and is not required. When concrete pavement is formed and a keyway is provided, a metal recess strip will be used. When concrete pavement is slip formed, a metal recess strip is not required.

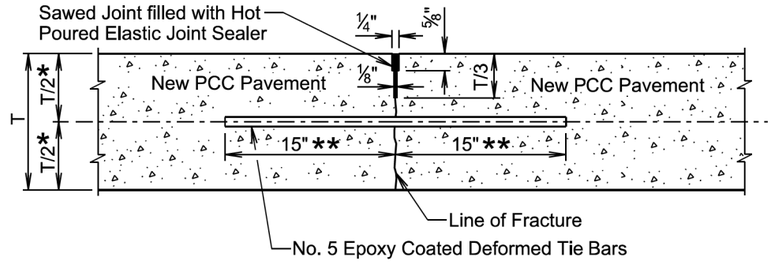
* The vertical placement tolerance for any part of the tie bar will be ± T/6.
** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

Published Date: 2026	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
			Sheet 1 of 2

SAWED LONGITUDINAL JOINT WITH TIE BARS

(Poured Monolithically)



T = Pavement Thickness

GENERAL NOTES (For the detail above):

The epoxy coated deformed tie bars will be spaced in accordance with the following table:

TIE BAR SPACING 48" MAXIMUM	
Transverse Contraction Joint Spacing	Number of Tie Bars
6.5' to 10'	2
10.5' to 14'	3
14.5' to 18'	4
18.5' to 22'	5

The tie bars will be placed a minimum of 15 inches from the transverse contraction joints.

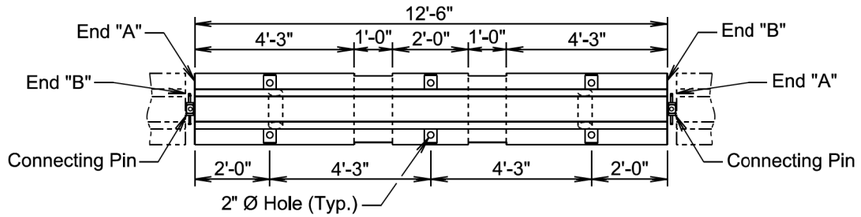
The required number of tie bars as shown in the table will be uniformly spaced within each panel with a maximum space of 48 inches center to center. The maximum tie bar spacing will apply to tie bars within each panel.

The first saw cut to control cracking will be a minimum of 1/3 the thickness of the pavement. Additional sawing for widening the saw cut to provide the width for the installation of the hot poured elastic joint sealer is necessary.

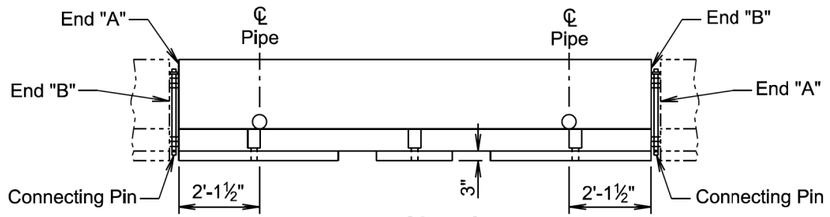
* The vertical placement tolerance for any part of the tie bar will be ± T/6.
** The transverse placement (side shift) tolerance will be ± 3 inches when measured perpendicular to the longitudinal joint line.

November 19, 2022

Published Date: 2026	SDDOT	PCC PAVEMENT LONGITUDINAL JOINTS WITH TIE BARS	PLATE NUMBER 380.20
			Sheet 2 of 2



PLAN VIEW



ELEVATION VIEW

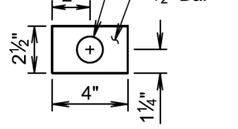
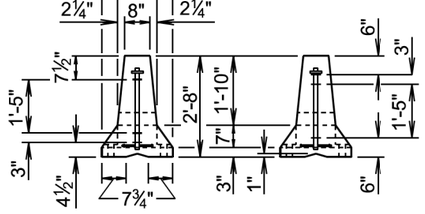
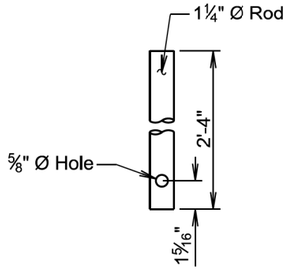


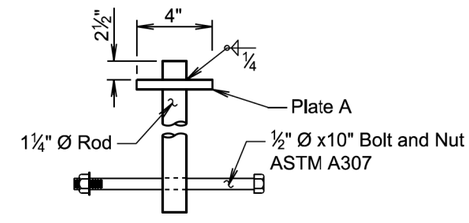
PLATE A



VIEW END A **VIEW END B**



CONNECTING PIN DETAIL



ASSEMBLED CONNECTING PIN

September 14, 2018

Published Date: 2026	SDDOT	TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS (F SHAPE INTERIOR SECTION)	PLATE NUMBER 628.01 Sheet 1 of 2

GENERAL NOTES:

The detailed drawings are for illustrative purpose and depicts the current version of the F shape concrete barrier. If new movable concrete barriers are requested on a project, they will be constructed according to the F shape movable concrete barrier details on standard plate 628.10.

Each movable concrete barrier section weighs 5030 ± pounds.

Each movable concrete barrier section is detailed to provide end "A" to end "B" connection by insertion of a pin through steel loops.

The Jersey shape or any version of the F shape traffic control movable concrete barriers may be used on a project, however, only the same type or version will be used for each run of barriers.

Movable concrete barrier sections will be placed to provide uniform bearing of the sections with the paved surface as approved by the Engineer.

Movable concrete barrier sections will never be moved or lifted using the end loops.

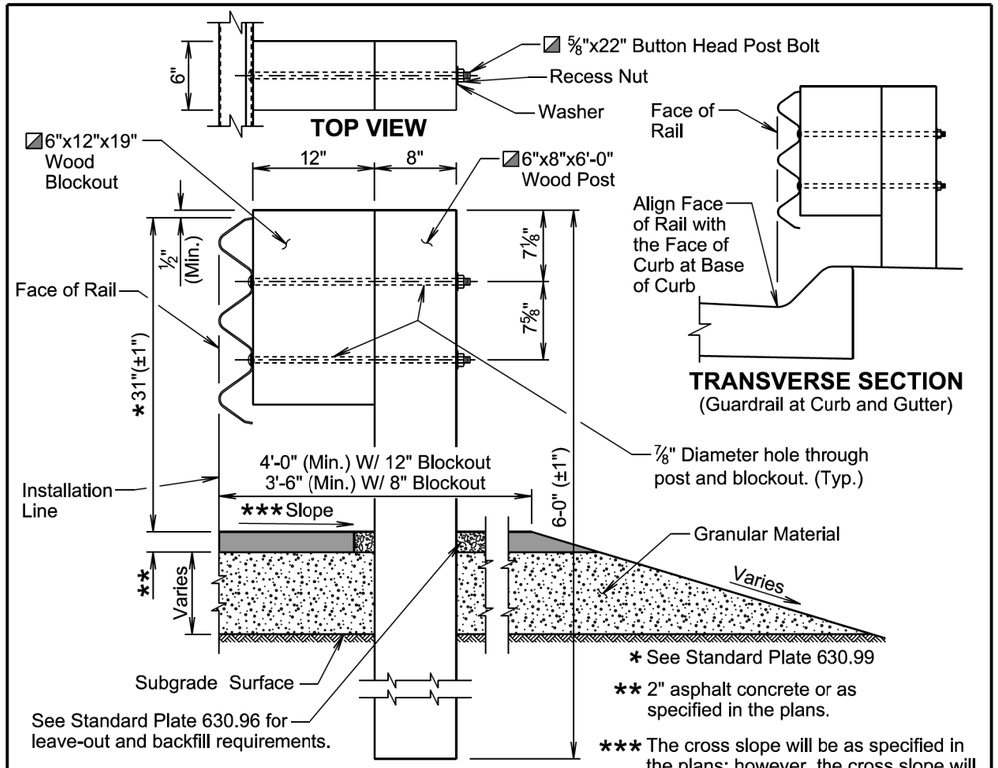
Movable concrete barrier sections that have been damaged will not be used. Barrier sections are considered damaged if the loops are end welded onto existing damaged loops, loops are fractured, or there is exposed rebar from fractured concrete.

All cost for transporting the barriers from the specified location to the project site, installing, and returning the barriers to the specified location will be incidental to the contract unit price per each for "Traffic Control Movable Concrete Barrier".

If the concrete barriers need to be moved and reset on the project, requiring the barriers to be transported by truck, all cost for removing, transporting, and resetting the barriers will be incidental to the contract unit price per each for "Remove and Reset Traffic Control Movable Concrete Barrier". All cost for small shifts in alignment of the barriers, not requiring the barriers to be transported by truck, will be incidental to various contract items.

September 14, 2018

Published Date: 2026	SDDOT	TRAFFIC CONTROL MOVABLE CONCRETE BARRIERS (F SHAPE INTERIOR SECTION)	PLATE NUMBER 628.01 Sheet 2 of 2



TRANSVERSE SECTION

GENERAL NOTES:

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

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

Topsoil is not shown in the transverse section drawing.

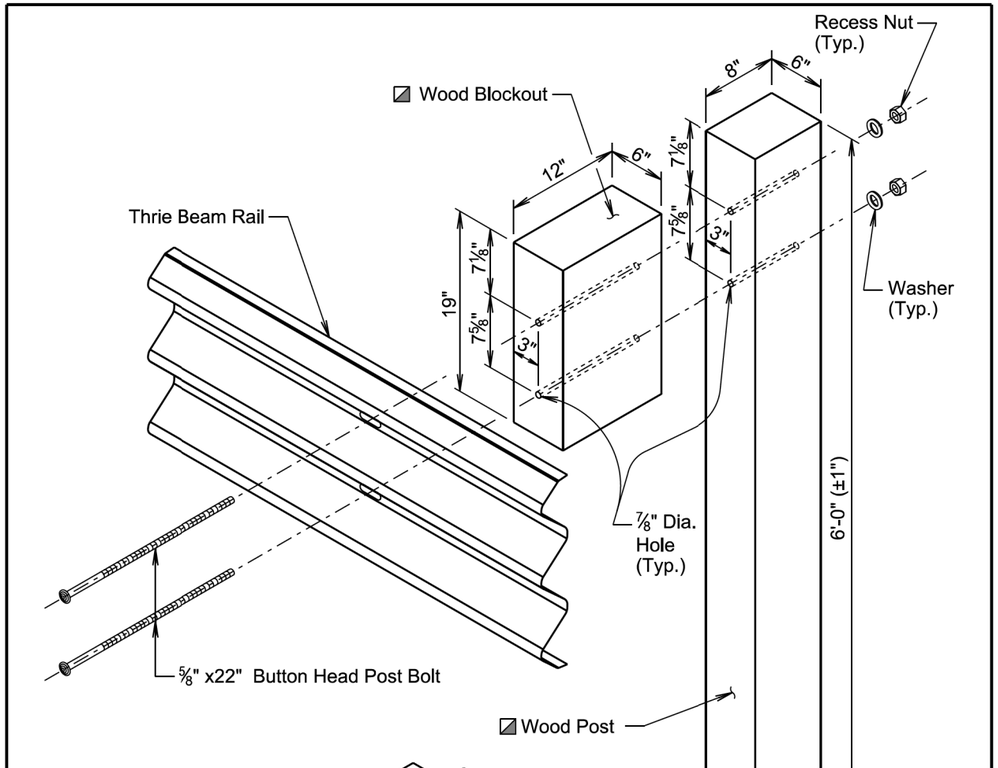
⧄ The post and blockout illustrated above is typical for single thrie beam guardrail. When other variations of posts and blockouts are specified on other standard plates (e.g. transitions) then the posts and blockouts will be as specified on the other standard plates or as specified in the plans.

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

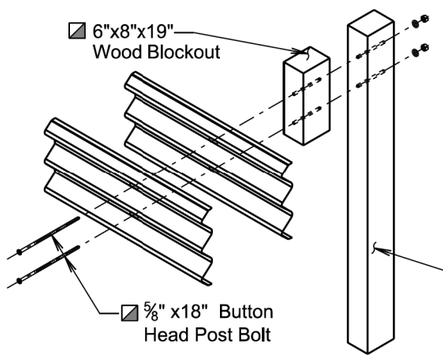
The top of post and top of block will have a true square cut. The top of block will be a maximum of ±½ inch from the top of the post.

April 8, 2025

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



EXPANDED ISOMETRIC VIEW AT MIDSPAN OF THRIE BEAM GUARDRAIL

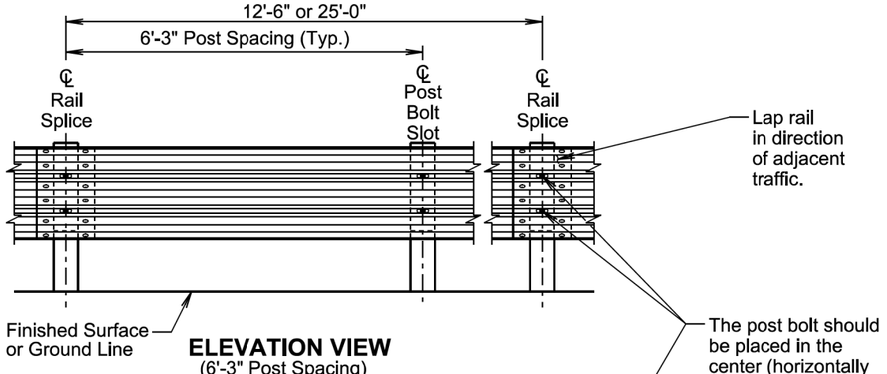


EXPANDED ISOMETRIC VIEW OF DOUBLE (NESTED) THRIE BEAM GUARDRAIL AT MIDSPAN
(For Information Only, Not to Scale)

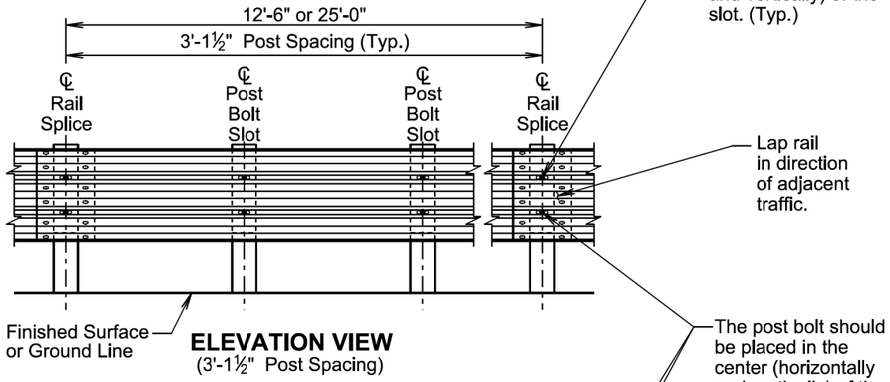
⧄ For single thrie beam guardrail use 6"x12"x19" wood blockout, ⅝"x22" button head post bolt, and 6"x8"x6'-0" wood post. For double (nested) thrie beam guardrail use 6"x8"x19" wood blockout, ⅝"x18" button head post bolt, and 6"x8"x7'-0" wood post.

April 8, 2025

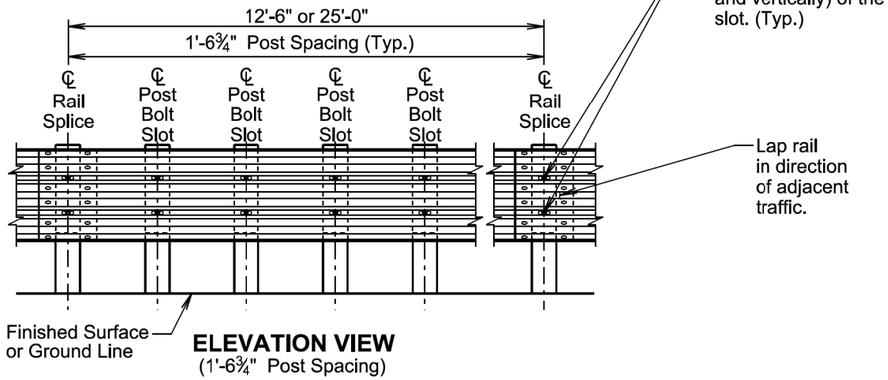
Published Date: 2026	SDDOT	THRIE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 2 of 5



ELEVATION VIEW
(6'-3" Post Spacing)

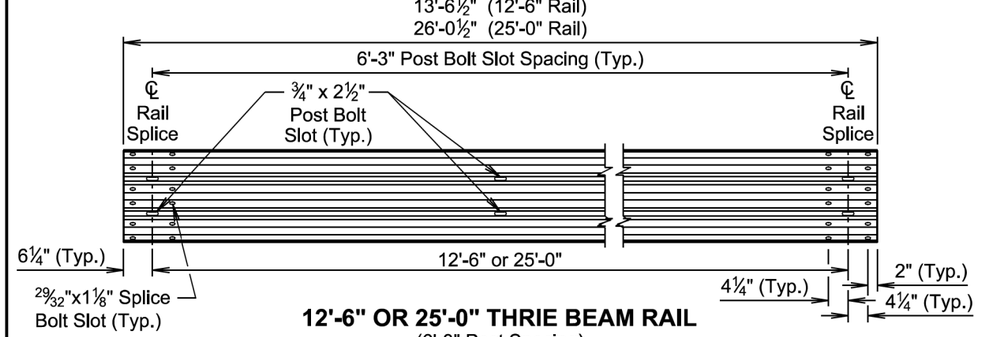


ELEVATION VIEW
(3'-1½" Post Spacing)

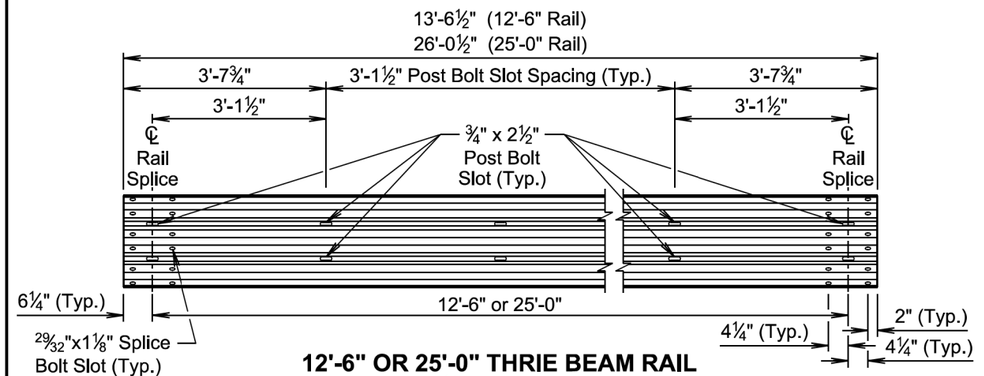


ELEVATION VIEW
(1'-6¾" Post Spacing)

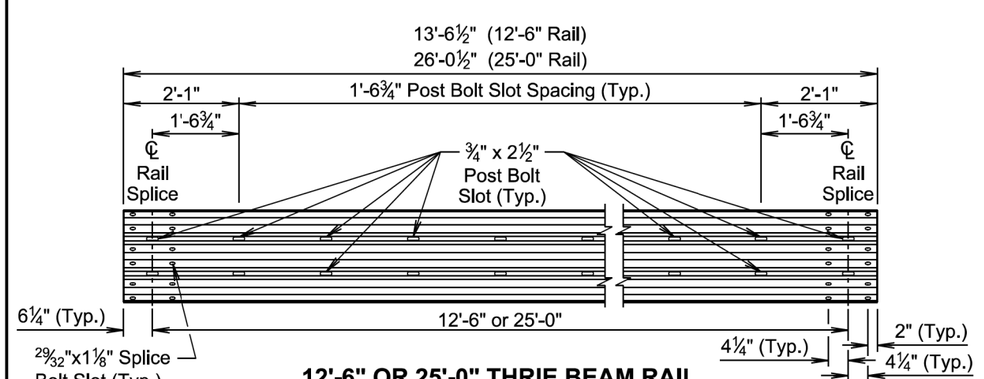
April 8, 2025



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

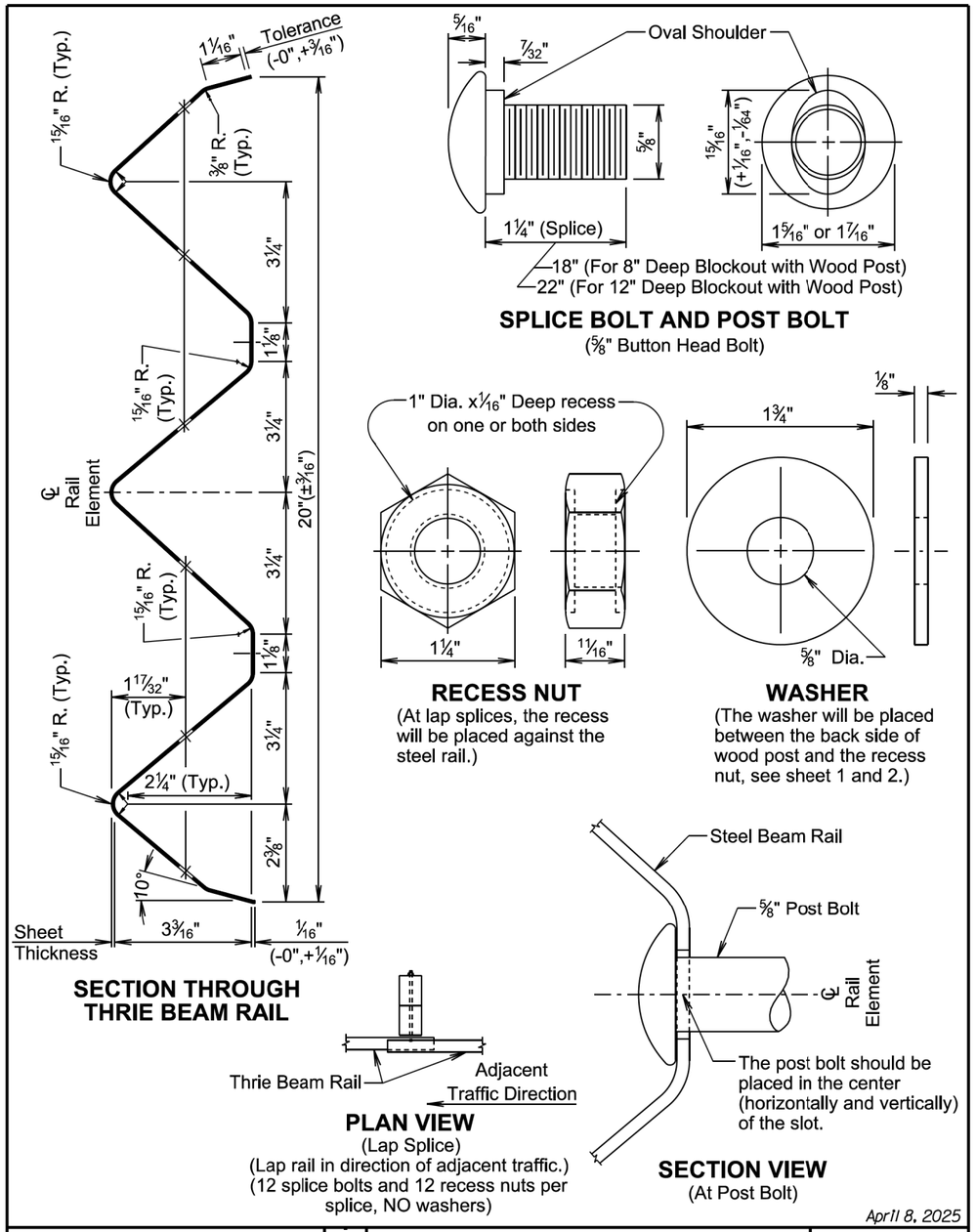


12'-6" OR 25'-0" THRIE BEAM RAIL
(3'-1½" Post Spacing)



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

April 8, 2025



SECTION THROUGH THRIE BEAM RAIL

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

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

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

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

SECTION VIEW
(At Post Bolt)

April 8, 2025

Published Date: 2026

SDDOT

THRIE BEAM GUARDRAIL

PLATE NUMBER 630.01

Sheet 5 of 5

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

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

GENERAL NOTES:

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

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

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

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

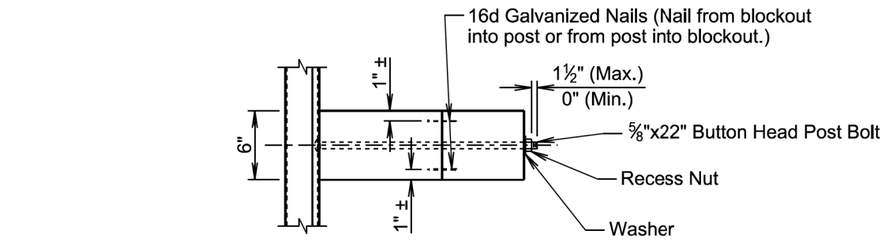
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

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

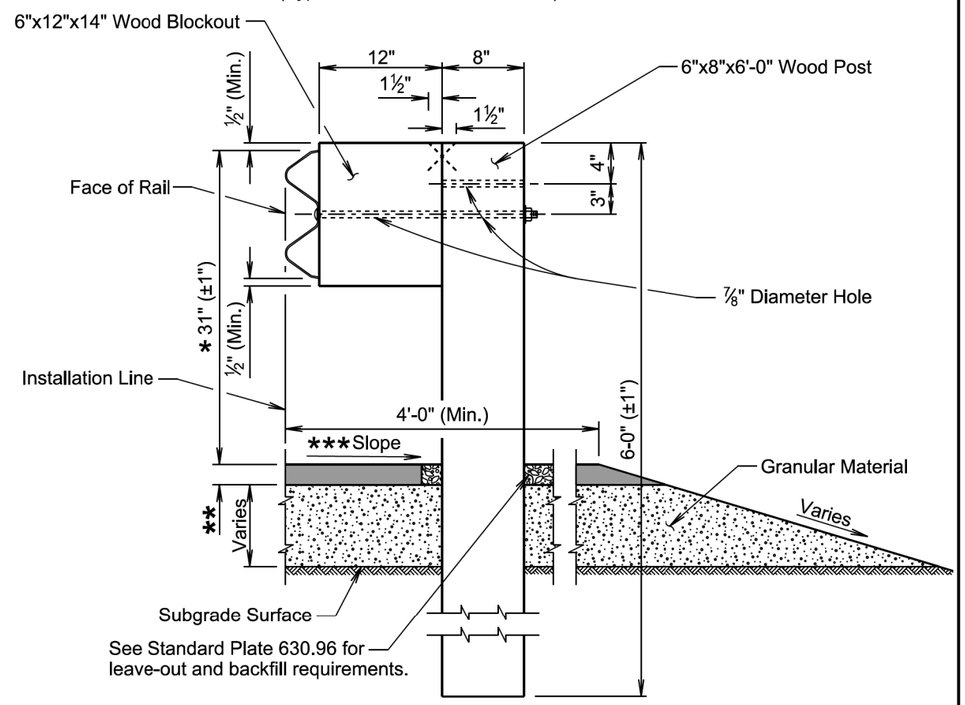
All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

April 8, 2025

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)

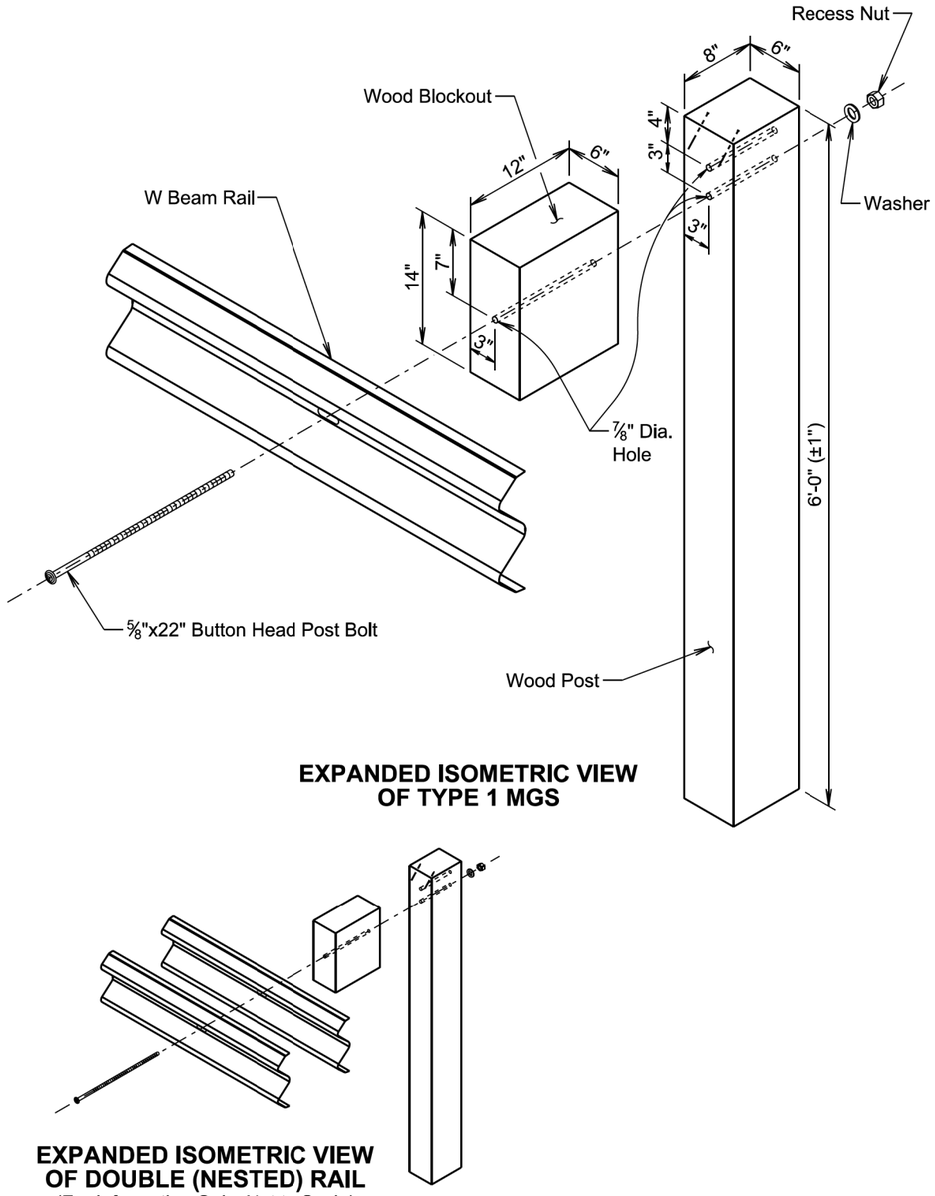
* See Standard Plate 630.99

** 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

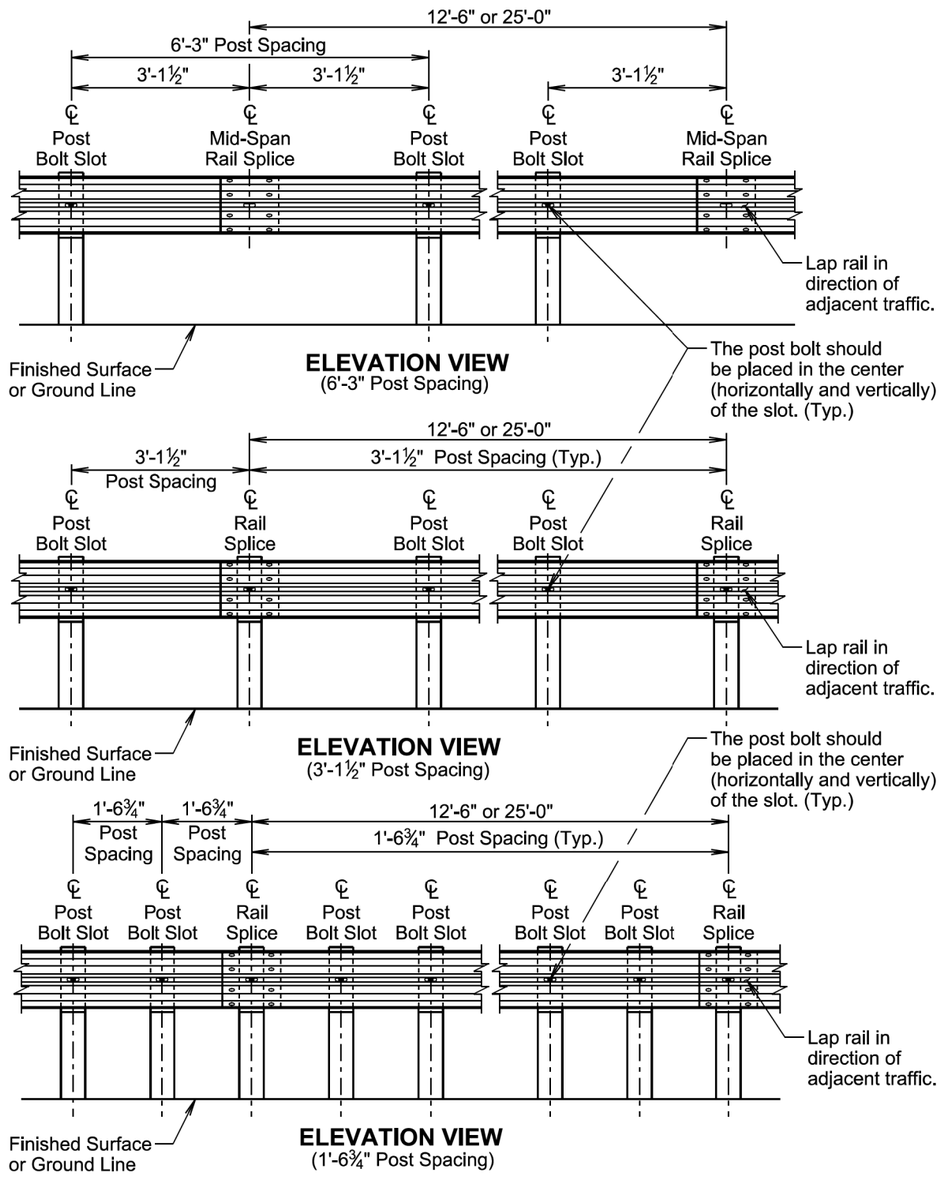


EXPANDED ISOMETRIC VIEW OF TYPE 1 MGS

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

April 8, 2025

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



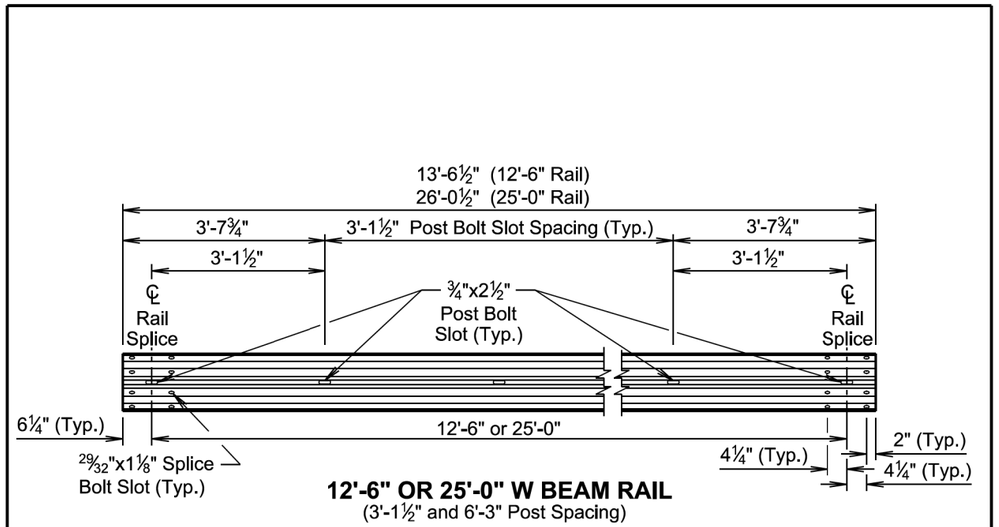
ELEVATION VIEW
(6'-3" Post Spacing)

ELEVATION VIEW
(3'-1½" Post Spacing)

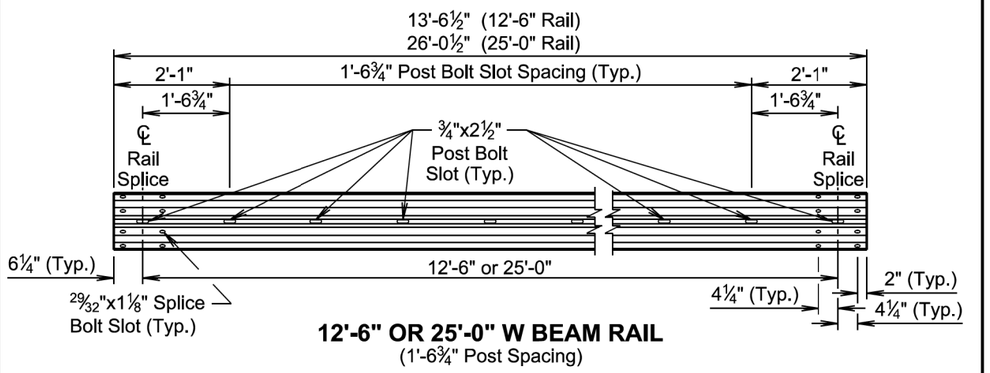
ELEVATION VIEW
(1'-6¾" Post Spacing)

April 8, 2025

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



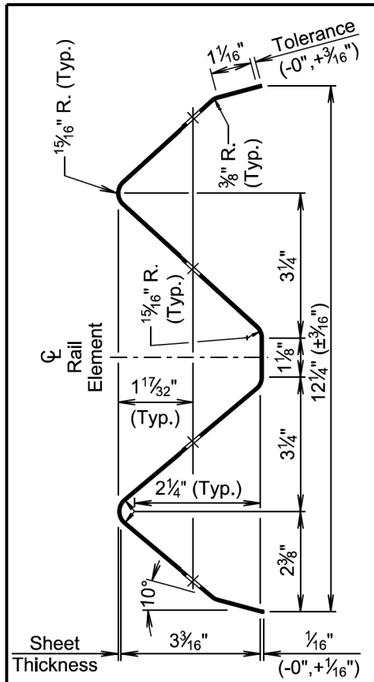
12'-6" OR 25'-0" W BEAM RAIL
(3'-1½" and 6'-3" Post Spacing)



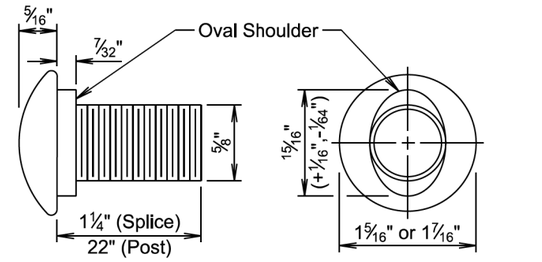
12'-6" OR 25'-0" W BEAM RAIL
(1'-6¾" Post Spacing)

April 8, 2025

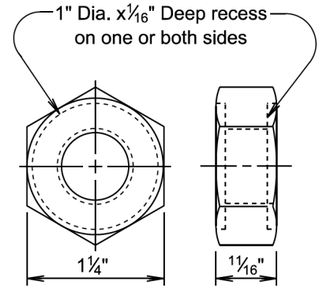
Published Date: 2026	SDDOT	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 5 of 6



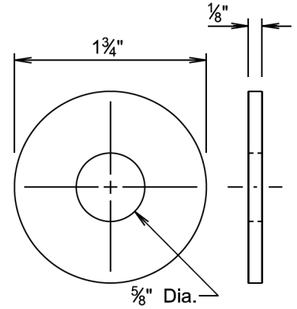
SECTION THROUGH W BEAM RAIL



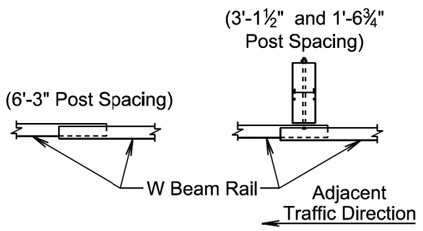
SPLICE BOLT AND POST BOLT
(⅝" Button Head Bolt)



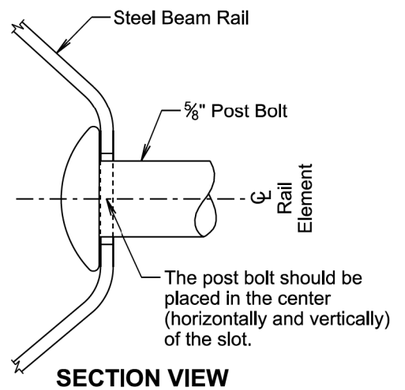
RECESS NUT
(At lap splices, the recess will be placed against the steel rail.)



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



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

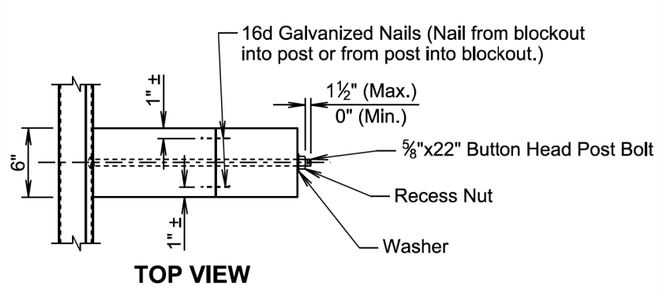


SECTION VIEW
(At Post Bolt)

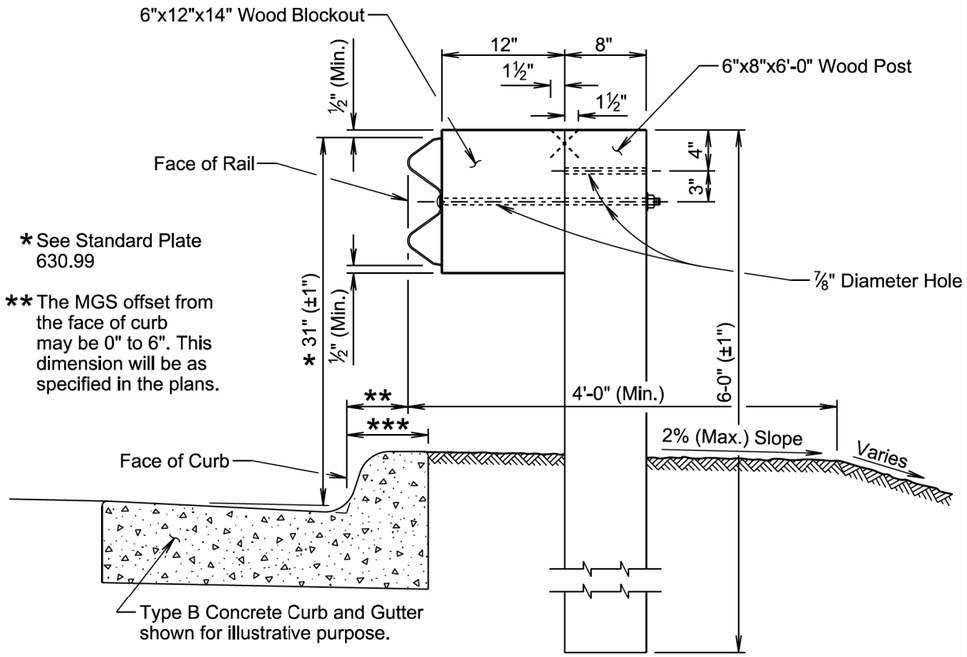
April 8, 2025

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

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



TOP VIEW



* See Standard Plate 630.99

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

TRANSVERSE SECTION

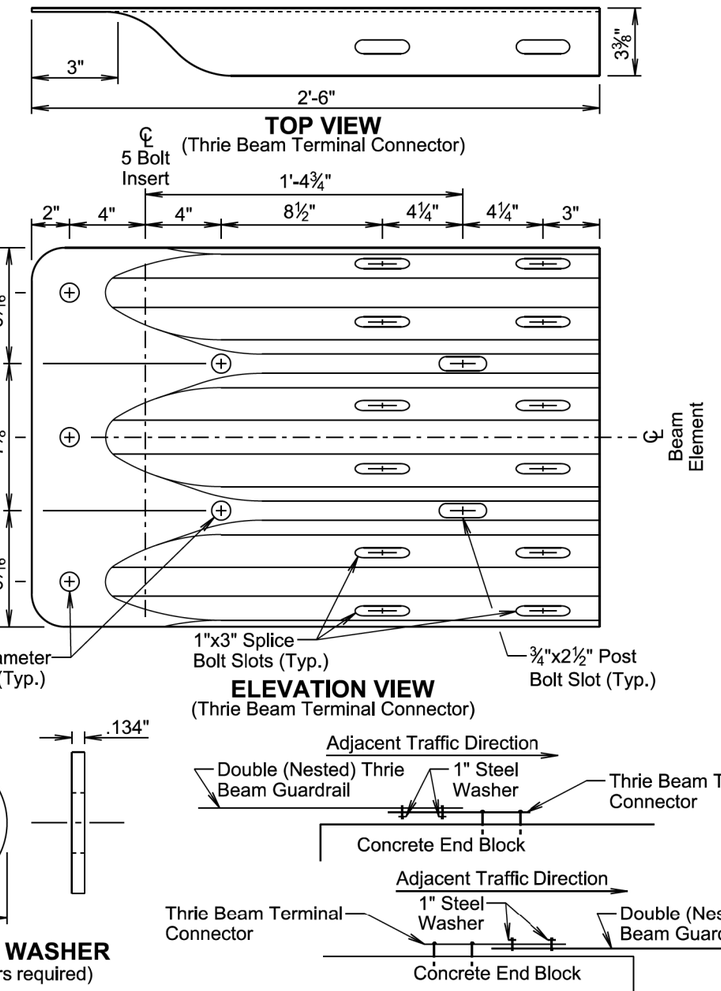
GENERAL NOTES:

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

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

April 8, 2025

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



GENERAL NOTES:

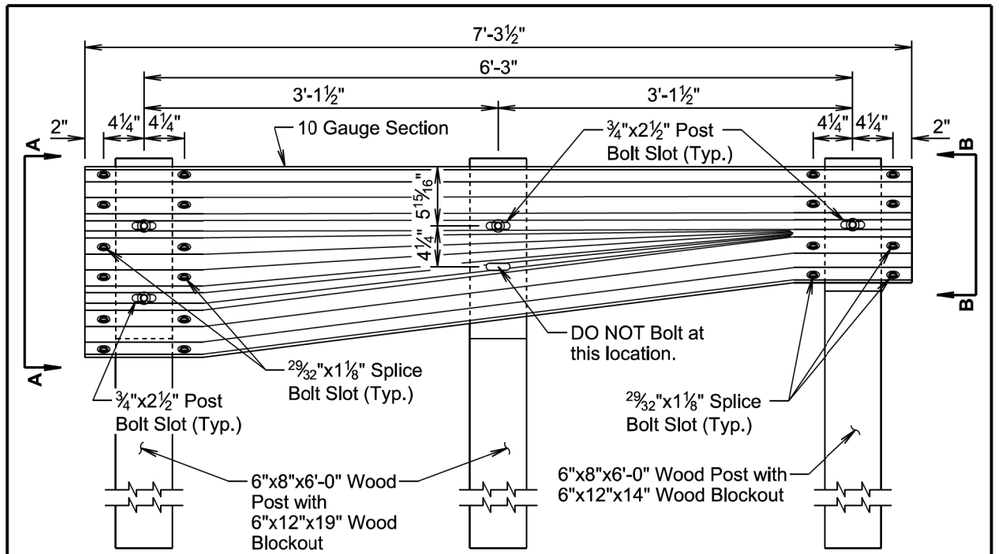
Thrie Beam Terminal Connectors will be 10 gauge.

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

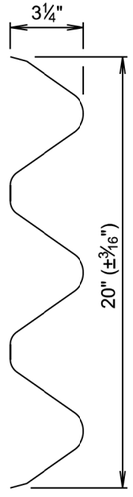
There will be no separate payment for furnishing and installing the thrie beam terminal connector. All costs for furnishing and installing the thrie beam terminal connector will be incidental to the contract unit price of the respective guardrail item it is attached to.

September 14, 2019

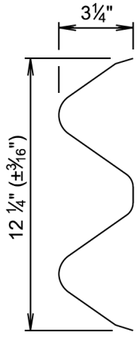
Published Date: 2026	SDDOT	THRIE BEAM TERMINAL CONNECTOR	PLATE NUMBER 630.47
			Sheet 1 of 1



ELEVATION VIEW



VIEW A-A



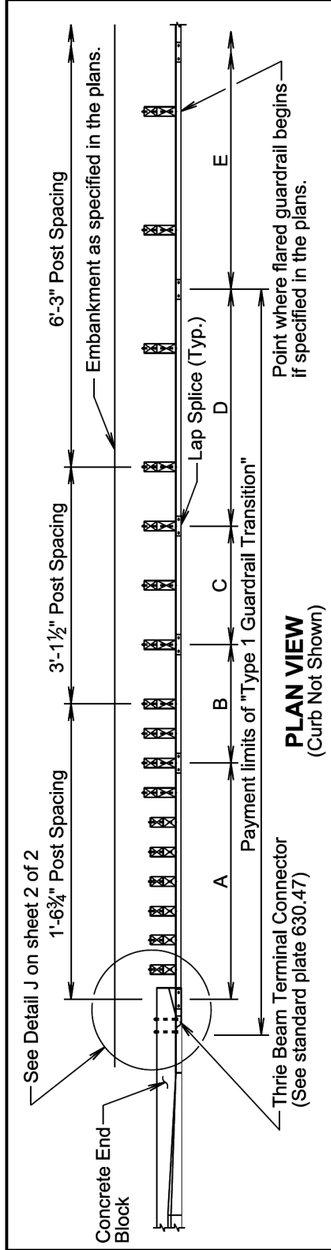
VIEW B-B

GENERAL NOTES:

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

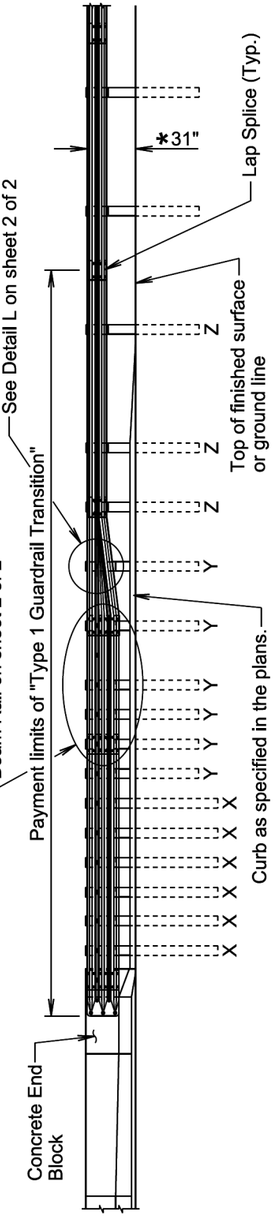
September 14, 2019

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



PLAN VIEW
(Curb Not Shown)

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



ELEVATION VIEW

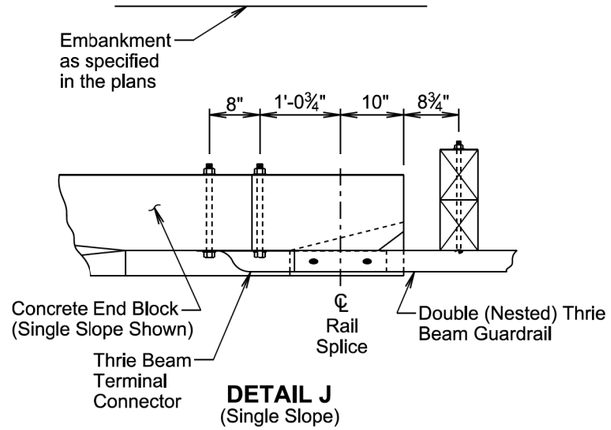
*See standard plate 630.99

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

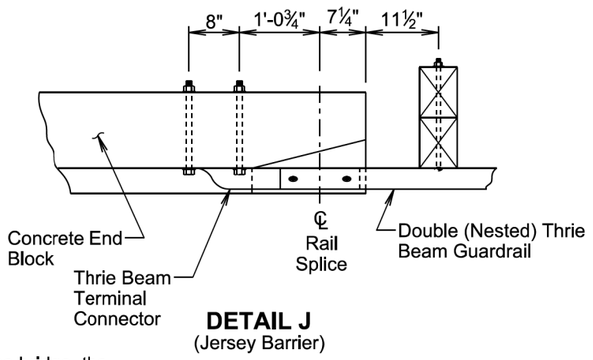
April 8, 2025

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

PLOT SCALE - 1:200
PLOT NAME - 11
PLOTTED FROM - TRAB1020.DGN
FILE - ...\STDPLATEPAGESEED_09TA_SP.DGN

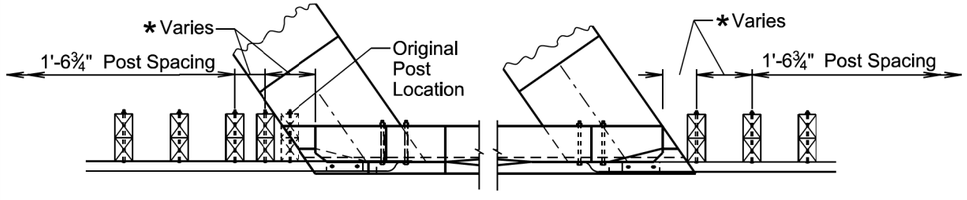


DETAIL J
(Single Slope)



DETAIL J
(Jersey Barrier)

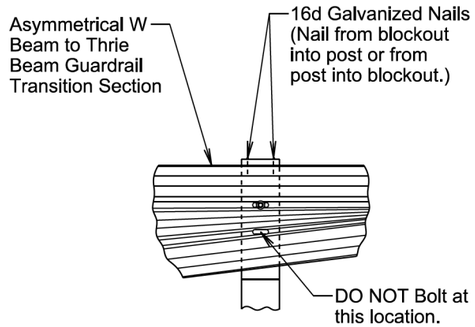
*Due to the skew of the bridge, the placement of the first "X" post and blockout will need to be moved from the original location. It will need to be installed as close as possible to the wingwall provided that the second "X" post and blockout is located in it's original location.



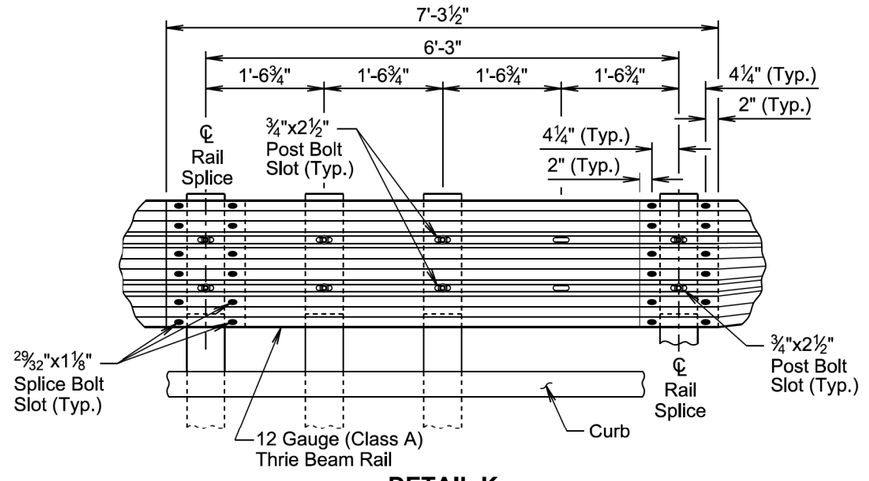
DETAIL J
(Skewed Bridge)

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



DETAIL L



DETAIL K
(Special Thrie Beam Rail)

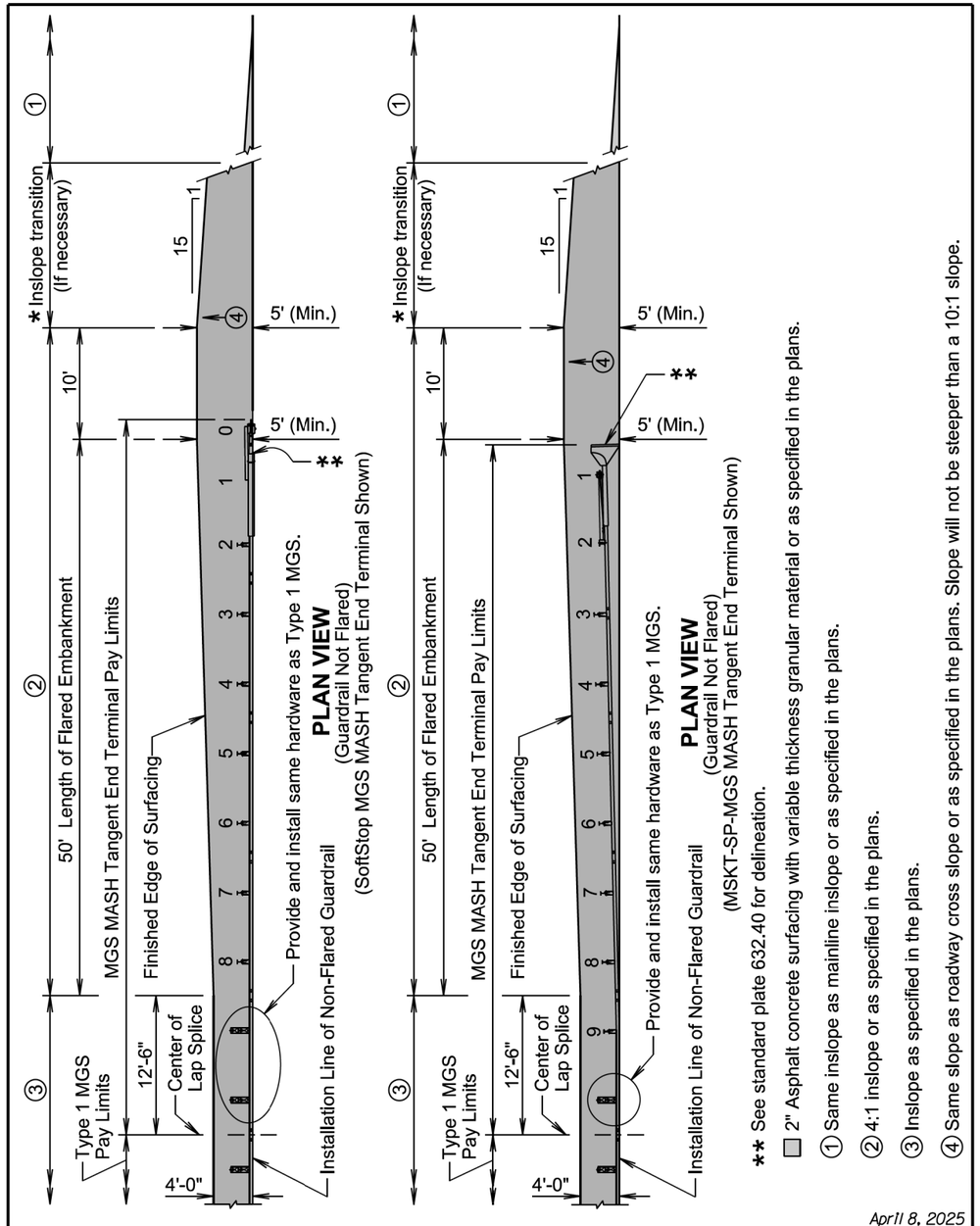
GENERAL NOTES:

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



** 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.

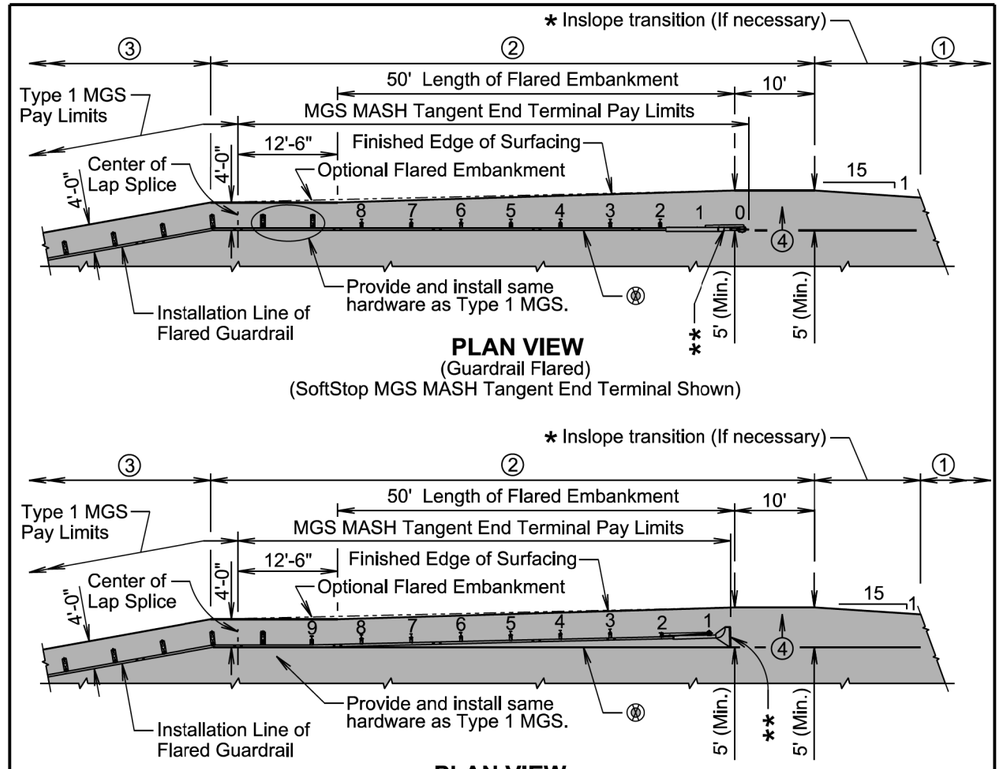
② 4:1 inslope or as specified in the plans.

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.

April 8, 2025

Published Date: 2026	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89
			Sheet 1 of 3



GENERAL NOTES:

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

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

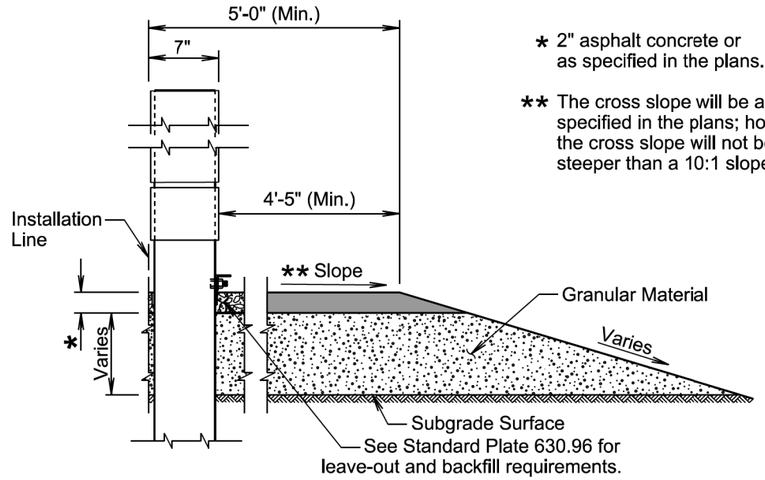
Ⓜ The installation reference line for MGS MASH tangent end terminals will always be parallel to the roadway.

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

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

April 8, 2025

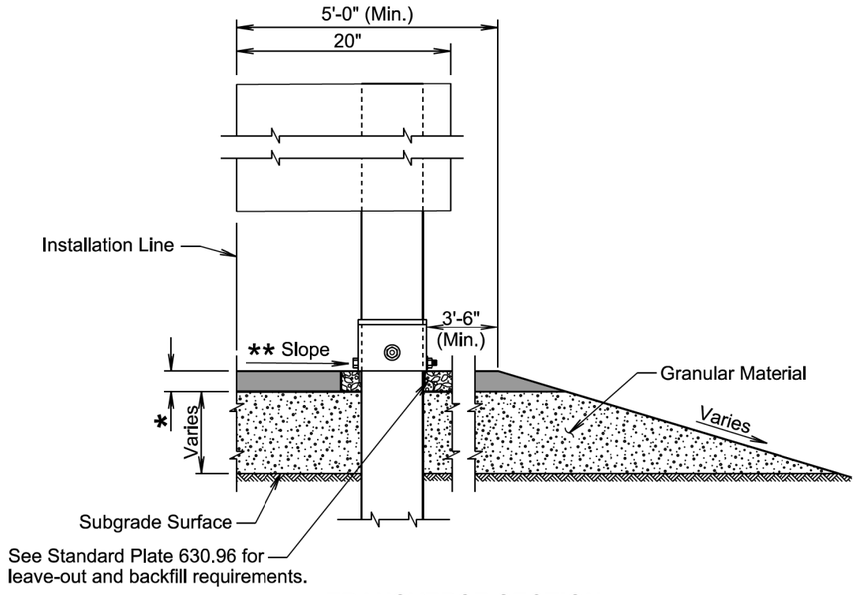
Published Date: 2026	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89
			Sheet 2 of 3



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

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

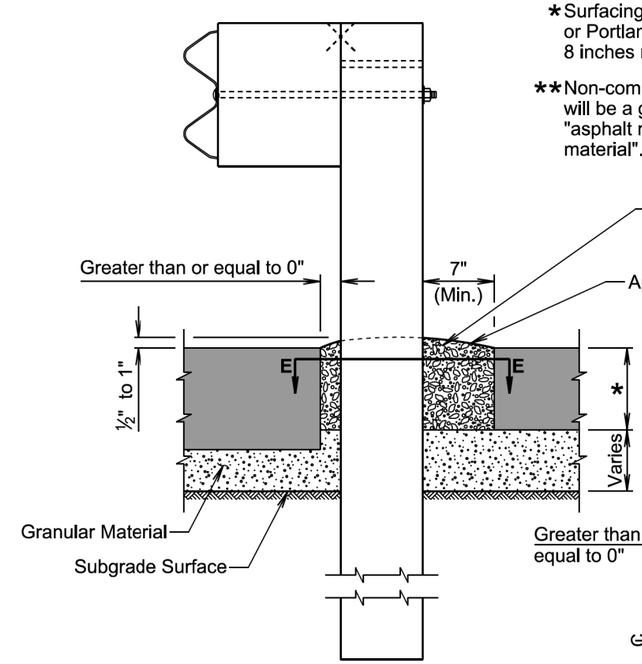
TRANSVERSE SECTION
(SoftStop MGS MASH Tangent End Terminal Shown)



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

April 8, 2025

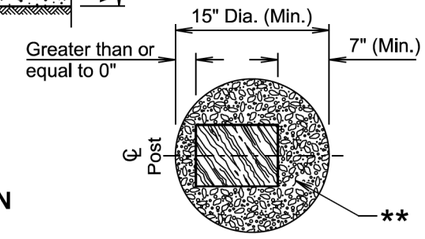
Published Date: 2026	SDDOT	EMBANKMENT, SURFACING, AND PAYMENT LIMITS FOR MGS MASH TANGENT END TERMINAL	PLATE NUMBER 630.89
			Sheet 3 of 3



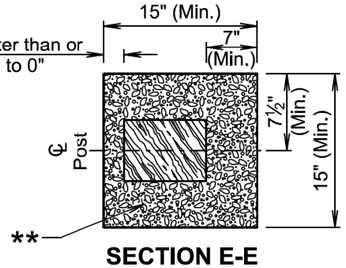
* Surfacing Material (Asphalt Concrete or Portland Cement Concrete) 8 inches maximum

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

TRANSVERSE SECTION
(Wood post shown for illustrative purpose only)



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



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

GENERAL NOTES:

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

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

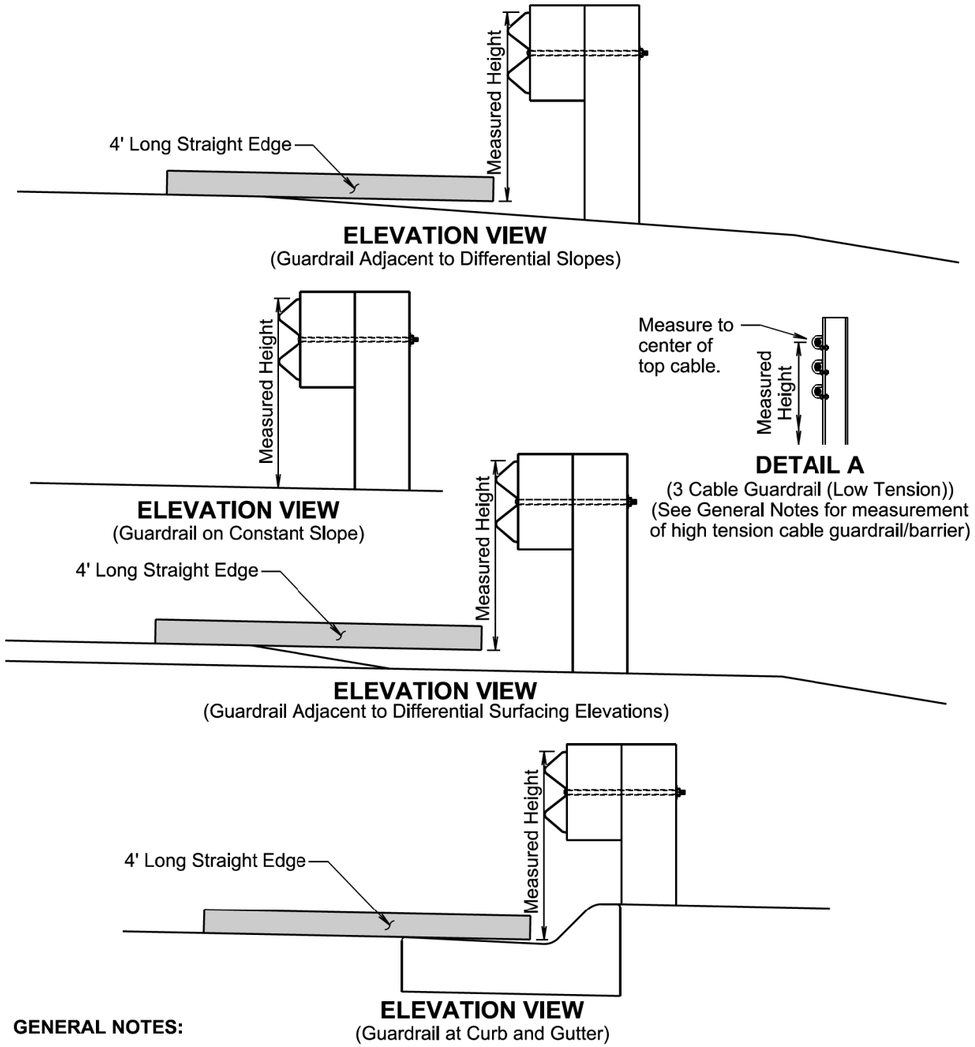
The backfill material will be mounded ½ inch to 1 inch above the top of the adjacent surfacing as illustrated above.

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

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

November 19, 2021

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



GENERAL NOTES:

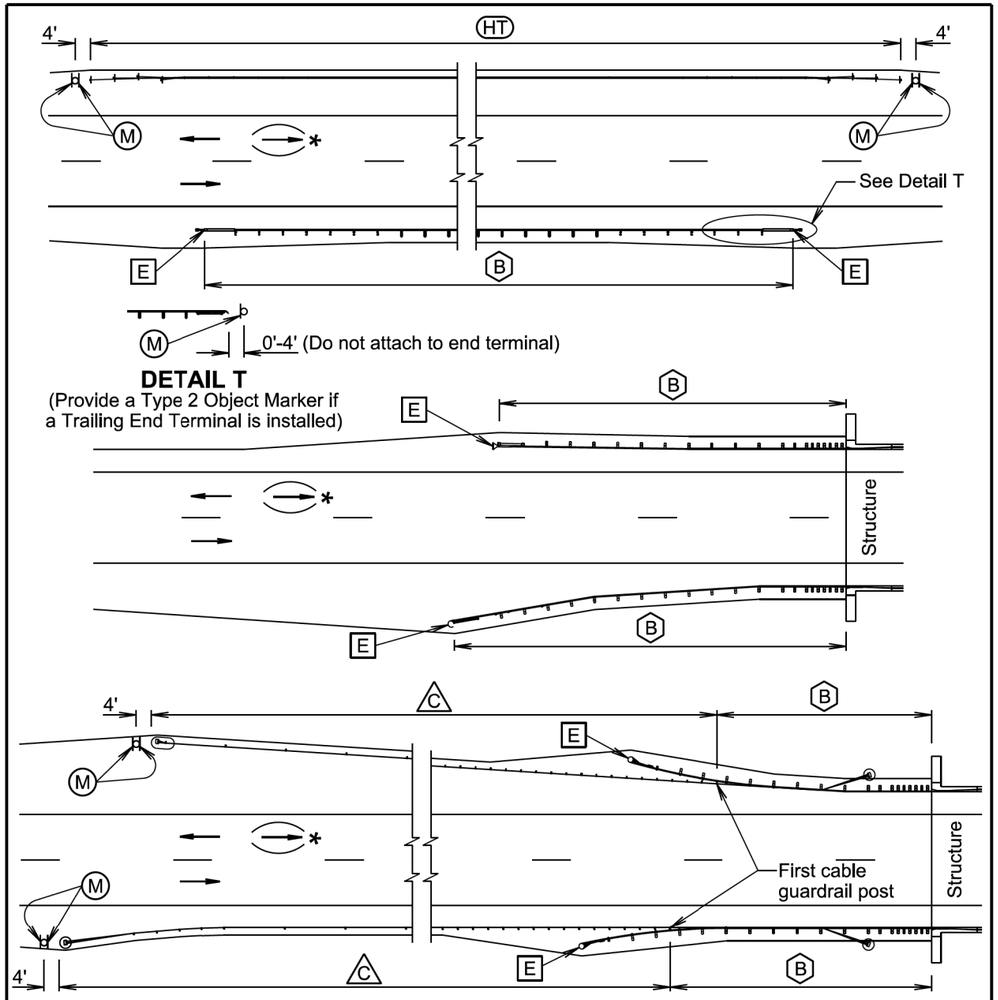
The W Beam guardrail shown is for illustrative purpose. The guardrail height for all types of guardrail systems except for high tension cable guardrail/barrier will be measured in accordance with this standard plate.

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

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

September 14, 2019

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



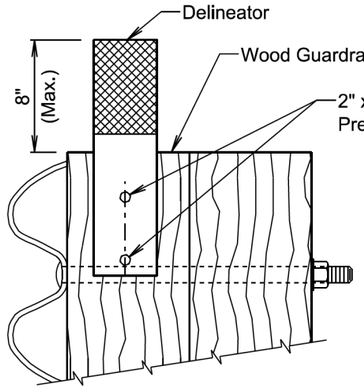
PLAN VIEW
(Typical Guardrail Layouts)

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

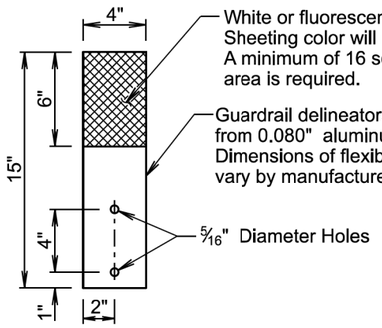
*For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

April 8, 2025

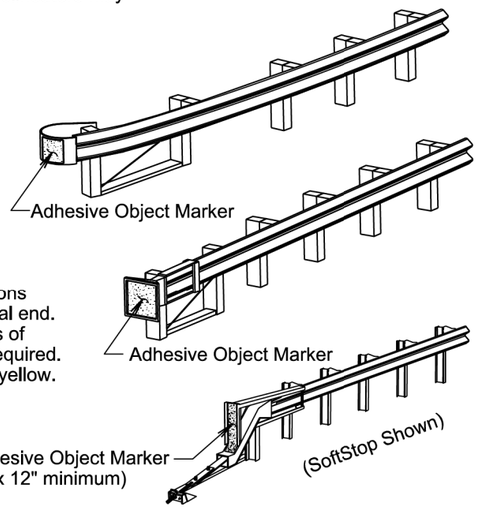
Published Date: 2026	SDDOT	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40 Sheet 1 of 4

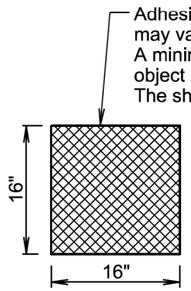


(B) STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)



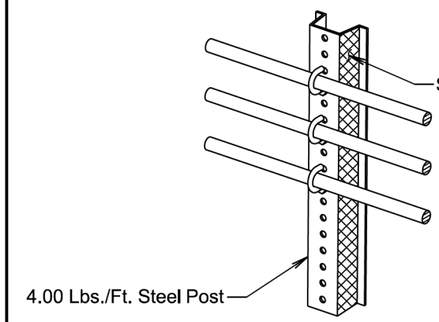


ADHESIVE OBJECT MARKER

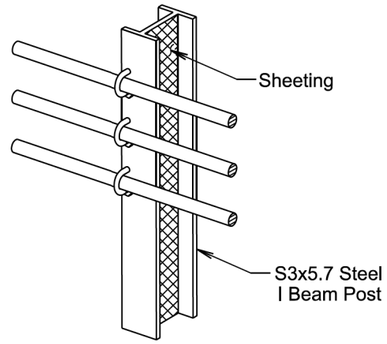
(E) GUARDRAIL END TERMINAL OBJECT MARKER

April 8, 2025

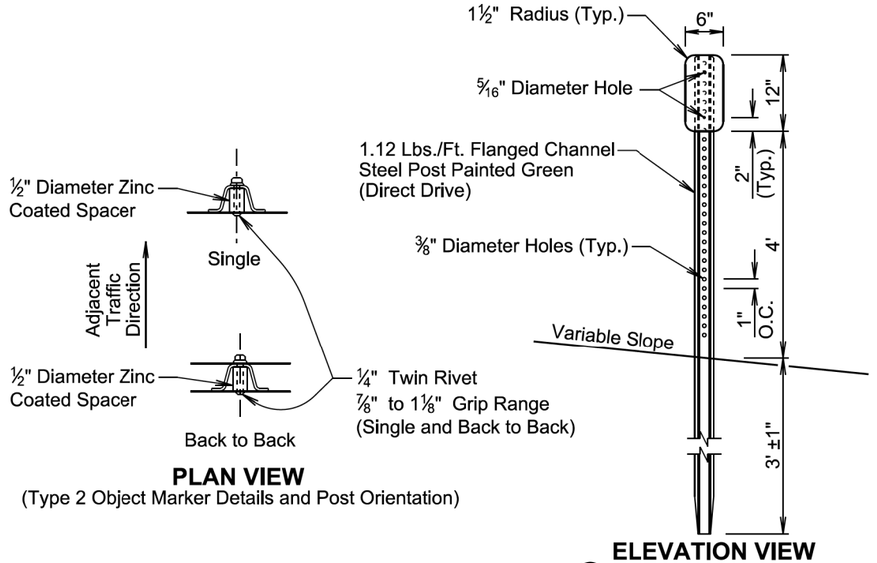
Published Date: 2026	SDDOT	DELINEATION GUARDRAIL	PLATE NUMBER 632.40
			Sheet 2 of 4



(C) 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



(C) 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



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

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

April 8, 2025

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

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

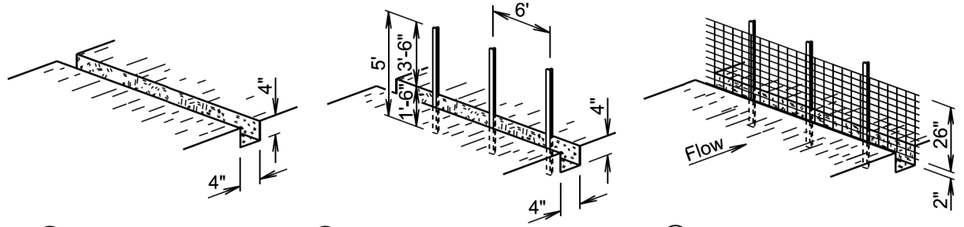
An adhesive object marker will be placed on the end of the W beam guardrail or MGS end terminal. The adhesive object marker dimensions may vary due to the shape of the terminal end. A minimum of 256 square inches of object marker reflective sheeting area is required on end terminals with sufficient surface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

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

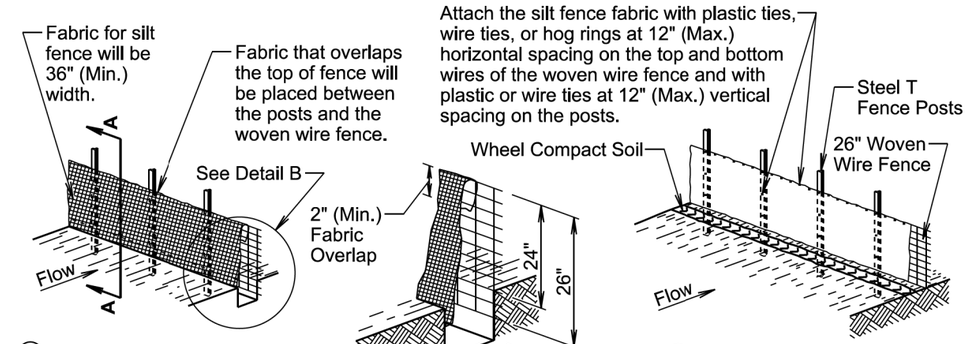
April 8, 2025

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

MANUAL LOW FLOW SILT FENCE INSTALLATION



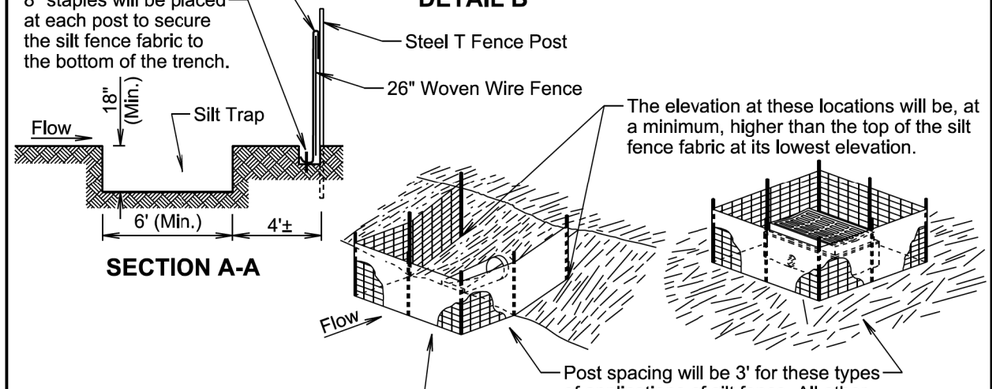
① EXCAVATE TRENCH ② DRIVE STEEL T FENCE POSTS ③ ATTACH 26" WOVEN WIRE FENCE TO POSTS



④ ATTACH SILT FENCE FABRIC

DETAIL B

⑤ BACKFILL TRENCH AND WHEEL COMPACT SOIL

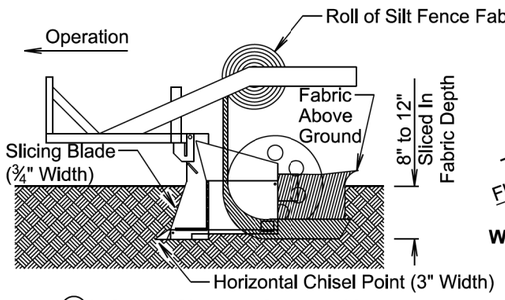


SECTION A-A

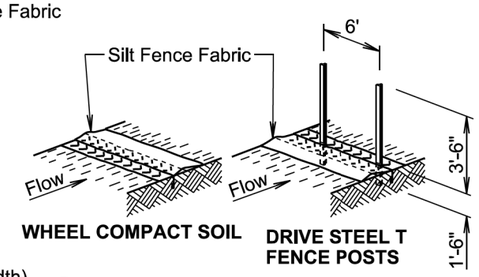
February 14, 2020

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

MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION

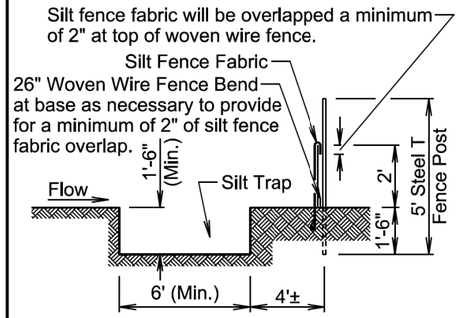


(1) INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.

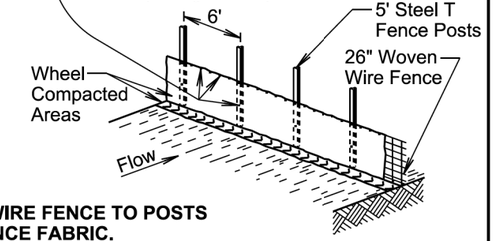


(2) WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.

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

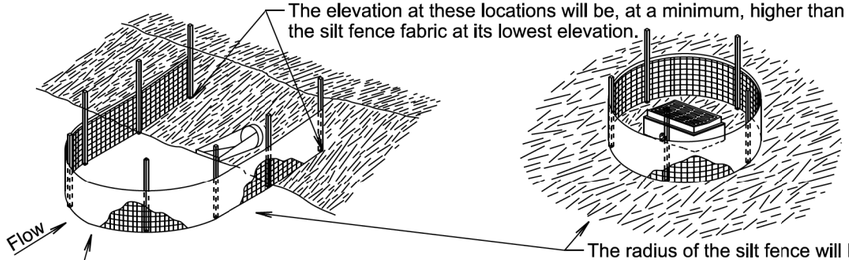


Attach the silt fence fabric with plastic ties, wire ties, or hog rings at 12" (Max.) horizontal spacing on the top and bottom wires of the woven wire fence and with plastic or wire ties at 12" (Max.) vertical spacing on the posts.



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

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



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

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

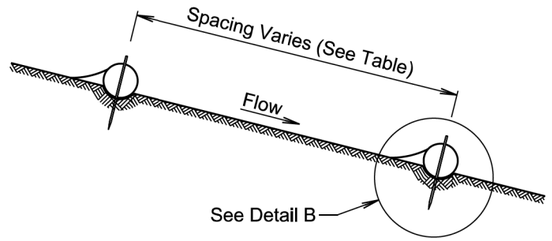
GENERAL NOTES:

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

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

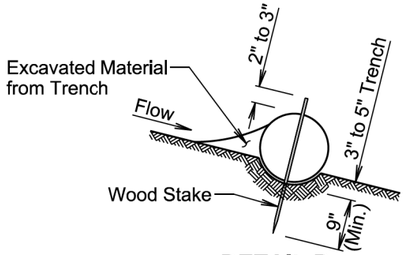
February 14, 2020

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

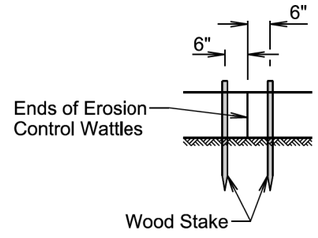


ELEVATION VIEW
(Cut or Fill Slope Installation)

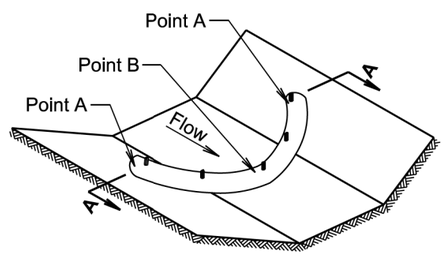
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



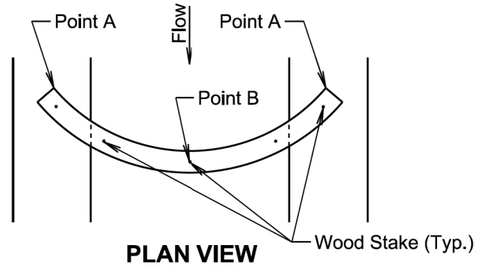
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

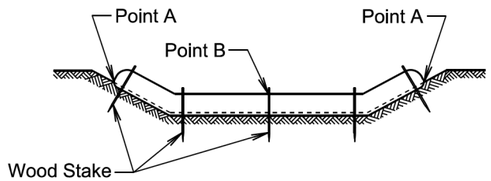


ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)

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



SECTION A-A

February 14, 2020

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

GENERAL NOTES:

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

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

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

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

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

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

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

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

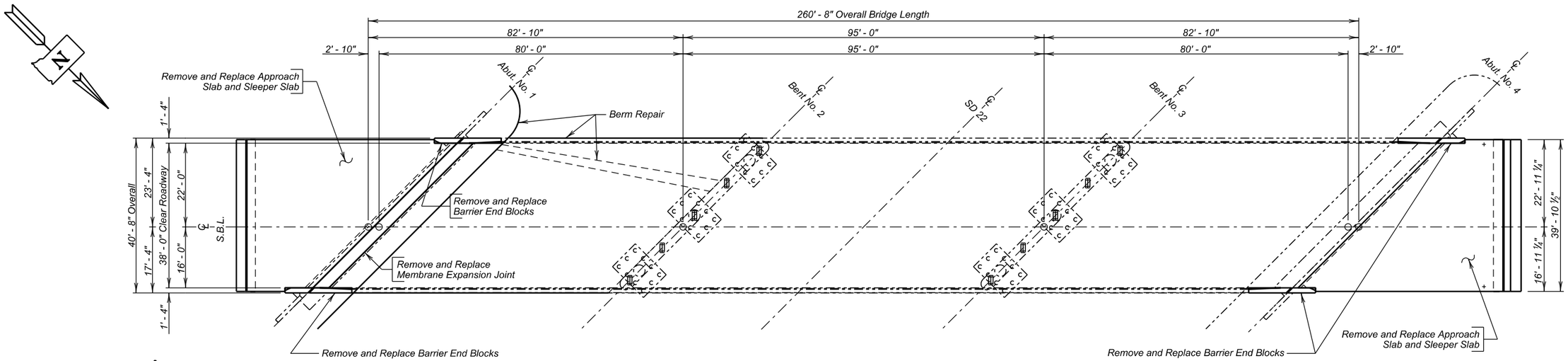
All costs for removing the erosion control wattle from the project including labor, equipment, and materials will be incidental to the contract unit price per foot for "Remove Erosion Control Wattle".

February 14, 2020

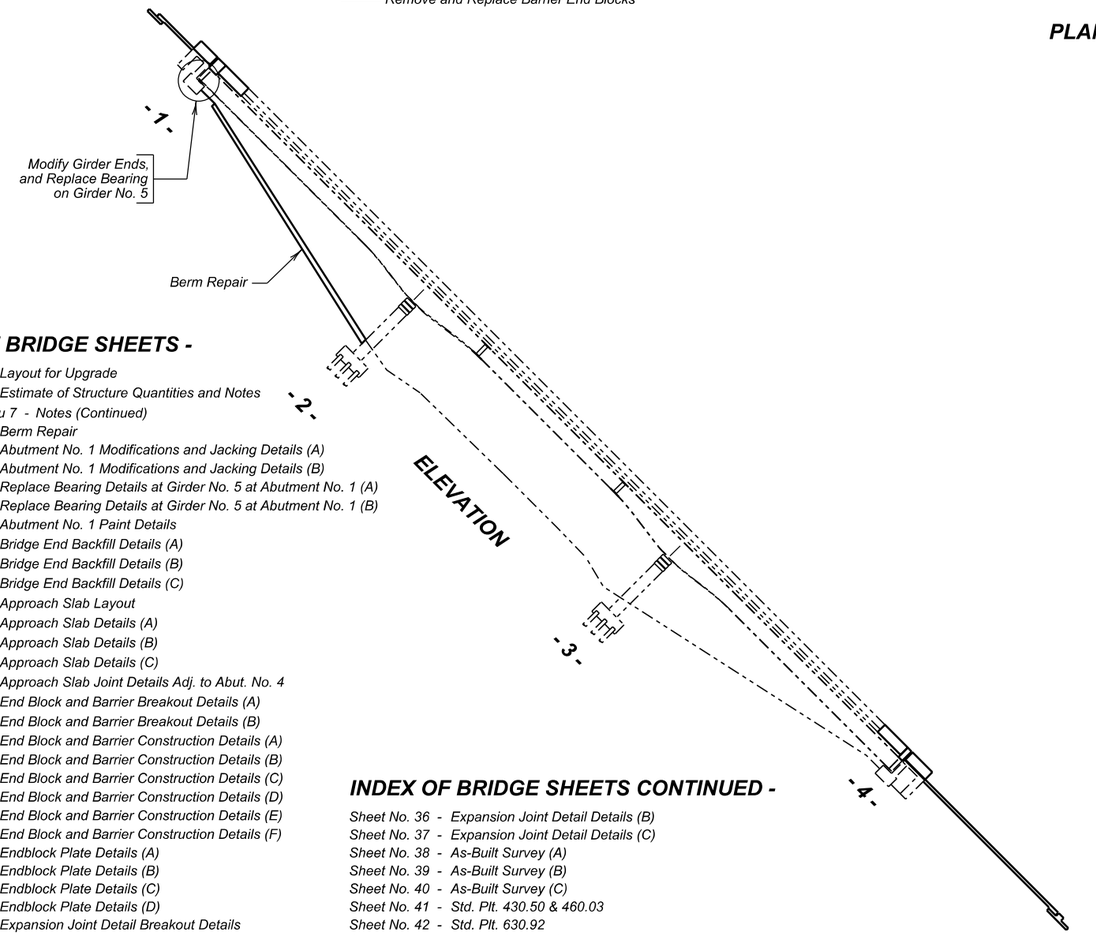
Published Date: 2026	SDDOT	***EROSION CONTROL WATTLE***	***PLATE NUMBER*** *734.06*
			Sheet 2 of 2

The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	55	124



PLAN



ELEVATION

- X271 -
INDEX OF BRIDGE SHEETS -

INDEX OF BRIDGE SHEETS CONTINUED -

(SOUTH BOUND LANES)
LAYOUT FOR UPGRADE

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164
PCN 09TA

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

- X271 -

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

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A. Johnson BRIDGE ENGINEER
HAML09TA	09TABA01		

ESTIMATE OF STRUCTURE QUANTITIES

ITEM NO.	DESCRIPTION	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
110E0010	Remove Concrete Bridge Approach Slab	346.5	SqYd
120E0010	Unclassified Excavation	9	CuYd
120E3120	Bridge Berm Repair	1	Each
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
410E0300	Modify Girder End	5	Each
410E0550	Jack Superstructure, Steel Girder Bridge	Lump Sum	LS
410E1000	Bearing, Furnish	1	Each
410E1001	Bearing, Install	1	Each
410E2220	Replace Expansion Device	1	Each
410E2600	Membrane Sealant Expansion Joint	67.4	Ft
412E0120	Bridge Repainting, Class II	Lump Sum	LS
412E0400	Rust Penetrating Sealer	Lump Sum	LS
412E0500	Paint Residue Containment	Lump Sum	LS
430E0200	Bridge End Embankment	4	CuYd
430E0300	Granular Bridge End Backfill	26.6	CuYd
430E0510	Approach Slab Underdrain Excavation	4.0	CuYd
430E0700	Precast Concrete Headwall for Drain	4	Each
460E0010	Class A45 Concrete, Bridge Barrier	9.4	CuYd
460E0150	Concrete Approach Slab for Bridge	313.3	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	54.3	SqYd
460E0300	Breakout Structural Concrete	8.2	CuYd
460E0310	Breakout and Replace Grout Pad	1	Each
460E0380	Install Dowel in Concrete	32	Each
480E0200	Epoxy Coated Reinforcing Steel	653	Lb
480E0504	No. 4 Rebar Splice	47	Each
480E0505	No. 5 Rebar Splice	46	Each
480E0506	No. 6 Rebar Splice	74	Each
480E5000	Galvanic Anode	83	Each
680E0040	4" Underdrain Pipe	136	Ft
680E2500	Porous Backfill	7.7	Ton

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.

3. All Welding and Welding Inspection will be in conformance with the latest edition of the AASHTO/AWS D1.5M/D1.5 Bridge Welding unless otherwise noted in this plan set.

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 and are provided as information only. 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.

3. Original construction plans call out Abutment 4, Girder No. 5 bearing to be removed and replaced, actual bearing that was replaced is located at Abutment 4, Girder 1.

4. The elevations shown in the original construction plans are not based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

SCOPE OF BRIDGE WORK & SEQUENCE OF OPERATIONS

All work on this structure will be accomplished with the traffic control shown in these 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. Sawcut approach pavement and install membrane expansion joints as outlined elsewhere in plans prior to the starting the structural work.

2. Remove the existing approach and sleeper slabs, for the first phase of construction.

3. Excavate required area for replacement of the underdrain pipe, for first phase of construction.

4. Place bridge end backfill and underdrain system material, for the first phase of construction.

5. Breakout portion of Expansion Joint and Barrier Concrete, for the first phase of construction.

6. Perform girder jacking and replace the bearings at Girder 5, Abutment No. 1 as shown in the plans.

7. Modify the girder ends at Abutment No. 1, for the first phase of construction.

8. Replace portion of barrier, Expansion Joint and install sliding plate at Abutment No. 1, for the first phase of construction.

9. Replace approach slabs and sleeper slabs to the correct grade, for the first phase of construction.

10. Switch traffic and repeat steps 2 to 5 and 7 to 9 for the second phase of construction.

11. Repair Bridge Berms and inslopes at Abutment No. 1.

12. Zone paint girder ends and bearings.

GENERAL CONSTRUCTION

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 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.

9. Prior to welding, the surface of the existing structural steel will be clean of dirt, rust, and paint 3 inches from each side of the outside lines of the welds.

DESIGN MIX OF CONCRETE

1. Class A45 Concrete will be used for Concrete Approach Slab for Bridge and Concrete Approach Sleeper Slab for Bridge.

2. The type of cement, concrete strength requirements, aggregate requirements, slump, and air requirements for the contract items Concrete Approach Sleeper Slab for Bridge and Concrete Approach Slab for Bridge will conform to the requirements of Section 460 of the Construction Specifications.

REMOVAL OF CONCRETE BRIDGE APPROACH SLAB

1. The existing concrete approach and sleeper slab adjacent to the structure will be completely removed by the Contractor.

2. The concrete and reinforcing steel from the removal will be disposed of by the Contractor at an approved site. An appropriate site will be as described in the Environmental Commitment Notes in this set of plans.

3. The quantity provided for Remove Concrete Bridge Approach Slab is computed using the plan area for the sleeper slab and the plan area for the approach slab determined separately.

4. All labor, tools, equipment, and any incidentals necessary for removal and disposal of the existing approach slab, finger joint, and sleeper slab will be incidental to the contract unit price per square yard for Remove Concrete Bridge Approach Slab.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES

FOR

260' - 8" CONT. COMP. GIRDER BRIDGE

STR. NO. 29-299-040

JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TAMA02		

APPROACH SLAB UNDERDRAIN SYSTEM

1. The existing underdrain system will be replaced underneath the sleeper slabs as shown in the plans. The Approach Slab Underdrain System will be constructed in accordance with Section 435 of the Construction Specifications except the drainage tubing will be as specified in these notes and as detailed in the plans.

2. The existing underdrain pipe under the sleeper slab will be completely removed from the subgrade. In the event the existing sleeper trench will not be reused, the existing under drain trench will be backfilled with cohesive soil placed with moisture density control up to the bottom of the Granular Bridge end Backfill. Removal and disposal of the existing underdrain pipe and trench relocation efforts if required will be incidental to the contract unit price per cubic yard for Approach Slab Underdrain Excavation.

DRAINAGE TUBING

1. The 4-inch diameter perforated dual wall HDPE drainpipe will conform to ASTM D3350 and AASHTO M252, Type SP.

2. Care will be taken to ensure that the 4-inch diameter perforated dual wall HDPE drainpipe and the 4-inch diameter dual wall HDPE outlet pipe are not damaged during construction. Sufficient cover material will be placed over the pipes before compaction equipment is allowed over the underdrain system. Any damaged pipes will be replaced by the Contractor at no additional cost to the Department.

3. All labor, tools, equipment, and any incidentals necessary for the installation of the 4-inch diameter perforated dual wall HDPE drainpipe, the 4-inch diameter dual wall HDPE outlet pipe, and 5-inch steel pipe will be incidental to the contract unit price per foot for 4” Underdrain Pipe.

APPROACH SLABS

1. Bridge end backfill will be constructed in accordance with Section 430 of the Construction Specifications except the drainage tubing will be as specified in these notes and as detailed in the plans.

2. Excavation for placement of new approach slabs, sleeper slabs and drainage piping will be done with minimal disturbance to the underlying material.

3. Prior to the placement of the approach and sleeper slabs, the existing gravel cushion material will be compacted using at least four complete passes of a smooth face vibratory roller or vibratory plate compactor. A layer Base Course will be placed as required to fill any low spots and to achieve the elevation needed for installation of the new approach and sleeper slabs. The existing and new fill material will be thoroughly watered prior to and during compaction. Base Course will be in accordance with Section 882 of the Construction Specifications.

4. The top of approach slab elevations will be as provided and subject to the approval of the Engineer. Care will be taken to provide a smooth transition from the bridge deck elevations to the new pavement elevations established in the field to prevent any dips or bumps in the areas of the bridge ends or ends of the new approach slabs. The maximum rate of grade transition through the approach slab will be 1/8-inch per 10 feet.

5. Sleeper slab riser will be cast with or later than the approach slab. Care will be taken to ensure the correct grade is maintained across the joint.

6. The portion of the sleeper slab below the construction joint may be precast. If the bottom portion of the sleeper slab is precast, the Contractor will submit proposed lifting and setting plans to the Bridge Construction Engineer for approval. In addition, if reinforcing or other details differ from those shown in the plans, the Contractor will submit proposed alternate details for approval.

7. The use of a vibratory screed will be required during placement of Class A45 Concrete for the approach slabs. Concrete placement in front of the screed will be kept parallel to the screed.

8. The concrete in the approach slab will be tined perpendicular to the centerline of the roadway.

9. The new approach slabs and sleeper slabs will have a surface finish as specified in Section 460.3 L.4 of the Construction Specifications.

10. The concrete approach slabs will be cured in accordance with Section 460.3 M of the Construction Specifications. The minimum 7-day cure time requirement will be waived. The approach slabs will be cured until a minimum compressive strength of 4,000 psi is reached.

11. The quantity of Base Course required to fill any low spots or voids is based on a 2-inch layer under the area of the approach slab. The actual quantity may vary.

12. Concrete Approach Sleeper Slab for Bridge will be paid for at the contract unit price per square yard. This payment will be full compensation for excavation; furnishing, hauling, and placing all materials including: concrete, and reinforcing steel; for disposal of all excavated material and surplus materials; labor; tools; equipment; and any incidentals necessary to complete this item of work.

13. Concrete Approach Slab for Bridge will be paid for at the contract unit price per square yard. This payment will be full compensation for excavation; furnishing, hauling, and placing all materials including: concrete, asphalt paint or 6 mil polyethylene sheeting, elastic joint sealer, and reinforcing steel; for disposal of all excavated material and surplus materials; labor; tools; equipment; and any incidentals necessary to complete this item of work.

14. Any Base Course and compaction required to fill any low spots or voids will be paid for at the contract unit price per cubic per yard for Granular Bridge End Backfill. This payment will be full compensation for furnishing, hauling, and placing all materials including disposal of all surplus materials; labor; tools; equipment; and any incidentals necessary to complete this item of work.

GALVANIC ANODE

1. The Contractor will furnish and place galvanic anodes in the concrete repair areas specified in this plan set.

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: (612) 248-5651

   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: (201) 933-8800

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 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 ¾” 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 minimum 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 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.

NOTES (CONTINUED)

FOR

260' - 8" CONT. COMP. GIRDER BRIDGE

STR. NO. 29-299-040

JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steven A. Johnson BRIDGE ENGINEER
HAML09TA	09TAMA03		

GALVANIC ANODE (CONTINUED)

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 joint 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: (612) 248-5651

SURFACE FINISH

1. All of the surfaces visible to the traveling public on the new concrete 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 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 with regard to 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 258 square feet for Phase 1 and 258 square feet 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 yard for Class A45 Concrete, Bridge Barrier. This payment will be full compensation for furnishing all materials, labor, tools and equipment necessary or incidental to the application of this finish.

REPLACE EXPANSION DEVICE

1. Materials for structural plates will conform to ASTM A709, Grade 36. Material for the steel extrusion will conform to ASTM A36 or A588. All steel components, steel plates, and structural shapes will be galvanized after shop welding in accordance with ASTM A123.

2. Bolts will be 7/8" diameter ASTM F3125, Grade A325. Each bolt will be supplied with a heavy hex nut and square washer. Bolt is to be turned 1/3 turn beyond snug tight. The rotational-capacity test will not be required for erection bolts.

3. The end-welded concrete anchors will conform to Type A steel studs of the latest edition of ANSI/AWS D1.5 Structural Steel Welding Code. The end-welded deformed bar anchors will be commercially available Fluxed Deformed Bar Anchor Studs, automatically end-welded, with material conforming to ASTM A1064.

4. The configuration and dimensions of the steel extrusions and neoprene seal may vary according to each Manufacturer's design. The shape of the neoprene seal will be compatible with the steel extrusions. Material for the neoprene seal will conform to that specified in ASTM D2628 modified to omit the recovery test. No splices will be permitted in the neoprene seal.

5. The lubricant adhesive used to install the neoprene seal will conform to the requirements of ASTM D4070. The neoprene seal and the lubricant adhesive must be compatible.

6. The steel extrusions will be dry, clean, and free of all surface contaminants when the neoprene seal is installed. The installation of the preformed neoprene seal will be as recommended by the Manufacturer and approved by the Engineer, but in general will be installed and bonded to the steel extrusion with a high-solids lubricant adhesive. The preformed neoprene seal will be installed after the steel extrusions are installed in the bridge deck.

7. The two steel extrusions of the new expansion joint will be placed parallel to each other at the required joint opening as specified by the joint installation table.

8. The complete expansion device will be set at the correct grade and crown slope and securely supported during placement of Class A45 Concrete. Care will be taken to ensure that the correct grade is maintained across the joint.

9. Welded field splice details and the procedures for preparing the surfaces of the entire fabricated joint for welding and repairing the galvanizing after welding will be included in the shop plans. Repair of galvanizing will be by the zinc-based solder method in conformance with ASTM A780. No welds will be permitted in the internal section of the extrusion where the Neoprene Strip is located.

10. The deck will be broken out and rebuilt to the limits shown on the plans. The existing reinforcing steel that is exposed during concrete breakout is to be reused.

11. Extreme care will be used during concrete breakout to prevent nicks, gouges, scratches, or damage to existing structural steel components to be reused. Prior to deck removal, the limits of the girder top flanges will be marked on top of the bridge deck. The Contractor will not be allowed to use any impact type breakout equipment larger than power driven hand tools for slab removal within six inches of the actual limits of the top flange. At no time will the use of any breakout method that will nick, gouge, or scratch the flange, or any other structural steel component to be reused, be allowed. If any nicks, gouges, scratches, or other damage occurs, the Office of Bridge Design will be immediately notified. All damage will be repaired by the Contractor as recommended by the Office of Bridge Design. All costs involved in repairing any damage, including any non-destructive testing that may be required, will be at the expense of the Contractor.

12. The cost of removal and disposal of concrete, furnishing, galvanizing, welding, and installing all required materials including labor, equipment, and incidentals necessary to complete the work in accordance with the plans will be included in the contract unit price per each for Replace Expansion Device.

INSTALL BEARING STIFFENERS FOR JACKING

1. To replace the bearing plates at Abutment No. 1 Girder No. 5, new bearing stiffeners will be installed at the jacking points shown in the plans prior to jacking the superstructure.

2. Bearing stiffeners at Abutment No. 1 jacking location will conform to A709, Grade 36.

3. All costs associated with installing the new bearing stiffeners, including all labor, materials, equipment and any incidentals will be included in the contract lump sum price for Jack Superstructure, Steel Girder Bridge.

JACKING SUPERSTRUCTURE

1. Vertical jacks will be used to support the Girder No. 5 of Abutment No. 1 at the plan specified location, until the girder end modifications are complete, and the bearing replaced. The jacking point and loads will be shown in plans. The intent of the jacking procedure is to transfer the full dead load reaction and any expected live load reaction due to traffic phasing to the jack during the bearing repositioning process while keeping the vertical movement of the girder to the minimum amount necessary, as approved by the Engineer.

NOTES (CONTINUED)
FOR
260' - 8" CONT. COMP. GIRDER BRIDGE

STR. NO. 29-299-040
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steven A. Johnson BRIDGE ENGINEER
HAML09TA	09TAMA04		

JACKING SUPERSTRUCTURE (CONTINUED)

2. The vertical jack will have a lock nut for mechanical load holding with hydraulic pressure released.

3. The vertical jack will be able to safely support a load of 100 tons at Girder No. 5 of Abutment No. 1 for the entire time required to replace the bearing. The temporary support at the jacking locations will be designed to allow for a longitudinal girder movement of 1 13/16 inches at Girder No. 5 of Abutment No. 1.

4. The jack will include calibrated gauges, which indicate jack load.

5. The jack will have a bearing plate of sufficient area and thickness to limit the bearing stress on the loaded areas of concrete to not more than 1,600 psi and to limit the bearing stress on the loaded area of steel to not more than 20,000 psi. A minimum 1' - 4" x 4 1/2" x 7/8" steel bearing plate will be placed between the jack and bottom flange at the Abutment No. 1 jacking points.

6. The jacking plates will become property of the Contractor following the jacking operation.

7. Caution will be exercised when transferring the girder reactions to and from the jacks to ensure that no damage to any of the existing structural components will occur due to the jacking procedure. Any damage to any of the structural components of the bridge caused by the jacking procedure will be repaired as approved by the Engineer at no cost to the Department.

8. The Contractor will be required to submit a detailed jacking plan, approved and stamped by a Professional Engineer registered with the State of South Dakota. The jacking procedure will be submitted 30 days prior to the start of work for the approval by the Office of Bridge Design. Included in this procedure will be the details of the bearing plates used to limit the bearing stress on the concrete and steel; the type, number, positioning, temporary supports, size, load monitoring method, and method of synchronization between multiple jacks.

9. All costs for materials, labor, welding, equipment, and incidentals necessary to perform the vertical jacking as shown by these plans will be included in the contract lump sum price for Jack Superstructure, Steel Girder Bridge.

GIRDER END MODIFICATION AT ABUTMENT

1. This work will consist of the removal of a section of the girder ends at the expansion abutment (Abutment 1) and the addition of steel plates to bumper the girder. The structural steel for all of the plates for this work will conform to ASTM A709, Grade 36.

2. The girder removal method will be oxyacetylene cutting. Any other method will meet the approval of the Bridge Construction Engineer.

3. All costs for labor, materials, welding, equipment and any incidentals necessary to furnish and install the shim plates will be incidental to the Contract Unit Price for "Modify Girder End".

4. Removal of paint and repainting work of affected areas will be included in the contract unit price lump sum for Paint Residue Containment and Bridge Repainting, Class II.

AIR CARBON ARC PROCESS

1. Lay out all cut lines on the steel surfaces, using a marker visible during the cutting process, before any air carbon arc cutting begins.

2. When grinding to a specified shape or dimension is required after air carbon arc cutting, lay out the shape on the steel surface with a visible marker and grind to the layout line. Radius all edges to accept paint.

3. Extreme care will be exercised during the cutting so that absolutely no damage (such as nicks, gouges, and splattering) to the surrounding metal occurs. Any damage caused by the air carbon arc process will be repaired by the Contractor to the satisfaction of the Engineer at no cost to the Department.

4. Grind all surfaces cut with the air carbon arc process to remove high carbon deposits, provide a smooth finish, and radius edges for painting.

BEARING AT ABUTMENT NO. 1

1. New anchors for the bearing at Abutment No. 1 on Girder No. 5, will be 1½" threaded rods conforming to ASTM F1554 Grade 36. Threaded rods will be galvanized in accordance with ASTM A153.

2. All costs for materials including anchors assemblies, labor, equipment, and any incidentals necessary to reposition the bearing shoe as shown by these plans will be included in the contract lump sum price for Jack Superstructure, Steel Girder Bridge.

CONCRETE BREAKOUT FOR BARRIER

1. The existing curbs and end blocks 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 the road below.

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.

INSTALLING 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. In spite of 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 the 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 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.

NOTES (CONTINUED)

FOR

260' - 8" CONT. COMP. GIRDER BRIDGE

STR. NO. 29-299-040

JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TAMA05		

BARRIER EXPANSION DEVICE

1. Material for the structural plates and bars will conform to ASTM A36. The $^1/_2$-inch diameter end welded deformed bar anchors will be a commercially available Deformed Bar Anchor Stud, automatically end welded, with material conforming to ASTM A1064. The end welded concrete anchors will conform to Type A steel studs per latest edition of the AASHTO/AWS D1.5M/D1.5 Bridge Welding Code. The ferrule inserts will be 3/4-inch diameter commercially available regular steel inserts.

2. The bolts used to attach the sliding plates will be galvanized 3/4-inch diameter ASTM A307 counter sunk flat head bolts. Counter sunk bolts will be compatible to the thread type supplied with the plain ferrule inserts. All bolts are to be coated with liquid thread locking material that is intended to allow for future removal.

3. All steel components will be galvanized after shop welding in accordance with ASTM A123.

4. All steel for the barrier expansion device will not be in contact with barrier reinforcing steel.

5. The cost of furnishing all material, labor, tools, and equipment required for the barrier expansion device including plates, bolts, insert, anchors, welding, galvanizing, and incidentals will be included in the lump sum price bid for Structural Steel, Miscellaneous.

BRIDGE BERM REPAIR

1. The bridge berm at Abutment No. 1 has erosion channels and settlement voids on the slope. The bridge berm shown in this plan set will be rebuilt and reshaped to the original template.

2. Fill voids under Abutment No. 1 and fill in erosion channels on the berm slope. Reconstruct the berms to at least 1-foot above the bottom of the abutment backwall. The berm slope will be benched into stable embankment during reshaping and reconstruction. The soil will be placed in horizontal lifts perpendicular to the centerline of the structure.

3. Shape the fill in front of the wing walls to divert runoff from the inslopes away from the face of the berm slope. Reshape the inslopes from the wing walls to the end of the sleeper slab.

4. At the upper part of the berm slope, clearance between the structure and berm will prohibit the use of large compaction equipment. The soil in this area will be compacted using hand operated compaction equipment. Berm material will be placed in reduced lift thicknesses with adequate moisture to obtain density requirements.

5. Soil used to reconstruct the berm slope will be furnished by the Contractor and approved by the Engineer. The soil will have 100% passing the 1 ½ inch sieve, a maximum of 70% passing the #4 sieve, have a maximum Liquid Limit (LL) of 45 and a Plastic Index (PI) greater than 10 but less than 25. The Contractor will be responsible for one gradation, LL and PI test for each borrow source for berm reconstruction. The test results will be supplied to the Engineer in writing.

6. Compaction of the reconstructed berm and inslopes will be governed by the Ordinary Compaction Method.

7. No informational quantities are available. The Contractor will visit the site prior to determine necessary quantities.

8. The cost of the berm reconstruction will be incidental to the contract unit price per each for Bridge Berm Repair. This payment will be full compensation for furnishing all materials, labor, tools, channel diversion, and equipment necessary or incidental to the reconstruction of the bridge berm.

BRIDGE REPAINTING, CLASS II

The color of the top coat will be an approved green (Federal Standard 595B Color 24108). The prime coat and the top coat will sharply contrast.

APPLICATION OF RUST PENETRATING SEALER

1. Pack rust within the paint designated areas will be treated with a rust penetrating sealer. The rust penetrating sealer will be applied after the area has been cleaned and prepared for painting but prior to the application of the final paint system.

2. The rust penetrating sealer supplied will be one of the following:
   a. Pre-Prime 167
      Penetrating Sealer International
      South Dakota Area Manager: Kevin Perego
      Telephone: 636-207-8897
      Cell: 314-540-8925
      Website: www.international-pc.com

   b. Wasser MC-PrepBond 2.8
      Wasser Corporation
      4118 B Place NW Suite B
      Auburn, WA 98001
      Telephone: 800-627-2968
      Website: www.wassercoatings.com

   c. Time-Lock MoPoxY PRE-PREP
      Rust Penetrating Sealer 41-AF-2
      BLP Mobile Paints
      P.O. Box 717
      Theodore, Alabama 36590-0717
      Telephone: 251-443-6110
      Website: www.blpmobilepaint.com

   d. Rust Bullet Standard Formula
      Rust Bullet, LLC
      300 Brinkby Avenue, Suite 200
      Reno, NV 89509
      Telephone: 800-245-1600
      Website: www.rustbullet.com

   e. MACROPOXY 5000
      Sherwin Williams Company
      Greg Larson
      Cell: 612-220-6299
      Website: www.sherwin-williams.com

3. The rust penetrating sealer will be applied in accordance with the recommendations of the manufacturer and approved by the Engineer.

4. Prior to application of the rust penetrating sealer, remove all loose pack rust from the joint or crevice areas and remove as much pack rust as practical to a level below the steel members between which the rust is packed.

5. Strip coat (brush apply) the rust penetrating sealer in the pack rust areas. Do not apply the remainder of the paint system until the area has cured as specified by the manufacturer of the rust penetrating sealer.

6. Application of sealer will be per the contract unit price lump sum for Rust Penetrating Sealer. Payment will be full compensation for labor, equipment, materials and incidentals for furnishing, preparing surfaces for application and installing the Rust Penetrating Sealer.

PAINT RESIDUE REMOVAL AND CONTAINMENT

1. Paint removal on the existing bridge will be in accordance with Section 412 of the Construction Specifications except as modified by these notes.

2. The Contractor will plan operations to prevent releases of lead-containing material and other particulate matter into the surrounding air, water, and onto the ground, slope protection, and pavement. The Contractor will be responsible for any corrective actions should a spill occur.

3. Collect all visible paint particles and blasting residue containing paint at the end of each workday from the work area. Inspect outside the containment and collect any paint particles or blasting residue that escaped the work area. Collect waste material by manual means, vacuum, or another method approved by the Engineer. Do not use air pressure or streaming water to assist in the waste collection process that could disperse the waste material.

4. The existing bearing pads might contain lead. The existing bearing pads will be disposed of in the same barrels as the paint particles. The disposal of the bearing pads will be per the contract unit price lump sum for Paint Residue Containment.

NOTES (CONTINUED)

FOR

260' - 8" CONT. COMP. GIRDER BRIDGE

STR. NO. 29-299-040

JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
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HAML09TA	09TAMA06		

PAINT RESIDUE REMOVAL AND CONTAINMENT (CONTINUED)

5. In the event of a spill or inadvertent release, the Contractor will immediately stop work, notify the Engineer, and report the release to the South Dakota Department of Agriculture and Natural Resources (DANR). The Contractor will be responsible for completing a spill reporting form and for all costs associated with appropriate corrective actions.

   To report a release or spill, call DANR at (605) 773-3296 during regular office hours (8 a.m. to 5 p.m. Central time). To report the release after hours, on weekends or holidays, call State Radio Communications at (605) 773-3231. Reporting the release to DANR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, the Contractor must also contact local authorities to determine the local reporting requirements for releases. DANR recommends that spills also be reported to the National Response Center at (800) 424-8802.

6. The Contractor will haul and unload the 55-gallon containment drums with paint residue, blasting media, etc. to the SDDOT Maintenance Yard located in Clear Lake for temporary storage and disposal. The Clear Lake maintenance yard is located 1000 feet west of the junction of SD highway 22 and SD Highway 15. Contact for the maintenance yard is Calvin Esche (605) 881-7163. All costs associated with this work will be included in the contract lump sum price for Paint Residue Containment.

7. If the Contractor elects to use containers other than 55-gallon barrels to hold paint residue the Contractor will be responsible for all testing and disposal at a permitted regional landfill. The Contractor will be responsible for compliance of laws and regulations regarding storage, handling, and shipping. Copies of all tests, shipping, and disposal documents will be provided to the Office of Bridge Design.

SOLUBLE SALT REMEDIATION

1. In the presence of the Engineer, test and remediate soluble salts in areas of the existing girders to be coated to the following levels:

   Chloride < 7µg/cm^2

   Ferrous Ion < 10µg/cm^2

   Sulfate < 17µg/cm^2

2. Conduct soluble salt tests across the structure according to NACE SP0716 on corroded and pitted areas. Use the cell method of SSPC Guide 15 to collect the samples. Conduct this testing after abrasive blasting.

3. Provide the proposed method of soluble salt remediation in a Soluble Salt Remediation Plan and submit to the Engineer 7 days prior to starting paint work.

4. Include the process that will be used for recleaning the steel after testing.

5. If the soluble salts are removed using wet methods, remove the resulting flash rust before applying coating.

6. Soluble Salt Remediation will be included in the contract lump sum price for Bridge Repainting, Class II. Payment will be full compensation for labor, equipment, materials, and incidentals for preparing surfaces for testing, testing supplies and necessary soluble salt remediation methods selected by the Contractor.

NOTICE - LEAD BASED PAINT

Be advised that the paint on the steel surfaces of the existing structure and the bearing pad could contain lead. The Contractor should plan operations accordingly and inform employees of the hazards of lead exposure.

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 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) and will use the benchmark provided in the plans. The Contractor will be responsible for verifying the 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

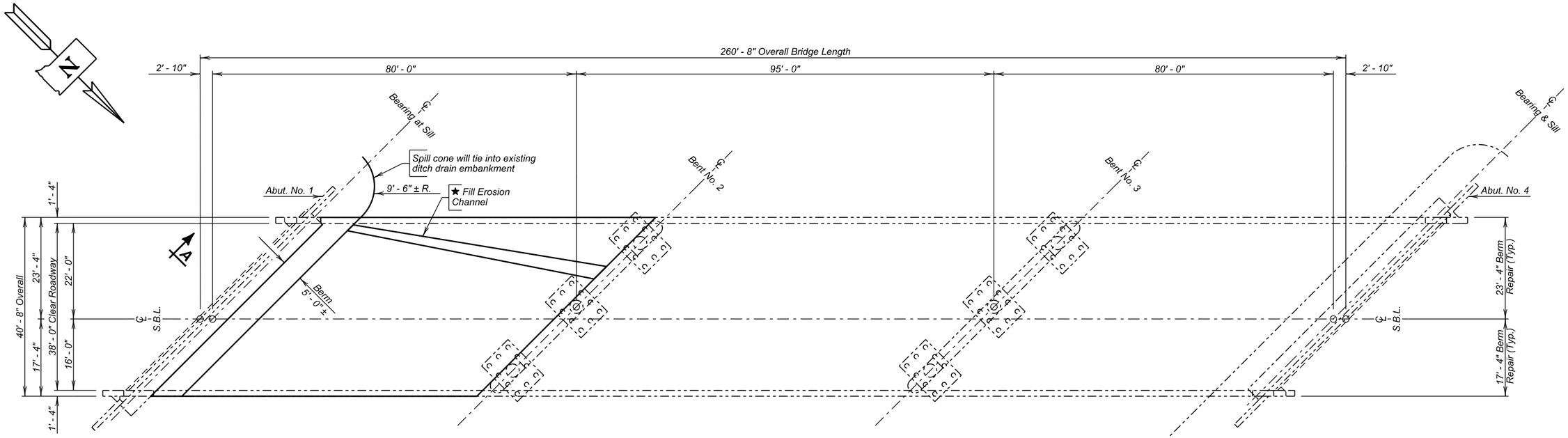
260' - 8" CONT. COMP. GIRDER BRIDGE

STR. NO. 29-299-040

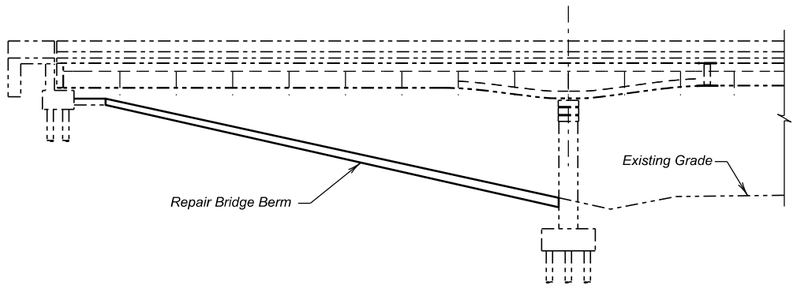
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steven A. Johnson BRIDGE ENGINEER
HAML09TA	09TAMA07		

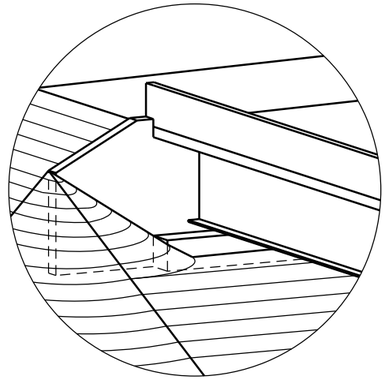
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	62	124



PLAN



SECTION A - A



✠ SPILL CONE DETAIL AT EMBANKMENT

GENERAL NOTES:

✠ *Perform excavation in a manner that limits disturbance to the existing bridge berm. Where disturbance cannot be minimized or if the existing spill cone has eroded, rebuild as shown.*

★ *The exact amount of berm repair material to fill existing channel will be field determined. The dimensions shown are best estimate based on the inspection photos.*

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
★	Bridge Berm Repair	Each	1

(SOUTH BOUND LANES)
BERM REPAIR

FOR

260' - 8" CONT. COMP. GIRDER BRIDGE

38' - 0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. 22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

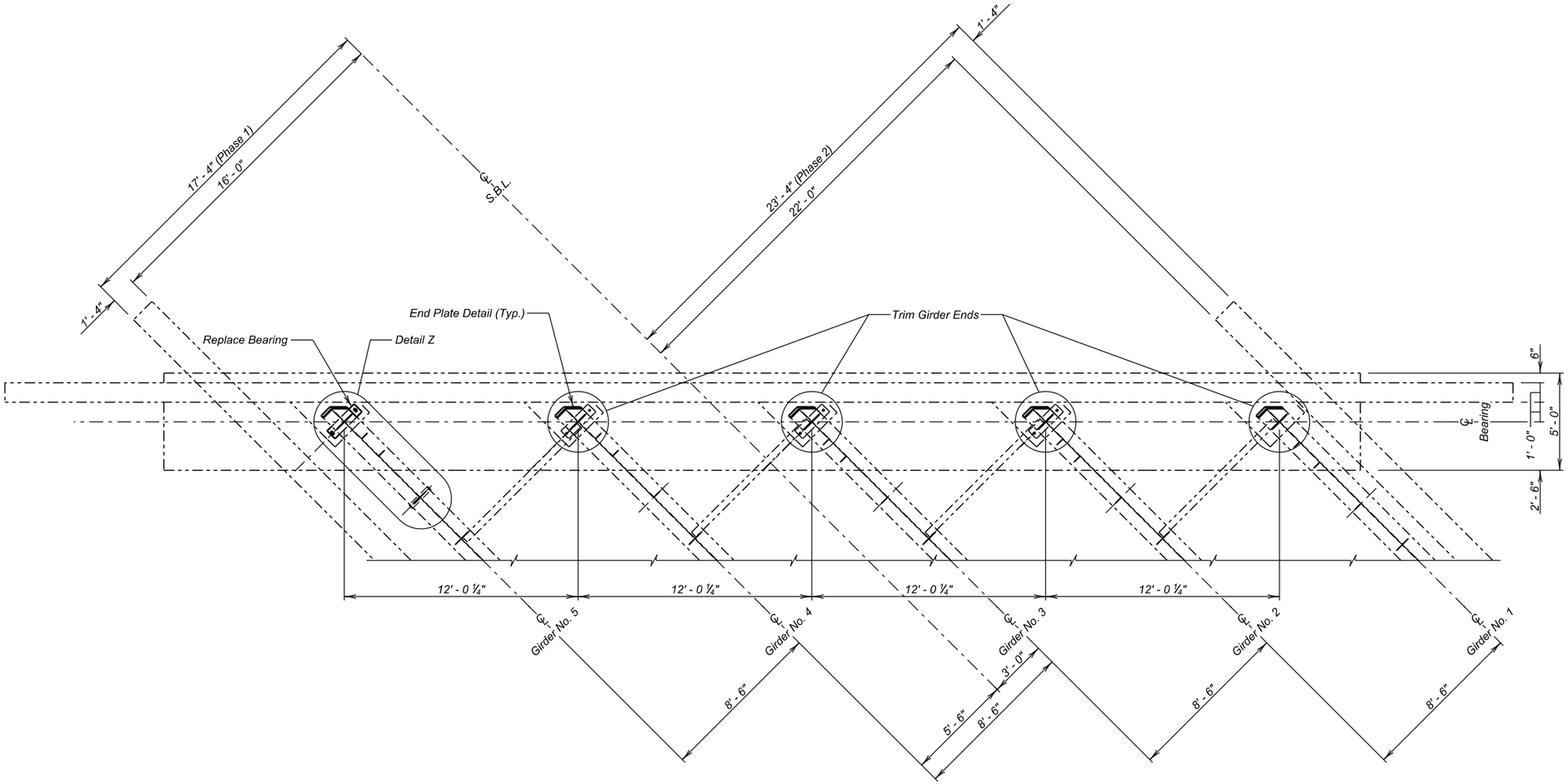
HAMLIN COUNTY

S. D. DEPT. OF TRANSPORTATION

JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TAMA08		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	63	124



PLAN
(Abut No. 1)

Centerline of bearing and girders and the associated dimensions are shown in the original positions

(SOUTH BOUND LANES)

ABUTMENT NO. 1 MODIFICATIONS AND JACKING DETAILS (A)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

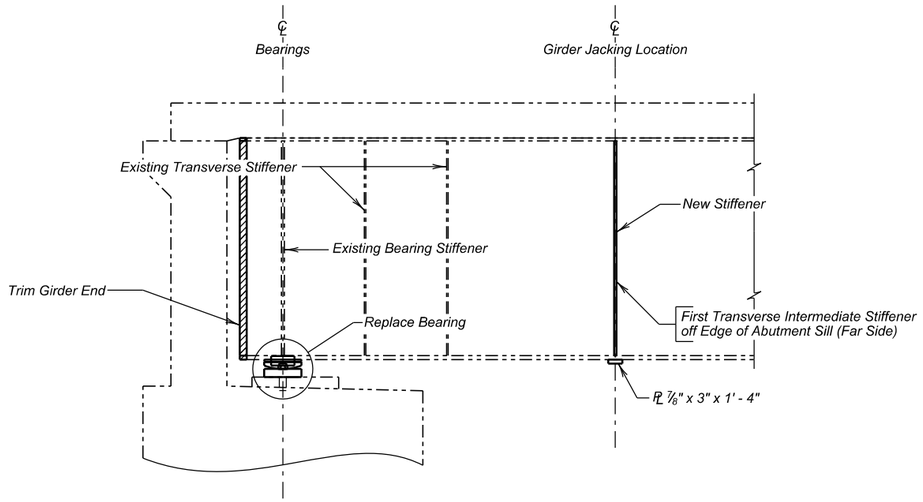
38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

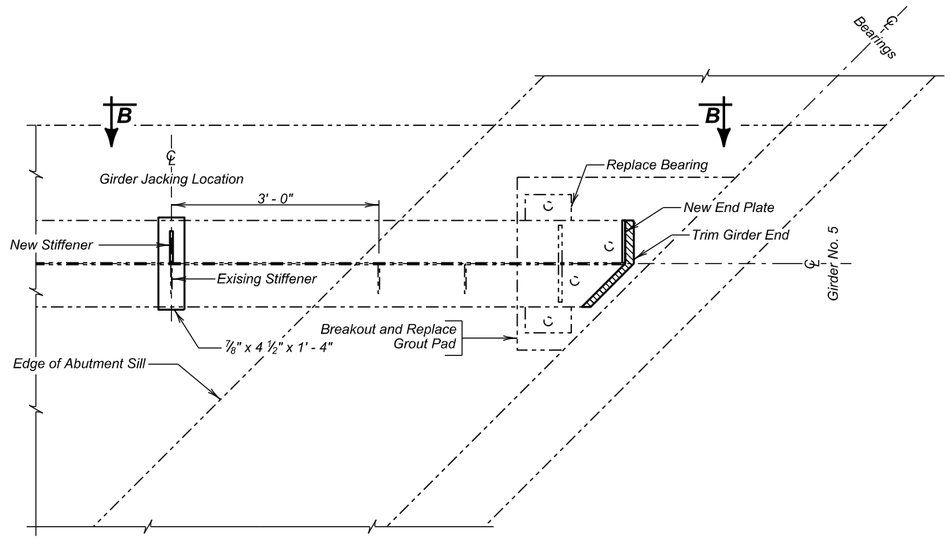
9 OF 70

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A. Johnson BRIDGE ENGINEER
HAML09TA	09TABA09		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	64	124



SECTION B - B



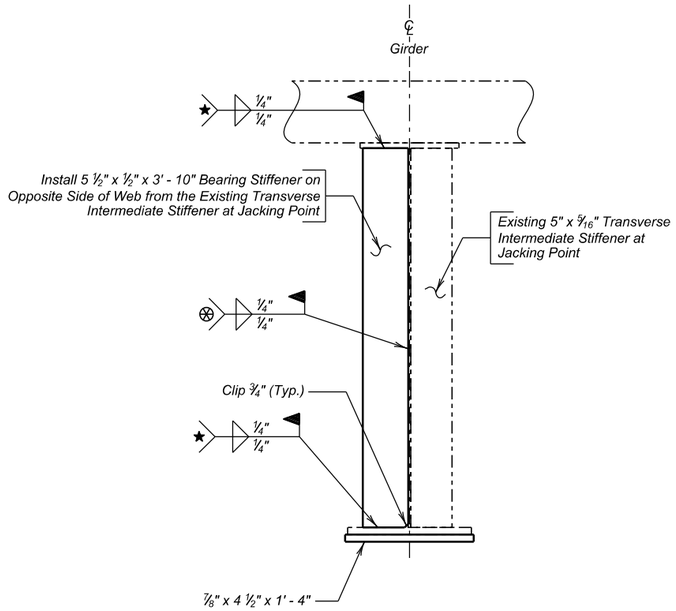
DETAIL Z
(Abut No. 1, Girder 5)

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY Phase 1	QUANTITY Phase 2
◈	Modify Girder End	Each	2	3
◈	Jack Superstructure, Steel Girder Bridge	LS	Lump Sum	
	Breakout and Replace Grout Pad	Each	1	-

◈ *Items 1 to 3 are approximate quantities contained in the above bid items and are for information only.*

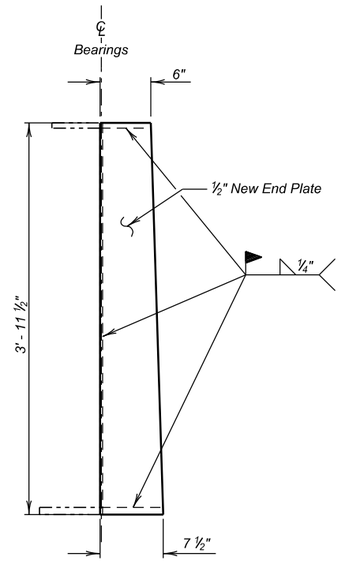
	PHASE 1	PHASE 2
1. Structural Steel (Modify Girder End)	90 Lb	135 Lb
2. Structural Steel (Jack Superstructure)	48 Lb	-
3. Field Weld	234 In	180 In



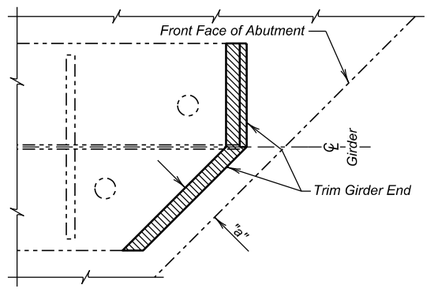
New Stiffener Detail
(Abut No. 1, Girder 5)

★ *Terminate Weld 2" from Edge of Stiffener (Typ.)*

⊛ *Mill Stiffener to bear. Terminate Weld ½" from edge of Stiffener (Typ.)*



End Plate Detail
(Abut No. 1, Girders 1-5)



TRIMMING DETAIL
(Abut No. 1, Girders 1-5)

☆ GIRDER CUT DIMENSION TABLE	
TEMPERATURE	"a"
30°	3 1/16"
40°	3 ⅛"
50°	3 ⅛"
60°	3 1/16"
70°	3"
80°	2 15/16"
90°	2 ⅞"
120°	2"

☆ *Cut 3' - 11 ½" for Full Depth of Girder*

(SOUTH BOUND LANES)

ABUTMENT NO. 1 MODIFICATIONS AND JACKING DETAILS (B)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY

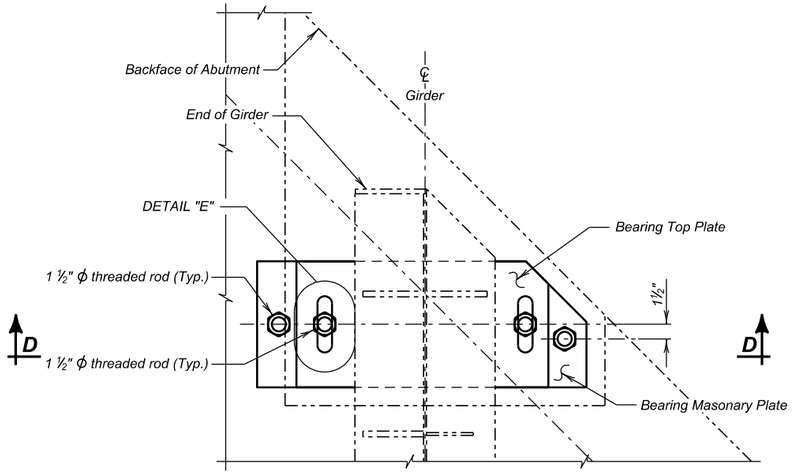
S. D. DEPT. OF TRANSPORTATION

JANUARY 2026

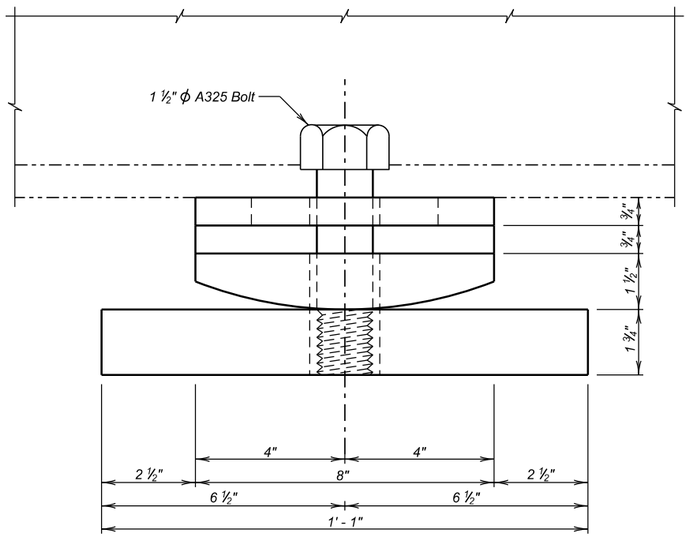
10 OF 70

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA10		

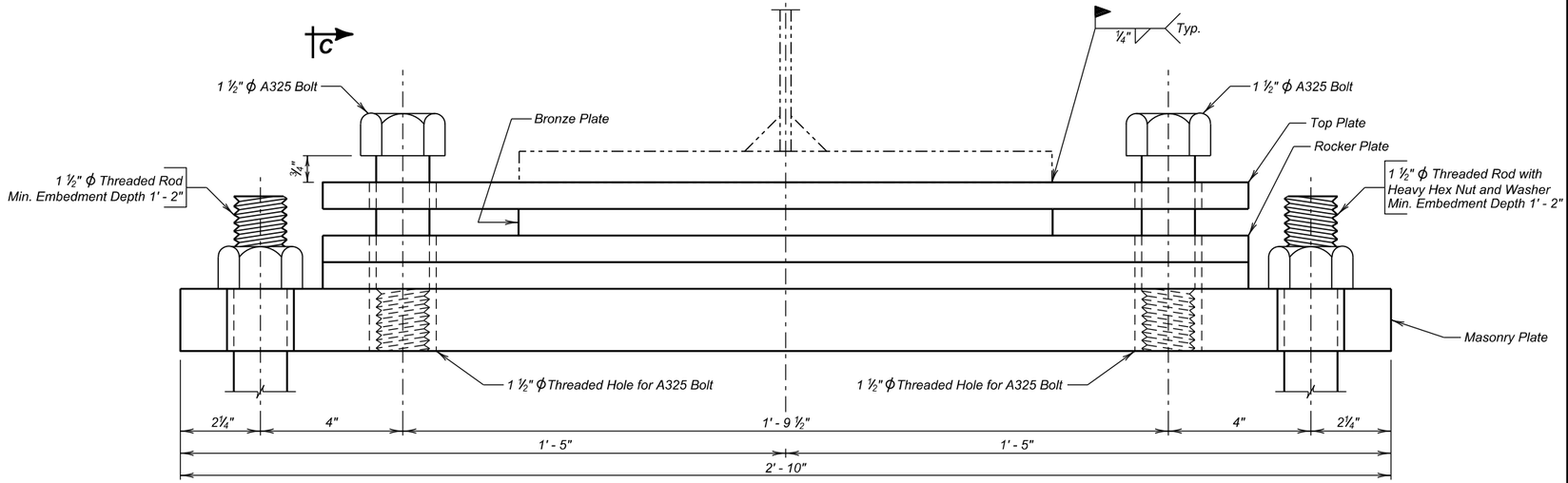
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	65	124



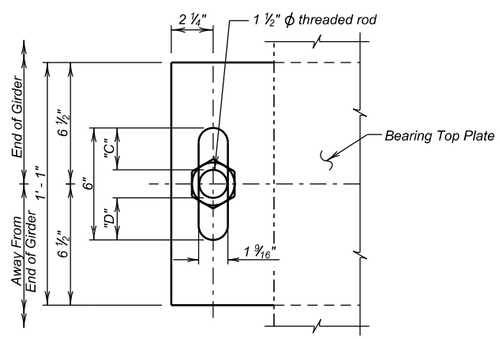
PLAN



SECTION C - C



VIEW D - D



DETAIL "E"

SLOT ORIENTATION

∢ TEMP.	DIMENSION "C"	DIMENSION "D"
20°	3 ¼"	1 ¼"
30°	3 ³⁄₁₆"	1 ⁷⁄₁₆"
40°	2 ⅞"	1 ⅝"
50°	2 ⅝"	1 ⅛"
60°	2 ⁷⁄₁₆"	2 ¹⁄₁₆"
70°	2 ¼"	2 ¼"
80°	2 ¹⁄₁₆"	2 ⁷⁄₁₆"
90°	1 ⅞"	2 ⅝"
100°	1 ⅝"	2 ⅞"
110°	1 ⁷⁄₁₆"	3 ¹⁄₁₆"
120°	1 ¼"	3 ¼"

∢ Average Steel Girder Temperatures

(SOUTH BOUND LANES)
REPLACE BEARING AT GIRDER NO. 5
AT ABUTMENT NO. 1 (A)

FOR

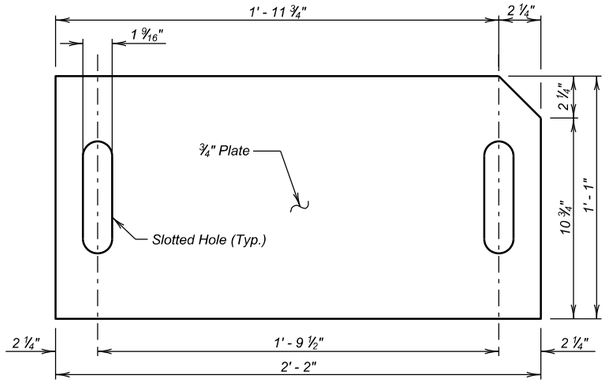
260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

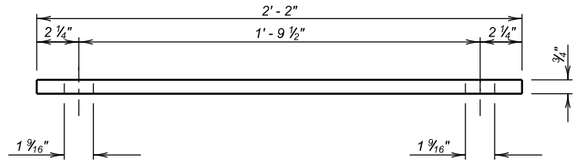
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA11		

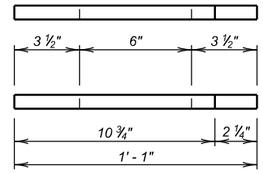
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	66	124



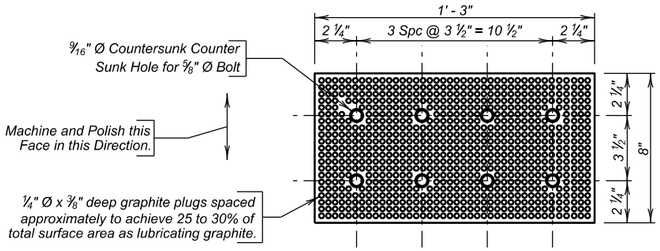
PLAN
(Top Plate)



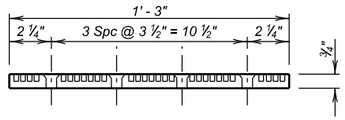
ELEVATION
(Top Plate)



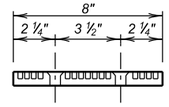
END VIEW
(Top Plate)



PLAN
(Bronze Plate)



ELEVATION
(Bronze Plate)

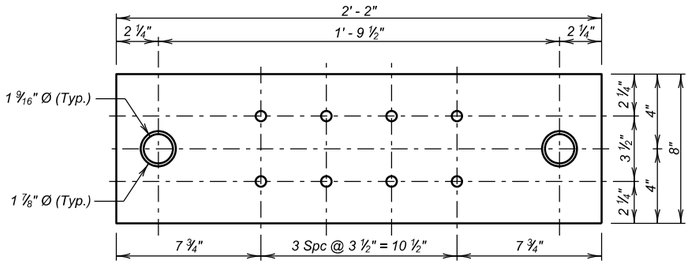


END VIEW
(Bronze Plate)

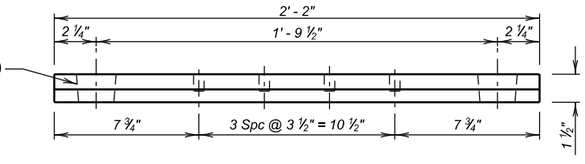
ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY Phase 1	QUANTITY Phase 2
◊ Bearing, Furnish	Each	1	-
Bearing, Install	Each	1	-

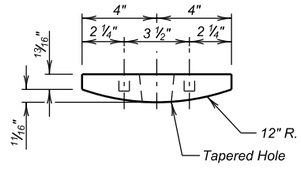
◊ *For informational purposes only, the quantity of Structural Steel for Bearing Plates is 377 lbs.*



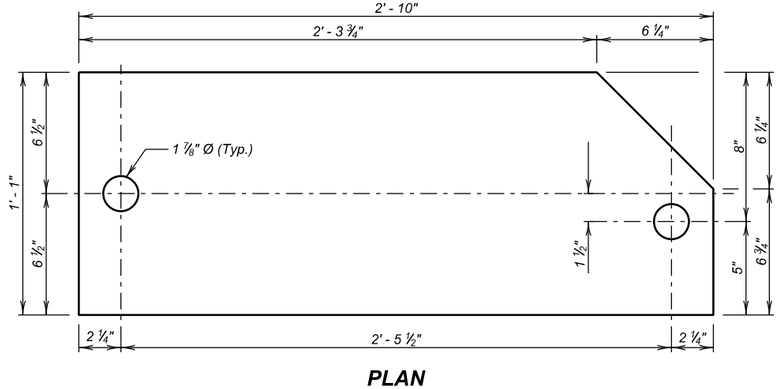
PLAN
(Rocker Plate)



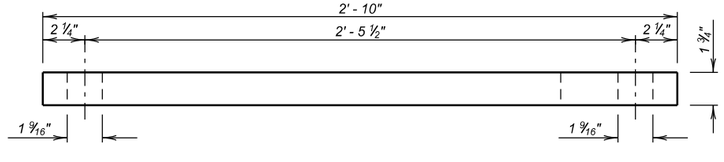
ELEVATION
(Rocker Plate)



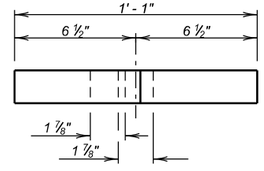
END VIEW
(Rocker Plate)



PLAN
(Masonry Plate)



ELEVATION
(Masonry Plate)



END VIEW
(Masonry Plate)

(SOUTH BOUND LANES)
REPLACE BEARING DETAILS AT GIRDER NO. 5 AT ABUTMENT NO. 1 (B)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

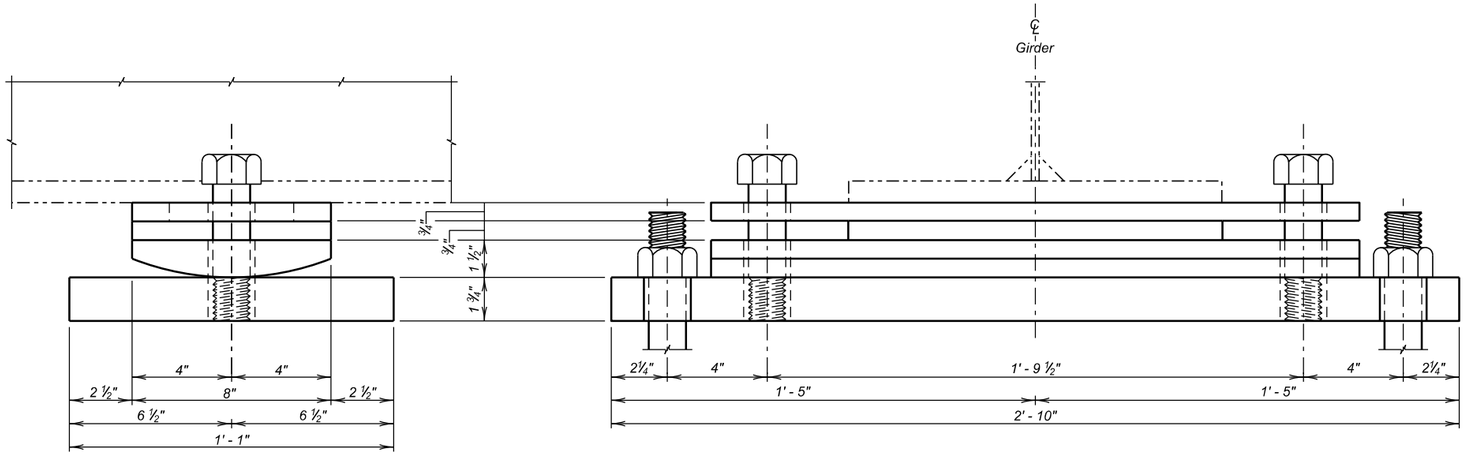
38' - 0" ROADWAY
OVER SD22
STR. NO. 29-299-040

45° L.H.F. SKEW
SEC. 24/25-T115N-R51W
IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

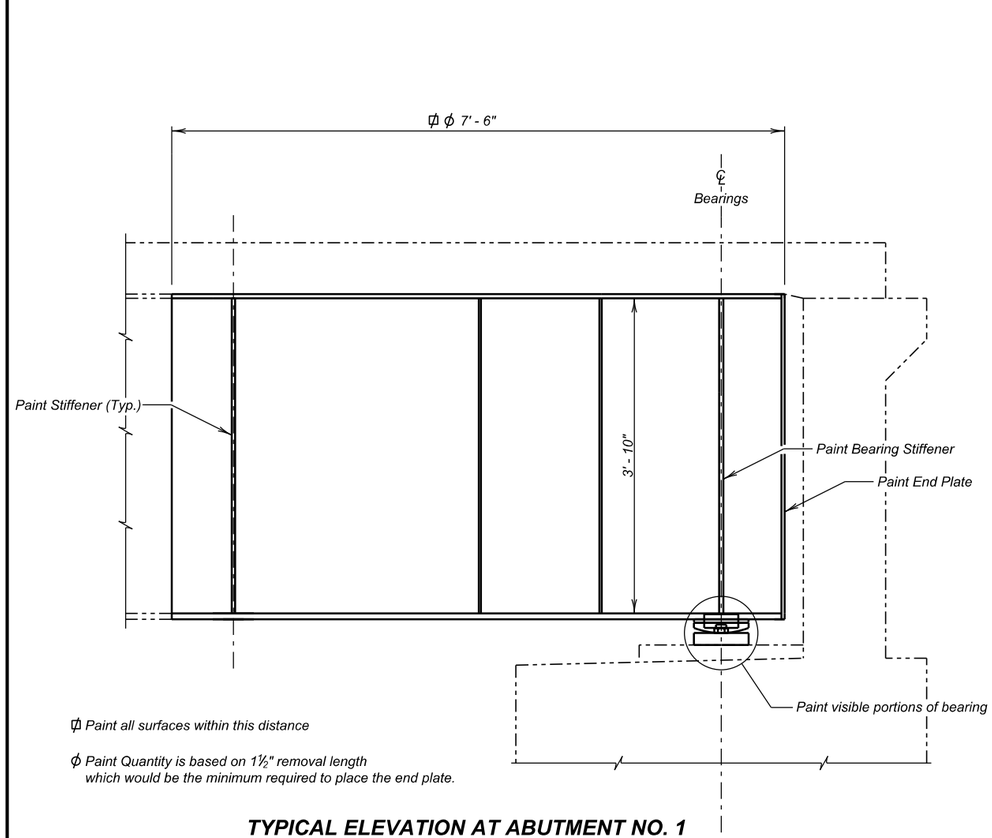
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	BRIDGE ENGINEER
HAML09TA	09TABA12		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	67	124



BEARING ABUTMENT NO. 1

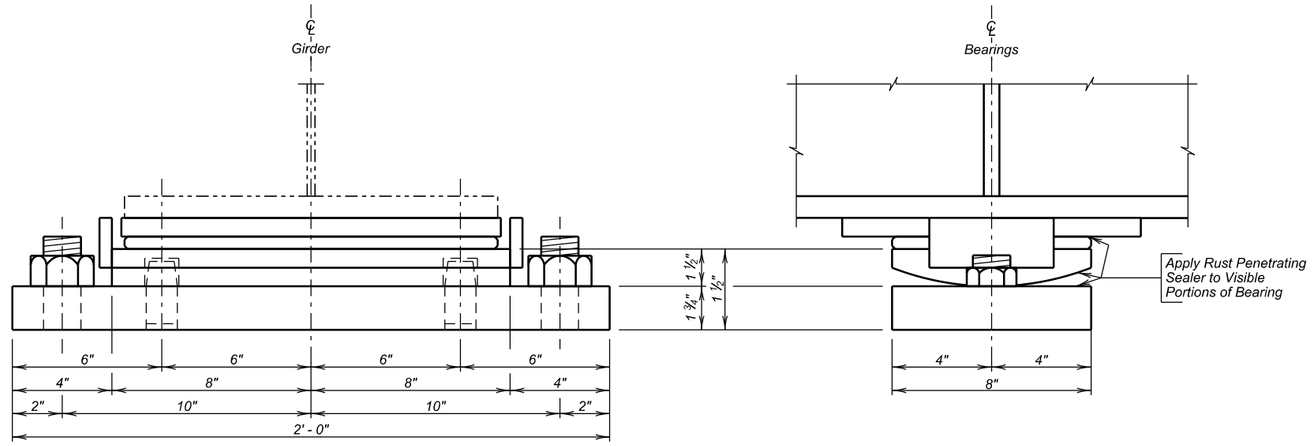
(Girder No. 5)



℄ Paint all surfaces within this distance

ϕ Paint Quantity is based on 1½" removal length which would be the minimum required to place the end plate.

TYPICAL ELEVATION AT ABUTMENT NO. 1



BEARING ABUTMENT NO. 1

(Girders No 1 thru 4)

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Bridge Repainting, Class II	LS	Lump Sum	
Rust Penetrating Sealer	LS	Lump Sum	
Paint Residue Containment	LS	Lump Sum	

Item 1 and 2 are the approximate quantities contained in the above bid items and is for information only.

	PHASE 1	PHASE 2
1. Area of structural steel to be painted	227 SqFt	341 SqFt
2. Rust Penetrating Sealer	0.3 SqFt	1.0 SqFt

The informational quantity for Rust Penetrating Sealer is based on 20 percent of the bearing area requiring sealer.

(SOUTH BOUND LANES)
ABUTMENT NO. 1 PAINT DETAILS
FOR
260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY
OVER SD22
STR. NO. 29-299-040

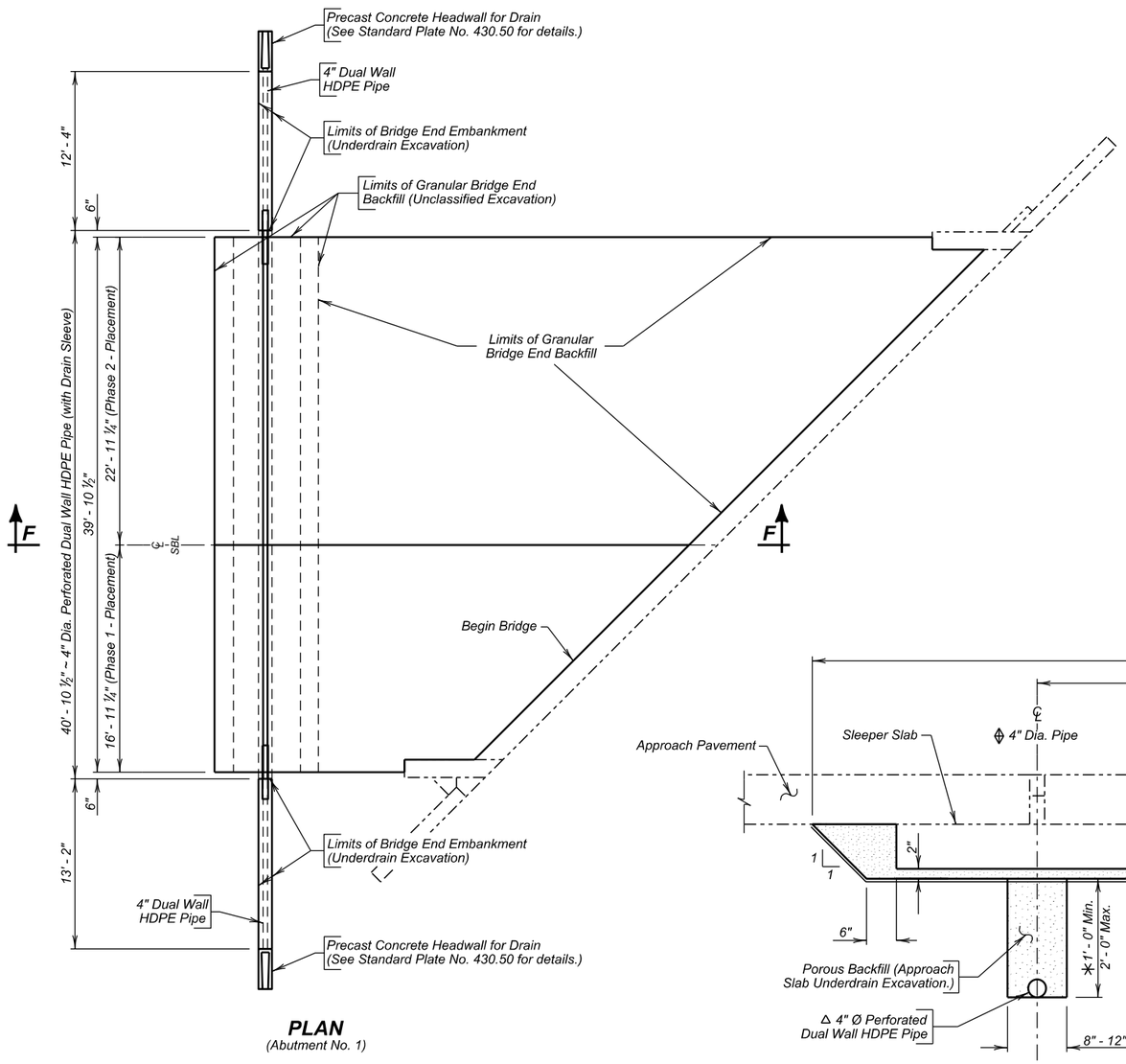
45° L.H.F. SKEW
SEC. 24/25-T115N-R51W
IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

13 OF 70

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A. Johnson BRIDGE ENGINEER
HAML09TA	09TABA13		

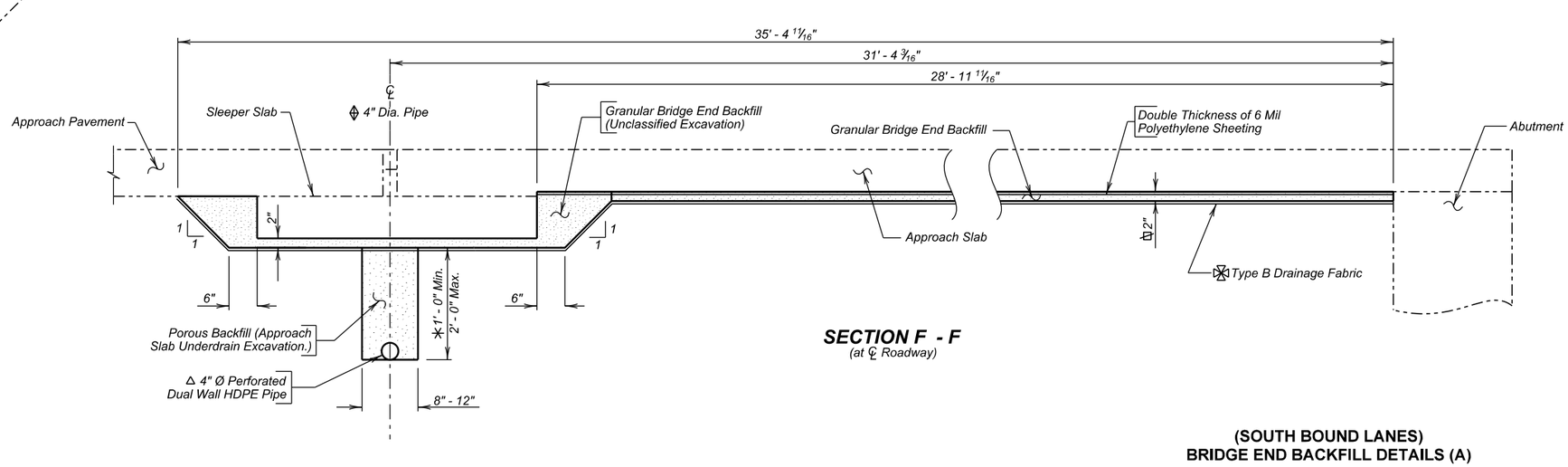
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	68	124



PLAN
(Abutment No. 1)

GENERAL NOTES:

1. *2" of material is used for estimation purposes only. Granuler Bridge End Backfill will be placed and compacted to fill any low spots and bring backfill up to grade.*
2. *The centerline of the trench may be adjusted by one foot toward or away from the bridge, as approved by the Engineer, to miss the location of the guardrail posts.*
3. *12" (min.) at ℄, slope bottom of trench and pipe at ⅛" per foot.*
4. *The new drain pipe location and profile will match or be lower than the existing drain pipe. If the existing pipe location can not be reused, such as locations of interference with guardrail posts, the existing porous backfill in the existing trench will need to be removed and backfilled. A new trench can then be created under the sleeper, as approved by the Engineer.*
5. *If the Granular Bridge End Backfill required to bring the approach up to grade is 2" or less and the existing drainage fabric is in good condition, a new layer of drainage fabric will not be required. Drainage fabric will be required over the area that is trenched for the placement of the drainage pipe and under the sleeper slab if excavation was required for placement.*



SECTION F - F
(at ℄ Roadway)

(SOUTH BOUND LANES)
BRIDGE END BACKFILL DETAILS (A)

FOR

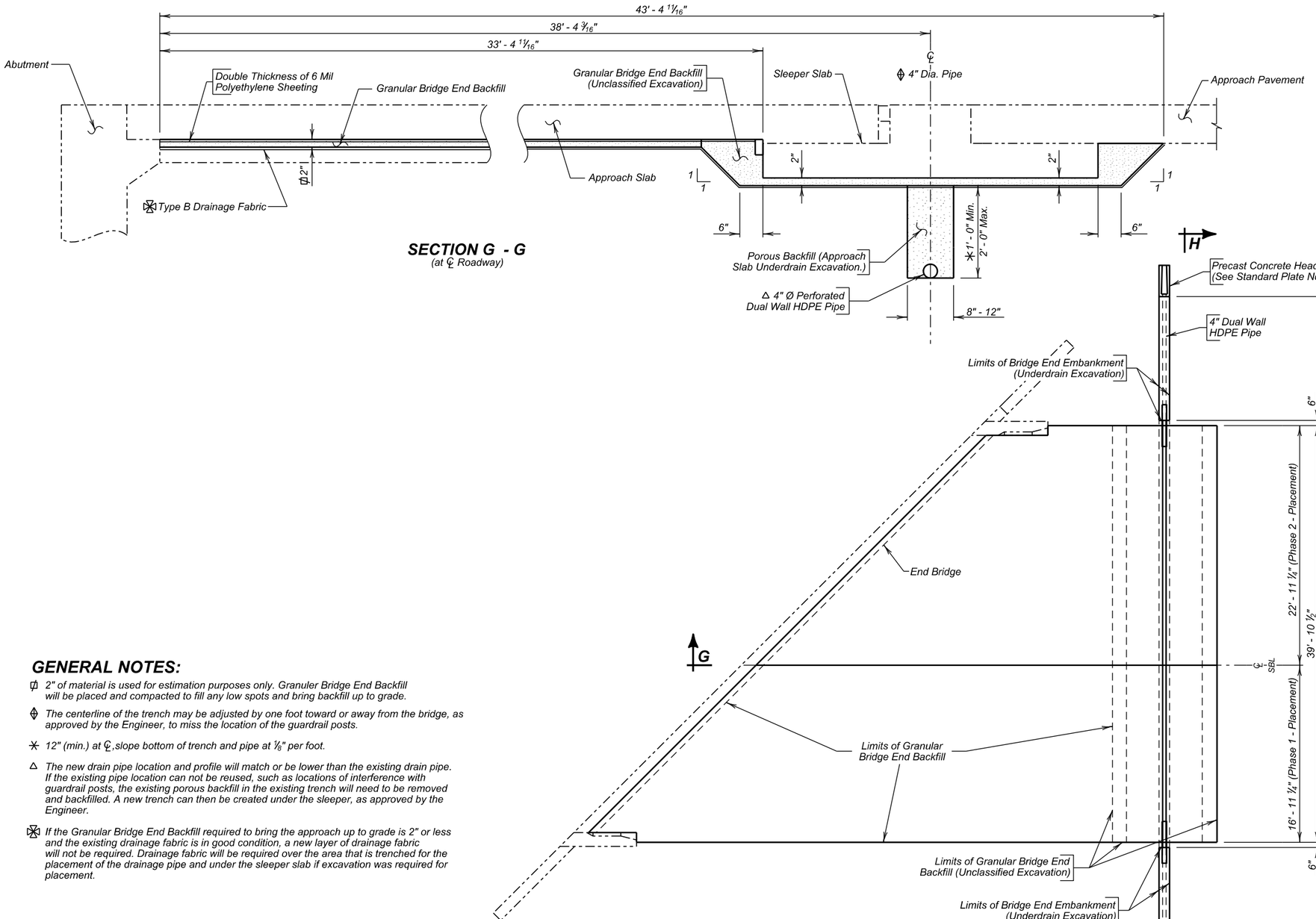
260' - 8" CONT. COMP. GIRDER BRIDGE

38' - 0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. 22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TAMA14		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	69	124



SECTION G - G
(at ℄ Roadway)

PLAN
(Abutment No. 4)

GENERAL NOTES:

- *2" of material is used for estimation purposes only. Granuler Bridge End Backfill will be placed and compacted to fill any low spots and bring backfill up to grade.*
- *The centerline of the trench may be adjusted by one foot toward or away from the bridge, as approved by the Engineer, to miss the location of the guardrail posts.*
- *12" (min.) at ℄, slope bottom of trench and pipe at ⅛" per foot.*
- *The new drain pipe location and profile will match or be lower than the existing drain pipe. If the existing pipe location can not be reused, such as locations of interference with guardrail posts, the existing porous backfill in the existing trench will need to be removed and backfilled. A new trench can then be created under the sleeper, as approved by the Engineer.*
- *If the Granular Bridge End Backfill required to bring the approach up to grade is 2" or less and the existing drainage fabric is in good condition, a new layer of drainage fabric will not be required. Drainage fabric will be required over the area that is trenched for the placement of the drainage pipe and under the sleeper slab if excavation was required for placement.*

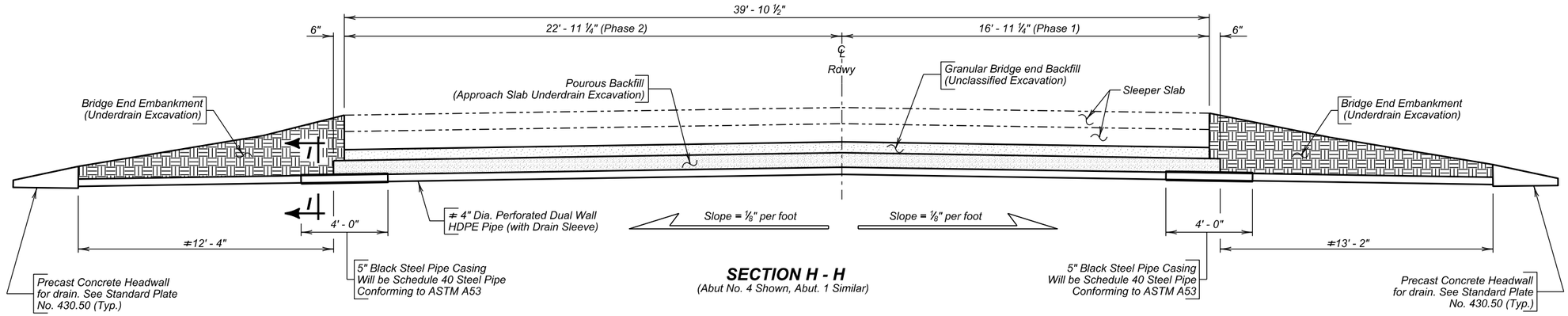
(SOUTH BOUND LANES)
BRIDGE END BACKFILL DETAILS (B)
FOR
260' - 8" CONT. COMP. GIRDER BRIDGE

38' - 0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. 22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — **IM** 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A. Johnson BRIDGE ENGINEER
HAML09TA	09TAMA15		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	70	124



SECTION H - H
(Abut No. 4 Shown, Abut. 1 Similar)

GENERAL NOTES:

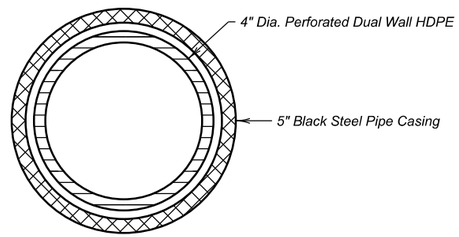
- ☆ *For estimating purposes only, a factor of 1.89 Tons/Cu. Yd. was used to convert Cu. Yds. to Tons.*
- ⊛ *Shrinkage Factor of 1.25 used.*
- ⧫ *Quantity under sleeper slab based on a 12" wide trench.*
- ≠ *The exact lengths of the 4" Dia. Perforated Dual Wall HDPE Pipe (with Drain Sleeve) and 4" Dia. Dual Wall HDPE Pipe will be field determined. The lengths shown are a best estimate based on the original construction plans.*
- ϕ *The 5" black steel pipe sleeve will be incidental to the contract unit price per foot for 4" Underdrain Pipe. The quantity shown for 4" Underdrain Pipe is the end to end length of the 4" pipe and does not include the additional length of 5" pipe sleeve.*

ESTIMATED QUANTITIES
(For Both Abutments)

	ITEM	UNIT	QUANTITY Phase 1	QUANTITY Phase 2
	Unclassified Excavation	CuYd	4	5
⊛	Bridge End Embankment	CuYd	2	2
	Granular Bridge End Backfill	CuYd	11.9	14.7
⧫	Approach Slab Underdrain Excavation	CuYd	1.8	2.2
	Precast Concrete Headwall for Drain	Each	2	2
ϕ ≠	4" Underdrain Pipe	Ft	63	73
⧫ ☆	Porous Backfill	Ton	3.3	4.4

Items 1 thru 5 are approximate quantities contained in the above contract items and are for information only.

	PHASE 1	PHASE 2
1. 6 mil Polyethylene sheeting (not including laps)	114 SqYd	154 SqYd
2. Type B Drainage Fabric	134 SqYd	175 SqYd
3. 4" Dia. Perforated Dual Wall HDPE Pipe (with Drain Sleeve)	36 Ft	48 Ft
≠ 4. 4" Dia. Dual Wall HDPE Pipe	27 Ft	25 Ft
ϕ 5. 5" Black Steel Pipe Sleeve	8 Ft	8 Ft



SECTION I - I
(Center 4 Ft. Section of 5" Pipe at Location of Guard Rail Post)

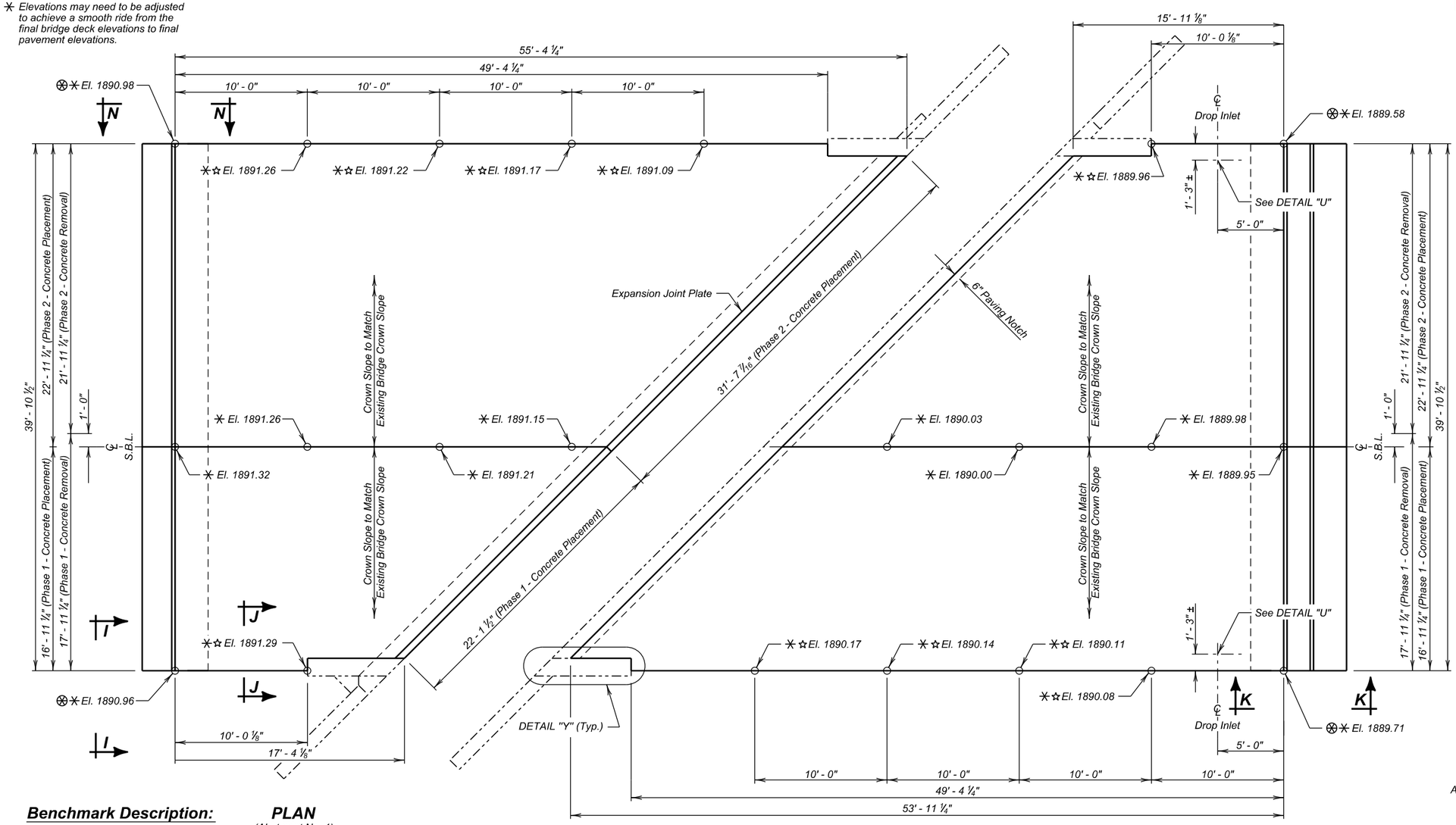
(SOUTH BOUND LANES)
BRIDGE END BACKFILL DETAILS (C)
FOR
260' - 8" CONT. COMP. GIRDER BRIDGE
38' - 0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. 22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A. Johnson BRIDGE ENGINEER
HAML09TA	09TAMA16		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	71	124

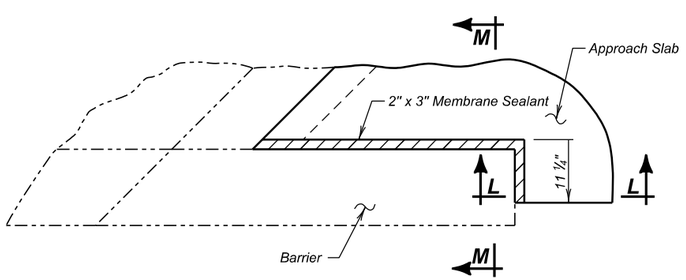
⊛✳ *Elevations may need to be adjusted to achieve a smooth ride from the final bridge deck elevations to final pavement elevations.*



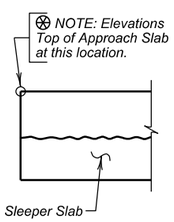
PLAN
(Abutment No. 4)

Benchmark Description:
B.M.: # 1
Location: NW Wingwall
Elevation: 1890.413

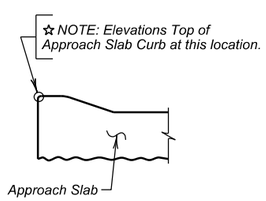
PLAN
(Abutment No. 1)



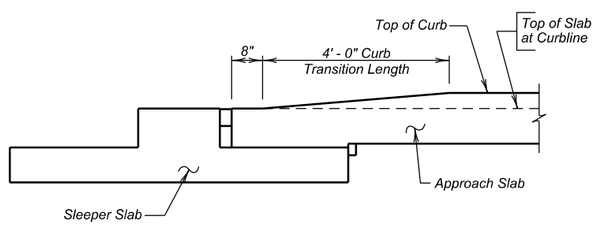
DETAIL "Y"



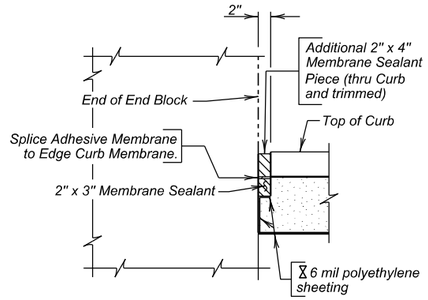
VIEW I - I
(Approach Slab Curb not shown for clarity.)
(Concrete shading and reinforcing steel not shown for clarity)



SECTION J - J
(Concrete shading and reinforcing steel not shown for clarity)

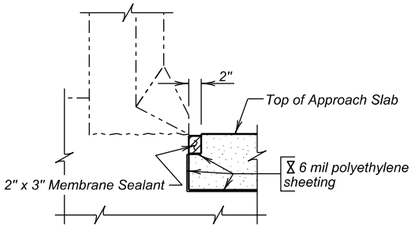


VIEW K - K

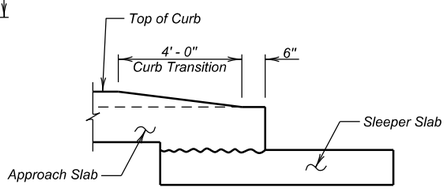


SECTION L - L

⧖ *6 mil polyethylene sheeting shall not interfere with the bond between the Membrane Sealant and the approach slab.*



SECTION M - M



VIEW N - N

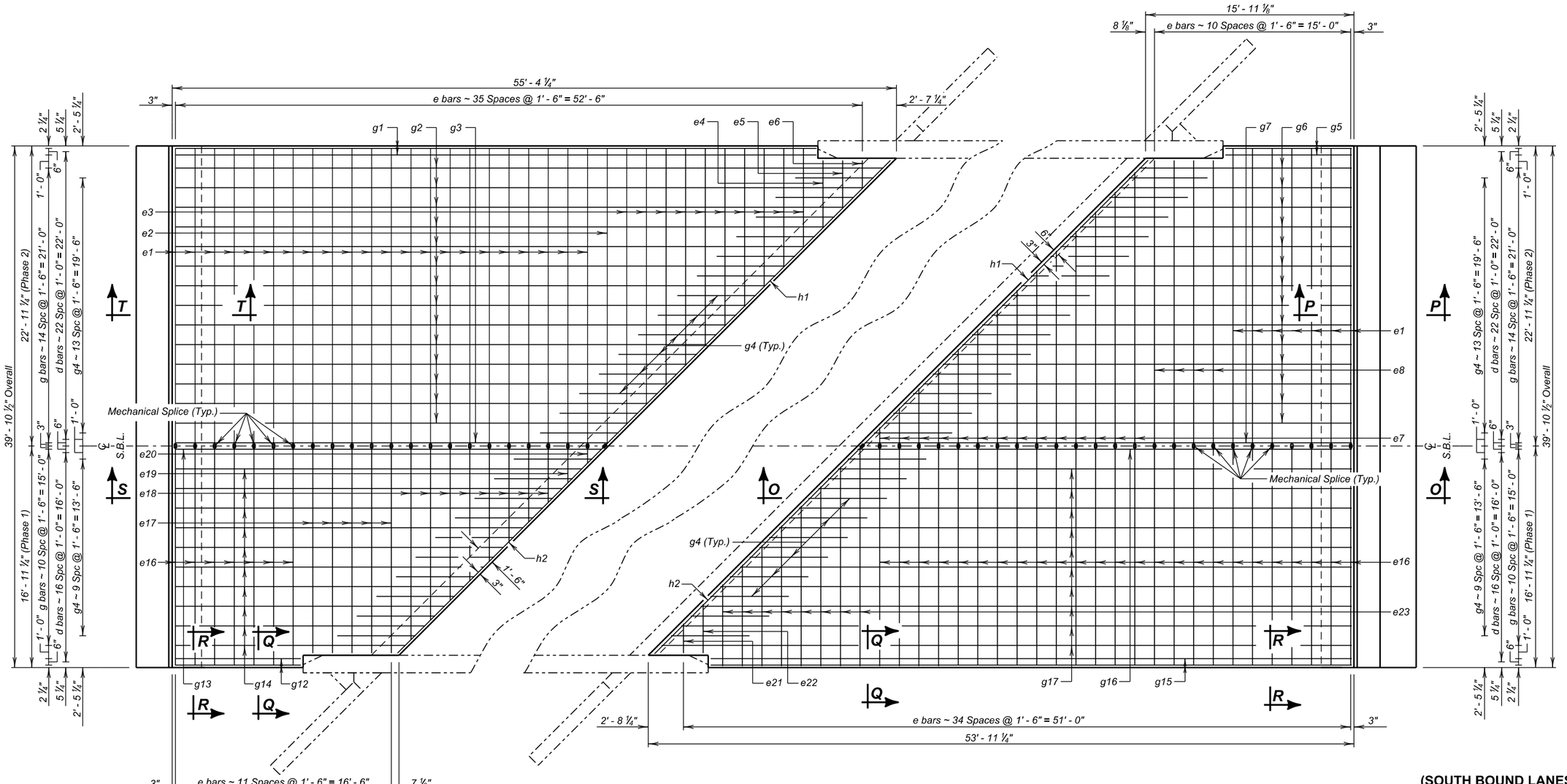
(SOUTH BOUND LANES)
APPROACH SLAB LAYOUT
FOR
260' - 8" CONT. COMP. GIRDER BRIDGE
38' - 0" ROADWAY
OVER S.D. 22
STR. NO. 29-299-040
45° SKEW L.H.F.
SEC. 24/25-T115N-R51W
IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

17 OF 70

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	BRIDGE ENGINEER
HAML09TA	09TAMA17		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	72	124



PLAN
(Top Steel Shown Adjacent Abut. No. 1)

PLAN
(Top Steel Shown Adjacent Abut. No. 4)

(SOUTH BOUND LANES)
APPROACH SLAB DETAILS (A)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

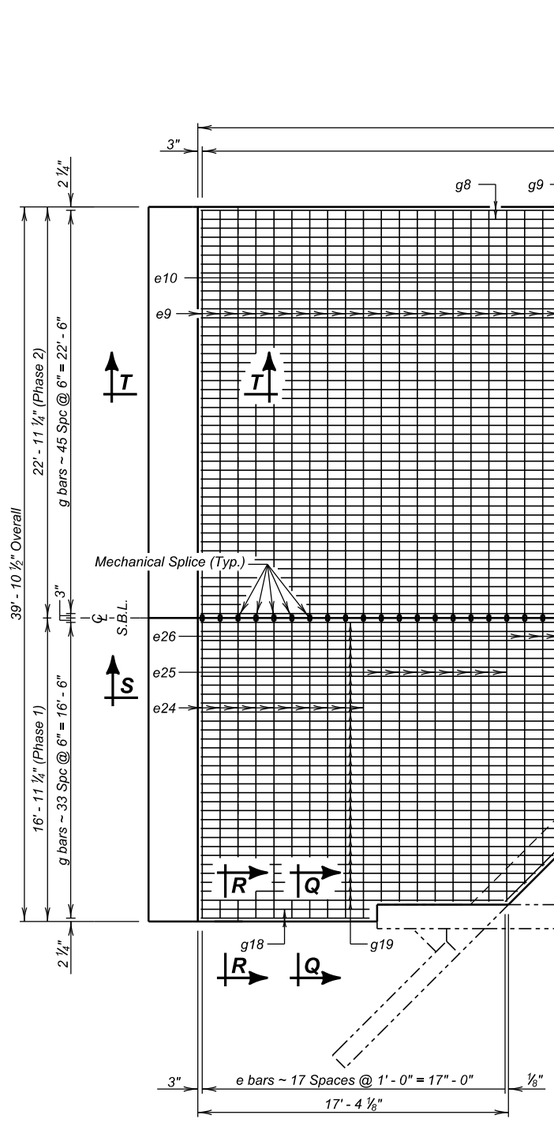
38' - 0" ROADWAY
OVER SD22
STR. NO. 29-299-040

45° L.H.F. SKEW
SEC. 24/25-T115N-R51W
IM 0296(35)164

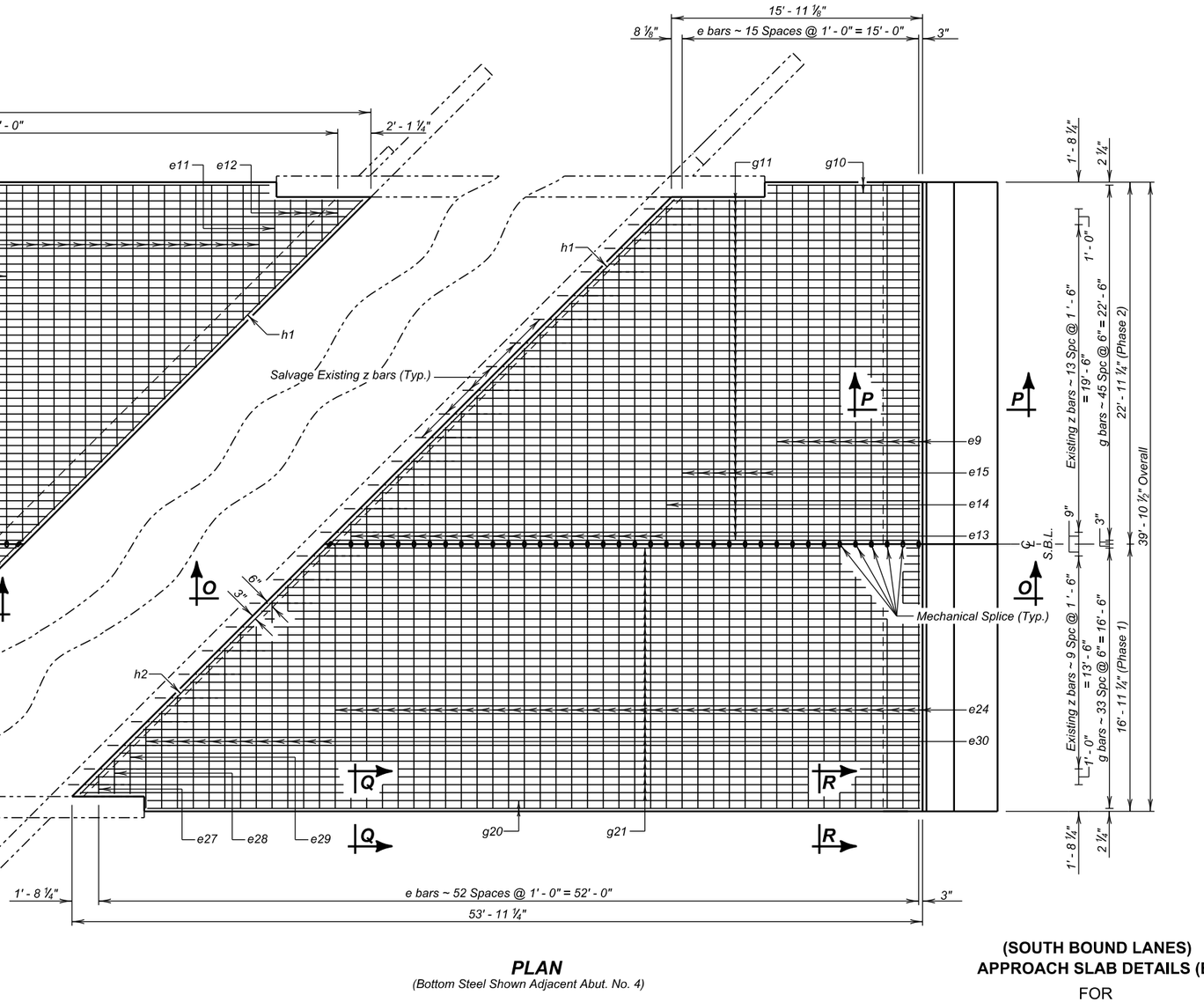
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA18		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	73	124



PLAN
(Bottom Steel Shown Adjacent Abut. No.1)



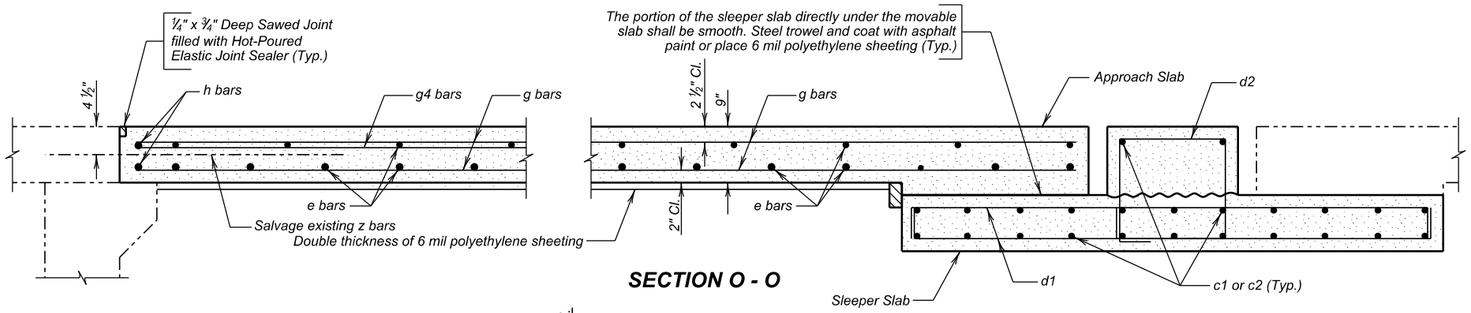
PLAN
(Bottom Steel Shown Adjacent Abut. No. 4)

(SOUTH BOUND LANES)
APPROACH SLAB DETAILS (B)
FOR
260' - 8" CONT. COMP. GIRDER VIADUCT
38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

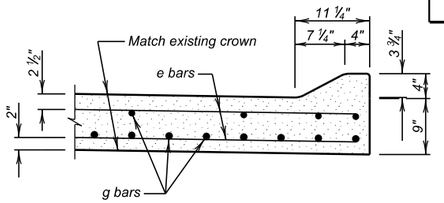
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steven A. Johnson BRIDGE ENGINEER
HAML09TA	09TABA19		

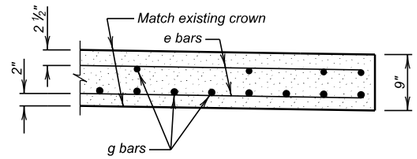
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	74	124



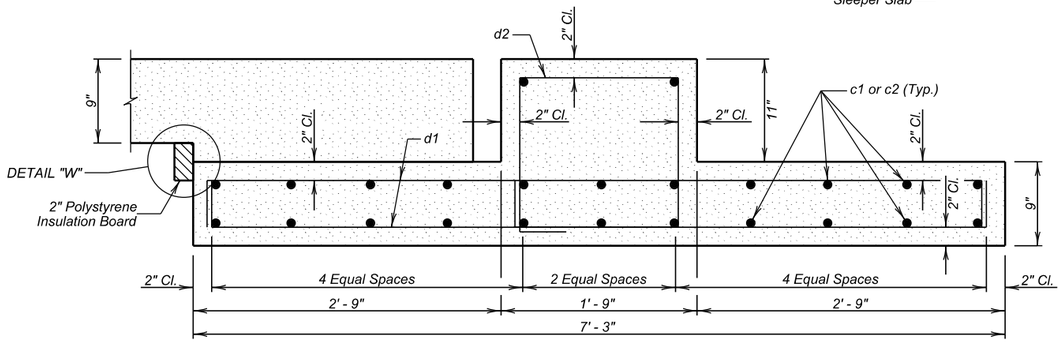
SECTION O - O



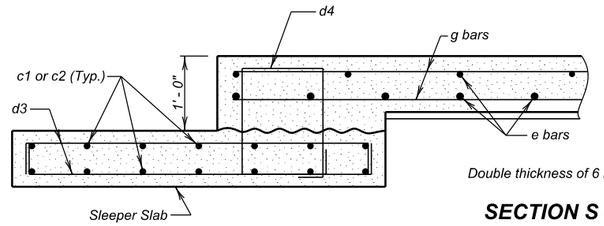
SECTION Q - Q

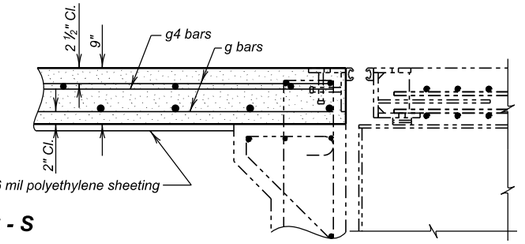


SECTION R - R

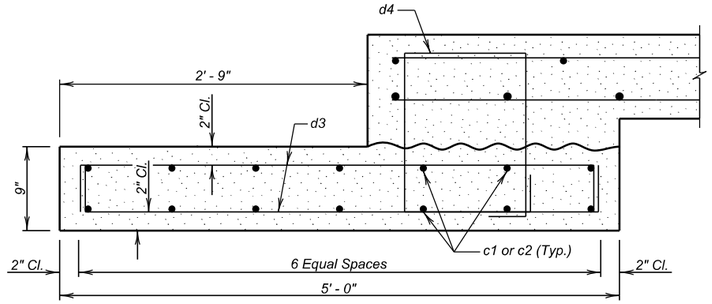


SECTION P - P

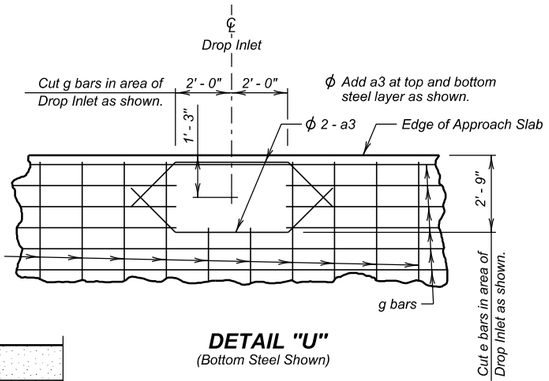




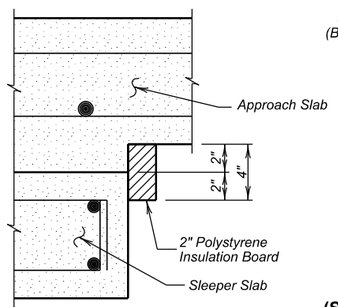
SECTION S - S



SECTION T - T



DETAIL "U"
(Bottom Steel Shown)



DETAIL "W"

REINFORCING SCHEDULE - APPROACH SLABS
(For Two Approach Slabs)

Phase 1

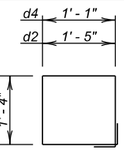
	Mk.	No.	Size	Length	Type
	a3	4	4	11' - 6"	14
✳	c1	38	5	16' - 9"	Str.
	d1	34	4	7' - 9"	2
	d2	17	4	6' - 5"	t2
	d3	34	4	5' - 6"	2
	d4	17	4	5' - 9"	t2
✳	e16	32	4	16' - 9"	Str.
✳	e17	5	4	15' - 10"	Str.
✳ ≠	e18	4	4	19' - 2"	Str.
✳	e19	1	4	2' - 10"	Str.
✳	e20	1	4	1' - 4"	Str.
	e21	1	4	2' - 3"	Str.
	e22	1	4	3' - 9"	Str.
≠	e23	4	4	23' - 0"	Str.
✳	e24	49	6	16' - 9"	Str.
✳	e25	8	6	15' - 10"	Str.
✳ ≠	e26	7	6	16' - 8"	Str.
	e27	1	6	1' - 3"	Str.
	e28	1	6	2' - 3"	Str.
	e29	1	6	3' - 3"	Str.
≠	e30	6	6	21' - 4"	Str.
	g4	20	4	6' - 0"	Str.
	g12	2	4	9' - 7"	Str.
	g13	1	4	32' - 7"	Str.
≠	g14	5	4	48' - 8"	Str.
	g15	2	4	49' - 0"	Str.
	g16	1	4	37' - 9"	Str.
≠	g17	5	4	92' - 0"	Str.
	g18	2	8	9' - 5"	Str.
≠	g19	16	8	49' - 10"	Str.
	g20	2	8	49' - 0"	Str.
≠	g21	16	8	91' - 0"	Str.
✳	h2	4	6	22' - 4"	Str.

Bending Details

e30	16' - 2"	5' - 2"
e26	14' - 10"	1' - 10"
e23	16' - 9"	6' - 3"
e18	14' - 10"	4' - 4"
e13	20' - 5"	1' - 5"
e12	4' - 8"	1' - 8"
e10	22' - 7"	7' - 7"
e7	20' - 11"	1' - 5"
e3	21' - 1"	7' - 7"

	e3	e7	e10	e12	e13	e18	e23	e26	e30
Cut	5	7	8	2	10	4	4	7	6

e3	15' - 1"	13' - 7"
e7	11' - 11"	10' - 5"
e10	15' - 7"	14' - 7"
e12	3' - 8"	2' - 8"
e13	11' - 5"	10' - 5"
e18	10' - 4"	8' - 10"
e23	12' - 3"	10' - 9"
e26	8' - 10"	7' - 10"
e30	11' - 2"	10' - 2"



Type T2

g21	53' - 3"	37' - 9"
g19	32' - 8"	17' - 2"
g17	52' - 9"	39' - 3"
g14	31' - 1"	17' - 7"
g11	37' - 3"	15' - 9"
g9	54' - 8"	33' - 2"
g6	35' - 9"	16' - 3"
g2	54' - 1"	34' - 7"

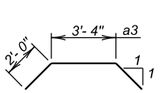
	g2	g6	g9	g11	g14	g17	g19	g21	
Cut	7	7	22	22	5	5	16	16	

g2	45' - 1"	43' - 7"
g6	26' - 9"	25' - 3"
g9	44' - 2"	43' - 8"
g11	26' - 9"	26' - 3"
g14	25' - 1"	23' - 7"
g17	46' - 9"	45' - 3"
g19	25' - 2"	24' - 8"
g21	45' - 9"	45' - 3"

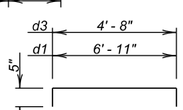
Phase 2

	Mk.	No.	Size	Length	Type
	a3	4	4	11' - 6"	14
✳	c2	38	5	22' - 9"	Str.
	d1	46	4	7' - 9"	2
	d2	23	4	6' - 5"	t2
	d3	46	4	5' - 6"	2
	d4	23	4	5' - 9"	t2
✳	e1	29	4	22' - 9"	Str.
	e2	1	4	22' - 7"	Str.
≠	e3	5	4	28' - 8"	Str.
	e4	1	4	5' - 2"	Str.
	e5	1	4	3' - 8"	Str.
	e6	1	4	2' - 2"	Str.
✳ ≠	e7	7	4	22' - 4"	Str.
✳	e8	4	4	21' - 10"	Str.
✳	e9	43	6	22' - 9"	Str.
≠	e10	8	6	30' - 2"	Str.
	e11	1	6	5' - 8"	Str.
≠	e12	2	6	6' - 4"	Str.
✳ ≠	e13	10	6	21' - 10"	Str.
✳	e14	1	6	21' - 5"	Str.
✳	e15	6	6	21' - 10"	Str.
	g1	2	4	49' - 0"	Str.
≠	g2	7	4	88' - 8"	Str.
	g3	1	4	33' - 1"	Str.
	g4	28	4	6' - 0"	Str.
	g5	2	4	9' - 8"	Str.
≠	g6	7	4	52' - 0"	Str.
	g7	1	4	37' - 3"	Str.
	g8	2	8	48' - 9"	Str.
≠	g9	22	8	87' - 10"	Str.
	g10	2	8	9' - 8"	Str.
≠	g11	22	8	53' - 0"	Str.
✳	h1	4	6	30' - 10"	Str.

NOTES:
All Dimensions are out to out of bars.
≠ See cutting diagram
✳ Mechanical Splice



Type 19A



Type 2

ESTIMATED QUANTITIES
(For Two Approach Slabs and Sleeper Slabs)

ITEM	UNIT	QUANTITY Phase 1	QUANTITY Phase 2
Remove Concrete Bridge Approach Slab	SqYd	147.0	199.5
Concrete Approach Slab for Bridge	SqYd	132.9	180.4
Concrete Approach Sleeper Slab for Bridge	SqYd	23.1	31.2
No. 4 Rebar Splice	Each	47	-
No. 5 Rebar Splice	Each	38	-
No. 6 Rebar Splice	Each	74	-
⟠ Membrane Sealant Expansion Joint	Ft	13.8	13.8

Items 1 thru 5 are approximate quantities contained in the above bid items and are for information only.

	Phase 1	Phase 2
1. Concrete in Approach Slabs.	33.2 CuYd	45.1 CuYd
2. Epoxy Coated Re-Steel in Approach Slabs.	9467 Lb	12826 Lb
3. Concrete in Sleeper Slabs	6.8 CuYd	9.2 CuYd
4. Epoxy Coated Re-Steel in Sleeper Slabs.	1103 Lb	1496 Lb
5. 2" Polystyrene Insulation Board	11.3 SqFt	15.3 SqFt

⟠ Requirements for Membrane Sealant Expansion Joint are located in the GENERAL NOTES on Sheet APPROACH SLAB JOINT DETAILS.

(SOUTH BOUND LANES)
APPROACH SLAB DETAILS (C)

FOR

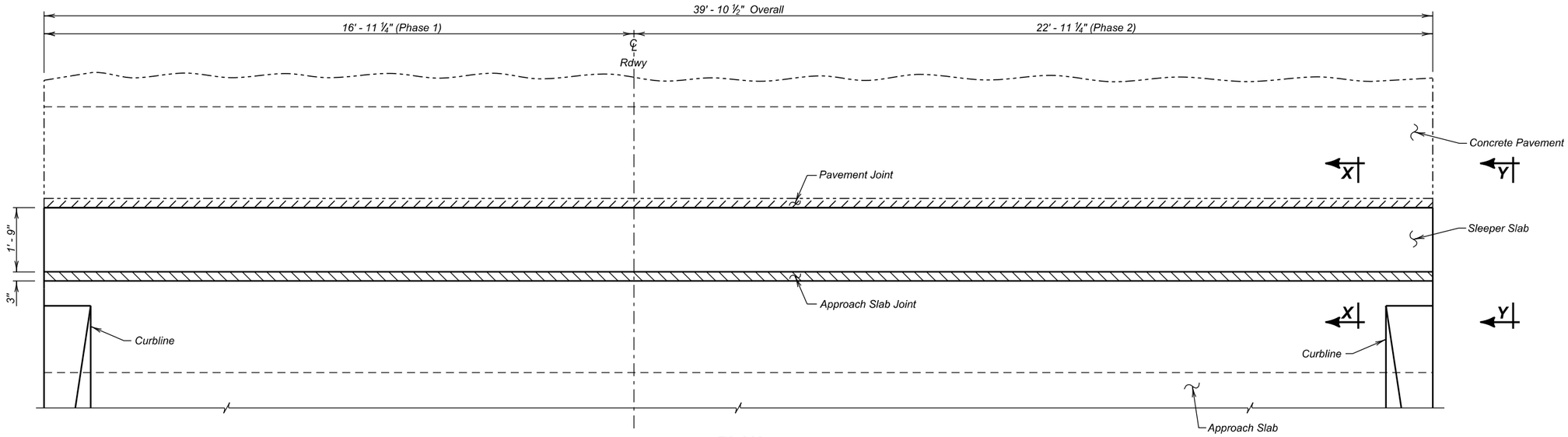
260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A. Johnson BRIDGE ENGINEER
HAML09TA	09TABA20		

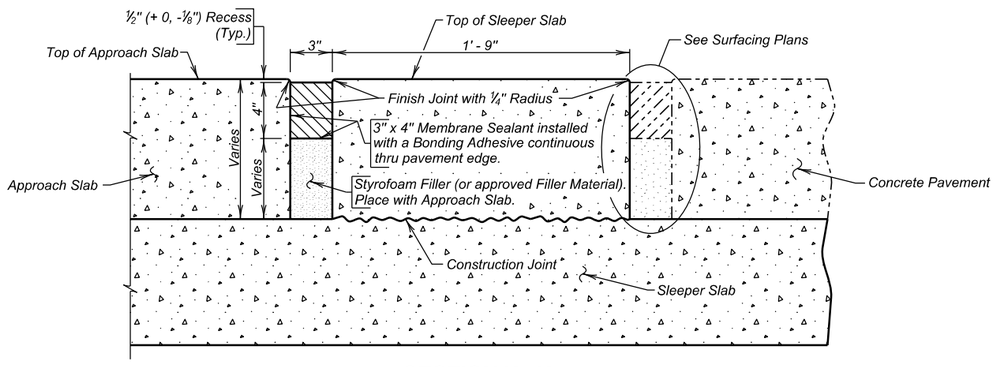
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	75	124



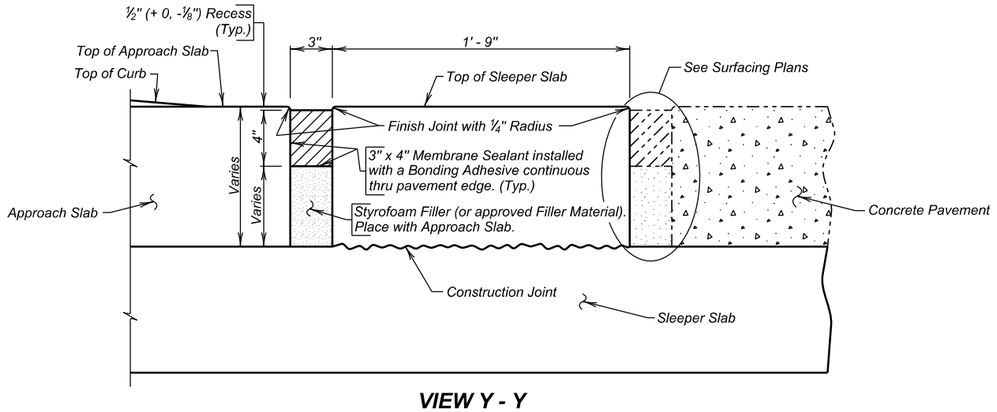
PLAN
(Abutment No. 4)

GENERAL NOTES

1. The membrane sealant will be on the approved product list for membrane sealant expansion joints.
2. The manufacturer will supply the membrane sealant in packaging that precompresses the membrane sealant. The precompressed dimension will be as recommended by the sealant manufacturer to provide a water tight seal throughout a joint movement range of + 25% (minimum) from the specified joint opening dimension. In no case will the precompressed dimension exceed 75% of the joint opening width. The foam sealant will be slowly self expanding to permit workers ample time to install the membrane sealant before the membrane sealant exceeds the joint opening width.
3. The membrane sealant will be supplied in pieces 5 feet in length or longer. The foam sealant will be ultra-violet and ozone resistant.
4. The bonding adhesive used to attach the membrane sealant to the adjacent concrete will be approved by the membrane sealant manufacturer.
5. Adhesive used to join adjacent pieces of the membrane sealant will be as recommended by the manufacturer.
6. If styrofoam filler material is used in the construction, it will be closed cell and water-tight as approved by the Engineer.
7. The minimum ambient air temperature at the time of joint installation and adhesive curing will be 40° F.
8. A technical representative of the membrane sealant manufacturer will be present at the jobsite during installation. The technical representative will be knowledgeable in the correct procedures for the preparation and installation of the joint material to insure the Contractor installs the joint to the Manufacturers recommendations.
9. Concrete surfaces that will be in contact with the membrane sealant will be thoroughly cleaned by abrasive blasting to remove all laitance and contaminants (such as oil, curing compounds, etc.) from the concrete surface. At a minimum two passes of abrasive blasting with the nozzle held at an angle to within 1 to 2 inches of the concrete surface will be required. Cleaning of the concrete surfaces with solvents, wire brushing, or grinding will not be permitted.
10. After abrasive blasting, but immediately prior to membrane joint installation, the entire joint contact surface will be air blasted. The air compressor used for joint cleaning will be equipped with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. To obtain complete bonding with the adhesive, the adjacent concrete surfaces must be dry and clean. The contact surfaces for the joint will be visually inspected by the Engineer immediately prior to joint installation to verify the surface is dry and clean.
11. Individual spliced sections will be installed as per the manufacturers' recommendations. The membrane joint sealant manufacturer will submit a detailed installation procedure to the Engineer at least 5 days prior to joint installation for his review.
12. Traffic will not be allowed on the joint until the bonding adhesive has had time to cure, as recommended by the manufacturer.
13. Use plywood or other material to protect concrete adjacent to the joint from spalling before any equipment is moved across the joint. Any spall areas will be repaired at the Contractor's expense by breaking out and replacing adjacent concrete, as approved by the Engineer.
14. The membrane sealant expansion joint will be measured in feet to the nearest one-tenth foot, complete in place. Measurement will be made of the overall horizontal length. The membrane sealant expansion joint will be paid for at the contract unit price per foot complete in place. Payment for this item will be full compensation for furnishing all the required materials in place, including labor, equipment and incidentals necessary to complete the work in accordance with the plans and the foregoing specifications.



SECTION X - X



VIEW Y - Y

ESTIMATED QUANTITIES
(Abutment 4)

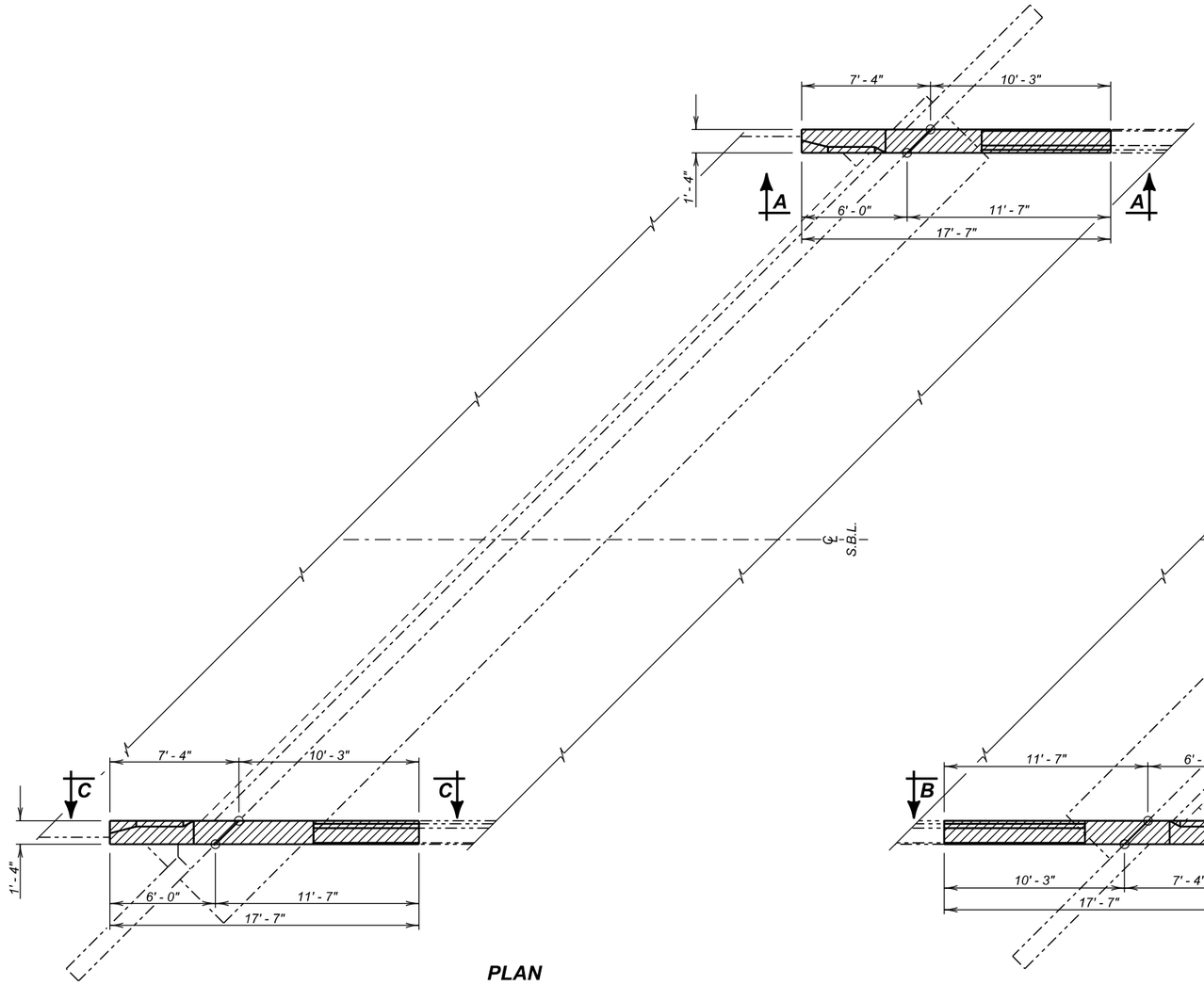
ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Membrane Sealant Expansion Joint	Ft	16.9	22.9

(SOUTH BOUND LANES)
APPROACH SLAB JOINT DETAILS ADJ. TO ABUT. NO. 4
FOR
260' - 8" CONT. COMP. GIRDER VIADUCT
38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

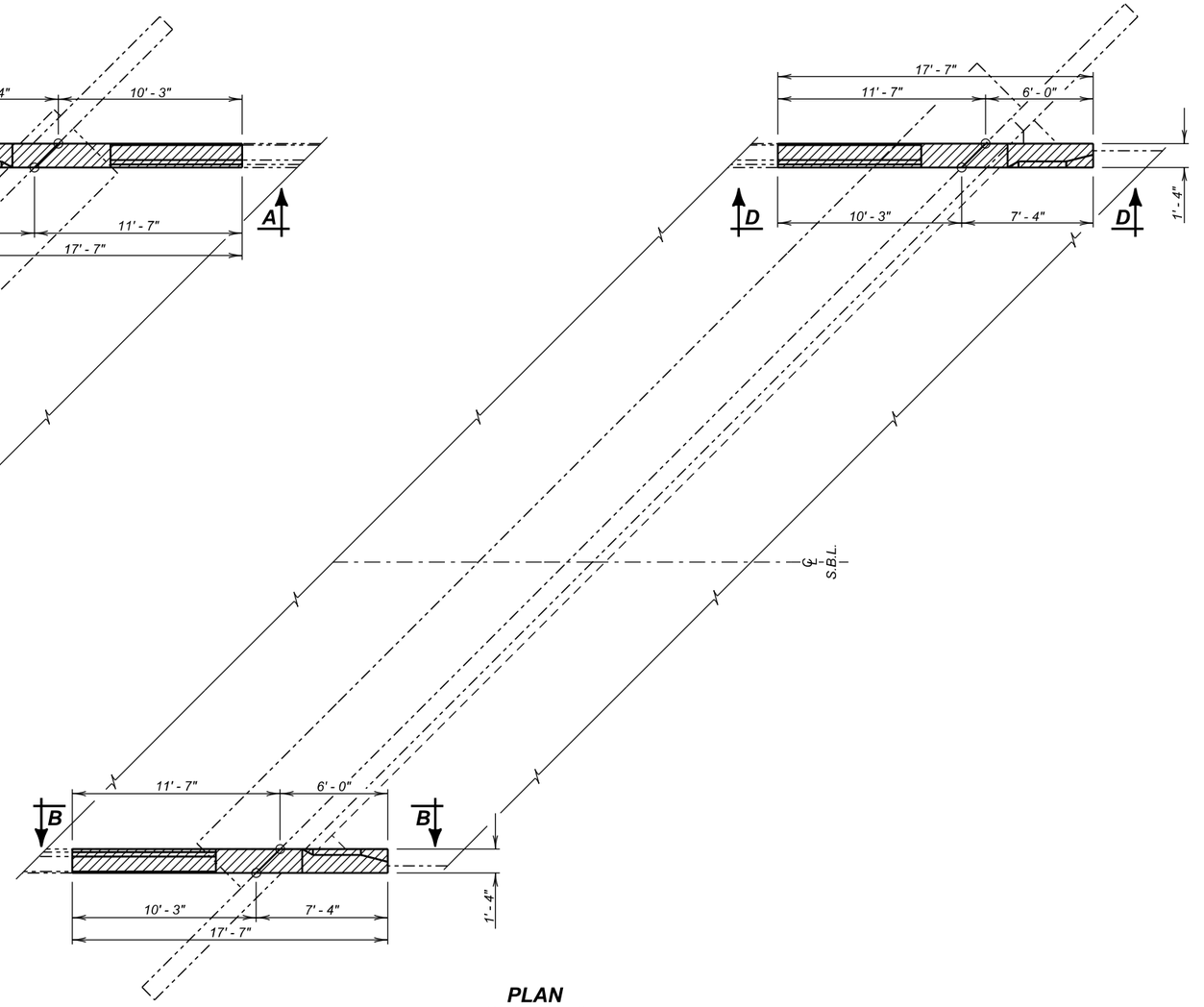
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM HAML09TA	CM 09TABA21	JB	Steven A. Johnson BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	76	124



PLAN
(Abutment No. 1)



PLAN
(Abutment No. 4)

Legend -

- *Limits of Concrete Breakout*

(SOUTH BOUND LANES)
END BLOCK AND BARRIER BREAKOUT DETAILS (A)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

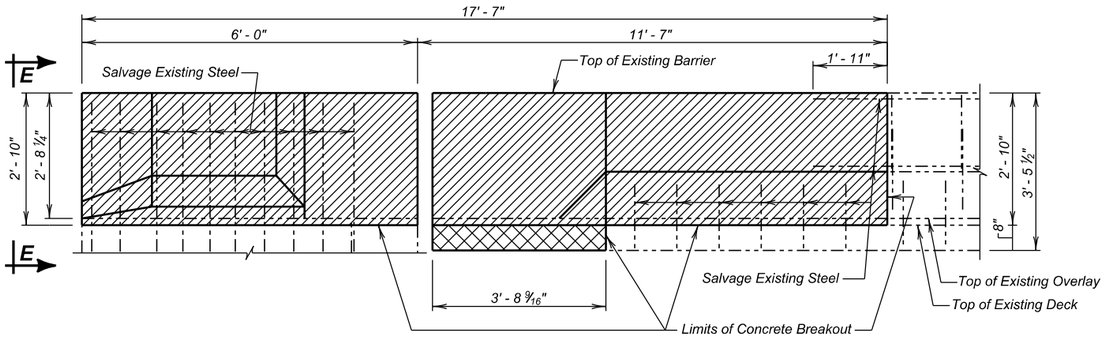
38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

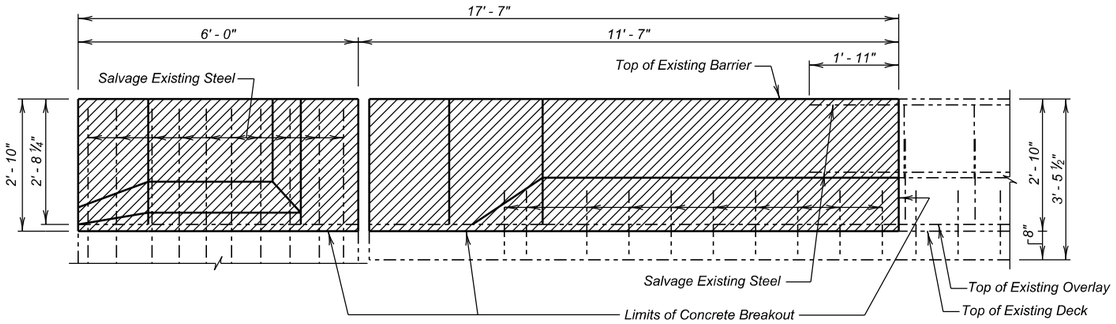
22 OF 70

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA22		

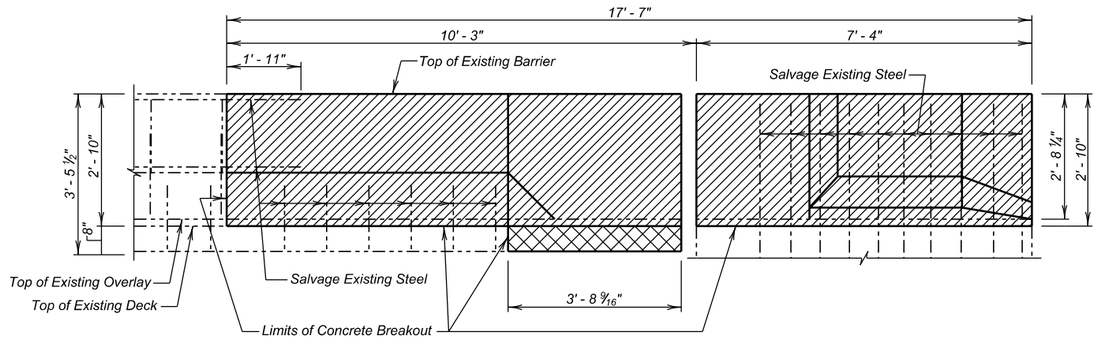
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	77	124



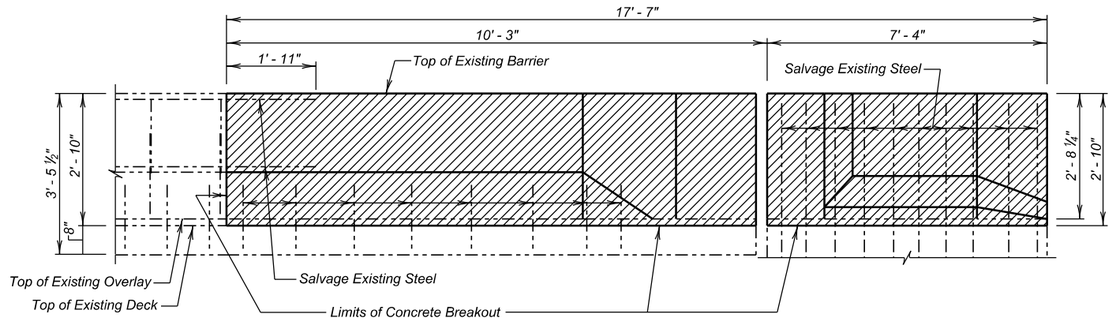
SECTION A - A



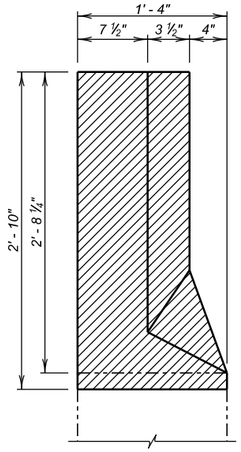
SECTION B - B



SECTION C - C



SECTION D - D



VIEW E - E

Legend -

- Limits of Concrete Breakout
- Breakout included with Joint

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Breakout Structural Concrete	CuYd	4.1	4.1

(SOUTH BOUND LANES)
END BLOCK AND BARRIER BREAKOUT DETAILS (B)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

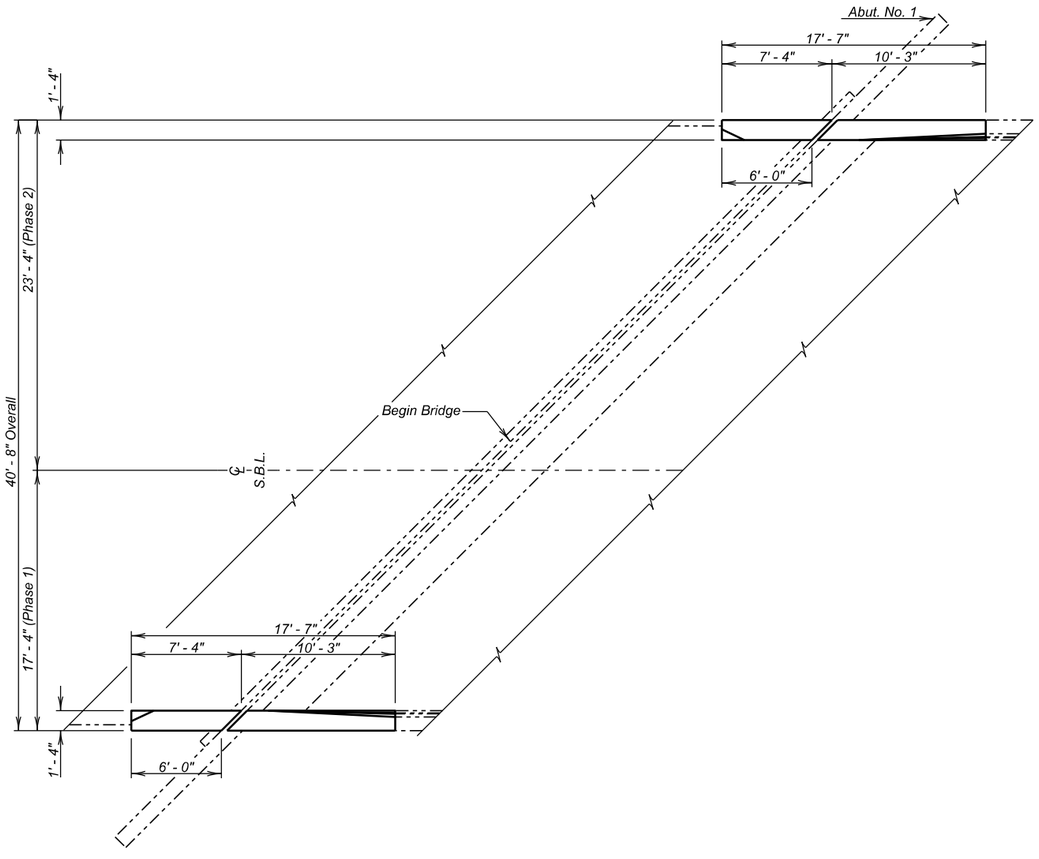
38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

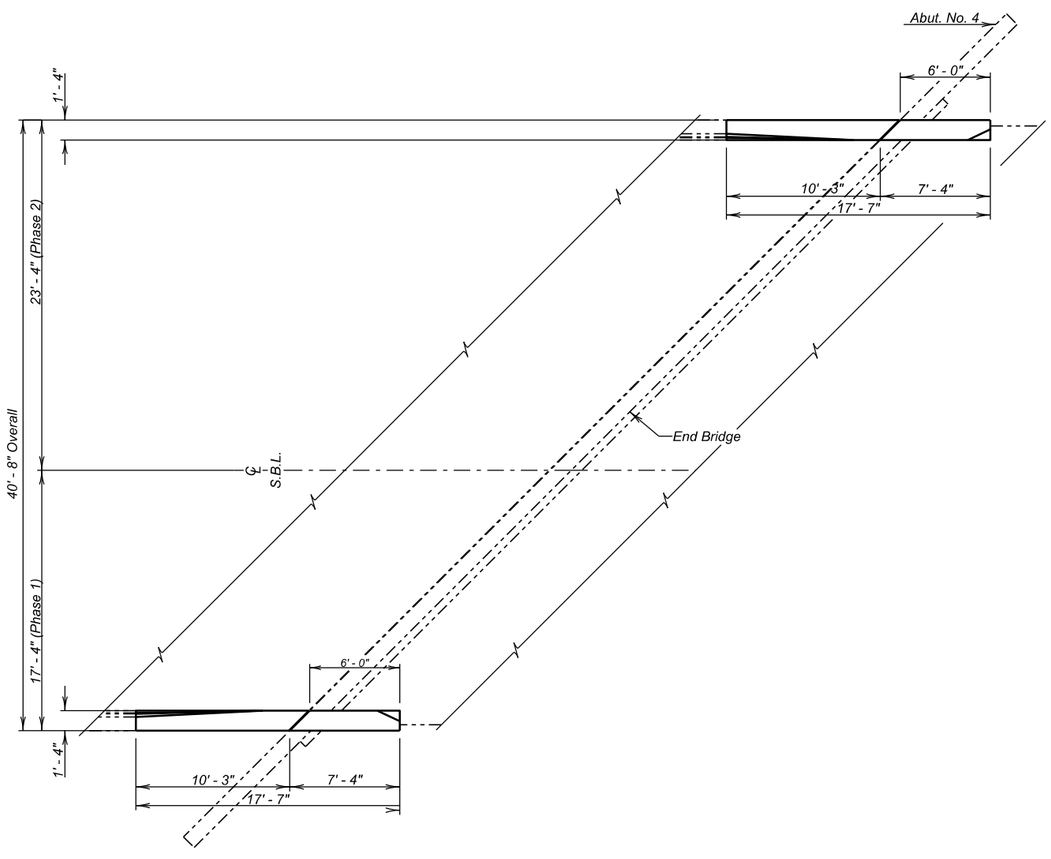
23 OF 70

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	BRIDGE ENGINEER
HAML09TA	09TABA23		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	78	124



PLAN
(Abutment No. 1)



PLAN
(Abutment No. 4)

(SOUTH BOUND LANES)
END BLOCK AND BARRIER CONSTRUCTION DETAILS (A)

FOR

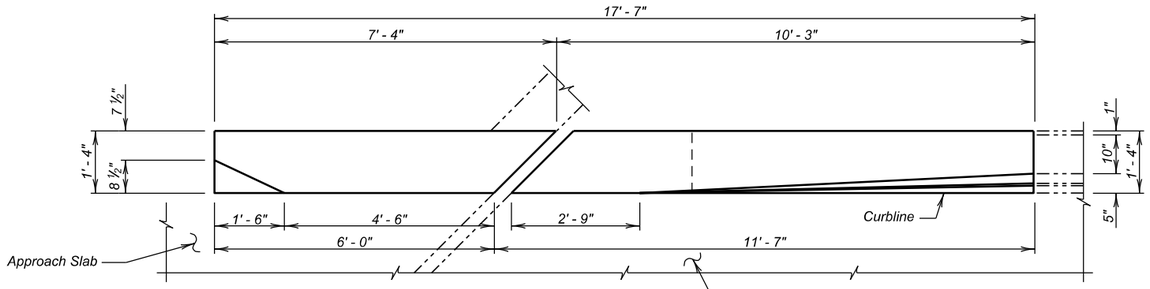
260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

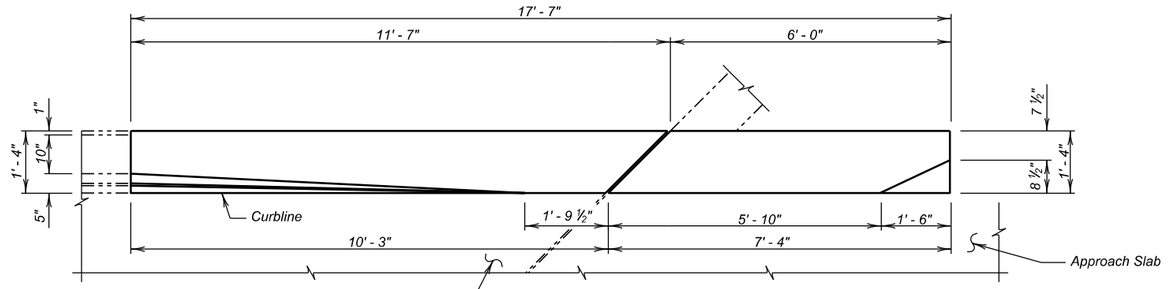
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA24		

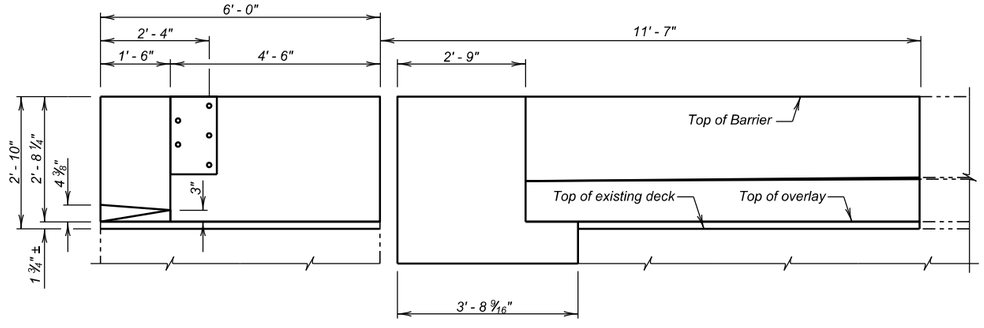
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	79	124



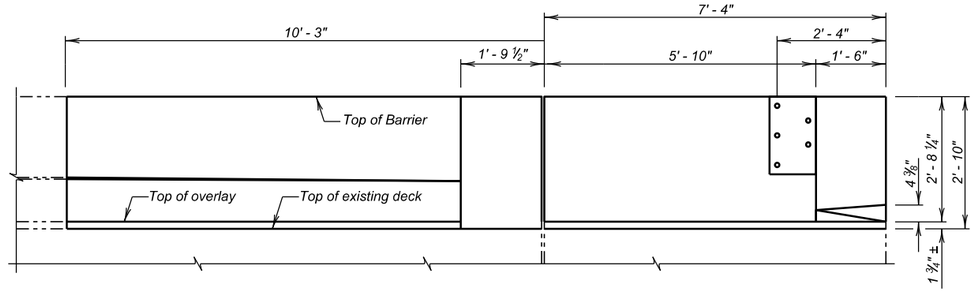
PLAN
(Abut 1, Phase 2, End Block and Barrier)
(Joint Not Shown)



PLAN
(Abut 4, Phase 2, End Block and Barrier)



ELEVATION
(Abut 1, Phase 2, End Block and Barrier)
(Joint Not Shown)



ELEVATION
(Abut 4, Phase 2, End Block and Barrier)

(SOUTH BOUND LANES)
END BLOCK AND BARRIER CONSTRUCTION DETAILS (B)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

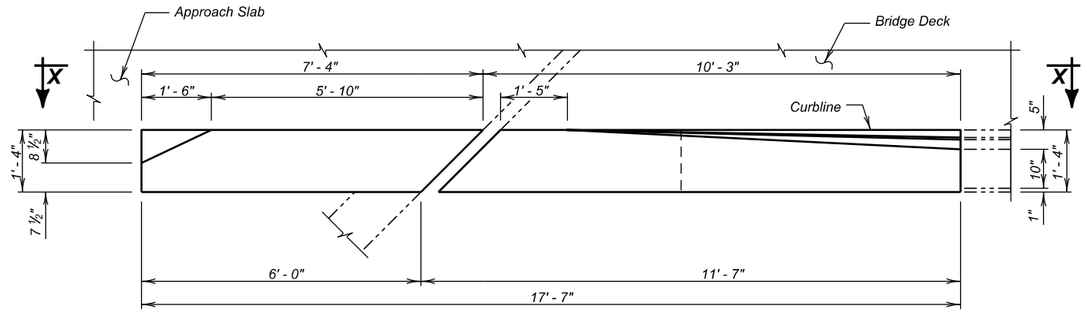
38' - 0" ROADWAY
OVER SD22
STR. NO. 29-299-040

45° L.H.F. SKEW
SEC. 24/25-T115N-R51W
IM 0296(35)164

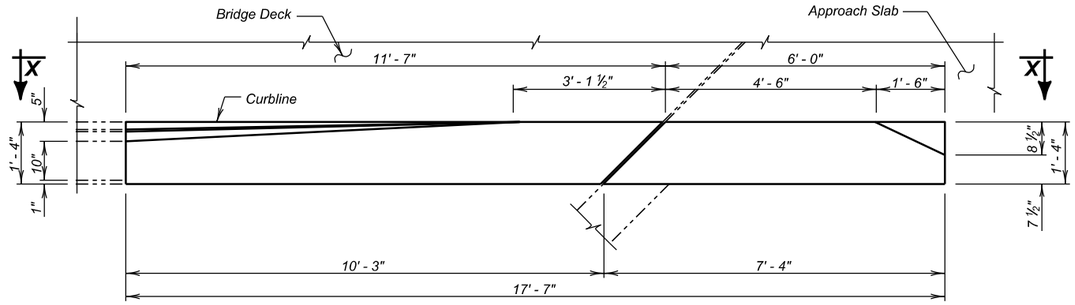
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA25		

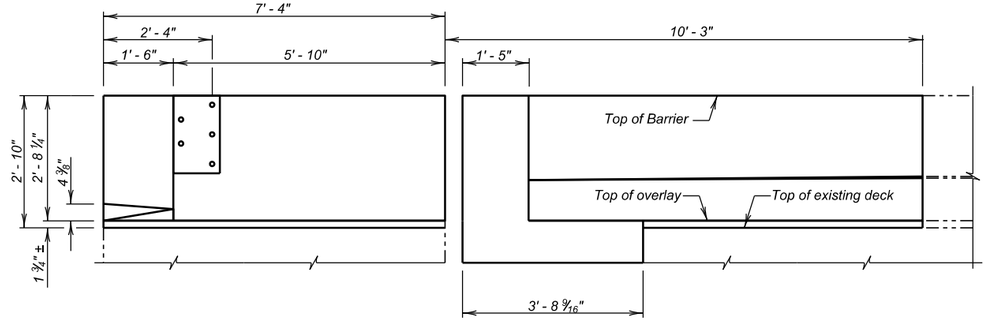
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	80	124



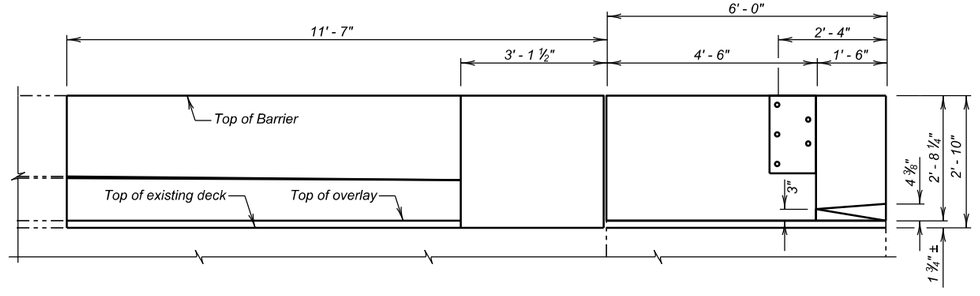
PLAN
(Abut 1, Phase 1, End Block and Barrier)
(Joint Not Shown)



PLAN
(Abut 4, Phase 1, End Block and Barrier)



VIEW E - E
(Abut 4, Phase 1, End Block and Barrier)



VIEW F - F
(Southeast End Block and Barrier)
(Joint Not Shown)

(SOUTH BOUND LANES)
END BLOCK AND BARRIER CONSTRUCTION DETAILS (C)

FOR

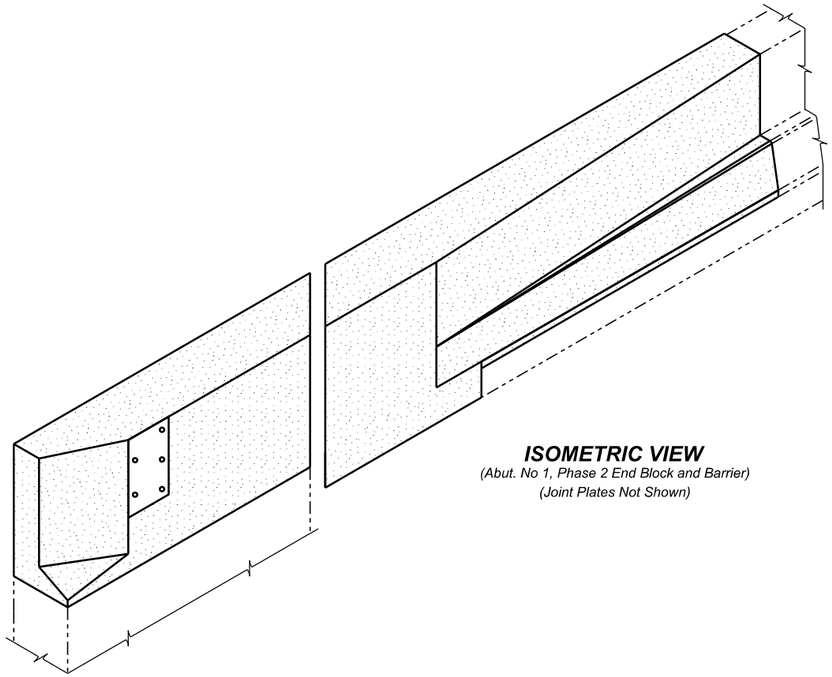
260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

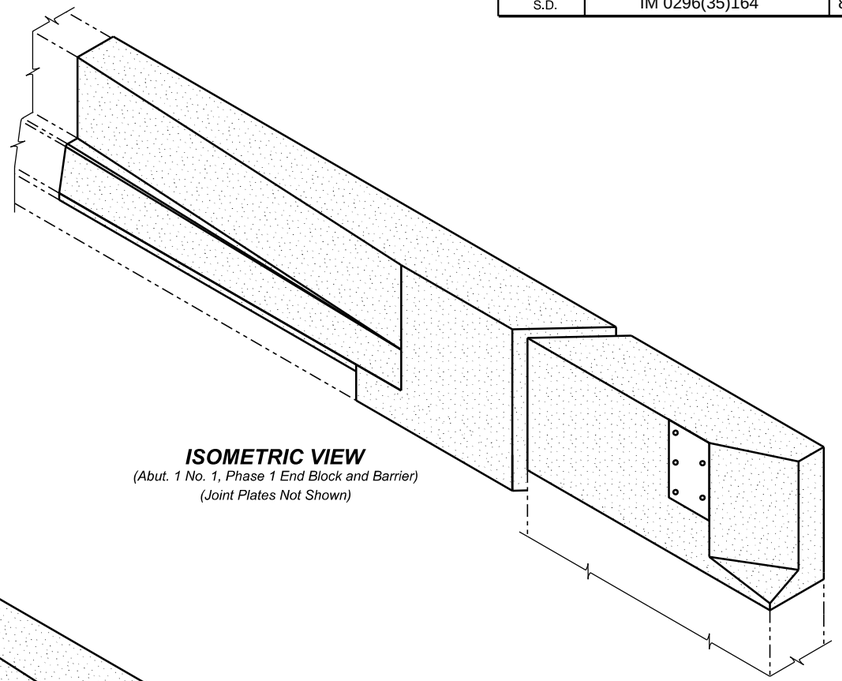
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA26		

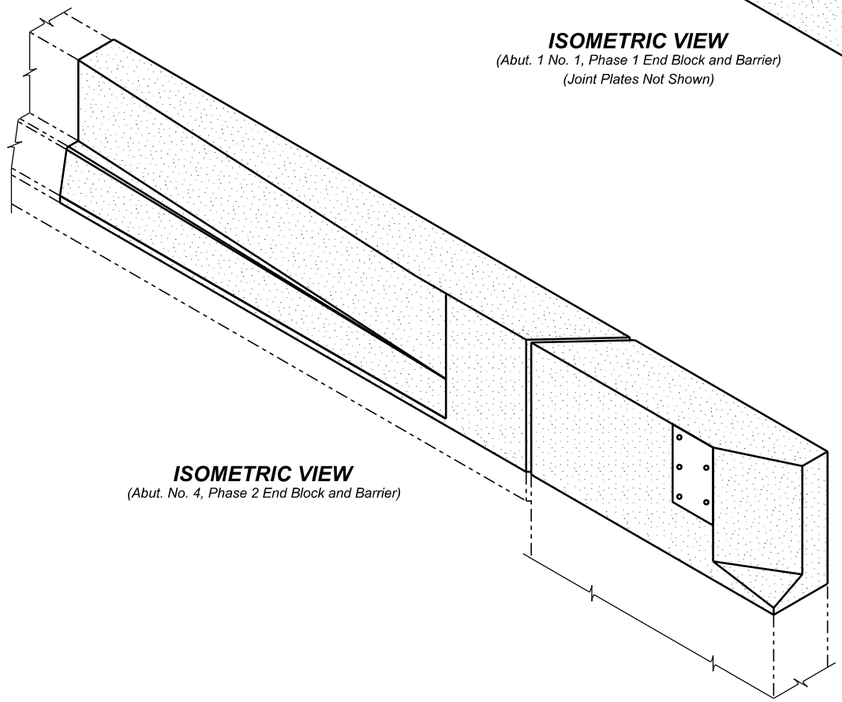
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	81	124



ISOMETRIC VIEW
(Abut. No 1, Phase 2 End Block and Barrier)
(Joint Plates Not Shown)



ISOMETRIC VIEW
(Abut. 1 No. 1, Phase 1 End Block and Barrier)
(Joint Plates Not Shown)



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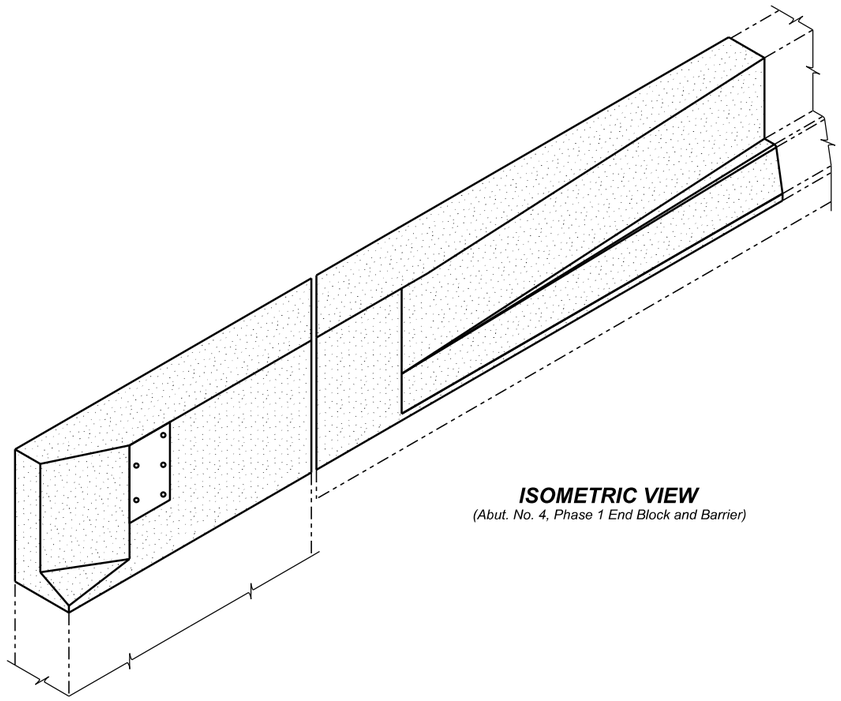


ISOMETRIC VIEW
(Abut. No. 4, Phase 1 End Block and Barrier)

(SOUTH BOUND LANES)
END BLOCK AND BARRIER CONSTRUCTION DETAILS (D)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

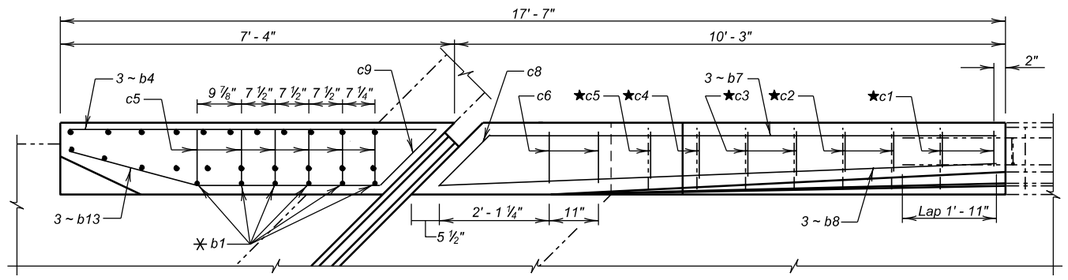
38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

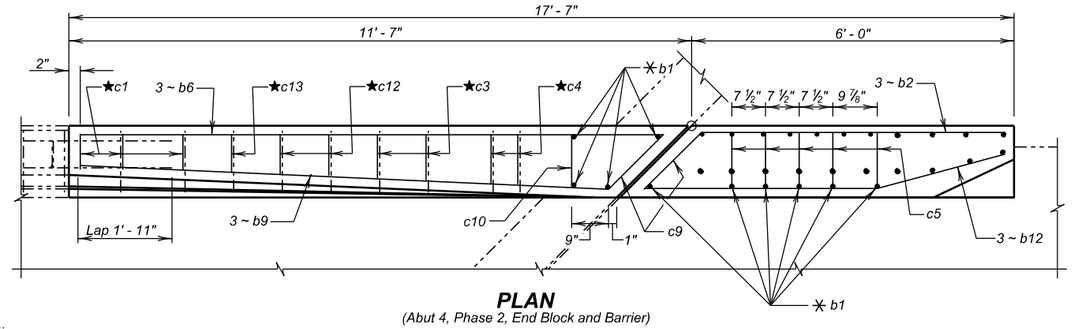
27 OF 70

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA27		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	82	124

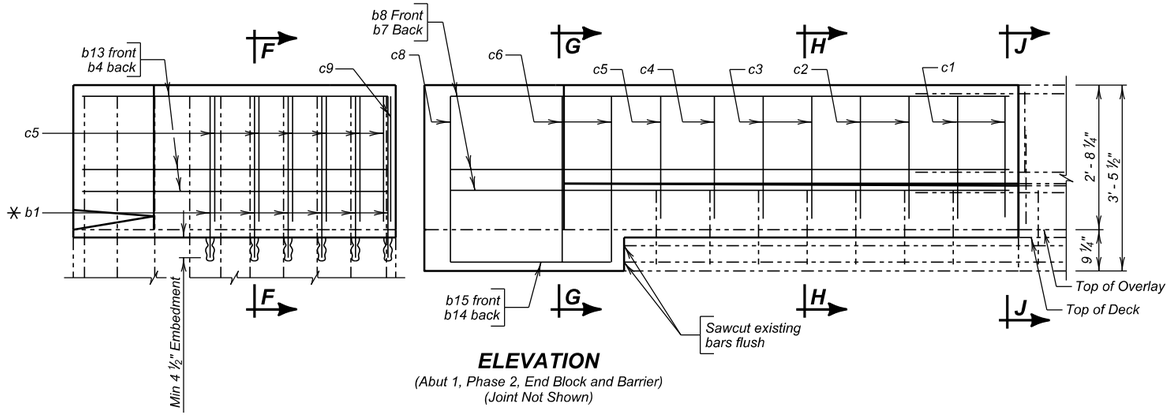


PLAN
(Abut 1, Phase 2, End Block and Barrier)
(Joint Not Shown)

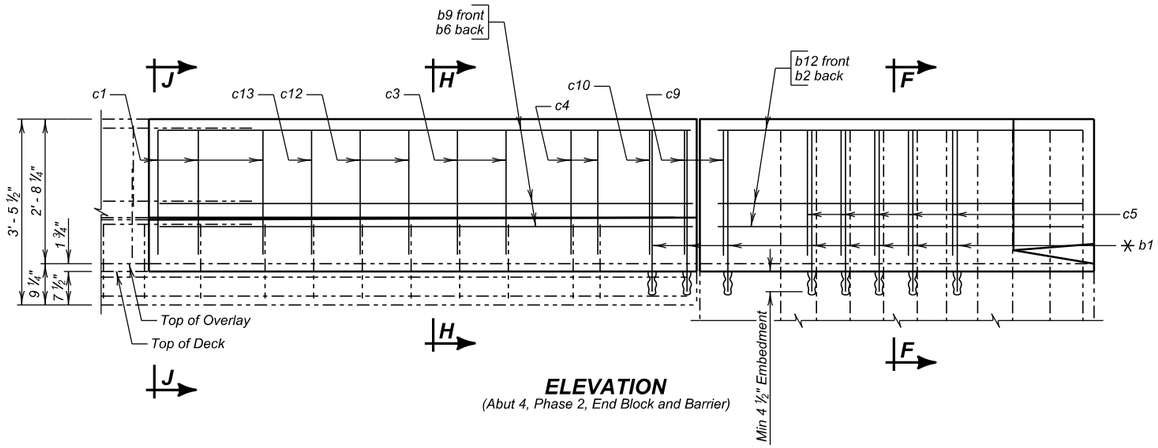


PLAN
(Abut 4, Phase 2, End Block and Barrier)

★ *Match with existing bar location*

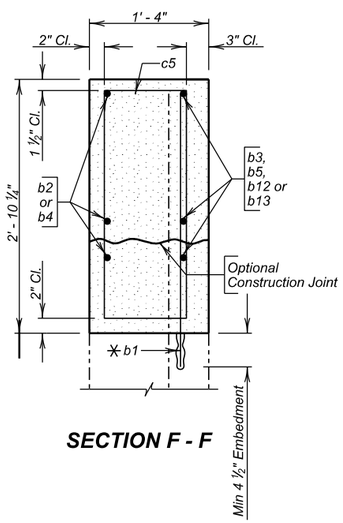


ELEVATION
(Abut 1, Phase 2, End Block and Barrier)
(Joint Not Shown)

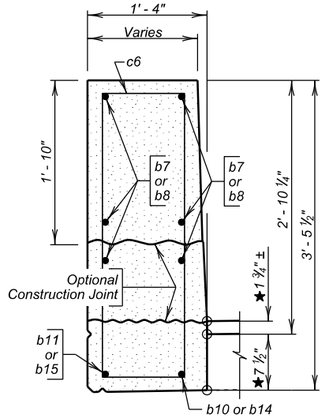


ELEVATION
(Abut 4, Phase 2, End Block and Barrier)

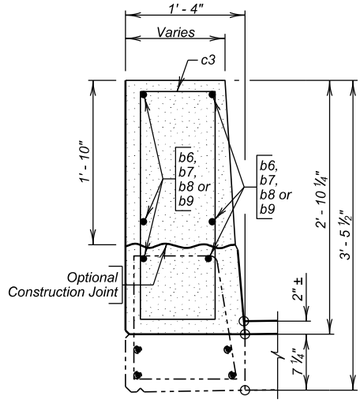
✳ *b1 Dowels are to be drilled in and grouted with epoxy*



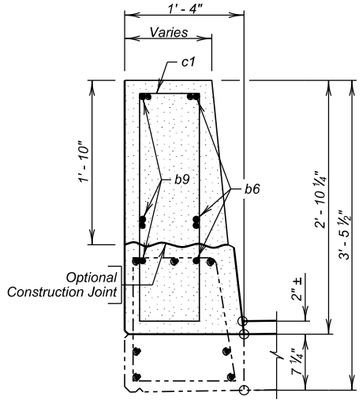
SECTION F - F



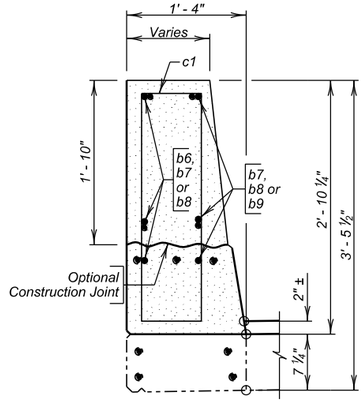
SECTION G - G



SECTION H - H



SECTION I - I



SECTION J - J

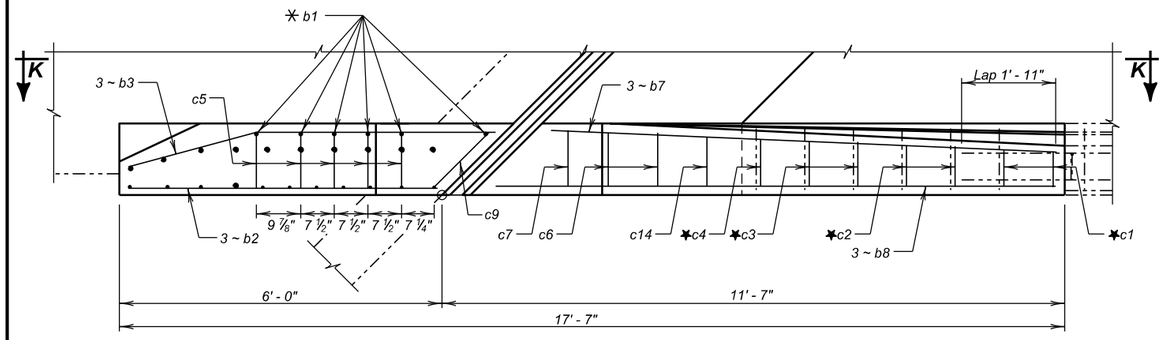
★ *This portion of the barrier is assumed to be poured with the deck.*

(SOUTH BOUND LANES)
END BLOCK AND BARRIER CONSTRUCTION DETAILS (E)
FOR
260' - 8" CONT. COMP. GIRDER VIADUCT
38' - 0" ROADWAY
OVER SD22
STR. NO. 29-299-040
45° L.H.F. SKEW
SEC. 24/25-T115N-R51W
IM 0296(35)164

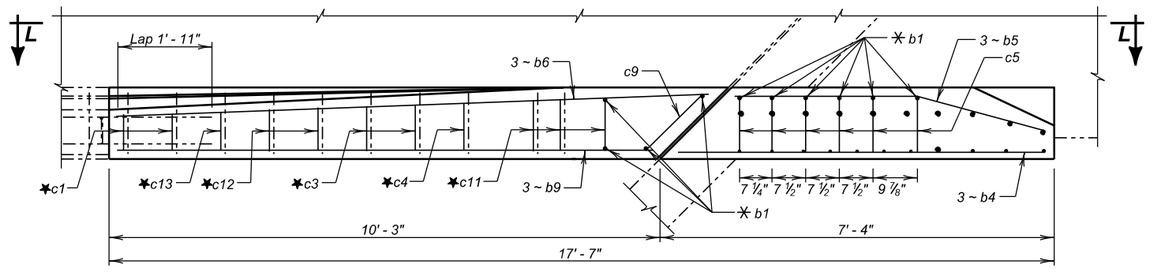
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A. Johnson BRIDGE ENGINEER
HAML09TA	09TABA28		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	83	124

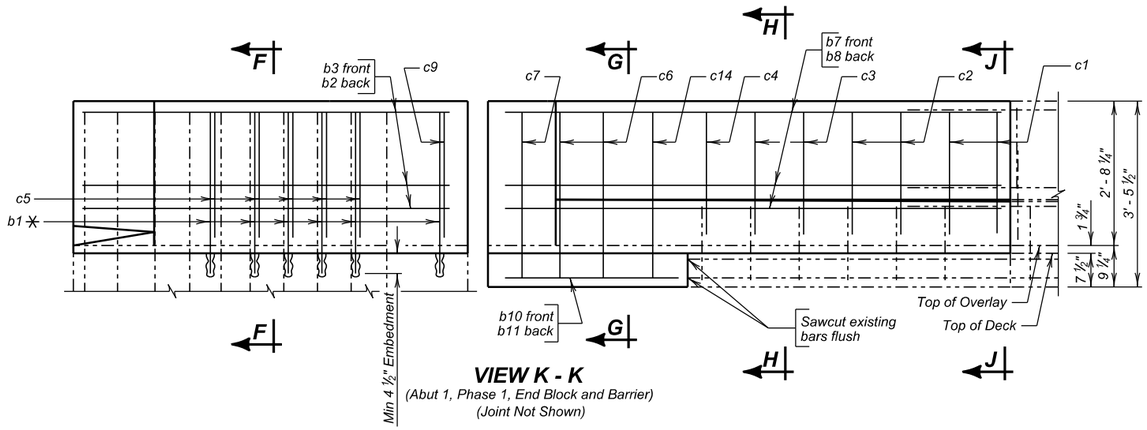


PLAN
(Abut 1, Phase 1, End Block and Barrier)
(Joint Not Shown)

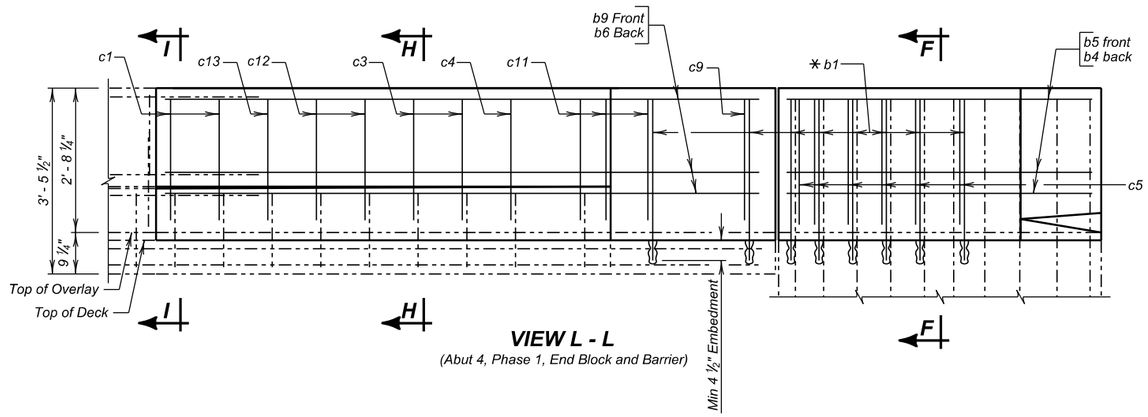


PLAN
(Abut 4, Phase 1, End Block and Barrier)

★ *Match with existing bar location*



VIEW K - K
(Abut 1, Phase 1, End Block and Barrier)
(Joint Not Shown)



VIEW L - L
(Abut 4, Phase 1, End Block and Barrier)

✳ *b1 Dowels are to be drilled in and grouted with epoxy*

ESTIMATED QUANTITIES
(For 4 End Blocks and Barriers)

ITEM	UNIT	QUANTITY	
		Phase 1	Phase 2
Class A45 Concrete, Bridge Barrier	CuYd	4.7	4.7
Epoxy Coated Reinforcing Steel	Lb	331	322
Install Dowel in Concrete	Each	16	16

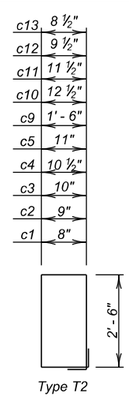
Item below is an approximate quantity contained in "Install Dowel in Concrete" and is for information only.

	Phase 1	Phase 2
Reinforcing steel for dowels	33 Lbs	33 Lbs

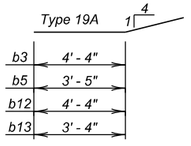
REINFORCING SCHEDULE - END BLOCKS AND BARRIERS

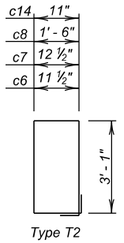
Mk.	No.	Size	Length	Type
Phase 1 (NE and SE End Blocks)				
✳ b1	16	4	3' - 0"	Str.
b2	3	4	5' - 8"	Str.
b3	3	4	6' - 10"	19A
b4	3	4	6' - 10"	Str.
b5	3	4	5' - 11"	19A
b6	3	4	11' - 0"	Str.
b7	3	4	9' - 5"	Str.
b8	3	4	10' - 5"	Str.
b9	3	4	10' - 0"	Str.
b10	1	4	3' - 4"	Str.
b11	1	4	4' - 3"	Str.
c1	4	4	7' - 1"	t2
c2	2	4	7' - 3"	t2
c3	4	4	7' - 5"	t2
c4	2	4	7' - 6"	t2
c5	11	4	7' - 7"	t2
c6	4	4	8' - 10"	t2
c7	1	4	9' - 0"	t2
c9	2	4	8' - 9"	t2
c11	3	4	7' - 8"	t2
c12	2	4	7' - 4"	t2
c13	1	4	7' - 2"	t2
c14	1	4	8' - 9"	t2

Bending Details



Type T2





Type T2

Mk.	No.	Size	Length	Type
Phase 2 (NW and SW End Blocks)				
✳ b1	16	4	3' - 0"	Str.
b2	3	4	5' - 8"	Str.
b4	3	4	6' - 10"	Str.
b6	3	4	11' - 0"	Str.
b7	3	4	9' - 5"	Str.
b8	3	4	10' - 5"	Str.
b9	3	4	10' - 0"	Str.
b12	3	4	6' - 9"	19A
b13	3	4	5' - 10"	19A
b14	1	4	2' - 2"	Str.
b15	1	4	3' - 1"	Str.
c1	5	4	7' - 1"	t2
c2	2	4	7' - 3"	t2
c3	4	4	7' - 5"	t2
c4	3	4	7' - 6"	t2
c5	12	4	7' - 7"	t2
c6	2	4	8' - 10"	t2
c8	1	4	9' - 11"	t2
c9	3	4	8' - 9"	t2
c10	1	4	7' - 10"	t2
c12	2	4	7' - 4"	t2
c13	1	4	7' - 2"	t2

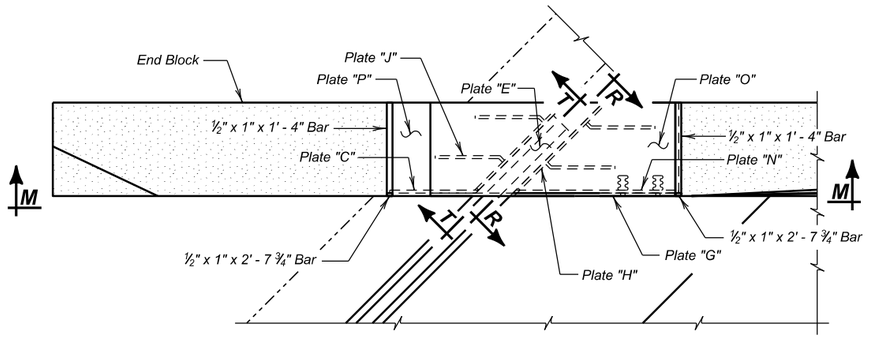
NOTES:
All Dimensions are out to out of bars.
✳ *Dowel Bar*

(SOUTH BOUND LANES)
END BLOCK AND BARRIER CONSTRUCTION DETAILS (F)
FOR
260' - 8" CONT. COMP. GIRDER VIADUCT
38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

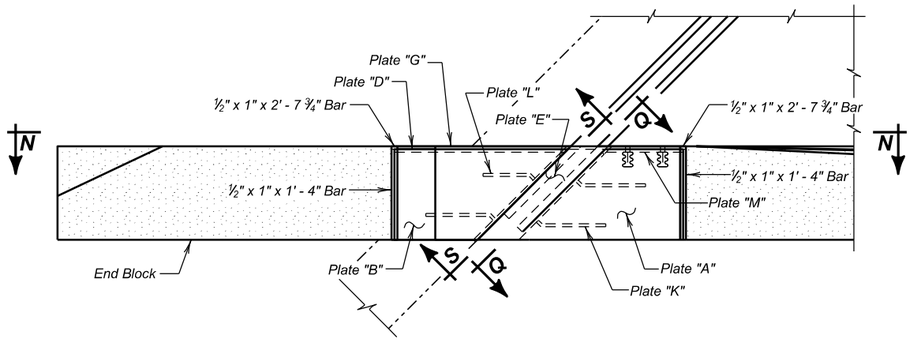
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	BRIDGE ENGINEER
HAML09TA	09TABA29		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	84	124



PLAN
(Abut. No. 1, Phase 2)



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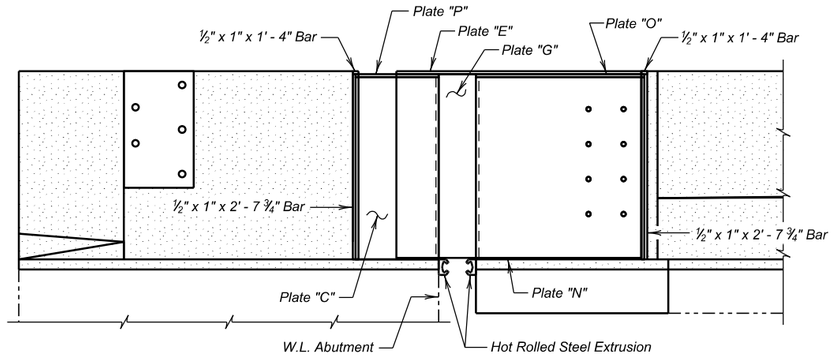
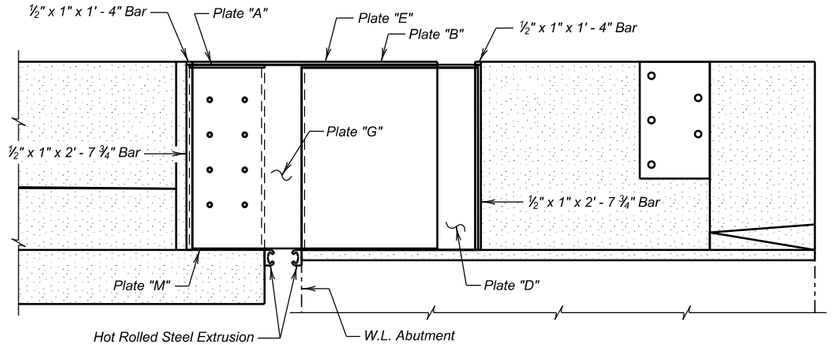
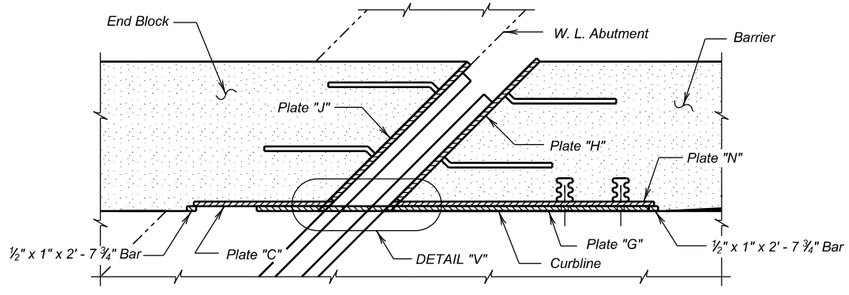
(Abut. No. 1, Phase 1)



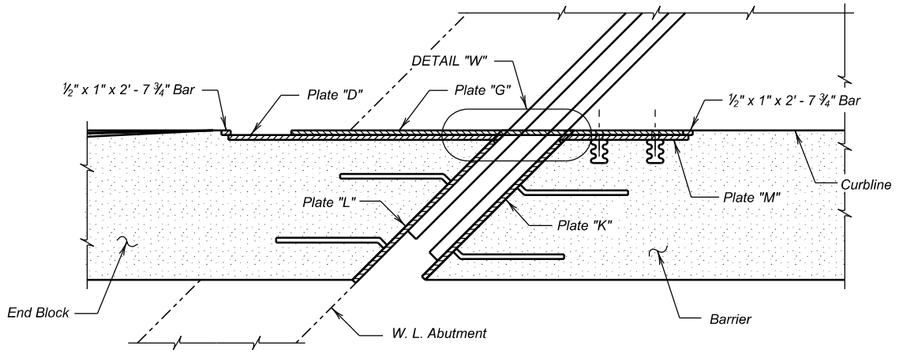
VIEW M - M



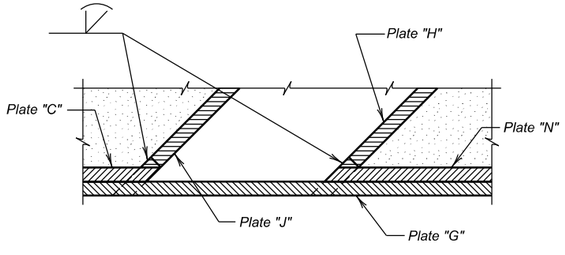
VIEW N - N



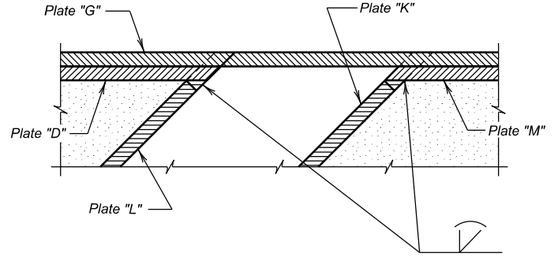
PLAN WITHOUT COVER PLATES
(Abut. No. 1, Phase 2)



PLAN WITHOUT COVER PLATES
(Abut. No. 1, Phase 1)



DETAIL "V"



DETAIL "W"

(SOUTH BOUND LANES)
END BLOCK PLATE DETAILS (A)

FOR

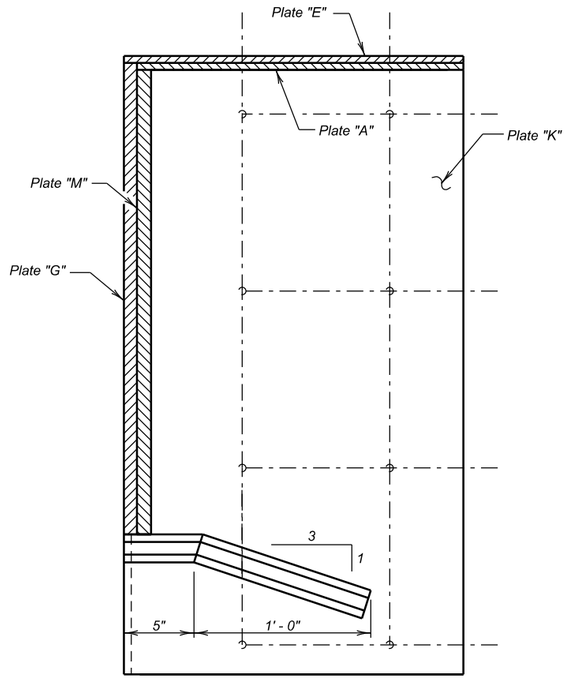
260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

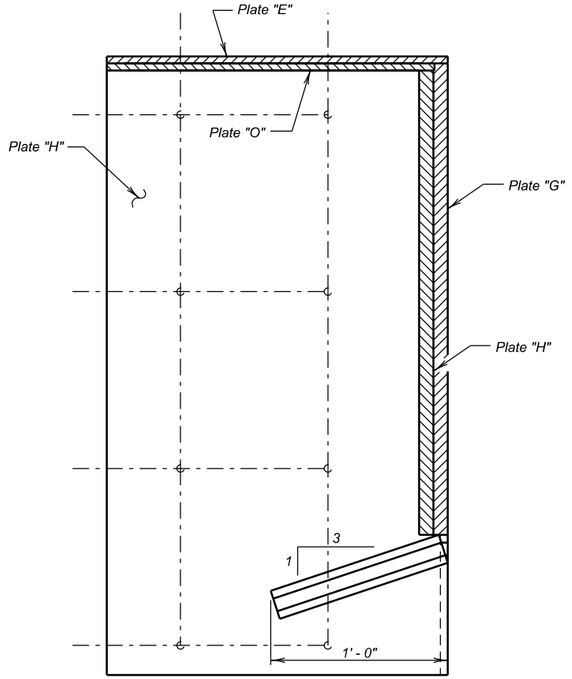
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA30		

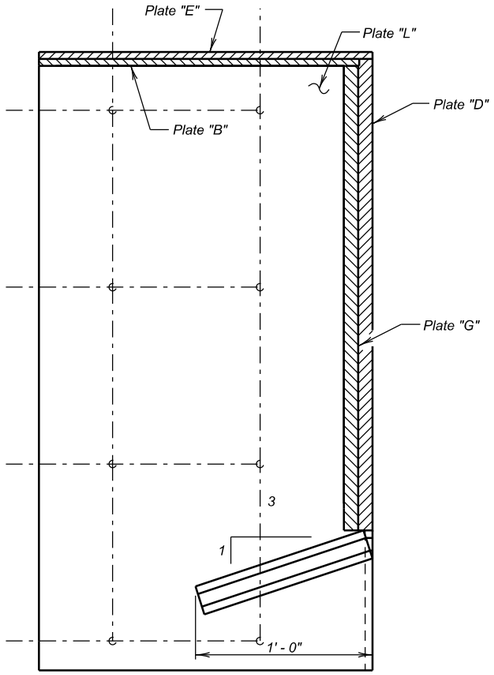
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	85	124



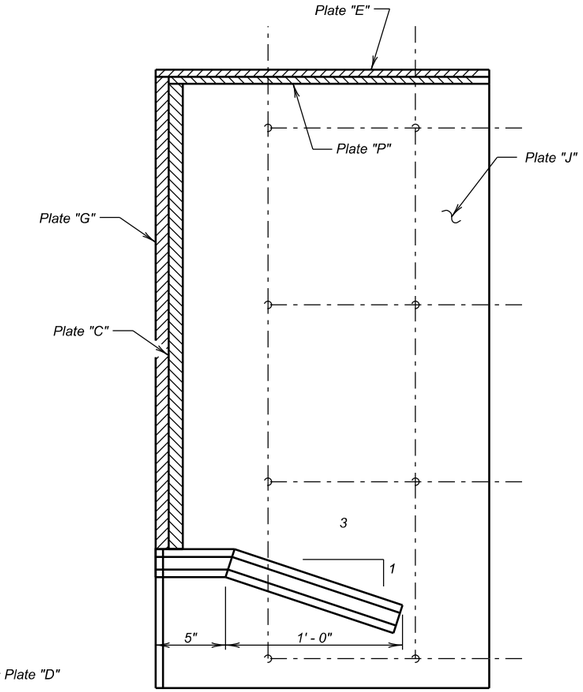
SECTION Q - Q



SECTION R - R



SECTION S - S



SECTION T - T

(SOUTH BOUND LANES)
ENDBLOCK PLATE DETAILS (B)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY
OVER SD22
STR. NO. 29-299-040

45° L.H.F. SKEW
SEC. 24/25-T115N-R51W
IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steven A. Johnson BRIDGE ENGINEER
HAML09TA	09TABA31		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	86	124

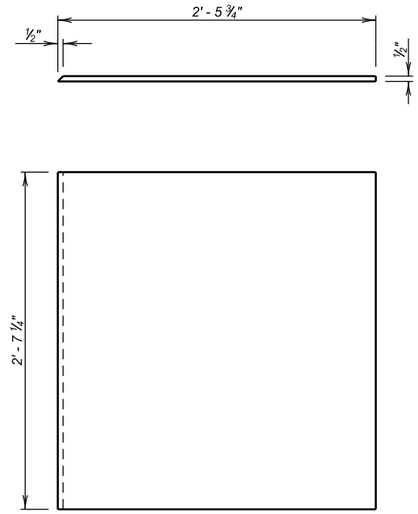
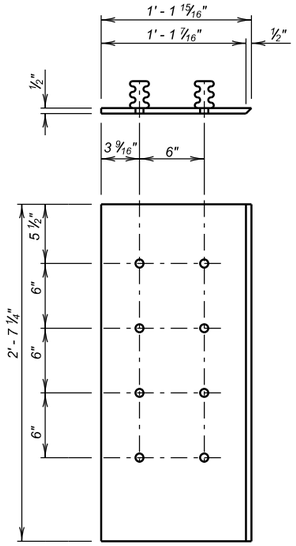


PLATE "D"



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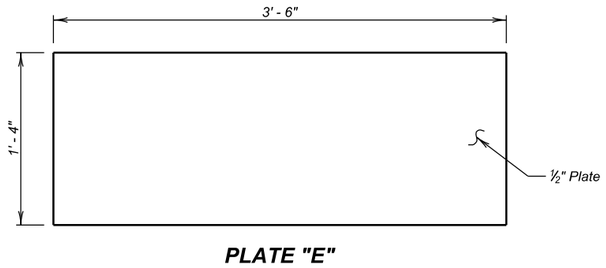

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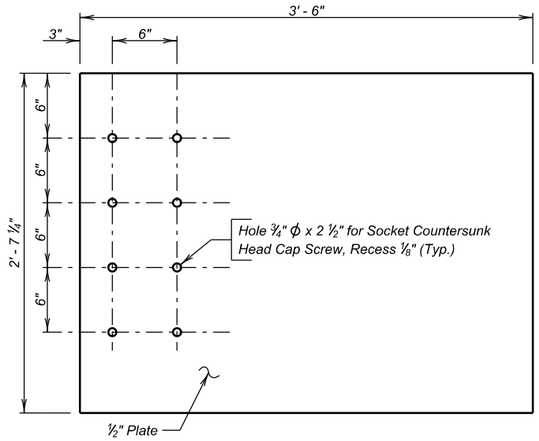

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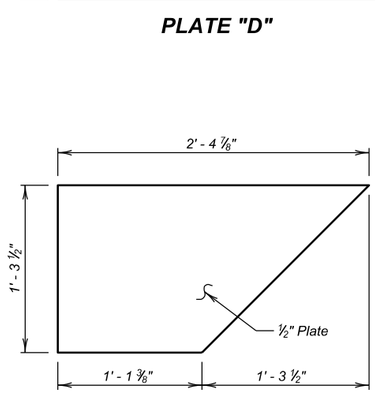


PLATE "A"

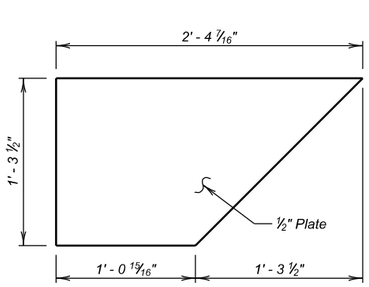
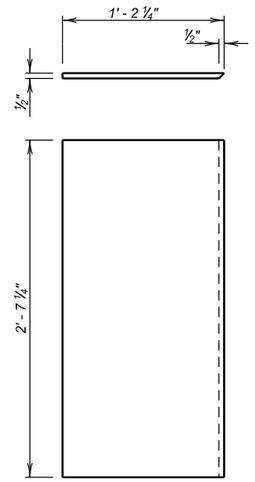


PLATE "O"



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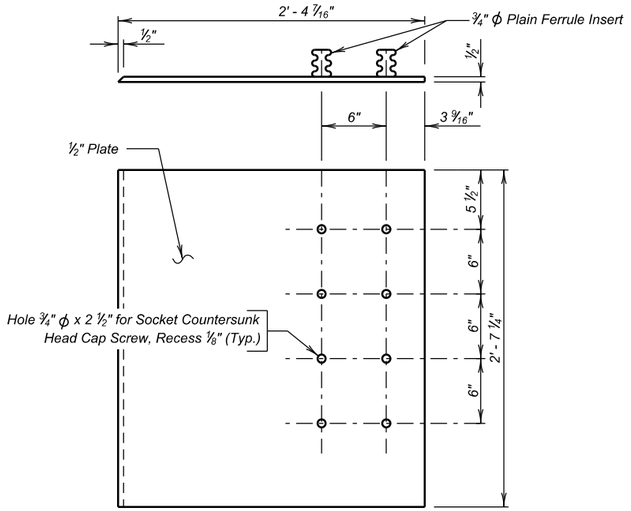

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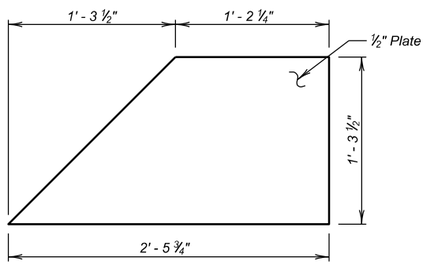


PLATE "B"

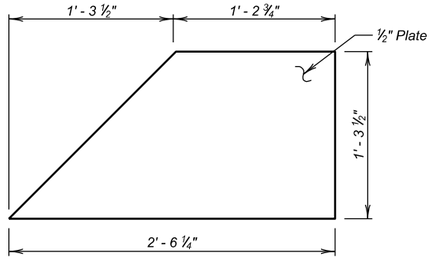


PLATE "P"

(SOUTH BOUND LANES)
ENDBLOCK PLATE DETAILS (C)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

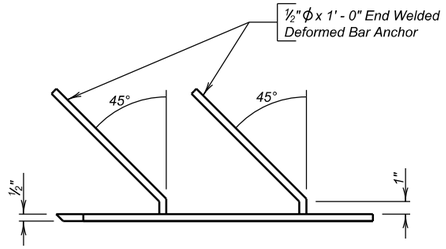
38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

32 OF 70

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steven A Johnson BRIDGE ENGINEER
HAML09TA	09TABA32		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	87	124



VIEW R - R

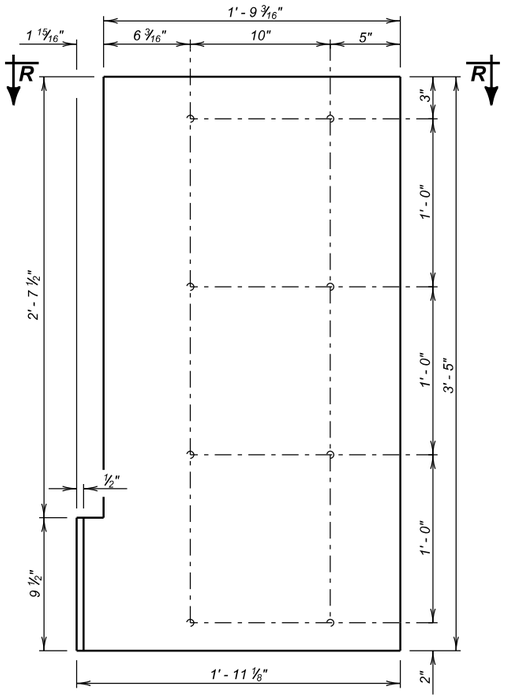
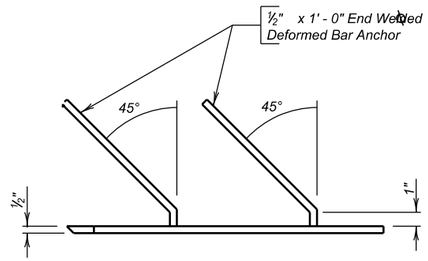


PLATE "K"



VIEW T - T

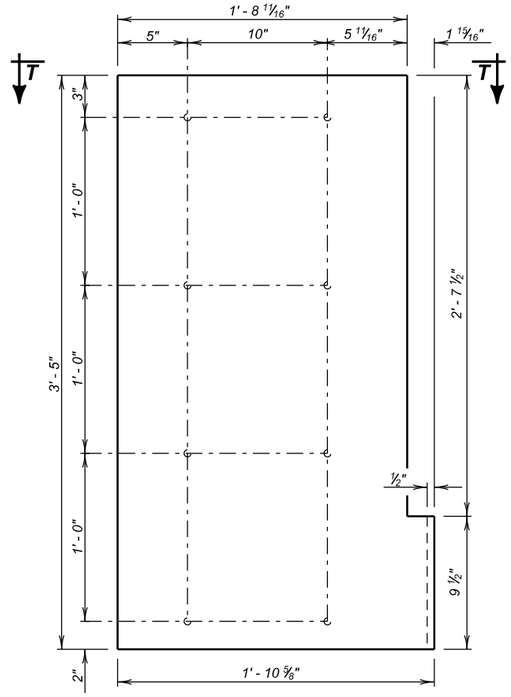


PLATE "L"

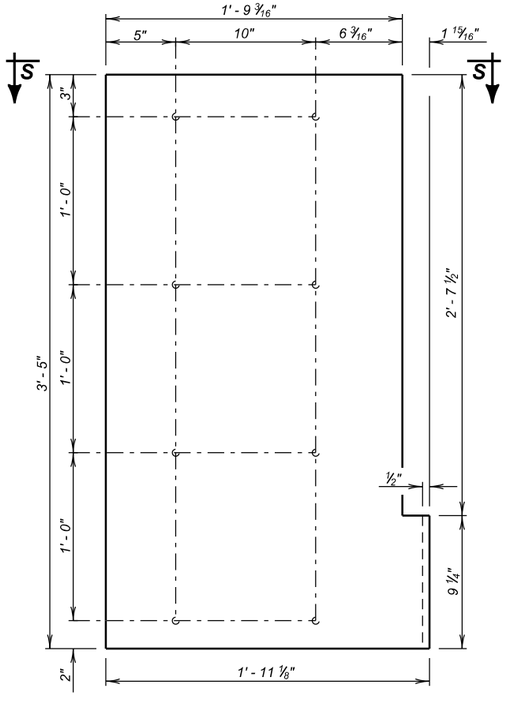
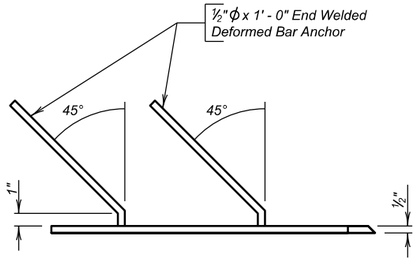


PLATE "H"



VIEW S - S

ESTIMATED QUANTITIES
(For Barrier Plates)

ITEM	UNIT	QUANTITY
◈ Structural Steel, Miscellaneous	LS	Lump Sum

◈ *The total estimated quanitity for the structural steel components listed are shown below for the Bid Item Structural Steel, Miscellaneous.*

	PHASE 1	PHASE 2
Structural Steel	1096 Lb	1195 Lb

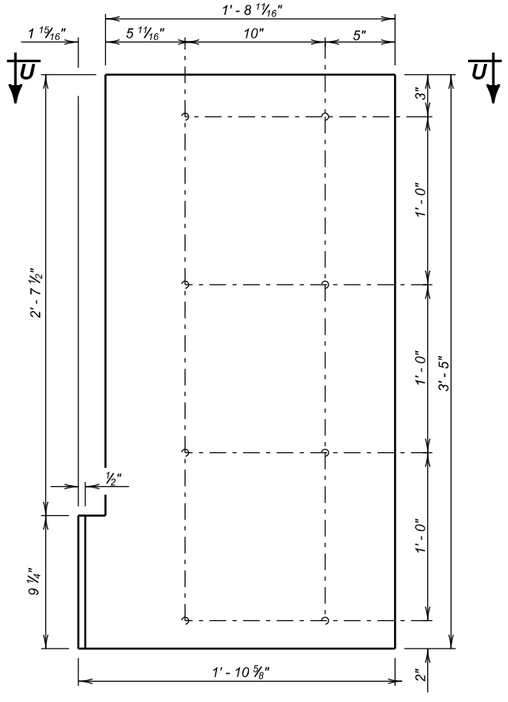
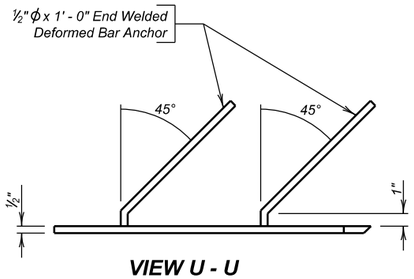


PLATE "J"



VIEW U - U

(SOUTH BOUND LANES)
ENDBLOCK PLATE DETAILS (D)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY
OVER SD22
STR. NO. 29-299-040

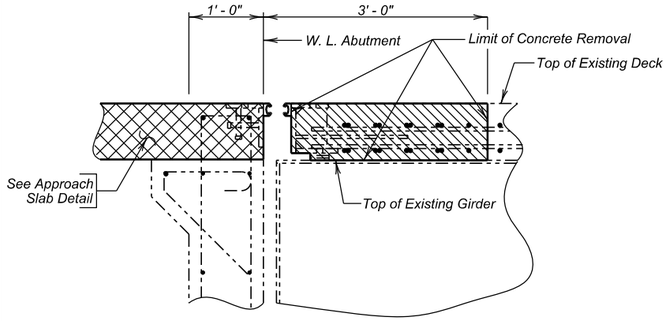
45° L.H.F. SKEW
SEC. 24/25-T115N-R51W
IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

33 OF 70

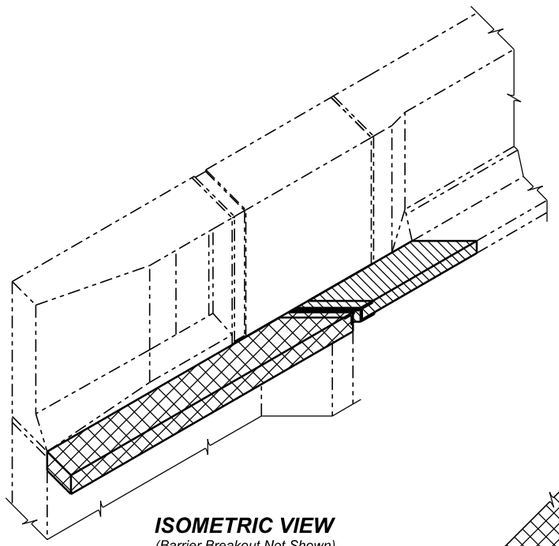
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA33		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	88	124



SECTION S - S

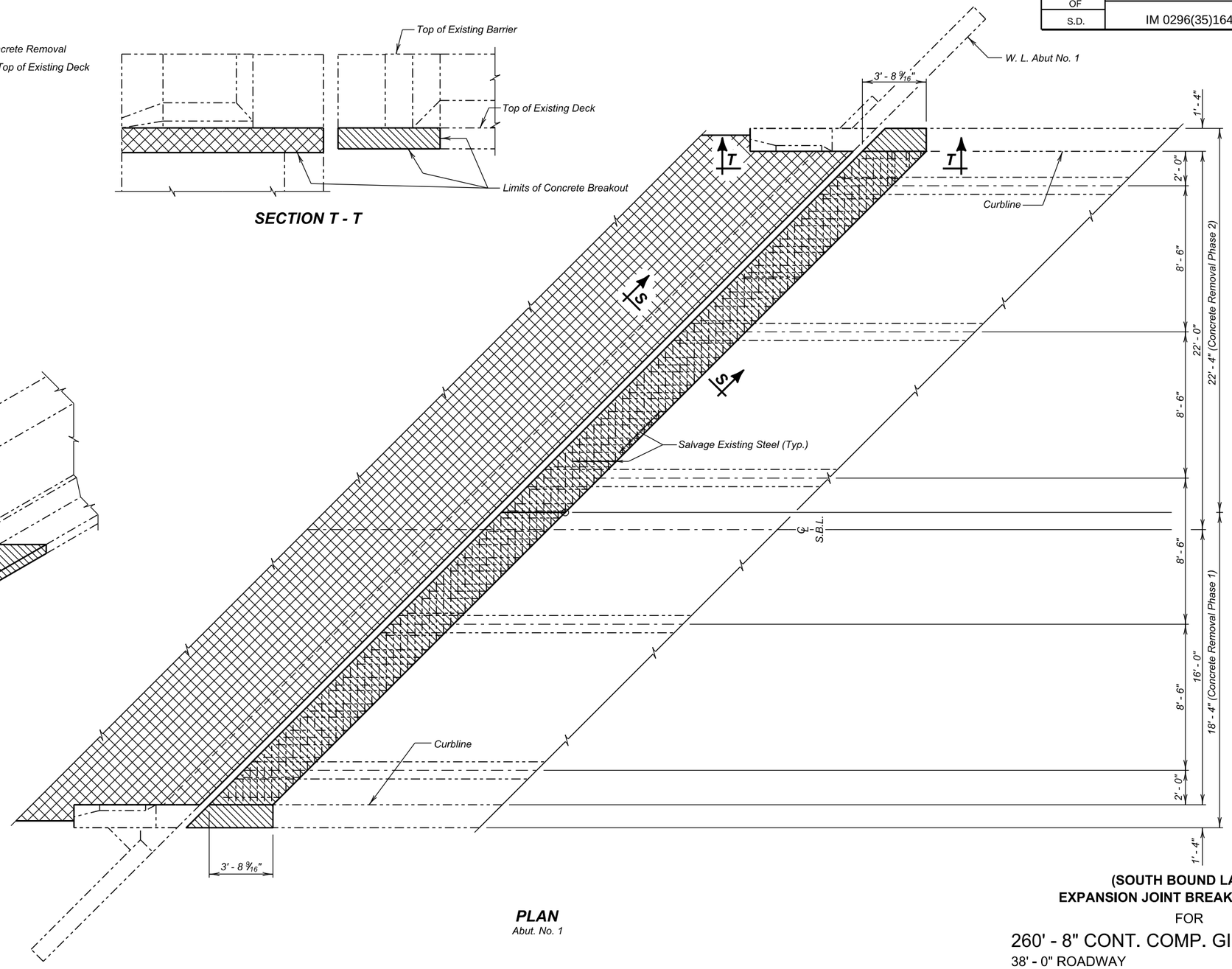
SECTION T - T



ISOMETRIC VIEW
(Barrier Breakout Not Shown)

- Shaded Area Indicates Breakout for Joint

- Shaded Area Indicates Removal for Approach Slab



PLAN
Abut. No. 1

(SOUTH BOUND LANES)
EXPANSION JOINT BREAKOUT DETAILS

FOR

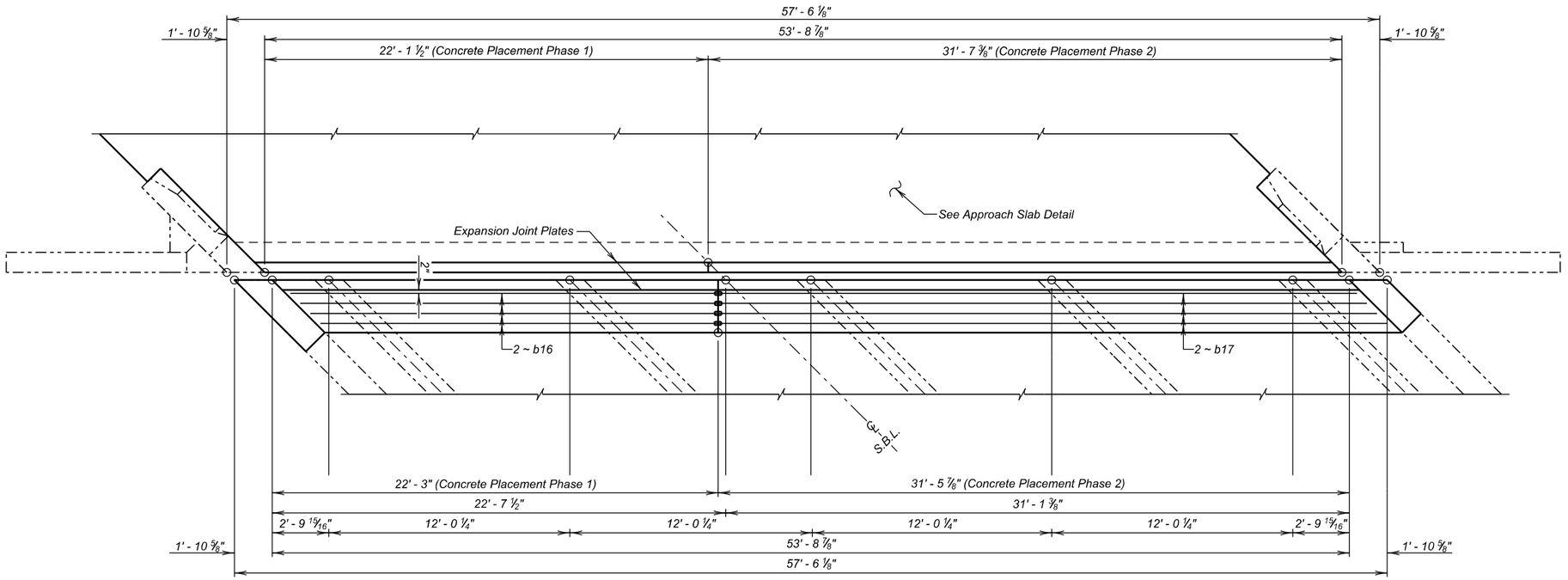
260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA34		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	89	124



PLAN
Abut. No. 1

(SOUTH BOUND LANES)
EXPANSION JOINT DETAILS (A)

FOR

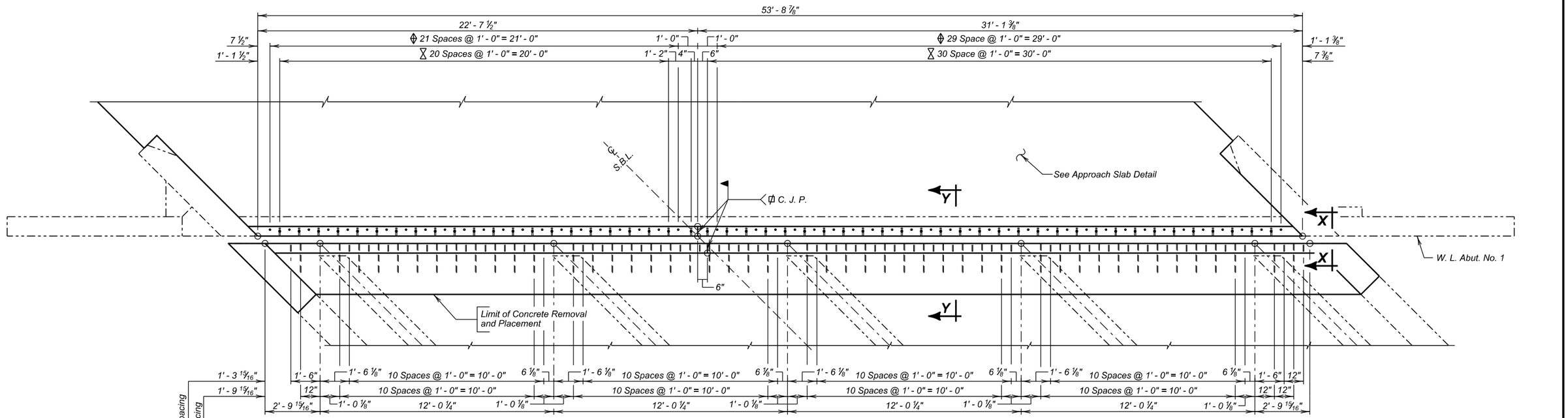
260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA35		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	90	124



PLAN
(Abut. No. 1)

ϕ *Complete Joint Penetration Butt Splice at construction joint to be shown on shop plans*

⧫ *3/4" ϕ Horizontal End Welded Concrete Anchor Spacing and 1" ϕ Bleeder Hole Spacing*

⧖ *3/4" ϕ Vertical End Welded Concrete Anchor Spacing*

(SOUTH BOUND LANES)
EXPANSION JOINT DETAILS (B)

FOR

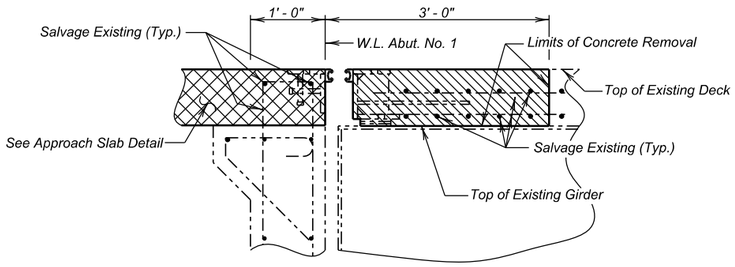
260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

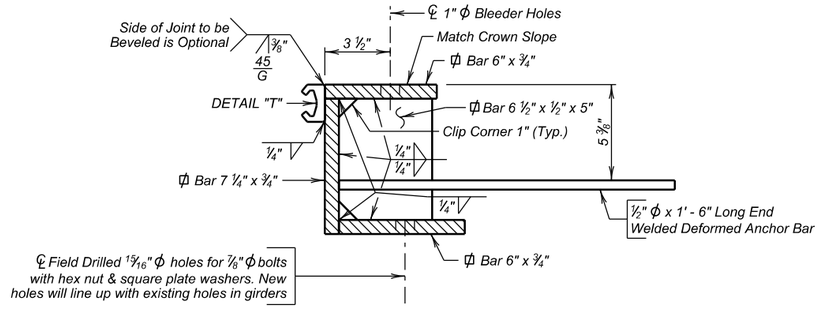
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A. Johnson BRIDGE ENGINEER
HAML09TA	09TABA36		

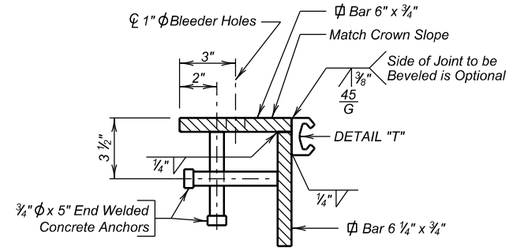
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	91	124



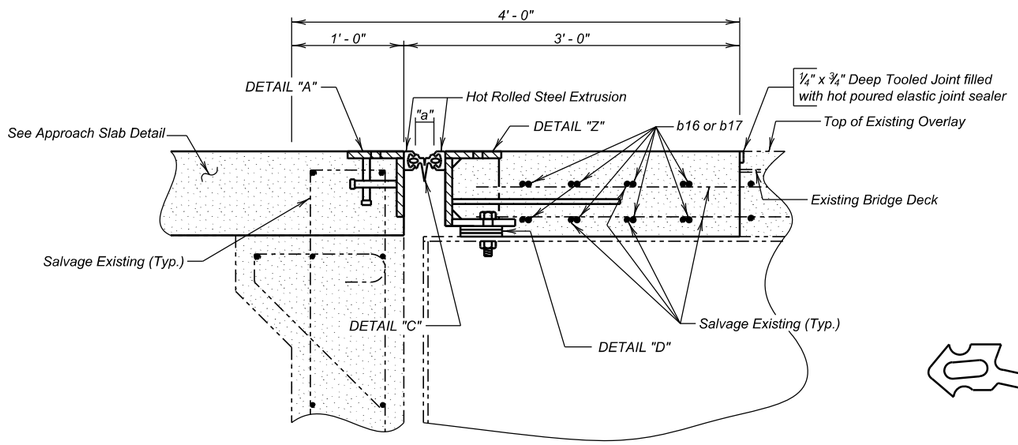
SECTION Y - Y
(Breakout Section Shown)



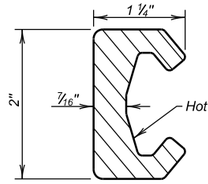
DETAIL "Z"



DETAIL "A"



SECTION Y - Y
(New Construction Shown)



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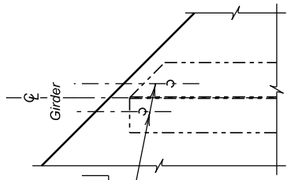


SHIM DETAIL

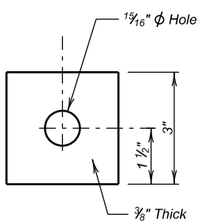
REINFORCING SCHEDULE

	Mk.	No.	Size	Length	Type	Bending Details
	Phase 1					
≠ ✳	b16	4	5	41' - 10"	Str.	b17 | 33' - 0" | 31' - 6"
	Phase 2					b16 | 21' - 8" | 20' - 2"
≠ ✳	b17	4	5	64' - 6"	Str.	Cut 2 b16 / Cut 2 b17

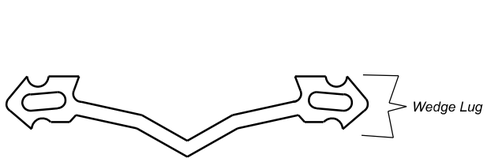
NOTES:
All Dimensions are out to out of bars.
≠ See cutting diagram
✳ Mechanical Splice

b16 | 21' - 2" | 20' - 8"
b17 | 32' - 6" | 32' - 0"

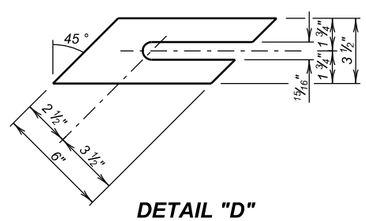
Joint Installation Table	
Dimension "a"	
Temp.	Abut. No. 4
30°	2 ¾"
40°	2 9/16"
50°	2 ⅜"
60°	2 3/16"
70°	2"
80°	1 13/16"
90°	1 ⅝"



SQUARE PLATE WASHER

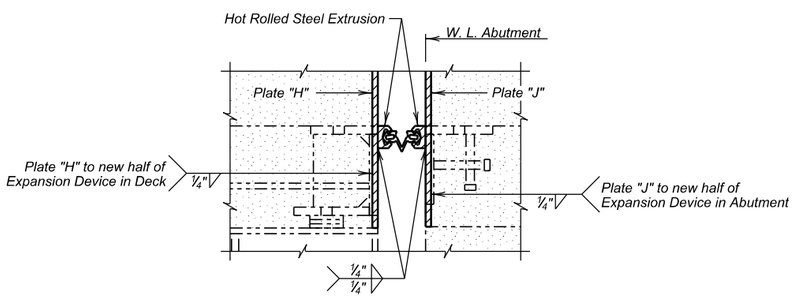


DETAIL "C"
Neoprene Seal shall have a 3" movement capability.



DETAIL "D"

Provide for Expansion Device:
10 - ½" Thick
10 - ¼" Thick
20 - ⅛" Thick
40 - 1/16" Thick



SECTION X - X

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY Phase 1	QUANTITY Phase 2
	Replace Expansion Device	LS	Lump Sum	
⊛	Galvanic Anode	Each	35	48
	No. 5 Rebar Splice	Each	8	-

Items 1 thru 4 are approximate quantities contained in the above bid items and are for information only.

		Phase 1	Phase 2
1.	Concrete Removal	2.7 CuYd	3.1 CuYd
2.	Class A45 Concrete, Bridge Deck	2.4 CuYd	3.4 CuYd
3.	Epoxy Coated Reinforcing Steel	175 Lb	269 Lb
4.	Structural Steel	2374 Lb	3076 Lb

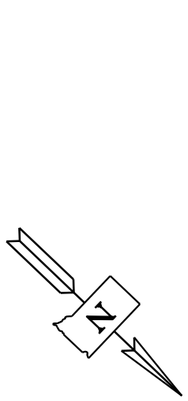
⊛ Place at interface of new and old concrete at the joint replacement.

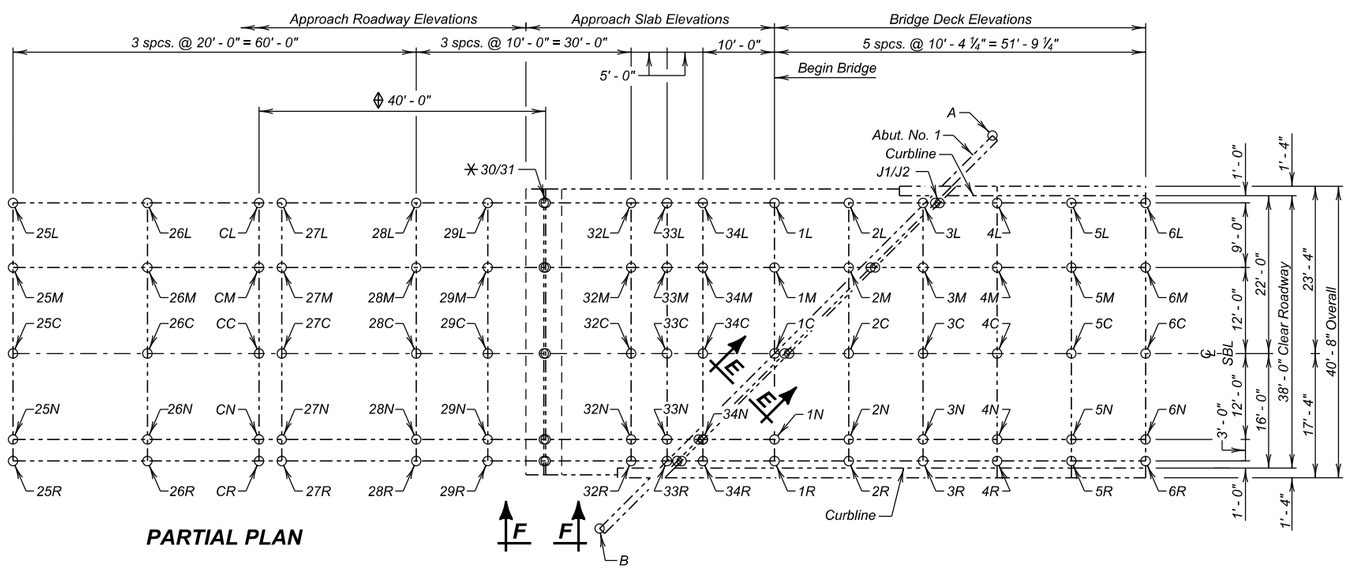
(SOUTH BOUND LANES)
EXPANSION JOINT DETAILS (C)
FOR
260' - 8" CONT. COMP. GIRDER VIADUCT
38' - 0" ROADWAY
OVER SD22
STR. NO. 29-299-040
45° L.H.F. SKEW
SEC. 24/25-T115N-R51W
IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

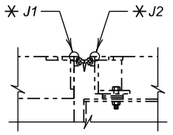
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A. Johnson BRIDGE ENGINEER
HAML09TA	09TABA37		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	92	124

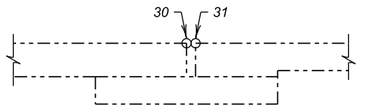




PARTIAL PLAN



SECTION E - E



VIEW F - F

Expansion Joint (SECTION E - E)			
Location	Elevation	Location	Elevation
J1L		J2L	
J1M		J2M	
J1C		J2C	
J1N		J2N	
J1R		J2R	

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.

✳ Labels for all the points at the joints are not shown for clarity. These points follow the same labeling sequence as the adjacent points. Details for these point locations are also shown in VIEW F - F and SECTION E - E.

◈ Dimension is to center of pavement terminal based on plans, adjust and indicated distance as needed.

Table of Elevations - Approach Roadway									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
25L		25M		25C		25N		25R	
26L		26M		26C		26N		26R	
27L		27M		27C		27N		27R	
28L		28M		28C		28N		28R	
29L		29M		29C		29N		29R	
30L		30M		30C		30N		30R	

Table of Elevations - Approach Slab Joints (VIEW F - F) and Approach Slab									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
31L		31M		31C		31N		31R	
32L		32M		32C		32N		32R	
33L		33M		33C		33N			
34L		34M		34C					
1L		1M							
2L		2M							

Table of Elevations - Bridge Deck									
Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
								33R	
						34N		34R	
				1C		1N		1R	
				2C		2N		2R	
3L		3M		3C		3N		3R	
4L		4M		4C		4N		4R	
5L		5M		5C		5N		5R	
6L		6M		6C		6N		6R	

Pavement Terminal	
Location	Elevation
CL	
CM	
CC	
CN	
CR	

Bridge Ends	
Location	Elevation
A	
B	

Benchmark Description:

B.M. # 1
N.W. Wingwall
Elevation 1890.413

(SOUTH BOUND LANES)
AS-BUILT SURVEY (A)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

38' - 0" ROADWAY
OVER SD22
STR. NO. 29-299-040
PCN 09TA

45° L.H.F. SKEW
SEC. 24/25-T115N-R51W
IM 0296(35)164

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JANUARY 2026

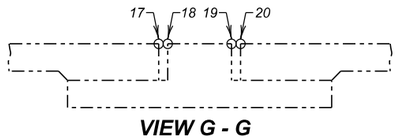
38 OF 70

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	Steve A Johnson BRIDGE ENGINEER
HAML09TA	09TABA38		

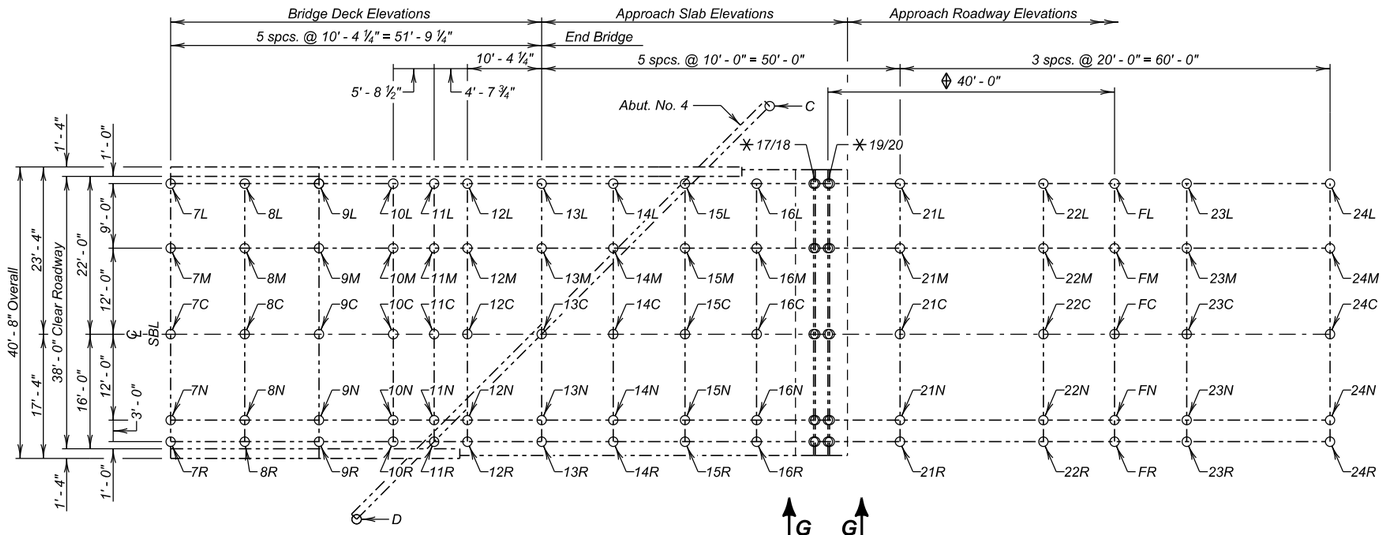
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	93	124

✳ *Labels for all the points at the joints are not shown for clarity. These points follow the same labeling sequence as the adjacent points. Details for these point locations are also shown in VIEW G - G.*

◈ *Dimension is to center of pavement terminal based on plans, adjust and indicated distance as needed.*



VIEW G - G



PARTIAL PLAN

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.

Table of Elevations - Bridge Deck

Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
7L		7M		7C		7N		7R	
8L		8M		8C		8N		8R	
9L		9M		9C		9N		9R	
10L		10M		10C					
11L		11M		11C					
12L		12M							
13L									

Table of Elevations - Approach Roadway

Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
18L		18M		18C		18N		18R	
19L		19M		19C		19N		19R	
20L		20M		20C		20N		20R	
21L		21M		21C		21N		21R	
22L		22M		22C		22N		22R	
23L		23M		23C		23N		23R	
24L		24M		24C		24N		24R	

Table of Elevations - Approach Slab Joints (See VIEW G - G) and Approach Slab

Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation	Location	Elevation
						10N		10R	
						11N		11R	
				12C		12N		12R	
		13M		13C		13N		13R	
14L		14M		14C		14N		14R	
15L		15M		15C		15N		15R	
16L		16M		16C		16N		16R	
17L		17M		17C		17N		17R	

Bridge Ends

Location	Elevation
C	
D	

Pavement Terminal

Location	Elevation
FL	
FM	
FC	
FN	
FR	

(SOUTH BOUND LANES)
AS-BUILT SURVEY (C)

FOR

260' - 8" CONT. COMP. GIRDER VIADUCT

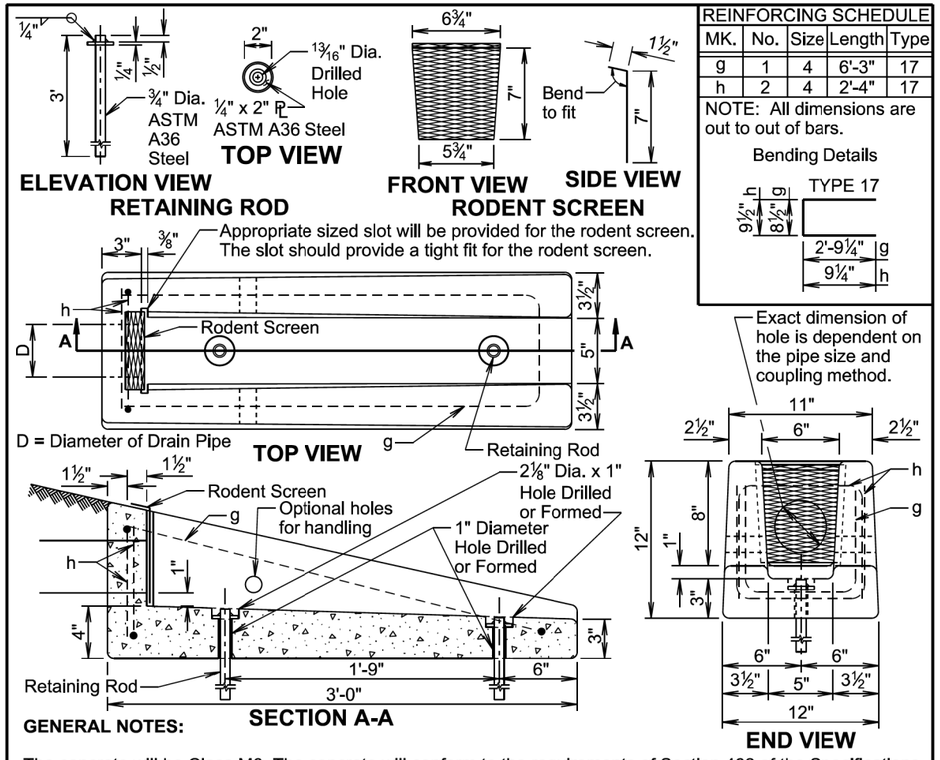
38' - 0" ROADWAY — 45° L.H.F. SKEW
OVER SD22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 0296(35)164

HAMLIN COUNTY

S. D. DEPT. OF TRANSPORTATION

JANUARY 2026

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CMM	CM	JB	BRIDGE ENGINEER
HAML09TA	09TABA40		



REINFORCING SCHEDULE				
MK.	No.	Size	Length	Type
g	1	4	6'-3"	17
h	2	4	2'-4"	17

NOTE: All dimensions are out to out of bars.

Bending Details

GENERAL NOTES:

The concrete will be Class M6. The concrete will conform to the requirements of Section 462 of the Specifications. It is estimated that each unit weighs approximately 210 pounds.

All reinforcing steel will conform to ASTM A615, Grade 60 and will be epoxy coated. The reinforcing steel will be securely retained to prevent displacement during placement of concrete. It is estimated that 7.3 pounds of reinforcing steel is required for each unit.

The pipe will be placed in the concrete headwall with the pipe end flush with the concrete surface adjacent to the rodent screen.

The rodent screen will be galvanized 13 Ga. steel with a diamond shaped flattened mesh pattern. The size will be ½". The size refers to the measurement across the smallest diamond shaped opening measured from the centers of the wires.

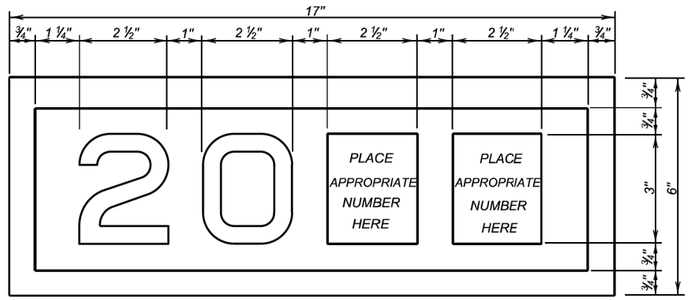
The retaining rod will be galvanized in accordance with ASTM A123 after all shop welding has been completed.

The drawing indicates using ½" fillets; however, ¾" chamfers may be substituted for the ½" fillets.

All costs for furnishing and installing the concrete headwall including equipment, labor, and materials including concrete, reinforcing steel, retaining rods, and rodent screen will be incidental to the contract unit price per each for "Precast Concrete Headwall for Drain".

November 19, 2021

Published Date: 2025	SDDOT	PRECAST CONCRETE HEADWALL FOR DRAIN	PLATE NUMBER 430.50 Sheet 1 of 1



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.

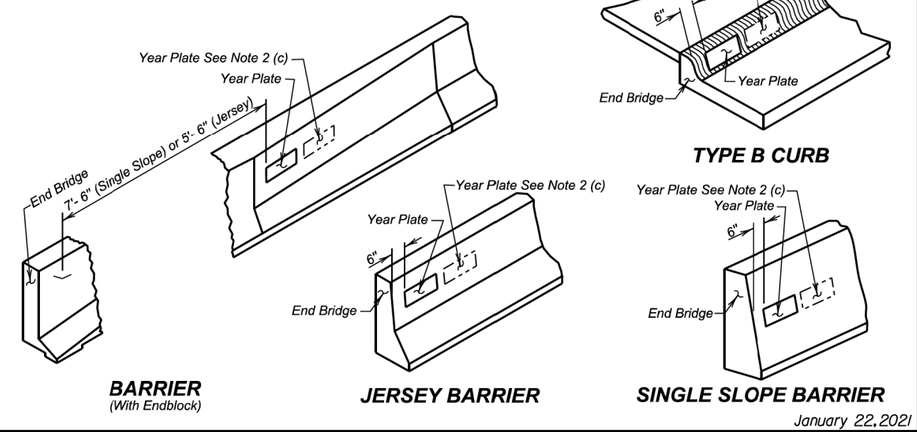
2. Year plates will be located on structure(s) as follows:

   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.

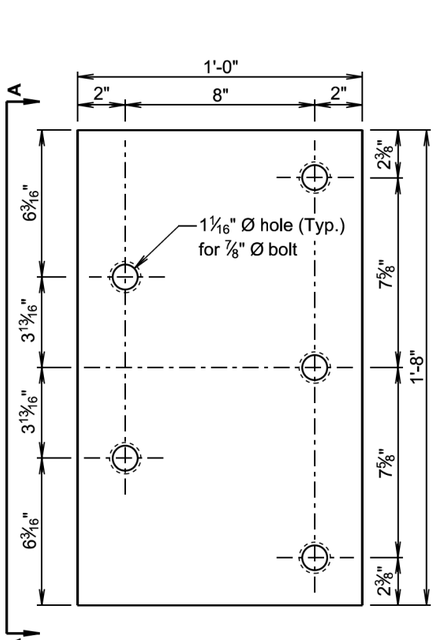
   c. When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date will be placed as listed above and the other located adjacent to it. Both year plates will be shown at each end of the bridge on opposite sides.

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.

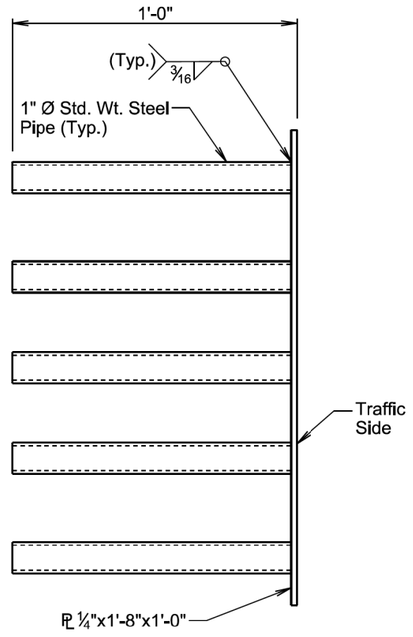


January 22, 2021

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).

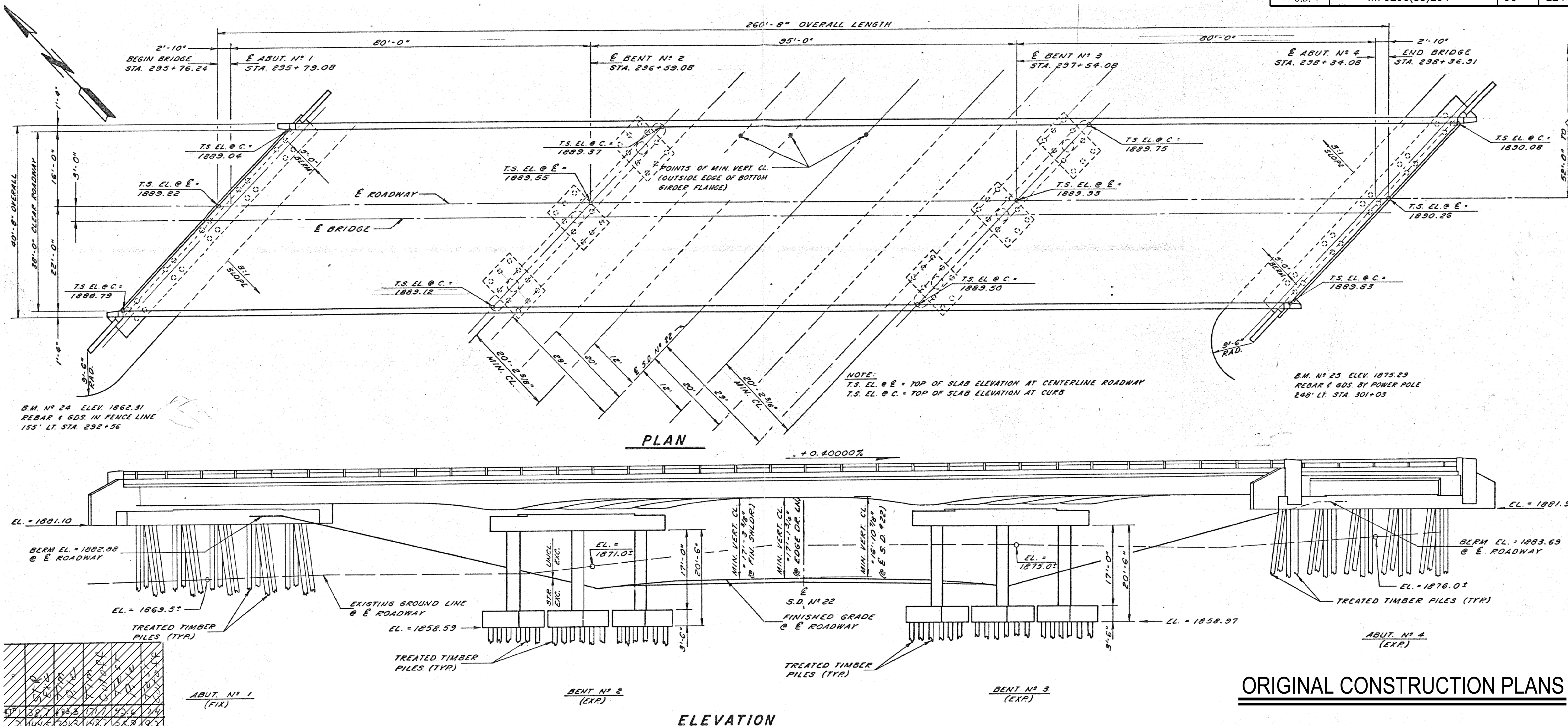
Bolts, nuts, and washers will be provided with each assembly. Bolts will be galvanized and conform to the requirements of ASTM A307, F3125 Grade A325, or A449. Plain washers will be galvanized and conform to ASTM F844.

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



1	38.7	183.3	171.7	42.6	7.4
2	144.5	721.3	148.7	28.8	9.2
3	144.5	613.6	166.4	24.5	5.5
4	37.9	442.4	121.6	28.1	16.9
TOTAL	365.6	247.6	243.4	124.9	39.0

TOTAL ESTIMATED QUANTITIES

ITEM	CONCRETE CLASS "A" (BRIDGE)	STEEL: REINF. FOR CONCRETE MASONRY	STEEL: STRUCT.	TYPE RT-3A ST. RAILING	TIMBER PILES: TREATED TIMBER	TIMBER PILES: ф TEST	STRUCTURE EXCAVATION (BRIDGE)	^ UNCLASS. EXCAVATION	# BRIDGE END BACKFILL	PREBORING PILING
	CU. YDS.	LBS.	LBS.	LIN. FT.	LIN. FT.	LIN. FT.	CU. YDS.	CU. YDS.	LUMP SUM	LIN. FT.
SUPERSTRUCTURE 260'-8" CONT. UNIT	268.8	68,490	205,450	520.7	—	—	—	—	—	—
ABUTMENT Nº 1	52.6	5,855	60	—	19@45=855	1@50=50	40	—	—	20@12=240
BENT Nº 2	73.6	14,820	—	—	29@20=580	1@25=25	75	—	—	—
BENT Nº 3	73.6	14,820	—	—	29@20=580	1@25=25	70	—	—	—
ABUTMENT Nº 4	54.8	6,035	60	—	19@40=760	1@45=45	35	—	—	20@6=120
TOTAL	523.4	110,020	205,570	520.7	2775	ф 145	220	^ —	# LUMP SUM	360

ф ONE TREATED TIMBER TEST PILE SHALL BE DRIVEN AT ABUTMENTS Nº 1 & Nº 4 AND AT BENTS Nº 2 & Nº 3 BEFORE REMAINING PILES ARE ORDERED.

^ TO BE DONE BY OTHERS.

\# FOR INFORMATION ONLY: THE APPROXIMATE VOLUME OF GRANULAR BACKFILL WILL BE 310 CU. YDS. IN PLACE, AND THE LENGTH OF THE 6" PERFORATED METAL PIPE WILL BE 216 LIN. FT., COMPLETE FOR THE TWO ABUTMENTS.

GENERAL PILE NOTES:

1. PREBORE PILING THROUGH THE FILL EMBANKMENT TO THE NATURAL GROUND LINE. (ABUTMENTS NO. 1 AND NO. 4)
2. PILING SHALL DEVELOP A MINIMUM BEARING VALUE OF 28 TONS PER PILE.
3. PREBORED HOLES FOR PILES SHALL BE BACKFILLED WITH SAND OR GRANULAR MATERIAL ACCEPTABLE TO THE ENGINEER, AND COMPACTED AS SPECIFIED BY THE ENGINEER. THE COST OF GRANULAR MATERIAL IN PLACE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PREBORING PILIN..
4. THE CONTRACTOR SHALL HAVE SUFFICIENT PILE SPLICE MATERIAL ON HAND BEFORE PILE DRIVING IS STARTED. SEE STANDARD PLATE NO. 303.1, SHEET 17 FOR SPLICE DETAILS.
5. IN THE EVENT PILE SHOES ARE USED, SEE STANDARD PLATE NO. 301, SHEET 17 FOR PILE SHOE DETAILS.

STR. NO. 29-299-040

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
GENERAL DRAWING & QUANTITIES FOR 260'-8" CONT. COMP. GIRDER VIADUCT

INTERCHANGE — SEC. 24/25-T115N-R51W
38'-0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. NO. 22 STA. 15+00 — I-29-6 (6) 156
I.S. 29 STA. 295+76.24 TO 298+36.91

HAMLIN COUNTY
SOUTH DAKOTA

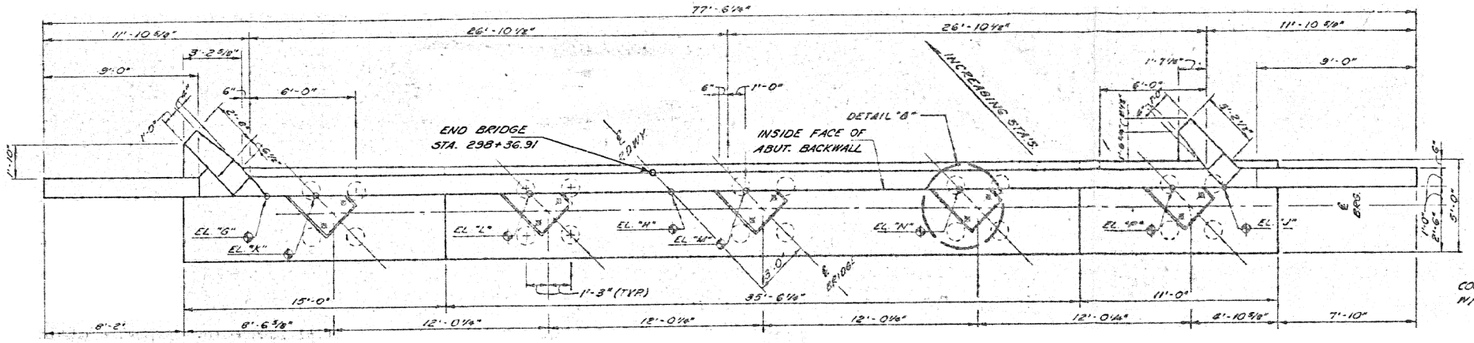
PREPARED BY:
J.T. BANNER & ASSOCIATES, INC.
CONSULTING ENGINEERS
BROOKINGS, SOUTH DAKOTA
DECEMBER 1969

HS 20-44 & ALTERNATE

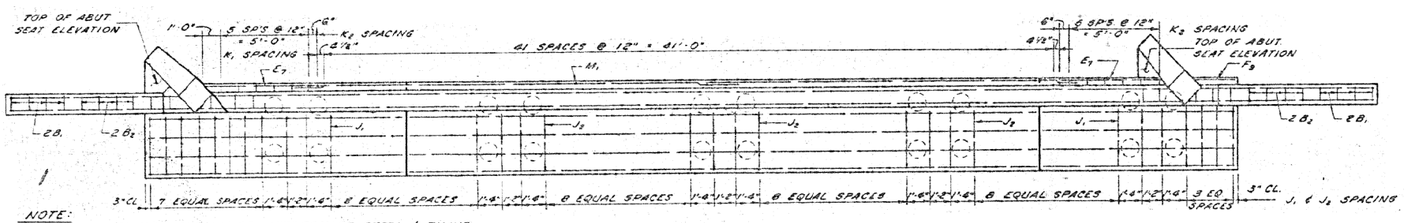
42 OF 70

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
F.J.R.	C.W.L.	K.J.B.	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	97	124

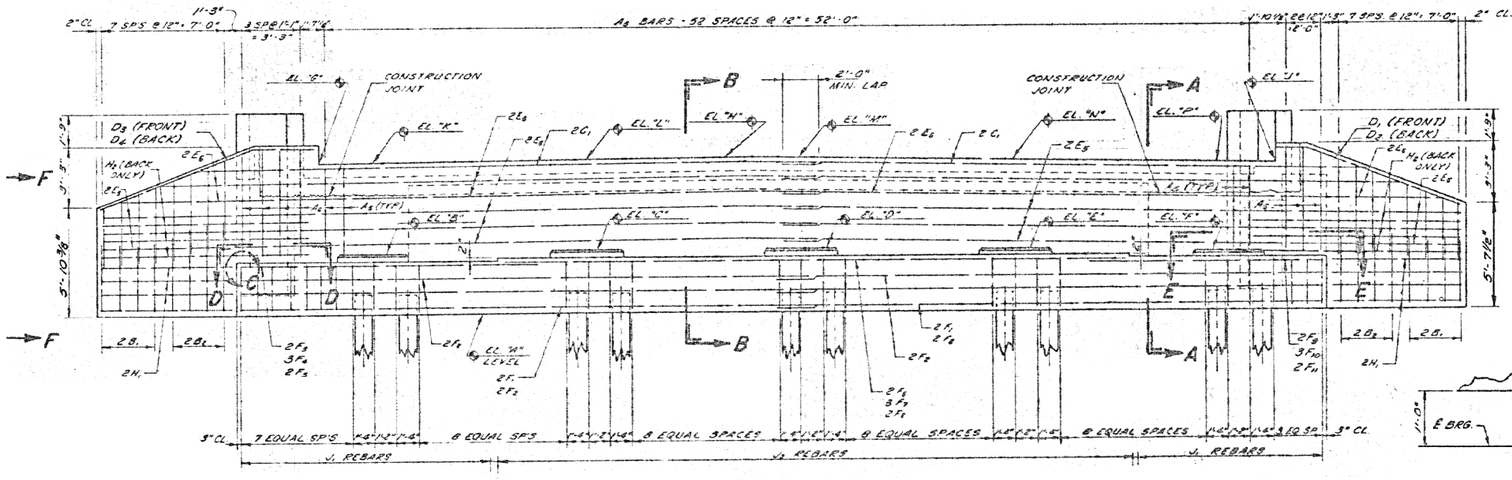


PLAN

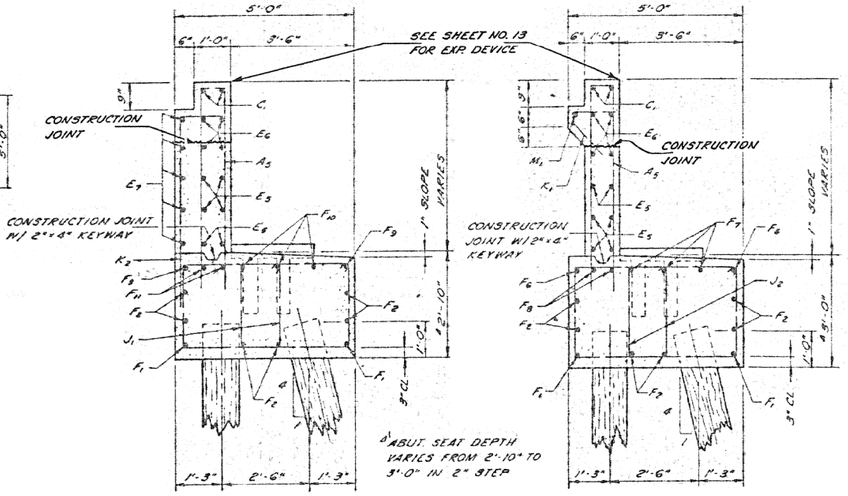


PLAN

NOTE:
PROVIDE 2" MIN. CLEARANCE BETWEEN RE-STEEL & PILING. ADJUST J_1 & J_2 SPACING IF NECESSARY FOR SWEDGE BOLTS HOLES AND PILING CLEARANCE.



ELEVATION

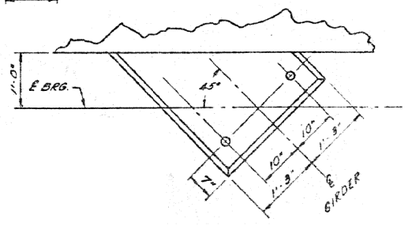


SECTION A-A

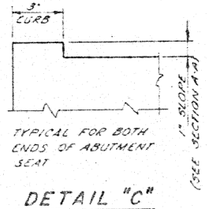
SECTION B-B

ELEVATIONS*													
"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"
81.954	85.100	85.199	85.204	85.037	84.870	90.073	90.259	89.827	90.096	90.195	90.200	90.033	89.866

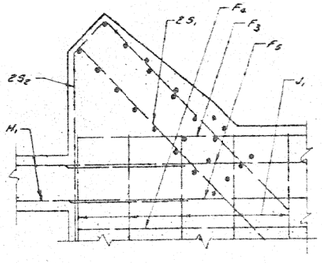
* ADD 1800.000 TO EACH ELEVATION.



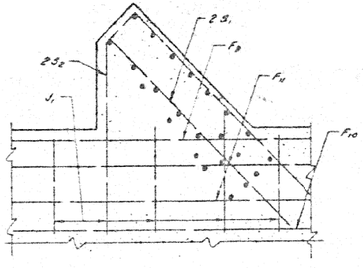
PLAN



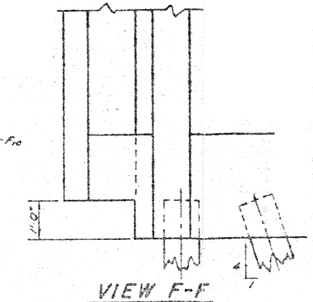
DETAIL "C"



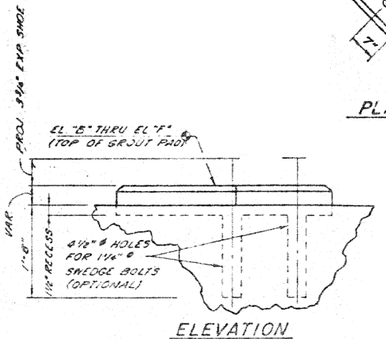
SECTION D-D



SECTION E-E



VIEW F-F



ELEVATION

DETAIL "G"

STR. NO. 29-299-040

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)

ABUTMENT NO. 4 DETAILS

FOR

260'-8" CONT. COMP. GIRDER VIADUCT

INTERCHANGE
38'-0" ROADWAY
OVER S.D. NO. 22 STA. 15+00
I.S 29 STA. 295+76.24 TO 298+36.91

SEC. 24/25-T115N-R51W
45° SKEW L.H.F.
I-29-6(6)158

HAMLIN COUNTY
SOUTH DAKOTA

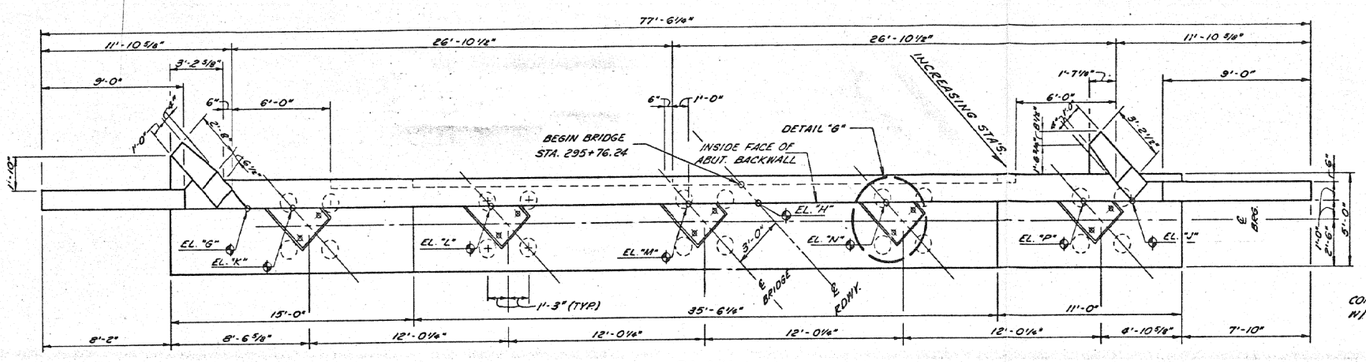
PREPARED BY
J.T. BANNER & ASSOCIATES, INC.
CONSULTING ENGINEERS
BROOKINGS, SOUTH DAKOTA
DECEMBER 1969

HS 20-44
& ALTERNATE

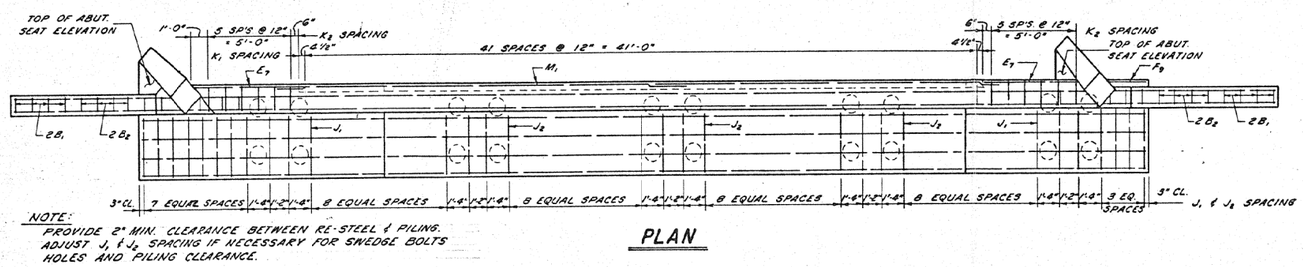
43 OF 70

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
F.J.R.	C.W.L.	K.J.B.	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	98	124

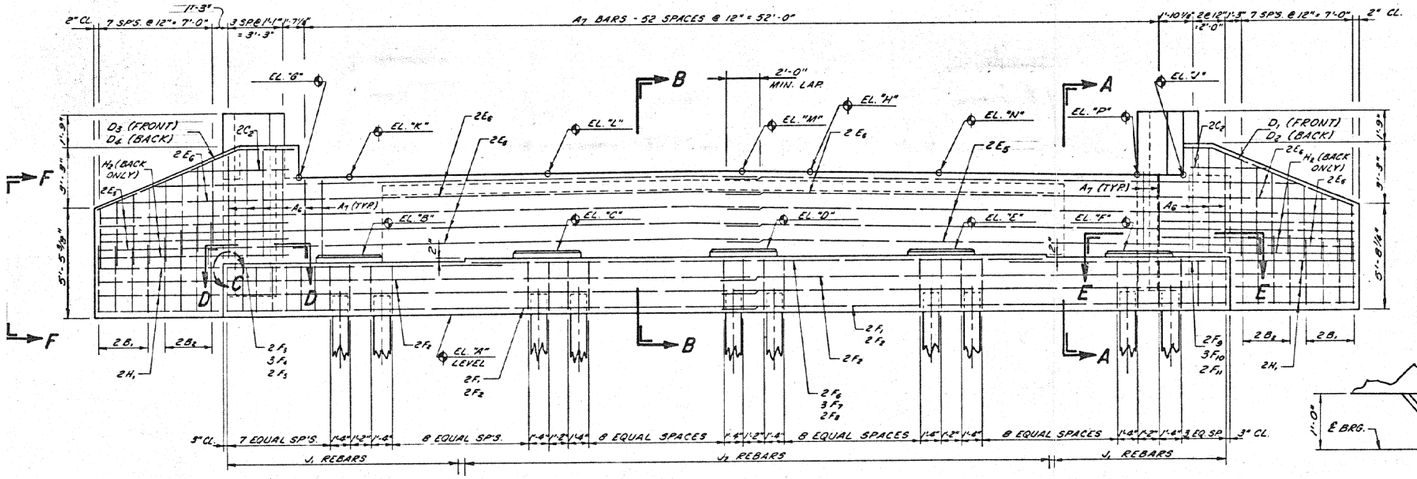


PLAN

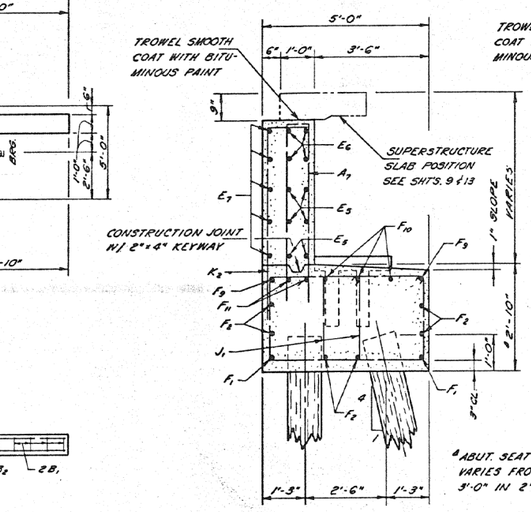


NOTE:
PROVIDE 2" MIN. CLEARANCE BETWEEN RE-STEEL & PILING. ADJUST J_1 & J_2 SPACING IF NECESSARY FOR SWEDGE BOLTS HOLES AND PILING CLEARANCE.

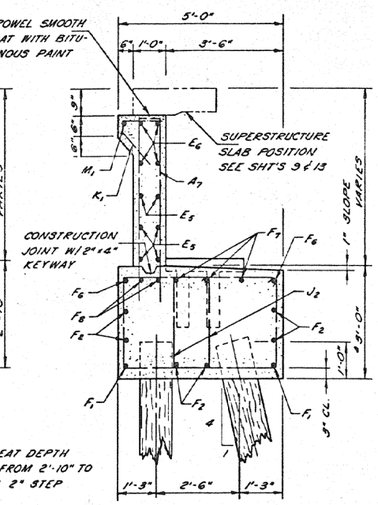
PLAN



ELEVATION



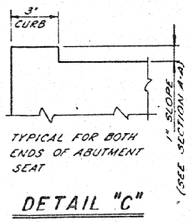
SECTION A-A



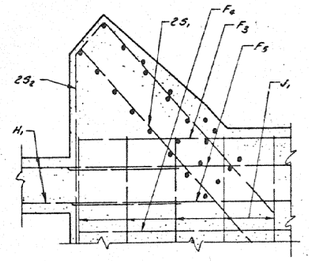
SECTION B-B

ELEVATIONS*													
"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	"L"	"M"	"N"	"P"
81.101	84.017	84.184	84.351	84.346	84.247	88.045	88.477	88.291	88.084	88.251	88.418	88.413	88.314

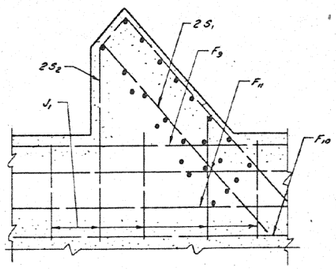
* ADD 1800.000 TO EACH ELEVATION.



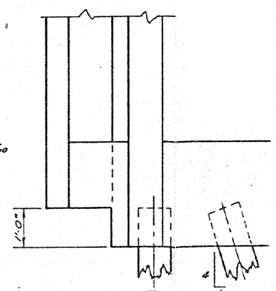
DETAIL "C"



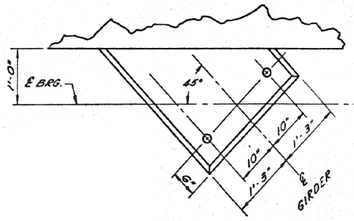
SECTION D-D



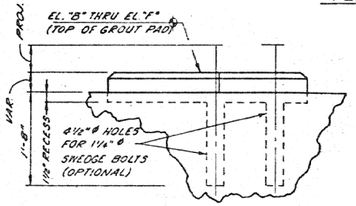
SECTION E-E



VIEW F-F



PLAII



ELEVATION

DETAIL "G"

STR. NO. 29-299-040

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)

ABUTMENT NO. 1 DETAILS FOR 260'-8" CONT. COMP. GIRDER VIADUCT

INTERCHANGE — SEC. 24/25-T115N-R51W
38'-0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. NO. 22 STA. 15+00 — I-29-6(6)158
I.S. 29 STA. 295+76.24 TO 298+36.91

HAMLIN COUNTY
SOUTH DAKOTA

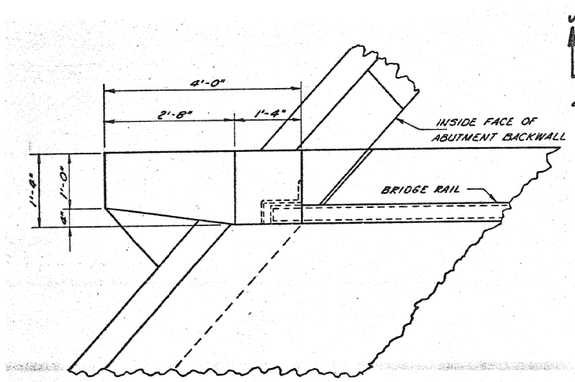
PREPARED BY:
J.T. BANNER & ASSOCIATES, INC.
CONSULTING ENGINEERS
BROOKINGS, SOUTH DAKOTA
DECEMBER 1969

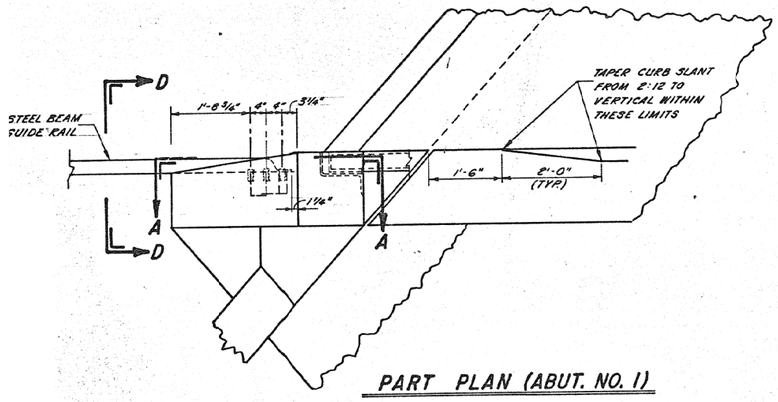
HS 20-44 & ALTERNATE

(44) OF (70)

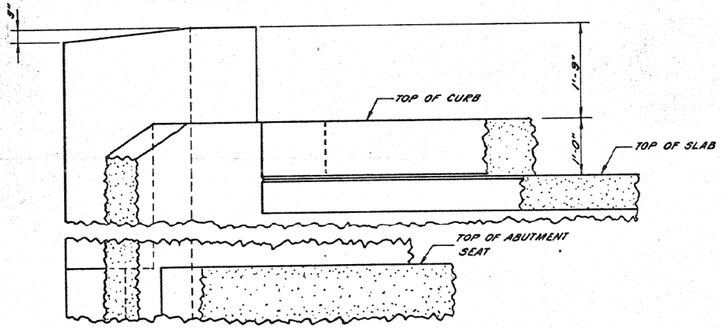
DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
F.J.R.	C.W.L.	K.J.B.	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	99	124

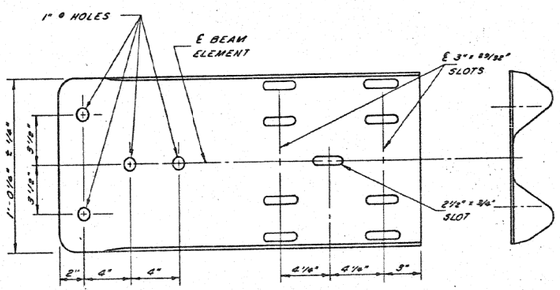




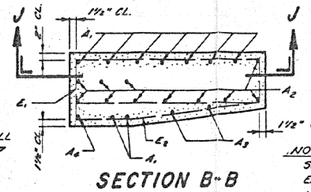
PART PLAN (ABUT. NO. 1)



PART ELEVATION

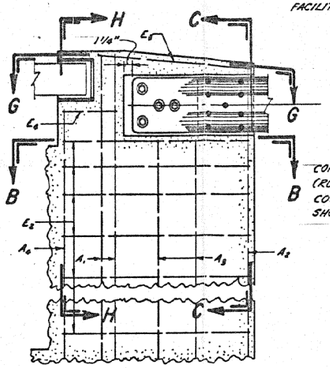


SPECIAL END SHOE DETAIL "L"

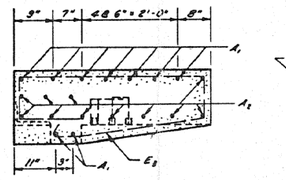


SECTION B-B

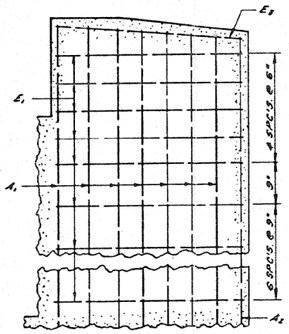
NOTE: SIDES OF RECESS FOR SPECIAL END SHOE MAY BE BEVELED A MAXIMUM OF 1/2" IN 4" TO FACILITATE FORM REMOVAL



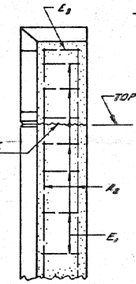
SECTION A-A



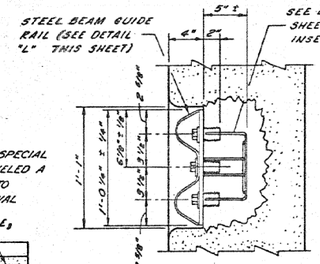
SECTION G-G



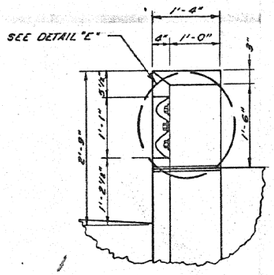
SECTION J-J



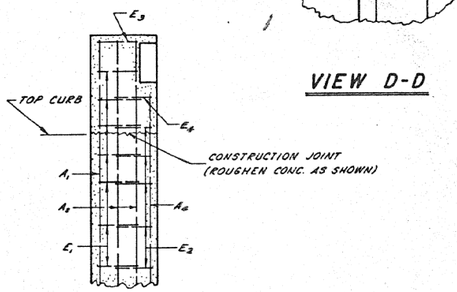
SECTION C-C



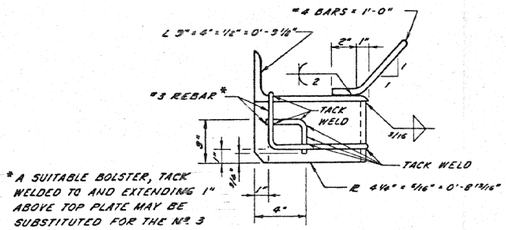
DETAIL "E"



VIEW D-D

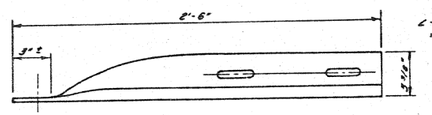


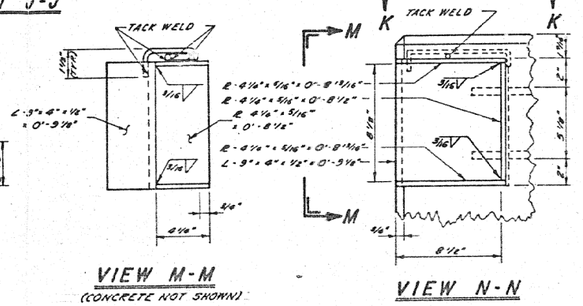
SECTION H-H



VIEW K-K (CONCRETE NOT SHOWN)

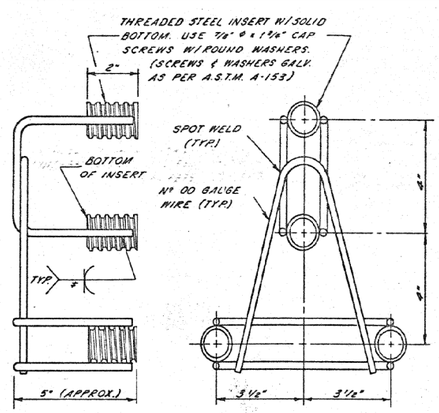
*A SUITABLE BOLSTER, TACK WELDED TO AND EXTENDING 1" ABOVE TOP PLATE MAY BE SUBSTITUTED FOR THE No. 3 BAR ARRANGEMENT. IF SUCH SUBSTITUTION IS TO BE MADE, IT MUST BE SHOWN AND DETAILED ON SHOP PLANS.





VIEW M-M (CONCRETE NOT SHOWN)

VIEW N-N



4-BOLT INSERT ASSEMBLY
DETAIL "F"

*INDICATES EQUIVALENT RESISTANT WELD MAY BE USED

GENERAL NOTES:

1. USE 1 1/2" CLEAR COVER ON ALL REINFORCING STEEL, EXCEPT AS SHOWN.
2. STRUCTURAL STEEL SHALL CONFORM TO ASTM REQUIREMENT FOR A36 STEEL.
3. ALL STEEL IN BRIDGE RAIL RECESS ASSEMBLY SHALL BE GALVANIZED IN ACCORDANCE WITH AASHO SPECIFICATIONS M111. COST OF GALVANIZING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR STRUCTURAL STEEL.
4. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4".
5. END BLOCK SHALL BE BUILT NORMAL TO THE GRADE.
6. ALL WIRES SHOWN ARE MINIMUM ALLOWABLE SIZE AND SHALL CONFORM TO THE CURRENT STANDARD SPECIFICATION FOR COLD-DRAWN STEEL WIRE ASTM DESIGNATION A-82. THE SIZE OF WIRE SHOWN SHALL CONFORM TO THE UNITED STATES WIRE GAGE STANDARD.
7. THE 4-BOLT INSERT ASSEMBLY SHALL INCLUDE CAP SCREWS AND WASHERS. COST OF THE 4-BOLT INSERT ASSEMBLY INCLUDING GALVANIZED CAP SCREWS AND WASHERS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CLASS "A" CONCRETE.
8. SPECIAL END SHOES SHALL BE GALVANIZED AND OF THE MATERIAL USED FOR BEAM ELEMENTS IN THE CURRENT STANDARD SPECIFICATIONS, EXCEPT THAT THEY SHALL NOT BE LIGHTER THAN 10 GAGE. GALVANIZING SHALL BE IN ACCORDANCE TO ASTM SPECS. A 123. THE SPECIAL END SHOE IS SHOWN HEREON FOR INFORMATIONAL PURPOSES ONLY AND SHALL BE FURNISHED AND INSTALLED BY OTHERS.
9. WHEN PLACING 4-BOLT INSERT ASSEMBLY, ROTATE ASSEMBLY ABOUT CENTER INSERT AS NECESSARY FOR PROPER GUIDE BEAM ALIGNMENT.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)

ABUTMENT END BLOCK DETAILS FOR 260'-8" CONT. COMP. GIRDER VIADUCT

INTERCHANGE — SEC. 24/25-T 115 N-R 51 W
38'-0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. NO. 22 STA. 15+00 — I-29-6(6)158
I.S. 29 STA. 295+76.24 TO 298+36.91

HAMLIN COUNTY
SOUTH DAKOTA

PREPARED BY:
J.T. BANNER & ASSOCIATES, INC.
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BROOKINGS, SOUTH DAKOTA
DECEMBER 1969

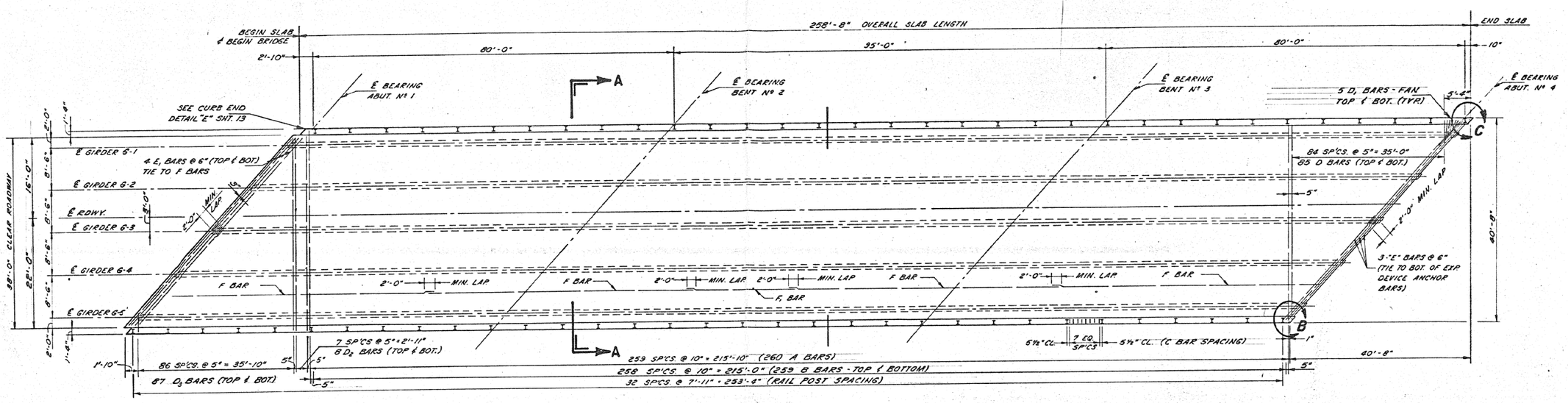
HS 20-44
& ALTERNATE

45 OF 70

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
F.J.R.	C.W.L.	K.J.B.	BRIDGE ENGINEER

STR. NO. 29-299-040

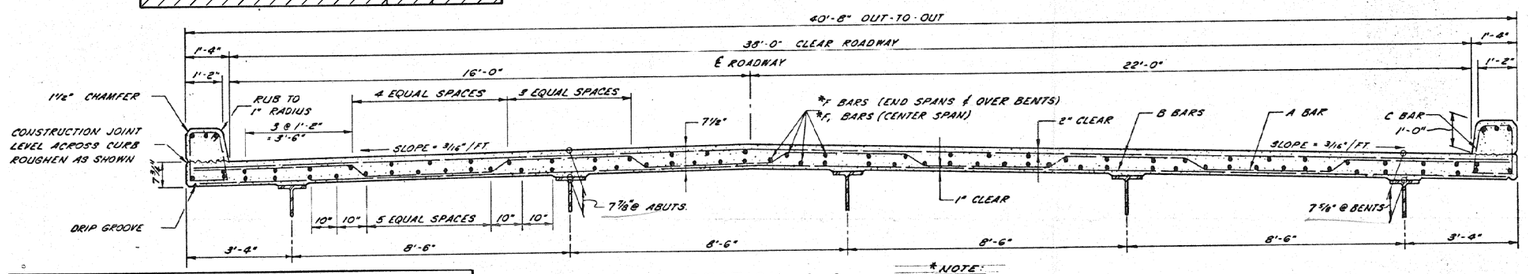
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	100	124



PLAN

ESTIMATED QUANTITIES[Δ] (SUPERSTRUCTURE)		
ITEM	UNIT	QUANTITY
CLASS "A" CONCRETE	CU YDS.	568.8
REINFORCING STEEL	LBS.	86,490
STRUCTURAL STEEL	LBS.	205,480
TYPE RT-3A STEEL RAILING	LIN. FT.	520.7

Δ QUANTITIES INCLUDE ALL MATERIALS ABOVE GROUT PADS ON ABUTMENTS & BENTS AND BETWEEN BEGIN BRIDGE SLAB & EXPANSION DEVICE (INCLUDING SWEDGE BOLTS & EXPANSION DEVICE)

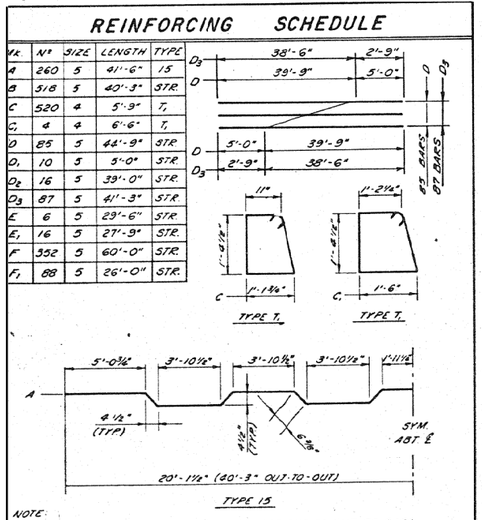


SECTION A-A

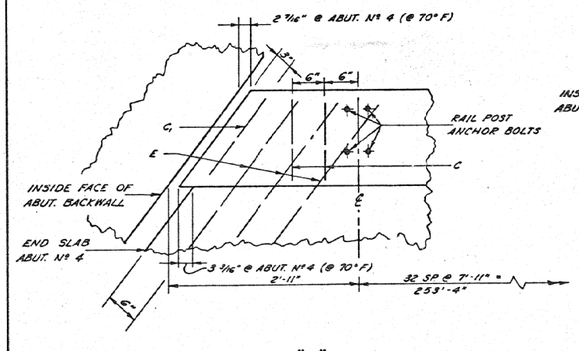
*NOTE:
F & F1 BARS SHALL BE PLACED CONTINUOUSLY. LAP BARS 2'-0" MIN.

REINFORCING SCHEDULE

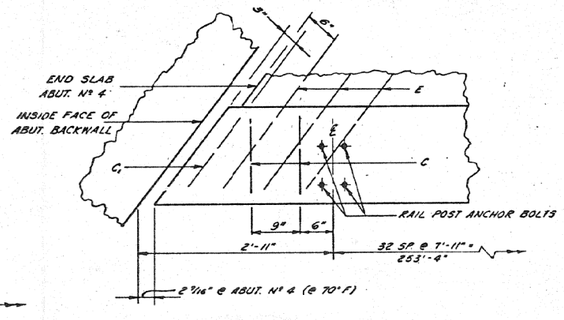
MK.	Nº	SIZE	LENGTH	TYPE
A	260	5	41'-6"	15
B	518	5	40'-3"	STR.
C	520	4	5'-3"	T,
C1	4	4	6'-6"	T,
D	85	5	44'-9"	STR.
D1	10	5	5'-0"	STR.
D2	16	5	39'-0"	STR.
D3	87	5	41'-3"	STR.
E	6	5	29'-6"	STR.
E1	16	5	27'-9"	STR.
F	352	5	60'-0"	STR.
F1	88	5	26'-0"	STR.



NOTE:
ALL DIMENSIONS ON BENDING DETAILS ARE OUT TO OUT OF BARS.



DETAIL "B"
(ROTATED 180°)



DETAIL "C"
(ROTATED 180°)

GENERAL SLAB POURING NOTES:

1. CONCRETE SLAB MAY BE POURED CONTINUOUSLY, PROVIDED APPROVED CONCRETE RETARDING AGENTS ARE USED AND THE CONTRACTOR HAS DEMONSTRATED CAPACITY FOR SUCH CONTINUOUS OPERATIONS.
2. TRANSVERSE CONSTRUCTION JOINTS ARE PERMITTED IN THE SLAB AND SHALL BE POSITIONED NEAR THE GIRDER FIELD SPLICES OR AT APPROXIMATELY THE 1/4 POINTS FROM ℄ BENTS. IF TRANSVERSE CONSTRUCTION JOINTS ARE USED, THE CONTRACTOR SHALL SUBMIT TO THE BRIDGE SECTION FOR APPROVAL, PLANS AND DETAILS OF PROPOSED CONSTRUCTION JOINTS, AS WELL AS PROPOSED SEQUENCE OF POURING.
3. CURBS SHALL BE POURED AFTER ALL OF THE SLAB HAS BEEN POURED.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)

SUPERSTRUCTURE SLAB DETAILS FOR 260'-8" CONT. COMP. GIRDER VIADUCT

INTERCHANGE — SEC. 24/25-T115N-R51W
38'-0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. NO. 22 STA. 15+00 — I-29-6(6)15R
I.S. 29 STA. 295+76.24 TO 298+36.91

HAMLIN COUNTY
SOUTH DAKOTA

PREPARED BY:
J.T. BANNER & ASSOCIATES, INC.
CONSULTING ENGINEERS
BROOKINGS, SOUTH DAKOTA
DECEMBER 1969

HS 20-44 & ALTERNATE

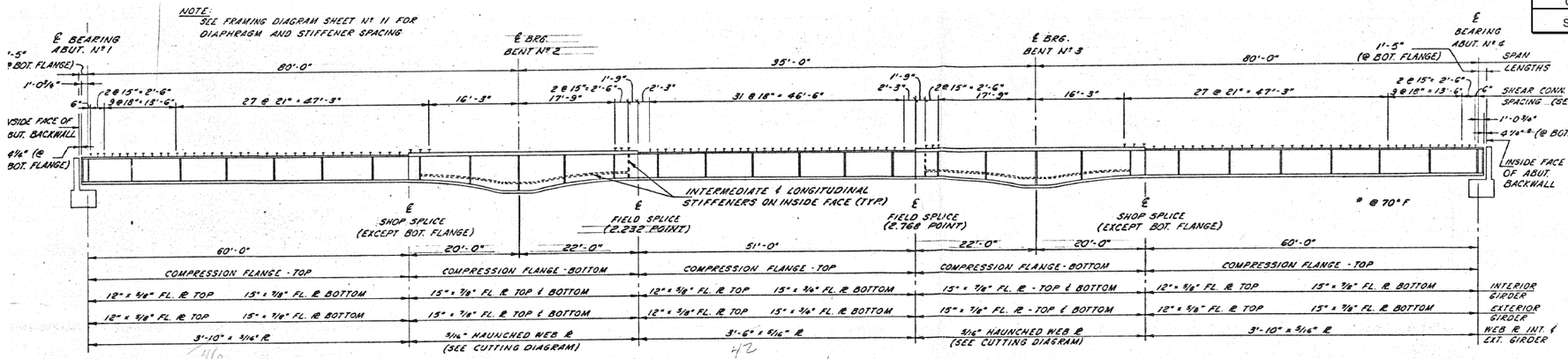
46 OF 70

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
F.J.R.	C.W.L.	K.J.B.	BRIDGE ENGINEER

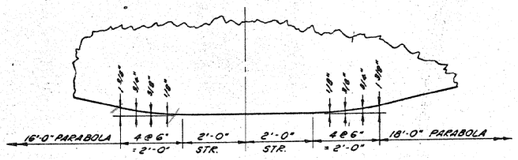
STR. NO. 29-299-040

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	101	124

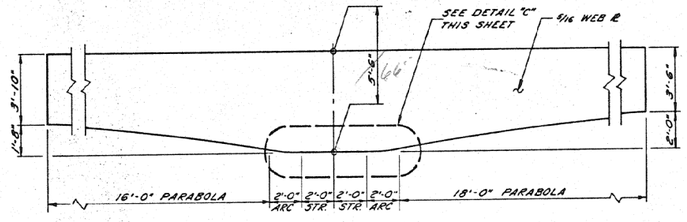
NOTE:
SEE FRAMING DIAGRAM SHEET Nº 11 FOR DIAPHRAGM AND STIFFENER SPACING



GIRDER LAYOUT
(SLAB NOT SHOWN)
(OUTSIDE FACE OF EXTERIOR GIRDER SHOWN)

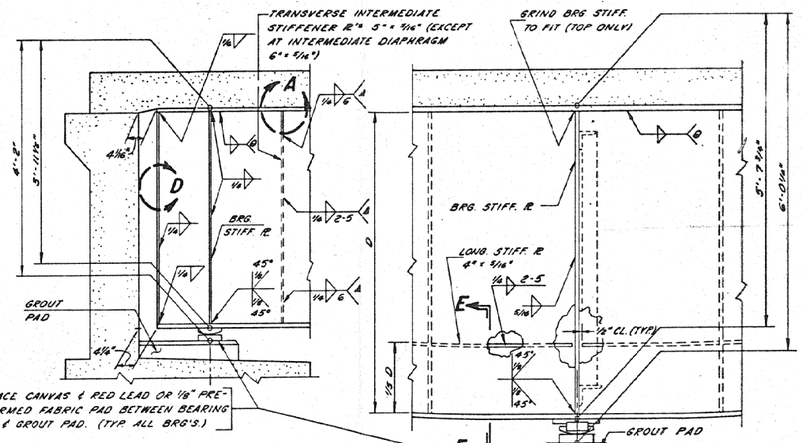


DETAIL "C"

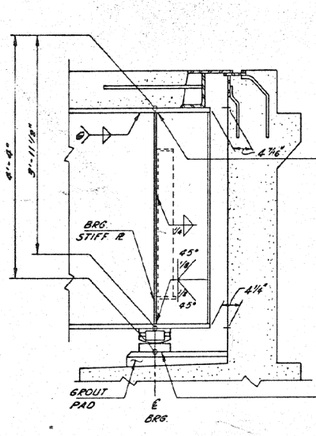


HAUNCHED WEB CUTTING DIAGRAM

NOTE: ALL GIRDERS TO BE FABRICATED FOR FULL DEAD LOAD CAMBER (SEE SHT. 14)



ABUT. NO. 1 SECTION



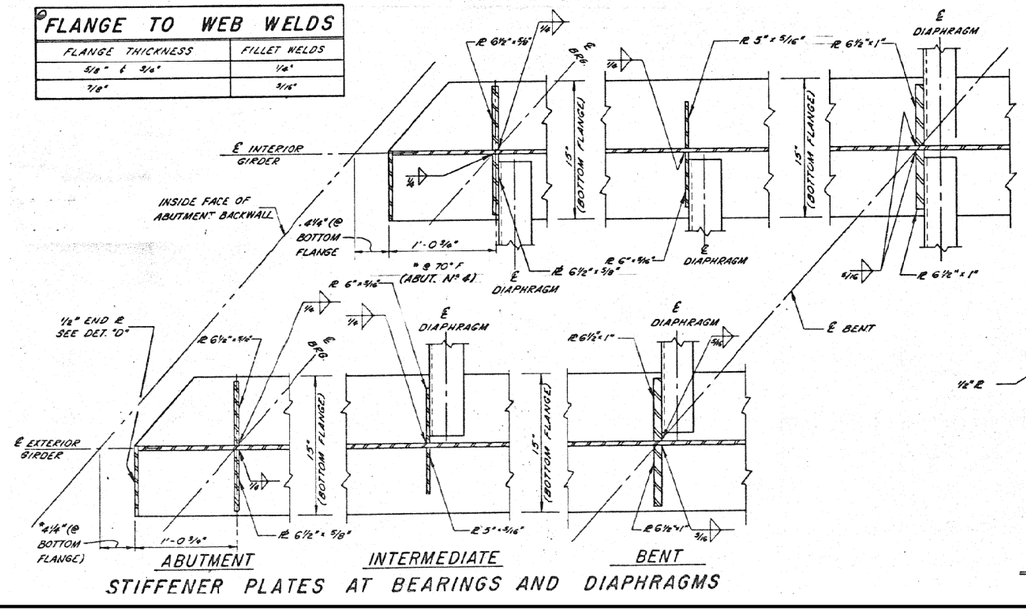
PLACE CANVASS & RED LEAD OR 1/8" PREFORMED FABRIC PAD BETWEEN BEARING R AND GROUT PAD. (TYP. ALL BRG'S)

ABUT. NO. 4 SECTION

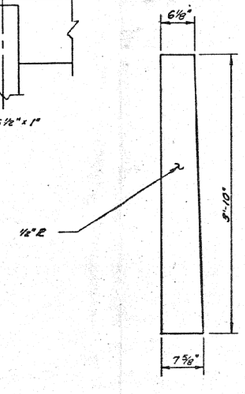
IN LIEU OF WELDS SHOWN, A CONTINUOUS 5/16" FILLET WELD MAY BE USED.

BENT SECTION

FLANGE TO WEB WELDS	
FLANGE THICKNESS	FILLET WELDS
5/8" & 3/4"	1/4"
7/8"	5/16"



STIFFENER PLATES AT BEARINGS AND DIAPHRAGMS



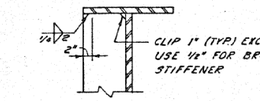
DETAIL "D"

SHEAR CONNECTOR NOTES:

1. WELDED STUD CONNECTORS ARE SPACED AS SHOWN ON THE GIRDER LAYOUT.
2. SHEAR CONNECTORS WILL BE PAID AS STRUCTURAL STEEL BASED ON THE WEIGHT OF THE STUDS. EACH STUD IS COMPUTED AT 0.81 LB. EACH.

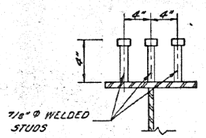
GENERAL NOTES:

1. SEE SHEET NO. 12 FOR DETAILS OF FIELD SPLICE.
2. SEE SHEET NO. 11 FOR DIAPHRAGM DETAILS.
3. ALL DIMENSIONS SHOWN ARE HORIZONTAL AND VERTICAL.



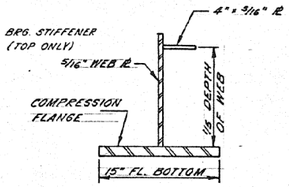
TRANSVERSE INTERMEDIATE STIFFENER R'S (THIS DETAIL) SHALL BE ATTACHED TO THE OUTSTANDING LEG OF THE COMPRESSION FLANGE AS SHOWN. SEE GIRDER LAYOUT FOR LOCATION OF COMPRESSION FLANGE.

DETAIL "A"



WELDED STUD SHEAR CONNECTOR

DETAIL "B"



SECTION E-E

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)

GIRDER LAYOUT & STIFFENER DETAILS FOR 260'-8" CONT. COMP. GIRDER VIADUCT

INTERCHANGE — SEC. 24/25 - T115N - R51W
38'-0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. NO. 22 STA. 15+00 — I-29-6 (6) 158
I.S. 29 STA. 295+76.24 TO 298+36.91

HAMLIN COUNTY
SOUTH DAKOTA

PREPARED BY:
J.T. BANNER & ASSOCIATES, INC.
CONSULTING ENGINEERS
BROOKINGS, SOUTH DAKOTA
DECEMBER 1969

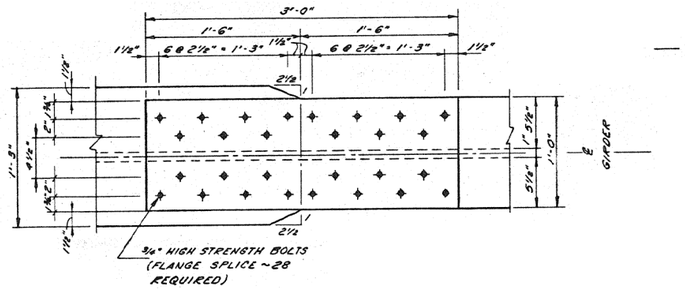
HS 20-44 & ALTERNATE

(47) OF (70)

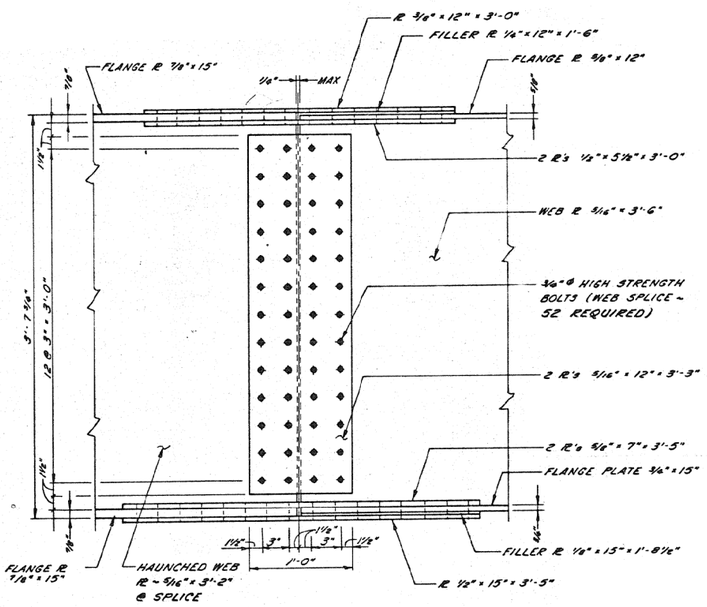
DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
F.J.F.	C.W.L.	K.J.B.	BRIDGE ENGINEER

STR. NO. 29-299-040

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	102	124

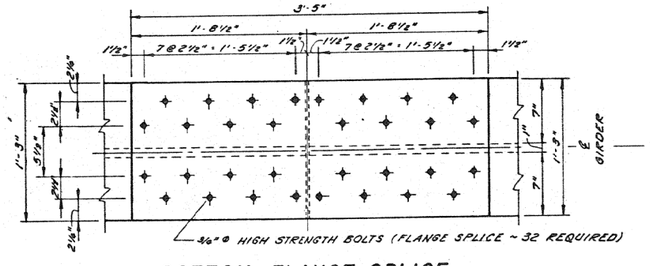


TOP FLANGE SPLICE

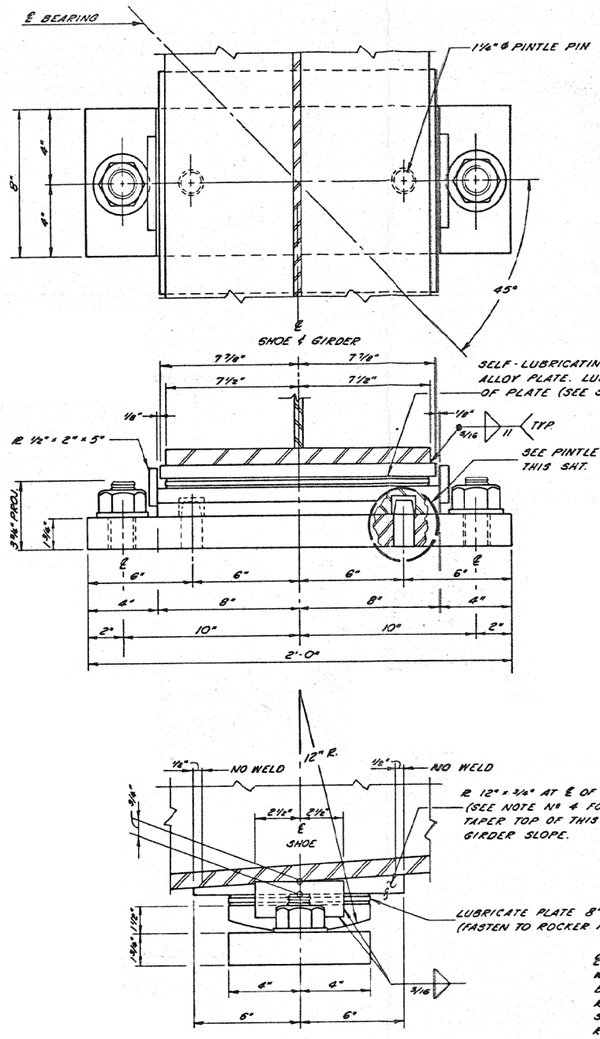


ELEVATION OF SPLICE AT 2.23 POINT

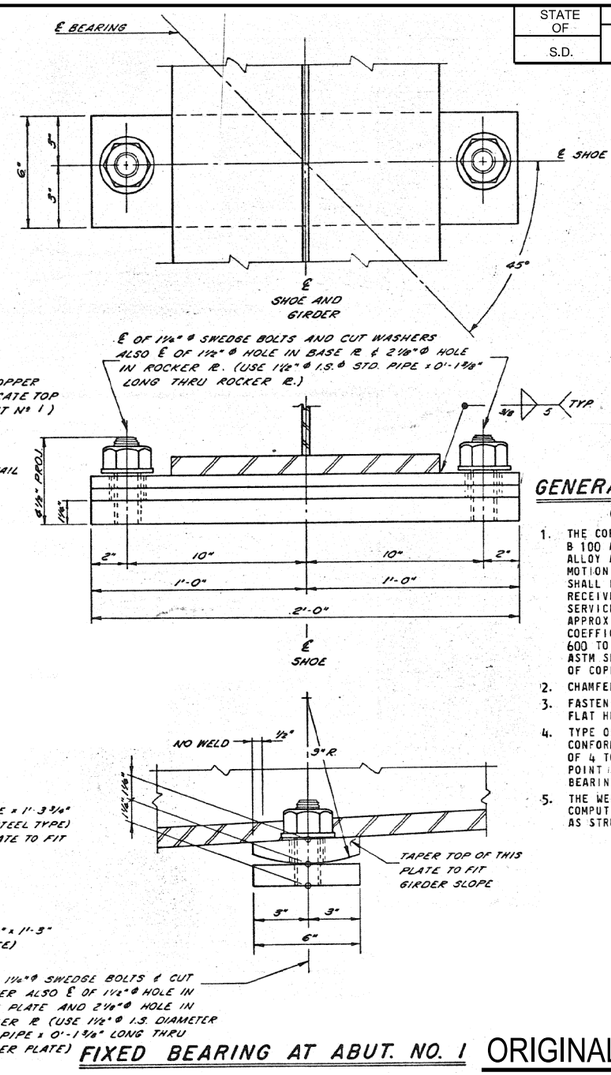
(SPLICE AT 2.77 POINT SIMILIAR)

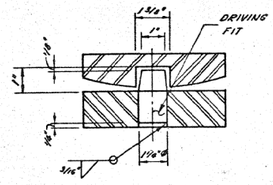


BOTTOM FLANGE SPLICE

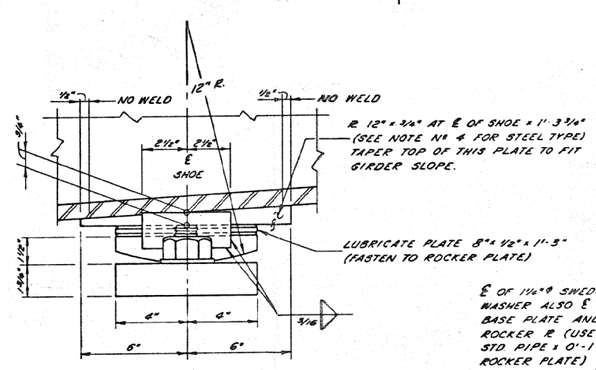


EXPANSION BEARING AT ABUT. NO. 4 AND BENTS NO. 2 AND NO. 3





PINTLE DETAIL



EXPANSION BEARING AT ABUT. NO. 4 AND BENTS NO. 2 AND NO. 3

FIXED BEARING AT ABUT. NO. 1

GENERAL NOTES FOR BEARING SHOES:

(FOR SELF-LUBRICATING COPPER ALLOY PLATES)

1. THE COPPER ALLOY BEARING PLATES SHALL CONFORM TO ASTM B 100 ALLOY NO. 1. CONTACT SURFACES, BOTH COPPER ALLOY AND STEEL, SHALL BE FINISHED IN THE DIRECTION OF MOTION TO ASA 946.1 NO. 125. THE LUBRICATED SURFACE SHALL BE BORED IN A GEOMETRIC PATTERN OF RECESSES TO RECEIVE A LUBRICATING MATERIAL SUITABLE FOR LONG-LIFE SERVICE OF THE FACE. THE LUBRICATED AREA SHALL COMPRISE APPROXIMATELY 25% OF THE BEARING FACE TO PROVIDE A COEFFICIENT OF FRICTION NOT TO EXCEED 10% FOR LOADS OF 600 TO 1200 P.S.I. BRONZE BEARING PLATES CONFORMING TO ASTM SPECIFICATION B22, CLASS B, MAY BE USED IN PLACE OF COPPER ALLOY BEARING PLATES.
2. CHAMFER EDGES OF COPPER ALLOY PLATES 1/8".
3. FASTEN COPPER ALLOY PLATE TO ROCKER PLATE WITH SIX FLAT HEAD COUNTER SUNK BRONZE SCREWS, 1/2" IN DIAMETER.
4. TYPE OF STEEL FOR THE SLIDING BEARING PLATES SHALL CONFORM TO ASTM A 242, WITH A RESISTANCE TO CORROSION OF 4 TO 6 TIMES THAT OF CARBON STEEL. MINIMUM YIELD POINT SHALL BE 46,000 P.S.I. ALL OTHER STEEL FOR BEARINGS SHALL BE A 36.
5. THE WEIGHT OF COPPER ALLOY BEARING PLATES SHALL BE COMPUTED ON THE BASIS OF HAVING A UNIT WEIGHT THE SAME AS STRUCTURAL STEEL, AND BE INCLUDED IN THAT BID ITEM.

GENERAL NOTES FOR BOLTED FIELD SPLICES:

1. ALL BOLTS SHALL BE 3/4" DIAMETER.
2. BOLTS, NUTS AND WASHERS SHALL CONFORM TO REQUIREMENTS OF ASTM SPECIFICATIONS A 325. BOLTS SHALL HAVE HEAVY HEAD AND ONE HARDENED WASHER. HARDENED WASHER TO BE ASSEMBLED UNDER THE TURNED ELEMENT.
3. HOLES FOR 3/4" DIAMETER HIGH STRENGTH BOLTS SHALL BE SUBPUNCHED AND REAMED OR DRILLED AND SPLICE PLATES MATCH-MARKED AFTER ASSEMBLING AS PROVIDED FOR IN SECTION 410.3 OF SOUTH DAKOTA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.
4. CONTACT SURFACES OF SPLICES SHALL BE FREE OF ALL OIL OR PAINT.
5. STEEL FOR SPLICE PLATES AND FILLER SHALL CONFORM TO ASTM A 36 STEEL.
6. 3/4" DIAMETER HIGH STRENGTH BOLTS SHALL BE TIGHTENED TO A MINIMUM TENSION OF 28,400 LBS. TIGHTENING SHALL BE DONE WITH PROPERLY CALIBRATED WRENCH OR BY THE "TURN OF THE NUT" METHOD AS PROVIDED IN SECTION 2.10.20 OF THE AASHO SPECIFICATIONS.
7. BOLTS IN FLANGE SPLICES SHALL BE PLACED WITH HEADS DOWN.
8. BOLTS IN WEB SPLICES OF EXTERIOR GIRDERS SHALL BE PLACED WITH HEADS ON EXTERIOR FACE OF GIRDER.
9. HIGH STRENGTH BOLTS, NUTS AND WASHERS SHALL BE STORED IN SUCH A MANNER THAT THEY WILL BE KEPT FREE FROM ANY RUST OR FOREIGN MATERIAL WHICH WILL CAUSE ERRATIC TORQUE WRENCH READINGS WHEN CHECKED WITH A BOLT TENSION CALIBRATOR.
10. ALL SPLICE PLATES, FILLER PLATES, BOLTS, NUTS, AND WASHERS TO BE INCLUDED IN AND PAID FOR AS STRUCTURAL STEEL.

SHOP SPLICE NOTE:

ALL BUTT WELDED SHOP SPLICES SHALL BE MADE WITH A PREQUALIFIED JOINT. THE JOINT DETAIL SHALL BE SHOWN ON THE SHOP PLANS FOR APPROVAL BY THE ENGINEER. IF THE CONTRACTOR ELECTS TO USE A TYPE OF JOINT WHICH IS NOT PREQUALIFIED, THE CONTRACTOR SHALL QUALIFY THE PROPOSED PROCEDURE BY TEST AS PRESCRIBED IN APPENDIX A, PART I, OF THE A.W.S. D20-69. THE COST OF QUALIFYING THE WELDING PROCEDURE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR STRUCTURAL STEEL.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)

FIELD SPLICE & BEARING SHOE DETAILS FOR 260'-8" CONT. COMP. GIRDER VIADUCT

INTERCHANGE
38'-0" ROADWAY
OVER S. D. NO. 22 STA. 15+00

SEC. 24/25-T115N-R51W
45° SKEW L.H.F
I-29-6(6)158

I.S. 29 STA. 295+76.24 TO 298+36.91

HAMLIN COUNTY
SOUTH DAKOTA

PREPARED BY:
J.T. BANNER & ASSOCIATES, INC.
CONSULTING ENGINEERS
BROOKINGS, SOUTH DAKOTA
DECEMBER 1969

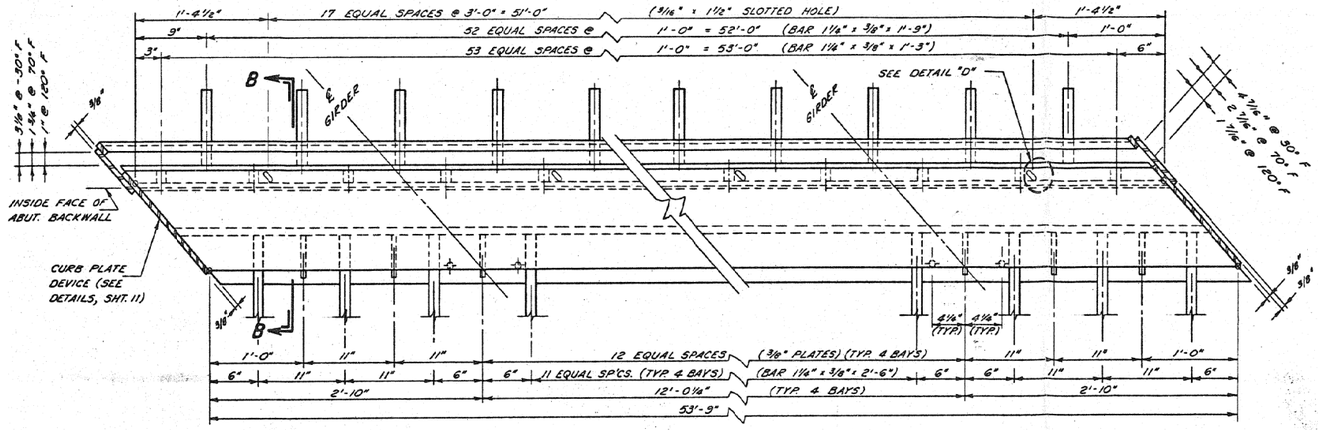
HS 20-44
& ALTERNATE

48 OF 70

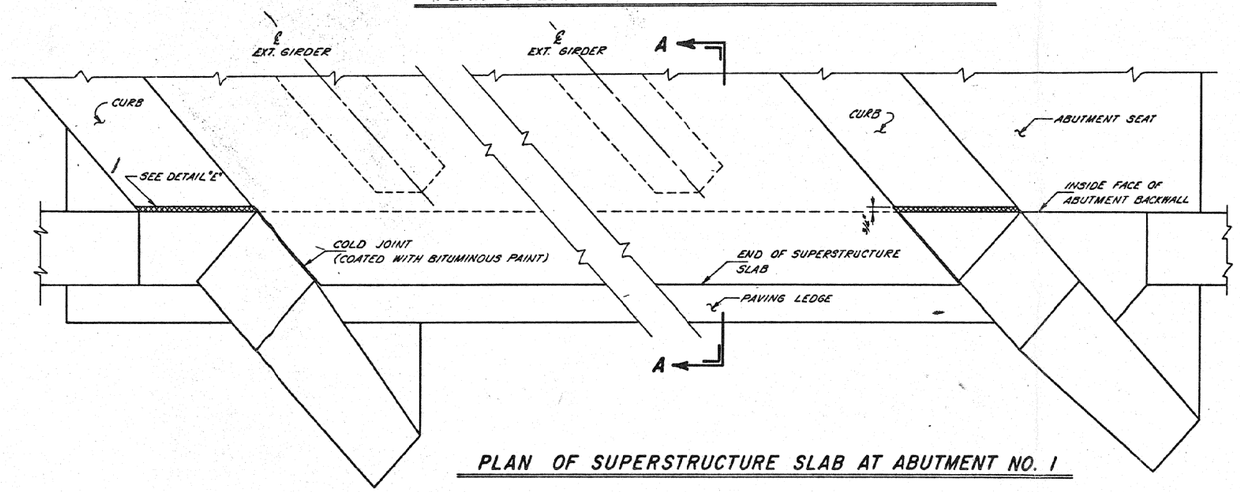
DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
F.J.R.	C.W.L.	K.J.B.	BRIDGE ENGINEER

STR. NO. 29-299-040

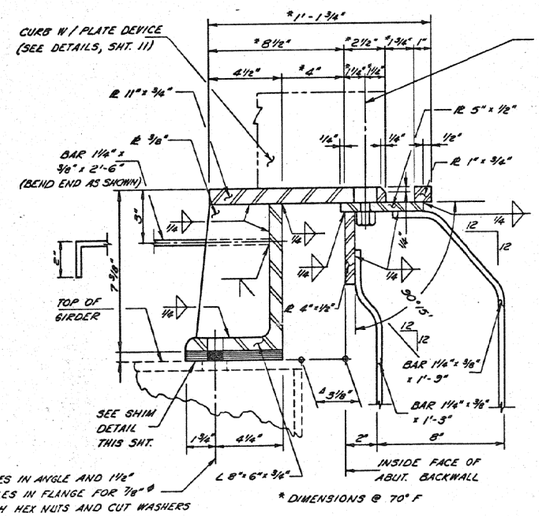
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	103	124



PLAN OF EXPANSION DEVICE AT ABUTMENT NO. 4



PLAN OF SUPERSTRUCTURE SLAB AT ABUTMENT NO. 1

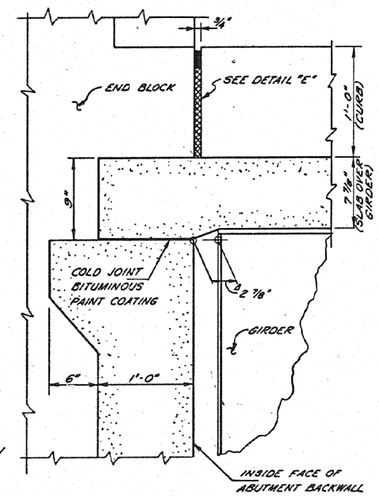


SLOTTED HOLE 9/16" x 1½" IN ½" ℄ 9/16" ⌀ HOLE IN 5" x ½" ℄. WELD NUT TO 5" x ½" ℄. REMOVE BOLT IMMEDIATELY AFTER CONCRETE HAS ATTAINED INITIAL SET & FILL WITH POLYMER JOINT SEALER. (USE ½" ⌀ BOLT)

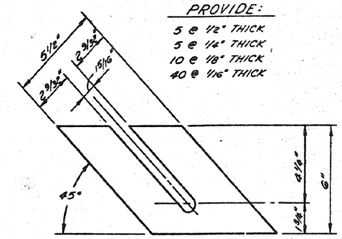
SECTION B-B

NOTE: DIMENSIONS AND ANGLES ARE NORMAL TO INSIDE FACE OF ABUTMENT BACKWALL.

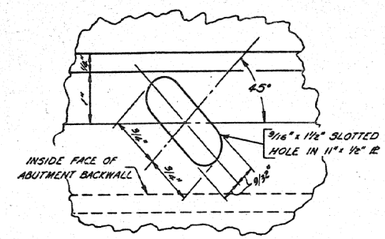
Δ THIS DIMENSION IS AT TOP OF GIRDER BETWEEN INSIDE FACE OF ABUTMENT BACKWALL & GIRDER EDGE. DIMENSION IS MEASURED PERPENDICULAR TO INSIDE FACE OF ABUTMENT BACKWALL. (DIMENSION AT EXPANSION END IS AT 70° F)



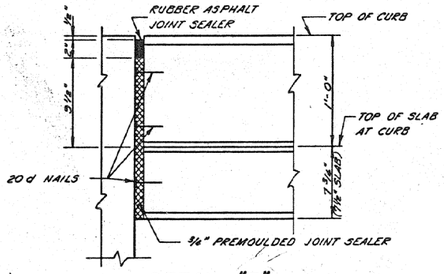
SECTION A-A



SHIM DETAIL "C"

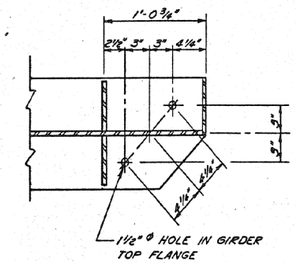


DETAIL "D"



DETAIL "E"

(EXTERIOR VIEW @ FIXED END)



DETAIL "F"

NOTES:

1. THE EXPANSION DEVICE SHALL BE COMPLETELY SHOP ASSEMBLED, ADJUSTED TO THE POSITION IT WILL TAKE IN THE STRUCTURE, AND THE PIECES MATCH MARKED FOR FIELD ERECTION. THE TOP SURFACE OF THE EXPANSION DEVICE SHALL CONFORM TO THE ROADWAY CROSS SLOPE.
2. FOR EXPANSION DEVICE AT ABUTMENT NO. 4, THE 11" x 3/4" PLATE, THE 4" x 1/2" PLATE, AND THE 5" x 1/2" PLATE SHALL BE WELDABLE HIGH-STRENGTH LOW ALLOY STRUCTURAL STEEL; ASTM A-242, HAVING HIGH RESISTANCE TO ATMOSPHERIC CORROSION. ALL OTHER STRUCTURAL STEEL SHALL BE ASTM A-36.
3. THE SHOP FABRICATED PIECES OF THE EXPANSION DEVICE SHALL BE JOINED IN THE FIELD BY BUTT WELDS IN ACCORDANCE WITH THE LATEST SPECIFICATIONS OF THE AMERICAN WELDING SOCIETY. TYPE OF WELDS SHALL BE SHOWN ON SHOP PLANS FOR THE BRIDGE DEPARTMENTS' APPROVAL. THE EXPANSION DEVICE SHALL BE FABRICATED IN TWO OR THREE PIECES AT THE OPTION OF THE CONTRACTOR.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)

EXPANSION DEVICE & FIXED END SLAB DETAILS FOR 260'-8" CONT. COMP. GIRDER VIADUCT

INTERCHANGE — SEC. 24/25-T 115 N - R 51 W
38'-0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. NO. 22 STA. 15+00 — I-29-6 (6) 158
I.S. 29 STA. 295+76.24 TO 298+36.91

HAMLIN COUNTY
SOUTH DAKOTA

PREPARED BY:
J. T. BANNER & ASSOCIATES, INC.
CONSULTING ENGINEERS
BROOKINGS, SOUTH DAKOTA
APRIL 1971

HS 20-44
& ALTERNATE

49 OF 70

DESIGNED BY:	DRAWN BY:	CHECKED BY:	APPROVED:
F.J.R.	C.M.L.	K.J.B.	BRIDGE ENGINEER

STR. NO. 29-299-040

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
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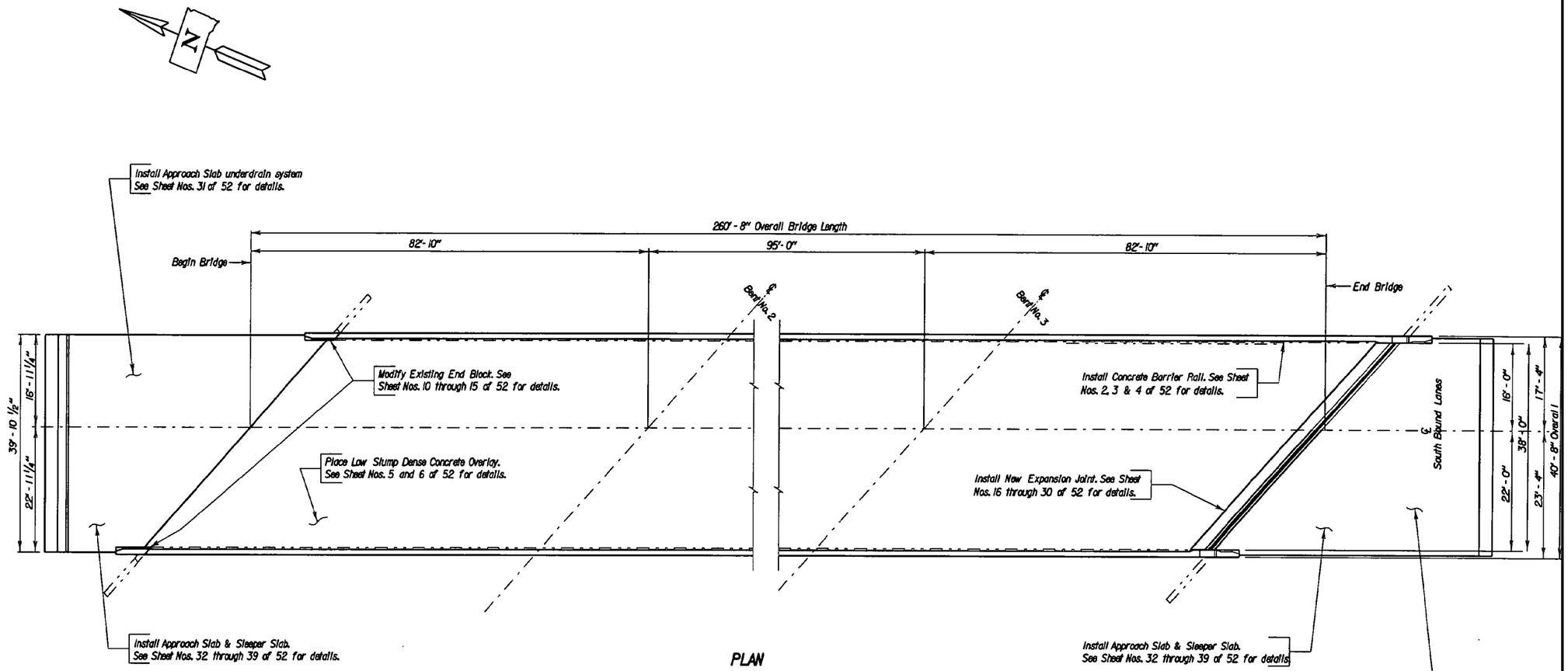

PLAN

INDEX OF BRIDGE SHEETS-

THE CONTRACTOR HAS THE OPTION OF BUILDING THE APPROACH SLABS FOR THE FULL WIDTH OF THE ROADWAY AT ONE TIME OR BUILDING THE APPROACH SLABS IN TWO PHASES USING THE PLAN SHOWN OPTIONAL CONSTRUCTION JOINT. ALL REFERENCES TO PHASE 1 AND PHASE 2 CONSTRUCTION ARE GIVEN IN THE EVENT THE CONTRACTOR ELECTS TO BUILD THE APPROACH SLABS IN TWO PHASES.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
LAYOUT FOR UPGRADES FOR
260' - 8" CONT. COMP. GIRDER BRIDGE
38' - 0" ROADWAY 45° SKEW L.H.F.
STR. NO. 29-299-040 SEC. 24/25-T115N-R51W
OVER S.D. 22 IM 29-6(211)151

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
PCEMS 2833 OCTOBER 2001 (50) OF (70)

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	CJD	CJD/EJA	John C. Cole
DUEL2833	2833SG01		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
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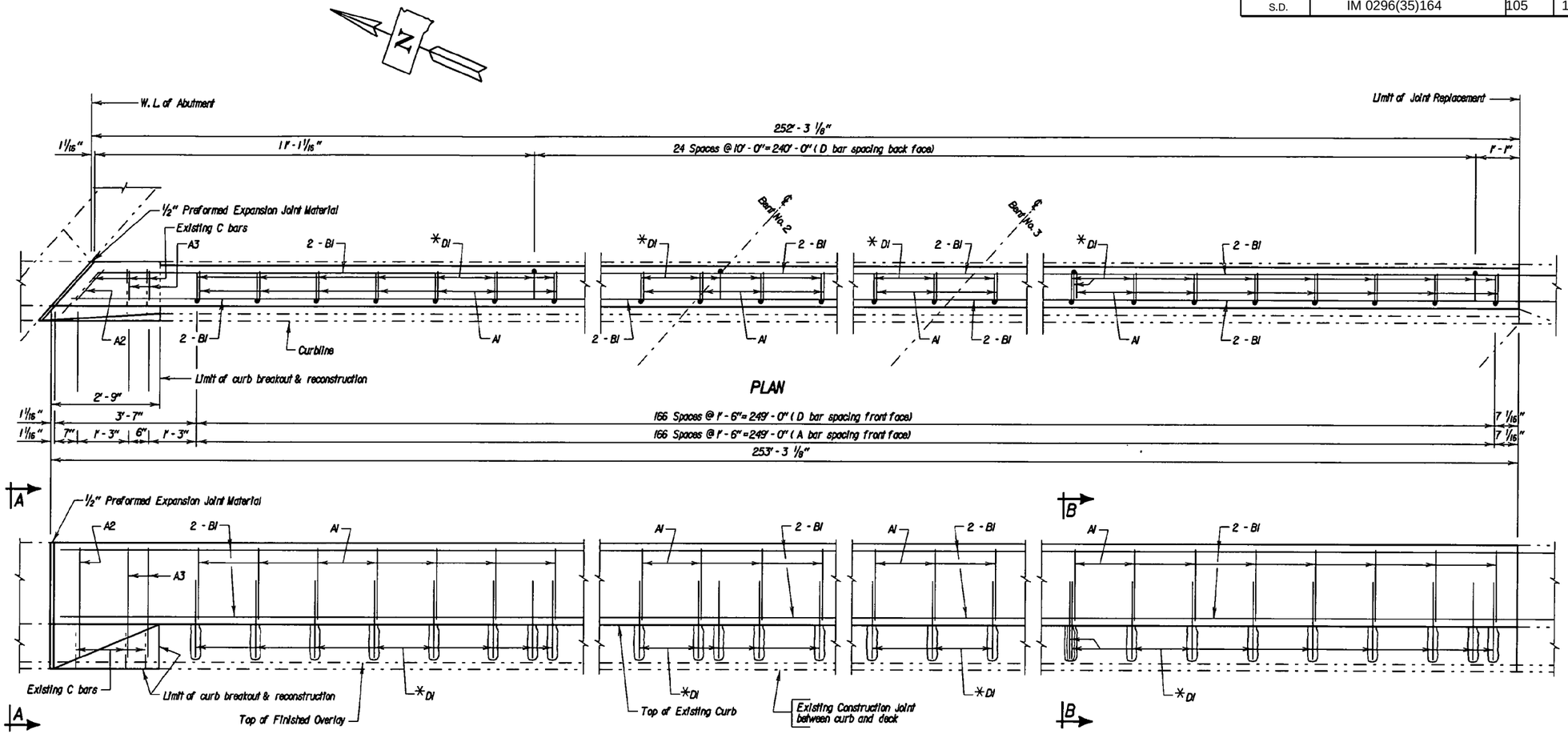


PLAN

ELEVATION

* D1 Dowels are to be drilled in and grouted with epoxy.

NOTES:
Use this sheet in conjunction with Sheet Nos. 3 and 4 of 52.

If existing steel is struck while drilling holes for D1 dowels, the spacing can be shifted 2" longitudinally, 1" transversely, or as approved by the Engineer to miss existing steel.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
DETAILS FOR RAIL REPLACEMENT FOR
260' - 8" CONT. COMP. GIRDER BRIDGE

38' - 0" ROADWAY — 45° SKEW L.H.F.

STR. NO. 29-299-040 — SEC. 24/25-T115N-R51W

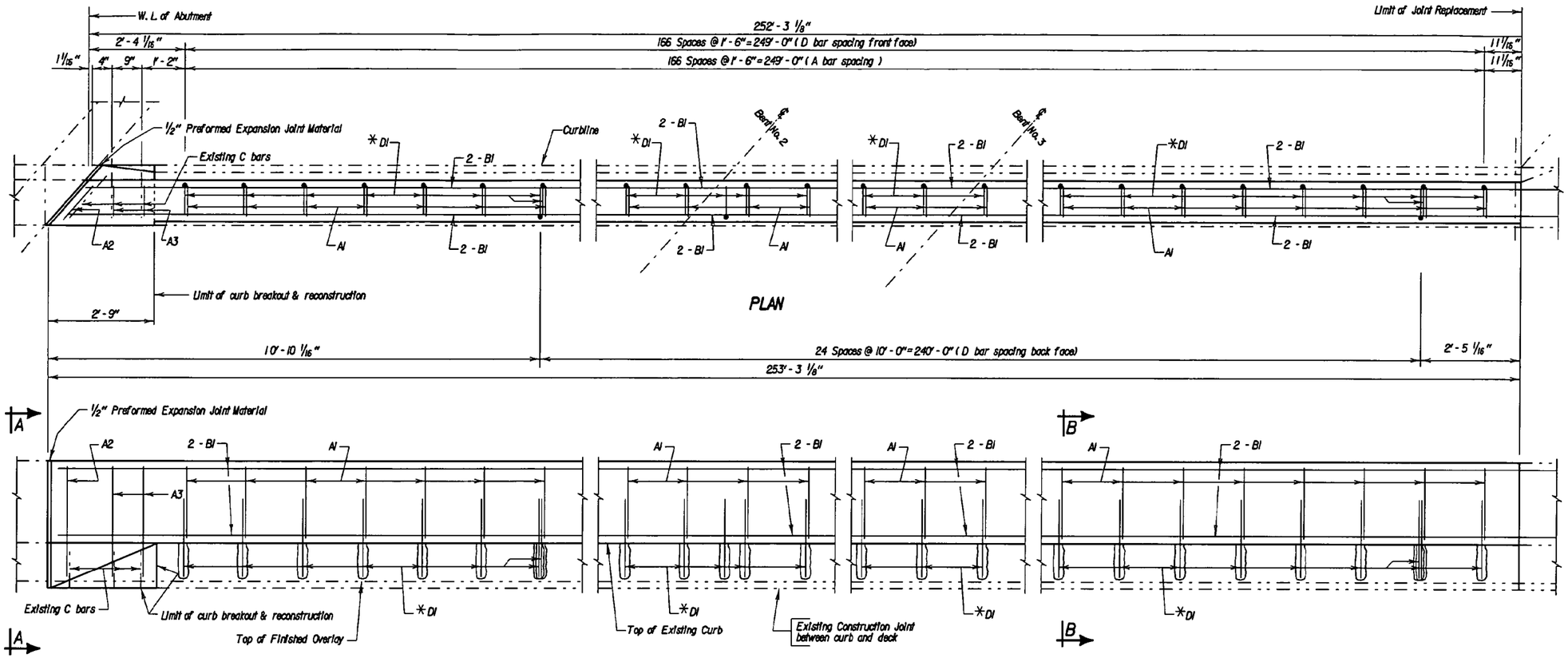
OVER S.D. 22 — IM 29-6(21)151

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001

51 OF 70

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	EJA	CJD/EJA	BRIDGE ENGINEER
DUEL2833	2833SG02		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	106	124



* DI Dowels are to be drilled in and grouted with epoxy.

NOTES:
Use this sheet in conjunction with Sheet Nos. 2 and 4 of 52.

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

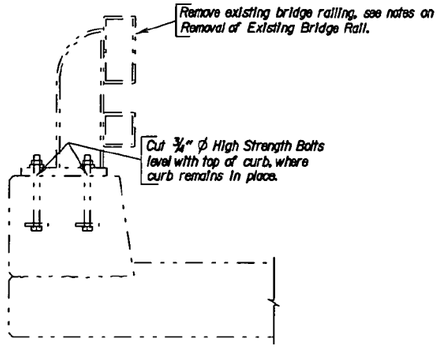
ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
DETAILS FOR RAIL REPLACEMENT FOR
260' - 8" CONT. COMP. GIRDER BRIDGE
38' - 0" ROADWAY 45° SKEW L.H.F.
STR. NO. 29-299-040 SEC. 24/25-T115N-R51W
OVER S.D. 22 IM 29-6(21)151

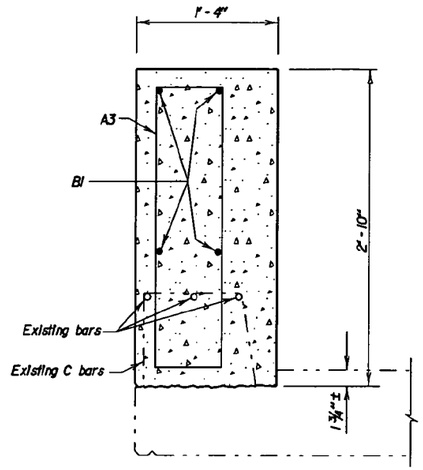
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001 (52) OF (70)

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	EJA	CJD/EJA	John C. Cole
DUEL2833	2833SG03		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	107	124



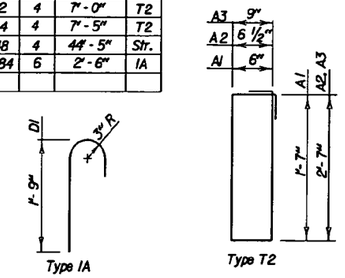
EXISTING CURB & RAIL



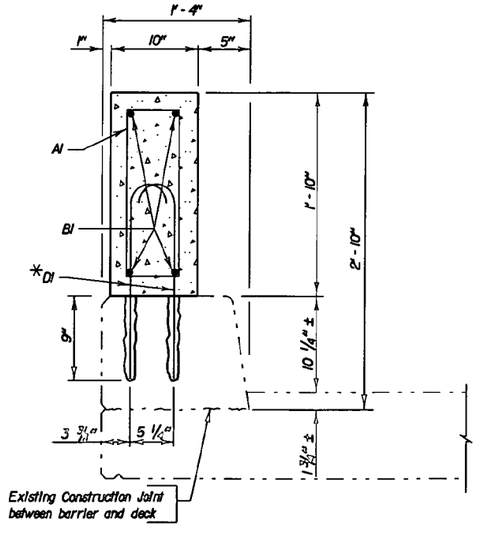
SEC. A - A

REINFORCING SCHEDULE
(Phase I and Phase 2)

Mk.	No.	Size	Length	Type	Bending Details
A1	334	4	4'-11"	T2	
A2	2	4	7'-0"	T2	
A3	4	4	7'-5"	T2	
B1	48	4	44'-5"	Str.	
# △ D1	384	6	2'-6"	1A	



NOTES :
Min. Lap = 1'-3"
△ Dowels
All bars are epoxy coated.
All dimensions are out to out of bars.



SEC. B - B

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY PHASE 1	QUANTITY PHASE 2
Class AM5 Concrete, Bridge Repair	Cu.Yd.	14.4	14.4
*Epoxy Coated Reinforcing Steel	Lb.	1278	1275
Install Dowel in Concrete	Each	192	192
Remove Bridge Railing	Ft.	260.4	260.4

★ Does not include the following quantities for D1 bars as these are paid for in the Bid item "Install Dowel in Concrete".

PHASE 1	PHASE 2
721 Lb.	721 Lb.

NOTES:
Use this sheet in conjunction with Sheet Nos. 2 and 3 of 52.

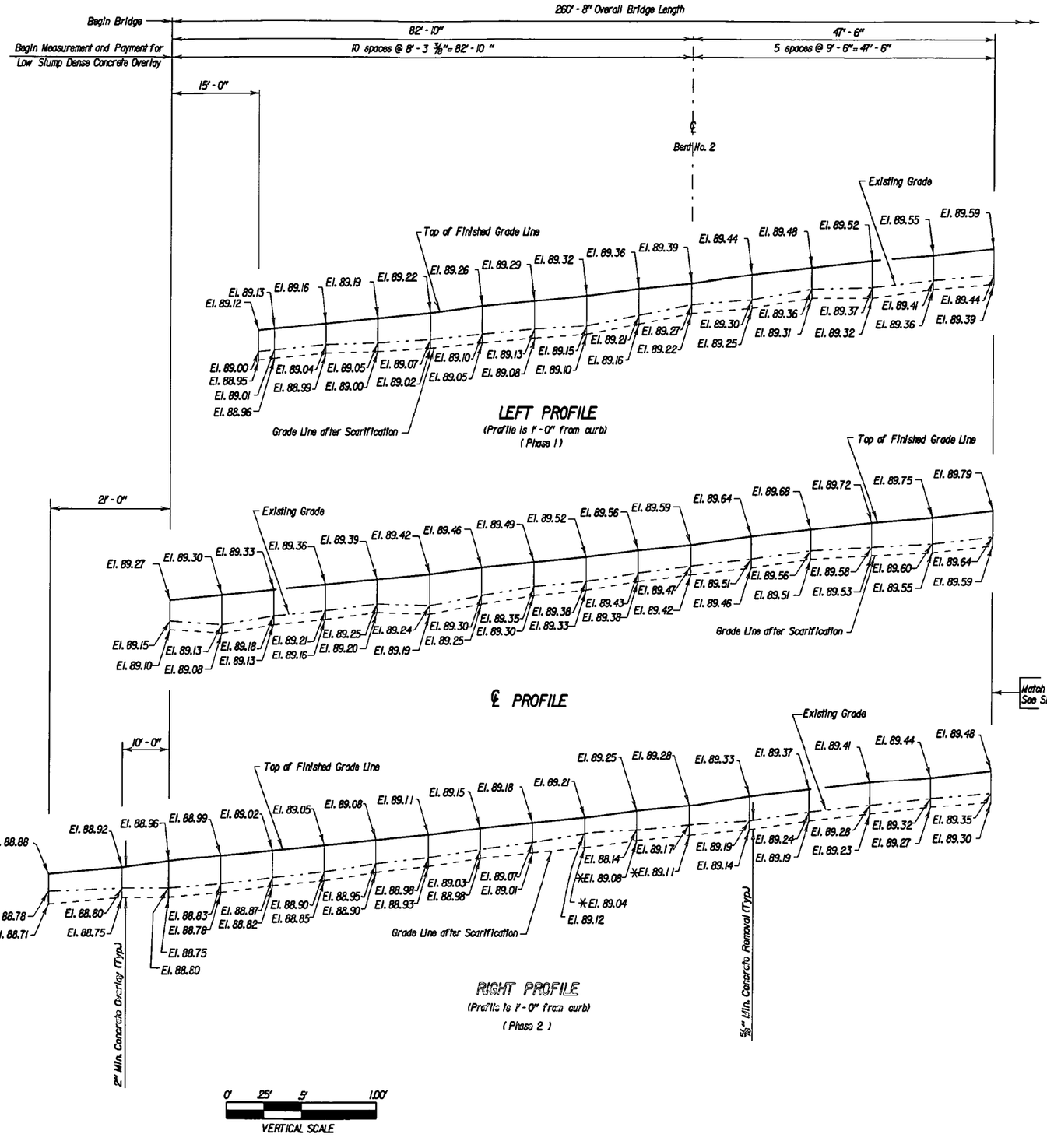
If existing steel is struck while drilling holes for D1 dowels, the spacing can be shifted 2" longitudinally, 1" transversely, or as approved by the Engineer to miss existing steel.

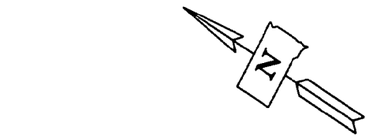
ORIGINAL CONSTRUCTION PLANS

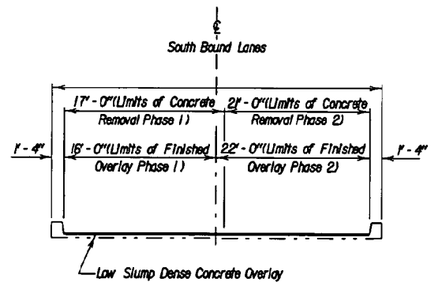
(SOUTH BOUND LANES)
DETAILS FOR RAIL REPLACEMENT FOR
260' - 8" CONT. COMP. GIRDER BRIDGE
38' - 0" ROADWAY 45° SKEW L.H.F.
STR. NO. 29-299-040 SEC. 24/25-T115N-R51W
OVER S.D. 22 IM 29-6(21)151
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	EJA	CJD/EJA	BRIDGE ENGINEER
DUEL2833	2833SG04		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	108	124







TYPICAL SECTION

NOTE: Add 1800.00 to all elevations shown on profiles.

Benchmark Description:
S. W. Corner Anchor Block NBL on Disk
B. M. El. 1893.03

* Scarify in excess of 5/8" in these areas.

ORIGINAL CONSTRUCTION PLANS

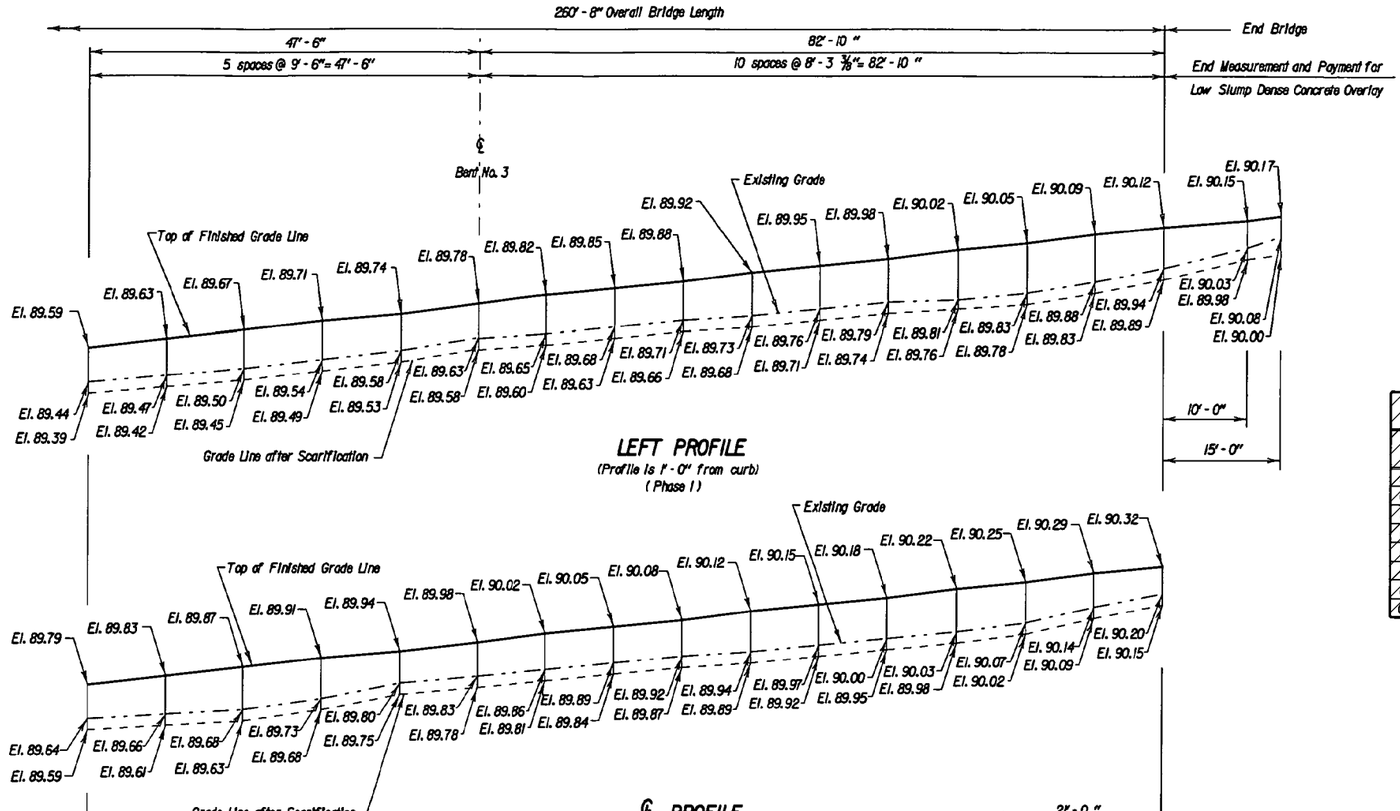
(SOUTH BOUND LANES)
DECK PROFILES FOR UPGRADING
FOR
260' -8 " CONT. COMP GIRDER BRIDGE

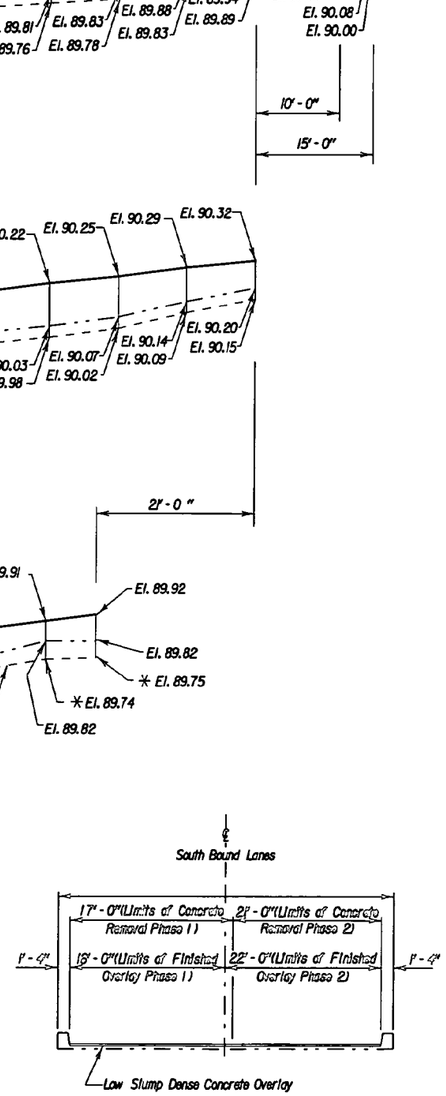
38'-0" ROADWAY — SEC. 24/25-T115N-R51W
OVER S.D. 22 — 45° SKEW L.H.F.
STR. NO. 29-299-040 — IM 29-6(21) 151

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	SMS	CJD/EJA	BRIDGE ENGINEER
DJEL2833	2833SG05		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	109	124





ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY PHASE 1	QUANTITY PHASE 2
Low Slump Dense Concrete Deck Overlay	Cu.Yd.	37.9	49.9
Concrete Removal Type 1A	Sq.Yd.	492.4	603.2
Concrete Removal Type 1B	Sq.Yd.	49.2	60.8
Concrete Removal Type 1C	Sq.Yd.	24.6	30.4
Concrete Removal Type 1D	Sq.Yd.	24.6	30.4
Concrete Removal Type B	Ft.	10.0	10.0
Finishing and Curing	Sq.Yd.	463.4	637.2
Class A45 Concrete Fill	Cu.Yd.	5.1	8.3

Benchmark Description:
S.W.Corner Anchor Block NBL on Disk
B. M. El. 1893.03

NOTE: Add 1800.00 to all elevations shown on profiles.

* Scarify in excess of 5/8" in these areas.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
DECK PROFILES FOR UPGRADING
FOR
260' -8 " CONT. COMP GIRDER BRIDGE

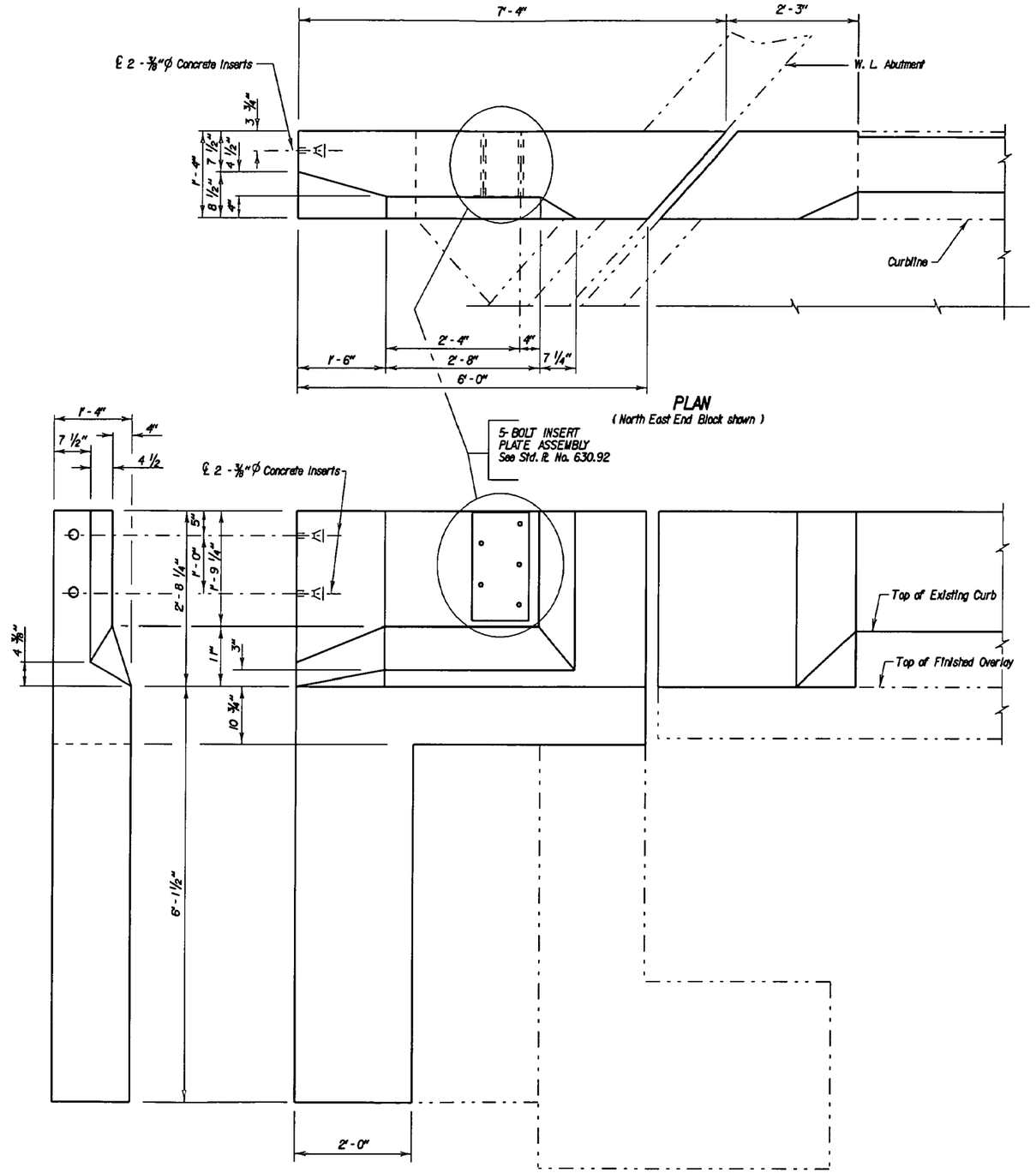
36'-0" ROADWAY — SEC. 24/25-T115N-R51W
OVER S.D. 22 — 45° SKEW L.H.F.
STR. NO. 29-299-040 — IM 29-6(21) 151

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001

55 OF 70

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	SNS	CJD/EJA	BRIDGE ENGINEER
DUEL2833	2833SG06		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	110	124



NOTE-
This sheet is to be used in conjunction with sheet Nos. 10, 12, 13, 14 and 15 of 52.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
END BLOCK REPLACEMENT AT
ABUTMENT NO. 1 FOR
260' - 8" CONT. COMP. GIRDER BRIDGE

38'-0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. 22 — SEC. 24/25-T115N-R51W

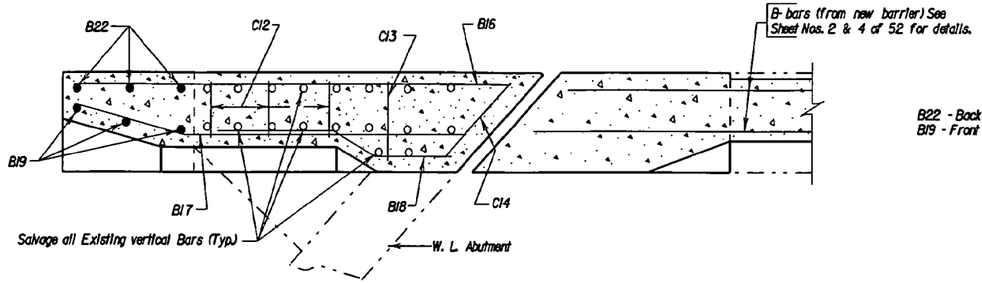
STR. NO. 29-299-040 — **IM 29-6(21) 151**

HAMLIN COUNTY

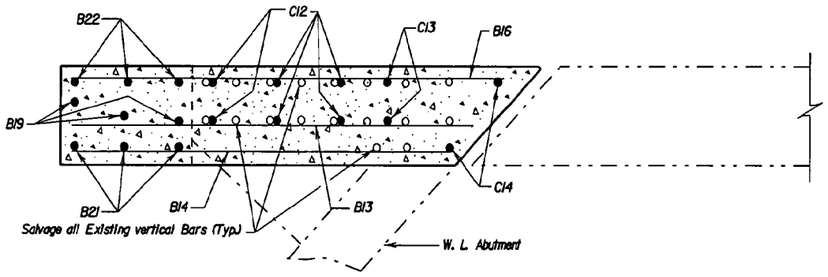
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001 (56) OF (70)

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	C.J.D.	CJD/EJA	BRIDGE ENGINEER
DUEL2833	2833SG11		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	111	124



SECTION R - R



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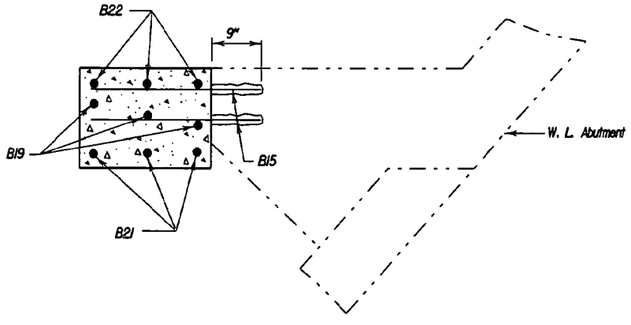
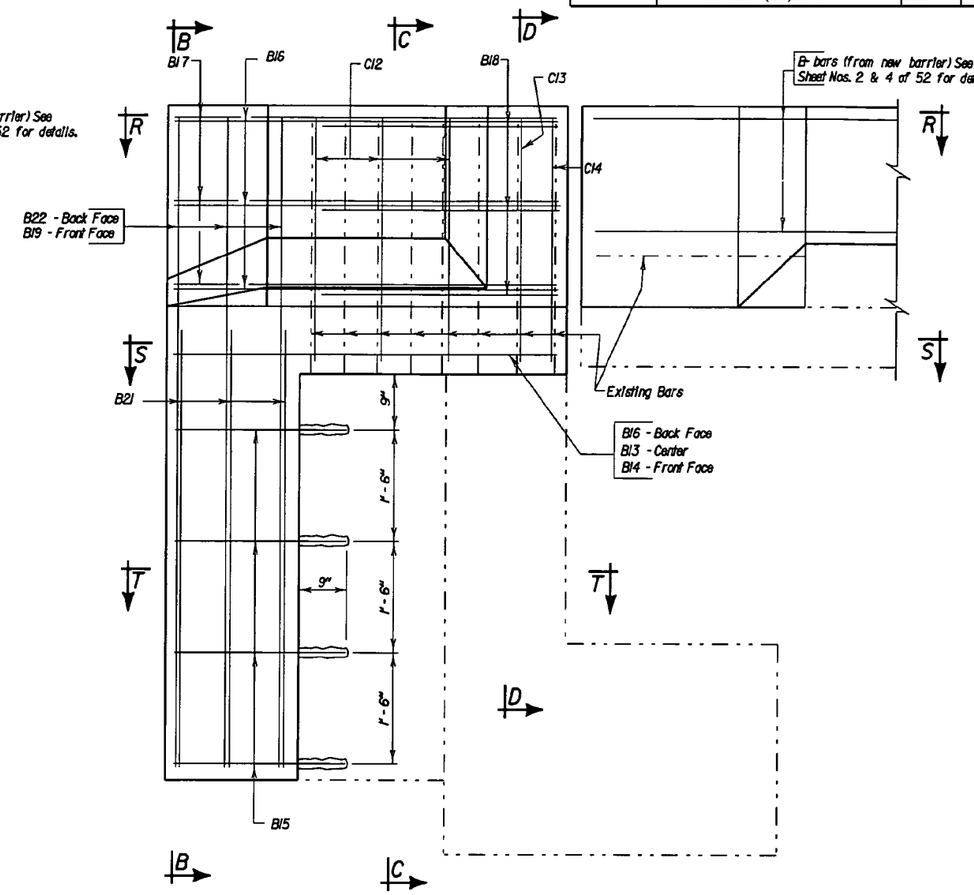


SECTION T - T



ELEVATION

ELEVATION
(Left curb End Block shown)

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)

END BLOCK REPLACEMENT AT

ABUTMENT NO. 1 FOR

260' - 8" CONT. COMP. GIRDER BRIDGE

38'-0" ROADWAY — 45° SKEW L.H.F.

OVER S.D. 22 — SEC. 24/25-T115N-R51W

STR. NO. 29-299-040 — IM 29-6(21) 151

HAMLIN COUNTY

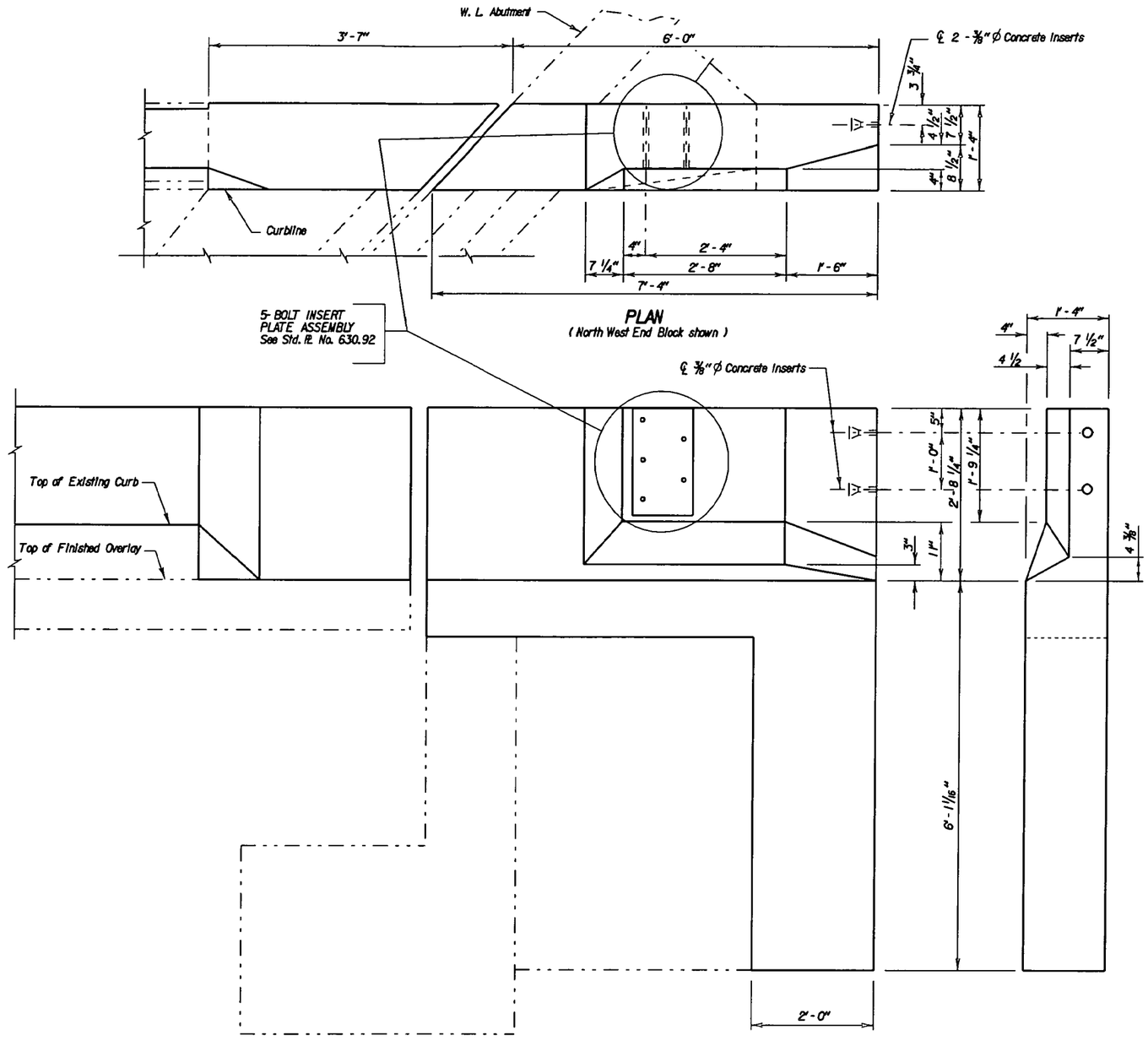
S. D. DEPT. OF TRANSPORTATION

OCTOBER 2001

NOTE-
This sheet is to be used in conjunction with sheet Nos. 10, 11, 13, 14 and 15 of 52.

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	C.J.D.	CJD/EJA	BRIDGE ENGINEER
DUEL2833	2833SG12		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	112	124



NOTE-
This sheet is to be used in conjunction with sheet Nos. 10, 11, 12, 14 and 15 of 52.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
END BLOCK REPLACEMENT AT
ABUTMENT NO. 1 FOR
260' - 8" CONT. COMP. GIRDER BRIDGE

38'-0" ROADWAY — 45 ° SKEW L.H.F.
OVER S.D. 22 — SEC. 24/25-T115N-R51W

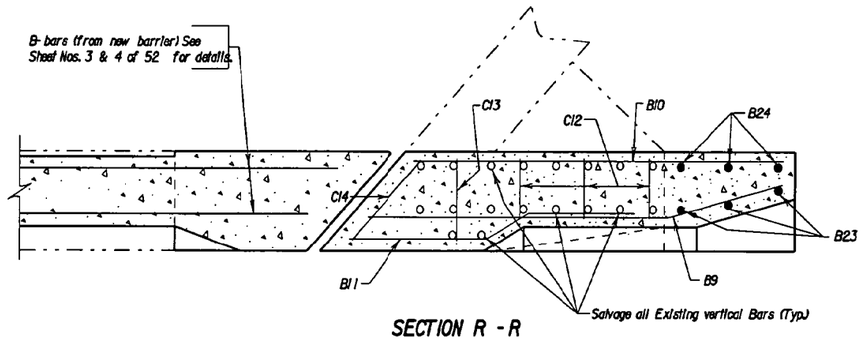
STR. NO. 29-299-040 — **IM 29-6(21) 151**

HAMLIN COUNTY

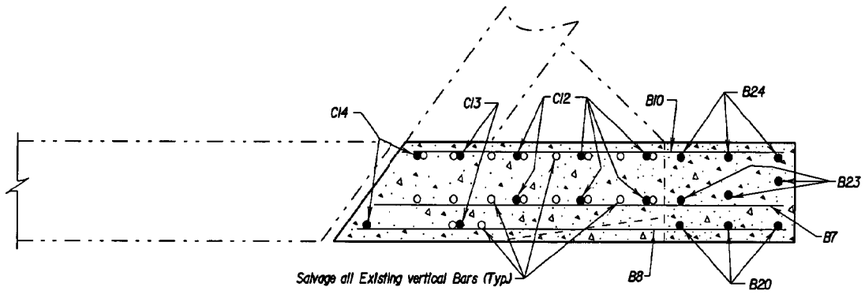
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001 — (58) OF (70)

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	C.J.D.	CJD/EJA	John C. Cole BRIDGE ENGINEER
DUEL2833	2833SG13		

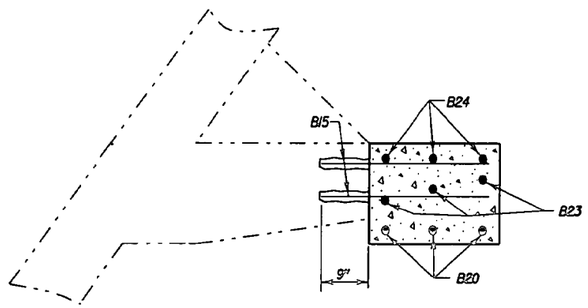
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	113	124



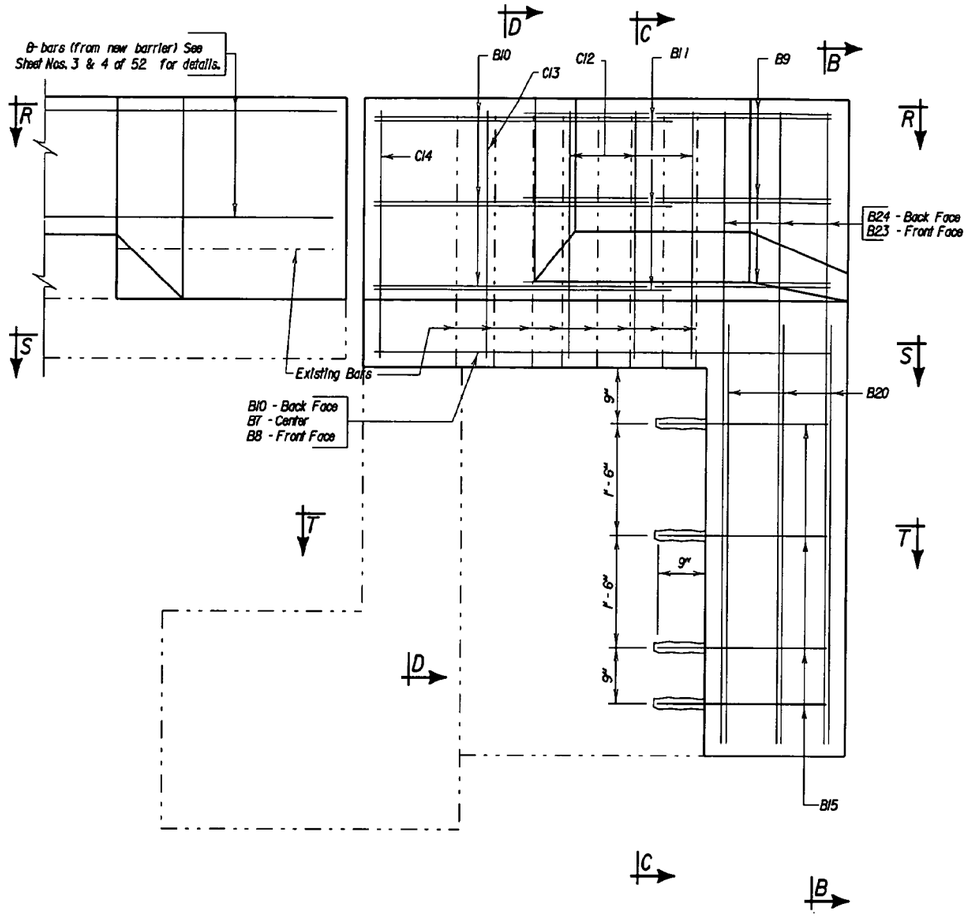
SECTION R - R



SECTION S - S



SECTION T - T



ELEVATION
(Right curb End Block shown)

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)

END BLOCK REPLACEMENT AT

ABUTMENT NO. 1 FOR

260' - 8" CONT. COMP. GIRDER BRIDGE

38'-0" ROADWAY — 45° SKEW L.H.F.

OVER S.D. 22 — SEC. 24/25-T115N-R51W

STR. NO. 29-299-040 — IM 29-6(21)151

HAMLIN COUNTY

S. D. DEPT. OF TRANSPORTATION

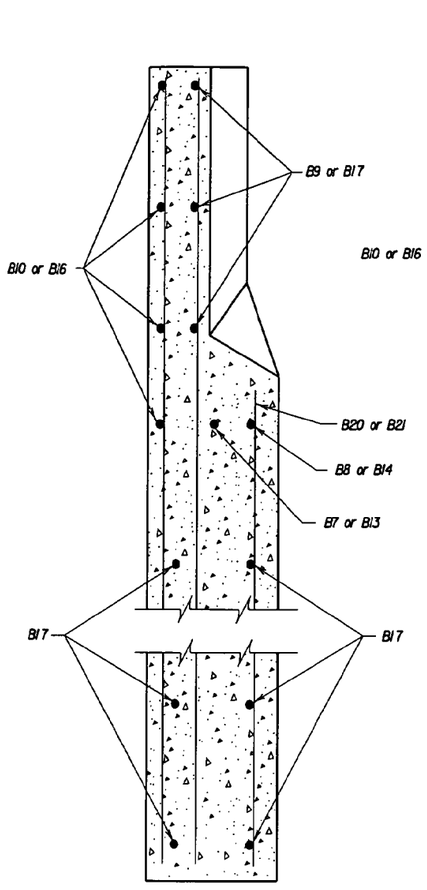
OCTOBER 2001

(59) OF (70)

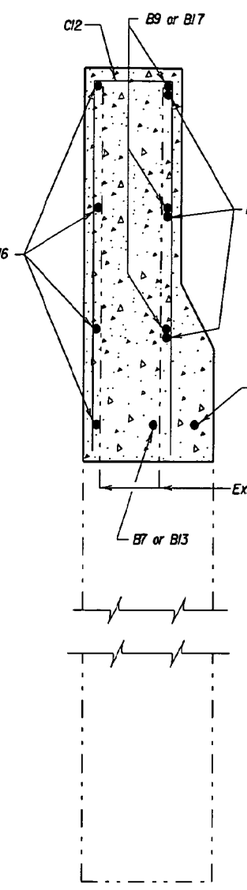
NOTE-
This sheet is to be used in conjunction with sheet Nos. 10 through 13 and 15 of 52.

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	C.J.D.	CJD/EJA	John C. Cole
DUEL2833	2833SG14		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	114	124



SECTION B - B



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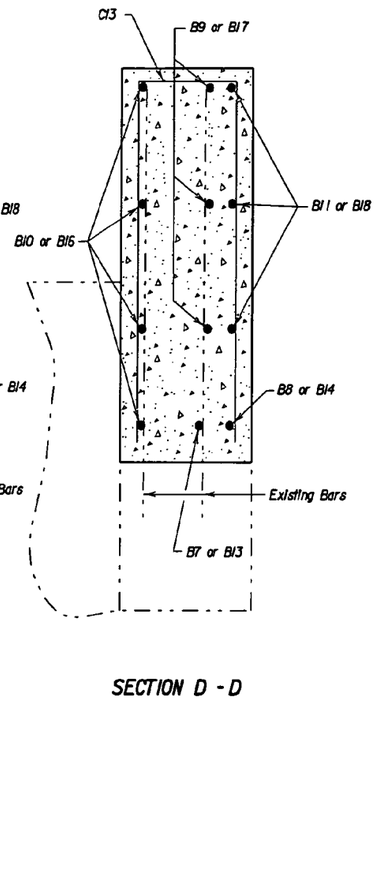
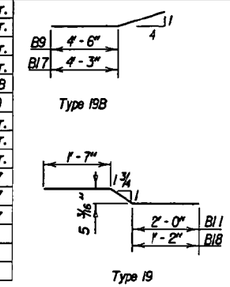


SECTION D - D

REINFORCING SCHEDULE

Phase 1 Mk.	No.	Size	Length	Type
B13	1	5	6'-0"	Str.
B14	1	5	5'-9"	Str.
ϕ B15	8	8	2'-7"	Str.
B16	4	5	6'-6"	Str.
B17	3	8	5'-11"	19B
B18	3	8	3'-7"	19
B19	3	8	8'-6"	Str.
B21	3	7	5'-10"	Str.
B22	3	5	8'-6"	Str.
C12	3	5	7'-3"	17
C13	1	5	7'-7"	17
C14	1	5	7'-10"	17

Bending Details



Phase 2 Mk.	No.	Size	Length	Type
B7	1	5	6'-4"	Str.
B8	1	5	6'-7"	Str.
B9	3	8	6'-2"	19B
B10	3	5	5'-8"	Str.
B11	3	8	4'-5"	19
ϕ B15	10	8	2'-7"	Str.
B20	3	7	5'-9"	Str.
B23	3	8	8'-5"	Str.
B24	3	5	8'-5"	Str.
C12	3	5	7'-3"	17
C13	1	5	7'-7"	17
C14	1	5	7'-10"	17

ϕ Dowel Bar

NOTES-
All reinforcing steel shall be epoxy coated.
All dimensions are out to out of bars.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY Phase 1	QUANTITY Phase 2
* Class A45 Concrete, Bridge Repair	Cu.Yd.	1.6	1.6
★ Epoxy Coated Reinforcing Steel	Lb.	285	282
Install Dowel In Concrete	Each	8	8

★ Does not include the following quantities for B15 bars as these are paid for in the Bid Item "Install Dowel In Concrete". PHASE 1 55 PHASE 2 55

* This quantity includes barrier curb ends and End Blocks.

GENERAL NOTES -

1. Use 1½" Clear Cover on all bars except as shown.
2. End Blocks shall be built normal to grade.
3. ⅜" ϕ Concrete Inserts shall be internally threaded for use with a standard machine bolt and shall be of such design that when installed in the concrete it will be capable of sustaining an ultimate load in tension of 2500 pounds. The inserts shall either be galvanized or made of a corrosion resistant material. The cost of furnishing and installing the inserts shall be absorbed in the unit price bid for Reinforcing Steel.

(SOUTH BOUND LANES)
END BLOCK REPLACEMENT AT
ABUTMENT NO. 1 FOR
260' - 8" CONT. COMP. GIRDER BRIDGE

38'-0" ROADWAY — 45° SKEW L.H.F.
OVER S.D. 22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — IM 29-6(21) 151

HAMLIN COUNTY

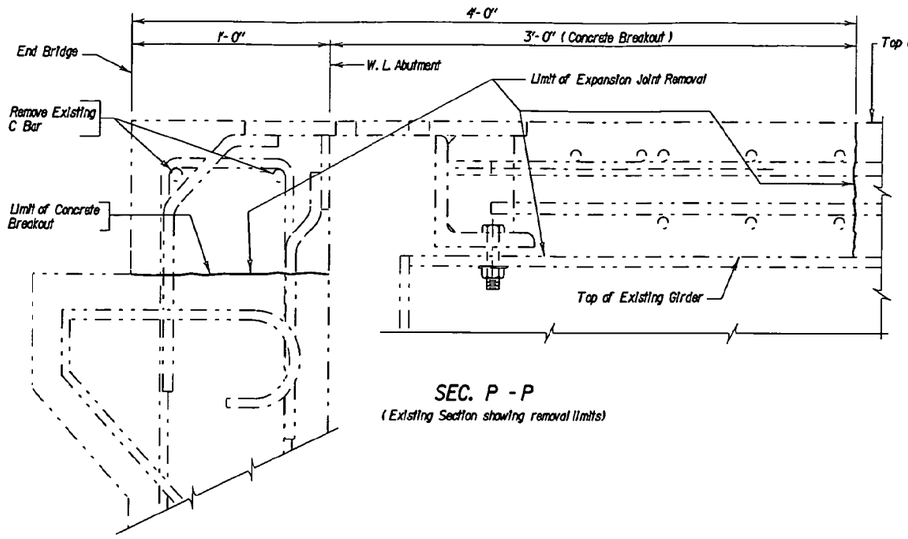
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001 (60) OF (70)

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	C.J.D.	CJD/EJA	BRIDGE ENGINEER
DUEL2833	2833SG15		

ORIGINAL CONSTRUCTION PLANS

NOTE-
This sheet is to be used in conjunction with sheet Nos. 10 through 14 of 52.

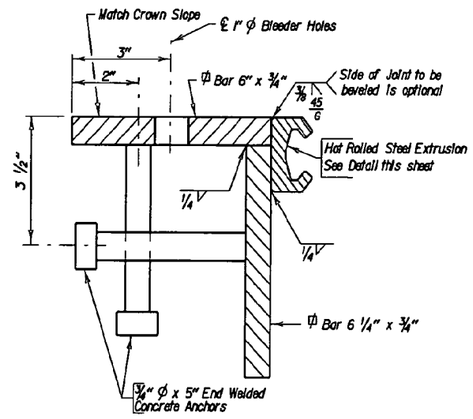
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	115	124



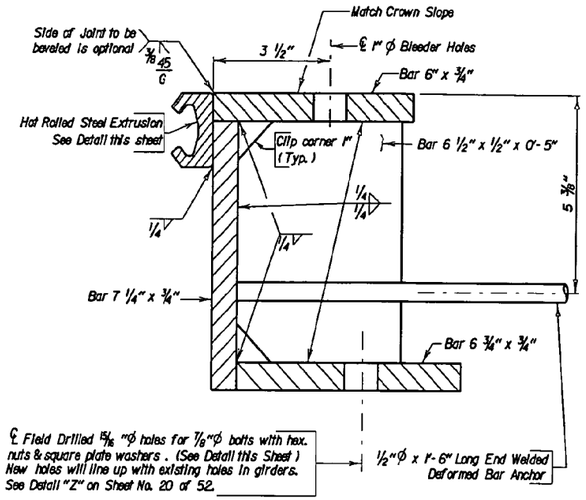
SEC. P - P

(Existing Section showing removal limits)

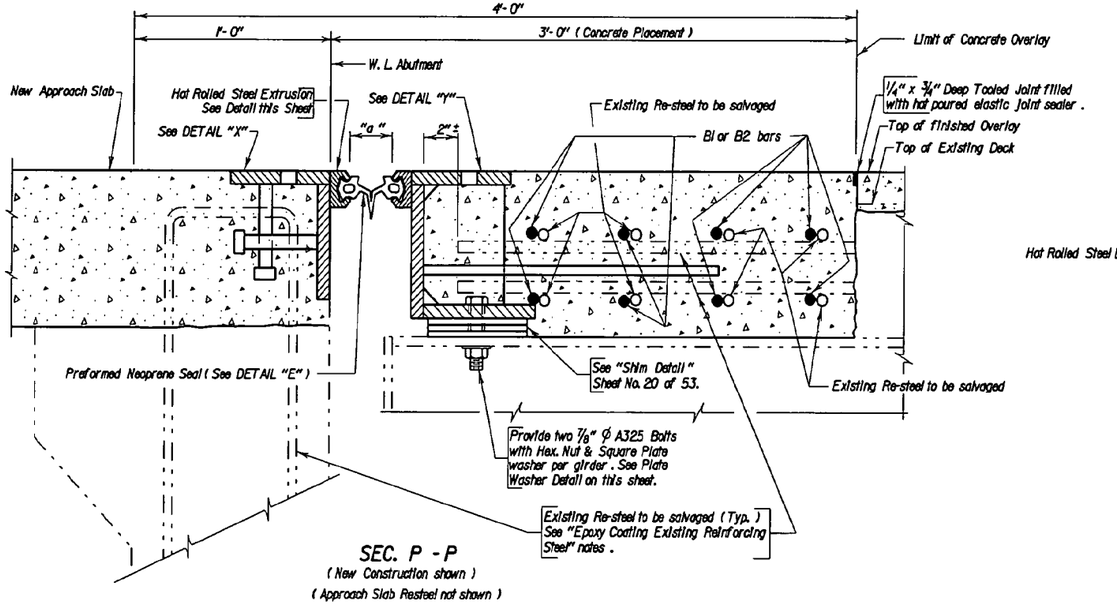
℄ ⌐8"x 6"x ¾" may be substituted for ¾" bars provided vertical leg is trimmed to equivalent dimension.



DETAIL "X"



DETAIL "Y"

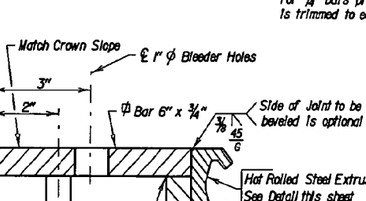


SEC. P - P

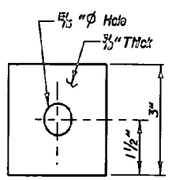
(New Construction shown)

(Approach Slab Resteel not shown)

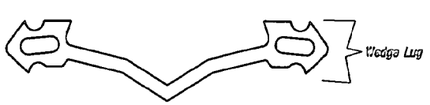
Dimension "a"	
Temp.	Abut. No. 4
30°	2 ½"
40°	2 ⅜"
50°	2 ¼"
60°	2 ⅛"
70°	2"
80°	1⅞"
90°	1¾"



HOT ROLLED STEEL EXTRUSION



SQUARE PLATE WASHER



DETAIL "E"

Neoprene Seal shall have a 4" movement capability.

NOTE-

This sheet is to be used in conjunction with Sheet Nos. 16, 17, 18 and 20 through 30 of 52.

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
B1	4	5	31'-3"	Str.	
B2	4	5	27'-0"	Str.	

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Replace Expansion Device	Each	1

Items 1 thru 3 are approximate quantities contained in the above bid item and are for informational purposes only .

	Phase 1	Phase 2
1. Class A45 Concrete :	1.7 Cu.Yd.	2.3 Cu.Yd.
2. Epoxy Coated Reinforcing Steel :	283 Lb.	283 Lb.
3. Structural Steel :	3114 Lb.	3968 Lb.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
DETAILS OF JOINT REPLACEMENT
AT ABUTMENT NO. 4

260' - 8" CONT. COMP. GIRDER BRIDGE

38' - 0" ROADWAY — 45° SKEW L.H.F.

STR. NO. 29-299-040 — SEC. 24/25-T115N-R51W

OVER S.D. 22 — IM 29-6(21)151

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	CJD	CJD/EJA	BRIDGE ENGINEER
DUEL2833	2833SG19		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	116	124

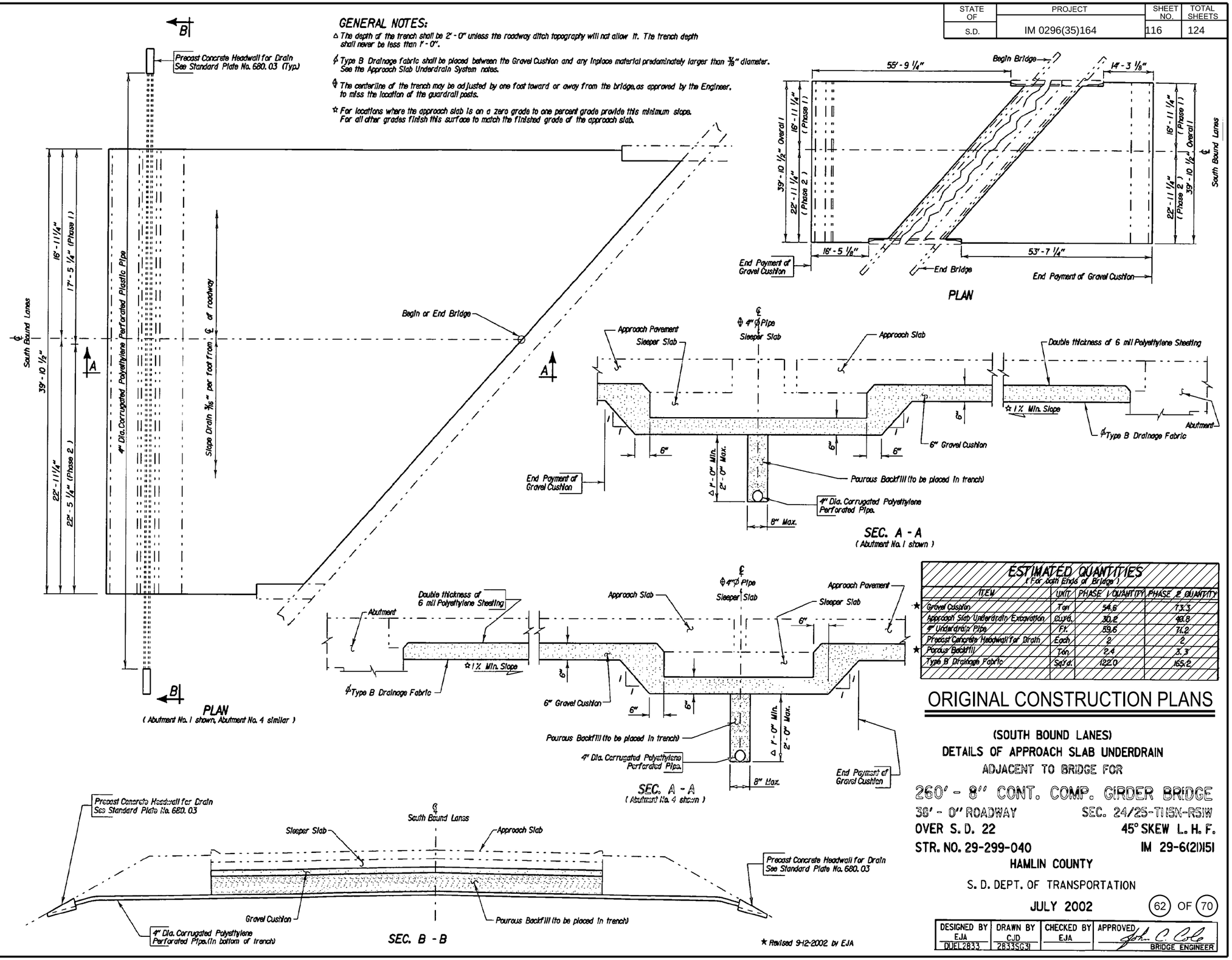
GENERAL NOTES:

△ The depth of the trench shall be 2' - 0" unless the roadway ditch topography will not allow it. The trench depth shall never be less than 1' - 0".

∮ Type B Drainage fabric shall be placed between the Gravel Cushion and any inplace material predominately larger than 3/8" diameter. See the Approach Slab Underdrain System notes.

Φ The centerline of the trench may be adjusted by one foot toward or away from the bridge, as approved by the Engineer, to miss the location of the guardrail posts.

☆ For locations where the approach slab is on a zero grade to one percent grade provide this minimum slope. For all other grades finish this surface to match the finished grade of the approach slab.



★ Revised 9-12-2002 by EJA

ESTIMATED QUANTITIES
(For both Ends of Bridge)

ITEM	UNIT	PHASE 1 QUANTITY	PHASE 2 QUANTITY
★ Gravel Cushion	Ton	54.6	13.3
Approach Slab Underdrain Excavation	CU.YD.	30.2	40.8
4" Underdrain Pipe	FT.	59.6	74.2
Precast Concrete Headwall for Drain	Each	2	2
★ Porous Backfill	Ton	2.4	3.3
Type B Drainage Fabric	SQ.YD.	122.0	165.2

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)

DETAILS OF APPROACH SLAB UNDERDRAIN

ADJACENT TO BRIDGE FOR

260' - 8" CONT. COMP. GIRDER BRIDGE

38' - 0" ROADWAY — SEC. 24/25-T11SN-R5W

OVER S. D. 22 — 45° SKEW L. H. F.

STR. NO. 29-299-040 — IM 29-6(21)151

HAMLIN COUNTY

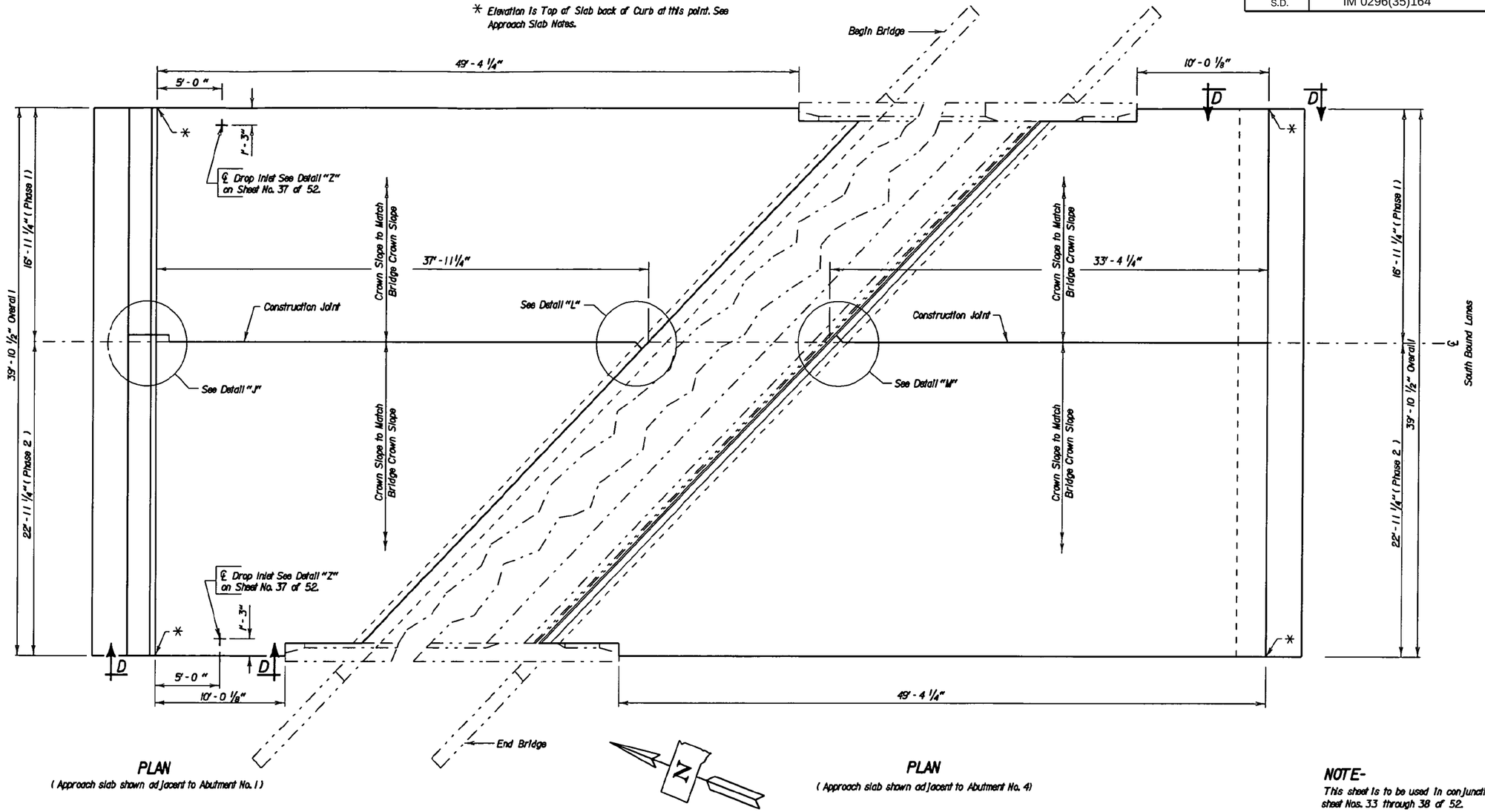
S. D. DEPT. OF TRANSPORTATION

JULY 2002

62 OF 70

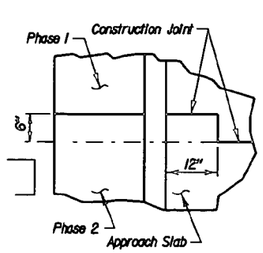
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA	CJD	EJA	BRIDGE ENGINEER
DUEL2833	2833SG31		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	117	124

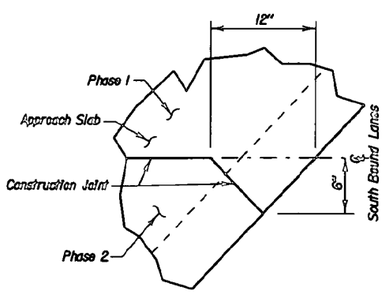


PLAN
(Approach slab shown adjacent to Abutment No. 1)

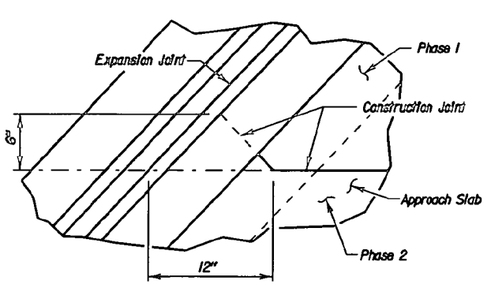
PLAN
(Approach slab shown adjacent to Abutment No. 4)



DETAIL "J"



DETAIL "L"



DETAIL "M"

NOTE-
This sheet is to be used in conjunction with sheet Nos. 33 through 38 of 52.

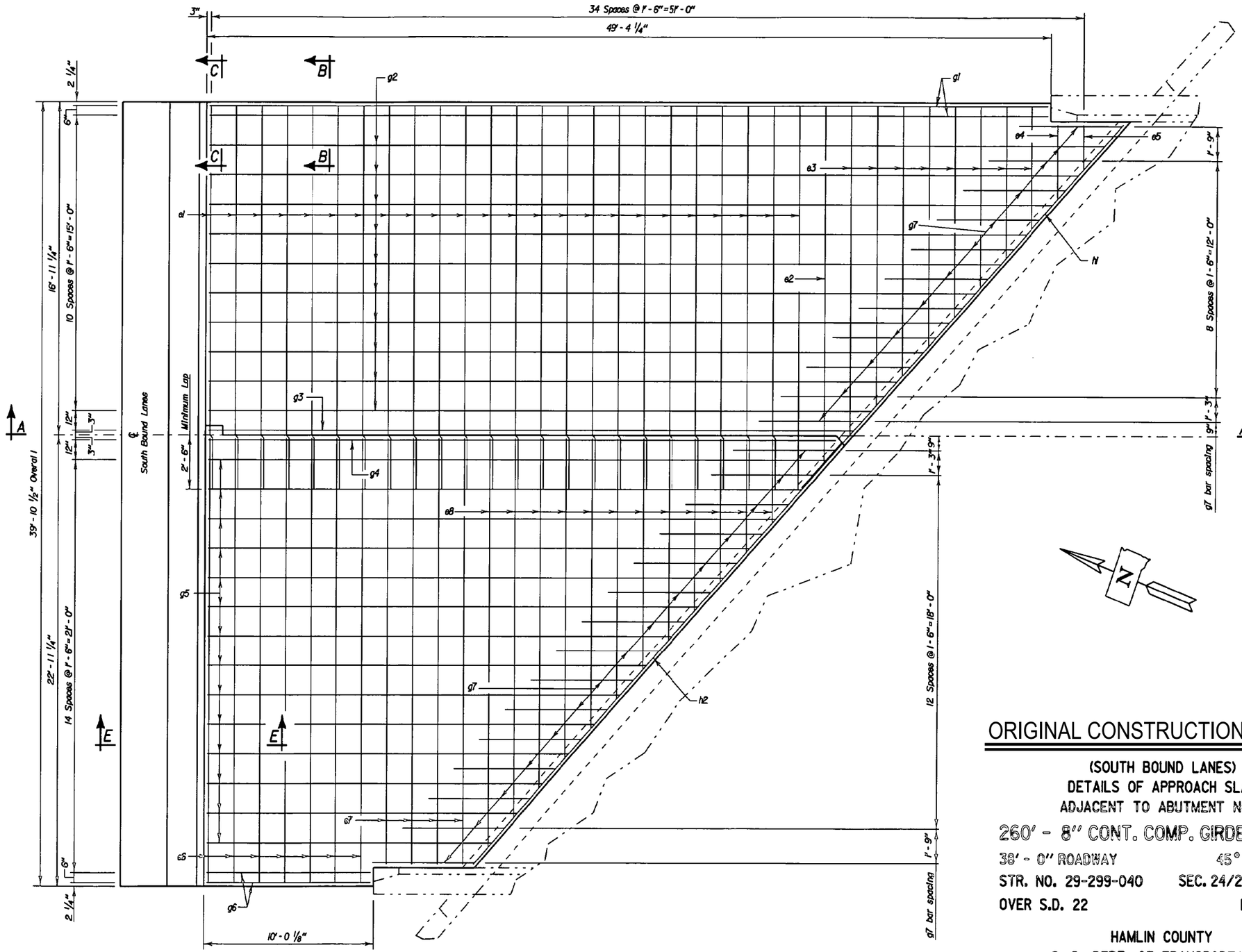
ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
LAYOUT OF APPROACH SLABS FOR
260' - 8" CONT. COMP. GIRDER BRIDGE
38' - 0" ROADWAY 45° SKEW L.H.F.
STR. NO. 29-299-040 SEC. 24/25-T115N-R51W
OVER S.D. 22 IM 29-6(21)151

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001 (63) OF (70)

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	CJD	CJD/EJA	John C. Cole BRIDGE ENGINEER
DUEL2833	2833SG32		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	118	124



PLAN
(Top Steel Shown)

NOTE-
This sheet is to be used in conjunction with sheet Nos. 32 and 34 through 38 of 52.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
DETAILS OF APPROACH SLAB
ADJACENT TO ABUTMENT NO. 1

260' - 8" CONT. COMP. GIRDER BRIDGE

38' - 0" ROADWAY — 45° SKEW L.H.F.

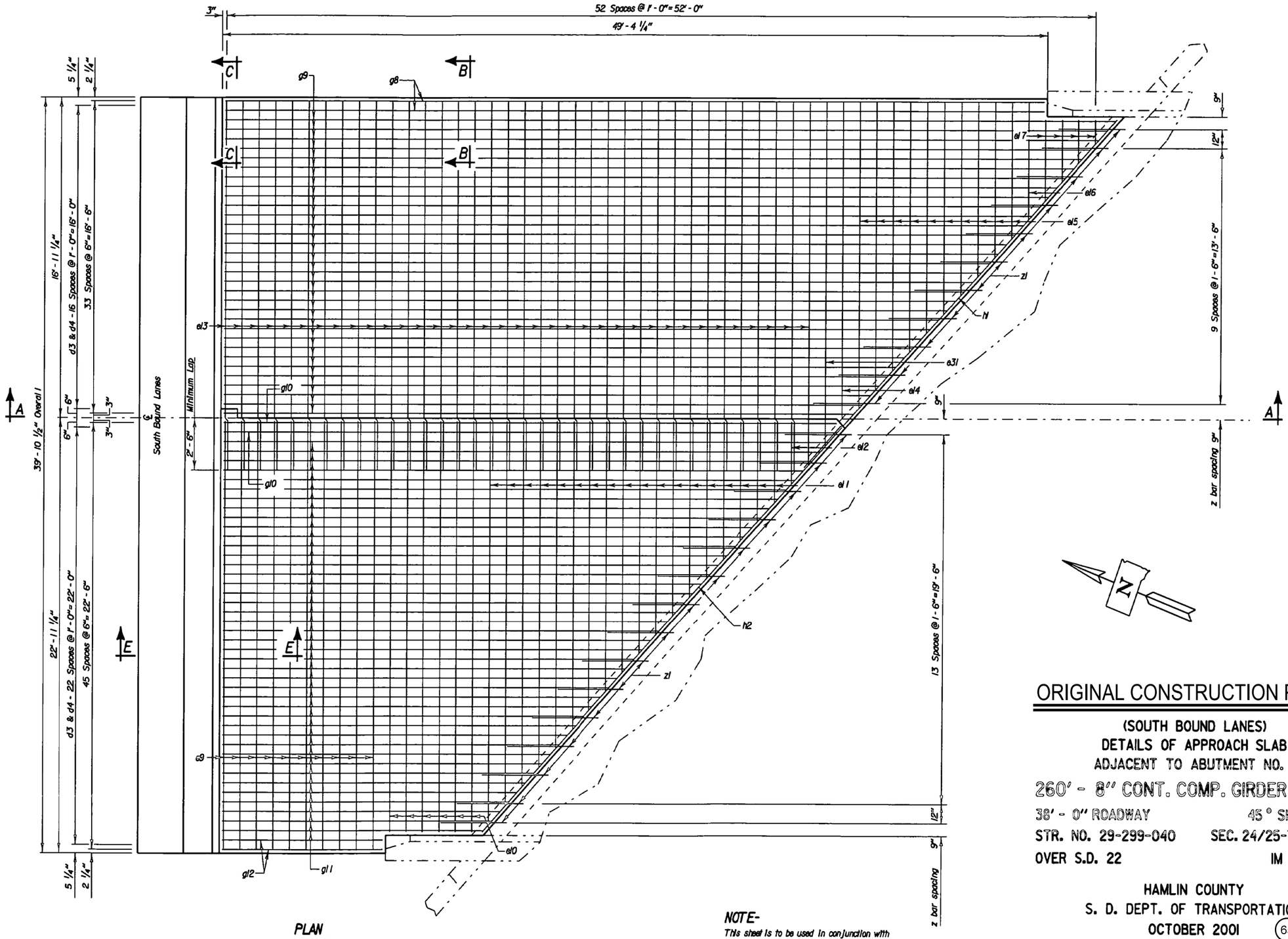
STR. NO. 29-299-040 — SEC. 24/25-T115N-R51W

OVER S.D. 22 — IM 29-6(21)151

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	EJA	CJD/EJA	John C. Cole
DUEL2833	2833SG33		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	119	124



PLAN
(Bottom Steel Shown)

NOTE-
This sheet is to be used in conjunction with sheet Nos. 32, 33 and 35 through 38 of 52.

N

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
DETAILS OF APPROACH SLAB
ADJACENT TO ABUTMENT NO. 1

260' - 8" CONT. COMP. GIRDER BRIDGE

38' - 0" ROADWAY — 45° SKEW L.H.F.

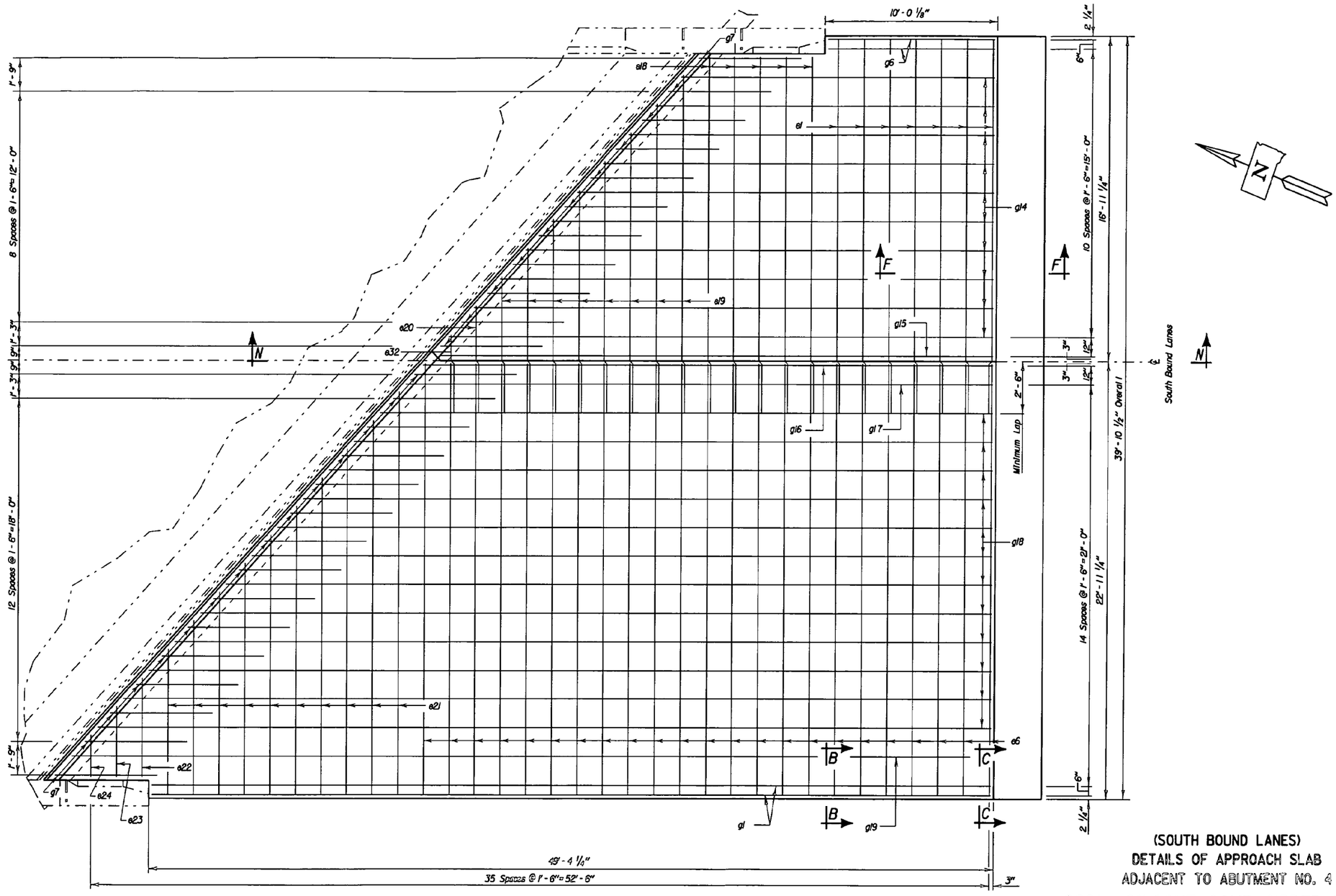
STR. NO. 29-299-040 — SEC. 24/25-T115N-R51W

OVER S.D. 22 — IM 29-6(21)151

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	EJA	CJD/EJA	John C. Cole
DUEL2833	2833SG34		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	120	124



PLAN
(Top Steel Shown)

NOTE-
This sheet is to be used in conjunction with sheet Nos. 32 through 34 and 36 through 38 of 52.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
DETAILS OF APPROACH SLAB
ADJACENT TO ABUTMENT NO. 4

260' - 8" CONT. COMP. GIRDER BRIDGE

38' - 0" ROADWAY — 45° SKEW L.H.F.

STR. NO. 29-299-040 — SEC. 24/25-T115N-R51W

OVER S.D. 22 — IM 29-6(21)151

HAMLIN COUNTY

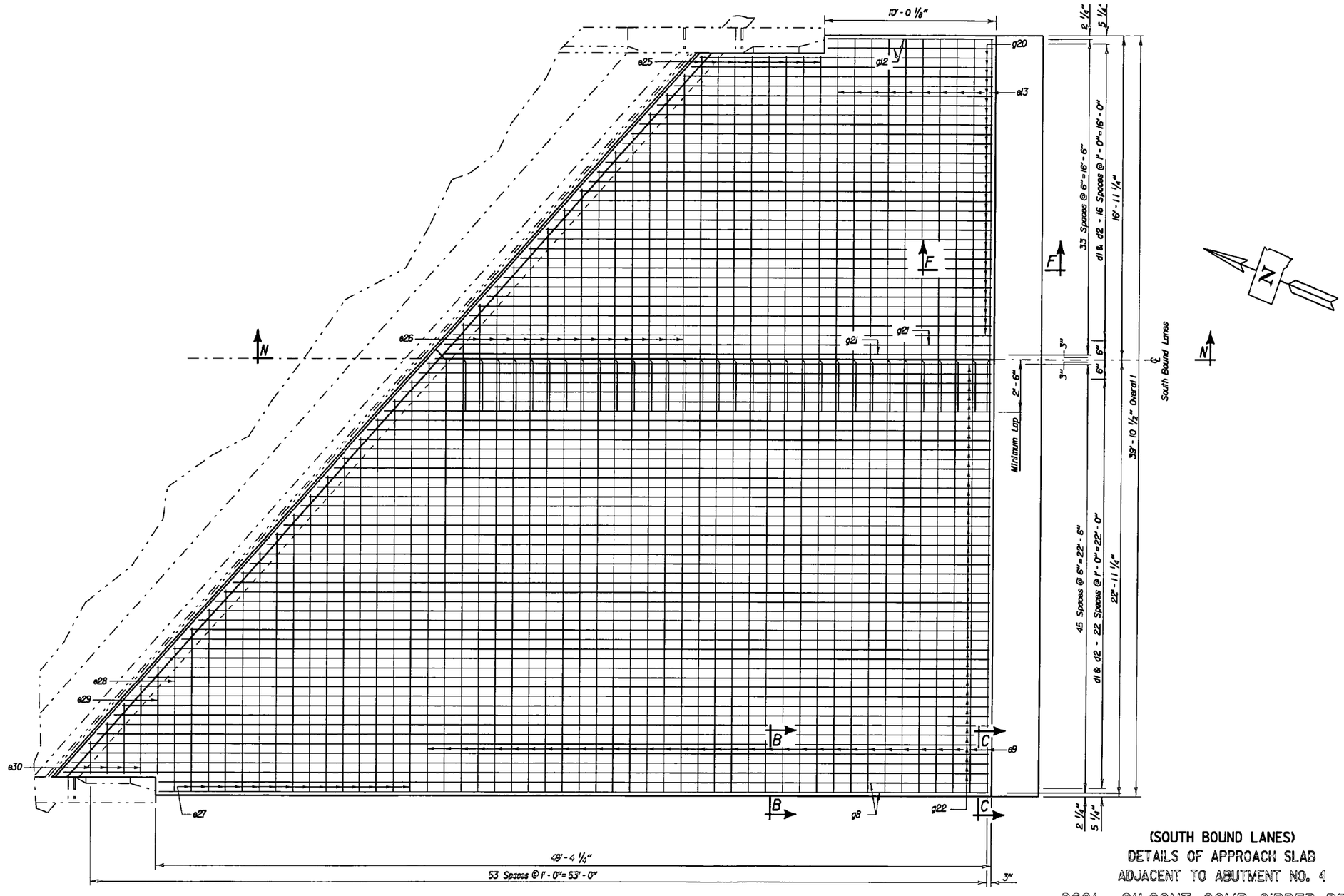
S. D. DEPT. OF TRANSPORTATION

OCTOBER 2001

66 OF 70

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	EJA	CJD/EJA	BRIDGE ENGINEER
DUEL2833	2833SG35		

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	121	124



PLAN
(Bottom Steel Shown)

NOTE-
This sheet is to be used in conjunction with sheet Nos. 32 through 35, 37 and 38 of 52.

ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
DETAILS OF APPROACH SLAB
ADJACENT TO ABUTMENT NO. 4

260' - 8" CONT. COMP. GIRDER BRIDGE

38' - 0" ROADWAY — 45° SKEW L.H.F.

STR. NO. 29-299-040 — SEC. 24/25-T115N-R51W

OVER S.D. 22 — IM 29-6(21)151

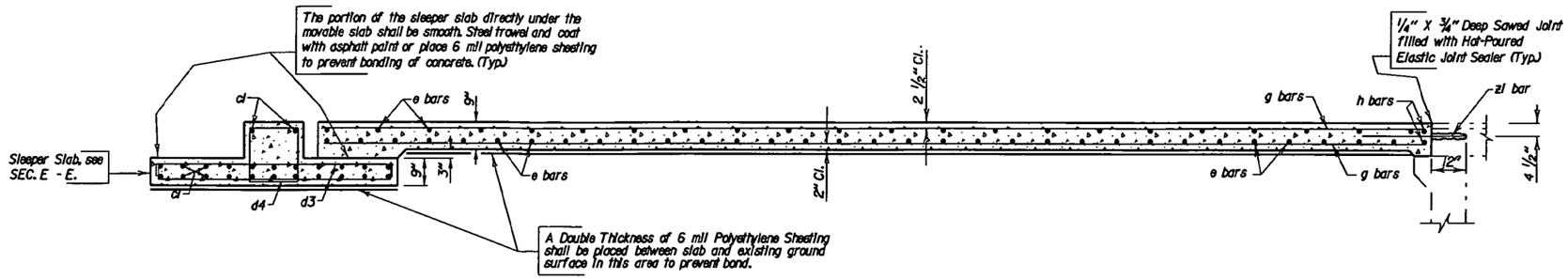
HAMLIN COUNTY

S. D. DEPT. OF TRANSPORTATION

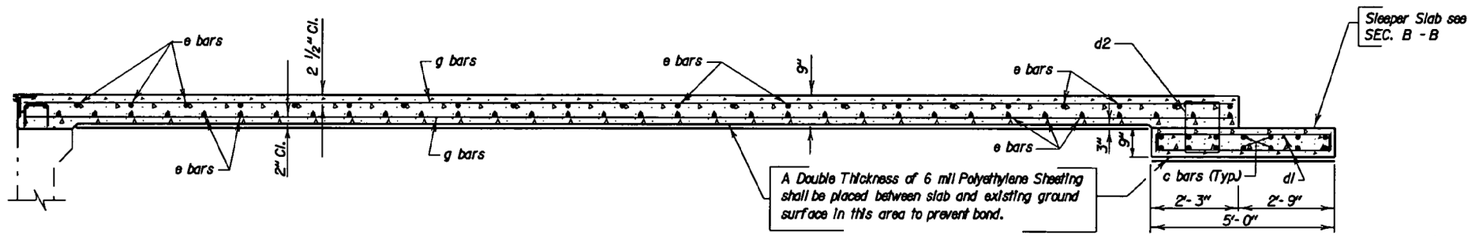
OCTOBER 2001

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	EJA	CJD/EJA	BRIDGE ENGINEER
DUEL2833	2833SG36		

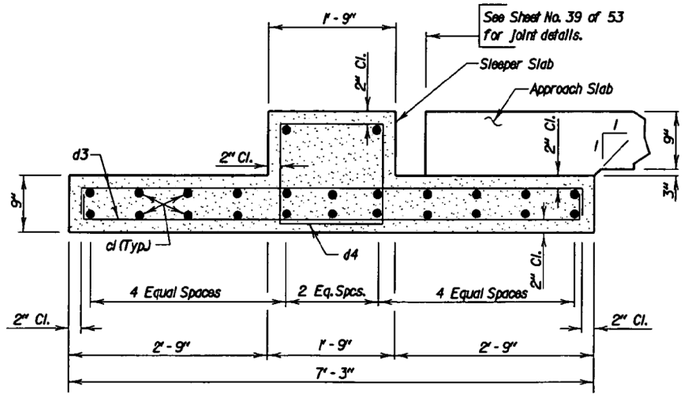
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	122	124



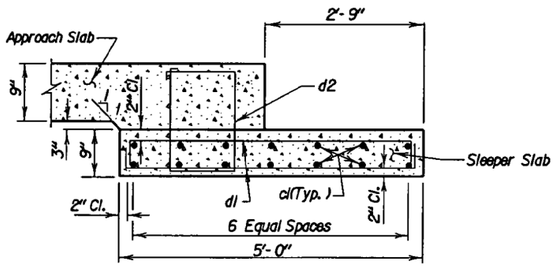
SEC. A - A
(Abutment No. 1)



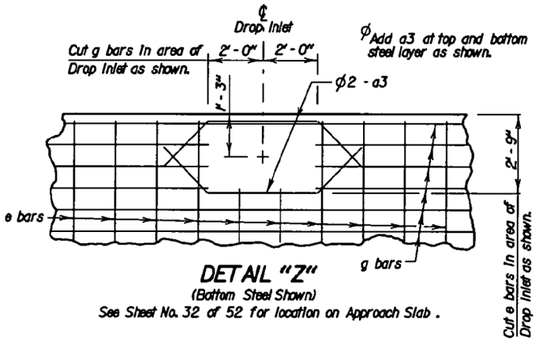
SEC. N - N
(Abutment No. 4)



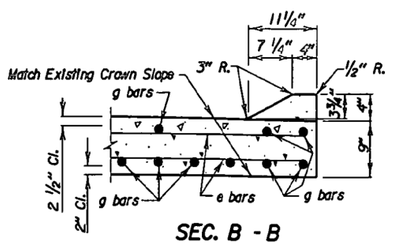
SEC. E - E
(Sleeper Slab)



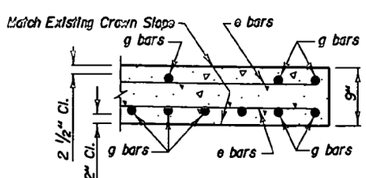
SEC. F - F
(Sleeper Slab)



DETAIL "Z"
(Bottom Steel Shown)
See Sheet No. 32 of 52 for location on Approach Slab .



SEC. B - B



SEC. C - C

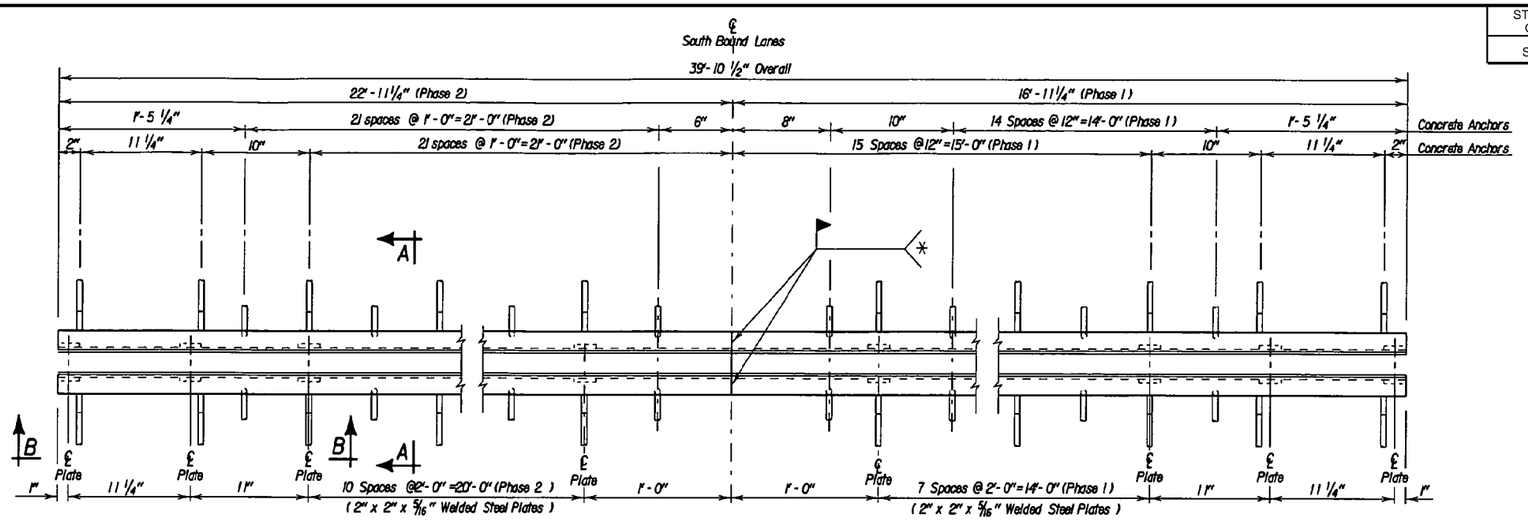
ORIGINAL CONSTRUCTION PLANS

(SOUTH BOUND LANES)
DETAILS OF APPROACH SLAB
ADJACENT TO BRIDGE FOR
260' - 8" CONT. COMP. GIRDER BRIDGE
38' - 0" ROADWAY **45° SKEW L.H.F.**
STR. NO. 29-299-040 **SEC. 24/25-T115N-R51W**
OVER S.D. 22 **IM 29-6(21)151**

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	EJA	CJD/EJA	John C. Cole
DUEL2833	2833SG37		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	123	124



PLAN OF STRIP SEAL
(Neoprene Seal not shown)

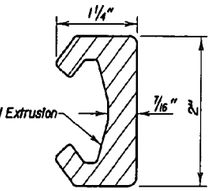
TEMP.	DIMENSION "X"
30°	2 1/4"
40°	2 3/16"
50°	2 1/8"
60°	2 1/16"
70°	2"
80°	1 15/16"
90°	1 7/8"

GENERAL NOTES:

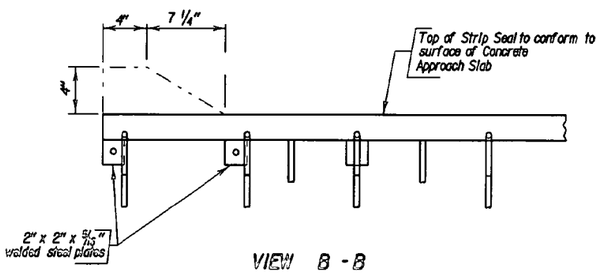
1. Materials for the Steel Extrusion shall conform to ASTM-A36, A242 or A588. Materials for the 2" x 2" x 5/16" welded steel plates shall conform to ASTM-A36. Material for the 1/2" diameter x 6" Concrete Anchors shall conform to Type A steel studs of Section 7 of the latest edition of the ANSI/AWS D1.1 Structural Welding Code-Steel.
2. Material for the neoprene seal shall conform to ASTM D2628 modified to omit the recovery test. No splices will be permitted in the neoprene seal.
3. The lubricant-adhesive used to install the neoprene seal shall conform to the requirements of ASTM D4070. The neoprene seal and the lubricant adhesive should be supplied or recommended by the same source as they must be compatible.
4. The installation of the neoprene seal shall be as recommended by its Manufacturer and approved by the Engineer, but in general shall be as follows: The neoprene seal shall be installed and bonded to the steel extrusion with a high-solids lubricant adhesive. The neoprene surfaces shall be roughened with a wire brush before the application of the lubricant adhesive. The neoprene seal may be installed either prior to or after the time the steel extrusions are concreted in the approach slabs. The steel extrusion shall be dry, clean, free from dirt, grease and contaminates at the time the neoprene seal is installed.
5. Due to the length of the steel extrusions, splices are permitted. No welds shall be permitted in the internal section of the extrusion where the neoprene seal is located. Weld details shall be shown on the shop plans for approval by the Engineer. Welding shall be in accordance with latest edition of the AWSI/AWS D1.1 Structural Welding Code-Steel. Galvanize the steel extrusions and anything welded to them after all welding is completed. They shall be galvanized in accordance with AASHTO M111 (ASTM A123). If welded splices are used subsequent to galvanizing, the weld details and the procedures for preparing the surface for welding and repairing the galvanizing after welding shall be included with the shop plans.
6. The thickness and shape of the neoprene seal may vary from the sketch shown (Detail "C" on this sheet) according to the manufacturer's design; however, the wedge lugs must properly fit the groove in the steel extrusion. Before installation, the shop plans of the proposed neoprene seal showing the fixed dimensions, thickness of neoprene seal, and dimensions pertinent to the fit of the neoprene seal in the steel extrusion shall be submitted to and approved by the Engineer.
7. Since the configuration and dimensions of the steel extrusion may vary according to each manufacturer's design, they need not conform exactly to that shown in DETAIL "D", however, any deviations from the plan shown configuration or dimensions must be approved by the Office of Bridge Design.
8. The Strip Seal Expansion Joint supplier shall submit a detailed gland installation procedure with the shop plans.
9. The cost of welding shall be included in the unit cost for Strip Seal Expansion Joint.
10. The neoprene seal shall be of sufficient length such that a minimum length of 6" shall extend beyond each end of the steel extrusions.
11. The Strip Seal Expansion Joint will be measured in linear feet to the nearest one-tenth foot, complete in place. Measurement will be made of the overall horizontal length. The Strip Seal Expansion Joint will be paid for at the contract unit price per linear foot complete in place. Payment for this item shall be full compensation for furnishing all the required materials in place, inclusive of labor, equipment and incidentals necessary to complete the work in accordance with plans and the foregoing specifications.

* 12. Due to phased construction, the steel extrusion shall be spliced in the Field at the location shown above. The Weld Details and the procedures for preparing the surface for welding and repairing the galvanizing after welding shall be included with the shop plans.

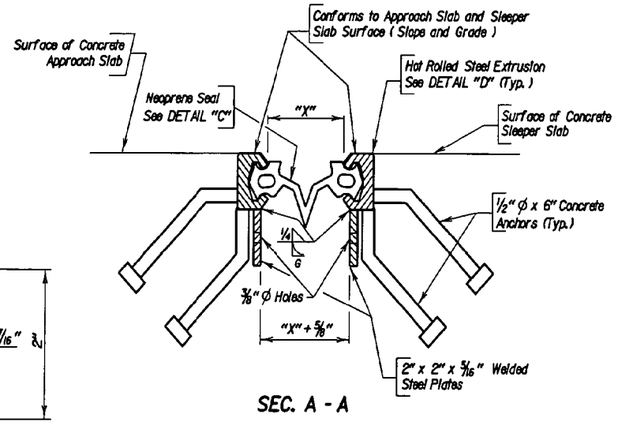
DETAIL "C"
Neoprene Seal shall have a 3" movement capability.



DETAIL "D"



VIEW B - B



SEC. A - A

THE CONTRACTOR HAS THE OPTION OF BUILDING THE APPROACH SLABS FOR THE FULL WIDTH OF THE ROADWAY AT ONE TIME OR BUILDING THE APPROACH SLABS IN TWO PHASES USING THE PLAN SHOWN OPTIONAL CONSTRUCTION JOINT. ALL REFERENCES TO PHASE 1 AND PHASE 2 CONSTRUCTION ARE GIVEN IN THE EVENT THE CONTRACTOR ELECTS TO BUILD THE APPROACH SLABS IN TWO PHASES.

ESTIMATED QUANTITIES			
ITEM	UNIT	PHASE 1 QUANTITY	PHASE 2 QUANTITY
Strip Seal Expansion Joint	Ft.	16.9	22.9

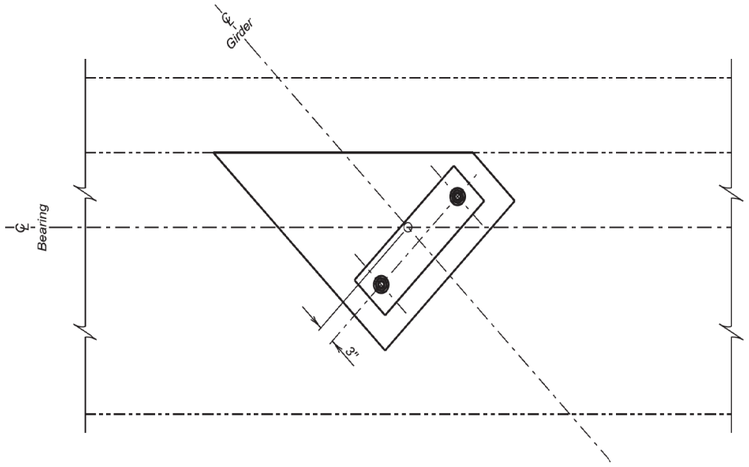
ORIGINAL CONSTRUCTION PLANS

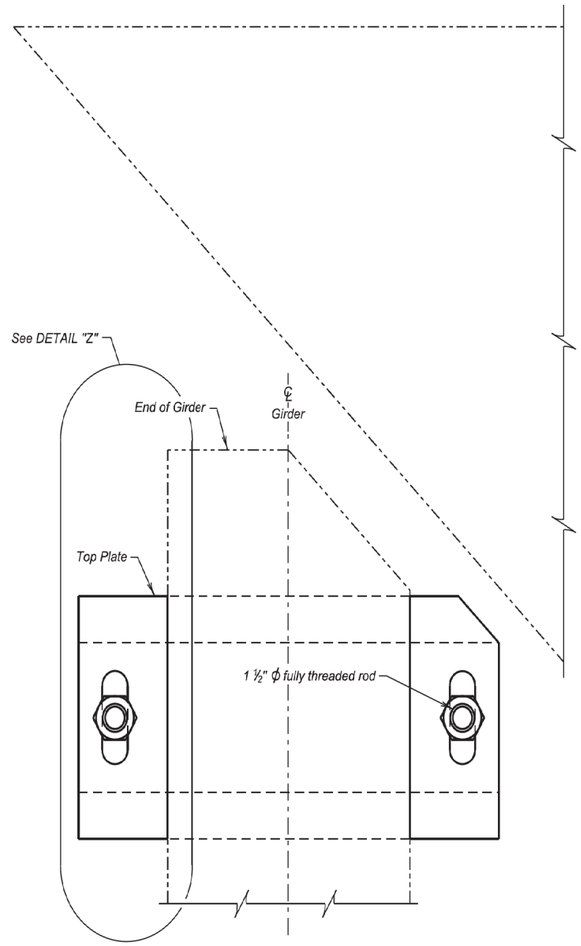
(SOUTH BOUND LANES)
APPROACH SLAB JOINT DETAILS AT ABUT. NO. 1
260' - 8" CONT. COMP. GIRDER BRIDGE
38' - 0" ROADWAY 45° SKEW L.H.F.
STR. NO. 29-299-040 SEC. 24/25-T115N-R51W
OVER S.D. 22 IM 29-6(21)151

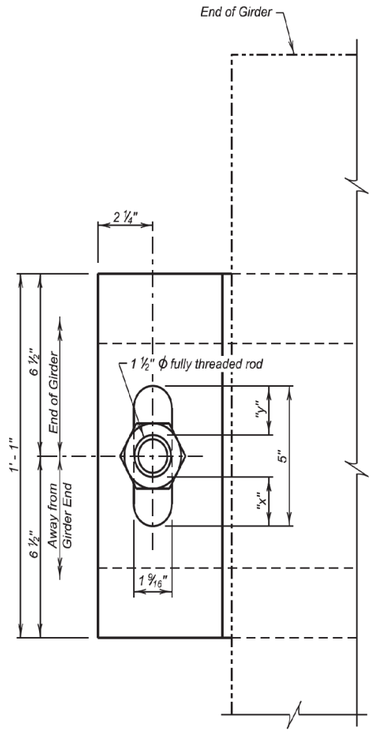
HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2001 (69) OF (70)

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
EJA/CJD	EJA	CJD/EJA	John C. Cole
DUEL2833	2833SG39		BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	IM 0296(35)164	124	124

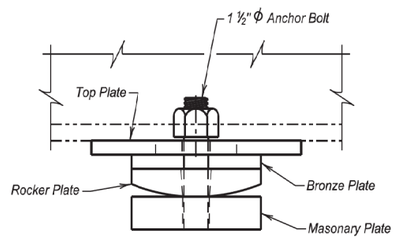




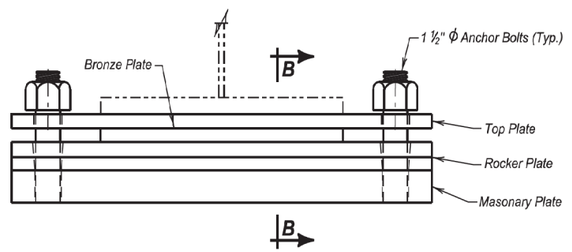


DETAIL "Z"

SLOT ORIENTATION TABLE		
Temp. °F	"x"	"y"
120	¼"	3 ¼"
105	9/16"	2 15/16"
95	¾"	2 ¾"
85	15/16"	2 9/16"
75	1 ⅛"	2 ⅜"
65	1 ⅜"	2 ⅛"
55	1 9/16"	1 15/16"
45	1 ¾"	1 ¾"
35	1 15/16"	1 9/16"
25	2 ⅛"	1 ⅜"
-30	3 ¼"	¼"



SEC. B - B



ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Incidental Work, Structure	L.S.	Lump Sum
Jack Superstructure and Shift Bearing Shoe	L.S.	Lump Sum
Bearing, Furnished	1	Each
Bearing, Install	1	Each
Breakout and Replace Grout Pad	1	Each

ORIGINAL CONSTRUCTION PLANS

(SOUTHBOUND LANES)
NEW BEARING DETAILS AT ABUTMENT NO. 4

FOR

260' - 8" CONT. COMPOSITE GIRDER BRIDGE

38' - 0" ROADWAY — 45° SKEW L.H.F.
OVER SD 22 — SEC. 24/25-T115N-R51W
STR. NO. 29-299-040 — P 0010(89)

HAMLIN COUNTY
S. D. DEPT. OF TRANSPORTATION
JUNE 2012

70 OF 70

DESIGNED BY	CK. DES. BY	DRAFTED BY	
NP	DJS	BT	Kevin N. Goeden BRIDGE ENGINEER
HAML03BU	03BUSH10		