BAI JOB # 24020.12

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 4266(07)	1	68

FOR BIDDING PURPOSES ONLY

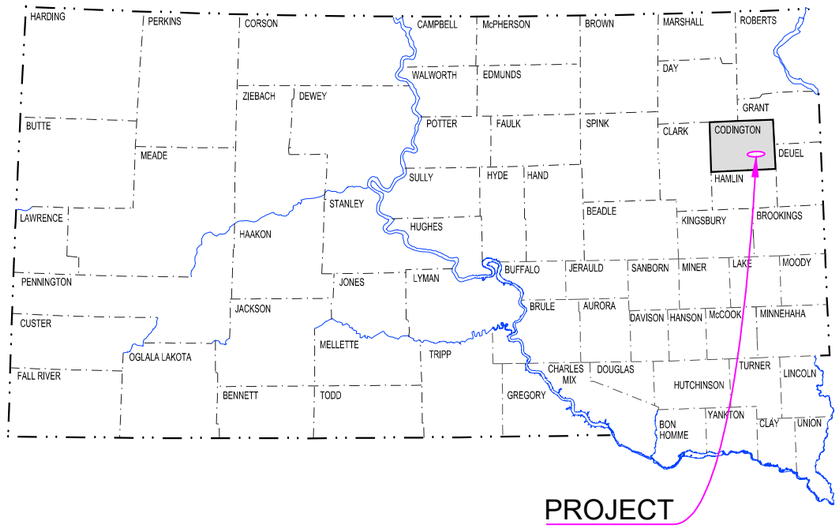
Plotting Date: 05/08/2025

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED

PROJECT BRF-B 4266(07)
CODINGTON COUNTY

STRUCTURE AND APPROACH GRADING
STRUCTURE NO. 15-178-160
PCN 09M4

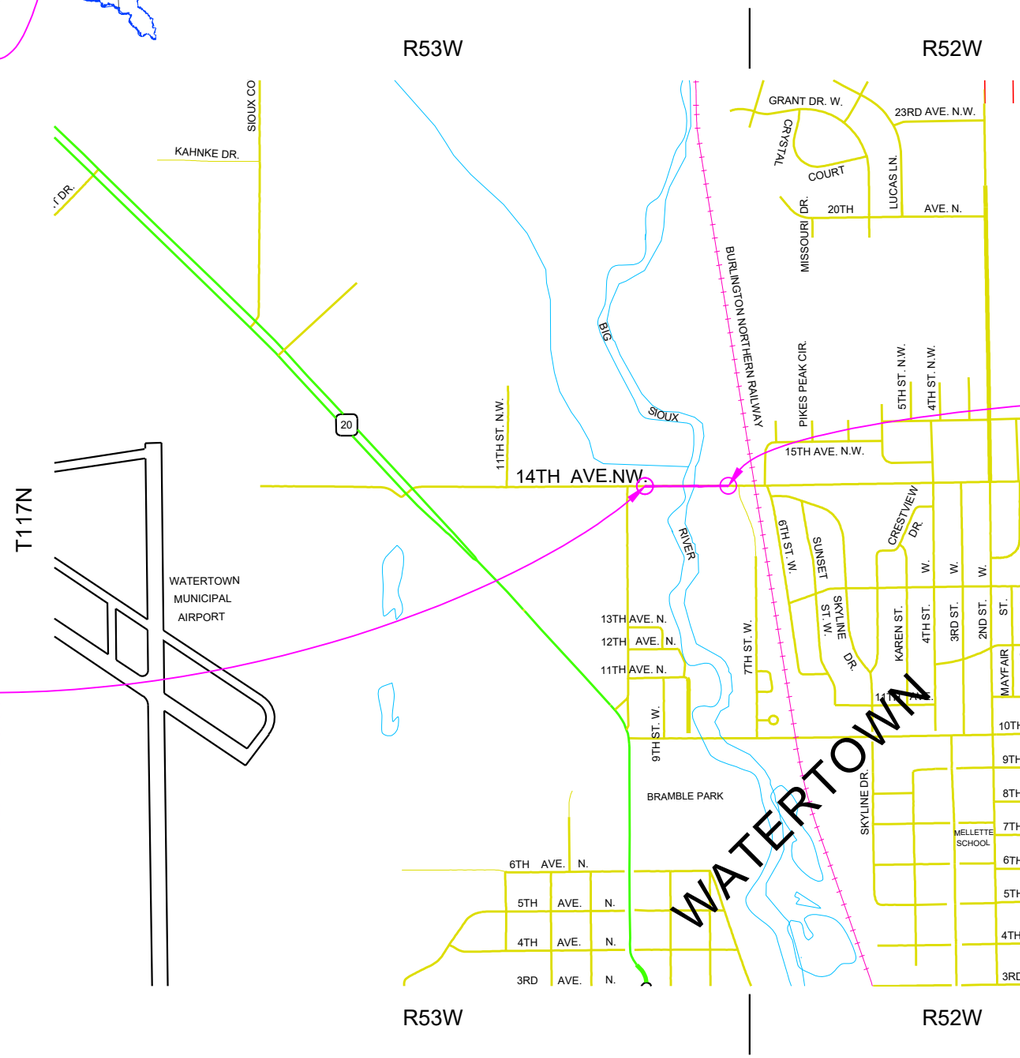
INDEX OF SHEETS



STORM WATER PERMIT
Major Receiving Body of Water: Big Sioux River
Total Project Area: 4.2 Acres
Area Disturbed: 3.5 Acres
Approx. Lat/Long: 44.91920° N
-97.12944° W

DESIGN DESIGNATION

AADT (2020)	4970
AADT (2040)	6700
AADT T%	4.1%
V	35 mph



BEGIN BRF-B 4266(07)
14TH AVENUE NW (COUNTY HWY 14B)
Station 3+00.00
Located 946.51 feet West
of the northest corner of Section 25 -
Township 117 North - Range 53 West
of the 5th PM

END BRF-B 4266(07)
14TH AVENUE NW (COUNTY HWY 14B)
Station 7+28.00
Located 518.51 feet West
of the northeast corner of Section 25 -
Township 117 North - Range 53 West
of the 5th PM

Prime professional in charge of coordinating the various technical professions involved in this project.

N

BANNER
engineering a better community
803 S. Dakota St.
Milbank, SD 57252
1-855-323-6342

1

July 2, 2025

FOR BIDDING PURPOSES ONLY

Revised: 5/15/2025 MRJ

ESTIMATE OF QUANTITIES

Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	1,284.0	SqYd
110E1690	Remove Sediment	3.0	CuYd
110E1700	Remove Silt Fence	670	Ft
110E5010	Salvage Delineator	16	Each
120E0010	Unclassified Excavation	2,630	CuYd
120E0600	Contractor Furnished Borrow Excavation	580	CuYd
230E0010	Placing Topsoil	442	CuYd
260E1010	Base Course	901.0	Ton
* 320E1200	Asphalt Concrete Composite	330.0	Ton
633E1220	High Build Waterborne Pavement Marking Paint, 4" White	856	Ft
633E1222	High Build Waterborne Pavement Marking Paint, 4" Yellow	856	Ft
634E0110	Traffic Control Signs	131.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	7	Each
634E1002	Detour and Restriction Signing	277.0	SqFt
651E0060	6" Concrete Sidewalk	480	SqFt
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	1,207	SqYd
734E0154	12" Diameter Erosion Control Wattle	1,040	Ft
734E0165	Remove and Reset Erosion Control Wattle	260	Ft
734E0604	High Flow Silt Fence	670	Ft
734E0610	Mucking Silt Fence	33	CuYd
734E0630	Floating Silt Curtain	150	Ft

* Non-Participating Bid Item

Structure 15-178-160

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E5000	Concrete Penetrating Sealer	587.7	SqYd
120E7000	Select Granular Backfill	21.6	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
410E2600	Membrane Sealant Expansion Joint	101.7	Ft
420E0100	Structure Excavation, Bridge	533	CuYd
430E0200	Bridge End Embankment	238	CuYd
430E0300	Granular Bridge End Backfill	95.0	CuYd
430E0510	Approach Slab Underdrain Excavation	5.4	CuYd
430E0700	Precast Concrete Headwall for Drain	4	Each
460E0030	Class A45 Concrete, Bridge Deck	322.9	CuYd
460E0050	Class A45 Concrete, Bridge	203.2	CuYd
460E0150	Concrete Approach Slab for Bridge	191.1	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	41.4	SqYd
460E0380	Install Dowel in Concrete	164	Each
460E0502	Deck Drain, Slab Bridge	10	Each
470E0120	Steel Pedestrian Railing on Sidewalk	149.5	Ft
470E0220	Steel Pedestrian Railing on Concrete Barrier	108.1	Ft
480E0100	Reinforcing Steel	26,564	Lb
480E0200	Epoxy Coated Reinforcing Steel	76,620	Lb
510E0100	Extract Pile	2	Each
510E0300	Preboring Pile	120	Ft
510E3401	HP 12x53 Steel Test Pile, Furnish and Drive	290	Ft
510E3405	HP 12x53 Steel Bearing Pile, Furnish and Drive	2,550	Ft
651E0160	6" Reinforced Concrete Sidewalk	373	SqFt
680E0040	4" Underdrain Pipe	144	Ft
680E2500	Porous Backfill	7.0	Ton
700E0210	Class B Riprap	2,107.1	Ton
700E1100	Overburden Excavation for Riprap	533	CuYd
831E0110	Type B Drainage Fabric	1,914	SqYd
831E1030	Perforated Geocell	616	SqFt

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

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

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

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

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9035
MARK
JUNKER
SOUTH DAKOTA
5/15/2025

COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.35 acres of wetlands (includes temporary and permanent) becoming impacted. Refer to the plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
1	4+00 to 6+50	0.036	0.044	0.166	0.104	0.35

Action Taken/Required:

Mitigation is required in accordance with the "*Statewide Finding Regarding Wetlands for South Dakota Federal-Aid Highway Projects (February 2018)*". Replacement of 0.08 acres of permanent wetland impacts will be completed through another wetland mitigation opportunity in a manner which considers FHWA's program-wide goal of 'net gain' of wetlands through enhancement, creation, and preservation.

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be re-established as designated in the plans. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.21 D of the Specifications.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any wetland. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any wetlands beyond the work limits and easements shown in the plans.

COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.29 acres of stream (includes temporary and permanent) becoming impacted. Refer to the plans for location and boundaries of the impacted streams.

Table of Impacted Streams

Stream Name	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
Big Sioux River	4+94 to 5+66	0.034	0.045	0.112	0.096	0.29

Action Taken/Required:

It has been determined that project impacts do not require mitigation. Temporary impacts identified in the Table of Impacted Streams will not be mitigated as the finished ground under the bridge will be shaped to match the upstream channel and flood plain and the existing low water channel will be maintained as near as practical to the existing location as designated in the plans.

The contractor will complete excavation after temporary diversion is in place, if required, with minimal standing water to create the profile of slope protection specified in plans. Once the instream work is completed, the removed material will be placed on top of the riprap to match the natural ground, proposed groundline, or specified shape and elevations shown in plans. When overburden extends into the streambed it will form the channel bottom and profile as specified in plans. The finished ground under the bridge will be shaped to match the finished channel elevation. See Overburden Excavation for Riprap note within structure sheets.

The Contractor will notify the Project Engineer if additional easement is needed to complete work adjacent to any stream. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any streams beyond the work limits and easements shown in the plans.

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 D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

The Big Sioux River is classified as a warmwater semi-permanent fishery with a total suspended solids standard of less than 90 mg/L 30-day average, less than 158 mg/L daily maximum.

Action Taken/Required:

The Contractor is advised that the South Dakota Surface Water Quality Standards, administered by the South Dakota Department of Agriculture and Natural Resources (DANR), apply to this project. Special construction measures will be taken to ensure the above standard(s) of the surface waters are maintained and protected.

COMMITMENT D2: SURFACE WATER DISCHARGE

The DANR General Permit for Temporary Discharge is required for temporary dewatering and discharges to waters of the state. The effluent limit for total suspended solids will be 90 mg/L 30-day average. The effluent limit applies to discharges to all waters of the state except discharges to waters classified as cold water permanent fish life propagation waters according to the ARSD 74:51:01:45. For discharges to waters of the state classified as cold water permanent fish life propagation waters, the effluent limit for total suspended solids will be 53 mg/L daily maximum.

The permittee has the option of completing effluent testing or implementing a pollution prevention plan for compliance with this permit. If the permittee develops a pollution prevention plan instead of total suspended solids sampling, the plan must be developed and implemented prior to discontinuing total suspended solids sampling. Refer to Section 4.0 of the permit. If any pollutants are suspected of being discharged, a sample must be taken for those parameters listed in Section 3.4 of the permit.

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

Action Taken/Required:

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

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

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

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

COMMITMENT E: STORM WATER

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

Action Taken/Required:

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

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

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

The form can be found at:
< https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_CGPAppendixCCA2023Fillable.pdf >

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

Storm Water Pollution Prevention Plan

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

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

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

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

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

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

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

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

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the 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 150 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

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

COMMITMENT J: CONSTRUCTION PRACTICES FOR TEMPORARY WORKS IN WATERWAYS OF THE U.S.

The Contractor is advised that special construction measures must be taken to ensure that the waterways of the U.S. are not impacted.

Action Taken/Required:

Excavation will not occur below the ordinary high-water elevation in waterways outside of caissons, cribs, cofferdams, steel piling, or sheeting. The natural streambed will not be disturbed unless specified by the plans and under the observation of the Project Engineer. Refer to the Table of U.S. Waterways to Protect for ordinary high-water elevations. Any structure work over or within the waterway will be constructed according to Section 7.21 C of the Specifications.

All dredged or excavated materials will be placed at a site above the ordinary high-water elevation in a confined area (not classified as a wetland) that is a minimum of 50 feet away from concentrated flows of storm water, drainage courses, and inlets to prevent return of such material to the waterway.

The construction of temporary work platforms, crossings, or berms below the ordinary high-water elevation will be allowed if all material placed below the ordinary high-water elevation consists of Class B or larger riprap.

All temporary caissons, cribs, cofferdams, steel piling, sheeting, work platforms, crossings, and berms will be removed with minimal disturbance to the streambed. Proper construction practices will be used to minimize increases in suspended solids and turbidity in the waterway.

Bridge berms, wing dams, traffic diversions, channel reconstruction, stream diversions, grading, etc. will be constructed in close conformity with the plans to ensure that the hydraulic capacity of the waterway is not changed.

Temporary waterway crossings required for the Contractor's construction operations will be constructed with an adequate drainage structure size and minimum fill height to reduce the potential for upstream flooding. The Contractor will be responsible for sizing the temporary drainage structure for these crossings.

All temporary works in waterways of the US are required to be covered in the Corp of Engineers 404 Permit. At the time of the preconstruction meeting, the Contractor will submit documentation for all temporary works for the purpose of complying with the 404 Permit requirements in accordance with Section 423.3 A of the Specifications.

Table of U.S. Waterways to Protect

Station	Waterway	Ordinary High-Water Elevation
5+41	Big Sioux River	1715.1

Stream channel excavation within "Waters of the US" is subject to USACE regulatory jurisdiction. Stream channel excavation cannot exceed the permitted quantities and/or surface area. The 404 Permit is included in the Special Provisions.

The Contractor will take all precautions necessary to prevent any incidental discharges associated with the excavation and hauling of material from the stream channel. This pertains to any excavation operations such as, foundation, pier, or abutment excavation, channel cleanout, excavation for riprap protection, and removal of any temporary fill associated with construction activities.

COMMITMENT N: SECTION 404 PERMIT

The SDDOT has obtained a Section 404 Permit from the USACE for the permanent actions associated with this project.

Action Taken/Required:

The Contractor will comply with all requirements contained in the Section 404 Permit.

The Contractor will also be responsible for obtaining a Section 404 Permit for any dredge, excavation, or fill activities associated with material sources, storage areas, waste sites, and Contractor work sites outside the plan work limits that affect wetlands, floodplains, or waters of the United States.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9235
MARK
JUNKER
SOUTH DAKOTA
5/8/2025

MOBILE CONSTRUCTION EQUIPMENT - FAA DETERMINATION

SDDOT has notified FAA of the proposed construction or alteration associated with this project. The filing with FAA included notification of mobile construction equipment needed to replace this structure in Codington County.

The Contractor must abide by the following FAA mobile construction equipment requirements as set forth in Aeronautical Study 2025-AGL-2998-OE as listed below.

The mobile construction equipment height must not exceed 120 feet above ground level.

The Contractor will notify the South Dakota Department of Transportation Watertown Area Engineer at (605) 882-5166 by **3/1/2026** if the timeline for the use of the mobile construction equipment will need to be extended. The SDDOT will then file for a determination extension required by the FAA.

For questions regarding the FAA Determinations, contact Thomas Koch SDDOT Office of Aeronautics at 605-773-3764.

All costs incurred to adhere to the above listed requirements will be incidental to various contract items.

AERONAUTICAL NOTIFICATION (MOBILE CONSTRUCTION EQUIPMENT)

The Contractor will notify the manager of the WATERTOWN RGNL APRT, (605) 753-9357 at least 3 business days prior to the mobile construction equipment being erected and again when the mobile construction equipment is removed from the site.

All costs incurred to adhere to the above listed requirements will be incidental to various contract items.

EXISTING UTILITIES

Utilities within the limits of the proposed construction are to be adjusted by the utility owner unless otherwise indicated on these plans.

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

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

UTILITY CONTACT INFORMATION

Clark Rural Water System
2" PVC water line, 550'± north of road.
PO Box 162
1001 1st Avenue West
Clark, SD 57225
Greg Marx, 605-880-1670 cell, clarkop1001@hotmail.com
Office, 605-532-5201 office

Bluepeak Internet (formerly Vast Broadband)
No utilities are present as of 6/12/24.
22 2nd St SE
Watertown, SD 57201
Mark Thorson, 605-351-7202 cell, mark.thorson@mybluepeak.com
Office, 753-7430 office

SDN Communications
96-pair fiber line in orange conduit north side of road.
2900 W. 10th St.
Sioux Falls, SD 57104
Lawrence Escobin, 605-310-7238 cell, 605-978-1094 office
Lawrence.escobin@sdncommunications.com

Midcontinent Communications
18-pair fiber line, 12 pair fiber line, and 715 coax cable line.
All three lines are attached to the overhead power poles north of the road.
222 9th Ave SE
Watertown, SD 57201
Eugene Mielitz, 605-520-2334 cell, Eugene.Mielitz@Midco.com

Lumen (formerly Century Link)
High Profile 16-pair and 144-pair fiber lines in conduit north side of road.
600-pair copper line north side of road.
50-pair copper line south side of road.
15 4th Avenue SW
Aberdeen, SD 57401
Cory Moser, 605-290-7886 cell, Cory.Moser@lumen.com
Office, 605-229-7441 office

Watertown Municipal Utilities
4/0 ACSR 7200/12470 overhead power line north of road.
No underground power lines are present as of 6/13/24.
No water lines are present as of 6/12/24.
4" steel gas main south side of road.
901 4th Avenue SW
Watertown, SD 57201
Office, 605-882-6233 office
Brian Benson, Electric Superintendent, bbenson@watertownmu.com
Wayne Lovelis, Water Superintendent, wlovelis@watertownmu.com
Aaron Erickson, Gas Superintendent, aerickson@watertownmu.com

UTILITY ADJUSTMENT NOTICE

All utility owners plan to relocate their utilities in 2025, before construction of the bridge begins. All utility owners require at least **60-days notice** to relocate their utilities. The utility owners will not relocate utilities when the ground is frozen. **It is the responsibility of the Contractor to give the required utility adjustment notice to all utility owners.**

TABLE OF ANTICIPATED UTILITY ADJUSTMENTS

Location	Description
3+00 to 7+28 L (north of road)	**Clark Rural Water System** 2" PVC water line, 550'± north of road. No adjustment anticipated.
3+00 to 7+28 L (north of road)	**SDN Communications** 96-pair fiber line in orange conduit north side of road. Relocate the fiber line. SDN plans to temporarily relocate the fiber line in 2025 within an above ground duct north of the bridge. SDN plans to permanently bore the fiber line under the riprap when bridge construction is complete.
3+00 to 7+28 L (north of road)	**Midcontinent Communications** 18-pair fiber line, 12 pair fiber line, and 715 coax cable line. All three lines are attached to the overhead power poles north of the road. Relocate the overhead fiber lines and coax line. Midco plans to relocate and bury the fiber lines and coax line in 2025 within an easement north of the bridge.
3+00 to 7+28 L (north of road)	**Lumen (formerly Century Link)** High Profile 16-pair and 144-pair fiber lines in conduit north side of road. 600-pair copper line north side of road. Relocate the fiber lines and copper line. Lumen plans to relocate the fiber lines and copper line in 2025 within an easement north of the bridge.
3+00 to 7+28 L (north of road)	**Watertown Municipal Utilities** 4/0 ACSR 7200/12470 overhead power line north of road. Relocate the overhead power line. Municipal Utilities plans to relocate and bury the power line in 2025 within an easement north of the bridge.
3+00 to 7+28 R (south of road)	**Lumen (formerly Century Link)** 50-pair copper line south side of road. Relocate the copper line. Lumen plans to abandon the copper line in 2025.
3+00 to 7+28 R (south of road)	**Watertown Municipal Utilities** 4" steel gas main south side of road. Relocate the gas main. Municipal Utilities plans to relocate the gas main in 2025 within an easement north of the bridge.

COUNTY REQUIREMENTS

The County will perform the following items:

1. Obtain temporary & permanent easements as shown in plans.
2. Furnish and install all temporary and permanent fencing.
3. Remove the existing weight limit signs and posts.
4. Furnish and install permanent signing in accordance with the MUTCD.

GENERAL MAINTENANCE OF TRAFFIC

This project will be closed to thru-traffic and the roadway barricaded. Local access to entrances must be maintained.

SALVAGE SIGNS

The Contractor will salvage the (12) delineator posts with signs and the (4) object marker posts with signs. The Contractor will stockpile the posts with signs for the County to pick up. Coordinate with Randy Falvey (605-882-6271) for pick up location. All costs for salvaging signs will be incidental to the contract unit price per each for “Salvage Delineator”.

CLEARING

The removal and disposal of trees will be in accordance with Section 100 of the Standard Specifications.

Remove and dispose of all trees within the cut and fill limits. Tree removal and disposal as approved by the Engineer will be incidental to the contract lump sum price for “Clearing”.

Before preparing a bid, it is the responsibility of the Contractor to make a visual inspection of the site to verify the extent of the work involved.

TABLE OF CLEARING

Location	Description
3+80-60’ R	Small Trees/Brush
4+05-57’ R	Large Tree with (6) Trunks - 12” to 36” diameters
4+68-72’ R	Medium Tree with (2) Trunks - 12” to 24” diameters
6+45-45’ R	Small Conifer Tree

REMOVAL OF EXISTING ASPHALT CONCRETE PAVEMENT

The Contractor will remove the existing asphalt concrete pavement. The existing mainline asphalt concrete pavement is typically 27 feet wide with an unknown thickness. For earthwork calculations, a thickness of 5” was assumed. Prior to removal of the existing asphalt concrete pavement at Station 3+00 and 7+28 the existing pavement will be sawed full depth to a true line with a vertical face. The asphalt concrete pavement will be disposed of in a manner compliant with the Environmental Conditions and its reuse in grading operations is not permitted. The quantity of asphalt on the bridge deck is included in the quantity for contract item “Remove Asphalt Concrete Pavement.” All costs associated with sawing, removal, hauling, and disposal will be incidental to the contract unit price per square yard for “Remove Asphalt Concrete Pavement”.

GRADING OPERATIONS

Shrinkage factor: Embankment plus 35%.

Compaction of roadway embankment material will be governed by the Specified Density Method.

Water for Embankment and Backfill is estimated at the rate of 10 gallons of water per cubic yard of Embankment. The estimated quantity of Water is **17.3 MGal**. No separate payment will be made for the Water and all costs associated will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”.

TABLE OF EXCAVATION QUANTITIES

Station	Excavation (CuYd)	*Excavation Volume Displaced by Riprap (CuYd)	*Excavation Volume Displaced by Bents (CuYd)	*Contractor Furnished Borrow Excavation (CuYd)	Total Excavation (CuYd)	**Waste (CuYd)
3+00 to 7+28	1370	1350	120	580	3420	1690

* The quantities for these items are in the estimate of quantities under their respective contract items.

** The quantity for this item is for information only.

UNCLASSIFIED EXCAVATION

The plans quantity for “Unclassified Excavation” as shown in the Estimate of Quantities will be the basis for payment for this item unless the Engineer orders a change.

All excavation waste material will be removed and disposed of by the Contractor at an off-site location approved by the Engineer. The removal and disposal of the waste material will be incidental to the contract unit price per cubic yard for “Unclassified Excavation.”

TABLE OF UNCLASSIFIED EXCAVATION

Excavation to the roadway subgrade	390	
Unstable Material Excavation	250	
Excavation for the Granular Bridge End Backfill and for the Bridge End Embankment	80	
Excavation to the top of the exposed riprap and to the finished channel of 1710.2.	650	
Excavation Subtotal	1370	
Placing Topsoil	440	
Excavation to the top of the buried riprap and to elevation 1710.20 of the buried riprap	820	
Total Unclassified Excavation	**2630**	**CuYd**

UNSTABLE MATERIAL EXCAVATION

The areas of unstable material excavation are drawn on the cross sections with a normal depth of 3 feet. The estimated quantity of 250 cubic yards of unstable material excavation will be paid for at the contract unit price per cubic yard for “Unclassified Excavation”.

All areas designated as Unstable will be excavated. The unstable material excavated on this project will be placed outside the subgrade shoulder in fill sections or stockpiled and used as topsoil.

Field measurement of unstable material excavation will not be made. However, if there are additional areas of unstable material excavation other than what is shown in the plans, the Engineer will direct removal of these areas and the additional areas will be measured according to the Engineer.

TABLE OF UNSTABLE MATERIAL EXCAVATION

Station	to	Station	L/R	Depth (Ft)	Quantity (CuYd)
4+51		4+77	L & R	3	250
				Total:	250

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 Contractor furnished borrow excavation material will be uniform in texture and free from organic material. The liquid limit will not exceed 45 and the plastic limit will not exceed 25.

The plans quantity of Contractor furnished borrow material needed assumes that 670 cubic yards of on-site excavation material is suitable for embankment under the roadway. The actual quantity of Contractor furnished borrow material may be higher or lower, depending on the suitability of the on-site excavation material, as approved by the Engineer.

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

PLACING TOPSOIL

Existing vegetation will be salvaged, incorporated, and placed with the topsoil as far as practical.

The areas to receive topsoil comprise of all newly graded areas, within the project limits, exclusive of top of roadway and riprap area.

The plans quantity for “Placing Topsoil” as shown in the Estimate of Quantities will be the basis for payment for this item unless the Engineer orders a change.

The amount of topsoil shown in the Estimate of Quantities is based upon a 4 inch depth within the right of way limits and a 6 inch depth on all Temporary Easement areas.

WATER FOR GRANULAR MATERIAL

Water for Granular Material is estimated at the rate of 12 gallons of water per ton of base course. The estimated quantity of Water is **10.8 MGal**. No separate payment will be made for the Water and all costs associated will be incidental to the contract unit price per ton for “Base Course”.

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.

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.

The Contractor will core holes in the asphalt at the corners of the bridge for signpost installation by the County. See Asphalt Core Detail. All costs for coring will be incidental to the contract unit price per ton for “Asphalt Concrete Composite.”

6” CONCRETE SIDEWALK

Cushion material will be base course. The quantity of base course material under the sidewalk is included in the quantity under contract item “Base Course.”

PERMANENT PAVEMENT MARKING

Pavement markings will be installed to match the existing painted lane widths. The Project Engineer will mark the location of the pavement markings prior to installation.

TABLE OF ESTIMATED PERMANENT PAVEMENT MARKING

Location	Quantity (Ft) 4” Yellow, Solid	4” White, Solid
Sta. 3+00 to Sta. 7+28	856	856
Total:	856	856

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per the manufacturer’s recommendations.

All materials will be applied as per manufacturer’s recommendations. High build waterborne pavement marking paint will conform to the supplemental specifications for Section 980.1 B.

No further testing of this material will be required. Reflective media will consist of glass beads.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

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

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

EROSION CONTROL WATTLE

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

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

Erosion control wattles will remain on the project to decompose.

An additional quantity of 12” Diameter Erosion Control Wattles has been added to the Estimate of Quantities for temporary erosion and sediment control during construction.

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 CONSTRUCTION PHASE

Location	Diameter (inch)	Quantity (Ft)
Around Soil Stockpile	12	140
Around Soil Stockpile	12	140
Additional Quantity:	12	300
	Total:	580

TABLE OF EROSION CONTROL WATTLE FINAL PHASE

Location	Diameter (inch)	Quantity (Ft)
Southwest Corner	12	120
Southeast Corner	12	100
Northwest Corner	12	120
Northeast Corner	12	120
	Total:	460
Total of All Erosion Control Wattles:		**1040**

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HIGH FLOW SILT FENCE

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

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

High flow silt fence will be placed at the locations noted in the table and as shown on the *Erosion and Sediment Control Plan* and at locations determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

An additional quantity of 200 high flow silt fence has been added to the Estimate of Quantities for temporary sediment control.

TABLE OF HIGH FLOW SILT FENCE

Location	Quantity (Ft)
Northwest Channel Bank	120
Northeast Channel Bank	105
Southeast Channel Bank	125
Southwest Channel Bank	120
Additional Quantity:	200
Total:	670

EROSION CONTROL BLANKET

Erosion control blanket will be installed at the locations noted in the table and as shown on the *Erosion and Sediment Control Plan.* Refer to Standard Plate 734.01 for details.

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

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

TABLE OF TYPE 2 EROSION CONTROL BLANKET

Station	Location	Type	Quantity (SqYd)
Southwest Corner	Inslope	2	235
Southeast Corner	Inslope	2	235
Northwest Corner	Inslope	2	242
Northeast Corner	Inslope	2	242
Southwest	Channel Bank	2	95
Southeast	Channel Bank	2	36
Northwest	Channel Bank	2	61
Northeast	Channel Bank	2	61
Total Type 2 Erosion Control Blanket:			1207

FLOATING SILT CURTAIN

Floating silt curtains will be installed at locations noted in the table and at locations determined by the Engineer during construction.

The Contractor will determine the water depth and other waterway characteristics such as stream flow velocity and seek technical advice from the manufacturer before ordering the floating silt curtain so that the floating silt curtain installed is the correct type for the individual sites.

The Contractor will install the floating silt curtain in accordance with the manufacturer's installation instructions or as directed by the Engineer.

The Contractor will maintain the floating silt curtains for the duration of the project to ensure continuous protection of the waterway.

A list of known manufacturers of floating silt curtain is shown below for informational purpose. Contractors may also use Engineer approved floating silt curtain from manufacturers that are not included in the list.

ABASCO, LLC
Humble, TX
Phone: 1-281-466-1500
www.abasco.net

Aer-Flo, Inc.
Bradenton, FL
Phone: 1-800-823-7356
www.aerflo.com

ACME Environmental
Tulsa, OK
Phone: 1-855-563-2666
www.acmeboom.com

ENVIRO-USA, LLC
Cap Canaveral, FL
Phone: 1-321-222-9551
www.enviro-usa.com

Elastec/American Marine, Inc.
Carmi, IL
Phone: 1-618-382-2525
www.turbiditycurtains.com

Geo-Synthetics, LLC (GSI)
Waukesha, WI
Phone: 1-800-444-5523
www.geosynthetics.com

Parker Systems, Inc.
Chesapeake, VA
Phone: 1-866-472-7537
www.parkersystemsinc.com

TABLE OF FLOATING SILT CURTAIN

Location	Quantity (Ft)
Southwest Channel	150
Total:	150

EROSION CONTROL

All areas of soil disturbed by construction will require erosion control. For informational purposes only, the estimated area requiring erosion control is **3.0 acres**. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding and mulching will be incidental to the contract lump sum price for "Erosion Control".

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

Seeding will be installed by drilling in accordance with Section 730.

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

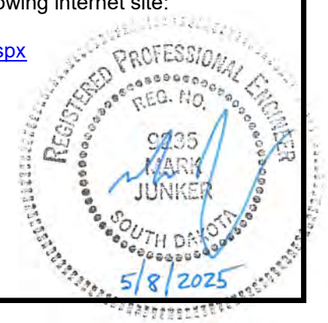
An additional 2% by weight of tackifier will be added to the fiber mulch product selected from the approved product list. If the product selected has guar gum tackifier included, then the additional 2% of tackifier will be guar gum. If the product selected has synthetic tackifier included, then the additional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



TYPICAL GRADING SECTION

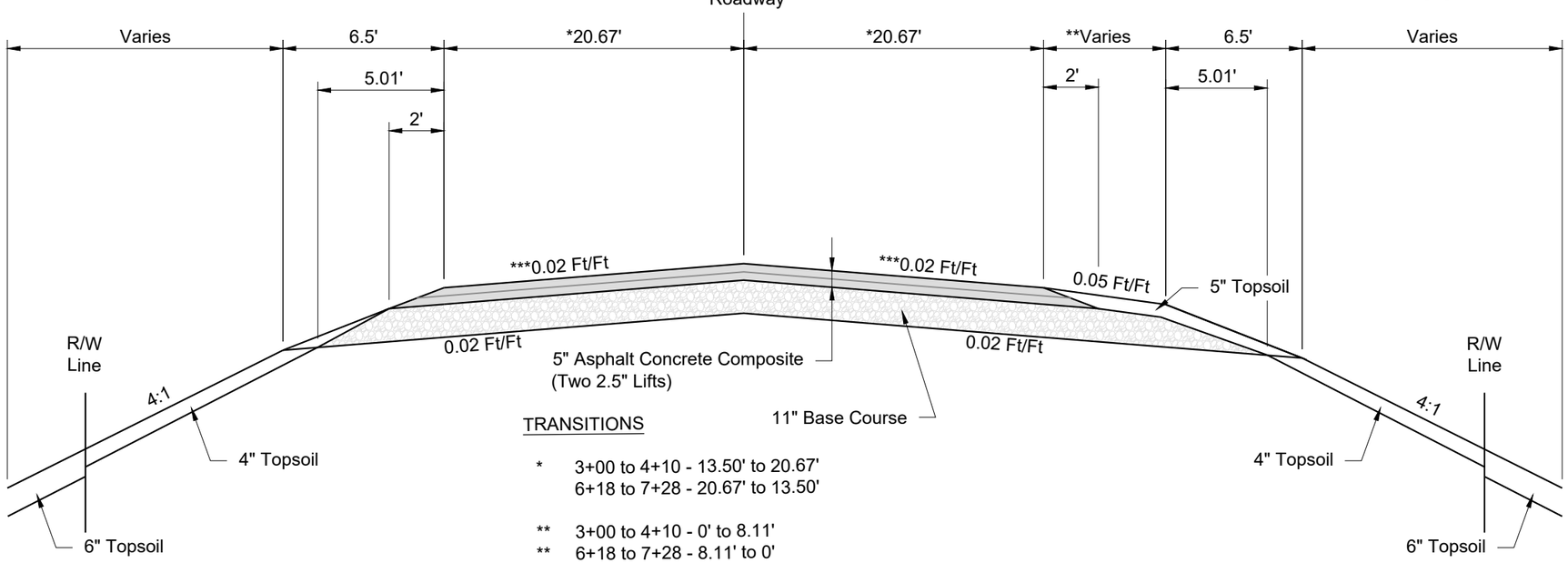
FOR BIDDING PURPOSES ONLY

BAI JOB # 24020.12	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 4266(07)	10	68

Plotting Date: 05/08/2025

3+00 to 4+10
6+18 to 7+28

Transitions:
4+10 to 4+20
6+08 to 6+18



TRANSITIONS

* 3+00 to 4+10 - 13.50' to 20.67'
6+18 to 7+28 - 20.67' to 13.50'

** 3+00 to 4+10 - 0' to 8.11'
** 6+18 to 7+28 - 8.11' to 0'

*** 3+00 to 3+50 - Match Existing to 0.02 Ft/Ft
7+00 to 7+28 - 0.02 Ft/Ft to Match Existing

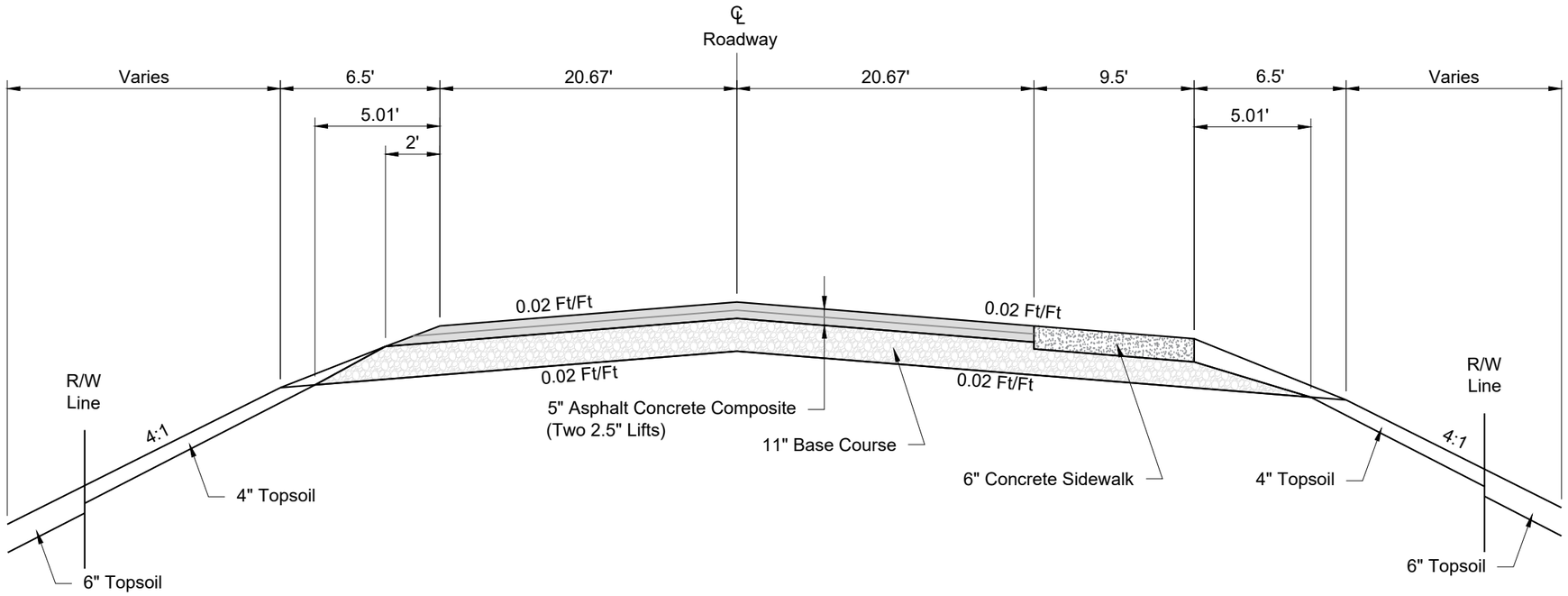
TYPICAL GRADING SECTION

FOR BIDDING PURPOSES ONLY

BAI JOB # 24020.12	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 4266(07)	11	68

Plotting Date: 05/08/2025

4+20 to 4+37.37
5+90.62 to 6+08



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TYPICAL GRADING SECTION

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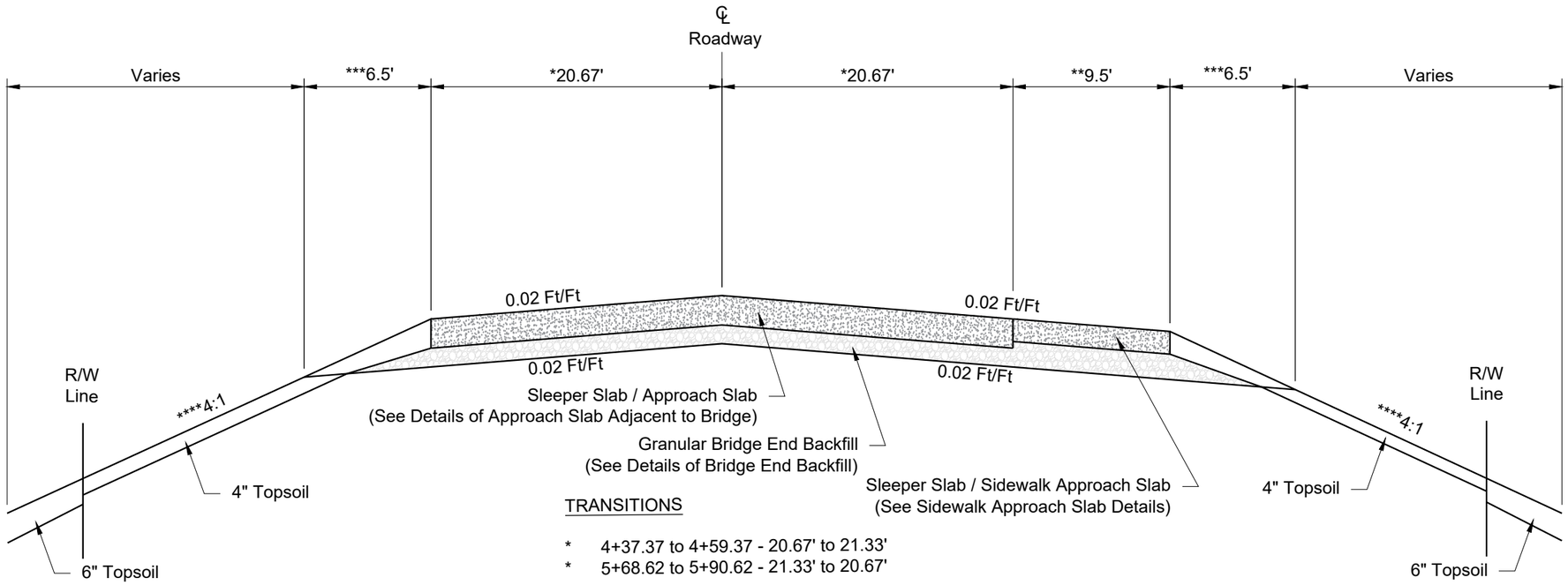
BAI JOB # 24020.12	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 4266(07)	12	68

Plotting Date: 05/08/2025

4+37.37 to 4+59.37
5+68.62 to 5+90.62



TRANSITIONS

* 4+37.37 to 4+59.37 - 20.67' to 21.33'
* 5+68.62 to 5+90.62 - 21.33' to 20.67'

** 4+37.37 to 4+59.37 - 9.5' to 8.83'
** 5+68.62 to 5+90.62 - 8.83' to 9.5'

*** 4+37.37 to 4+59.37 - 6.5' to 3.3'
*** 5+68.62 to 5+90.62 - 3.3' to 6.5'

**** 4+37.37 to 4+59.37 - 4:1 to 2.5:1
**** 5+68.62 to 5+90.62 - 2.5:1 to 4:1

HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

BAI JOB # 24020.12	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 4266(07)	13	68

Plotting Date: 05/08/2025

MAINLINE

Type	Station			Northing	Easting
POB	0+00.00			409048.235	2711389.362
		TL = 1000.00'	N 88° 25' 18" E		
POE	10+00.00			409075.780	2712388.982

CONTROL DATA

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	**STATION**	**OFFSET**	**DESCRIPTION**	**NORTHING**	**EASTING**	**ELEVATION**
BM2 (9000000)	2+69.25	28.95' L	5/8" x 5' Rebar w/ CP Cap	409084.586	2711657.712	1719.26
BM1 (9502)	7+37.64	33.30' L	5/8" x 5' Rebar w/ CP Cap	409101.836	2712125.803	1721.71
CP (9500)	--	--	5/8" x 18" Rebar w/ Cap	409046.180	2711284.849	--
CP (9501)	--	--	5/8" x 18" Rebar w/ Cap	409082.144	2712604.878	--

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Dakota North 4001, NAD 83(2011); Epoch 2010; SF = 0.9998631706

The elevations shown on this sheet are based on NAVD 88 (GEOID 18)

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LEGEND

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BAI JOB # 24020.12	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 4266(07)	14	68

Plotting Date: 05/08/2025

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

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

- Drainage Arrow

- Remove Concrete Pavement
- Remove Concrete Driveway Pavement
- Remove Asphalt Concrete Pavement
- Remove Concrete Sidewalk
- Remove Concrete Median Pavement
- Remove Concrete Curb and/or Gutter

- Detectable Warning
- Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

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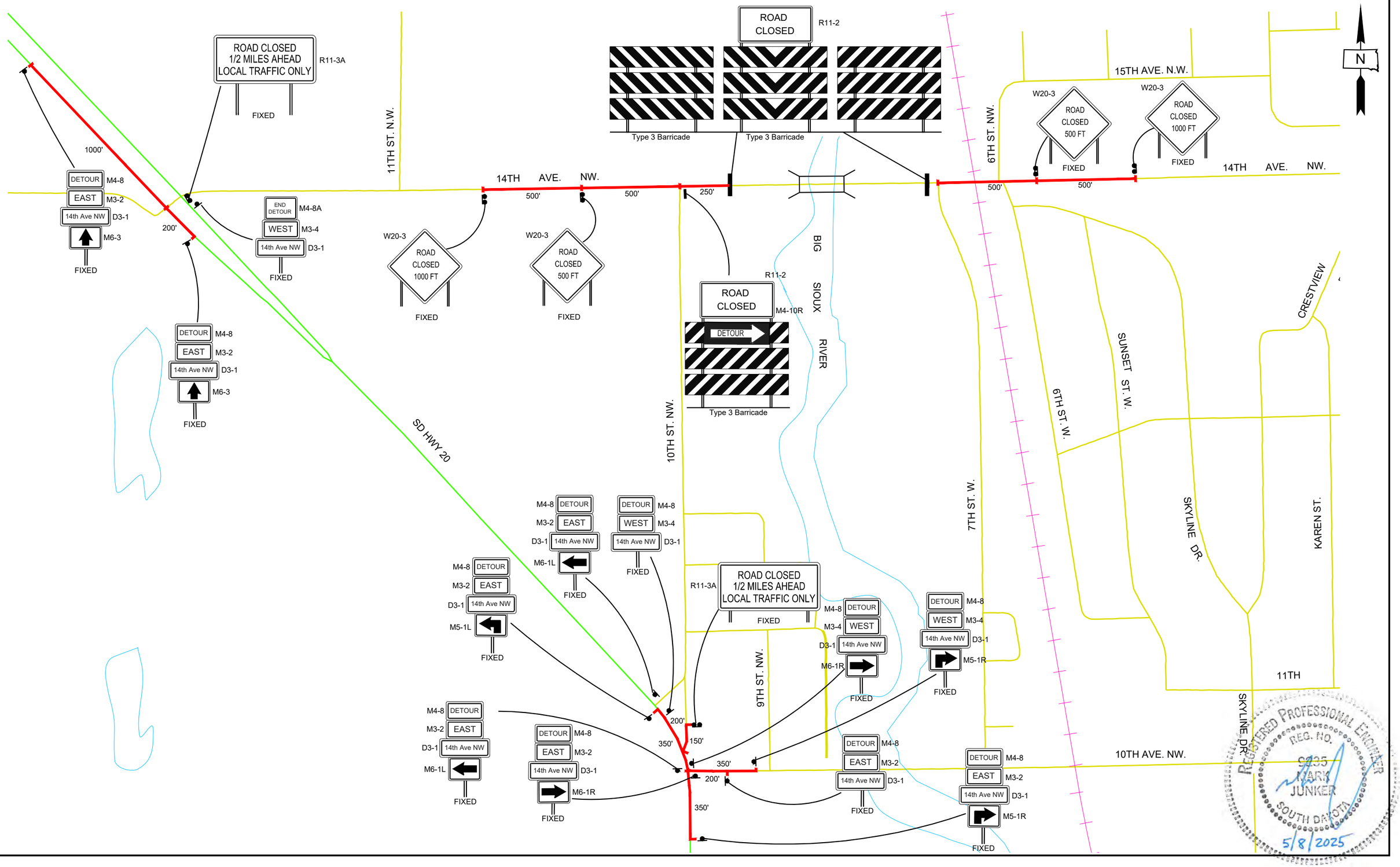
TRAFFIC CONTROL

FOR BIDDING PURPOSES ONLY

BAI JOB # 24020.12	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 4266(07)	15	68

Plotting Date: 05/08/2025



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TRAFFIC CONTROL

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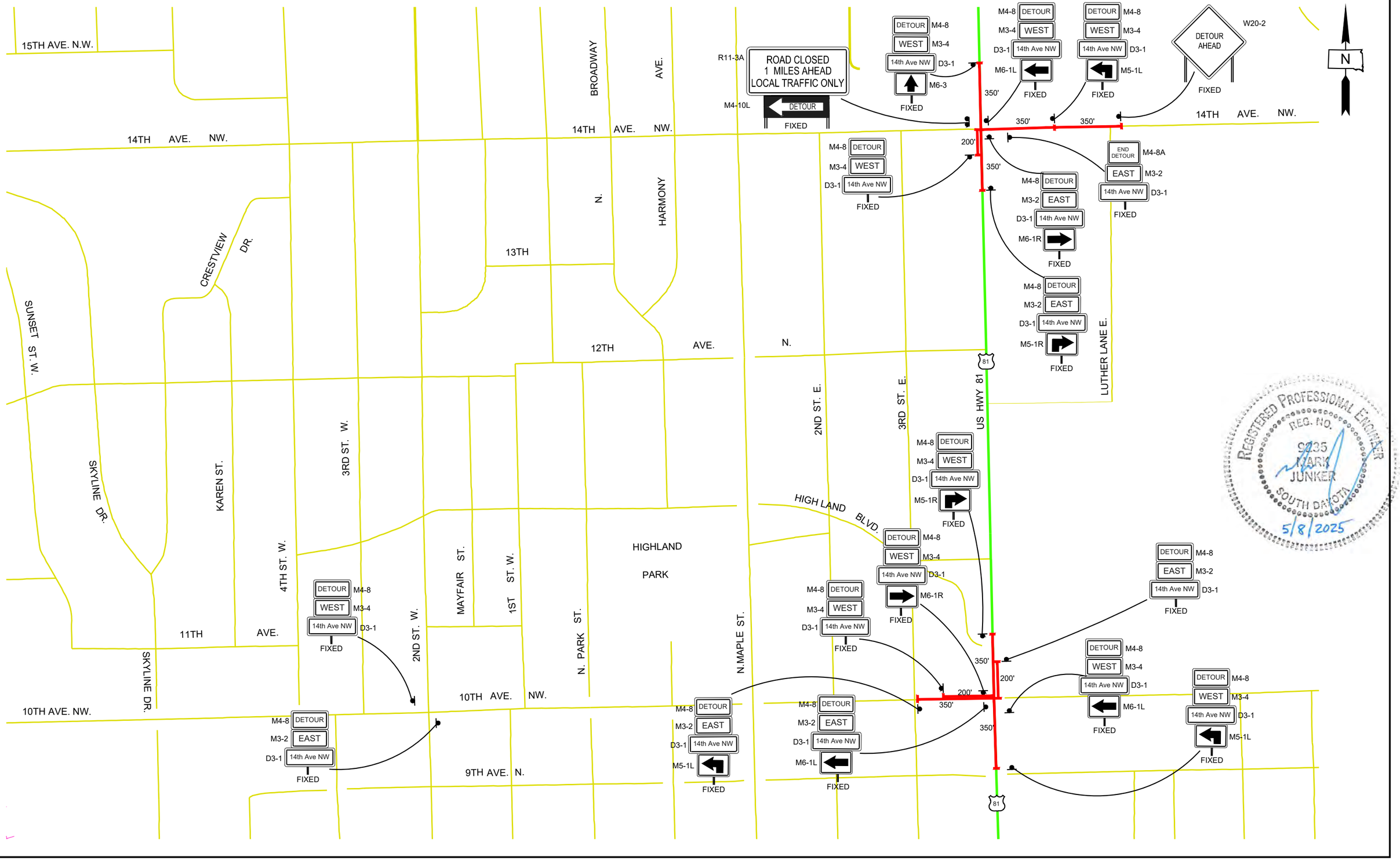
BAI JOB # 24020.12	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 4266(07)	16	68

Plotting Date: 05/08/2025



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5/8/2025

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	QUANTITY	SIGNSIZE	SQFT PER SIGN	SQFT
R11-2	Road Closed Ahead	3	48"x30"	10.0	30.0
R11-3A	Road Closed XX Miles Ahead Local Traffic Only	3	60"x30"	12.5	37.5
W20-3	Road Closed XXX Ft	4	48"x48"	16.0	64.0
			TOTAL SQFT		**131.5**

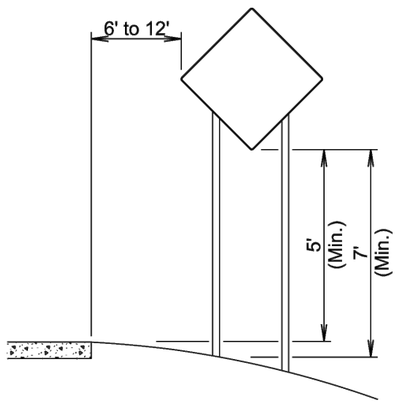
ITEMIZED LIST FOR DETOUR AND RESTRICTION SIGNING

SIGN CODE	SIGN DESCRIPTION	QUANTITY	SIGNSIZE	SQFT PER SIGN	SQFT
D3-1	Street Name - 14th Ave NW	29	36"x12"	3.0	87.0
M3-2	Direction Marker - East	15	24"x12"	2.0	30.0
M3-4	Direction Marker - West	14	24"x12"	2.0	28.0
M4-8	Detour	27	24"x12"	2.0	54.0
M4-8A	End Detour	2	24"x18"	3.0	6.0
M4-10L	Detour Arrow	1	48"x18"	6.0	6.0
M4-10R	Detour Arrow	1	48"x18"	6.0	6.0
M5-1L	Advance Turn Arrow 90°	4	21"x15"	2.2	8.8
M5-1R	Advance Turn Arrow 90°	4	21"x15"	2.2	8.8
M6-1L	Direction Arrow - Horizontal Single Head	5	21"x15"	2.2	11.0
M6-1R	Direction Arrow - Horizontal Single Head	4	21"x15"	2.2	8.8
M6-3	Direction Arrow - Vertical Single Head	3	21"x15"	2.2	6.6
W20-2	Detour Ahead	1	48"x48"	16.0	16.0
			TOTAL SQFT		**277.0**

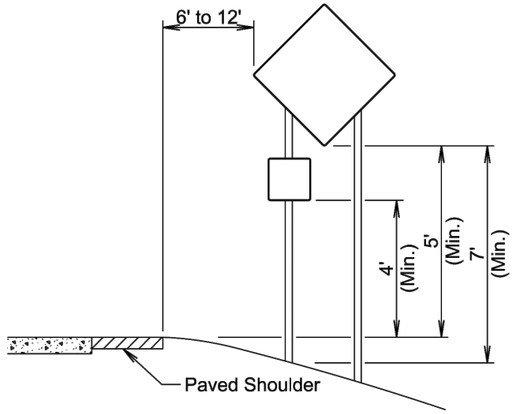
DESCRIPTION	EACH
Type 3 Barricade	7

NOTE:

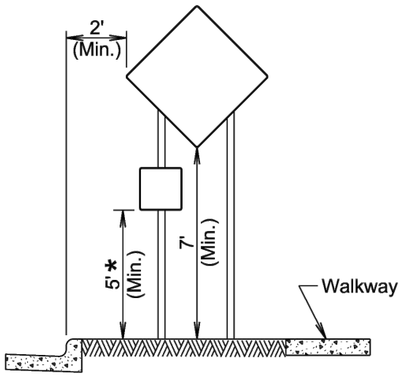
The exact location and spacing of signs shown will be determined in the field by the Engineer.



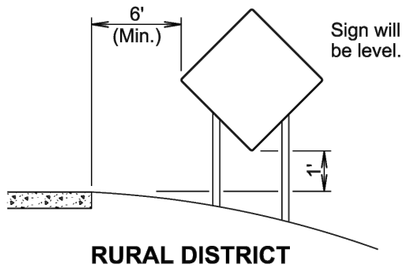
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

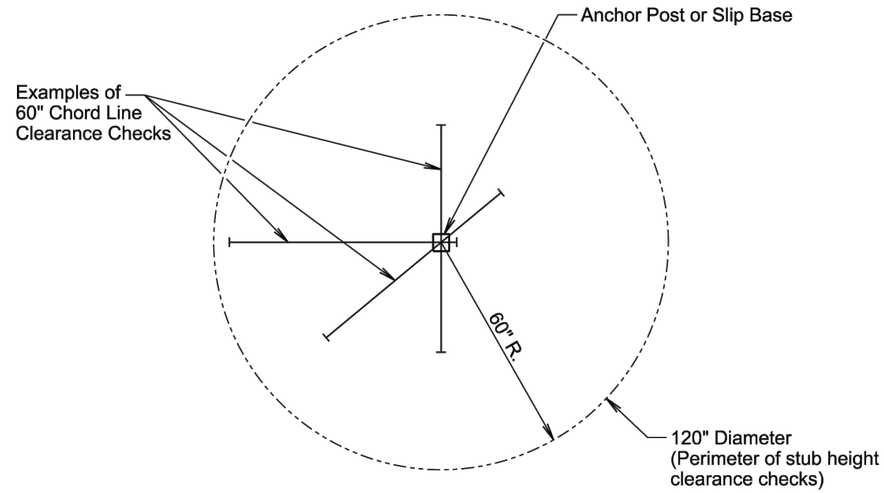


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

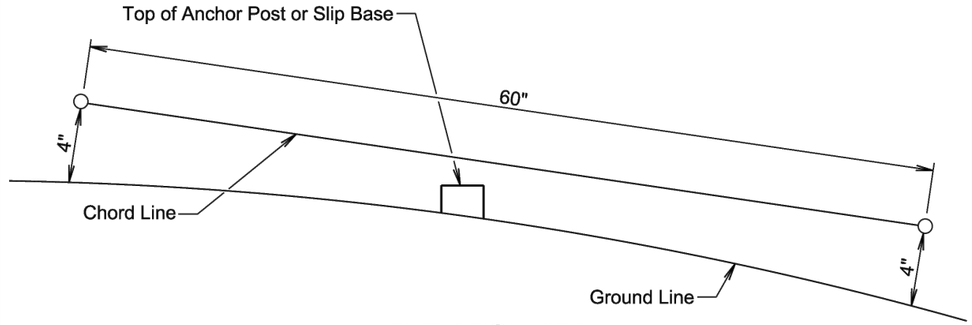
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

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

STORMWATER POLLUTION PREVENTION PLAN CHECKLIST

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

5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION

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

5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES

- **5.3 (3a): Project Limits** (See Title Sheet)
- **5.3 (3a): Project Description** (See Title Sheet)
- **5.3 (4): Site Map(s)** (See Title Sheet and Plans)
- **Major Soil Disturbing Activities** (check all that apply)
  - ☒ Clearing and grubbing
  - ☒ Excavation/borrow
  - ☒ Grading and shaping
  - ☒ Filling
  - ☐ Other (describe):
- **5.3 (3b): Total Project Area** 4.2 Acres
- **5.3 (3b): Total Area to be Disturbed** 3.5 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 3.5 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 85
- **5.3 (3d): Description of Vegetative Cover** Grass
- **5.3 (3e): Soil Properties:** Topsoil over Dark Brown Gravelly Sand
- **5.3 (3f): Name of Receiving Water Body/Bodies** Big Sioux River
- **5.3 (3g): Location of Construction Support Activity Areas** Onsite

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

- **Special sequencing requirements:** See grading notes.

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install temporary sediment control as needed.	
Remove existing structure.	
Install new structure.	
Grade roadway and ditches.	
Install seeding, blankets, and wattles.	

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

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

Perimeter Controls (See Detail Plan Sheets)

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

Structural Erosion and Sediment Controls

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

Dust Controls

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

Dewatering BMPs

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

Stabilization Practices (See Detail Plan Sheets)

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

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

Wetland Avoidance

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

5.3 (6): PROCEDURES FOR INSPECTIONS

- Inspections will be conducted at least once every 7 days.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report.
- Silt fence will be inspected for depth of sediment and for tears to ensure the fabric is securely attached to the posts and that the posts are well anchored. Sediment buildup will be removed from the silt fence when it reaches 1/3 of the height of the silt fence.
- Sediment basins and traps will be checked. Sediment will be removed when depth reaches approximately 50 percent of the structure's capacity, and at the conclusion of the construction.
- Check dams will be inspected for stability. Sediment will be removed when depth reaches ½ the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The SDDOT Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

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

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

Material Management

Housekeeping

- Only needed products will be stored on-site by the Contractor.
- Except for bulk materials the contractor will store all materials under cover and/or in appropriate containers.
- Products must be stored in original containers and labeled.
- Material mixing will be conducted in accordance with the manufacturer's recommendations.
- When possible, all products will be completely used before properly disposing of the container off-site.
- The manufacturer's directions for disposal of materials and containers will be followed.
- The Contractor's site superintendent will inspect materials storage areas regularly to ensure proper use and disposal.
- Dust generated will be controlled in an environmentally safe manner.

Hazardous Materials

- Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.
- If surplus product must be disposed of, manufacturer's label directions for disposal will be followed.
- Maintenance and repair of all equipment and vehicles involving oil changes, hydraulic system drain down, de-greasing operations, fuel tank drain down and removal, and other activities which may result in the accidental release of contaminants will be conducted on an impervious surface and under cover during wet weather to prevent the release of contaminants onto the ground.
- Wheel wash water will be collected and allowed to settle out suspended solids prior to discharge. Wheel wash water will not be discharged directly into any stormwater system or stormwater treatment system.
- Potential pH-modifying materials such as: bulk cement, cement kiln dust, fly ash, new concrete washings, concrete pumping, residuals from concrete saw cutting (either wet or dry), and mixer washout waters will be collected on site and managed to prevent contamination of stormwater runoff.

Spill Control Practices

In addition to the previous housekeeping and management practices, the following practices will be followed for spill prevention and cleanup if needed.

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

Spill Response

The primary objective in responding to a spill is to quickly contain the material(s) and prevent or minimize migration into stormwater runoff and conveyance systems. If the release has impacted on-site stormwater, it is critical to contain the released materials on-site and prevent their release into receiving waters. If a spill of pollutants threatens stormwater or surface water at the site, the spill response procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

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

5.3 (8b): WASTE MANAGEMENT PROCEDURES

Waste Disposal

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

Hazardous Waste

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

Sanitary Waste

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

5.3 (9): CONSTRUCTION SITE POLLUTANTS

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

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

Product Specific Practices

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

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

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

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

5.3 (10): NON-STORMWATER DISCHARGES

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

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

5.3 (11): INFEASIBILITY DOCUMENTATION

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

7.0: SPILL NOTIFICATION

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

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

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

5.4: SWPPP CERTIFICATIONS

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

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

➢ **South Dakota Department of Transportation**

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

_____

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

➢ **Prime Contractor**

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

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

_____

Authorized Signature

CONTACT INFORMATION

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

➢ **Contractor Information**:

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

➢ **Erosion Control Supervisor**

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

➢ **SDDOT Project Engineer**

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

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

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

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

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

5.5: REQUIRED SWPPP MODIFICATIONS

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

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

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

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

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

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

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

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

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

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

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

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

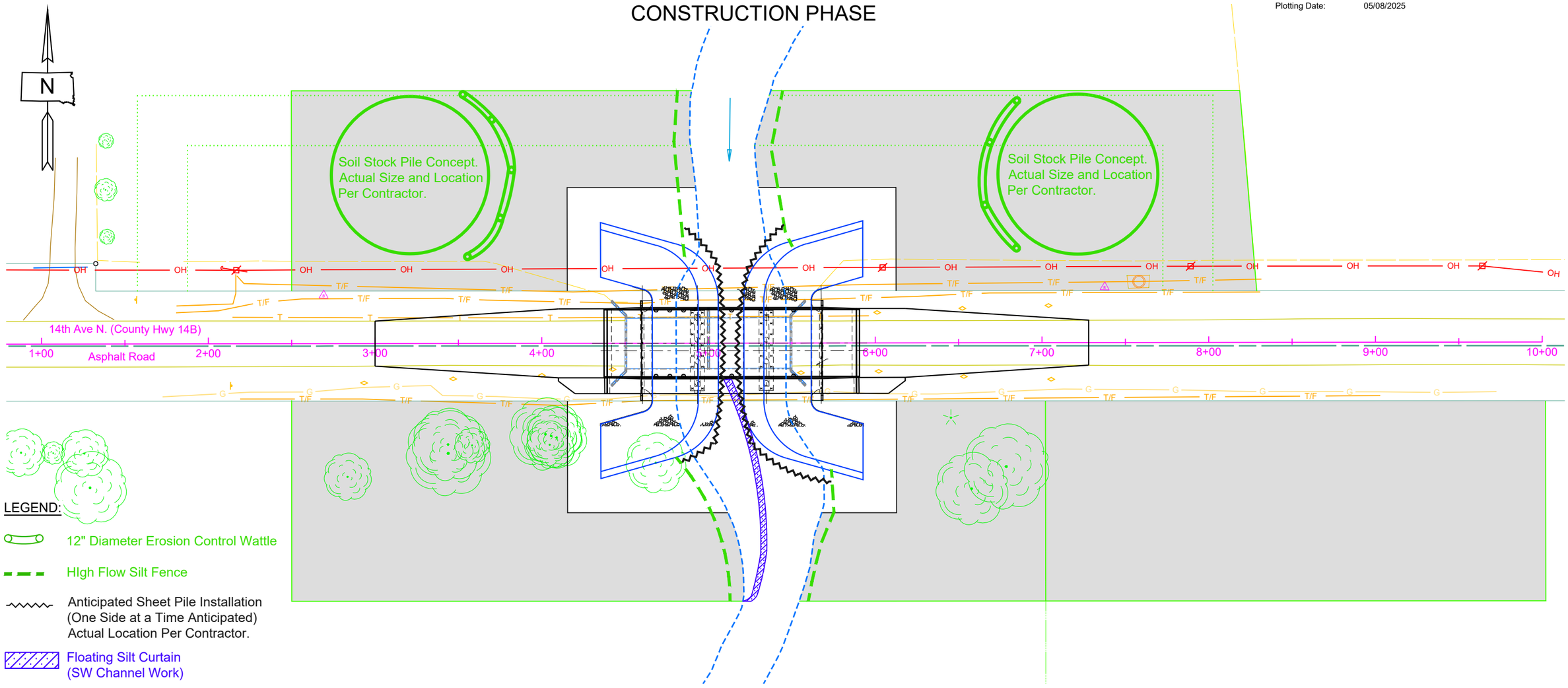
BAI JOB # 24020.12	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 4266(07)	23	68

Plotting Date: 05/08/2025

EROSION AND SEDIMENT CONTROL

FOR BIDDING PURPOSES ONLY

CONSTRUCTION PHASE



LEGEND:

- 12" Diameter Erosion Control Wattle
- HIgh Flow Silt Fence
- Anticipated Sheet Pile Installation (One Side at a Time Anticipated) Actual Location Per Contractor.
- Floating Silt Curtain (SW Channel Work)

NOTES:

1. Maintain as much existing vegetation as possible during construction.
2. Wattles will be installed during construction as determined by the Engineer. An additional 300 Ft is included in the quantities. Wattles will be installed per Standard Plate No. 734.06.
3. Silt Fence will be installed during construction as determined by the Engineer. An additional 200 Ft is included in the quantities. High Flow Silt Fence will be installed per Standard Plate No. 734.05.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9235
MARK JUNKER
SOUTH DAKOTA
5/8/2025

TABLE OF EROSION CONTROL WATTLE

Diameter (Inch)	Location	Quantity (Ft)
12	Around Soil Stockpile	140
12	Around Soil Stockpile	140
12	Additional Quantity	300
	Total:	580

TABLE OF FLOATING SILT CURTAIN

Location	Quantitiy (Ft)
Southwest Channel	150
Total:	150

TABLE OF HIGH FLOW SILT FENCE

Location	Quantity (Ft)
Northwest Channel Bank	120
Northeast Channel Bank	105
Southeast Channel Bank	125
Southwest Channel Bank	120
Additional Quantity	200
Total:	670

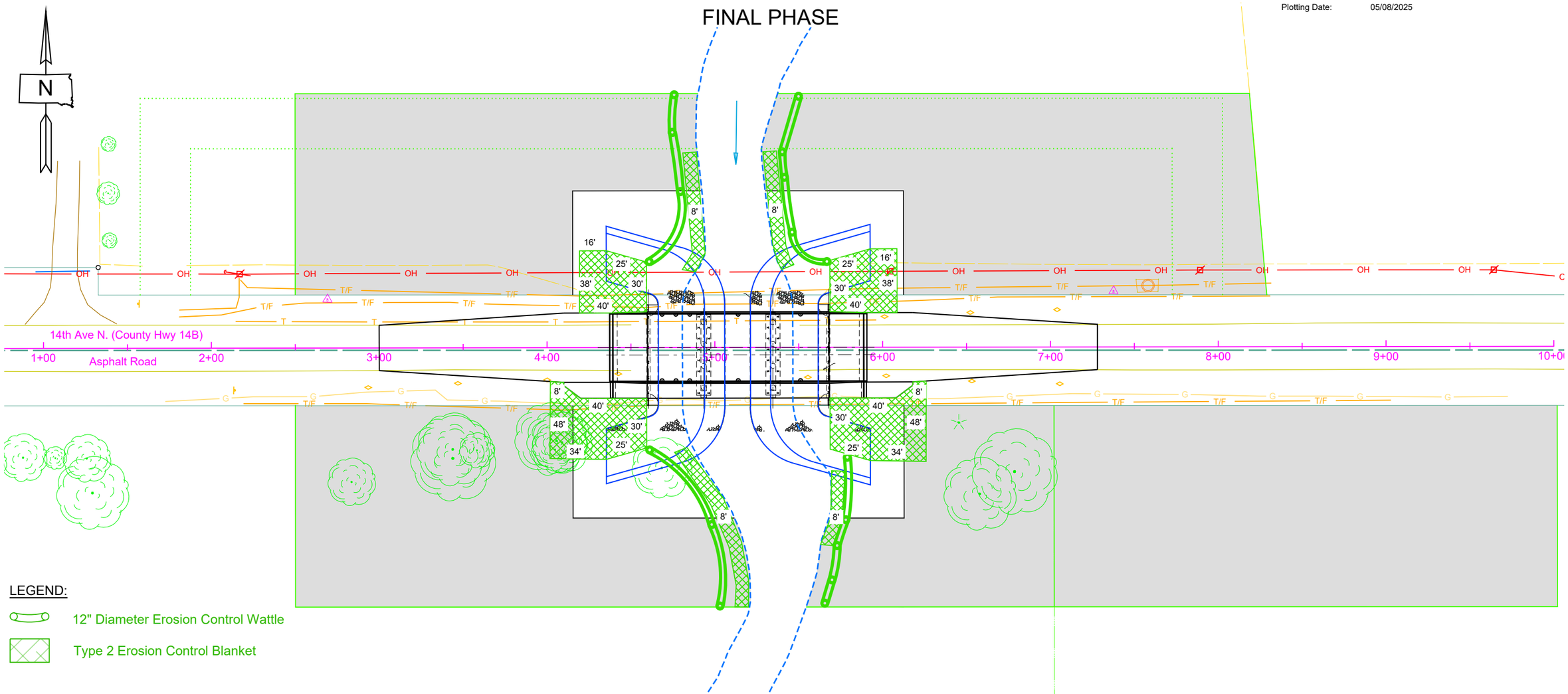
BAI JOB # 24020.12	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 4266(07)	24	68

EROSION AND SEDIMENT CONTROL

FOR BIDDING PURPOSES ONLY

Plotting Date: 05/08/2025

FINAL PHASE



LEGEND:

12" Diameter Erosion Control Wattle

Type 2 Erosion Control Blanket

NOTES:

1. Install Wattles as shown and as directed by the Engineer. Wattles will be installed per standard plate 734.06
2. Install Erosion Control Blanket as shown and as directed by the Engineer. Erosion Control Blanket will be installed as per Standard Plate No. 734.01.
3. Wattles will be left to biodegrade.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9235
MARK
JUNKER
SOUTH DAKOTA
5/8/2025

TABLE OF EROSION CONTROL WATTLE

Diameter (Inch)	Location	Quantity (Ft)
12	Southwest Corner	120
12	Southeast Corner	100
12	Northwest Corner	120
12	Northeast Corner	120
	Total:	460

TABLE OF EROSION CONTROL BLANKET

Type	Location	Quantity (SqYd)
2	Southwest Corner	235
2	Southeast Corner	235
2	Northwest Corner	242
2	Northeast Corner	242
2	Southwest Channel Bank	95
2	Southeast Channel Bank	36
2	Northwest Channel Bank	61
2	Northeast Channel Bank	61
	Total:	1207

BAI JOB # 24020.12 | STATE OF SOUTH DAKOTA | PROJECT: BRF-B 4266(07) | SHEET: 25 | TOTAL SHEETS: 68

Plotting Date: 05/08/2025

FOR BIDDING PURPOSES ONLY

2+50.0 to 8+28.9 L
Temporary Easement for Grading, Stock Piles, Material Storage, & Erosion Control
1.2 ac, more or less

4+15.3 to 6+12.6 L
Permanent Easement for Highway Use
0.22 ac, more or less

4+50 to 5+50
Remove 100' Long x 30.3' Wide (Clear Rdwy)
Two-Span Bridge
(Incidental Work, Structure)

4+59.37 to 5+68.62 (361 SqMi)
Install 109'-3" Continuous Concrete Bridge
(See Structure Sheets)

2+50.0 - 31.6' &151.6'

4+15.3 - 31.4' & 93.4'

6+12.6 - 31.2' & 93.2'

E½ SE¼ 24-T117N-R53W
Less Novus Ranch Outlet Less RR ROW
Jonathan & Jessica Tesch
625 14th Ave. NW
Watertown, SD 57201
605-520-1155 Jonathan's cell

8+18.8 - 151.0'

8+28.9 - 31.0'

Approximate Location Utility Relocation Easement

Big Sioux River

Cut and Fill Limits

BEGIN PROJECT
STR. NO. 15-178-160
STA. 3+00.00

END PROJECT
STR. NO. 15-178-160
STA. 7+28.00

N 88°25'18" E

14th Ave NW
Asphalt Road

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00

33'
33'

0+00 to 2+50 R
Do not Disturb
Jeremy Peterson Property

2+50.0 to Big Sioux River R
Temporary Easement for Clearing, Grading, Stock Piles, Material Storage, & Erosion Control
0.6 ac, more or less

Big Sioux River to 7+02.1 R
Temporary Easement for Grading, Stock Piles, Material Storage,& Erosion Control
0.3 ac, more or less

7+02.1 to 10+00.0 R
Temporary Easement for Grading, Stock Piles, Material Storage, & Erosion Control
0.8 ac, more or less

4+15.4 to Big Sioux River R
Permanent Easement for Highway Use
0.12 ac, more or less

Big Sioux River to 6+12.7 R
Permanent Easement for Highway Use
0.08 ac, more or less

2+50 - 34.4' & 154.4'

N 225' NE¼ NE¼ 25-T117N-R53W
West of the Big Sioux River
Jeremy Peterson
914 14th Ave. NW
Watertown, SD 57201
605-237-1860 cell

4+15.4 - 34.6' & 101.6'

Undescribed Portion
NE¼ 25-T117N-R53W
Maintained by
Codington County

6+12.7 - 34.8' & 101.8'

7+02.1 - 34.9' & 154.9'

N½ of Outlot 2 & Part NE¼ 25-T117N-R53W
Lying Within N1005' of E544.4'
Less Outlot 3, Less RR ROW, Less HWY ROW, Less RDWY
Douglas Sietsema & Gerald Jellis
1113 Redwood Dr.
Watertown, SD 57201
605-880-3363 Doug's cell, 605-237-8016 Gerald's cell

10+00.0 - 35.2' & 155.2'

3+00 Begin Work

Excavation	=	2840	
+ Borrow	=	580	
		3420	CuYd

Embankment	=	887	
+ 35%	=	310	
+ Waste	=	1690	
		3420	CuYd

Borrow Site will be approved by the Engineer.
Waste Site will be approved by the Engineer.

7+28 End Work

1750 1740 1730 1720 1710 1700

Existing Roadway Profile

Finished Roadway Profile

PVI 3+00.00
Elev 1723.59
(Finish Grade)

PVI STA=6+50.00
PVI ELEV=1724.99
K=113
L=100

PVI 7+28.00
Elev 1725.99
(Finish Grade)

0.4000%

1.2821%

FLOW			ELEV.
Q_d =	2370	cfs	1719.9
Q_{100} =	4320	cfs	1722.4
$Q_{O.T.} = Q_{155}$	5200	cfs	1723.6

The hydraulic data contained in these plans is valid only if the overflow section is maintained. Alteration of the overflow section will require re-analysis of the hydraulics at the site to determine its effect on public safety.

BM 2
2+69.25 - 28.95' L
5' Rebar W/ Cap
Elev. 1719.26

BM 1
7+37.64 - 33.30' L
5' Rebar W/ Cap
Elev. 1721.71

1723.59 1723.79 1723.99 1724.19 1724.39 1724.59 1724.79 1725.10 1725.63

Elevations are Centerline Asphalt (Finish Grade)

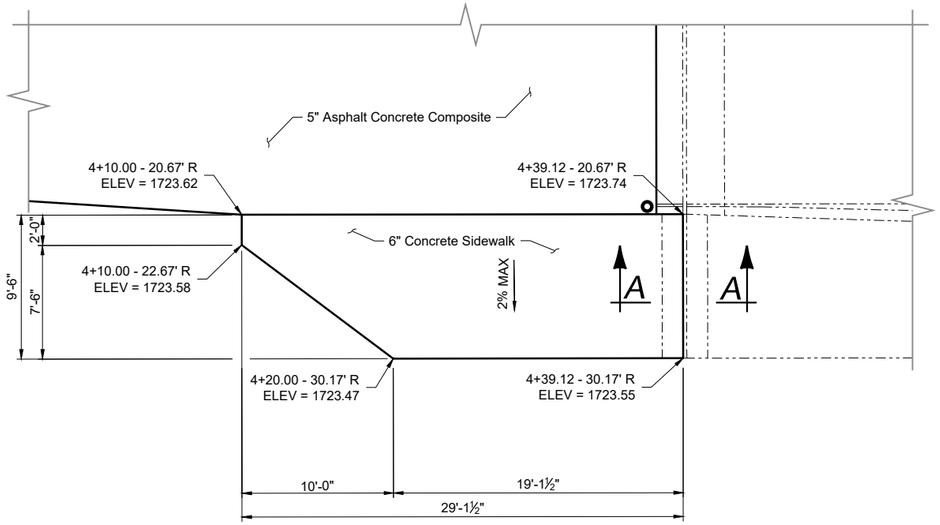
0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00

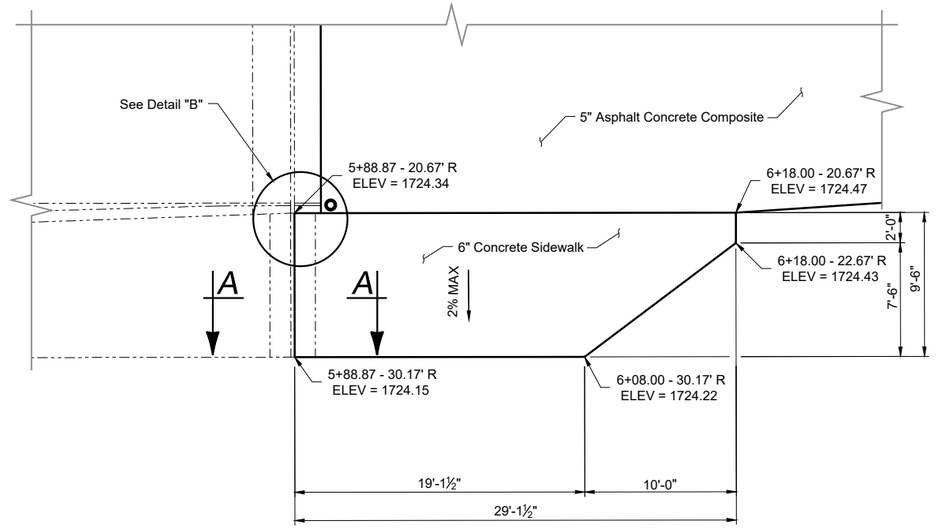
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9135
MARK JUNKER
SOUTH DAKOTA
5/8/2025

SIDEWALK LAYOUT AND ASPHALT CORE DETAIL

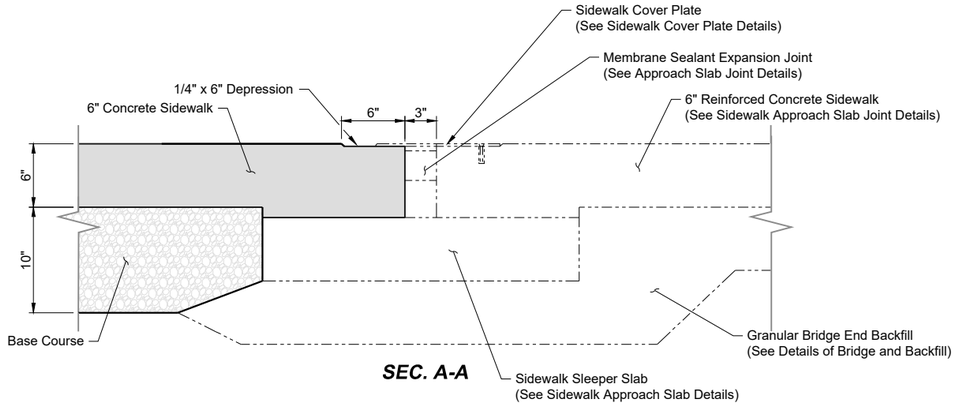
BAI JOB # 24020.12	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 4266(07)	26	68

Plotting Date: 05/09/2025



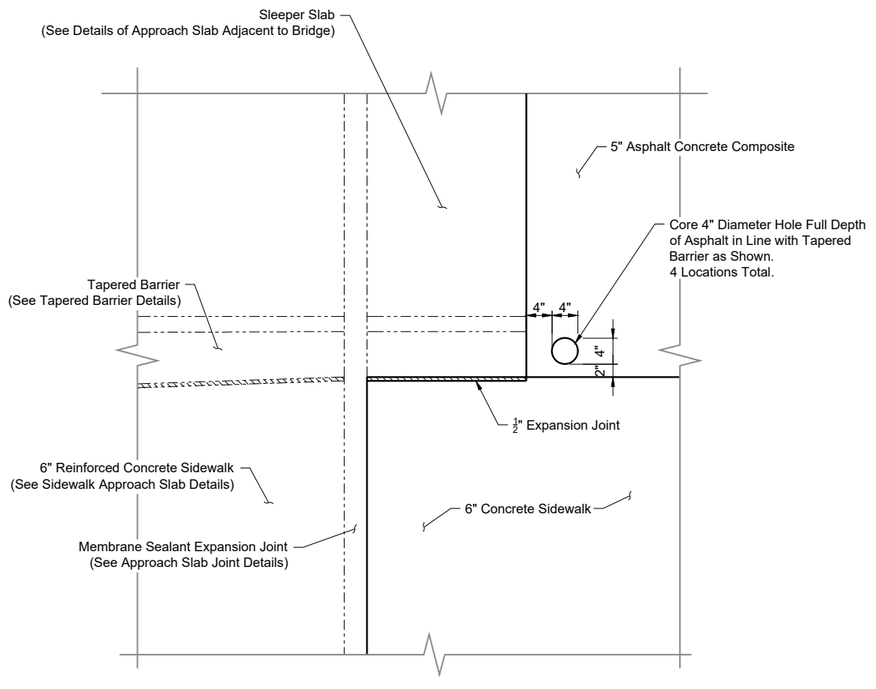


PLAN



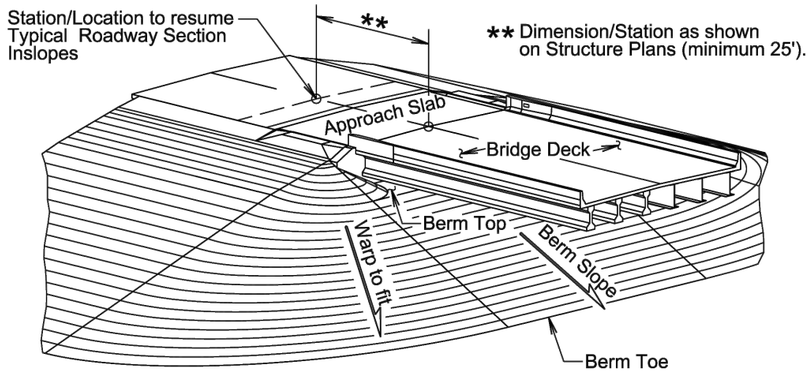
SEC. A-A

The 6" Concrete Sidewalk will be constructed in accordance with Section 651 of the Specifications.

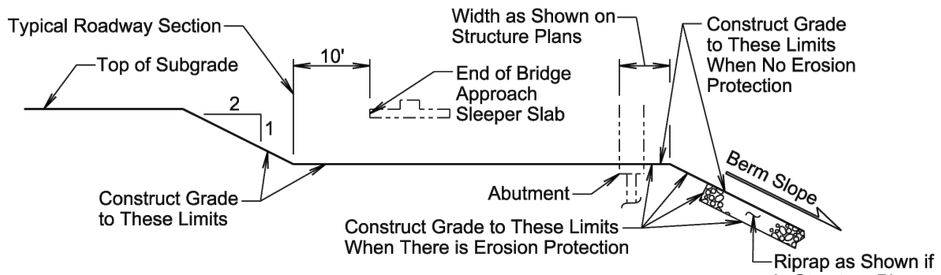


DETAIL "B"

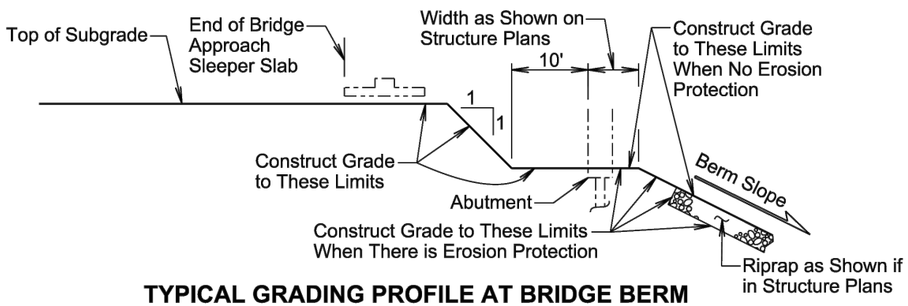
REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9235
MARK
JUNKER
SOUTH DAKOTA
5/8/2025



ISOMETRIC VIEW OF BRIDGE BERM
(Girder Bridge shown, others similar)



TYPICAL GRADING PROFILE AT BRIDGE BERM
(Normal to ℄ Abutment at ℄ Roadway)



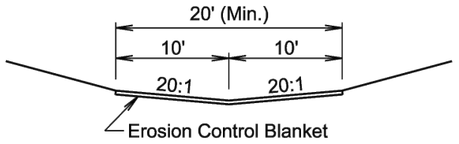
TYPICAL GRADING PROFILE AT BRIDGE BERM
(Normal to ℄ Abutment at ℄ Roadway)

GENERAL NOTES:

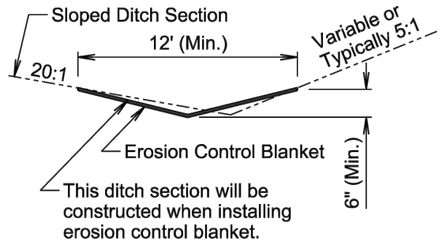
The bridge berm elevation and slope will be as shown in the Structure Plans.
See Structure Plans to determine which grading profile to use.

January 22, 2021

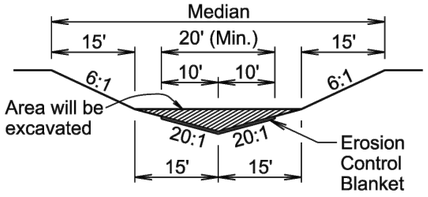
Published Date: 2026	***SDDOT***	***BRIDGE BERM (PROJECTING EMBANKMENT)***	*PLATE NUMBER* *120.11* *Sheet 1 of 1*



STANDARD DITCH SECTION

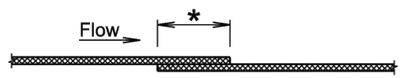


SLOPED DITCH SECTION



The median will be shaped to the limits shown in this detail where the erosion control blanket will be placed.

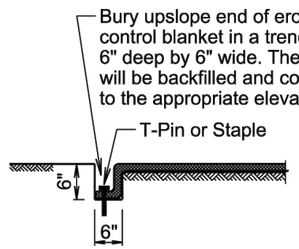
MEDIAN SECTION



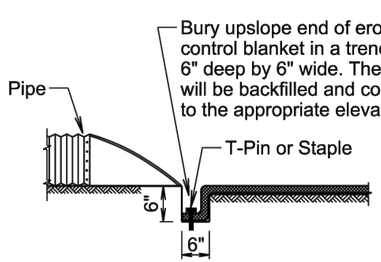
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



TRENCH DETAIL



PIPE END DETAIL

GENERAL NOTES:

Prior to placement of the erosion control blanket, the areas will be properly prepared, shaped, seeded, and fertilized.

Erosion control blanket will be unrolled in the direction of the flow of water when placed in ditches and on slopes. The upslope end of the erosion control blanket will be buried in a trench 6" wide by 6" deep. There will be at least a 6" overlap wherever one roll of erosion control blanket ends and another begins, with the upslope erosion control blanket placed on top of the downslope erosion control blanket.

The erosion control blanket will be pinned to the ground according to the manufacturer's installation recommendations.

After the placement of the erosion control blanket, the Contractor will fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

All ditch sections will be shaped when installing the erosion control blanket. All costs for shaping the ditches will be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

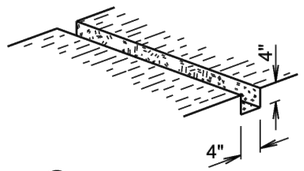
February 14, 2020

Published Date: 2026	SDDOT	***EROSION CONTROL BLANKET***	PLATE NUMBER 734.01
			Sheet 1 of 1

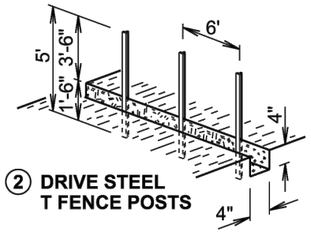
FOR BIDDING PURPOSES ONLY

Plotting Date: 05/08/2025

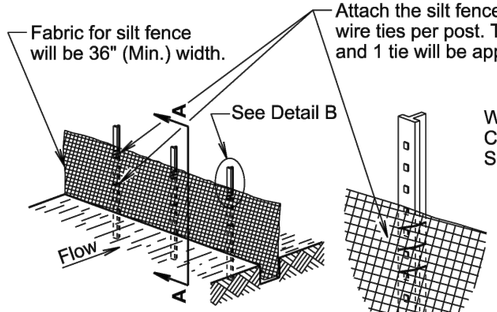
MANUAL HIGH FLOW SILT FENCE INSTALLATION



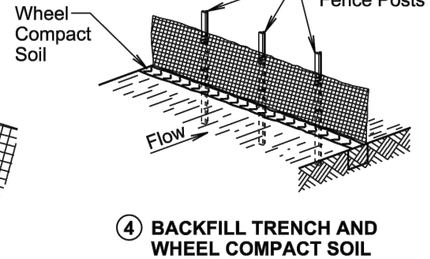
① EXCAVATE TRENCH



② DRIVE STEEL T FENCE POSTS

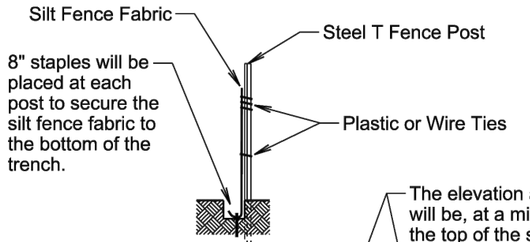


③ ATTACH SILT FENCE FABRIC

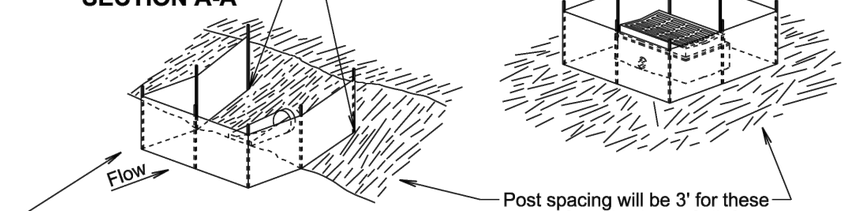


DETAIL B

④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



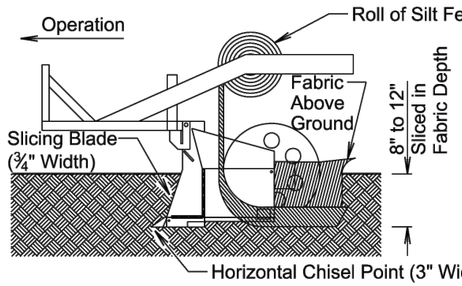
SECTION A-A



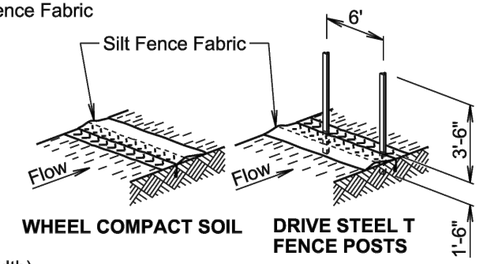
February 14, 2020

Published Date: 2026	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05	Sheet 1 of 2

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



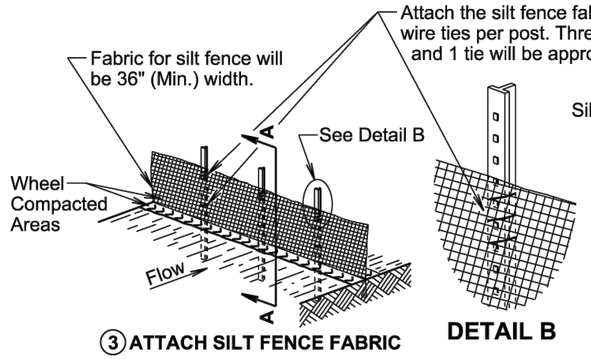
① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



WHEEL COMPACT SOIL

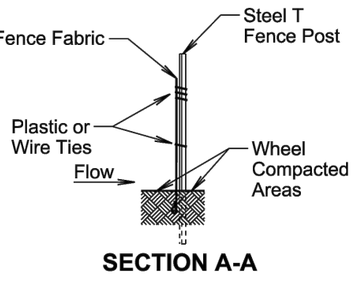
DRIVE STEEL T FENCE POSTS

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

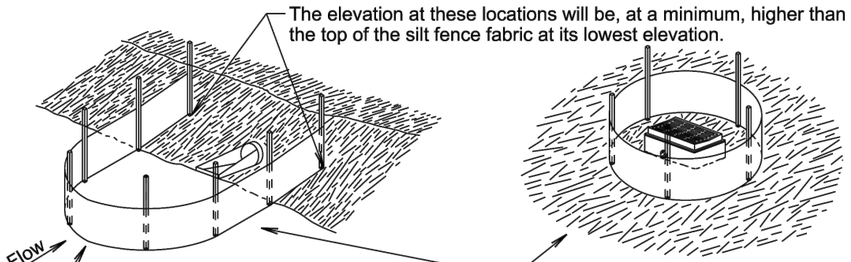


③ ATTACH SILT FENCE FABRIC

DETAIL B



SECTION A-A

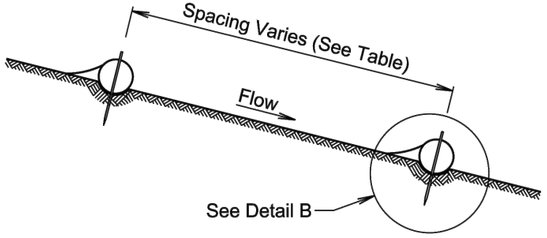


GENERAL NOTE:

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.

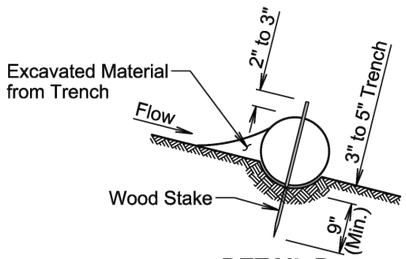
February 14, 2020

Published Date: 2026	SDDOT	HIGH FLOW SILT FENCE	PLATE NUMBER 734.05	Sheet 2 of 2

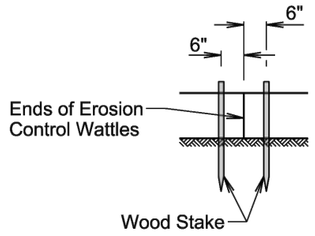


ELEVATION VIEW
(Cut or Fill Slope Installation)

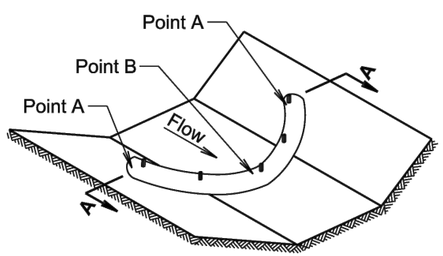
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



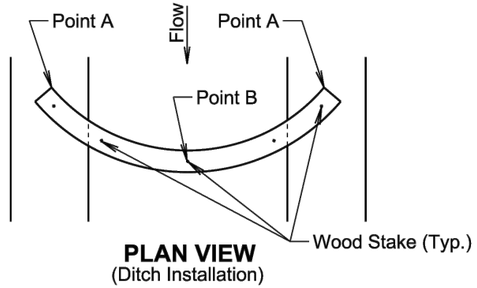
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

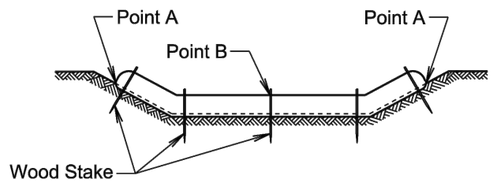


ISOMETRIC VIEW
(Ditch Installation)



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".

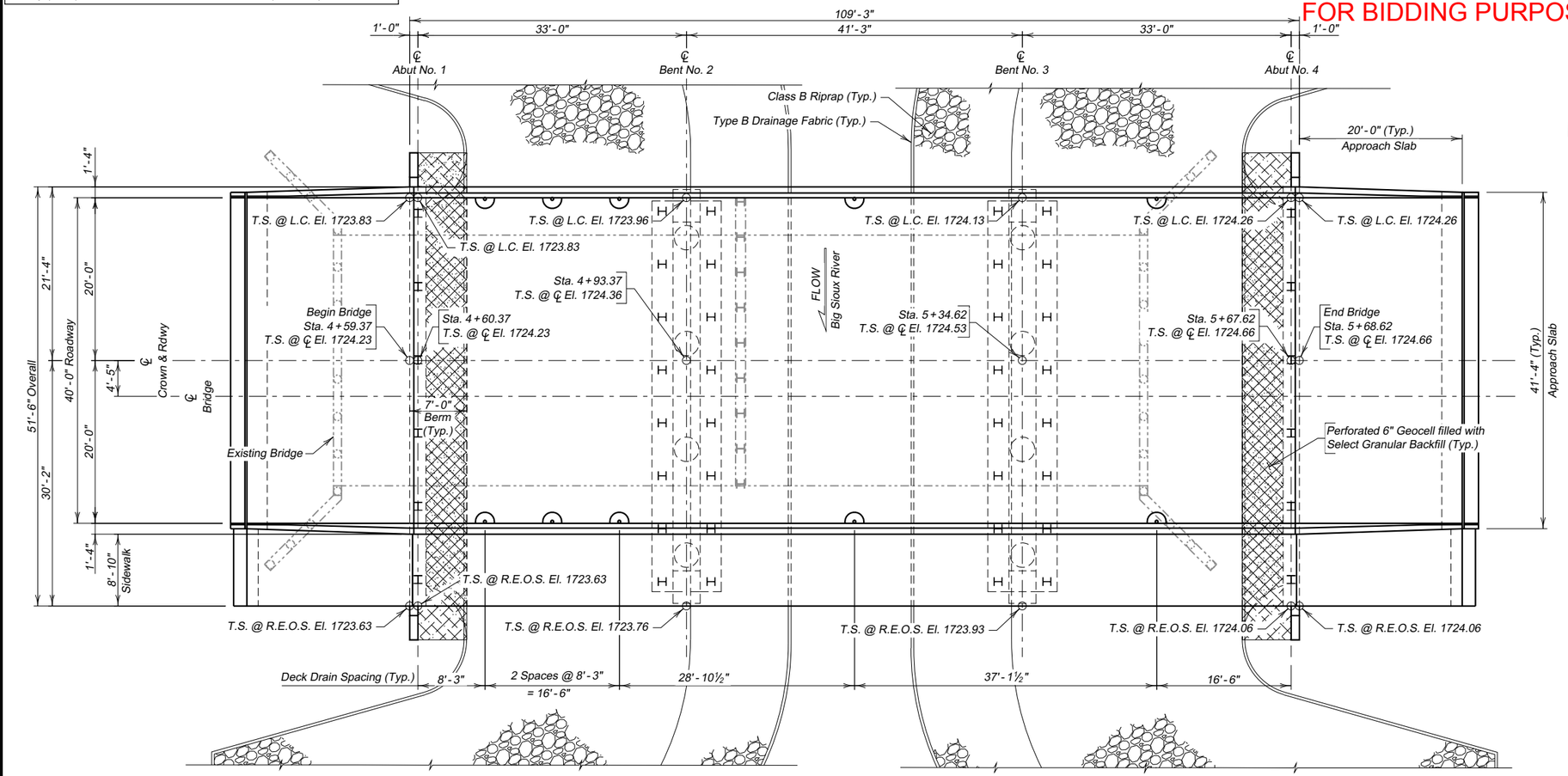
February 14, 2020

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 1988 (NAVD88).

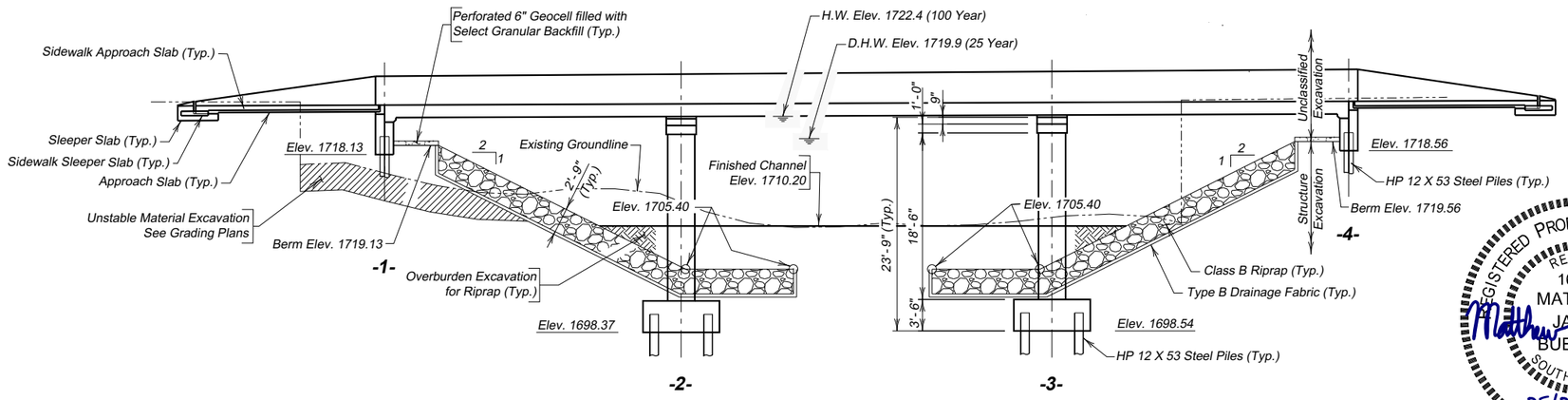
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	31	68



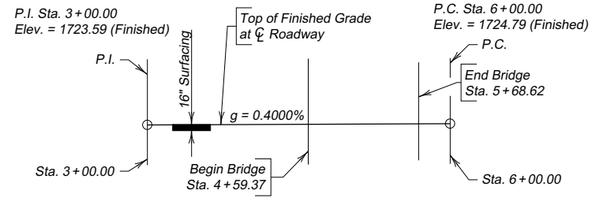
PLAN
(Sidewalk Rail not shown)

NOTES:
T.S. @ L.C. El. = Top of Slab at Left Curb Elevation
T.S. @ ℄ El. = Top of Slab at Centerline Elevation
T.S. @ R.E.O.S. El. = Top of Slab at Right Edge of Slab Elevation



ELEVATION
(Sidewalk Rail not shown)

-X020-
INDEX OF BRIDGE SHEETS -



GRADELINE DATA

HYDRAULIC DATA

Qd	2,370 cfs
Ad	697 sq. ft.
Vd	3.4 fps
Qf	2,370 cfs
Q_{100}	4,320 cfs
$Q_{O.T.fr.}$	5,200 cfs
V_{MAX}	4.7 fps

Q_d = Design discharge for the proposed culvert or bridge based on 25 year frequency. Elev. = 1719.9.

$Q_{O.T.fr.}$ = Overtopping discharge and frequency 155-year recurrence interval, Elev. = 1723.6. Location: 2+85 (215' west of the center of the existing bridge).

Q_f = Designated peak discharge for the basin approaching proposed project based on 25 year frequency.

Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency Elev. = 1722.4.

V_{MAX} = Maximum computed outlet velocity for the proposed culvert or bridge, based on a 100 year frequency.

The hydraulic data contained in these plans is valid only if the overflow section is maintained. Alteration of the overflow section will require re-analysis of the hydraulics at the site to determine its effect on public safety.

GENERAL DRAWING

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY — 0° SKEW
OVER BIG SIOUX RIVER — SEC. 24/25-T117N-R53W
STA. 4+59.37 TO 5+68.62 — BRF-B 4266(07)
STR. NO. 15-178-160 — HL-93
PCN 09M4

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2025

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

Plans By: BANNER engineering a better community

-X020-

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

24020.12

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	32	68

FOR BIDDING PURPOSES ONLY

ESTIMATE OF STRUCTURE QUANTITIES

DESCRIPTION	QUANTITY	UNIT	REMARKS
Concrete Penetrating Sealer	587.7	SqYd	See Special Provision
Select Granular Backfill	21.6	Ton	
Incidental Work, Structure	Lump Sum	LS	
Structural Steel, Miscellaneous	Lump Sum	LS	
Membrane Sealant Expansion Joint	101.7	Ft	
Structure Excavation, Bridge	533	CuYd	
Bridge End Embankment	238	CuYd	
Granular Bridge End Backfill	95.0	CuYd	
Approach Slab Underdrain Excavation	5.4	CuYd	
Precast Concrete Headwall for Drain	4	Each	
Class A45 Concrete, Bridge Deck	322.9	CuYd	
Class A45 Concrete, Bridge	203.2	CuYd	
Concrete Approach Slab for Bridge	191.1	SqYd	
Concrete Approach Sleeper Slab for Bridge	41.4	SqYd	
Install Dowel in Concrete	164	Each	
Deck Drain, Slab Bridge	10	Each	
Steel Pedestrian Railing on Sidewalk	149.5	Ft	
Steel Pedestrian Railing on Concrete Barrier	108.1	Ft	
Reinforcing Steel	26,564	Lb	
Epoxy Coated Reinforcing Steel	76,620	Lb	
Extract Pile	2	Each	
Preboring Pile	120	Ft	
HP 12x53 Steel Test Pile, Furnish and Drive	290	Ft	
HP 12x53 Steel Bearing Pile, Furnish and Drive	2,550	Ft	
6” Reinforced Concrete Sidewalk	373	SqFt	
4" Underdrain Pipe	144	Ft	
Porous Backfill	7.0	Ton	
Class B Riprap	2,107.1	Ton	
Overburden Excavation for Riprap	533	CuYd	
Type B Drainage Fabric	1,914	SqYd	
Perforated Geocell	616	SqFt	

BRIDGE SPECIFICATIONS

1. Design Specifications: AASHTO LRFD Bridge Design Specifications, 9th Edition.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required provisions, supplemental specifications, and special provisions as included in the proposal.

BRIDGE DESIGN LOADING

1. AASHTO HL-93.
2. Dead Load includes 22 psf for future wearing surface on the roadway.

DESIGN MATERIAL STRENGTHS

Class A45 Concrete	f'_c = 4,500 psi
Reinforcing Steel (ASTM A615, Gr. 60)	f_y = 60,000 psi
HP Piling (ASTM A572 Grade 50)	f_y = 50,000 psi

GENERAL CONSTRUCTION

1. All lap splices shown are contact lap splices unless noted otherwise.
2. All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise.
3. Use 2-inch clear cover on all reinforcing steel except as shown.
4. Contractor will imprint on the structure the date of new construction as specified and detailed on Standard Plate 460.02.
5. Barrier curbs and end blocks will be built perpendicular to the roadway grade line.
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. Contractor will remove unstable material at Abutment No. 1 and construct the bridge berms prior to installation of steel piles. See Grading Plans.
8. Bridge berms will be constructed to the plans template prior to any pile driving. See Standard Plate 120.11. No alterations to the berm or slopes will be allowed.
9. The elevation of the bridge deck is 16 inches above subgrade elevation.

INCIDENTAL WORK, STRUCTURE

1. In place centerline Sta. 4+50 to centerline Sta. 5+50 is a 100-foot, 2 span concrete bridge with a 30’-3” clear roadway. The superstructure consists of precast concrete double tee units with W-beam railing attached to steel I-beam posts. The substructure consists of steel H-beam, C-channel, and H-piles at the bent, and a timber pile cap, timber piles, and timber plank backwalls at the abutments and wingwalls.
2. Break down and remove the existing bridge as follows: west abutment to elevation 1714, bent to elevation 1702, east abutment to elevation 1709, and as required to construct the new structure, in accordance with Section 110 of the Construction Specifications. All portions of the existing bridge will be removed and disposed of by the Contractor at an approved site. The waste disposal site will be as described in the Environmental Commitments Notes in the plans.
3. During demolition of the structure, efforts will be taken to prevent material from falling into the creek. Under no circumstances is asphalt allowed to fall into the creek.
4. The quantity of asphalt on the bridge deck is included in the contract item “Remove Asphalt Concrete Pavement”.
5. Extraction of existing piling is not anticipated to be required, however a quantity of 2 steel piles has been included in the Estimate of Quantities should unknown piling be encountered. Any existing pile determined by the Engineer to interfere with piling for the new structure will be extracted. Payment for extracting piling will be full compensation for extracting piling including materials, labor, and equipment necessary or incidental to the satisfactory completion of this work.
6. The Contractor will contact Mark Junker, PE, Banner Associates, 605-690-1957 cell, at least 1 day prior to removing the precast concrete double tee units, to allow Mark the opportunity to document the deterioration of the double tee units before they are disposed.
7. The foregoing is a general description of the in-place bridge and should not be construed to be complete in all details. Before preparing the bid, it will be the responsibility of the Contractor to make a visual inspection of the structure to verify the extent of the work and materials involved. Original Construction Plans are not available.

NOTICE - LEAD BASED PAINT

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

DESIGN MIX OF CONCRETE

1. All structural concrete will be Class A45 unless otherwise indicated.
2. Type II cement is required, except as modified below.
3. Class A45 Concrete, Bridge used for the Abutments and Bents will conform to the Construction Specification, with the following modifications: the type of cement will be either a Type V or Type II with 20 to 25% Class F Modified Fly Ash substituted for cement in accordance with Section 605 of the Construction Specifications.

REGISTERED PROFESSIONAL ENGINEER
REG NO.
16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
05/08/2025

ESTIMATE OF STRUCTURE QUANTITIES & NOTES FOR

109’-3” CONT. CONCRETE BRIDGE

Str. No. 15-178-160

MAY 2025

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
MJB	MJB	CWZ	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

ABUTMENTS

1. Preboring piling at each abutment is required to whichever is greater, ten feet or to natural ground. If caving of the prebore is an issue below the water table or within the sand and gravel, drill to the final elevation required for the prebore and then reverse the rotation of the auger leaving the loosened material in the boring below the cave in depth.

2. The HP 12x53 Piling were designed using a factored bearing resistance of 98 tons per pile. Piling will develop a field verified nominal bearing resistance of 245 tons per pile.

3. One test pile will be driven at each abutment and will become part of the pile group.

4. The Contractor will have sufficient pile splice material on hand before pile driving is started. See Standard Plate 510.40.

5. Piles will not be driven out of position by more than three inches in the direction parallel to the girder centerline. A pile-driving template will be used to ensure this accuracy.

6. Each finished abutment will include a Bridge Survey Marker. See Standard Plate 460.05

7. Fence anchors will be installed in the abutment wings. See Standard Plate No. 620.18.

BENTS

1. Substructure shoring will remain in place until superstructure shoring is removed.

2. The HP 12x53 Piling were designed using a factored bearing resistance of 98 tons per pile. Piling will develop a field verified nominal bearing resistance of 245 tons per pile.

3. One test pile will be driven at each bent and will become part of the pile group.

4. The Contractor will have sufficient pile splice material on hand before pile driving is started. See Plate 510.40.

5. Spiral reinforcement may be fabricated from cold drawn wire conforming to ASTM A1064 or hot rolled plain or deformed bars conforming to the strength requirements of ASTM A615, Grade 60.

6. It is anticipated that cofferdams will be necessary. Cofferdams will be designed and constructed in accordance with Section 423 of the Specifications.

7. The design of the Cofferdam must be done by Professional Engineers registered in South Dakota. Sealed calculations of both the original design and design check, performed by different engineers, will be submitted with the cofferdam plans. The cofferdam plans, design, and check design will be submitted to the Office of Bridge Design a minimum of 15 days prior to Cofferdam construction.

PILE DRIVING

1. A driveability analysis was performed using the wave equation analysis program (GRLWEAP). A list of acceptable hammers is provided below. Pile hammers not listed will require evaluation and approval prior to use from the Geotechnical Engineering Activity. Requests for evaluation of hammers not listed will be submitted a minimum of 5 business days prior to installation of piles.

   Delmag D30-32 SPI D30 APE D30-42 APE D30-52

SUPERSTRUCTURE

1. Preplanned construction joints may be used in accordance with Section 460.3 of the Construction Specifications. Contact the Office of Bridge Design for joint configuration and allowable location. Emergency slab construction joints will be as shown with the superstructure details. If an emergency slab joint is used, contact the Office of Bridge Design before proceeding with deck pour.

2. The use of an approved deck finishing machine will be required during placement of bridge deck concrete. The deck finishing machine will be adjusted and operated in such a manner that the screed or screeds are parallel with the centerline of the bridge. The finish machine and concrete placement will be parallel to the skew of the bridge.

3. Barrier curbs will be poured after all the slab has been poured. Superstructure falsework will not be removed until bridge deck concrete has attained a strength of 2400 psi.

4. The minimum pour rate will be in accordance with Section 460.3.J.2 of the Construction Specifications.

5. 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 the reinforcing steel.

6. See Special Provision for Concrete Penetrating Sealer.

CLASS B COMMERCIAL TEXTURE FINISH

1. A Class B commercial texture finish will be applied to the following areas:
   a. ***Abutments:** all exposed surfaces to an elevation 1-foot below finished ground line.
   b. **Barrier:** all exposed surfaces (Back*, top** and Front**).
   c. ***Slab:** edge of slab
   d. ***Bents:** All exposed surfaces.

   * Color will be AMS – STD – 595 33690 (Tan)
   ** Color will be AMS – STD – 595 37875 (Pearl White)

2. The Class B commercial texture finish will be applied in accordance with Section 460.3 L.1.c and Section 460.3 M.1 of the Construction Specifications.

DECK DRAINS

1. Deck Drains will be 4-inch diameter by 1’-5 1/4” Schedule 40 Polyvinyl Chloride (PVC) Plastic Pipe conforming to the requirements of ASTM D1785.

2. A 4 1/2-inch diameter by 2-inch PVC Plastic Pipe Sleeve conforming to the requirements of ASTM D1785 will be attached to the 4-inch diameter PVC Pipe, as shown in the plans, with a solvent cement conforming to ASTM D2564.

3. Payment for Deck Drains will be at the contract unit price per each for Deck Drain, Slab Bridge, and will be full compensation for furnishing, fabricating, and installing the deck drains in accordance with the plans and Construction Specifications.

4. The location of the deck drains may be adjusted slightly to clear transverse slab reinforcement.

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
05/08/2025

NOTES (CONTINUED)
FOR
109’-3” CONT. CONCRETE BRIDGE

Str. No. 15-178-160

MAY 2025

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
MJB	MJB	CWZ	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

INSTALL DOWEL IN CONCRETE

1. The Contractor is responsible for recording the location of all A2 bars before pouring the deck and properly locating the top B bars, to avoid conflicts with drilling for the C and C0 bars.

2. 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 reinforcing steel. The Contractor may have to shift the dowel spacing as approved by the Engineer to miss the reinforcing steel. If Contractor shifts the dowel spacing, the unused drill holes will be completely filled with the epoxy resign as approved by the Engineer.

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

4. 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 materials has been removed prior to epoxy injection.

5. 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 or 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.

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

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

8. The cost of epoxy resin, dowels (the 479 LB of C and C0 bars), installation, and other incidental items will be incidental to the contract unit price per each for Install Dowel in Concrete.

APPROACH SLABS

1. 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 top of the sleeper slab riser. **The tapered curb will be cast with the sleeper slab riser.**

2. 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.

3. The use of an approved finishing machine will be required during placement of Class A45 Concrete for the approach slabs. Concrete placement in front of the machine will be kept parallel to the screed.

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

5. Concrete Approach Slab for Bridge will be paid for at the contract unit price per square yard. This payment will be full compensation for all 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 and for labor, tools, equipment and any incidentals necessary to complete this item of work.

STEEL RAILING – SIDEWALK

1. All rail posts will be built vertical.

2. All structural steel parts for railing will conform to ASTM A500, Grade B. Material less than ¼" thick may be ASTM A1011, Grade 36. Rail post base plates shall conform to ASTM A36.

3. Anchor bolts and nuts for railing will conform to ASTM A307. Washers will conform to ASTM F436 and all components will be galvanized in accordance with ASTM F2329. The bolts will be hex head "Structural" type with heavy hex nuts and round washers.

4. Anchor bolts will be tightened to a torque of 120 ft.-lbs. (approximated without the use of a calibrated torque wrench).

5. Non-shrink grout used to fill the recess beneath the rail post base plates will be a commercially available non-shrink grout containing no metallic particles and capable of attaining a 28 day compressive strength of 3000 psi. The non-shrink grout will be mixed according to the manufacturer's recommendations. The cost of furnishing and placing the non-shrink grout will be incidental to the contract unit price per foot for Steel Pedestrian Railing on Sidewalk.

6. All steel railing will be galvanized in accordance with ASTM F2329.

7. Welding & Weld Inspection will be done in accordance with the current edition of AWS D1.1 Bridge Welding Code.

8. The costs of structural steel, welding, weld inspection, and galvanizing will be incidental to the contract unit price per foot for Steel Pedestrian Railing on Sidewalk and Steel Pedestrian Railing on Concrete Barrier.

SIDEWALK APPROACH SLABS

1. The reinforced concrete sidewalks adjacent to the bridge will be paid for at the contract unit price per square foot for 6" Reinforced Concrete Sidewalk. This payment will be full compensation for all excavation, furnishing, hauling, and placing all materials including concrete, epoxy coated reinforcing steel, asphalt paint or 6 mil polyethylene sheeting, hot poured elastic joint sealer; for disposal of all excavated, and surplus materials; and for all labor, tools, equipment, and incidentals necessary to complete this item of work.

2. All costs involved in furnishing and placing the sidewalk sleeper slabs will be included in the contract unit price per square foot for 6" Reinforced Concrete Sidewalk.

SIDEWALK COVER PLATES

1. Steel plates will conform to ASTM A572, Grade 50 and will be galvanized in accordance with ASTM F2329.

2. Bolts will conform to ASTM A307 and will be galvanized in accordance with ASTM F2329.

3. Inserts will be galvanized in accordance with ASTM F2329.

4. The costs of steel plates, bolts, inserts, installation, and other incidental items will be incidental to the contract lump sum price for Structural Steel, Miscellaneous.

APPROACH SLAB UNDERDRAIN SYSTEM

1. An underdrain system will be placed underneath the sleeper slabs and behind the abutments as shown in the plans in accordance with Section 435 of the Construction Specifications.

2. The 4-inch diameter Perforated PVC Drain Pipe will be SDR 35 Solvent Weld PVC Pipe conforming to ASTM D3034 and ASTM F758. The 2-inch and 4-inch diameter PVC Outlet Pipe will be Schedule 40 PVC Pipe conforming to ASTM D1785 designated as PVC 1120, PVC 1220, or PVC 2120. Pipe sections will be connected using a PVC Solvent Cement conforming to ASTM D2564. The Drain Sleeve will conform to ASTM D6707.

3. Care will be taken to ensure that the 4-inch diameter Perforated PVC Drain Pipe and the 2-inch and the 4-inch diameter PVC 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.

4. All labor, tools, equipment, and any incidentals necessary for the Installation of 4-inch diameter Perforated PVC Drain Pipe, 2-inch and 4-inch diameter PVC Outlet Pipe, SDR Solvent Weld PVC Coupling, and PVC Cement will be incidental to the contract unit price per foot for 4" Underdrain Pipe.

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

NOTES (CONTINUED)
FOR
109'-3" CONT. CONCRETE BRIDGE

Str. No. 15-178-160

MAY 2025

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
MJB	MJB	CWZ	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

FALL PROTECTION

1. The Contractor will install a Fall Protection System conforming to OSHA Regulations. The Contractor will have one Personal Fall Arrest System (PFAS) available for use by a Department Inspector. The PFAS will be compatible with the installed Fall Protection System.

2. Modifications to any bridge components used to accommodate the Fall Protection System will be shown on the Falsework Plans and the appropriate Shop Plans. Field welding to bridge components will not be allowed. Field placed concrete inserts or drilled-in anchor bolts will be allowed if approved by the Engineer. All costs associated with providing the Fall Protection System will be incidental to the other contract items.

SHOP PLANS

The fabricator will submit shop plans in accordance with the Construction Specifications. Send shop plan submittals to Banner Associates, Inc., 409 22nd Avenue South, Brookings, SD 57006 (matthewb@bannerassociates.com). After review, corrections (if necessary), and approval by Banner Associates, Inc., the Office of Bridge Design will review the submittals, authorize fabrication, arrange for fabrication inspection, and distribute the shop drawings.

CHANNEL WORK

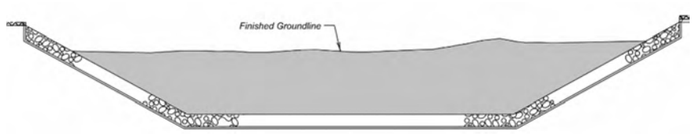
In order to assure the hydraulic capacity of the bridge, the finished ground under the bridge will be shaped to match the finished channel elevation shown on the General Drawing. Bridge berms will be built as shown on the General Drawing sheet.

RIPRAP

All Class B Riprap will be ledge rock. Riprap gradation and Drainage Fabric will comply with Section 700.2 of Construction Specifications. Placement of Riprap and Drainage Fabric will be in accordance with Section 700.3 of the Construction Specification and conditions must be free of standing water.

OVERBURDEN EXCAVATION FOR RIPRAP

1. This work will consist of the removal and replacement of material between the limits of the finished groundline and the top of the riprap. See diagram below (overburden is in grey).



2. Excavation is to be completed after temporary diversion method is in place, if required, with minimal standing water to create the profile of slope protection specified in plans.

3. The removed material will be placed on top of the riprap to the natural ground, proposed groundline, or specified shape and elevations shown in plans. When overburden extends into the streambed it will form the channel bottom and profile as specified in plans. The finished ground under the bridge will be shaped to match the finished channel elevation shown on the General Drawing sheet.

4. The overburden material will be placed on top of the riprap and have a maximum lift depth of 1’ – 0” and compacted free of flowing water or standing water in excess or four inches above the riprap at the lowest elevation.

5. Compaction effort will produce a surface that does not pump, rut, or otherwise displace when traveled over with construction equipment to the satisfaction of the Engineer. Material may be added to excavated material to facilitate compaction and handling. Importing, stockpiling, blending, and/or wasting of materials will be incidental to the contract unit price for Overburden Excavation for Riprap.

6. Payment for Overburden Excavation for Riprap will be at the contract unit price and will be full compensation for labor, equipment, tools, and incidentals, including furnishing, installing, and removal of any temporary works necessary to complete the work. Payment will be for plans quantity unless measurement is ordered by the Engineer.

7. Before preparing the bid, it is the responsibility of the Contractor to verify existing conditions to determine if a temporary diversion method and/or dewatering will be required. If required, the Contractor must submit the temporary diversion method and/or dewatering for approval to the Construction Engineer 30 days prior to construction.

PERFORATED GEOCELL

1. Perforated Geocell will be from the following company or equivalent:

   Company: Agtec
   Phone: 1-818-724-7657
   Website: http://www.agtec.com

2. Perforated Geocell will be 6 inches tall with Type B Drainage Fabric underlying the perforated Geocell. Installation will adhere to the manufacturer’s recommendation.

3. Perforated Geocell will be filled with the Select Granular Backfill in accordance with Section 850 of the Construction Specifications.

4. Perforated Geocell will be paid for at the contract unit price per square foot. Payment will be full compensation for furnishing and installing the Perforated Geocell.

5. Select Granular Backfill will be paid for at the contract unit price per ton of material furnished. Payment will be full compensation for furnishing, loading, hauling, and placing the Select Granular Backfill.

REGISTERED PROFESSIONAL ENGINEER
REG NO.
16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
05/08/2025

NOTES (CONTINUED)
FOR
109’-3” CONT. CONCRETE BRIDGE

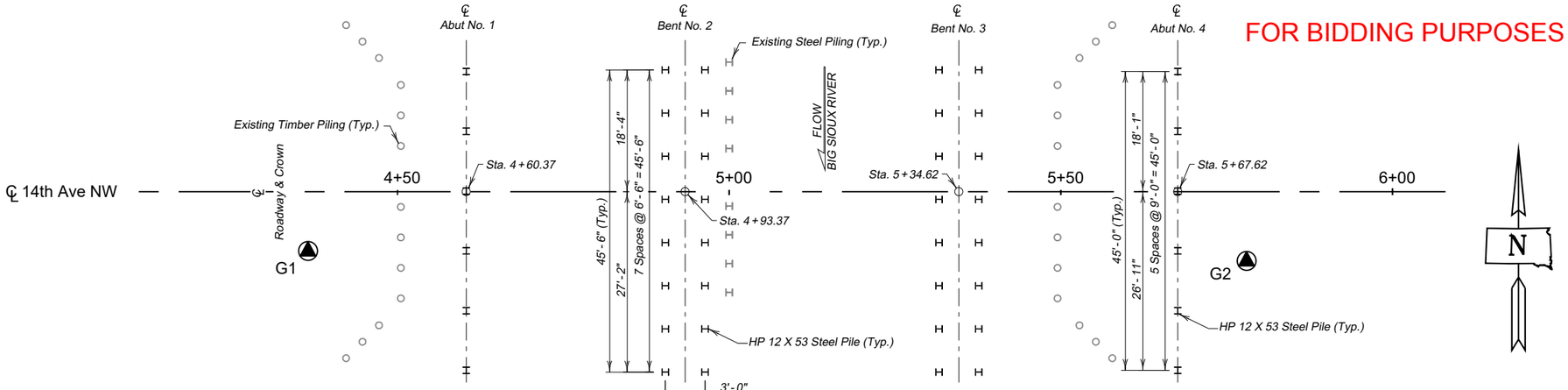
Str. No. 15-178-160

MAY 2025

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
MJB	MJB	CWZ	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	36	68

FOR BIDDING PURPOSES ONLY



Hole Number	G3	
Station	4+86	
Depth	9.7	ft
Soil Color	Brown	
Classification	Sandy Clay	
Strength (Qu)	2,251	psf
Dry Density	106.4	pcf
Wet Density	128.8	pcf
Moisture	21.0	%
Pass No. 10	99.5	%
Pass No. 40	90.9	%
Pass No. 200	69.7	%
Sand Content	29.7	%
Silt Content	35.5	%
Clay Content	34.2	%

Hole Number	G3	
Station	4+86	
Depth	44.3	ft
Soil Color	Brown	
Classification	Silt Clay	
Strength (Qu)	5,237	psf
Dry Density	106.2	pcf
Wet Density	126.0	pcf
Moisture	18.6	%
Pass No. 10	98.5	%
Pass No. 40	93.1	%
Pass No. 200	73.7	%
Sand Content	24.8	%
Silt Content	37.3	%
Clay Content	36.4	%

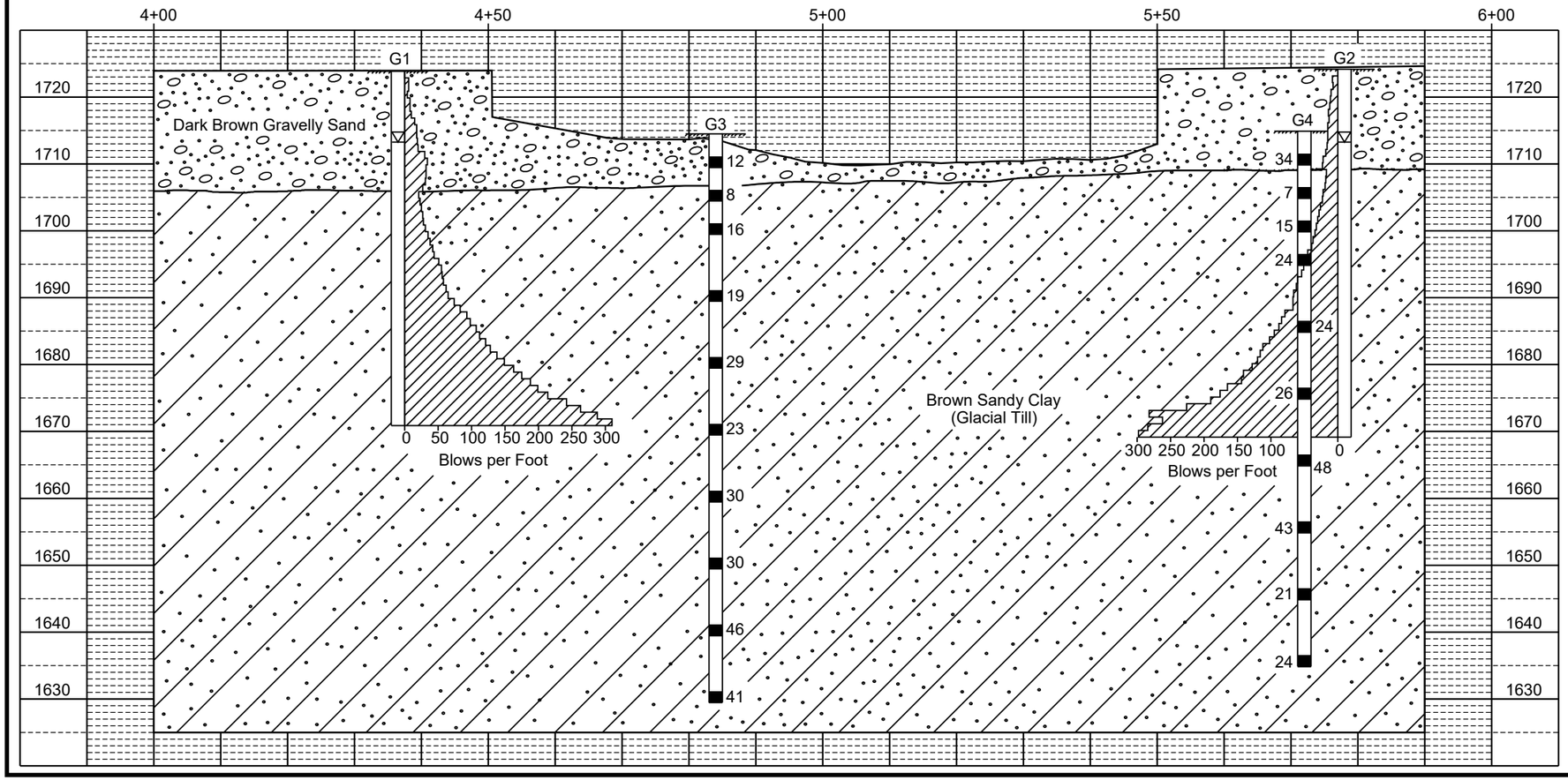
Hole Number	G4	
Station	5+72	
Depth	20.0	ft
Soil Color	Brown	
Classification	Sandy Clay	
Strength (Qu)	7,892	psf
Dry Density	105.1	pcf
Wet Density	121.4	pcf
Moisture	15.5	%
Pass No. 10	98.9	%
Pass No. 40	91.2	%
Pass No. 200	65.9	%
Sand Content	32.9	%
Silt Content	31.3	%
Clay Content	34.6	%

Hole Number	G4	
Station	5+72	
Depth	69.7	ft
Soil Color	Brown	
Classification	Clay Sand	
Strength (Qu)	2,045	psf
Dry Density	115.5	pcf
Wet Density	131.6	pcf
Moisture	14.0	%
Pass No. 10	99.7	%
Pass No. 40	85.6	%
Pass No. 200	41.5	%
Sand Content	58.2	%
Silt Content	20.6	%
Clay Content	20.9	%

PILING LAYOUT

COFFERDAM SOIL PARAMETERS

	Friction Angle (Φ)	Cohesion (c)	Wet Unit Weight (γw)
Dark Brown Gravelly Sand	32°	0 psf	130 pcf
Brown Sandy Clay	26°	450 psf	126 pcf



Glaciated Terrain contains all sizes of natural mineral sediment ranging from clay to boulders. Streams originating in or flowing through glaciated topography contain sediment loads derived from glaciated sources. Stream and river crossings contain sediment naturally sorted and randomly concentrated. Alluvial sediment located at this project location may have concentrated coarser gravel such as pebbles, cobbles and boulders. The borings shown only represent material that was found at the exact location of the small diameter drill hole. Coarse granular material may be present in areas not penetrated by the depicted borings.

The Geotechnical Engineering Activity has all of the boring logs and laboratory test results available for review at the Central Office in Pierre.

LEGEND

- Penetration Test
- Drive Test
- Water
- Caved
- Sample Zone

Drive tests are conducted by dropping a 490 pound hammer 30 inches to drive a 2⅞inch drill stem to measure the resistance to penetration of the soil.

Penetration test holes are drilled with a 6⅝inch diameter hollow stem auger. Penetration tests are conducted by dropping a 140 pound hammer 30 inches to collect samples and measure the resistance to penetration of the soil. Samples are collected using a lined Modified California Sampler. Penetration test results are listed as uncorrected "N" values in blows per foot. Blows over inches are listed if refusal is achieved, which is 50 blows within one 6 inch set.

GROUNDWATER ELEVATIONS

APRIL 2022

G1	1713.3
G2	1713.3

MEASURED SKIN FRICTION

	ELEV.	PSF
G1	1670.9	671
G2	1669.2	646

SUBSURFACE INVESTIGATION & PILING LAYOUT

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY — 0° SKEW
OVER BIG SIOUX RIVER — SEC. 24/25-T117N-R53W
STA. 4+59.37 TO 5+68.62 — BRF-B 4266(07)
STR. NO. 15-178-160 — HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

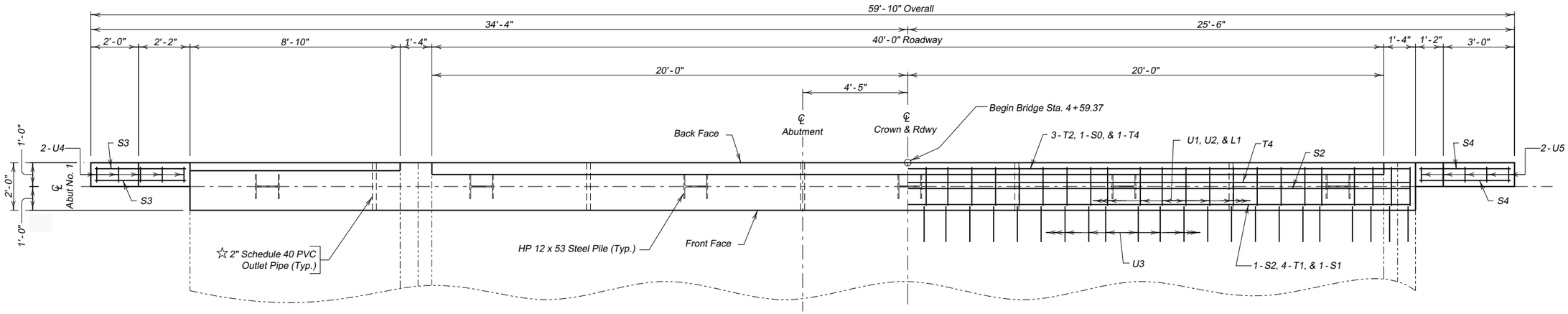
MAY 2025

6 OF 34

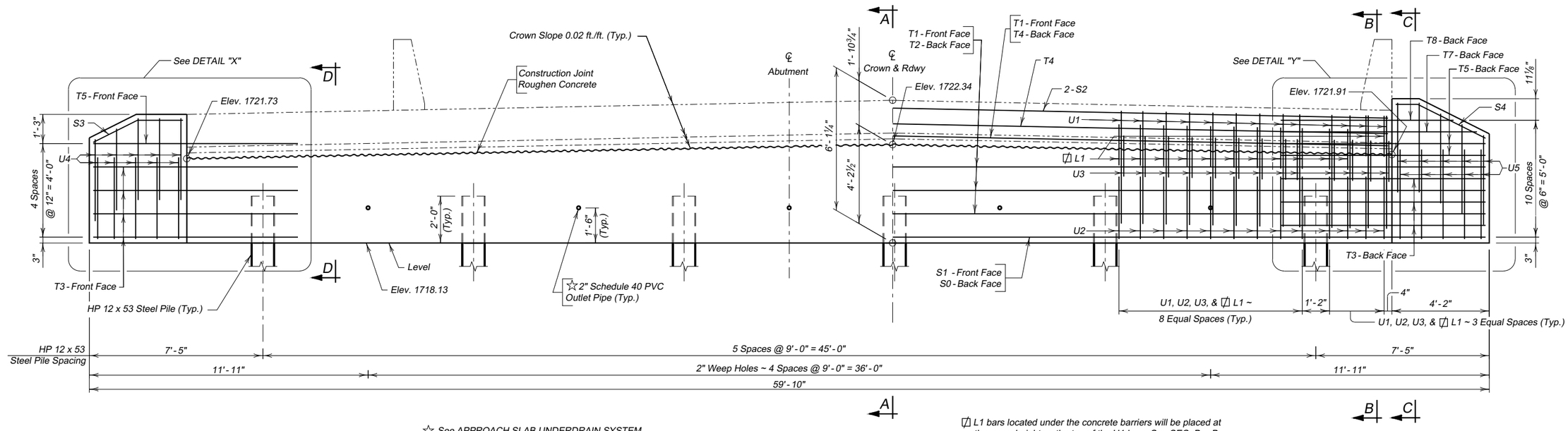
DESIGNED BY	CK. DES. BY	DRAFTED BY	
	HK	KG	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	37	68



PLAN



☆ See APPROACH SLAB UNDERDRAIN SYSTEM notes for payment and quantity

ELEVATION

℄ L1 bars located under the concrete barriers will be placed at the same height as the top of the U1 bars. See SEC. B - B on ABUTMENT NO. 1 DETAILS (B) sheet.

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

ABUTMENT NO. 1 DETAILS (A)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

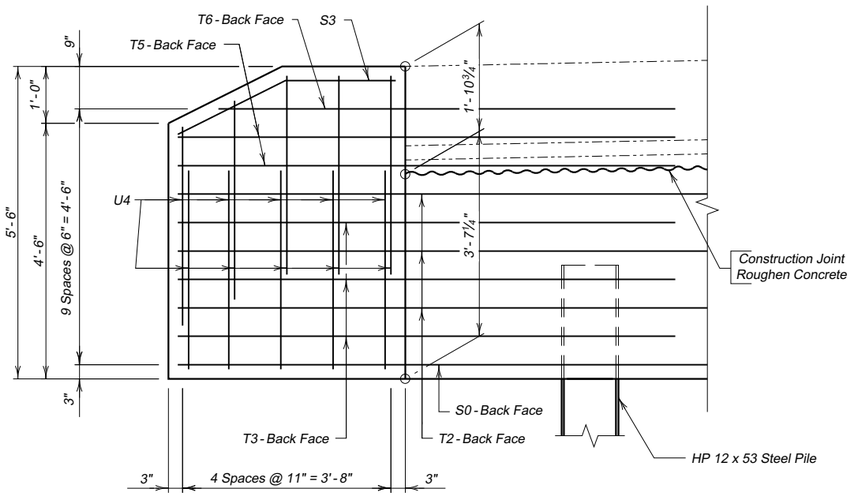
CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

7 OF 34

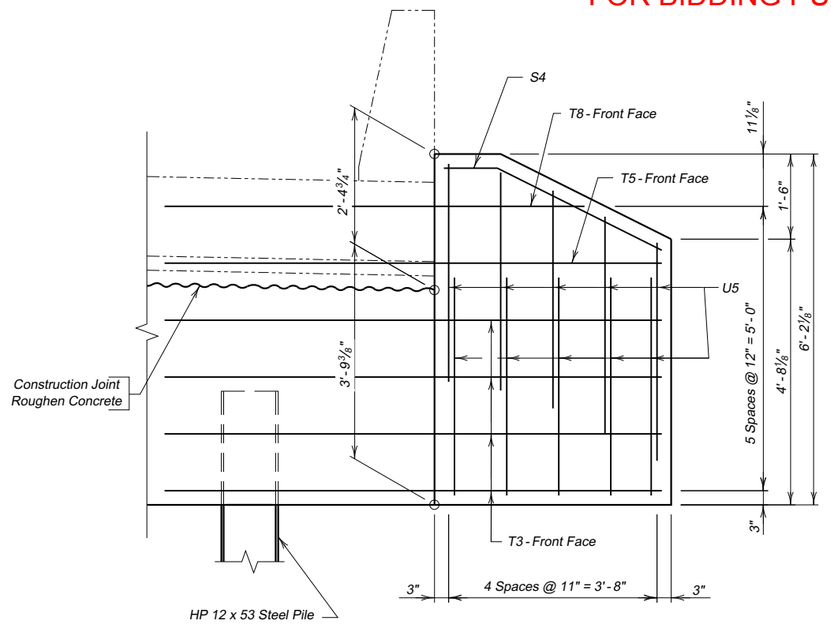
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	38	68

FOR BIDDING PURPOSES ONLY



DETAIL "X"
(Back Face Resteel)

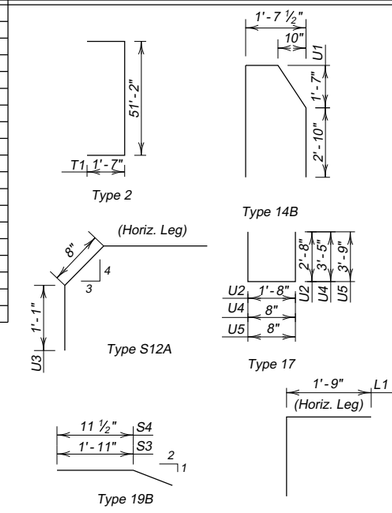


DETAIL "Y"
(Front Face Resteel)

REINFORCING SCHEDULE

	Mk.	No.	Size	Length	Type
△	L1	53	4	3'-6"	17A
	S0	1	7	59'-6"	Str.
	S1	1	7	51'-2"	Str.
⁎△	S2	2	9	51'-2"	Str.
	S3	2	9	4'-0"	19B
	S4	2	9	4'-2"	19B
⁎	T1	4	5	54'-4"	2
	T2	3	5	59'-6"	Str.
	T3	14	5	8'-9"	Str.
⁎△	T4	2	5	51'-2"	Str.
△	T5	6	5	8'-9"	Str.
△	T6	1	5	8'-0"	Str.
△	T7	1	5	8'-4"	Str.
△	T8	2	5	7'-4"	Str.
△	U1	53	6	9'-10"	14B
	U2	53	4	7'-0"	17
△	U3	53	4	2'-10"	S12A
	U4	10	4	7'-6"	17
	U5	10	4	8'-2"	17

Bending Details

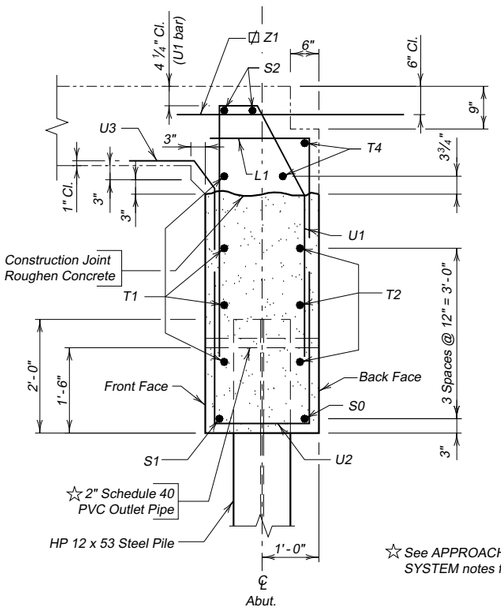


NOTES -
All dimensions are out to out of bars.
△ *Bars to be epoxy coated.*
⁎ *Bend in field as necessary.*

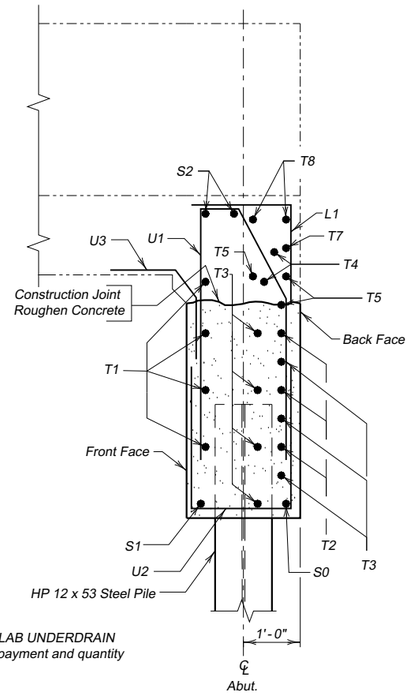
ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY ABUT. NO. 1
Class A45 Concrete, Bridge	Cu.Yd.	16.7
Reinforcing Steel	Lb.	1,175
Epoxy Coated Reinforcing Steel	Lb.	1,549
Structure Excavation, Bridge	Cu.Yd.	11.3
HP12X53 Steel Test Pile, Furnish & Drive	Ft.	1 @ 80' = 80'
HP12X53 Steel Bearing Pile, Furnish & Drive	Ft.	5 @ 75' = 375'
Preboring Pile	Ft.	6 @ 10' = 60'

☑ NOTE:
Quantity for Z1 bars are included on the SUPERSTRUCTURE DETAILS (A) & (B) Sheet.

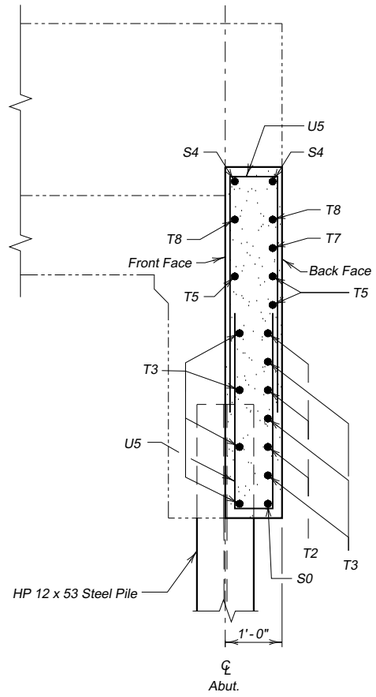


SEC. A - A

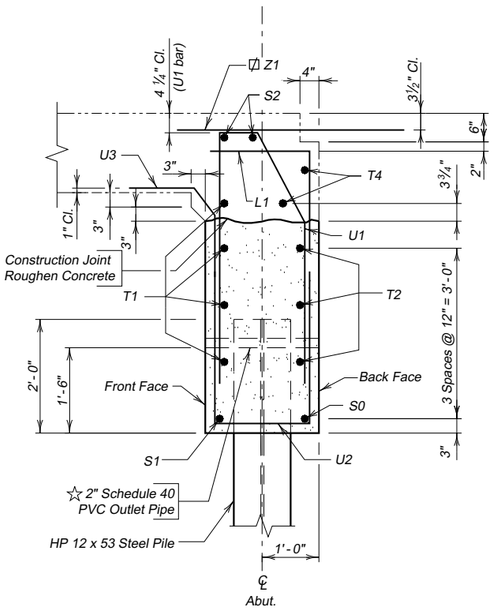


SEC. B - B

☆ *See APPROACH SLAB UNDERDRAIN SYSTEM notes for payment and quantity*



SEC. C - C



SEC. D - D

ABUTMENT NO. 1 DETAILS (B)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

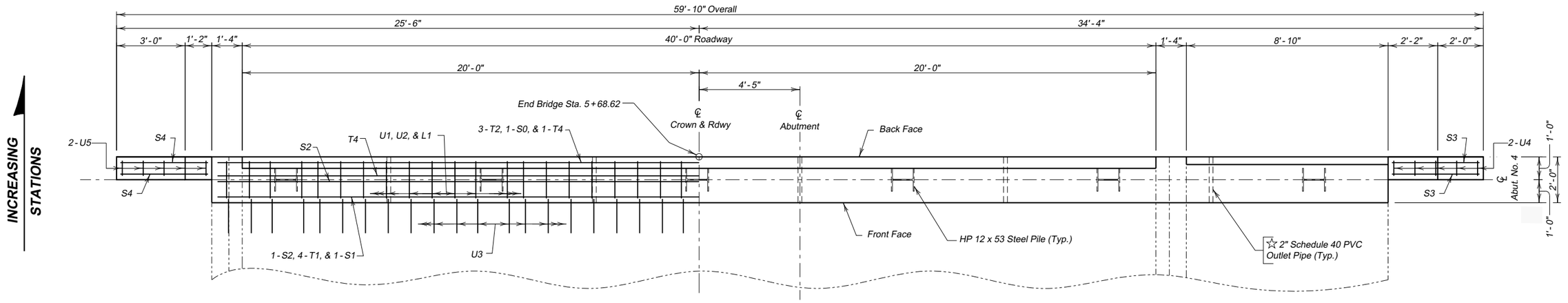
CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

8 OF 34

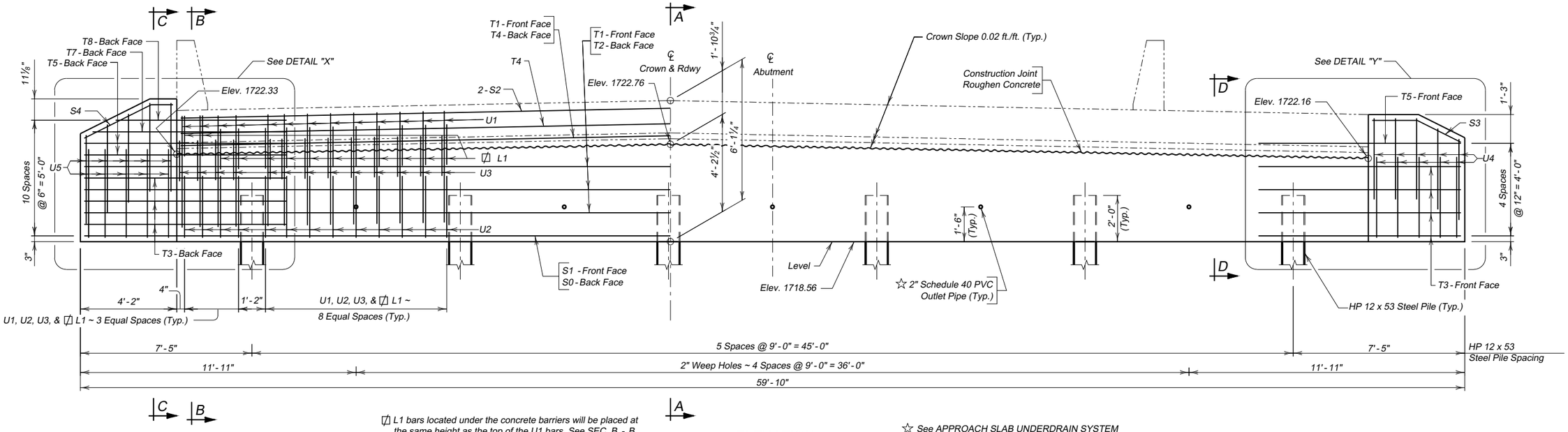
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	39	68



PLAN



⍁ L1 bars located under the concrete barriers will be placed at the same height as the top of the U1 bars. See SEC. B - B on ABUTMENT NO. 2 DETAILS (B) sheet.

ELEVATION

☆ See APPROACH SLAB UNDERDRAIN SYSTEM notes for payment and quantity

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

ABUTMENT NO. 4 DETAILS (A)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY — 0° SKEW
OVER BIG SIOUX RIVER — SEC. 24/25-T117N-R53W
STA. 4+59.37 TO 5+68.62 — BRF-B 4266(07)
STR. NO. 15-178-160 — HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

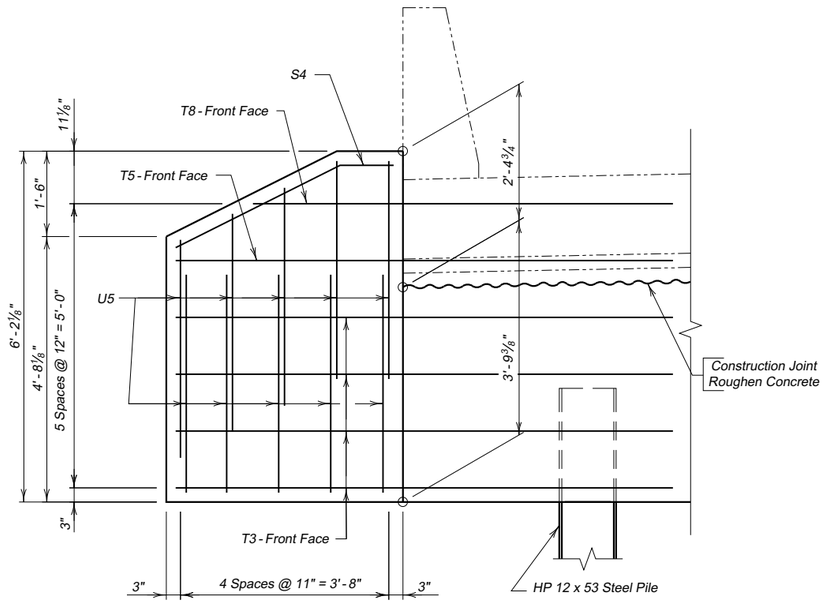
MAY 2025

9 OF 34

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

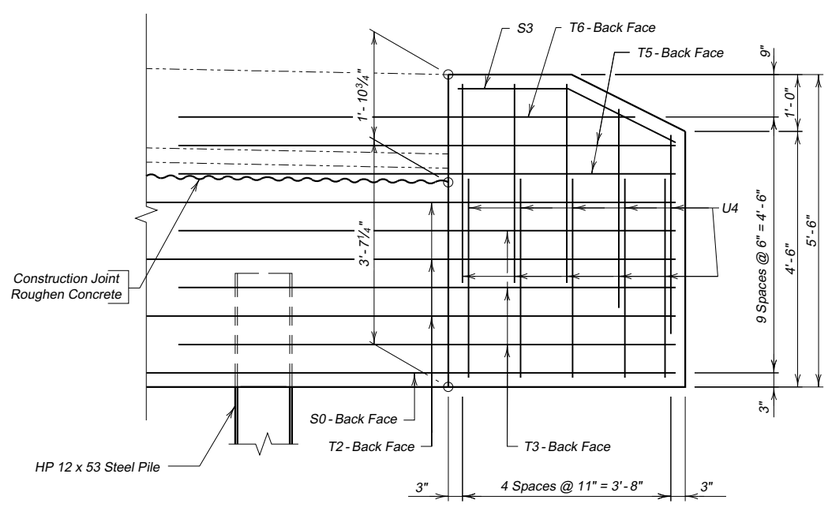
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	40	68

FOR BIDDING PURPOSES ONLY



DETAIL "X"

(Front Face Resteel)

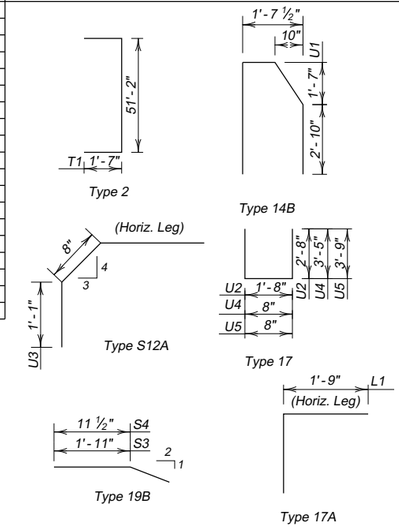


DETAIL "Y"

(Back Face Resteel)

REINFORCING SCHEDULE

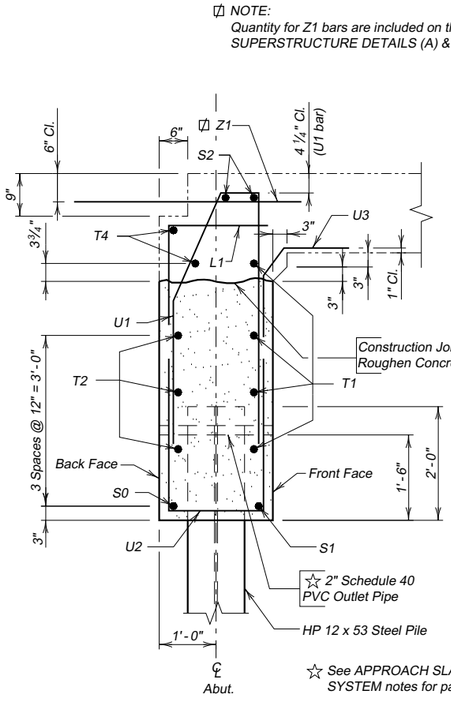
	Mk.	No.	Size	Length	Type	Bending Details
△	L1	53	4	3'-6"	17A	
	S0	1	7	59'-6"	Str.	
✳△	S1	1	7	51'-2"	Str.	
✳△	S2	2	9	51'-2"	Str.	
	S3	2	9	4'-0"	19B	
	S4	2	9	4'-2"	19B	
✳	T1	4	5	54'-4"	2	
	T2	3	5	59'-6"	Str.	
	T3	14	5	8'-9"	Str.	
✳△	T4	2	5	51'-2"	Str.	
△	T5	6	5	8'-9"	Str.	
△	T6	1	5	8'-0"	Str.	
△	T7	1	5	8'-4"	Str.	
△	T8	2	5	7'-4"	Str.	
△	U1	53	6	9'-10"	14B	
	U2	53	4	7'-0"	17	
△	U3	53	4	2'-10"	S12A	
	U4	10	4	7'-6"	17	
	U5	10	4	8'-2"	17	



NOTES -
All dimensions are out to out of bars.
△ Bars to be epoxy coated.
✳ Bend in field as necessary.

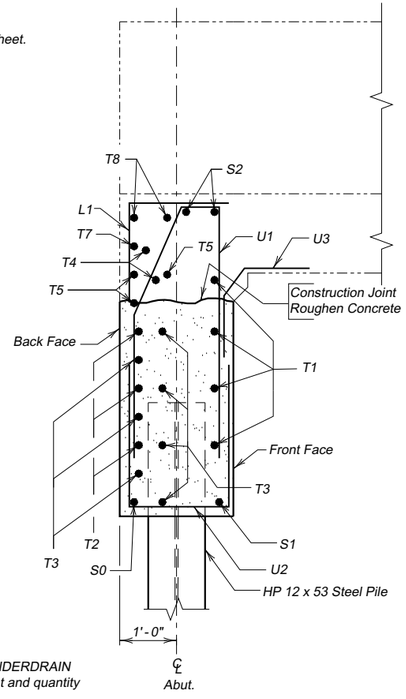
ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY ABUT. NO. 4
Class A45 Concrete, Bridge	Cu.Yd.	16.7
Reinforcing Steel	Lb.	1,175
Epoxy Coated Reinforcing Steel	Lb.	1,549
Structure Excavation, Bridge	Cu.Yd.	11.3
HP12X53 Steel Test Pile, Furnish & Drive	Ft.	1 @ 80' = 80'
HP12X53 Steel Bearing Pile, Furnish & Drive	Ft.	5 @ 75' = 375'
Preboring Pile	Ft.	6 @ 10' = 60'

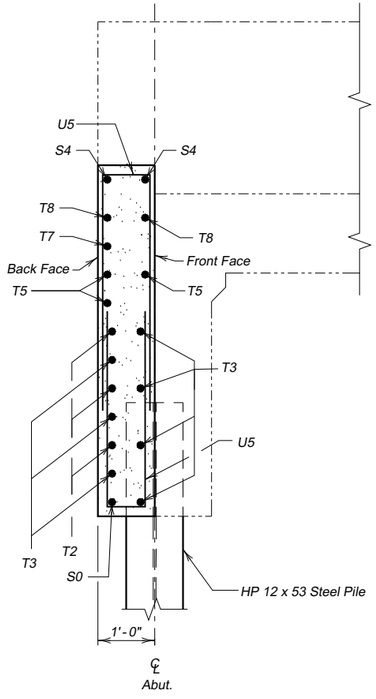


☆ See APPROACH SLAB UNDERDRAIN SYSTEM notes for payment and quantity

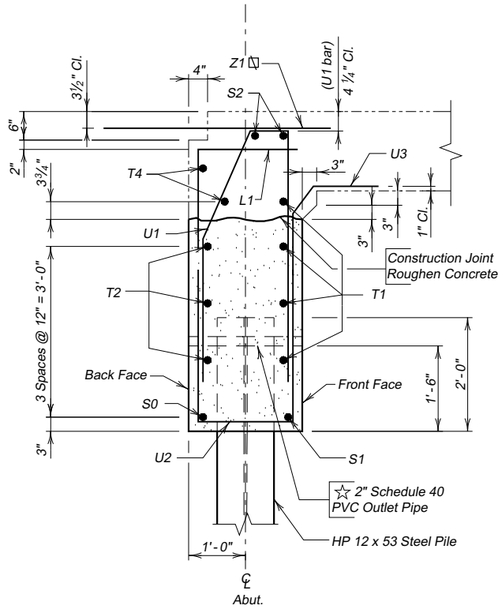
SEC. A - A



SEC. B - B



SEC. C - C



SEC. D - D

ABUTMENT NO. 4 DETAILS (B)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2025

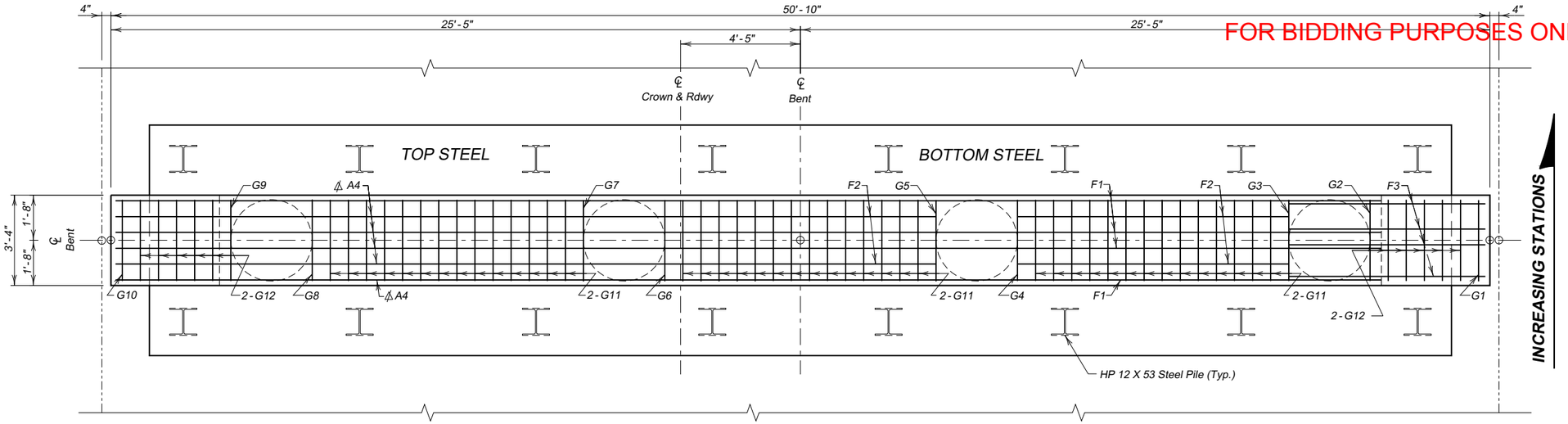
10 OF 34

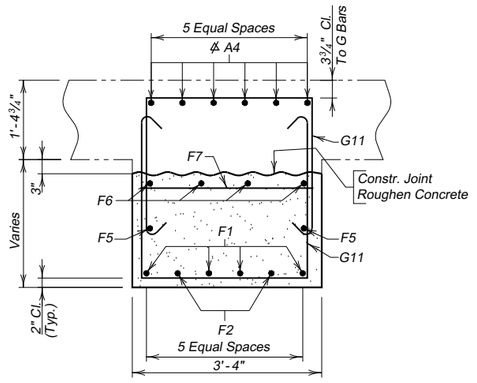
REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
05/08/2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	41	68

FOR BIDDING PURPOSES ONLY





SEC. B - B

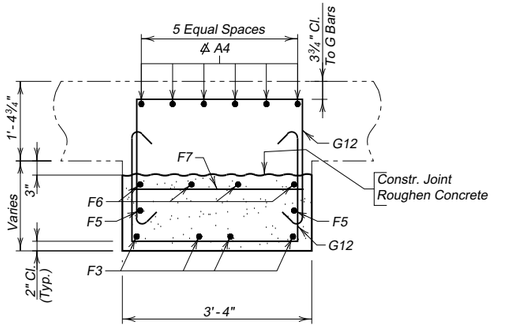
NOTE:

F2 bars are to be placed symmetrically between columns.

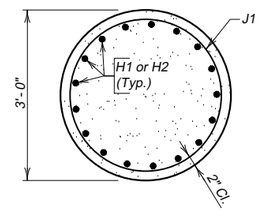
SEC. A - A

NOTE:

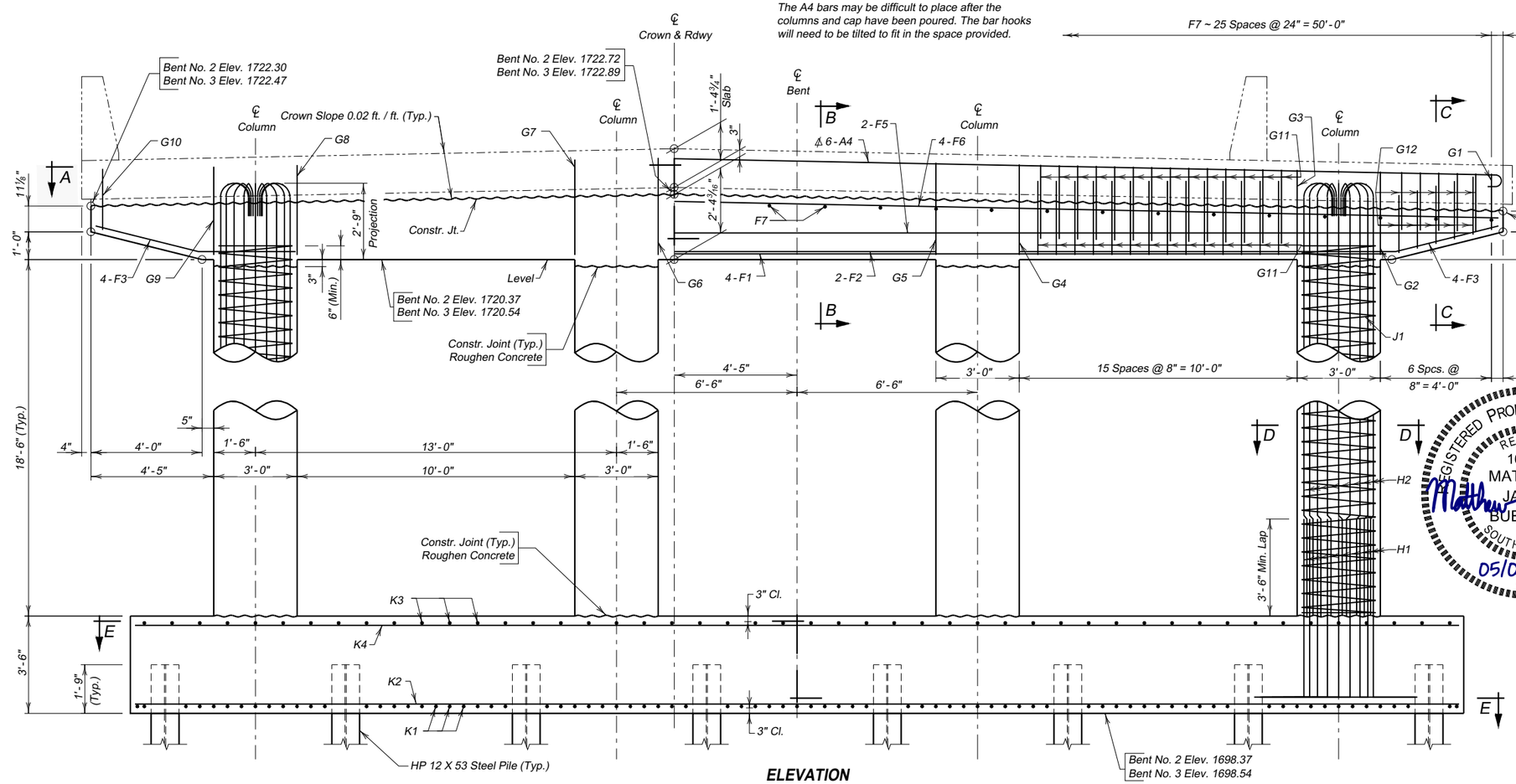
The A4 bars may be difficult to place after the columns and cap have been poured. The bar hooks will need to be tilted to fit in the space provided.



SEC. C - C



SEC. D - D



ELEVATION

REGISTERED PROFESSIONAL ENGINEER
REG NO.
16636
MATTHEW
JAMES
BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

BENT DETAILS (A)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

11 OF 34

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	42	68

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY Bent No. 2	QUANTITY Bent No. 3
Class A45 Concrete, Bridge	Cu.Yd.	84.9	84.9
△ Reinforcing Steel	Lb.	12,107	12,107
Epoxy Coated Reinforcing Steel	Lb.	1,553	1,553
Structure Excavation, Bridge	Cu.Yd.	256.8	253.3
HP 12 X 53 Steel Test Pile, Furnish & Drive	Ft.	1 @ 65' = 65'	1 @ 65' = 65'
HP 12 X 53 Steel Bearing Pile, Furnish & Drive	Ft.	15 @ 60' = 900'	15 @ 60' = 900'

△ Includes 171 Lbs. / Bent. for Spacer Bars. Each bent is computed at ¾ lbs. per linear foot regardless of type furnished.

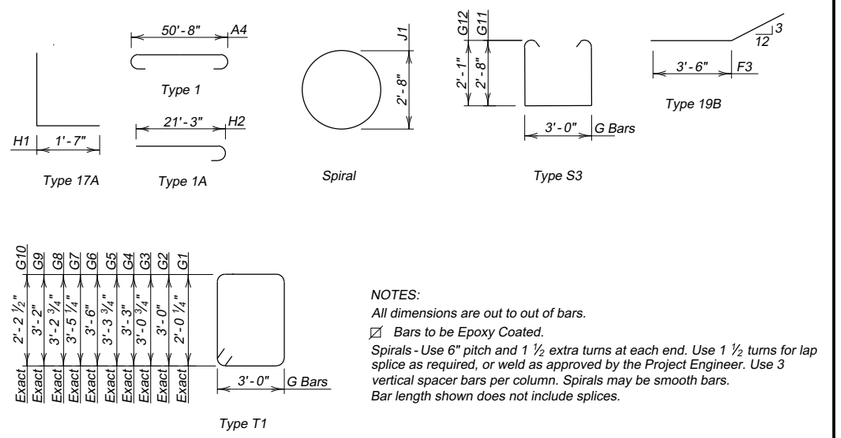
REINFORCING SCHEDULE

(For One bent)

FOR BIDDING PURPOSES ONLY

Mk.	No.	Size	Length	Type
☑ A4	6	8	53'-2"	1
F1	4	7	42'-4"	Str.
F2	6	8	10'-0"	Str.
F3	8	7	7'-3"	19B
F5	2	4	48'-0"	Str.
F6	4	6	50'-4"	Str.
F7	26	4	3'-0"	Str.
☑ G1	1	4	10'-10"	T1
☑ G2	1	4	12'-9"	T1
☑ G3	1	4	12'-11"	T1
☑ G4	1	4	13'-3"	T1
☑ G5	1	4	13'-5"	T1
☑ G6	1	4	13'-9"	T1
☑ G7	1	4	13'-8"	T1
☑ G8	1	4	13'-3"	T1
☑ G9	1	4	13'-1"	T1
☑ G10	1	4	11'-2"	T1
☑ G11	84	4	9'-1"	S3
☑ G12	20	4	7'-11"	S3
H1	68	9	8'-4"	17A
H2	68	9	22'-6"	1A
J1	4	4	343'-6"	Spiral
K1	60	6	8'-2"	Str.
K2	11	8	47'-8"	Str.
K3	48	4	8'-2"	Str.
K4	9	5	47'-8"	Str.

Bending Details



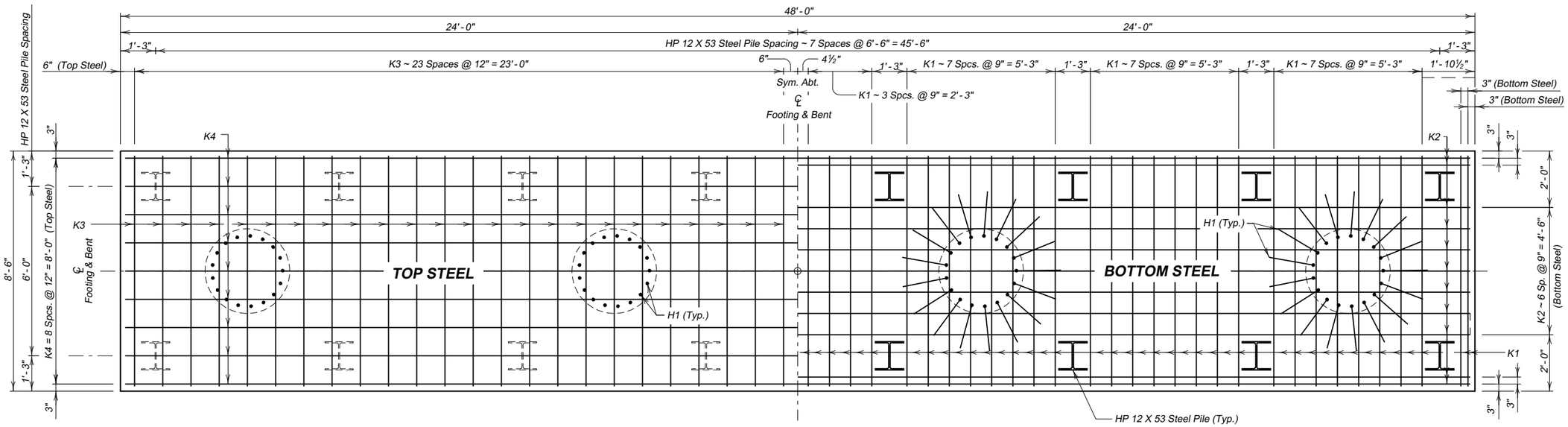
NOTES:

All dimensions are out to out of bars.

☑ Bars to be Epoxy Coated.

Spirals - Use 6" pitch and 1 ½ extra turns at each end. Use 1 ½ turns for lap splice as required, or weld as approved by the Project Engineer. Use 3 vertical spacer bars per column. Spirals may be smooth bars.

Bar length shown does not include splices.



SEC. E - E
(Footing Steel)

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
05/08/2025

BENT DETAILS (B)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

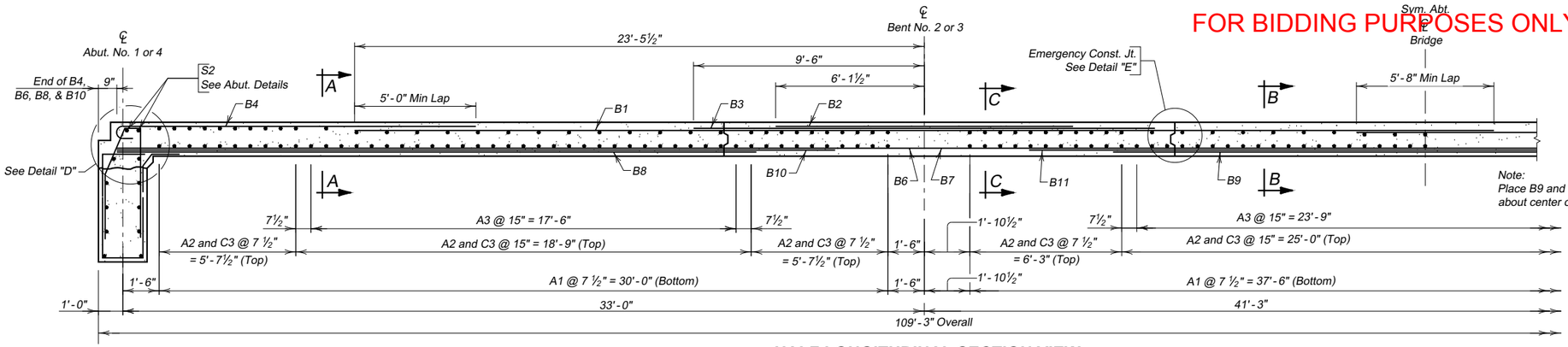
MAY 2025

12 OF 34

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

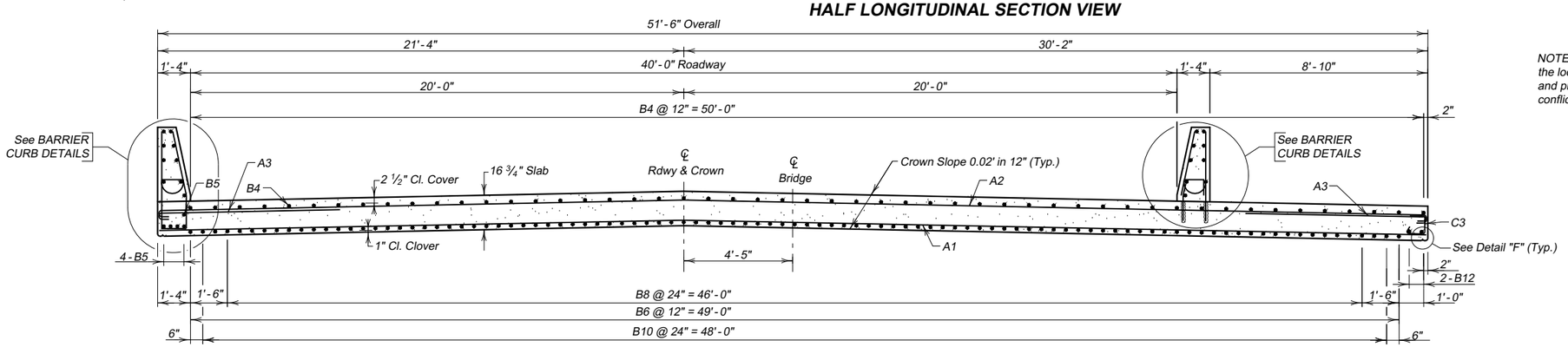
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	43	68

FOR BIDDING PURPOSES ONLY



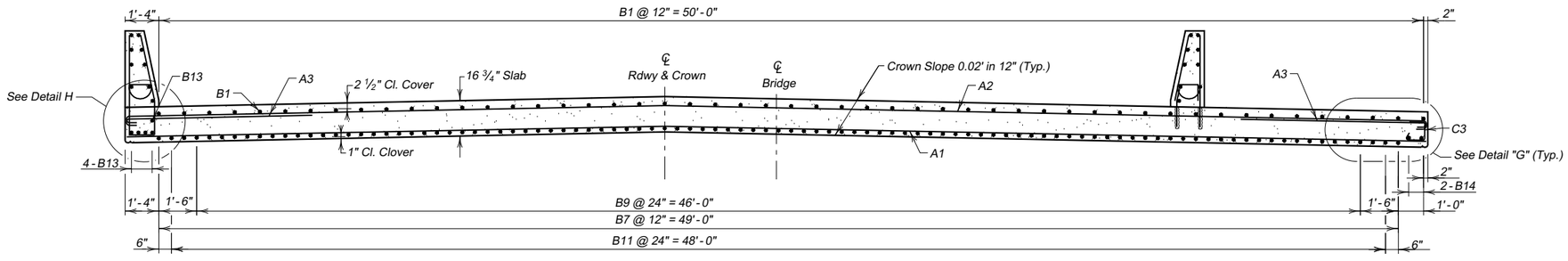
Note:
Place B9 and B11 bars symmetrically about center of interior spans.

HALF LONGITUDINAL SECTION VIEW

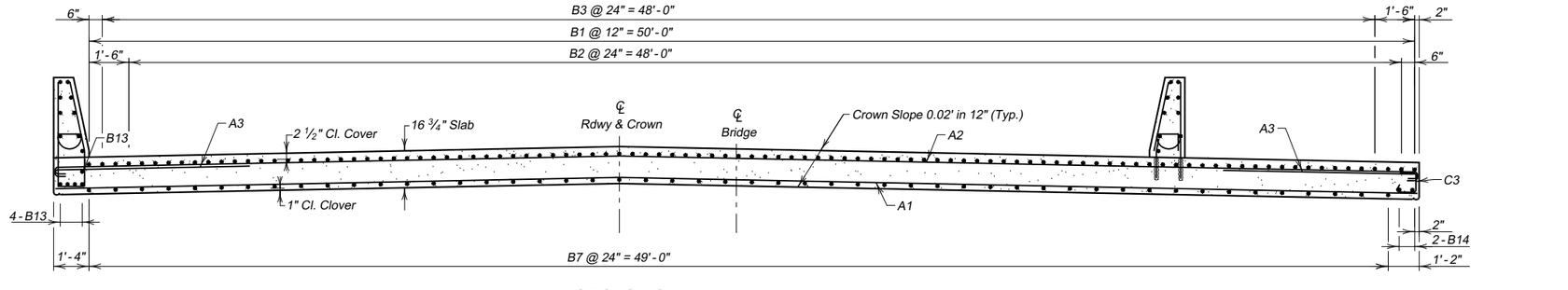


NOTE: The Contractor is responsible for recording the location of all A2 bars before pouring the deck and properly locating the top B bars, to avoid conflicts with drilling for the C and C0 bars.

SEC. A - A



SEC. B - B



SEC. C - C

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

SUPERSTRUCTURE DETAILS (A)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

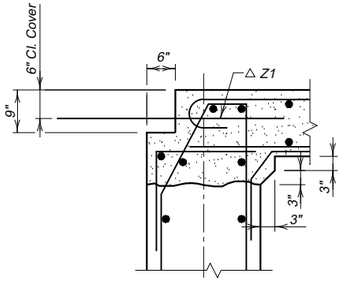
CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

13 OF 34

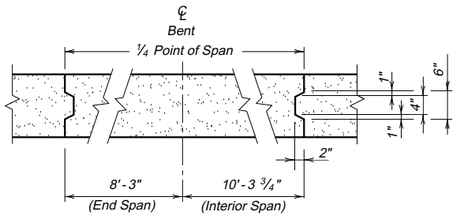
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	44	68

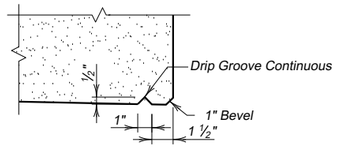
FOR BIDDING PURPOSES ONLY



DETAIL "D"

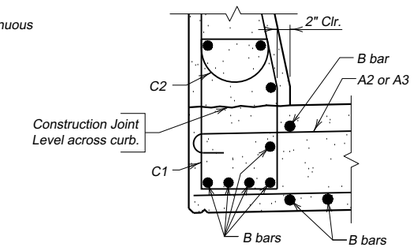


DETAIL "E"

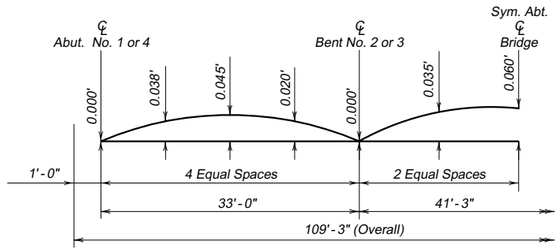


DETAIL "F"

NOTE: All barrier curb details shown on BARRIER CURB & DECK DRAIN DETAILS sheet.

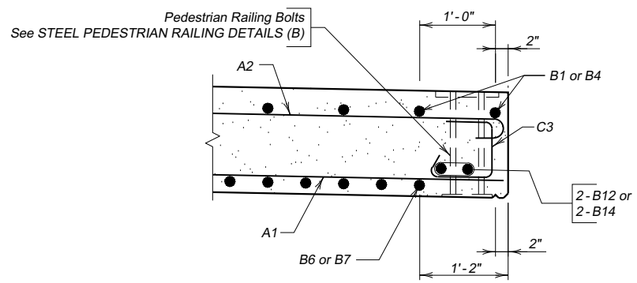


DETAIL "H"



CAMBER DIAGRAM

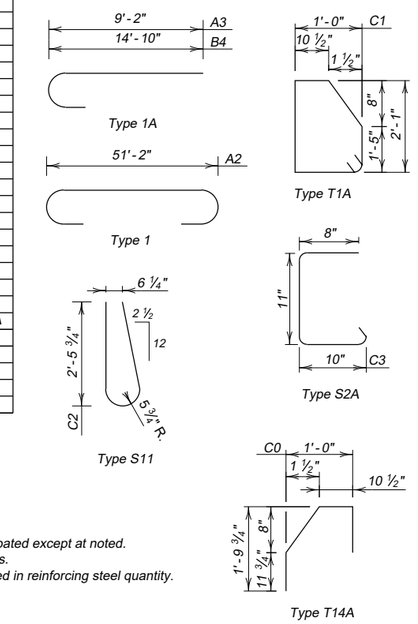
Camber is calculated for dead load deflection plus plastic flow and has been added to the proposed grade elevations at the respective stations to establish the elevations of the top of the finished roadway slab.



DETAIL "G"

REINFORCING SCHEDULE

	Mk.	No.	Size	Length	Type	Bending Details
	A1	159	5	51'-2"	Str.	
	A2	109	4	52'-2"	1	
	A3	100	5	9'-9"	1A	
	B1	102	9	46'-11"	Str.	
	B2	50	9	12'-3"	Str.	
	B3	50	9	19'-0"	Str.	
	B4	102	8	15'-9"	1A	
	B5	10	5	33'-9"	Str.	
	B6	100	8	33'-3"	Str.	
	B7	50	8	41'-3"	Str.	
	B8	48	8	26'-4"	Str.	
	B9	24	8	25'-9"	Str.	
	B10	50	8	29'-7"	Str.	
	B11	25	8	32'-8"	Str.	
	B12	4	9	33'-3"	Str.	
	B13	5	5	41'-3"	Str.	
	B14	2	9	41'-3"	Str.	
	B15	36	4	55'-5"	Str.	
☒	C	55	5	1'-9"	Str.	
☒	C0	109	5	3'-4"	T14A	
	C1	109	5	7'-0"	T1A	
	C2	218	5	5'-6"	S11	
	C3	109	4	2'-9"	S2A	
	C4	109	5	2'-6"	17B	
△	Z1	66	7	4'-0"	Str.	



NOTES -
All reinforcing steel will be epoxy coated except at noted.
All dimensions are out to out of bars.
☒ Drill and epoxy in place. Not included in reinforcing steel quantity.

ESTIMATED QUANTITIES

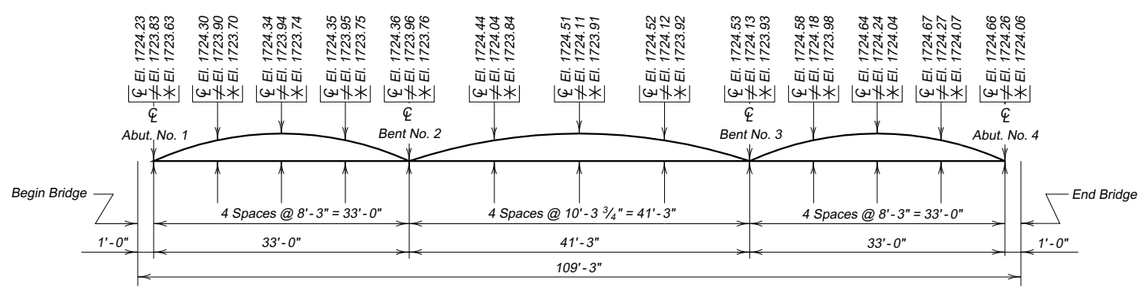
	ITEM	UNIT	QUANTITY
✳	Class A45 Concrete, Bridge Deck	Cu.Yd.	322.9
≠ ✳	Epoxy Coated Reinforcing Steel	Lb.	70,416
	Install Dowel in Concrete	Each	164
	Deck Drain (Slab Bridge)	Each	10
	Concrete Penetrating Sealer	Sq. Yd.	587.7

△ See DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE sheet for location of Z1 bars

✳ Includes quantities for Barrier Curbs and Slab.
Concrete Quantity for Barrier Curbs is 25.9 Cu. Yd.

≠ Does not include the following quantities for C and C0 bars as these are paid for in the bid item "Install Dowel in Concrete".

C & C0 Bars
479 Lb.



CURB AND CENTERLINE ELEVATIONS

Elevations with a ≠ are Top of Finished Slab at Left Curb Line, Elevations with a ℄ are Top of Finished Slab at Centerline Roadway, and Elevations with a ✳ are Top of Finished Slab at Right Edge. Camber for Dead Load plus Plastic Flow have been included in the Elevations shown above.

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

SUPERSTRUCTURE DETAILS (B)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

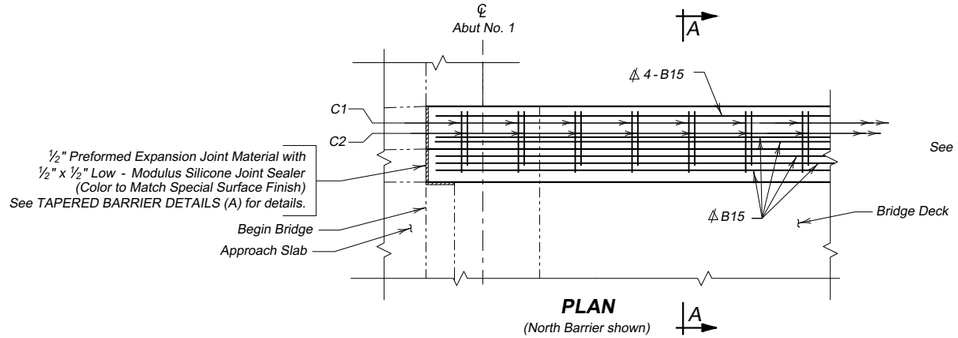
CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

14 OF 34

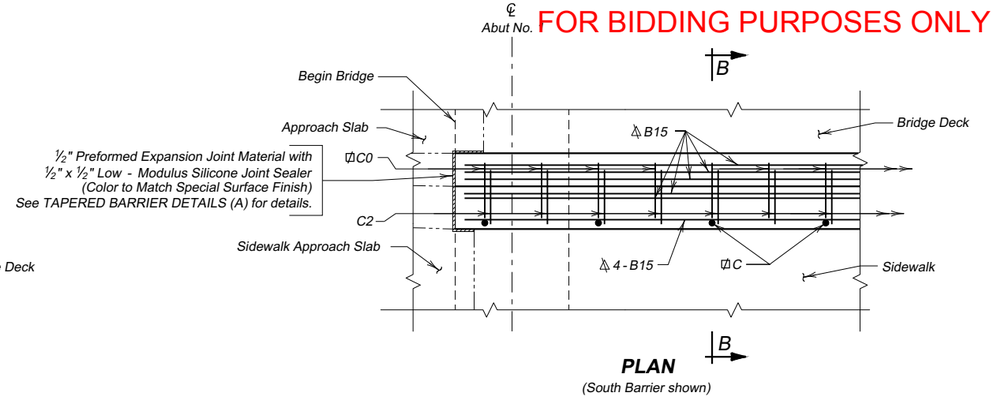
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	45	68

FOR BIDDING PURPOSES ONLY

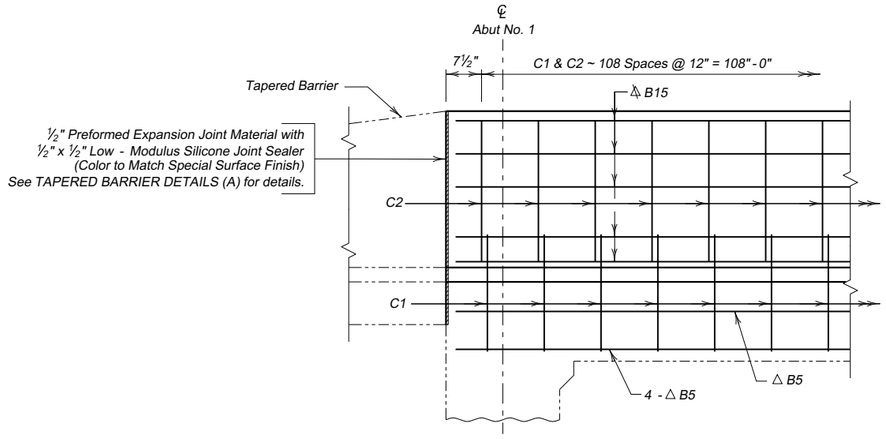


PLAN
(North Barrier shown)

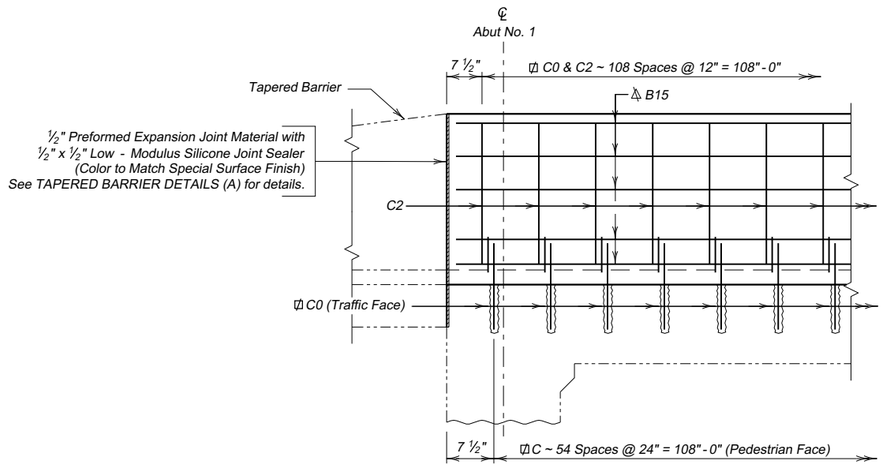


PLAN
(South Barrier shown)

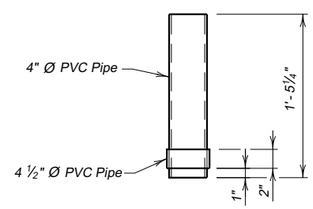
⍁ *Drill and epoxy in place. Not included in reinforcing steel quantity.*



ELEVATION
(North Barrier shown)



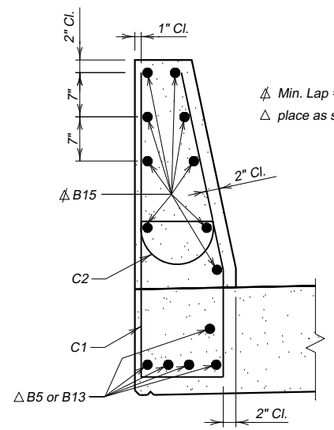
ELEVATION
(South Barrier shown)



DECK DRAIN DETAIL

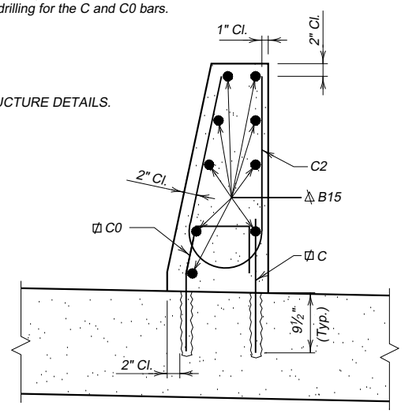
(See GENERAL DRAWING for spacing of Deck Drains and NOTES (CONTINUED) sheet for deck drain notes.)

NOTE: The Contractor is responsible for recording the location of all A2 bars before pouring the deck and properly locating the top B bars, to avoid conflicts with drilling for the C and C0 bars.

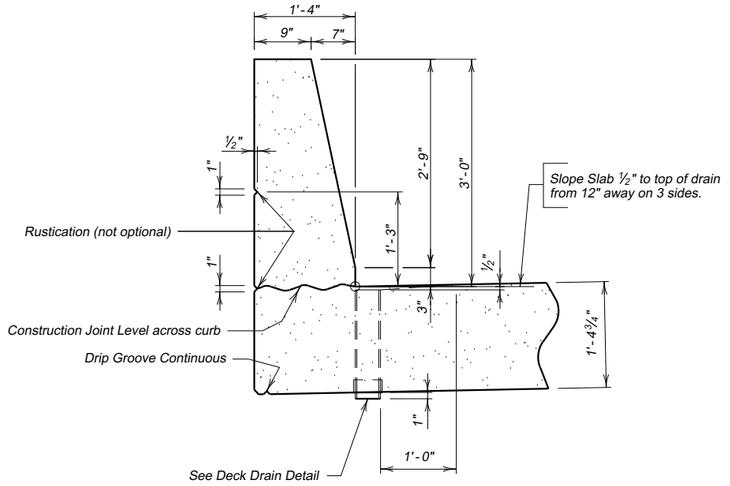


△ *Min. Lap = 1' - 11"*
△ *place as shown on SUPERSTRUCTURE DETAILS.*

SEC. A - A



SEC. B - B



DRAIN AND BARRIER DETAILS

REGISTERED PROFESSIONAL ENGINEER
REG NO.
16636
MATTHEW
JAMES
BUENGER
SOUTH DAKOTA
05/08/2025

BARRIER CURB & DECK DRAIN DETAILS

FOR

109'-3" CONT. CONCRETE BRIDGE

40' - 0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

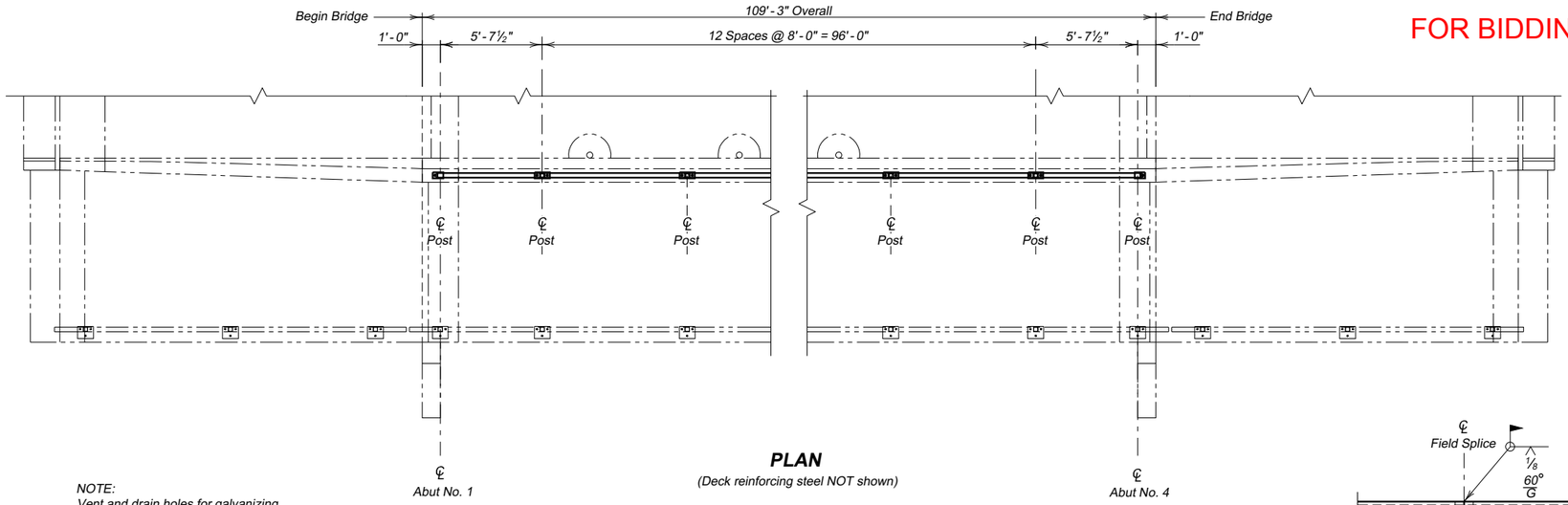
CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

15 OF 34

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

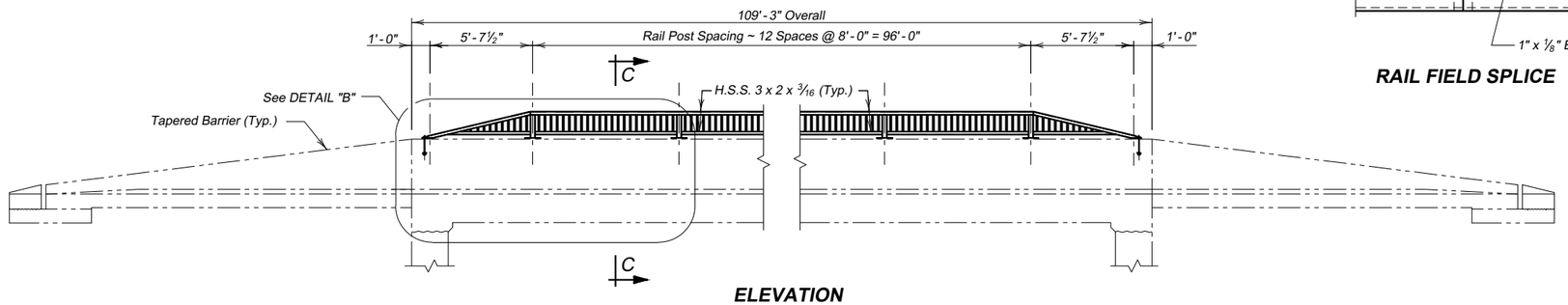
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	46	68

FOR BIDDING PURPOSES ONLY

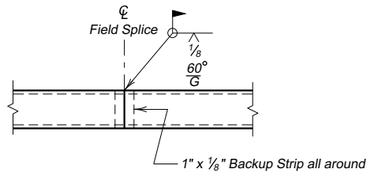


PLAN
(Deck reinforcing steel NOT shown)

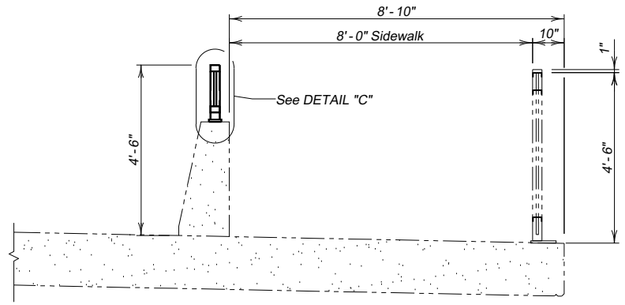
NOTE:
Vent and drain holes for galvanizing will be required as necessary.



ELEVATION



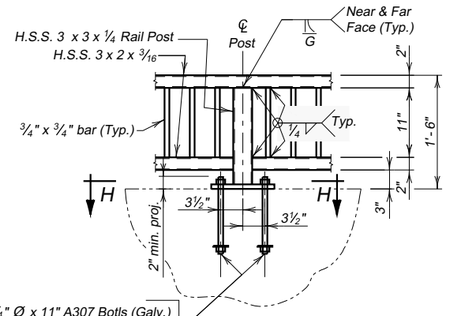
RAIL FIELD SPLICE



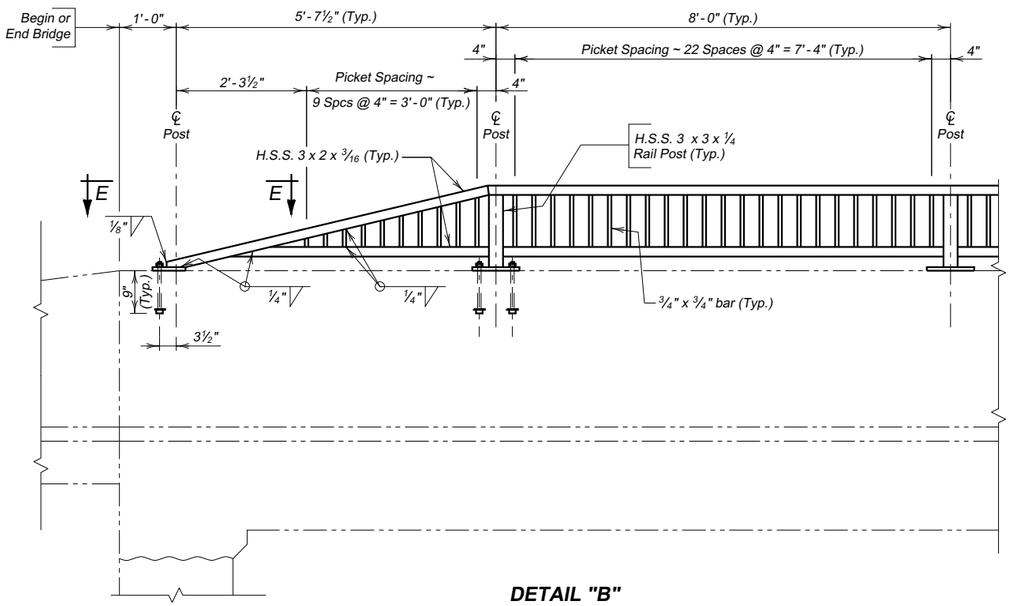
SEC. C - C

ESTIMATED QUANTITIES

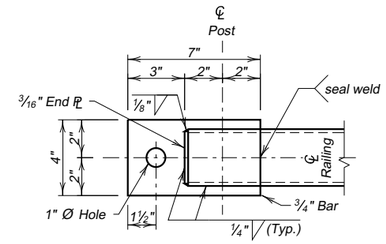
ITEM	UNIT	QUANTITY
Steel Pedestrian Railing on Concrete Barrier	Ft.	108.1



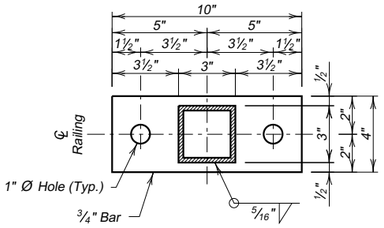
VIEW F - F



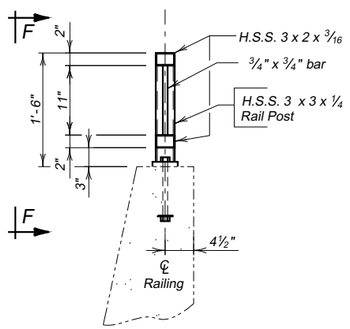
DETAIL "B"
(Begin Bridge shown End Bridge similar)



VIEW E - E



VIEW H - H



DETAIL "C"

REGISTERED PROFESSIONAL ENGINEER
REG NO.
16636
MATTHEW
JAMES
BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

BARRIER CURB RAILING DETAILS

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

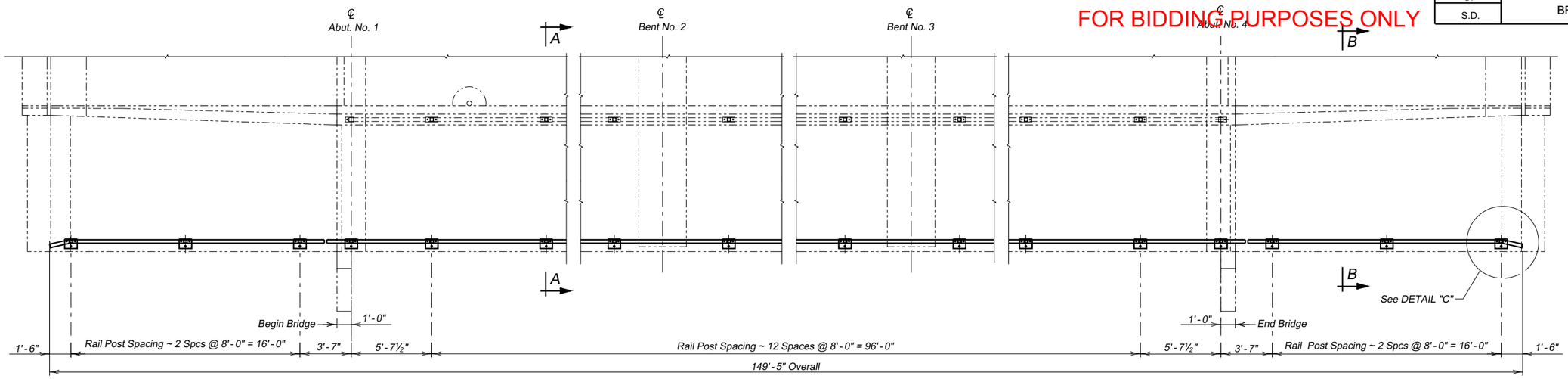
CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

16 OF 34

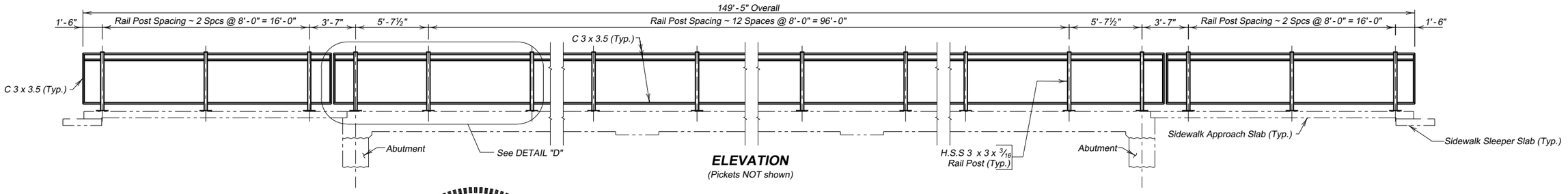
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	47	68

FOR BIDDING PURPOSES ONLY

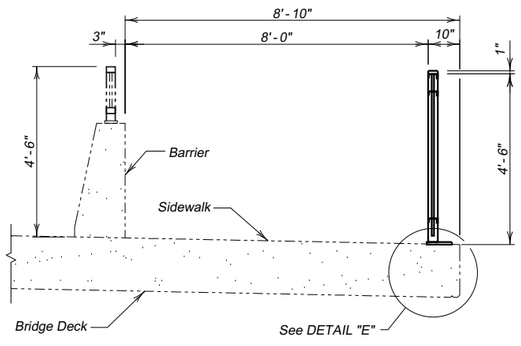


PLAN

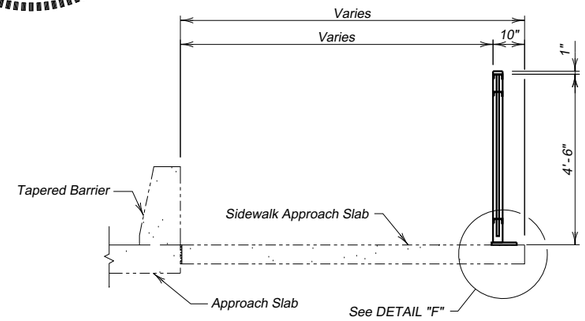


ELEVATION
(Pickets NOT shown)

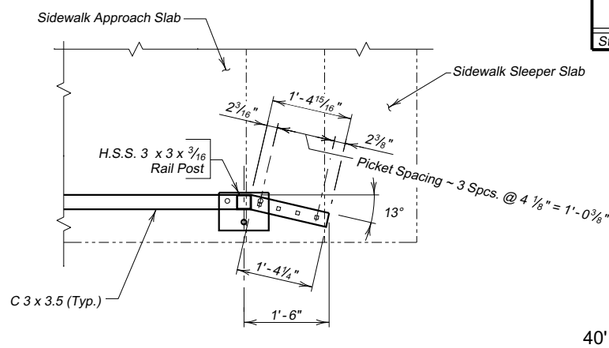
REGISTERED PROFESSIONAL ENGINEER
REG NO.
16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025



SEC. A - A



SEC. B - B



DETAIL "C"
(Southwest Corner similar but opposite hand)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Steel Pedestrian Railing on Sidewalk	Ft.	149.5

STEEL PEDESTRIAN RAILING DETAILS (A)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY — 0° SKEW
OVER BIG SIOUX RIVER — SEC. 24/25-T117N-R53W
STA. 4+59.37 TO 5+68.62 — BRF-B 4266(07)
STR. NO. 15-178-160 — HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

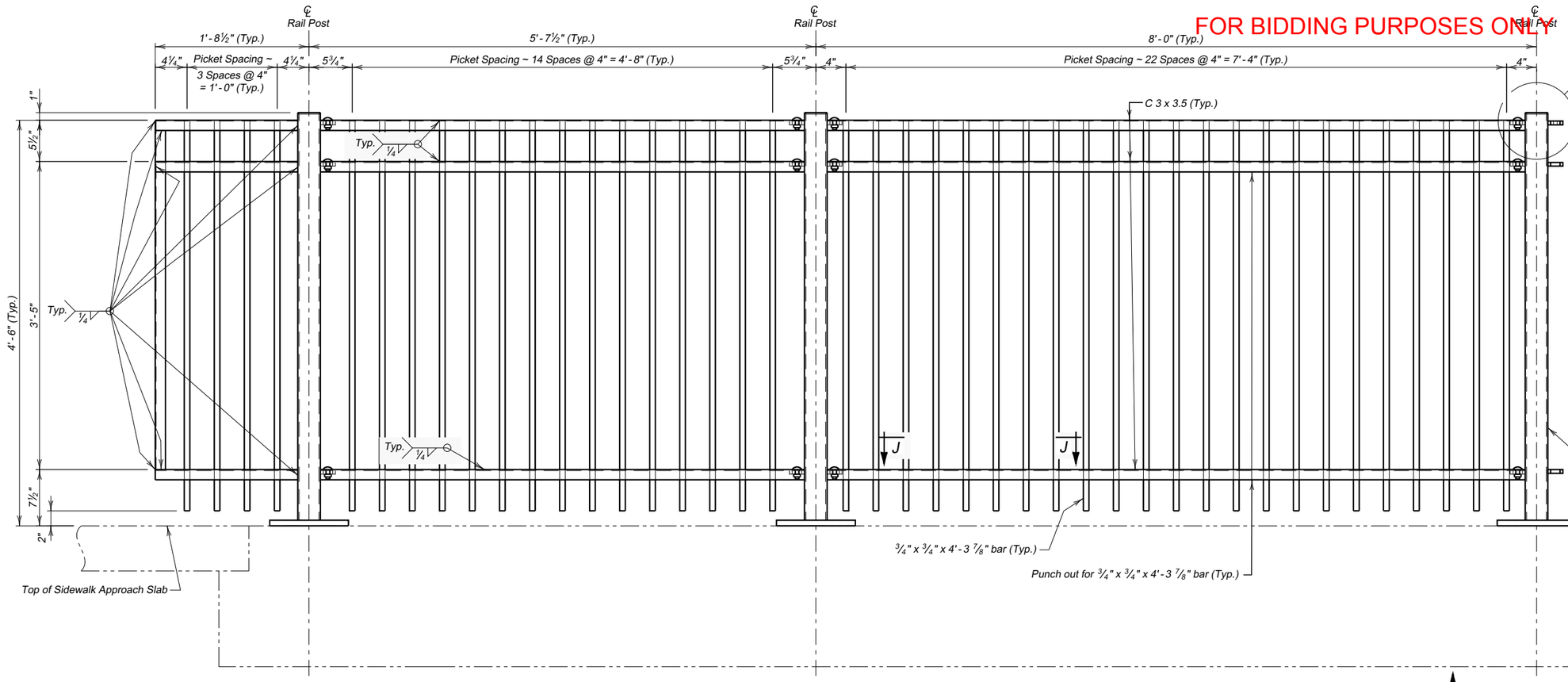
MAY 2025

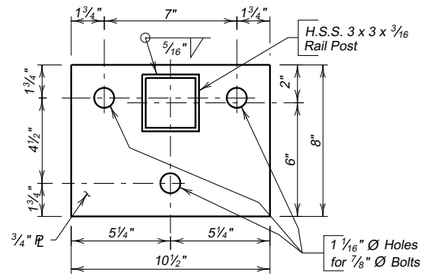
17 OF 34

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

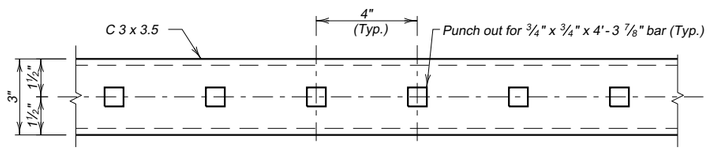
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	48	68

FOR BIDDING PURPOSES ONLY





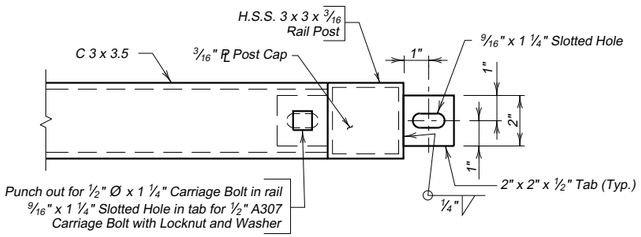
BASE PLATE DETAIL
(For Steel Pedestrian Railing)



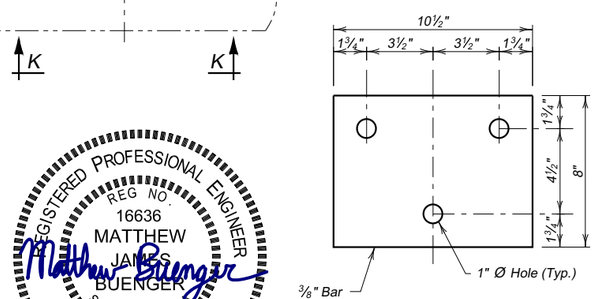
VIEW J - J
(Pickets NOT shown)

DETAIL "D"

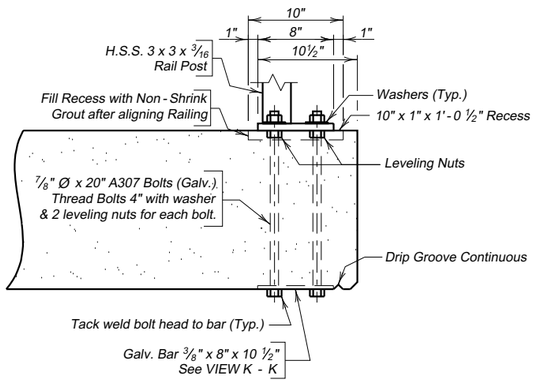
NOTE:
Vent and drain holes for galvanizing will be required as necessary.



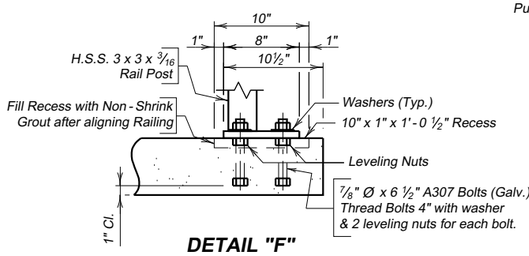
VIEW H - H
(Carriage Bolt NOT shown)



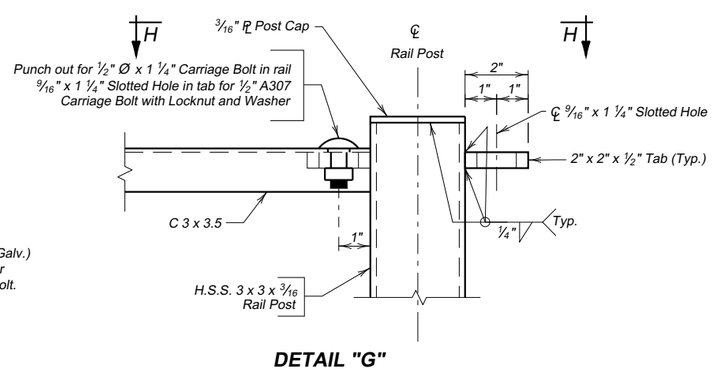
VIEW K - K



DETAIL "E"
(Sidewalk)



DETAIL "F"
(Sidewalk Approach Slab)



DETAIL "G"

STEEL PEDESTRIAN RAILING DETAILS (B)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

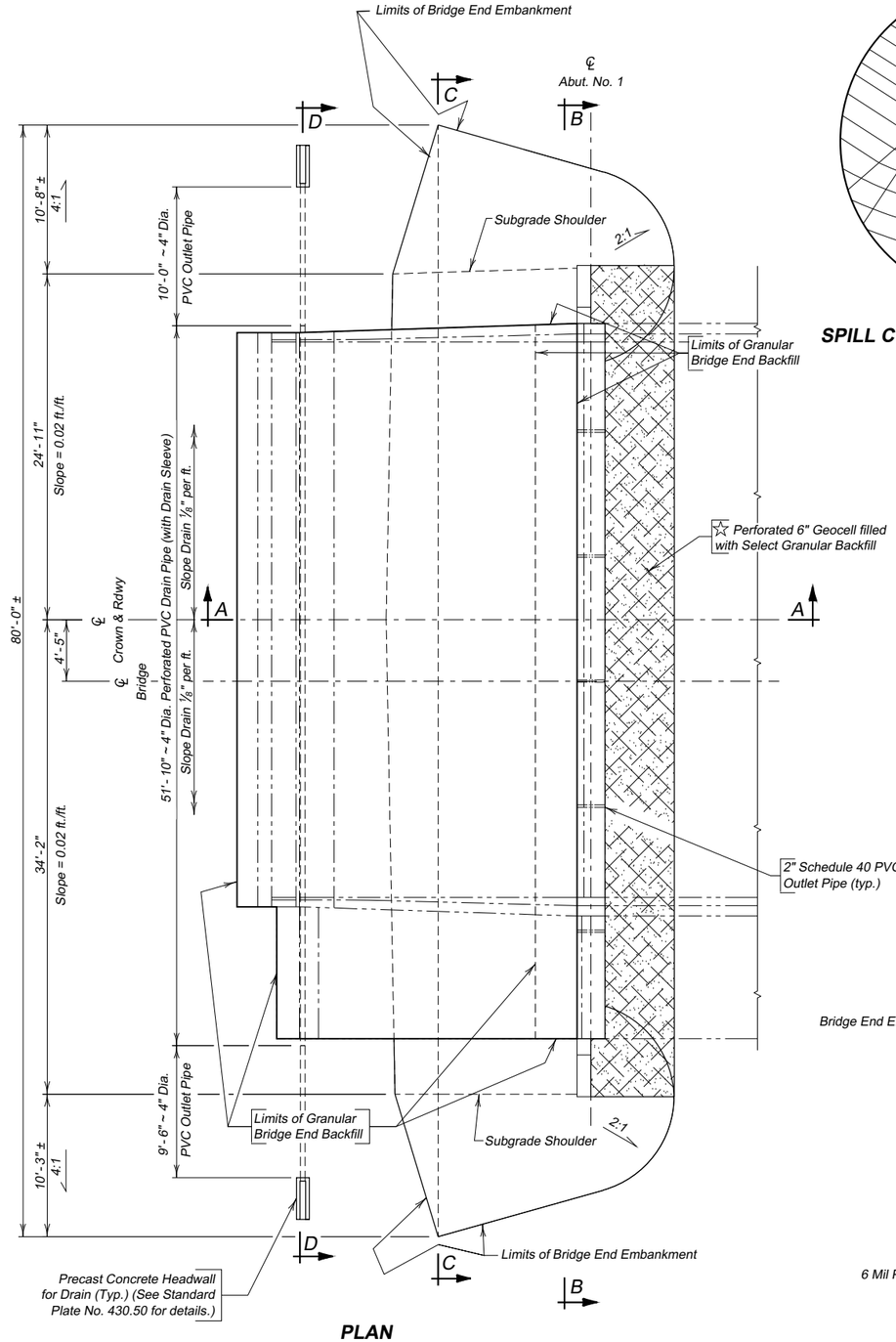
0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

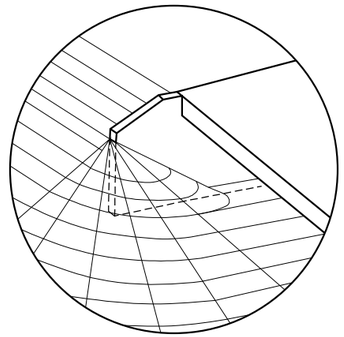
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	49	68

FOR BIDDING PURPOSES ONLY



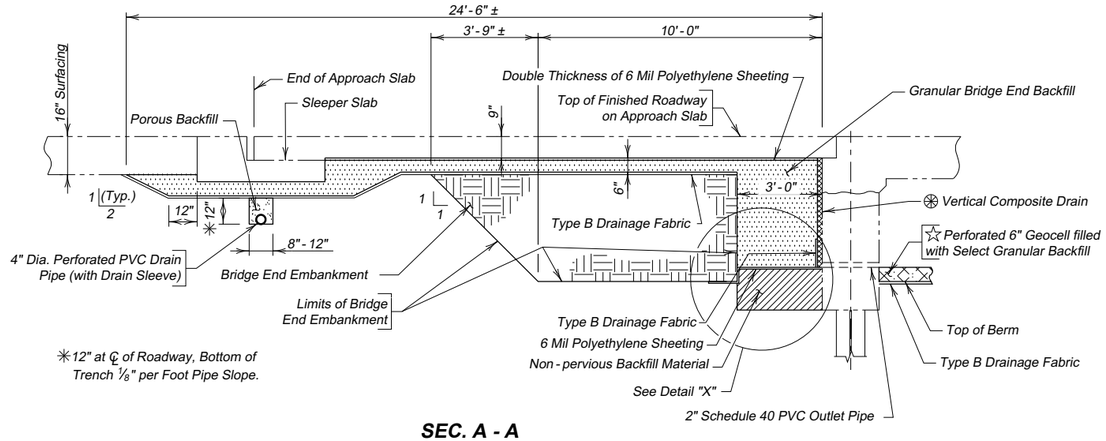
PLAN

(Bridge End Backfill shown adjacent to Abut. No. 1.)



SPILL CONE DETAIL AT EMBANKMENT

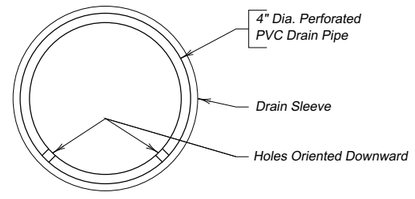
(Railing not shown.)



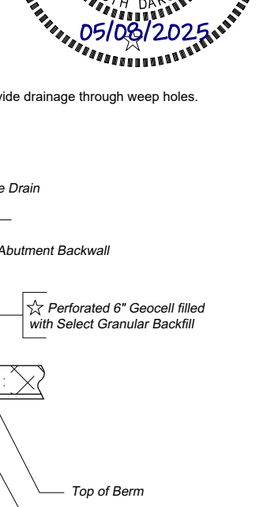
✳12" at ℄ of Roadway, Bottom of Trench 1/8" per Foot Pipe Slope.

SEC. A - A

(Cut at ℄ Roadway)



DRAIN DETAIL



✻ Provide hole in vertical composite drain to provide drainage through weep holes.

DETAIL "X"

☆ See PERFORATED GEOCELL notes for payment information.

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY ABUT. NO. 1
⧋	Bridge End Embankment	Cu. Yd.	118.8
✳	Granular Bridge End Backfill	Cu. Yd.	47.5
⧫ ⧄	Porous Backfill	Ton	3.5
	4" Underdrain Pipe	Ft.	72
⧫	Approach Slab Underdrain Excavation	Cu. Yd.	2.7
⧄	Select Granular Backfill	Ton	10.8
☆	Perforated Geocell	Sq. Ft.	308
	Precast Concrete Headwall for Drain	Each	2

		Abut. No. 1
1.	4" Dia. Perforated PVC Drain Pipe (with Drain Sleeve).	52 Ft.
2.	4" Dia. PVC Outlet Pipe.	20 Ft.
3.	2" Dia. PVC Outlet Pipe.	10 Ft.
4.	Vertical Composite Drain.	185 Sq. Ft.

Items 1 thru 4 are approximate quantities contained in the 4" Underdrain Pipe for information only.

5.	6 Mil Polyethylene Sheeting, not including laps.	2372 Sq. Ft.
6.	Type B Drainage Fabric.	159 Sq. Yd.

Items 5 & 6 are approximate quantities contained in the Granular Bridge End Backfill and are for information only.

⧄ For estimating purposes only, a factor of 1.89 Tons / Cu. Yd. was used to convert Cu. Yds. to Tons.

⧋ Shrinkage factor of 1.3 used.

✳ Includes 8.6 Cu.Yd./ Abut of non-pervious backfill incidental to granular bridge end backfill.

⧫ Quantity is based on 12" wide trench.

DETAILS OF BRIDGE END BACKFILL ADJACENT TO ABUTMENT NO. 1 (A)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY — 0° SKEW
OVER BIG SIOUX RIVER — SEC. 24/25-T117N-R53W
STA. 4+59.37 TO 5+68.62 — BRF-B 4266(07)
STR. NO. 15-178-160 — HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

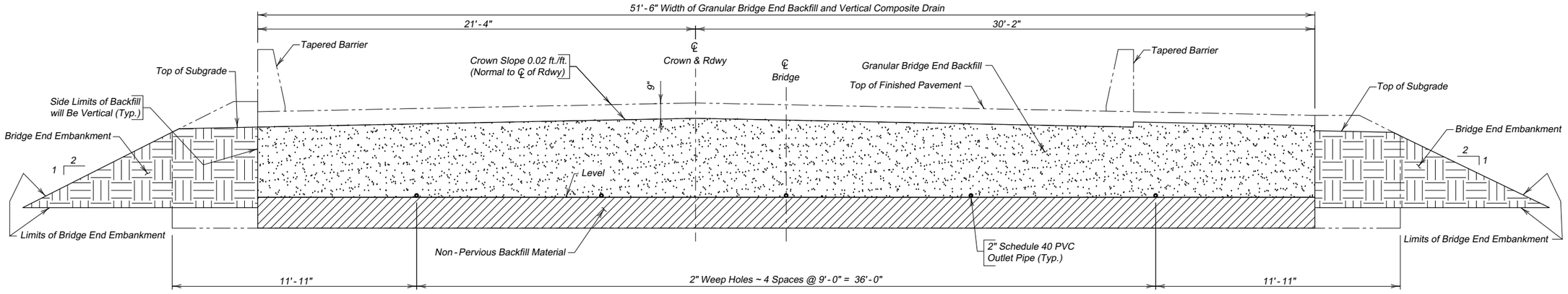
MAY 2025

19 OF 34

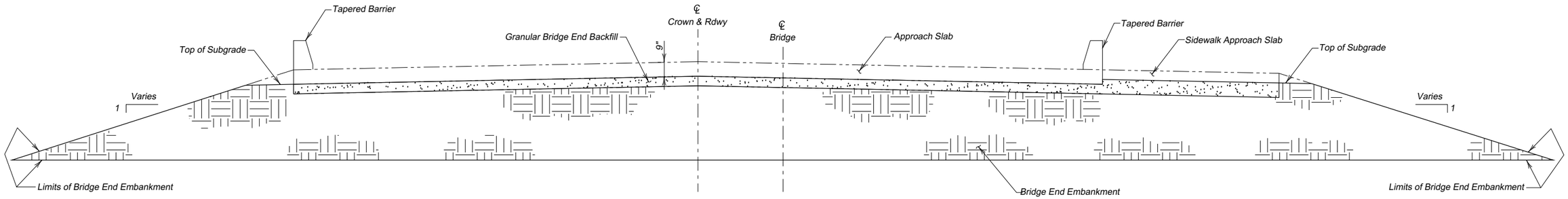
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	50	68

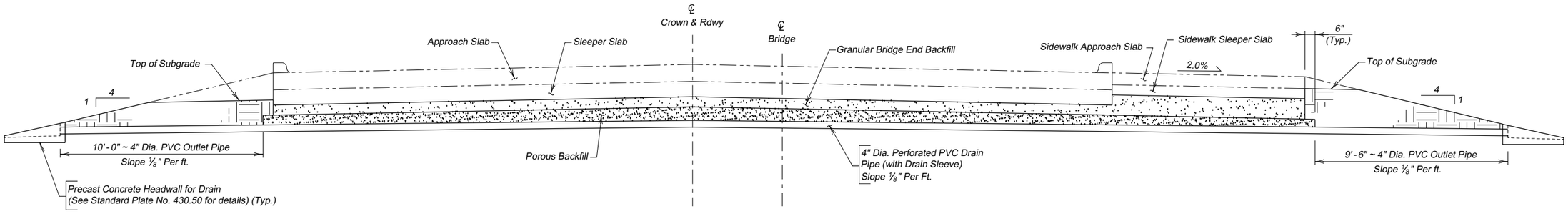
FOR BIDDING PURPOSES ONLY



SEC. B - B



SEC. C - C



SEC. D - D

REGISTERED PROFESSIONAL ENGINEER
REG NO.
16636
MATTHEW
JAMES
BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

DETAILS OF BRIDGE END BACKFILL ADJACENT TO ABUTMENT NO. 1 (B)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

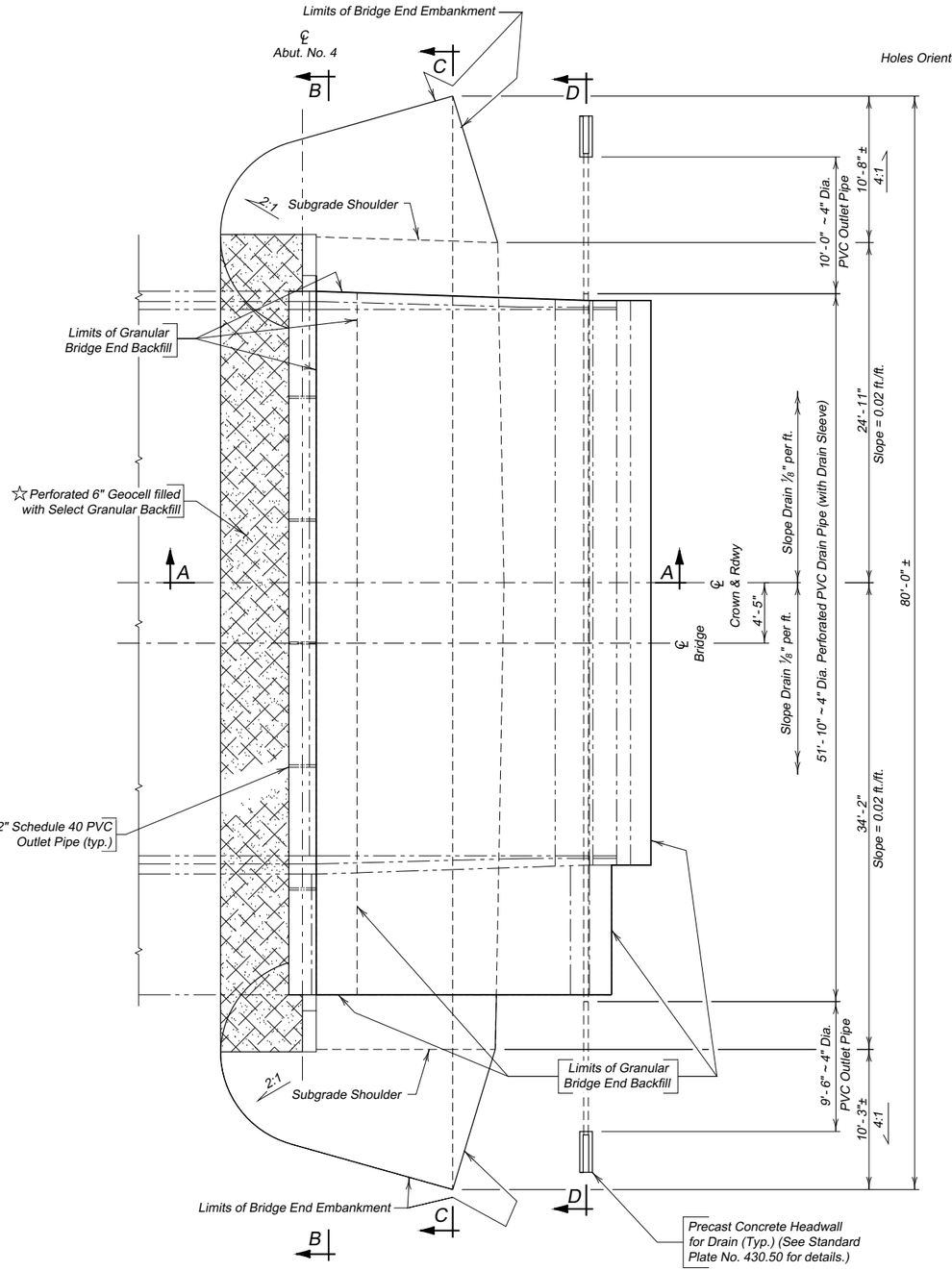
0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

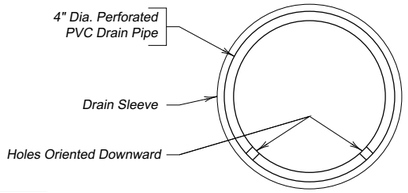
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	51	68

FOR BIDDING PURPOSES ONLY

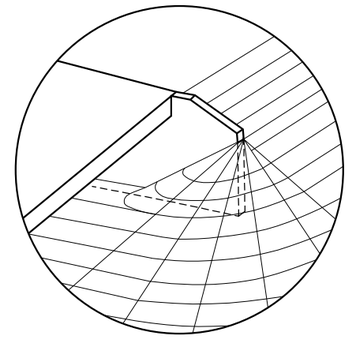


PLAN

(Bridge End Backfill shown adjacent to Abut. No. 4.)

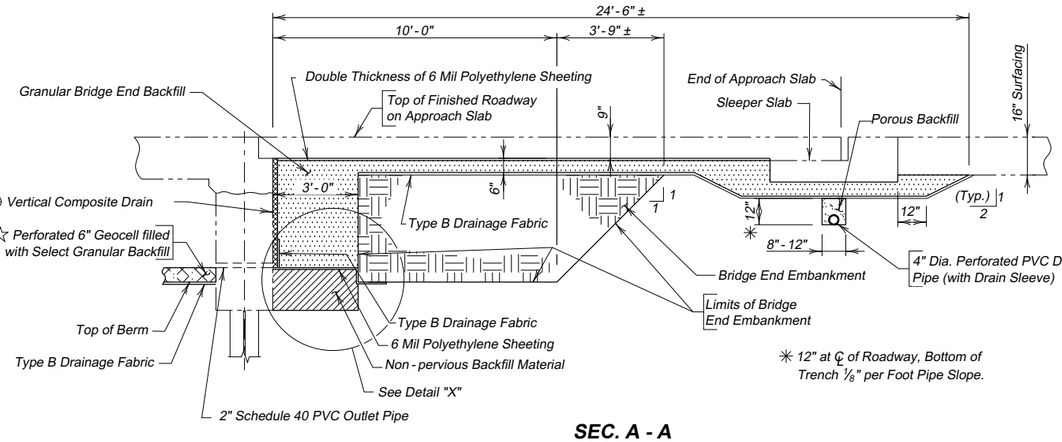


DRAIN DETAIL



SPILL CONE DETAIL AT EMBANKMENT

(Railing not shown.)



✳ 12" at ℄ of Roadway, Bottom of Trench ⅛" per Foot Pipe Slope.

SEC. A - A

(Cut at ℄ Roadway)

☆ *See PERFORATED GEOCELL notes for payment information.*

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY ABUT. NO. 4
Bridge End Embankment	Cu. Yd.	118.8
✳ Granular Bridge End Backfill	Cu. Yd.	47.5
⟠ ⧄ Porous Backfill	Ton	3.5
4" Underdrain Pipe	Ft.	72
⟠ Approach Slab Underdrain Excavation	Cu. Yd.	2.7
⧄ Select Granular Backfill	Ton	10.8
☆ Perforated Geocell	Sq. Ft.	308
Precast Concrete Headwall for Drain	Each	2

		Abut. No. 4
1.	4" Dia. Perforated PVC Drain Pipe (with Drain Sleeve).	52 Ft.
2.	4" Dia. PVC Outlet Pipe.	20 Ft.
3.	2" Dia. PVC Outlet Pipe.	10 Ft.
4.	Vertical Composite Drain.	185 Sq. Ft.

Items 1 thru 4 are approximate quantities contained in the 4" Underdrain Pipe for information only.

5.	6 Mil Polyethylene Sheeting, not including laps.	2372 Sq. Ft.
6.	Type B Drainage Fabric.	159 Sq. Yd.

Items 5 & 6 are approximate quantities contained in the Granular Bridge End Backfill and are for information only.

⧄ For estimating purposes only, a factor of 1.89 Tons / Cu. Yd. was used to convert Cu. Yds. to Tons.

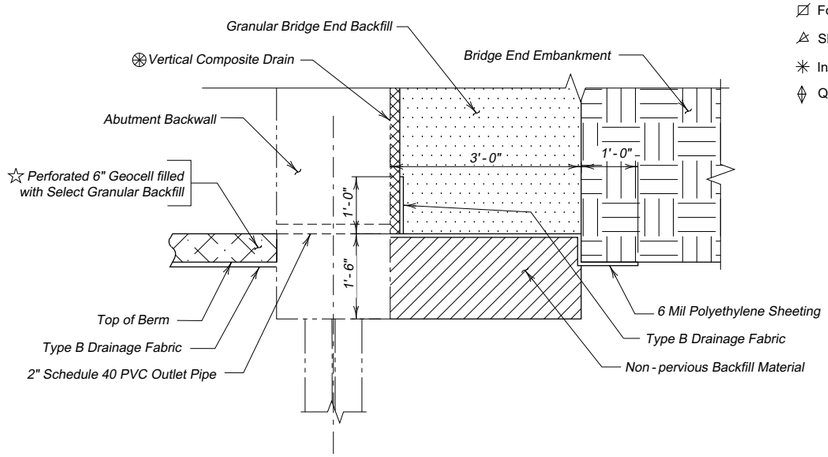
⟠ Shrinkage factor of 1.3 used.

✳ Includes 8.6 Cu.Yd./ Abut of non-pervious backfill incidental to granular bridge end backfill.

⟠ Quantity is based on 12" wide trench.

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
05/08/2025

⊛ Provide hole in vertical composite drain to provide drainage through weep holes.



DETAIL "X"

DETAILS OF BRIDGE END BACKFILL ADJACENT TO ABUTMENT NO. 4 (A)

FOR

109'-3" CONT. CONCRETE BRIDGE

40' - 0" ROADWAY — 0° SKEW
OVER BIG SIOUX RIVER — SEC. 24/25-T117N-R53W
STA. 4+59.37 TO 5+68.62 — BRF-B 4266(07)
STR. NO. 15-178-160 — HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

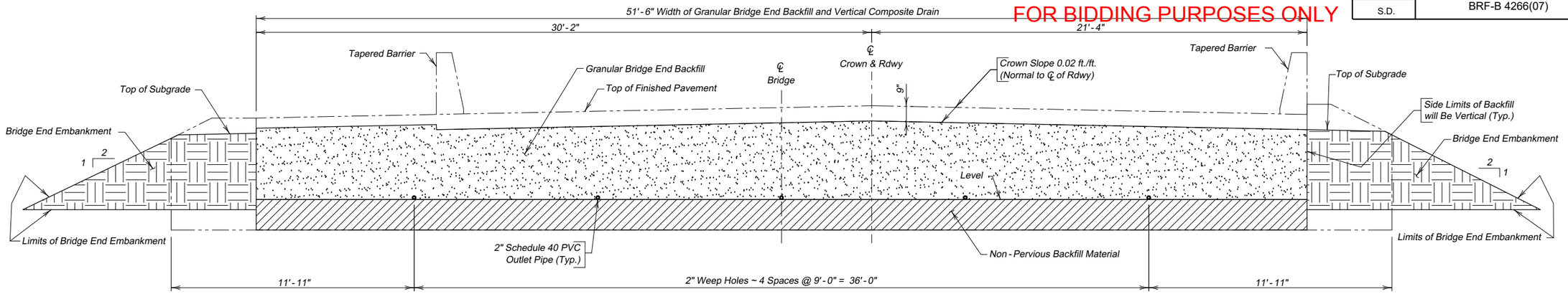
MAY 2025

21 OF 34

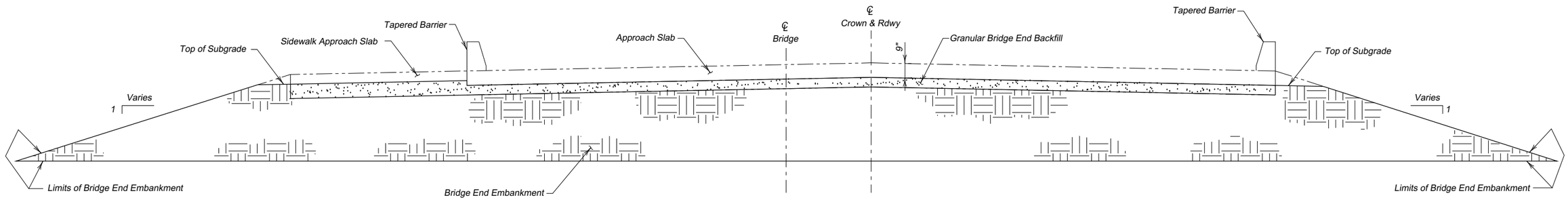
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	52	68

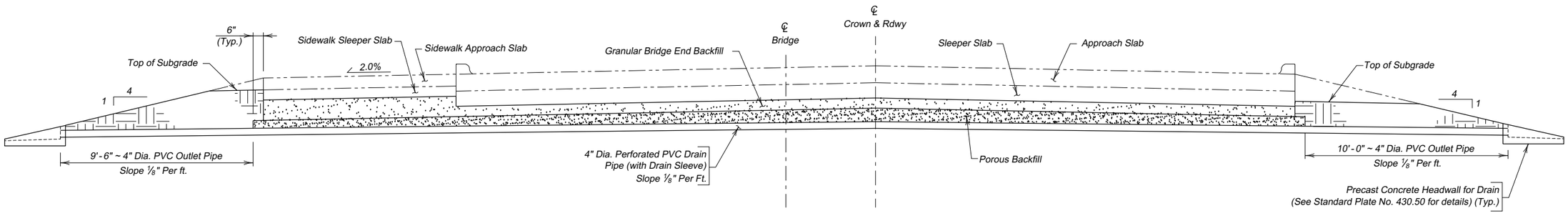
FOR BIDDING PURPOSES ONLY



SEC. B - B



SEC. C - C



SEC. D - D

REGISTERED PROFESSIONAL ENGINEER
REG NO.
16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

DETAILS OF BRIDGE END BACKFILL ADJACENT TO ABUTMENT NO. 4 (B)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

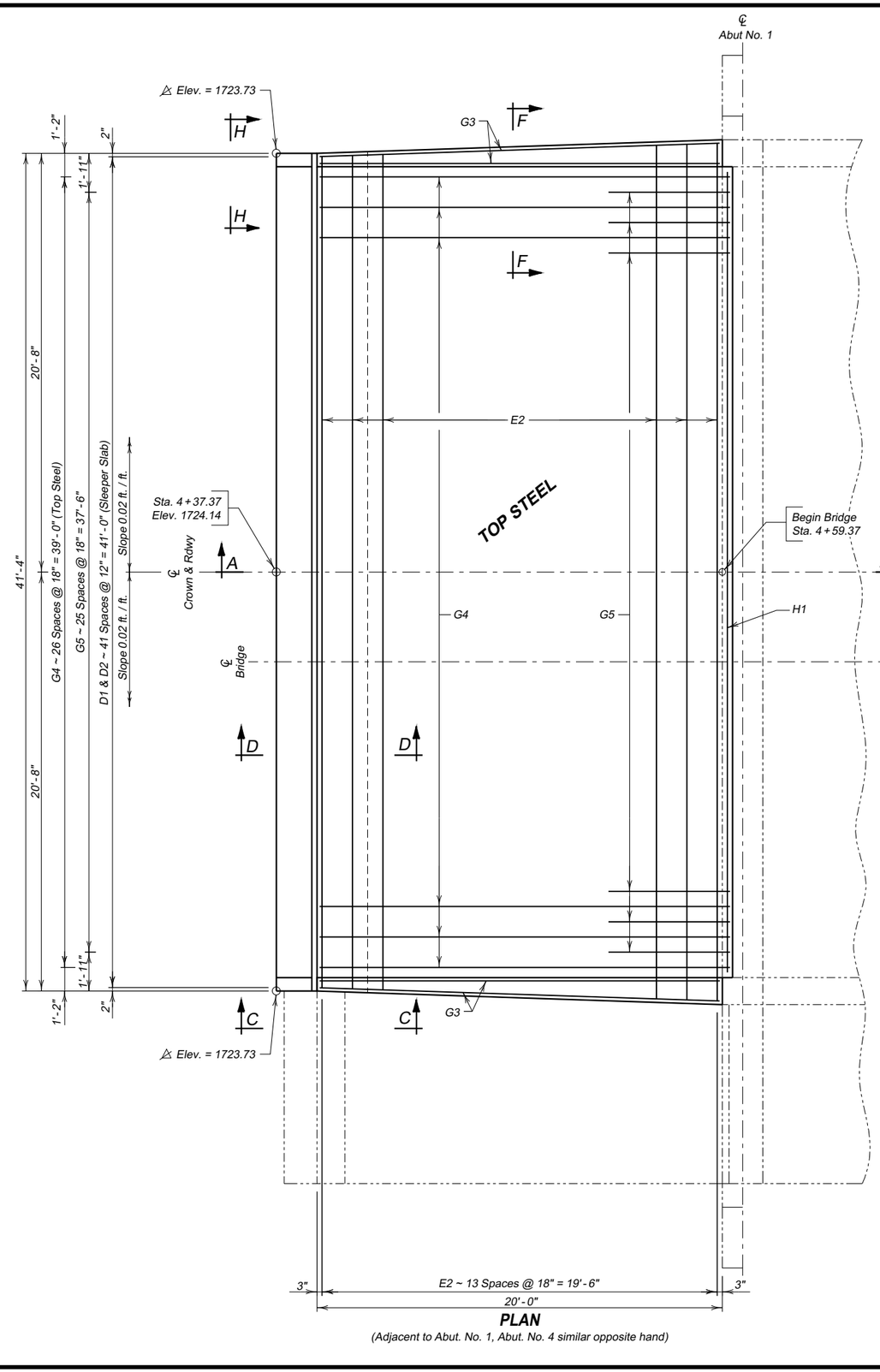
0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

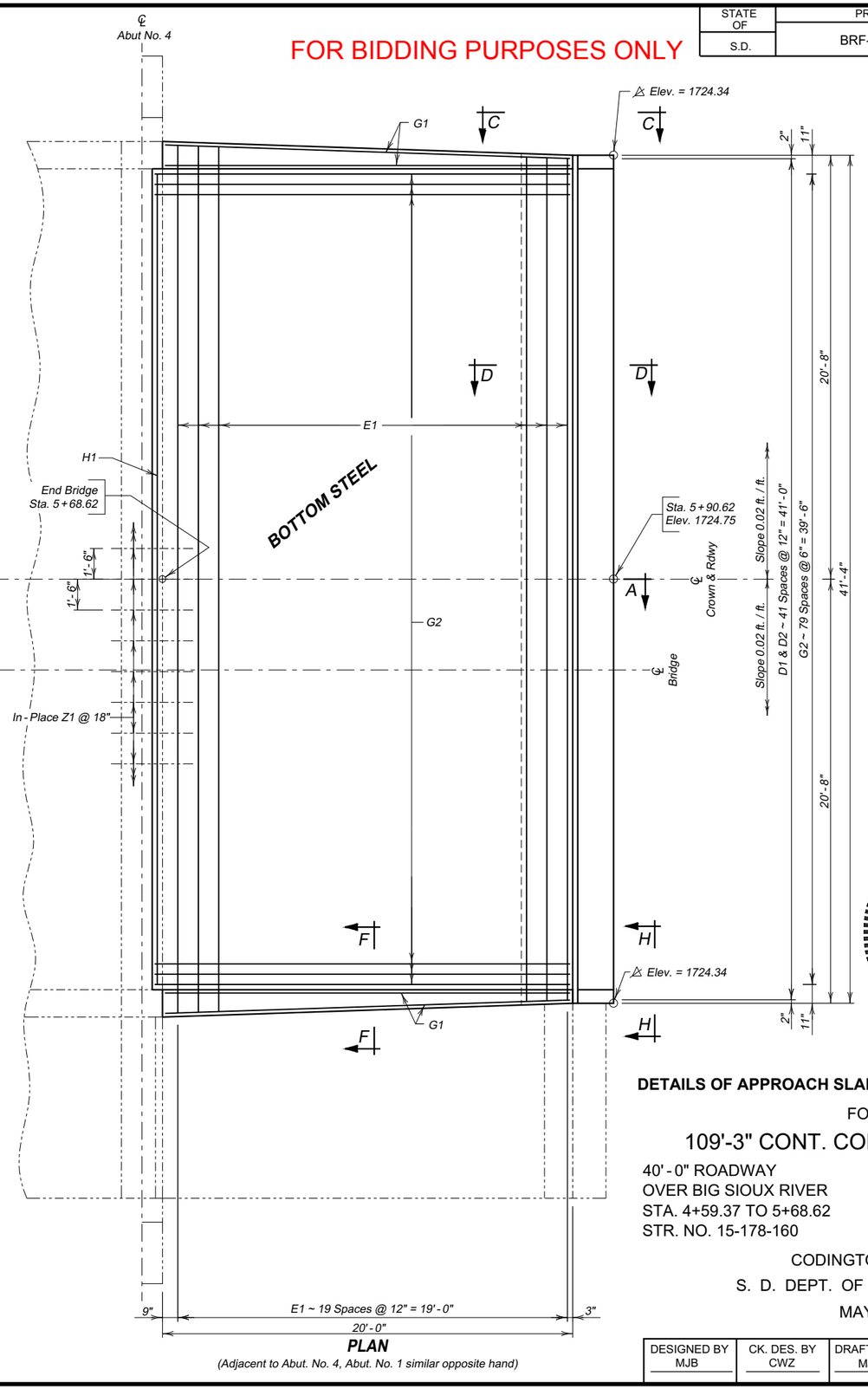
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	53	68

FOR BIDDING PURPOSES ONLY



PLAN

(Adjacent to Abut. No. 1, Abut. No. 4 similar opposite hand)



PLAN

(Adjacent to Abut. No. 4, Abut. No. 1 similar opposite hand)

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE (A)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY	0° SKEW
OVER BIG SIOUX RIVER	SEC. 24/25-T117N-R53W
STA. 4+59.37 TO 5+68.62	BRF-B 4266(07)
STR. NO. 15-178-160	HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

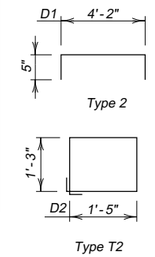
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	54	68

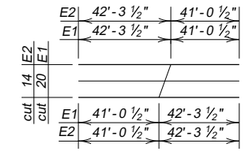
REINFORCING SCHEDULE

(For Two Approach Slabs & Two Sleeper Slabs)

	Mk.	No.	Size	Length	Type
	Sleeper Slabs				
	C1	32	5	41'-0"	Str.
	D1	168	4	5'-0"	2
	D2	84	4	6'-1"	T2
	Approach Slabs				
☑	E1	20	6	83'-4"	Str.
☑	E2	14	6	83'-4"	Str.
	G1	8	8	19'-9"	Str.
	G2	160	8	20'-3"	Str.
	G3	8	4	19'-9"	Str.
	G4	54	4	20'-3"	Str.
	G5	52	4	6'-0"	Str.
	H1	4	6	39'-6"	Str.

Bending Details





Notes:

☑ See cutting diagram.
All bars to be epoxy coated.
All dimensions are out to out of bars.

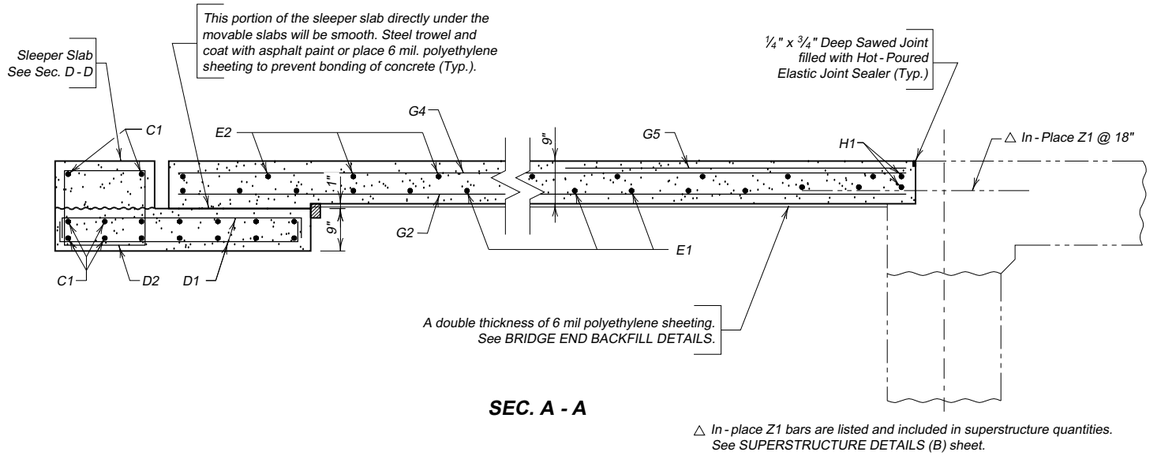
ESTIMATED QUANTITIES

(For Two Approach Slabs & Two Sleeper Slabs)

ITEM	UNIT	QUANTITY
Concrete Approach Slab for Bridge	Sq. Yd.	191.1
Concrete Approach Sleeper Slab for Bridge	Sq. Yd.	41.4

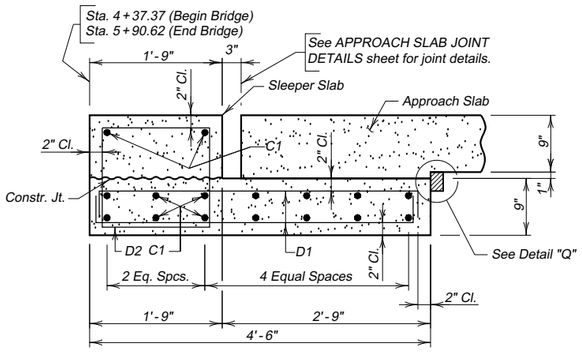
Items 1 thru 7 re approximate quantities contained in the above bid items and are for information only.

1. 48.4 Cu. Yds. Concrete in Approach Slabs.
2. 14,611 Lbs. Epoxy Coated Re-Steel in Approach Slabs.
3. 14.8 Cu. Yds. Concrete in Sleeper Slabs.
4. 2,271 Lbs. Epoxy Coated Re-Steel in Sleeper Slabs.
5. 21 Sq. Ft. of 2" Polystyrene Insulation Board.
6. 5.2 Cu. Yds. Concrete in Tapered Barriers.
7. 1,162 Lbs. Epoxy Coated Re-Steel in Tapered Barriers.



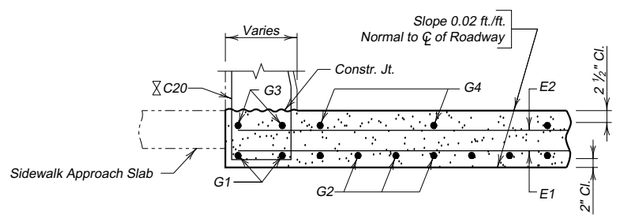
SEC. A - A

△ In-place Z1 bars are listed and included in superstructure quantities. See SUPERSTRUCTURE DETAILS (B) sheet.

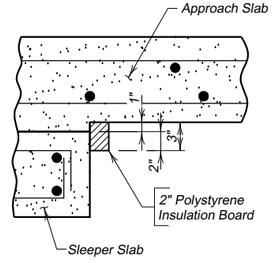


SEC. D - D
(Sleeper Slab)

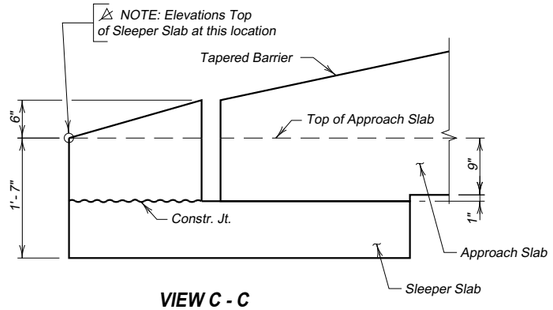
⧖ Shown and included in reinforcing schedule for tapered barriers. See TAPERED BARRIER DETAILS (B) sheet for details.



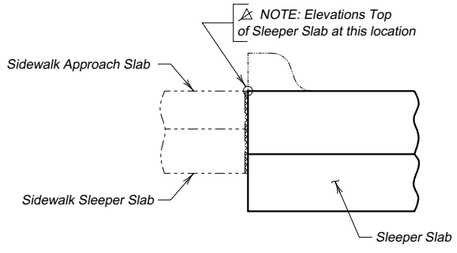
SEC. F - F



DETAIL "Q"



VIEW C - C
(Sidewalk Approach & Sleeper Slab not shown)



VIEW H - H

DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE (B)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

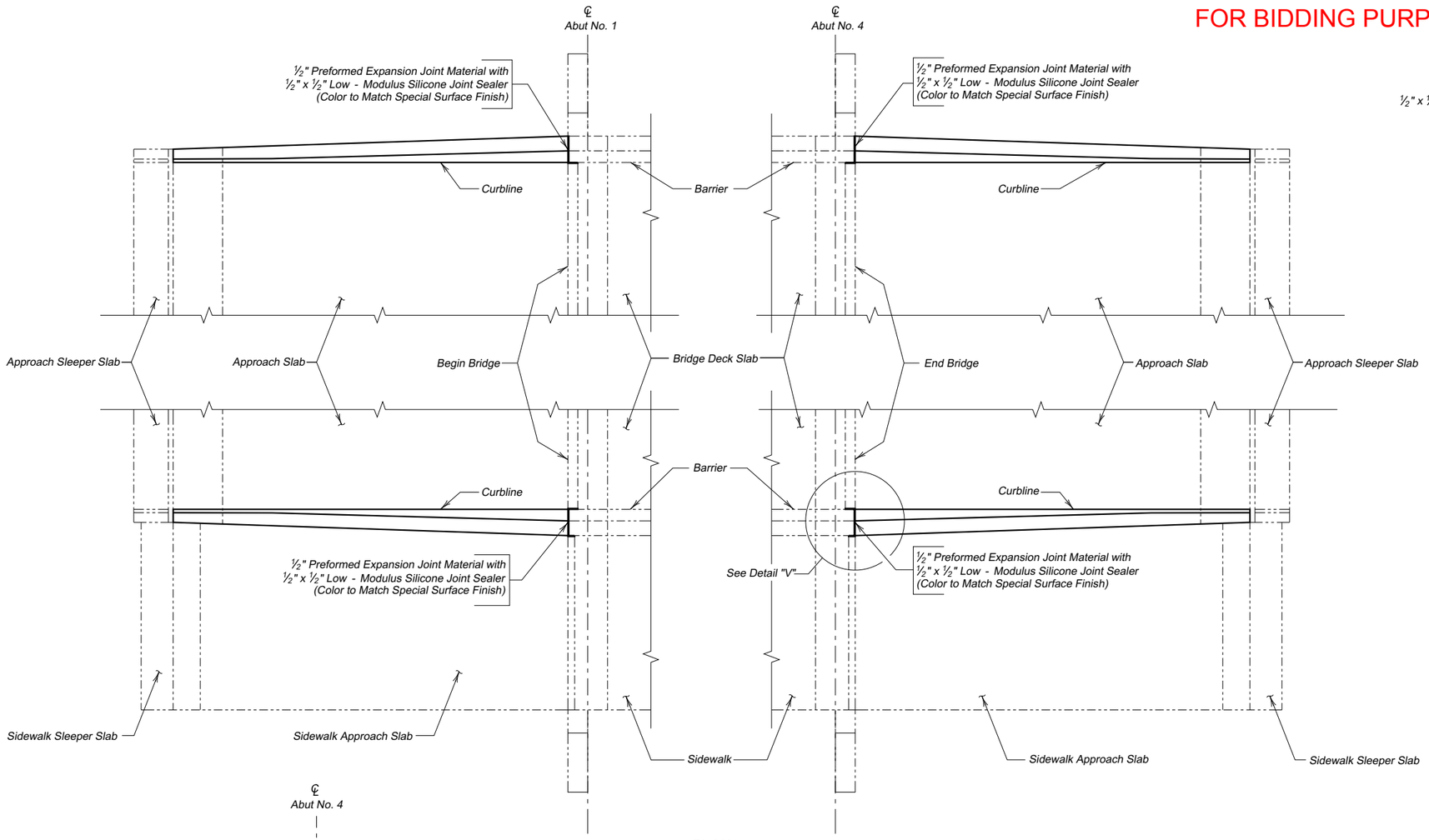
0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

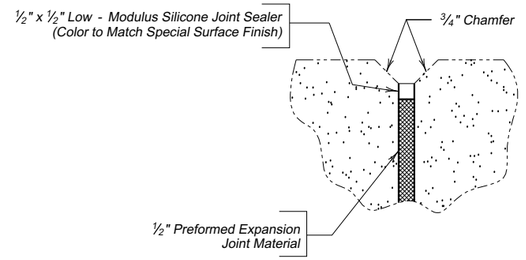
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	55	68

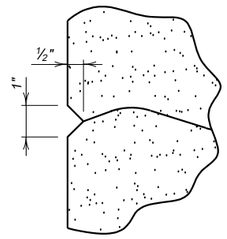
FOR BIDDING PURPOSES ONLY



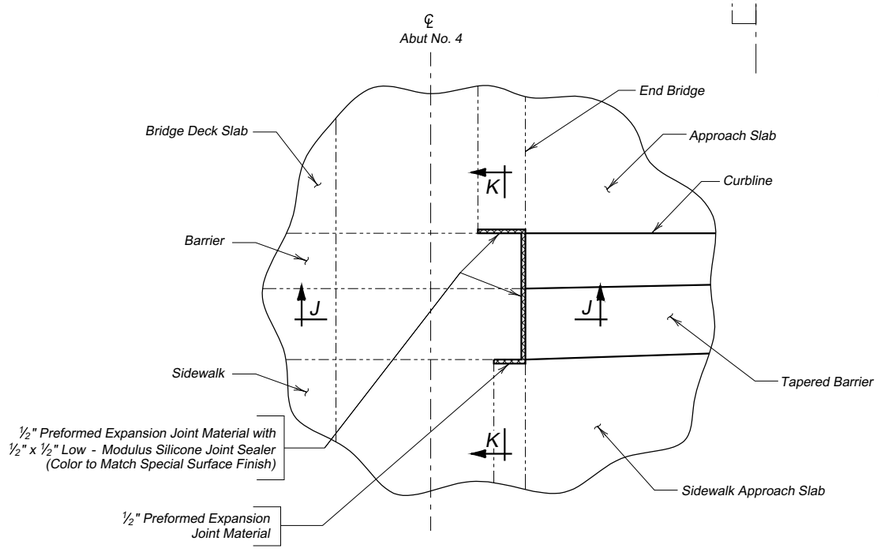
PLAN



SEC. J - J

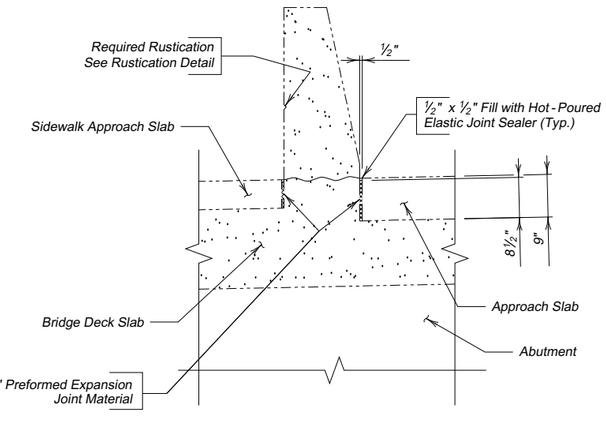


RUSTIFICATION DETAIL



DETAIL "V"

(End Bridge shown, Begin Bridge similar opposite hand)



SEC. K - K

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

TAPERED BARRIER DETAILS (A)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY — 0° SKEW
OVER BIG SIOUX RIVER — SEC. 24/25-T117N-R53W
STA. 4+59.37 TO 5+68.62 — BRF-B 4266(07)
STR. NO. 15-178-160 — HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

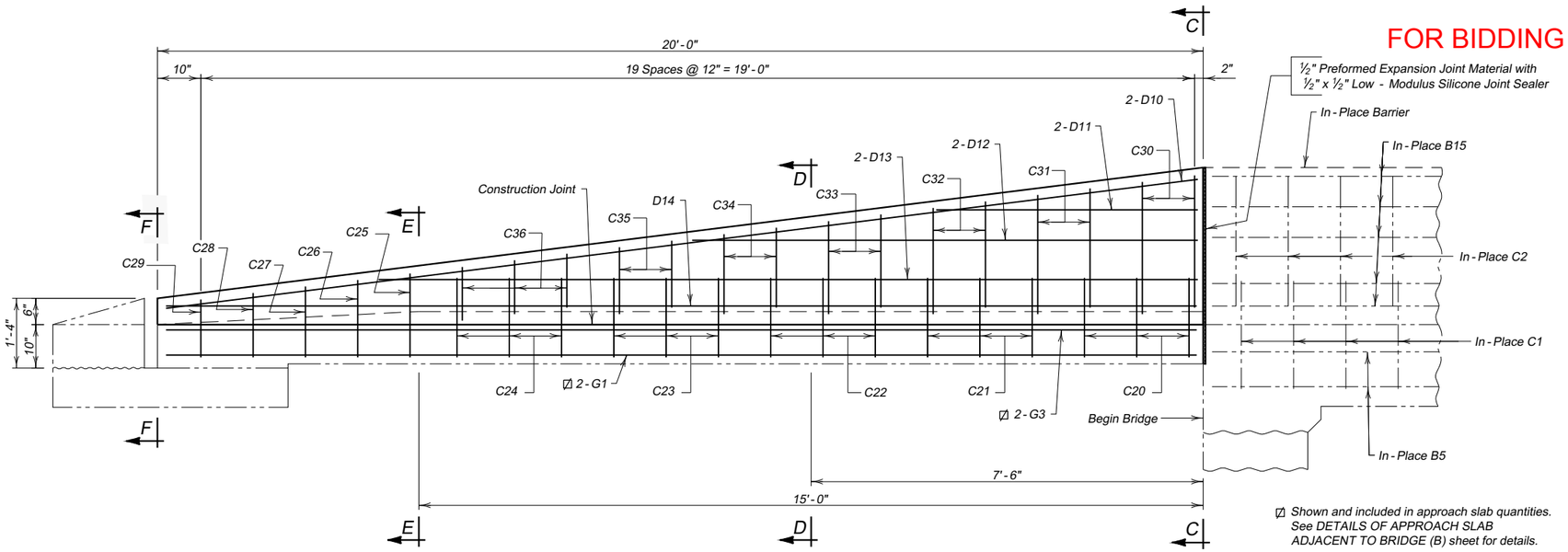
MAY 2025

25 OF 34

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	56	68

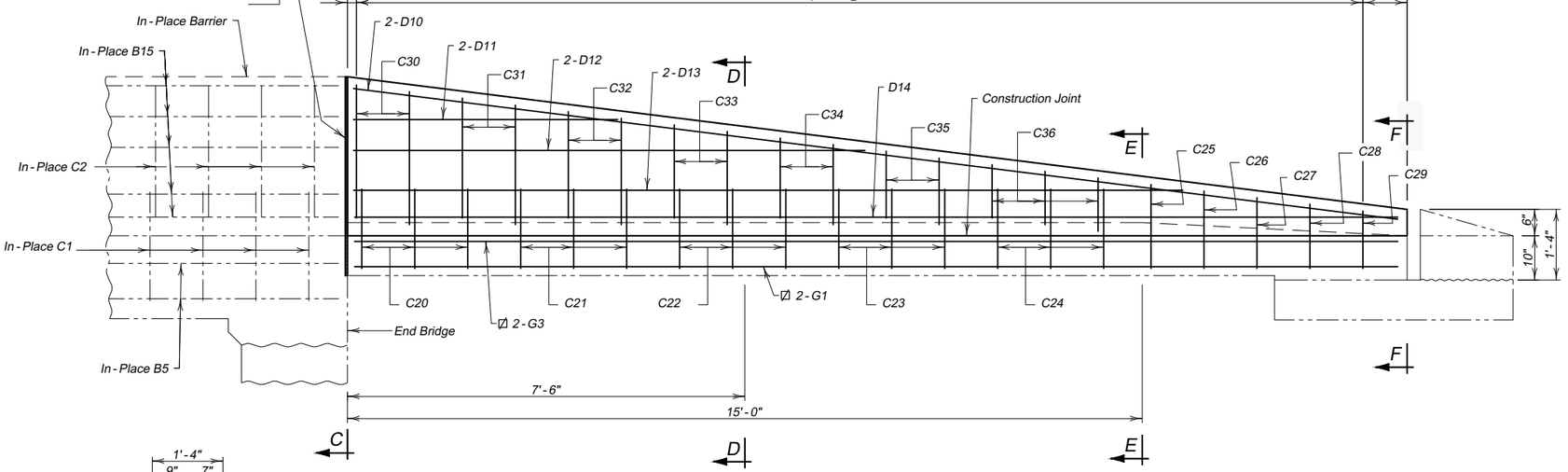
FOR BIDDING PURPOSES ONLY



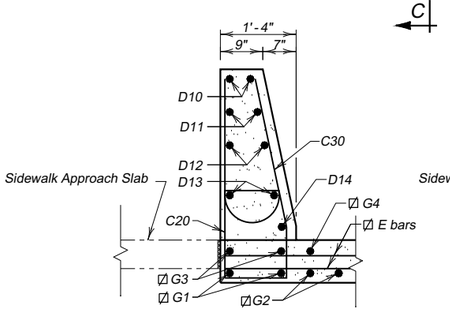
☑ Shown and included in approach slab quantities. See DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE (B) sheet for details.

NOTE:
For listing re-bar and concrete quantities see DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE (B) sheet for details.

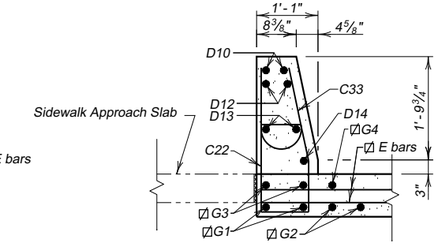
ELEVATION
(Tapered Barrier - Begin Bridge)



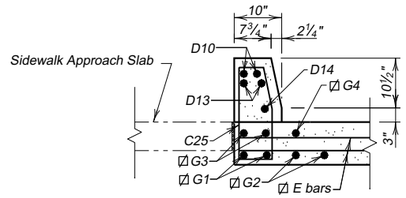
ELEVATION
(Tapered Barrier - End Bridge)



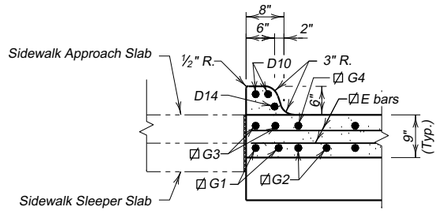
SEC. C - C



SEC. D - D



SEC. E - E

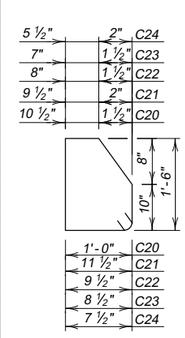


SEC. F - F

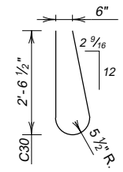
REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
C20	12	5	5'-11"	T1A
C21	12	5	5'-10"	T1A
C22	12	5	5'-6"	T1A
C23	12	5	5'-4"	T1A
C24	12	5	5'-1"	T1A
C25	4	5	5'-2"	T7
C26	4	5	4'-11"	T7
C27	4	5	4'-7"	T7
C28	4	5	4'-4"	T7
C29	4	5	4'-1"	T7
C30	8	5	5'-8"	S11
C31	8	5	5'-2"	S11
C32	8	5	4'-8"	S11
C33	8	5	4'-1"	S11
C34	8	5	3'-7"	S11
C35	8	5	3'-0"	S11
C36	12	5	2'-5"	S11
D10	8	5	19'-9"	Str.
D11	8	5	5'-0"	Str.
D12	8	5	9'-8"	Str.
D13	8	5	15'-8"	Str.
D14	4	4	19'-8"	Str.

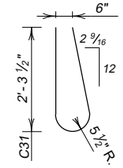
Bending Details



Type T1A



Type S11



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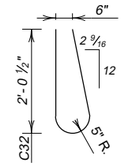
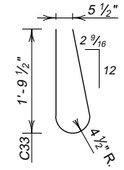
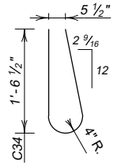


Type S11

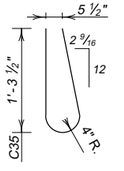
Type T7



Type S11



Type S11



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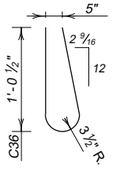


Type S11

NOTES -
All reinforcing steel will be epoxy coated.
All dimensions are out to out of bars.

TAPERED BARRIER DETAILS (B)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

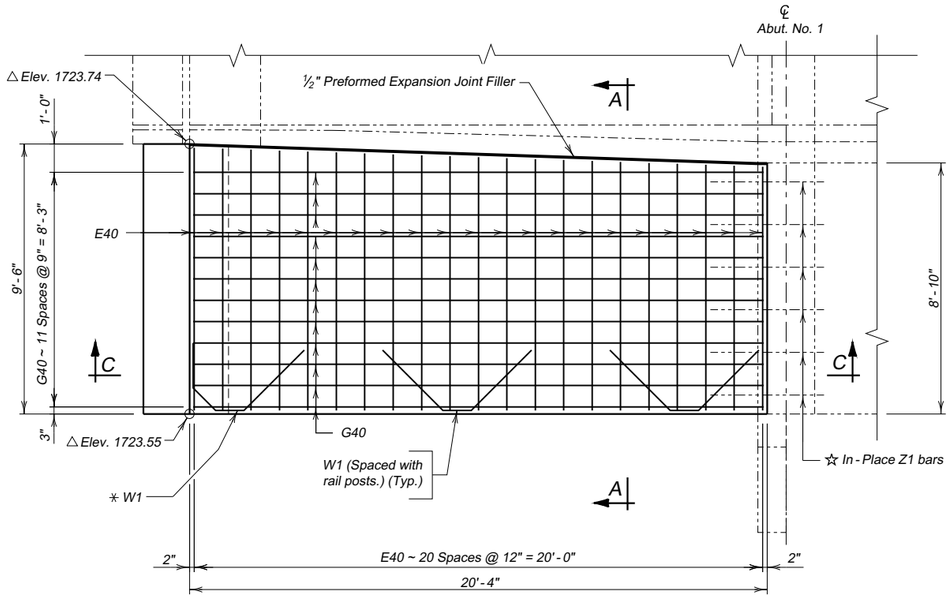
MAY 2025

26 OF 34

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

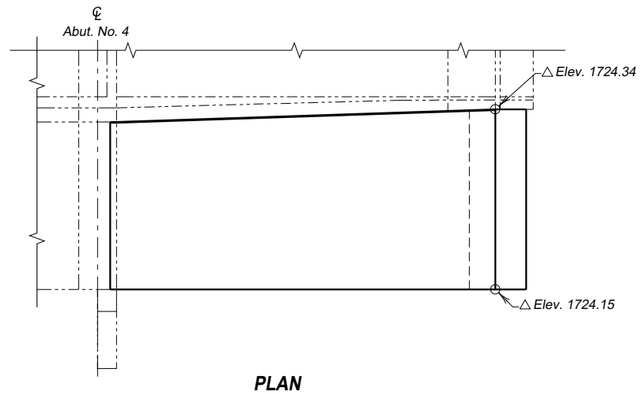
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	57	68



PLAN

(Sidewalk Approach Slabs shown adjacent to Abut. No. 1, Abut. No. 4 similar opposite hand)



PLAN

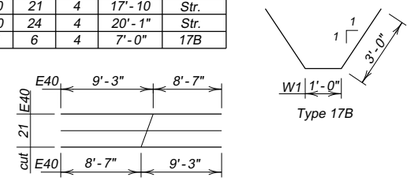
(Shown adj. to Abut. No. 4)

REINFORCING SCHEDULE

(For Two Sidewalk Approach Slabs & Two Sidewalk Sleeper Slabs)

	Mk.	No.	Size	Length	Type
	C40	8	4	9'-3"	Str.
	D40	26	4	2'-9"	Str.
☑	E40	21	4	17'-10	Str.
	G40	24	4	20'-1"	Str.
⁎	W1	6	4	7'-0"	17B

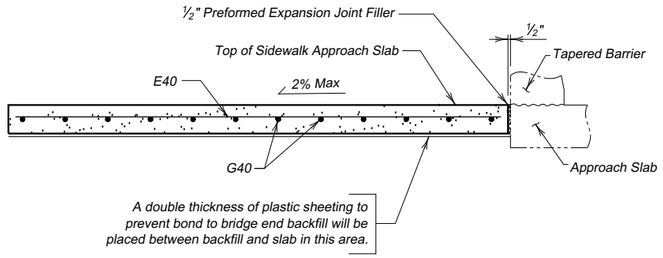
Bending Details



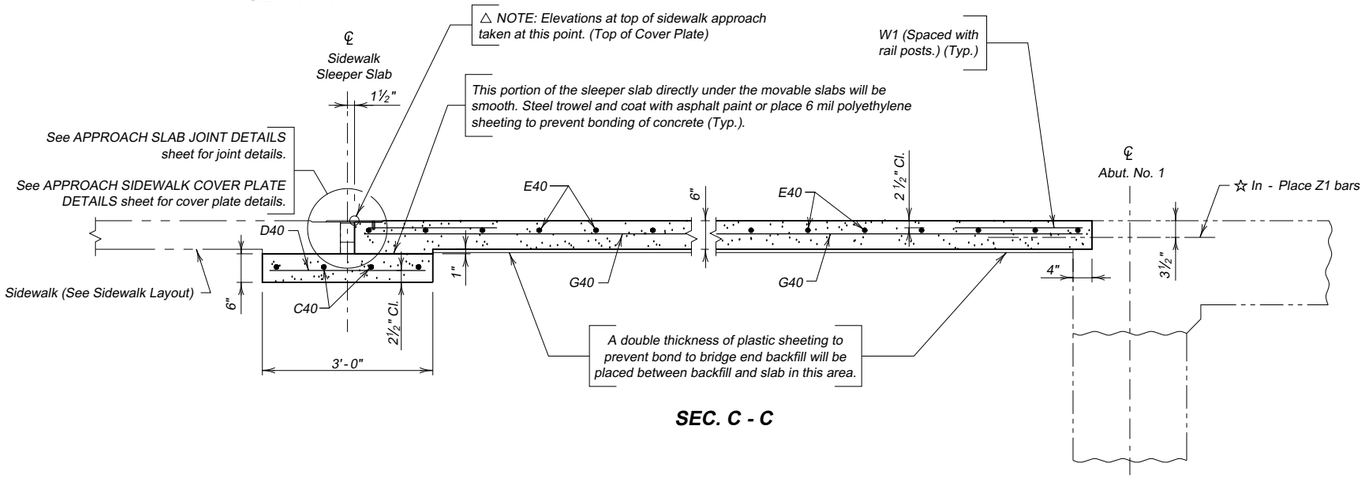
Notes:

☑ *See cutting diagram.*
All bars to be epoxy coated.
All dimensions are out to out of bars.
⁎ *Bend in field as necessary.*

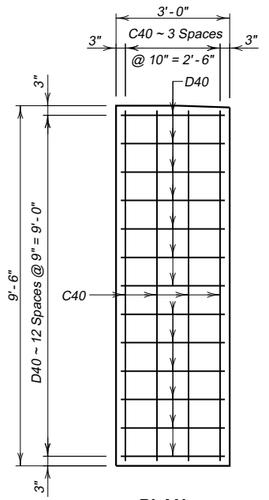
☆ *In-place Z1 bars are listed and included in superstructure quantities. See SUPERSTRUCTURE DETAILS (B) sheet for details.*



SEC. A - A



SEC. C - C



PLAN

(Sidewalk Sleeper Slab shown adjacent to Abut. No. 1)

ESTIMATED QUANTITIES

(For Two Sidewalk Approach Slabs)

ITEM	UNIT	QUANTITY
6" Reinforced Concrete Sidewalk	Sq. Ft.	373

1. 7.0 Cu. Yds. Concrete in Sidewalk Approach Slabs.
2. 601 Lbs. Epoxy Coated Re-Steel in Sidewalk Approach Slabs.
3. 1.1 Cu. Yds. Concrete in Sidewalk Sleeper Slabs.
4. 98 Lbs. Epoxy Coated Re-Steel in Sidewalk Sleeper Slabs.
5. 683 Sq. Ft. 6 mil Polyethylene sheeting under reinf. conc. sidewalk.
6. 41 Ft. of Expansion Joint adjacent to tapered barrier.

Items 1 thru 6 re approximate quantities contained in the above bid items and are for information only.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

SIDEWALK APPROACH SLAB DETAILS

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

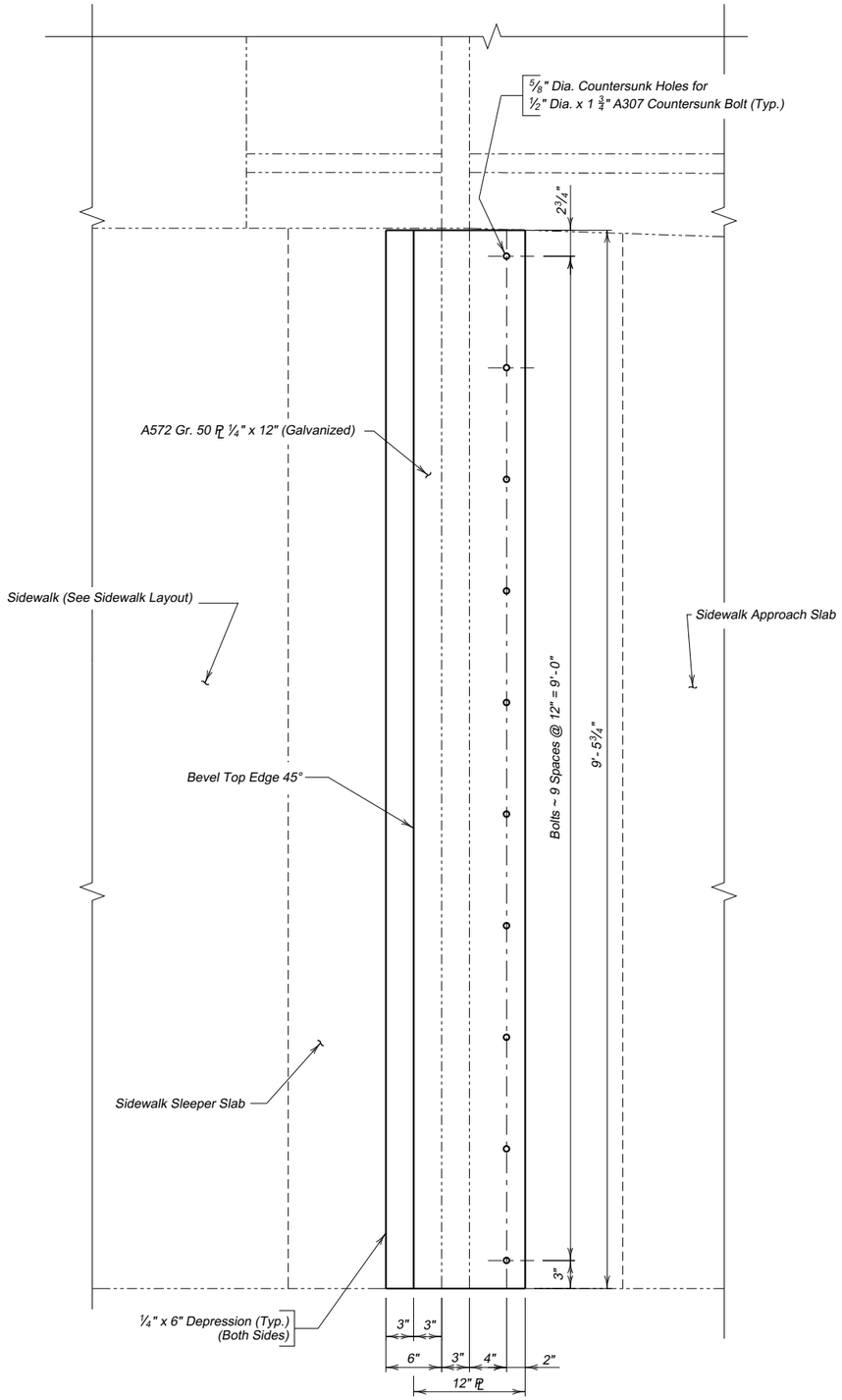
CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

27 OF 34

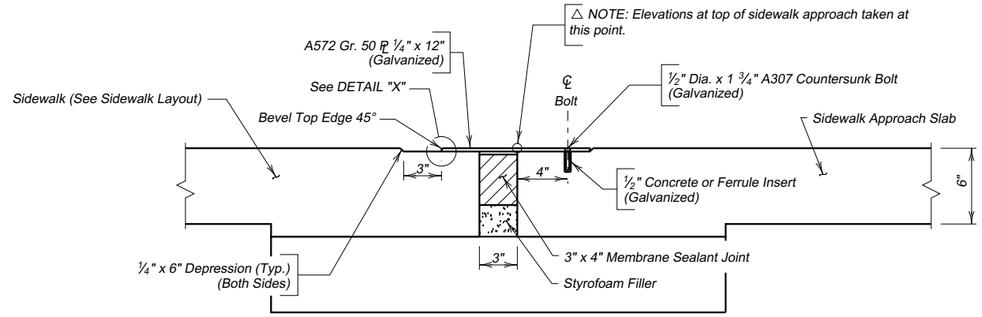
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	58	68

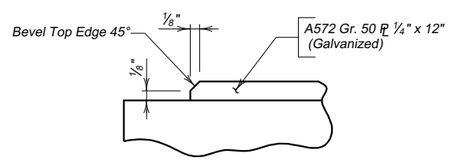
FOR BIDDING PURPOSES ONLY



PLAN



ELEVATION



DETAIL "X"

ESTIMATED QUANTITIES		
ITEM	*UNIT*	*QUANTITY*
Structural Steel, Miscellaneous	*LS*	*Lump Sum*

For informational purposes only, the estimated total structural steel quantity for cover plates including plates, bolts, and inserts used for assembly of cover plate is 194 lbs.

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
05/08/2025

SIDEWALK COVER PLATE DETAILS

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

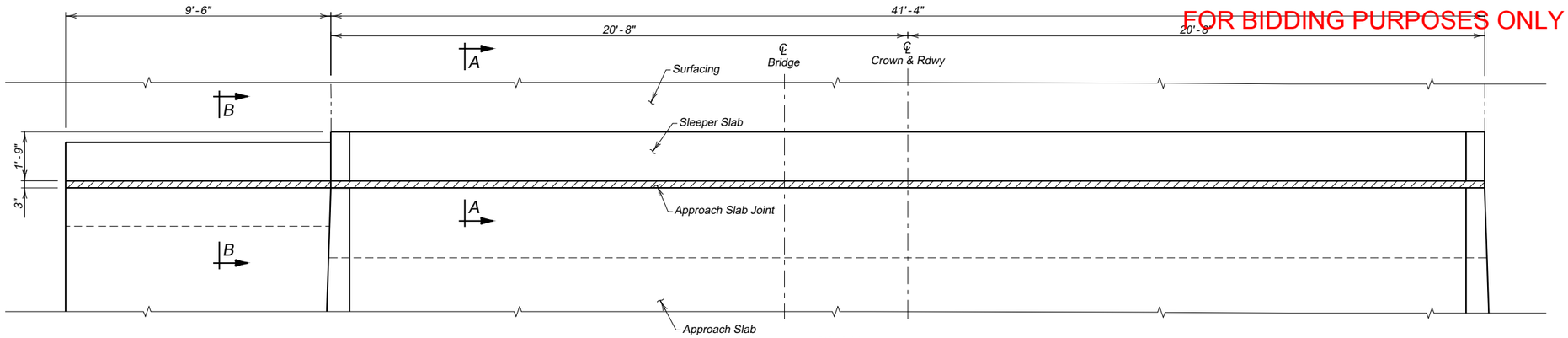
CODINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
MAY 2025

28 OF 34

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	59	68

FOR BIDDING PURPOSES ONLY



PLAN

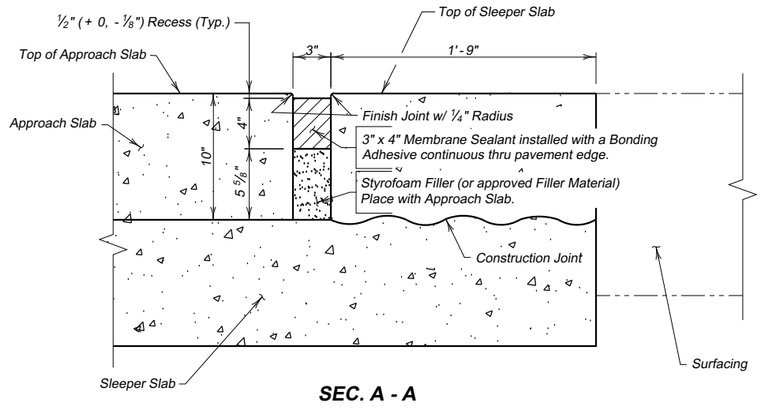
GENERAL NOTES

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, however, 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 provide a water tight seal throughout a joint movement range of +25% (minimum) from the specified joint opening dimension.
4. The membrane sealant will be supplied in pieces a minimum of 5 feet in length. The foam sealant will be ultra-violet and ozone resistant.
5. The bonding adhesive used to attach the membrane sealant to the adjacent concrete will be approved by the membrane sealant manufacturer.
6. Adhesive used to join adjacent pieces of the membrane sealant will be as recommended by the manufacturer.
7. If styrofoam filler material is used in the construction, it will be closed cell and water-tight as approved by the Engineer.
8. The minimum ambient air temperature at the time of joint installation and adhesive curing will be 40° F.
9. 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 ensure the Contractor installs the joint to the manufacturer's recommendations.
10. 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 surface will be required. Cleaning of the surfaces with solvents, wire brushing, or grinding will not be permitted.
11. After abrasive blasting, but immediately prior to membrane joint installation, the entire joint contact surface will be air blasted. The air compressor used to 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.
12. Individual spliced sections will be installed as per the manufacturer's recommendations. The membrane joint sealant manufacturer will submit a detailed installation procedure to the Engineer at least 5 days prior to joint installation for their review.
13. Traffic will not be allowed on the joint until the bonding adhesive has had time to cure, as recommended by the manufacurer.
14. 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.
15. 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.

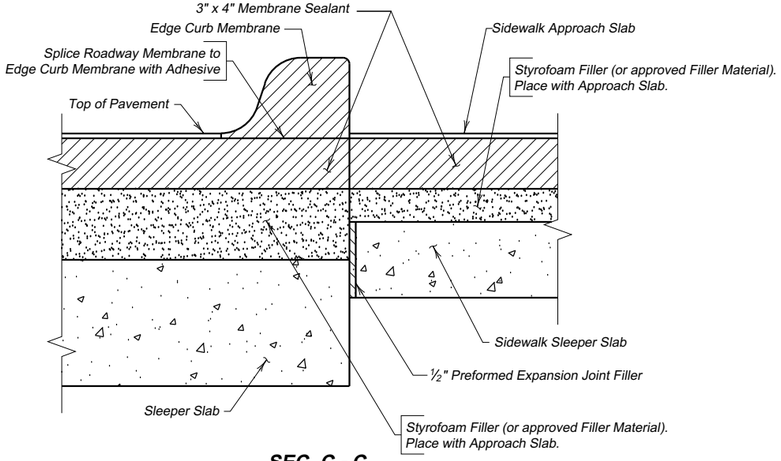
ESTIMATED QUANTITIES

(For Two Approach Slabs)

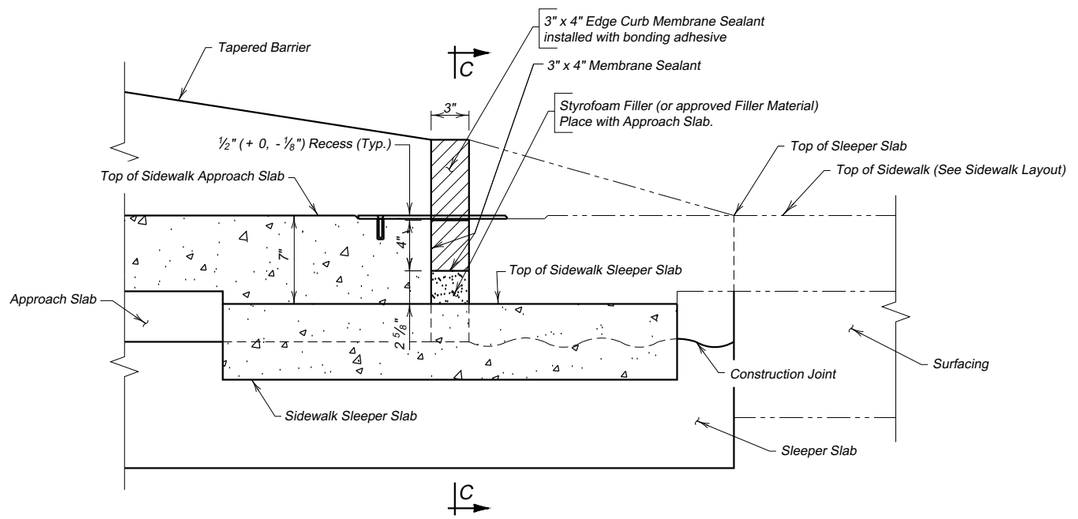
ITEM	UNIT	QUANTITY
Membrane Sealant Expansion Joint	Ft.	101.7



SEC. A - A



SEC. C - C



SEC. B - B

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
05/08/2025

APPROACH SLAB JOINT DETAILS

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY — 0° SKEW
OVER BIG SIOUX RIVER — SEC. 24/25-T117N-R53W
STA. 4+59.37 TO 5+68.62 — BRF-B 4266(07)
STR. NO. 15-178-160 — HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

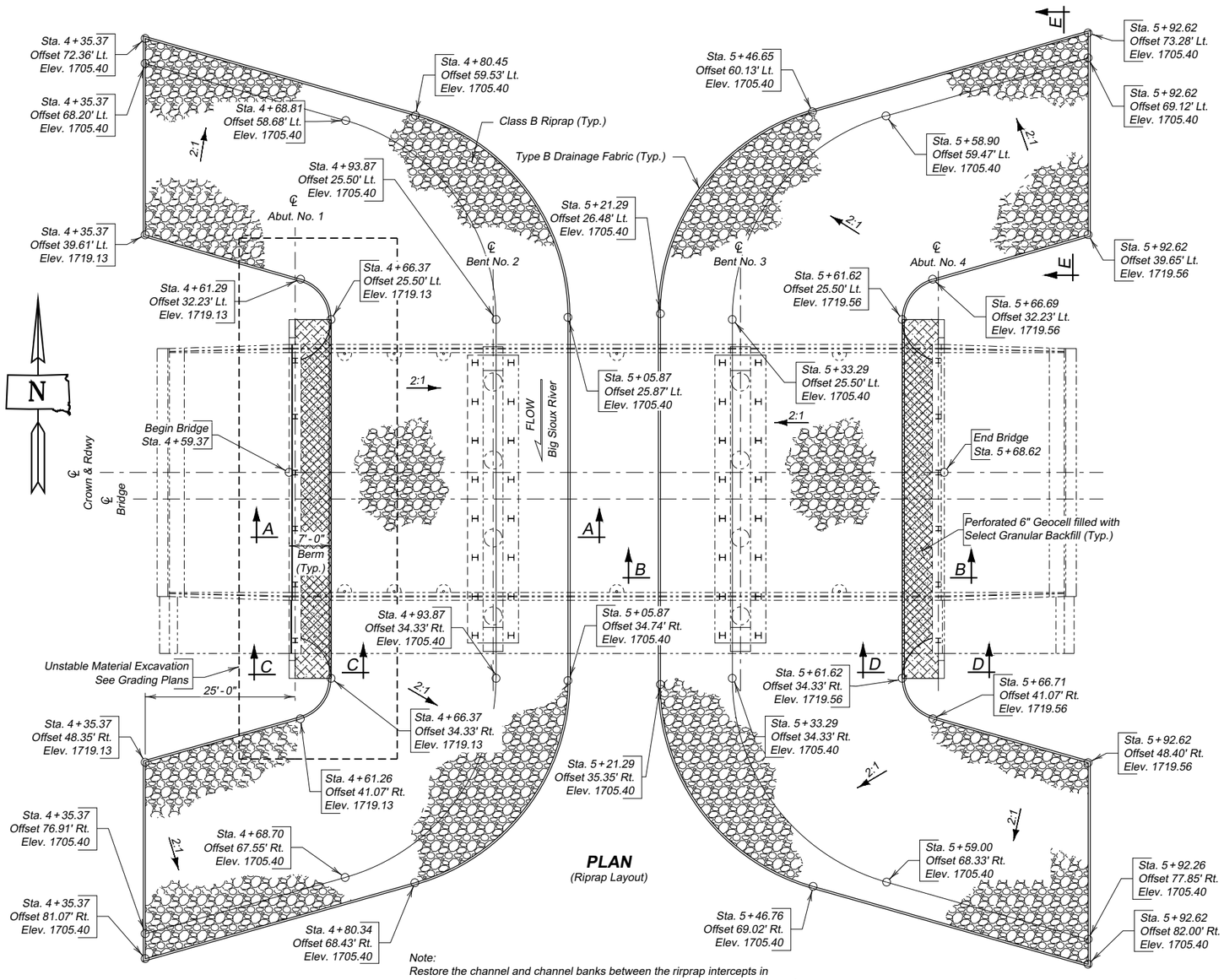
MAY 2025

29 OF 34

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	CWZ	MJB	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

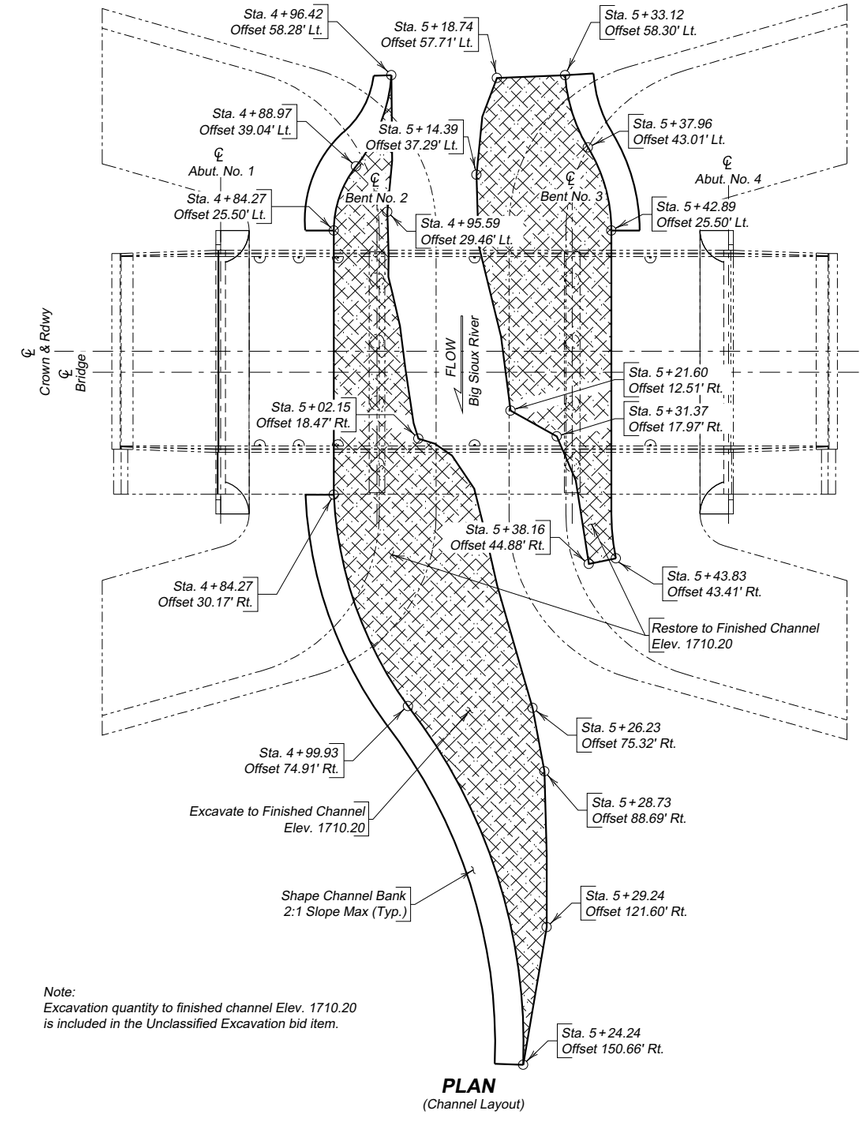
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	60	68



PLAN
(Riprap Layout)

Note:
Restore the channel and channel banks between the rirprap intercepts in accordance with the Overburden Excavation for Riprap notes and the Channel Layout shown on this sheet. This will require a portion of the riprap to be buried.

Overburden Excavation quantities within the bent excavation are contained in the Structure Excavation bid item.



Note:
Excavation quantity to finished channel Elev. 1710.20 is included in the Unclassified Excavation bid item.

PLAN
(Channel Layout)

RIPRAP DETAILS (A)

FOR

109'-3" CONT. CONCRETE BRIDGE

40' - 0" ROADWAY — 0° SKEW
OVER BIG SIOUX RIVER — SEC. 24/25-T117N-R53W
STA. 4+59.37 TO 5+68.62 — BRF-B 4266(07)
STR. NO. 15-178-160 — HL-93

CODINGTON COUNTY

S. D. DEPT. OF TRANSPORTATION

MAY 2025

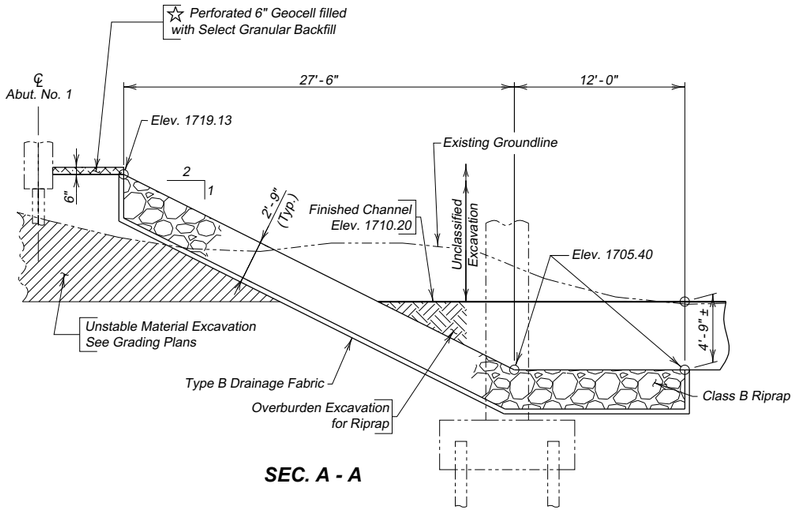
30 OF 34

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9235
MARK JUNKER
SOUTH DAKOTA
5/8/2025

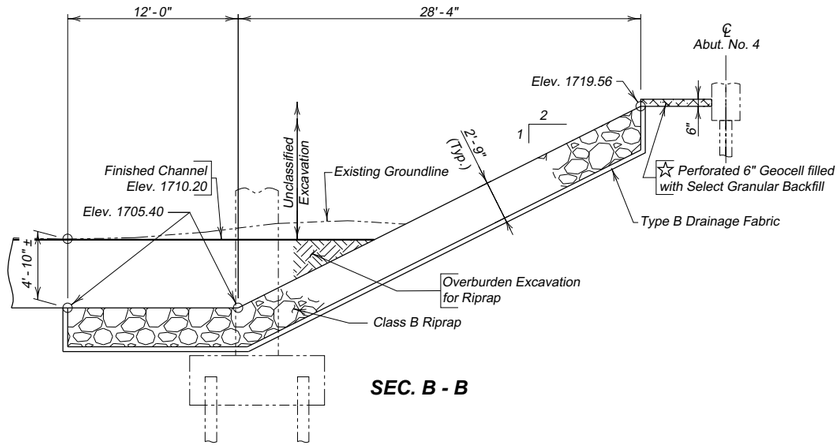
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MRJ	MJB	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 4266(07)	61	68

FOR BIDDING PURPOSES ONLY



SEC. A - A



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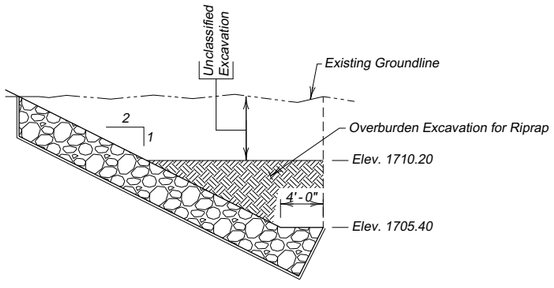

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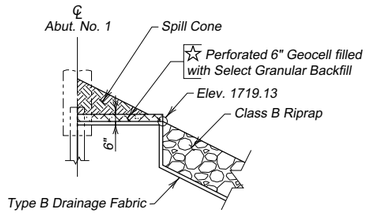

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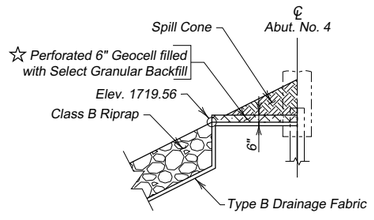


SEC. D - D

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Overburden Excavation for Riprap	Cu. Yd.	533
⌀ Class B Riprap	Ton	2,107.1
Type B Drainage Fabric	Sq. Yd.	1,914

⌀ *For estimating purposes only, a factor of 1.4 tons per cubic yard was used to convert cubic yards to tons.*

☆ *See PERFORATED GEOCELL notes for payment information.*

RIPRAP DETAILS (B)

FOR

109'-3" CONT. CONCRETE BRIDGE

40'-0" ROADWAY
OVER BIG SIOUX RIVER
STA. 4+59.37 TO 5+68.62
STR. NO. 15-178-160

0° SKEW
SEC. 24/25-T117N-R53W
BRF-B 4266(07)
HL-93

CODINGTON COUNTY

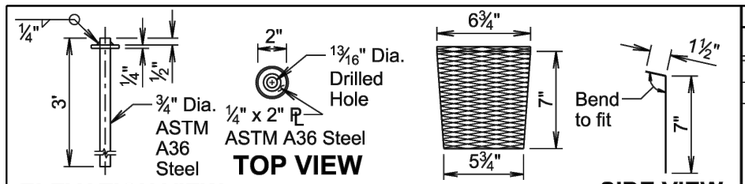
S. D. DEPT. OF TRANSPORTATION

MAY 2025

31 OF 34

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MRJ	MJB	MJB	BRIDGE ENGINEER

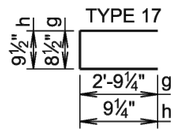
FOR BIDDING PURPOSES ONLY

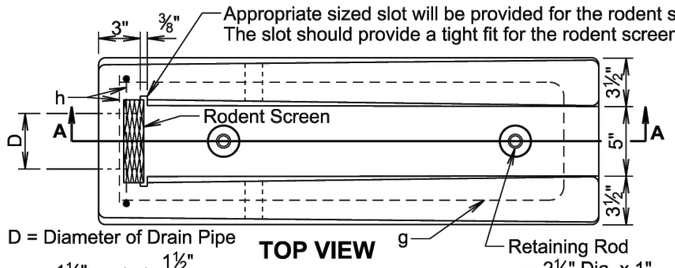


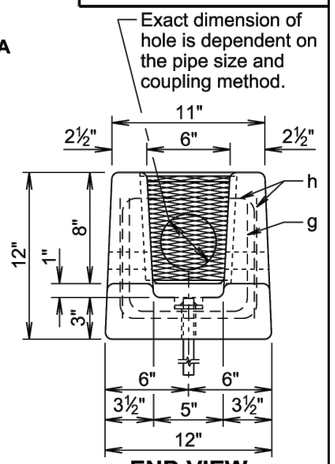
REINFORCING SCHEDULE				
MK.	No.	Size	Length	Type
g	1	4	6'-3"	17
h	2	4	2'-4"	17

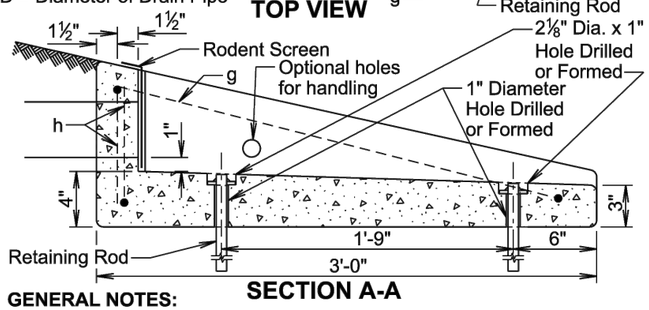
NOTE: All dimensions are out to out of bars.

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.

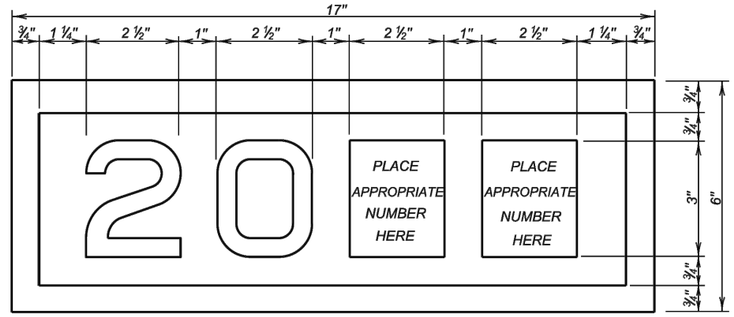
The retaining rod will be galvanized in accordance with ASTM A123 after all shop welding has been completed.

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

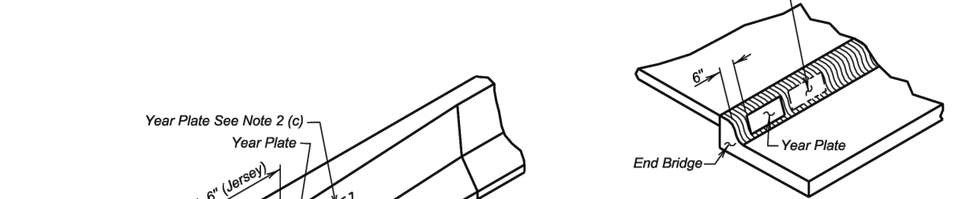
Published Date: 2026	SDDOT	PRECAST CONCRETE HEADWALL FOR DRAIN	PLATE NUMBER 430.50 Sheet 1 of 1

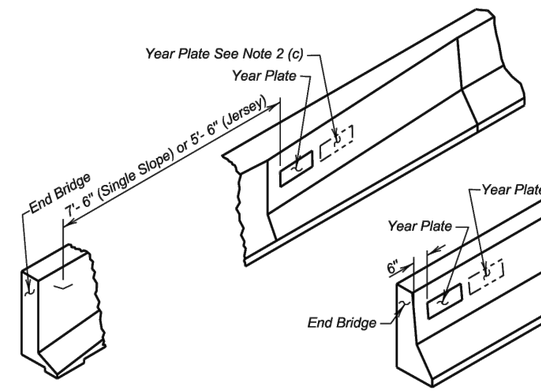


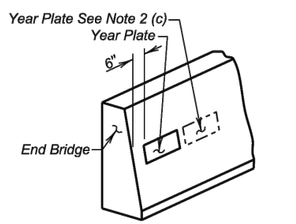
YEAR PLATE DETAILS

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.



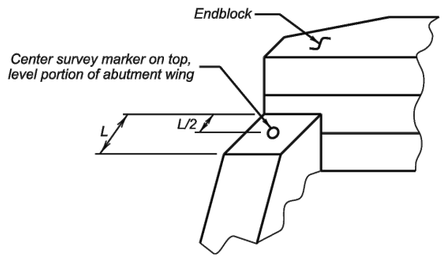




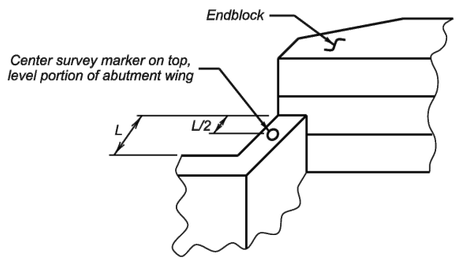
January 22, 2021

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

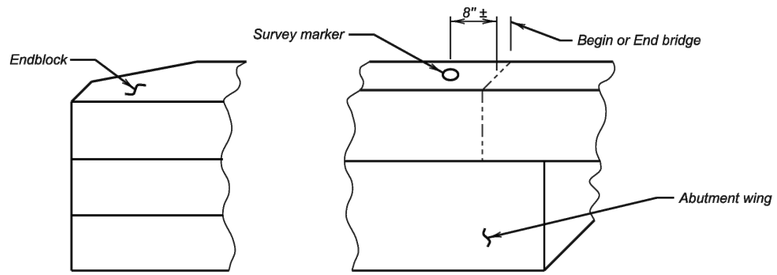
FOR BIDDING PURPOSES ONLY



ABUTMENT WITH "STRAIGHT" WINGS



ABUTMENT WITH "SWEPT BACK" WINGS



ABUTMENT WITH "SWEPT BACK" WINGS

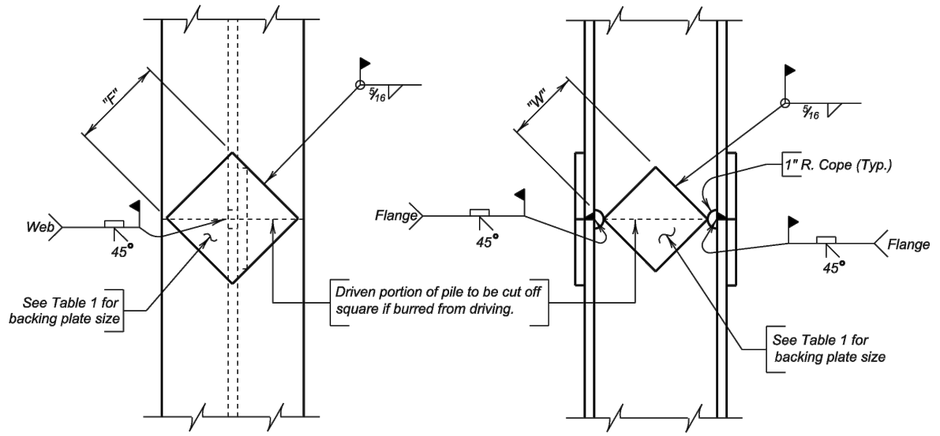
(Endblock on top of wings)

GENERAL NOTES:

1. Survey markers shall be located at each abutment on the same side of the bridge as the year plate. Place survey markers on abutment wings as shown. Two survey markers will be required at each bridge.
2. Survey markers shall be of a type intended for installation in concrete, be made of solid brass or bronze, have a domed top and be either a 3" top diameter (with a ¾" X 2" long ribbed shank), or a US Army Corps of Engineers Type C Disc with a 3 ½" top diameter.
3. There will be no separate measurement or payment made for survey markers. All costs for this work shall be incidental to the other contract items.

June 26,2012

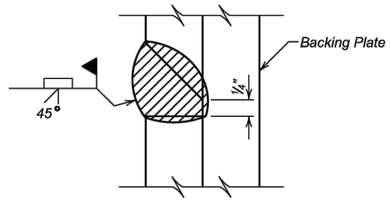
Published Date: 2026	SDDOT	BRIDGE SURVEY MARKER	PLATE NUMBER 460.05
			Sheet 1 of 1



NOTE:

Prepare joint surfaces lower end of upper section on the ground and weld on backing plates; then place upper section on lower section and weld.

COMPLETE JOINT PENETRATION WELD DETAIL



GENERAL NOTES:

1. Steel for backing plates shall conform to ASTM A709 Grade 50.
2. Welding and weld inspection shall be in conformance with AWS D1.5 (Current Year) Bridge Welding Code - Steel.
3. Welder must be certified and registered with the SDDOT.
4. Backing plate shall at a minimum be as thick as the web of the pile being spliced.
5. Web must be coped with 1 inch radius.
6. Submit Welding Procedure Specification (WPS) to Bridge Construction Engineer for approval prior to pile driving.

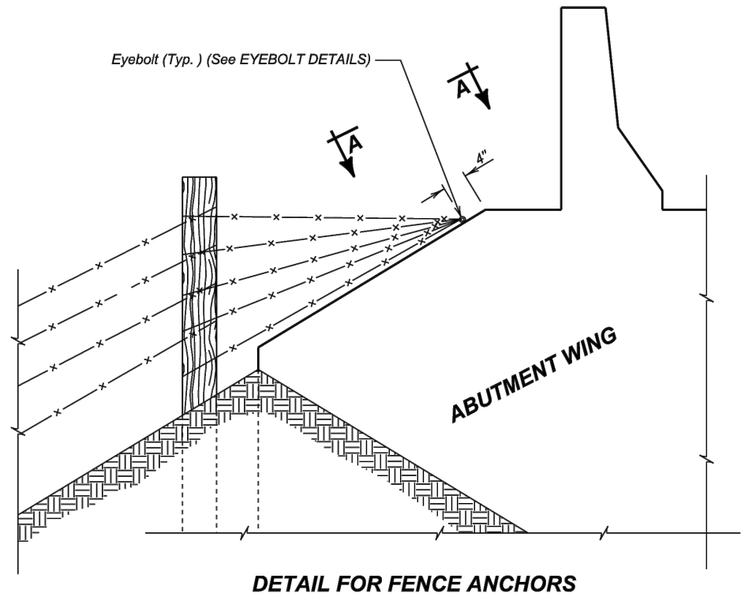
TABLE 1
(BACKING PLATES)

PILE	10"	12"	14"
"F" FLANGE	6 ½"	8"	10"
"W" WEB	4 ¾"	6 ¼"	7 ½"

December 23,2012

Published Date: 2026	SDDOT	STEEL PILE SPLICE DETAILS	PLATE NUMBER 510.40
			Sheet 1 of 1

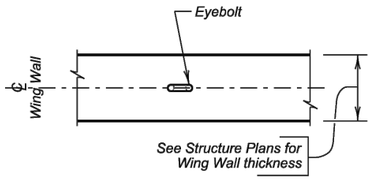
FOR BIDDING PURPOSES ONLY



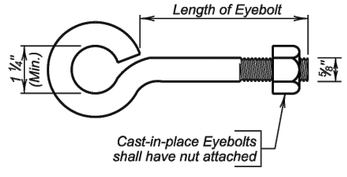
DETAIL FOR FENCE ANCHORS

GENERAL NOTES:

1. The fence and post details shown are for illustrative purpose only. The fence shall be as specified elsewhere in the plans.
2. Eyebolts shall be placed on all of the bridge abutment wings.
3. Eyebolts shall be ⅝ inch diameter and shall conform to ASTM A307.
4. Eyebolts, nuts, and concrete inserts shall be galvanized in accordance with AASHTO M232 (ASTM A153). Concrete inserts of corrosion resistant material need not be galvanized.
5. Cast-in-place eyebolts shall have a nut attached, be 4 ½ inches (Min.) in length and shall be embedded such that the eye of the bolt is flush with the concrete surface. (See Eyebolt Details) As an alternate, cast-in-place concrete inserts, capable of developing the full strength of the ⅝ inch diameter threaded eyebolt, may be used and shall be set in the concrete in accordance with the manufacturer's recommendations. The eyebolt shall be of sufficient length to develop its full strength. The eye of the eyebolt shall be flush with the concrete surface.
6. The cost for furnishing and installing eyebolts and/or concrete inserts shall be incidental to various contract items.



VIEW A - A



EYEBOLT DETAILS

December 23, 2012

Published Date: 2026	SDDOT	FENCE ANCHORS FOR BRIDGE ABUTMENT WINGS (WINGS 6' AND SHORTER)	PLATE NUMBER 620.18 Sheet 1 of 1

109'-3" CONT. CONCRETE BRIDGE

STR. NO. 15 - 178 - 160

MAY 2025

BAI JOB # 24020.12

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 4266(07)	65	68

Plotting Date: 05/08/2025

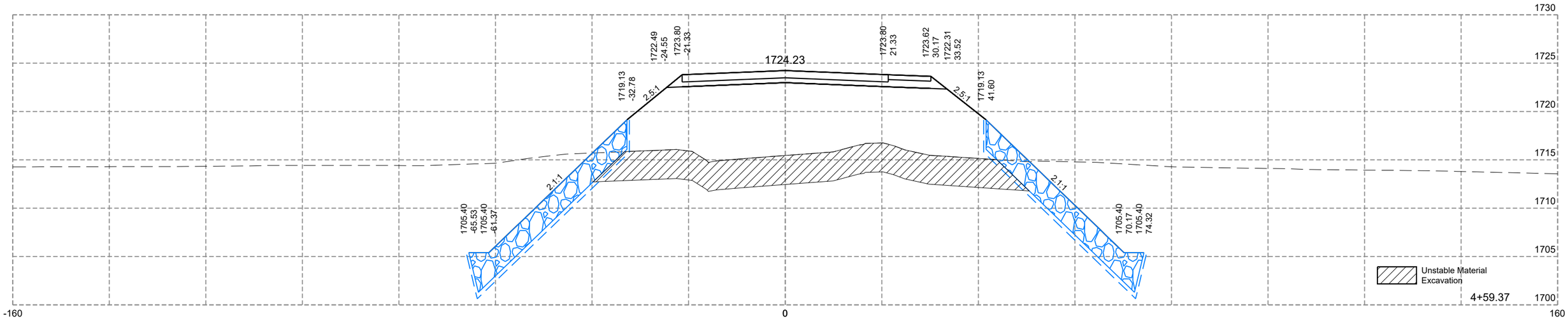
REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9235
MARK
JUNKER
SOUTH DAKOTA
5/8/2025

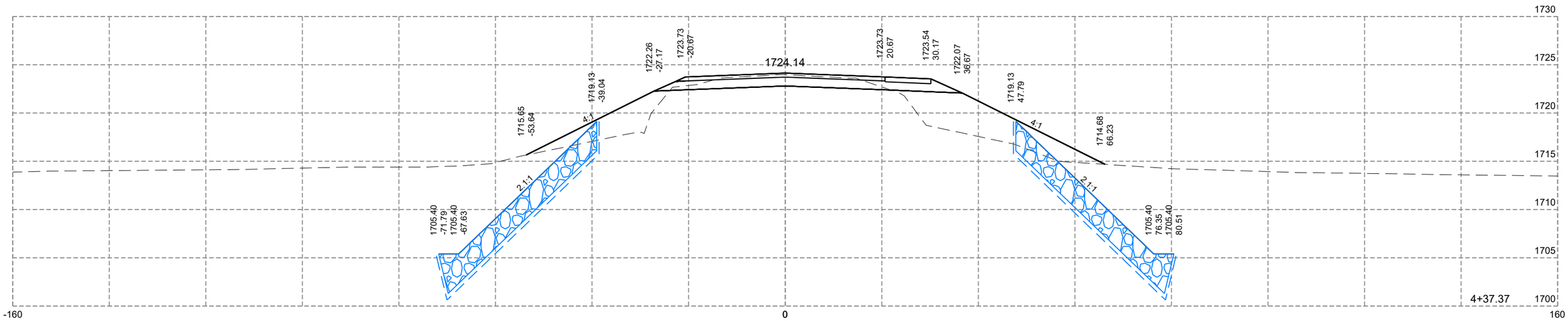
BAI JOB # 24020.12

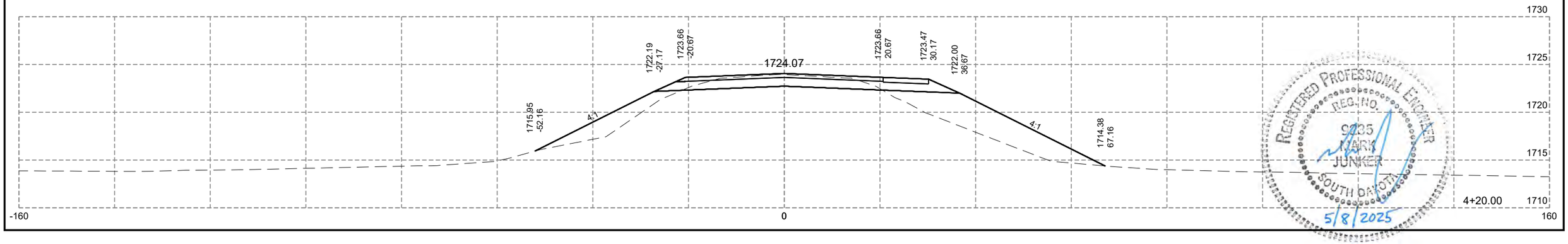
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 4266(07)	66	68

Plotting Date: 05/08/2025







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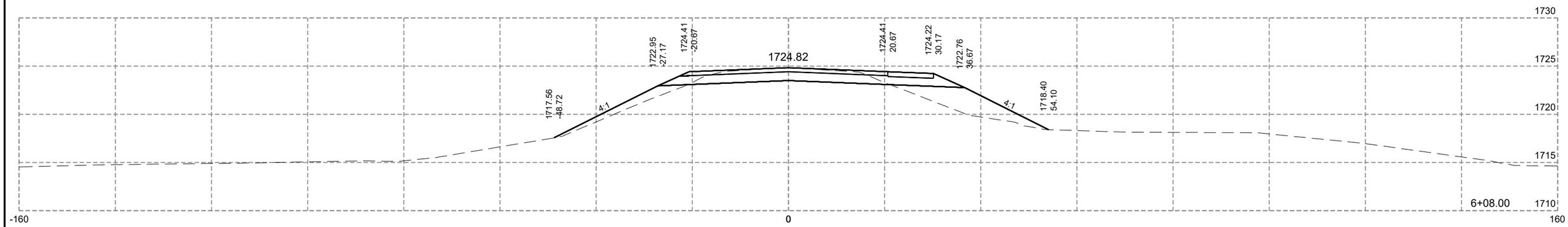

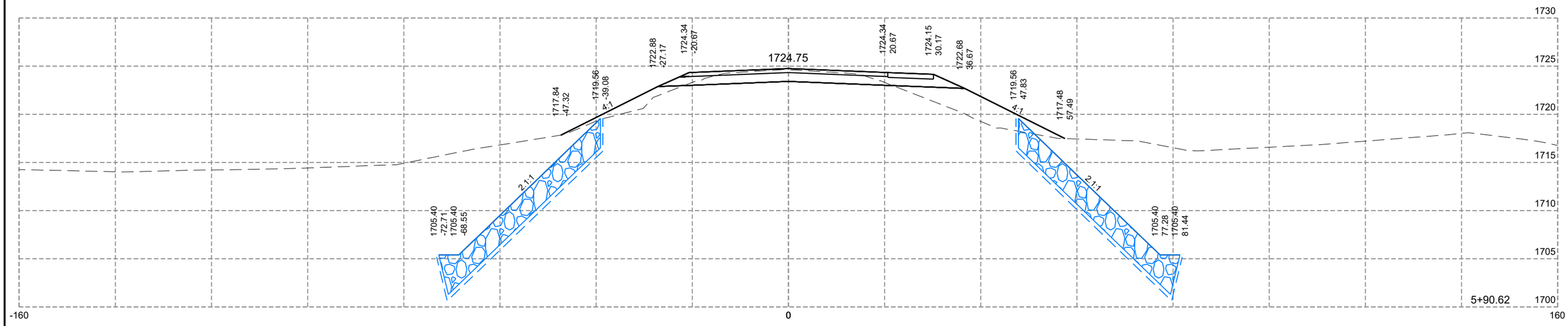

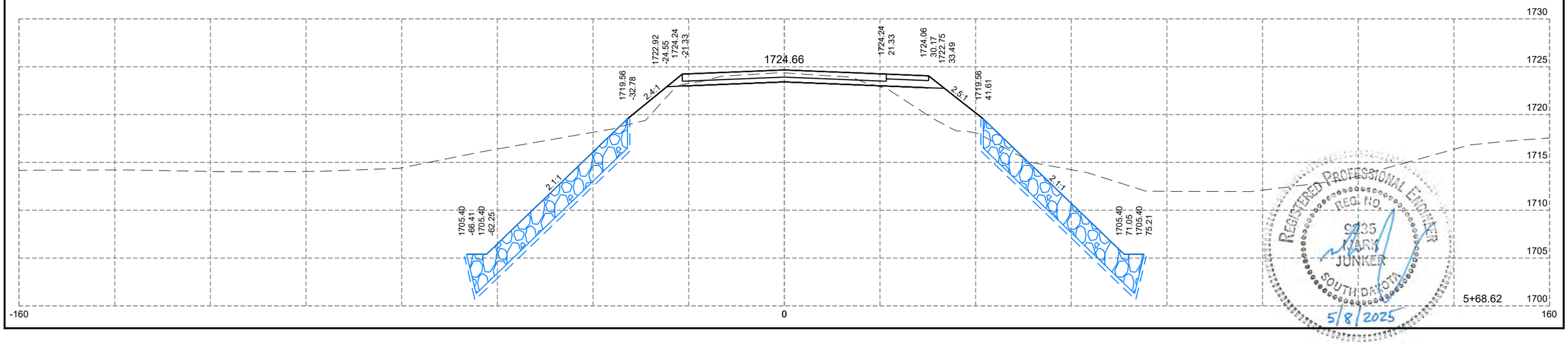

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
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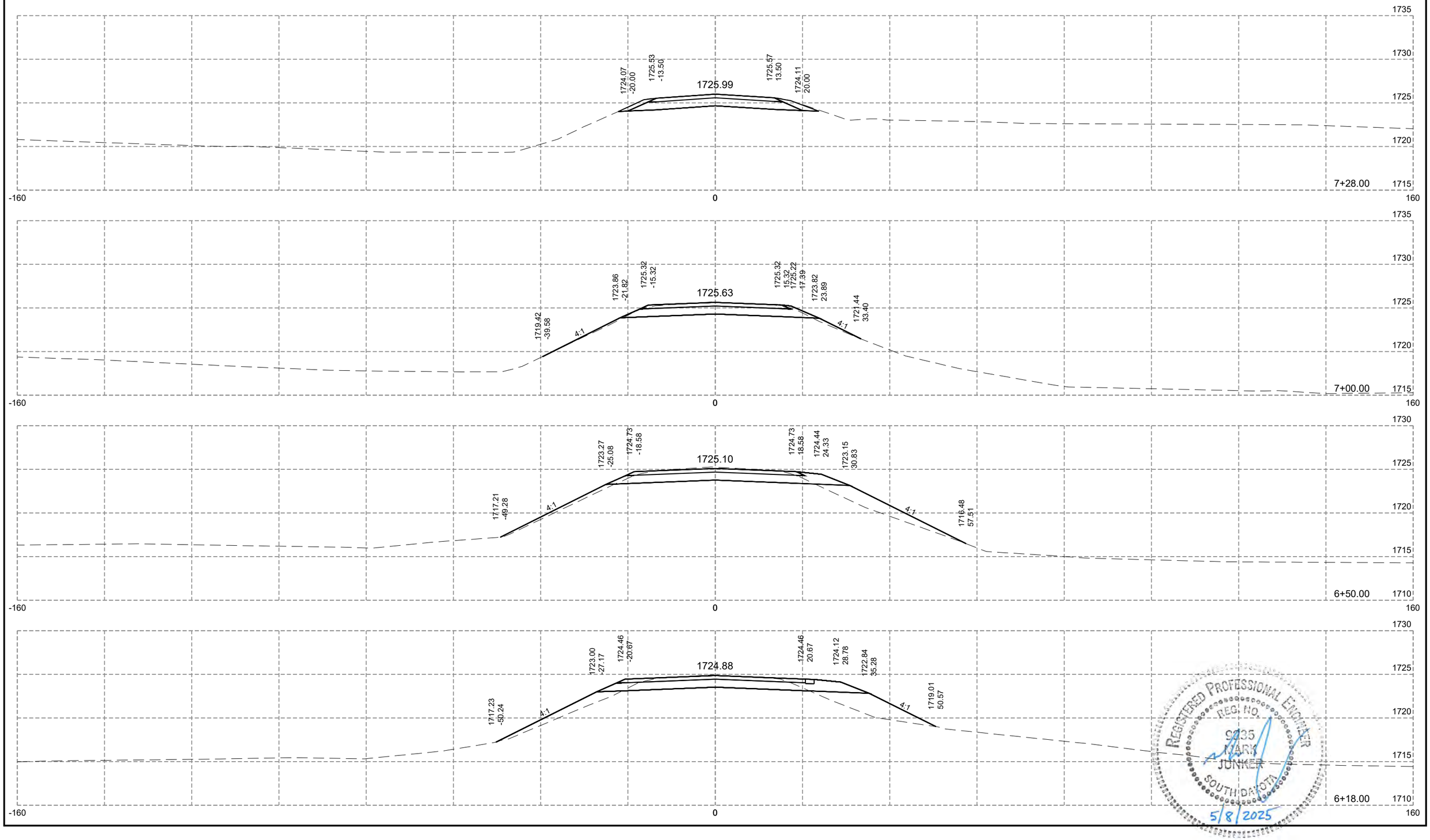
Plotting Date: 05/08/2025



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