STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	1	55

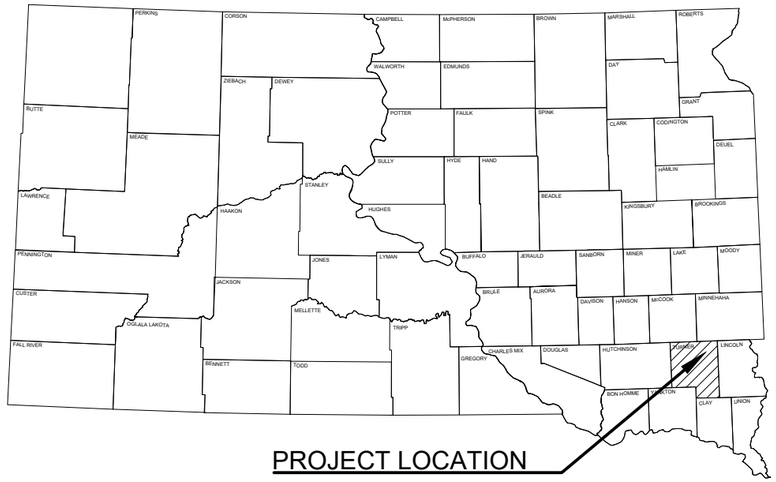
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT BRO-B 8063(19)
TURNER COUNTY

STRUCTURE REPLACEMENT AND APPROACH GRADING
STRUCTURE NO. 63-153-050
PCN 09A9



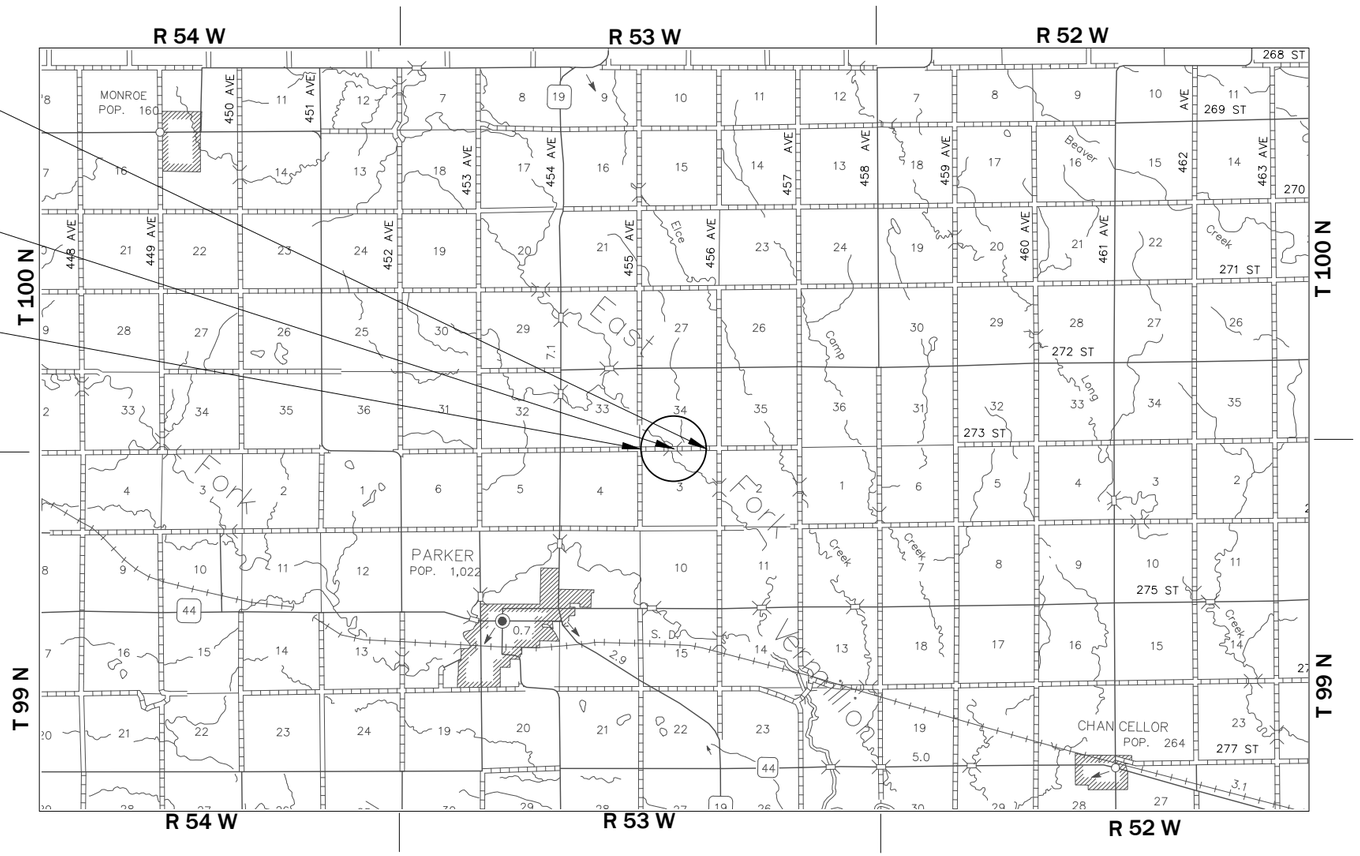
PROJECT LOCATION

INDEX OF SHEETS

END PROJECT
STA 36+00.00

STRUCTURE NO.
63-153-050

BEGIN PROJECT
STA 24+75.00



DESIGN DESIGNATION

ADT (2021):	30
ADT (2041):	50
DHV:	8
d:	50%
T DHV:	3.6%
T ADT:	8.0%
DESIGN SPEED	55 MPH

STORM WATER PERMIT

MAJOR STREAM:	EAST FORK VERMILLION RIVER
AREA DISTURBED:	2.70 ACRES
PROJECT AREA:	4.68 ACRES

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5382
BRADLEY D. STANGOHR
SOUTH DAKOTA
02/06/2026

Ulteig
We Listen. We Solve.®
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Phone: 605.323.2306
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Web: www.Ulteig.com

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May 20, 2026

Revised: 3/10/26 BDS

GRADING

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3230	Grade Staking	0.200	Mile
009E3250	Miscellaneous Staking	0.200	Mile
009E3280	Slope Staking	0.200	Mile
009E3290	Structure Staking	1	Each
009E3301	Engineer Directed Surveying/Staking	20.0	Hour
009E4200	Construction Schedule, Category II	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E5010	Salvage Delineator	10	Each
120E0010	Unclassified Excavation	5,559	CuYd
120E0600	Contractor Furnished Borrow	640	CuYd
230E0010	Placing Topsoil	1,075	CuYd
450E4758	18" CMP 14 Gauge, Furnish	40	Ft
450E4760	18" CMP, Install	40	Ft
450E5406	18" CMP Safety End, Furnish	2	Each
450E5407	18" CMP Safety End, Install	2	Each
634E0110	Traffic Control Signs	109.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	8	Each
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	9,121	SqYd
734E0154	12" Diameter Erosion Control Wattle	460	Ft
734E0165	Remove and Reset Erosion Control Wattle	115	Ft
734E0325	Surface Roughening	0.6	Acre
734E0510	Shaping for Erosion Control Blanket	1,915	Ft
734E0604	High Flow Silt Fence	425	Ft
734E0610	Mucking Silt Fence	30	CuYd
734E0620	Repair Silt Fence	107	Ft
734E0630	Floating Silt Curtain	727	Ft

STRUCTURE No. 63-153-050

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
120E7000	Select Granular Backfill	12.0	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0100	Structure Excavation, Bridge	256	CuYd
430E0200	Bridge End Embankment	358	CuYd
430E0300	Granular Bridge End Backfill	30.0	CuYd
460E0030	Class A45 Concrete, Bridge Deck	220.0	CuYd
460E0050	Class A45 Concrete, Bridge	99.0	CuYd
460E0230	Concrete Penetrating Sealer	439.9	SqYd
470E0420	Type T101 Bridge Railing	292	Ft
480E0100	Reinforcing Steel	15,068	Lb
480E0200	Epoxy Coated Reinforcing Steel	76,428	Lb
510E0300	Preboring Pile	100	Ft
510E3130	HP 12 Pile Tip Reinforcement	10	Each
510E3401	HP 12x53 Steel Test Pile, Furnish and Drive	60	Ft
510E3405	HP 12x53 Steel Bearing Pile, Furnish and Drive	240	Ft
700E0210	Class B Riprap	1,511.0	Ton
700E1100	Overburden Excavation for Riprap	741	CuYd
831E0110	Type B Drainage Fabric	1,870	SqYd
831E1030	Perforated Geocell	342	SqFt

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/3677d319/EnvironmentalProceduresManual.pdf>

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

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

COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.075 acres of wetlands (includes temporary and permanent) becoming impacted.

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	32+50 to 35+00	0.00	0.00	0.075	0.00	0.075

Action Taken/Required:

Temporary impacts identified in the Table of Impacted Wetlands will not be mitigated as original contours and elevations will be re-established as designated in Grading Plans. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.18 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 0.50 acres of stream (includes temporary and permanent) becoming impacted.

Table of Impacted Streams

Stream Name	Station	Perm. Impact (Acres)	Temp. Impact Left (Acres)	Total Impact (Acres)
East Fork of the Vermillion River	30+50	0.19	0.31	0.50

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 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.

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.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5382
BRADLEY D. STANGOHR
SOUTH DAKOTA
03/16/2026

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B1: CONSTRUCTION PRACTICES FOR STREAMS INHABITED BY THE TOPEKA SHINER

The SDDOT Environmental Office has identified the following as Topeka Shiner streams.

Table of Topeka Shiner Streams

Station	Stream Name	Ordinary High-Water Elevation
30+50	East Fork of the Vermillion River	1313.71

Action Taken/Required:

The Contractor will adhere to the "Special Provision for Construction Practices in Streams Inhabited by the Topeka Shiner".

Stream turbidity will be monitored during all stages of the project. Turbidity measurements are to be taken in conjunction with normal storm water inspections but can also be taken at the Project Engineer's discretion during construction activities that may result in increased turbidity (e.g., placing riprap or installing a coffer dam).

Prior to the pre-construction meeting the Contractor will produce and provide the SDDOT Environmental Office a comprehensive Construction Plan that includes all products, materials, and methods of installation and removal for temporary water barriers, cofferdams, and diversion channels including de-watering, handling, storage, and disposal of excavated material and pumped effluent throughout all phases of construction, including post-construction stabilization. Work will not proceed on any of the streams identified in the Table of Topeka Shiner Streams without approval of the Construction Plan by the SDDOT Environmental Office. Upon plan approval, the Construction Plan will be amended to the SWPPP.

COMMITMENT B7: Freshwater Mussels

The project is in an area that contains habitat associated with the Threeridge, Wabash Pigtoe, and Pink Heelsplitter (freshwater mussels).

Action Taken/Required:

If live mussels are observed within the project are, the mussels must be relocated upstream outside of the project work limits. Contact the Project Engineer who will contract the Environmental Office.

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 East Fork of the Vermillion River is classified as warmwater, marginal fishery with a total suspended solids standard of less than 90 mg/L 30-day average, less than 158 mg/L daily maximum.

This project may be in the vicinity of multiple streams and wetlands. These waters are considered waters of the state and are protected under Administrative Rules of South Dakota (ARSD) Chapter 74:51. Special construction measures may have to be taken to ensure that this water body is not impacted.

Action Taken/Required:

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

COMMITMENT D2: SURFACE WATER DISCHARGE

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

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

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

Action Taken/Required:

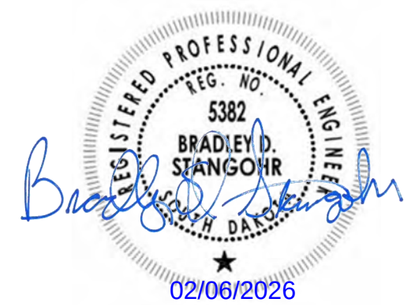
If construction dewatering is required and this project is currently covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the contractor will need to submit the dewatering information to the SDDANR using the following form:

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

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

Effluent monitoring, as a result of dewatering activities, will be summarized for each month and recorded on a separate Discharge Monitoring Report (DMR) and submitted to DANR monthly. Additional information can be found at:

<https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/swdpermitting/Eporting.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.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5382
BRADLEY D. STANGOHR
SOUTH DAKOTA
02/06/2026

COMMITMENT M: SECTION 4(f)/6(f) RESOURCES

COMMITMENT M1: SECTION 4(f) PROPERTY

A Section 4(f) Evaluation concluded there are no feasible and prudent alternatives to avoiding Section 4(f) property located within the project.

Station	Section 4(f) Property
30+50	Str. No 63-153-050 – NRHP Eligible

Action Taken/Required:

The replacement of structure 63-153-050 will result in an Adverse Effect to historic properties. A Memorandum of Agreement was signed and MOA stipulations must be fulfilled prior to construction. The South Dakota SHPO confirmed that MOA stipulations I-III have been completed on 07/18/2025.

A programmatic Section 4(f) Evaluation for Use of Historic Bridges 63-153-050 was approved by FHWA.

The contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 4(f) property. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any Section 4(f) property.

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.

SEQUENCE OF OPERATIONS

The Contractor will use the following sequence of operations:

1. Install temporary traffic control signs as shown in the plans.
2. Install erosion control procedures and notify County to remove and install temporary fence.
3. Salvage the items noted in the plans for the County, then deconstruct and remove existing structure.
4. Construct new structure.
5. Grading operations, place topsoil, and install riprap.
6. Notify the County to install final surfacing and permanent fencing and signing.
7. Install final erosion control then remove temporary traffic control.
8. Open the roadway to traffic.
9. Complete miscellaneous cleanup under traffic.

Contractor requests to deviate from the sequence of operations will be submitted in writing to the Engineer for review. Approval of an alternate sequence of operations will only be allowed when the proposed changes meet with the County's intent for traffic control and sequencing of the work.

An alternate sequence will be submitted for review a minimum of two weeks prior to potential implementation.

COUNTY RESPONSIBILITIES

Turner County will be responsible for the following at no cost to the Contractor:

1. Right of way temporary and permanent easements.
2. Coordination of any utility adjustments.
3. Furnish and install temporary and/or permanent fencing.
4. Furnish and install final surfacing without federal participation.
5. Furnish and install new permanent signing for the project.
6. Haul salvaged materials away from the project site as called for in the plans.
7. Remove silt fence and erosion control wattles in permanently seeded areas.
8. Wetland Mitigation.

GENERAL MAINTENANCE OF TRAFFIC

The Contractor will maintain access to any field and farm entrances within the project limits throughout the duration of construction. All costs associated with the foregoing work will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".

CLEARING

Before clearing activities begin, the Contractor will contact the Engineer to determine the limits of clearing for the project. If the trees or shrubs that are to remain within the limits of the work are damaged by the Contractor, the Contractor will replace them with the same size and type at the Contractor's expense.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 31 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

The estimated cubic yards of excavation and/or embankment required to construct outlet ditches, ditch blocks, and approaches are included in the earthwork balance notes on the profile sheets.

The estimated excavation required for placing the Granular Bridge End Backfill and/or Bridge End Embankment, and for constructing the Bridge Berm(s) between bridge abutments and shaping the bridge waterway channel(s) are included in the Table of Unclassified Excavation. Overburden Excavation for Riprap is not included in the Unclassified Excavation quantity. Refer to structure sheets for information regarding the Overburden Excavation for Riprap. The excavated material from the construction of the Bridge Berm(s) and shaping the bridge waterway channel(s) should be disposed of at a site provided by the Contractor and approved by the Engineer. This waste material is included in the Waste shown in the Table of Excavation Quantities by Balances.

Special ditch grades and other sections of the roadway different than the typical sections will be constructed to the limits shown on the cross sections. If significant changes to the cross sections are necessary during construction, the Engineer will contact the Designer for the proposed change.

Generally, all shallow inlet and outlet ditches as noted on the plan sheets will be cut with a 10-foot-wide bottom with 5:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

Temporary fence and/or permanent fence will be placed ahead of the grading operation unless otherwise directed by the Engineer.

Compaction of earth embankment and structure backfill material will be governed by the Ordinary Compaction Method.

UTILITIES

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.

Location	Utility	Owner	Phone Number
24+75 to 36+00 Lt.	Underground Gas	Northwestern Energy	(605) 978-2981
24+75 to 36+00 Lt. & Rt.	Underground Communication	Bluepeak	(605) 498-4922

SHRINKAGE FACTOR: Embankment 35%

EARTHWORK BALANCE

Excavation is the quantity of Unclassified Excavation less the quantity of topsoil, and gravel surfacing.

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SOUTH DAKOTA

02/06/2026

EARTHWORK QUANTITIES (CONTINUED)

These quantities are for informational purposes only, compensation for these is accounted for within the various bid items. These quantities include excavation and embankment to the catch point on the inslopes from the top of the subgrade in cut sections.

Excavation*	4,484	CuYd	Embankment	2,269	CuYd
Waste**	2,060	CuYd	35% Shrinkage	795	CuYd
Contractor Furnished Borrow Excavation	640	CuYd			
Total	3,064	CuYd		3,064	CuYd

* Existing gravel surfacing is included in Excavation.
** Volume of excavation is in channel

The Contractor may, at the discretion of the Engineer, use the material from other excavation in the inslopes and as sub-base with the condition that the material meets all requirements as set forth in the Specifications.

It is assumed (for the purpose of earthwork balance) that the Contractor will not be able to use any of the material from riprap or channel excavation and will have to waste the material at a site(s) provided by the Contractor and approved by the Engineer. All cost for labor, materials, and equipment necessary to waste material as well as restoration of the waste site(s) will be incidental to the contract unit price per cubic yard of "Unclassified Excavation."

TABLE OF UNCLASSIFIED EXCAVATION

	(CuYd)
Excavation	4,484
Topsoil	1,075
Total	5,559

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

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

The following paragraphs are general earthwork information and information in regard to computing the Unclassified Excavation quantity. There will be no final cross sections taken in the field for final payment.

The Topsoil quantity in the Placing Topsoil note will be used for final payment with no adjustment for final measurements. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The plans quantity for "Unclassified Excavation" as shown in the Estimate of Quantities will be the basis of final payment for this item.

CONTRACTOR FURNISHED BORROW EXCAVATION

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

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

SALVAGE DELINEATORS

All delineators listed for salvage in the Table of Salvage Delineators will become property of Turner County and will have the existing posts, bases, and signs dismantled and stockpiled within the right-of-way. The Contractor will contact the Turner County Highway Superintendent for pick-up of salvaged materials. All bolts, nuts, and washers will be placed in individual containers. Wooden posts will be stockpiled separately from steel posts. The Contractor will replace and pay for any salvaged delineators damaged in their care.

All costs for labor and equipment necessary to remove, dismantle, and stockpile delineators within the right-of-way will be incidental to the contract unit price per each for Salvage Delineator. The quantity of delineators to be salvaged is shown in the Table of Salvage Delineators. The plans quantity is shown as per assembly. Payment for salvaging delineators will be paid per assembly at the contract unit price per each for "Salvage Delineator".

TABLE OF SALVAGE DELINEATORS

Location	Work Item	Salvage Delineator
29+31 – 26' Lt.	Salvage Delineator	1
29+66 – 5' Lt.	Salvage Delineator	1
30+02 – 24' Lt.	Salvage Object Marker	1
30+06 – 5' Lt.	Salvage Object Marker	1
31+13 – 23' Lt.	Salvage Object Marker	1
31+18 – 6' Lt.	Salvage Object Marker	1
31+58 – 2' Lt.	Salvage Delineator	1
31+60 – 24' Lt.	Salvage Delineator	1
32+08 – 1' Rt.	Salvage Delineator	1
32+12 – 24' Lt.	Salvage Delineator	1
		10

PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements. The estimated amount of topsoil to be placed is as follows:

Station	to	Station		Topsoil (CuYd)
24+75		36+00 LT		650
24+75		36+00 RT		425
			Total:	1,075

All costs associated with placing the topsoil along areas to be resurfaced will be incidental to the contract unit price per cubic yard for "Placing Topsoil".

The plans quantity for "Placing Topsoil" as shown in the Estimate of Quantities will be the basis for payment for this item.

CORRUGATED METAL PIPE

Corrugated metal pipes will have 2 ⅔-inch x ½-inch corrugations for 42-inch and smaller round pipe and 48-inch and smaller arch pipe unless otherwise stated in the plans. Corrugated metal pipes will have 3-inch x 1-inch or 5-inch x 1-inch corrugations for 48-inch and larger round pipe and 54-inch and larger arch pipe unless otherwise stated in the plans.

The gauge of the corrugated metal elbows, tees, crosses, wyes, and ends will match the thickest gauge of corrugated metal pipe to which it is connected.

EROSION CONTROL

The estimated area requiring erosion control is 1.9 acres. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding, mulching, and mycorrhizal inoculum will be incidental to the contract lump sum price for "Erosion Control".

PERMANENT SEEDING

The areas to be seeded consist of all newly graded areas within the project limits except for the top of roadways,

Permanent Seed Mixture will consist of the following:

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

Application of fertilizer will not be required on this project.

MULCHING

The estimated area that will be mulched is 0.4 acres, which includes areas outside the erosion control blanket limits that require permanent seeding. Mulch will consist of grass hay or straw and will be blown on and punched in to a 3 inch depth at the rate of 2 tons per acre on all newly seeded areas.

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EROSION CONTROL (CONTINUED)

MYCORRHIZAL INOCULUM

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

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract lump sum for “Erosion Control”. The Mycorrhizal Inoculum provided will be from the approved product list. The approved product list may be viewed at the following internet site:

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

EROSION CONTROL WATTLE

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

The Contractor will provide certification that the erosion control wattles do not contain noxious weed seeds. Erosion control wattles will remain on the project until vegetation has been established and then they will be removed in accordance with the Engineer.

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

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

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

TABLE OF EROSION CONTROL WATTLE

Station		Diameter (Inch)	Quantity (Ft)
27+67.40	R	12	40
27+67.40	L	12	40
29+32.48	L	12	40
29+39.12	R	12	40
31+40.11	R	12	40
32+13.05	L	12	40
32+90.75	R	12	40
34+02.34	L	12	40
35+34.36	L	12	40
	Additional Quantity:	12	100
		Total:	460

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 at locations that will minimize siltation of adjacent streams, lakes, dams, or drainage areas as determined by the Engineer during construction. Refer to Standard Plate 734.05 for details.

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

TABLE OF HIGH FLOW SILT FENCE

Station		Quantity (Ft)
32+95.62 to 36+00.00	R	305
	Additional Quantity:	120
	Total:	425

SURFACE ROUGHENING

Surface roughening will be done after topsoil placement and before permanent seeding, and mulching applications. Refer to Standard Plate 734.25 for details.

TABLE OF SURFACE ROUGHENING

Station	Location	Area (Acre)
29+75 R	Channel Bank	0.1
30+50 R	Channel Bank	0.1
31+10 L	Channel Bank	0.1
32+25 L	Channel Bank	0.1
	Additional Quantity:	0.2
	Total:	0.6

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
Cape 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

Station		Location	Quantity (Ft)
30+35	L/R	Along Channel Toe	357
30+87	L/R	Along Channel Toe	370
		Total:	727

EROSION CONTROL BLANKET

Erosion control blanket will be installed at the locations noted in the table and at locations determined by the Engineer during construction.

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:

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

An additional quantity of Type 2 Erosion Control Blanket has been added to the Estimate of Quantities for temporary erosion control.

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TABLE OF EROSION CONTROL BLANKET

Station		Type	Quantity (SqYd)
24+74.42 to 30+33.09	L	2	1,718
24+73.25 to 29+86.34	R	2	1,748
30+33.09 to 31+73.44	L	2	634
30+25.82 to 36+00.49	R	2	2,393
31+61.02 to 35+99.62	L	2	2,528
Additional Quantity:		2	100
Total Type 2 Erosion Control Blanket:			9,121

SHAPING FOR EROSION CONTROL BLANKET

The ditches will be shaped for the erosion control blanket as specified on Standard Plate 734.01.

TABLE OF SHAPING FOR EROSION CONTROL BLANKET

Station	Location	(Ft)
24+75 to 30+00	Rt	525
24+75 to 31+75	Lt	700
30+50 to 33+00	Rt	250
31+60 to 36+00	Lt	440
	Total:	1,915

TABLE OF CONSTRUCTION STAKING

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Grade Staking Length (Mile)	Grade Staking Lane Factor	Grade Staking Sets of Stakes	Grade Staking Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Structure Staking Quantity (Each)
273rd St (2 Lanes Gravel)	24+75.00	36+00.00	2	1,125	0.2	1	1	0.2	0.2	0.2	1
							Totals:	0.2	0.2	0.2	1

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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** 4.68 Acres
- **5.3 (3b): Total Area to be Disturbed** 2.70 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 2.70 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 80
- **5.3 (3d): Description of Vegetative Cover** Native Grasses and Crop Lands
- **5.3 (3e): Soil Properties:** USDA NRCS Soil Survey (west to east): DaA Davis Loam g15z, Cc Bon loam 2wkpn, Ro Bon loam 2wkpm; SDDOT Classification: Brown Silt top layer, underlain by Sand and Gravel, underlain by Sioux Quartzite
- **5.3 (3f): Name of Receiving Water Body/Bodies** East Fork Vermillion River
- **5.3 (3g): Location of Construction Support Activity Areas**

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install temporary traffic control signs as shown on the plans.	
Install erosion control procedures and notify County to remove and install temporary fence..	
Salvage the items noted in the plans for the County, then deconstruct and remove existing structure.	
Construct new structure.	
Grading operations, place topsoil, and install riprap.	
Notify County to install final surfacing and permanent fencing and signing.	
Install final erosion control then remove temporary traffic control.	
Open the roadway to traffic.	
Complete miscellaneous cleanup under traffic.	

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 Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The 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: _____
  - Cellphone: _____Fax: _____
- **Erosion Control Supervisor**
  - Name: _____
  - Address: _____
  - _____
  - City: _____State: _____Zip: _____
  - Office Phone: _____Field: _____
  - Cellphone: _____Fax: _____
- **Project Engineer**
  - Name: _____
  - Business Address: _____
  - Job Office Location: _____
  - City: _____State: _____Zip: _____
  - Office Phone: _____Field: _____
  - Cellphone: _____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**

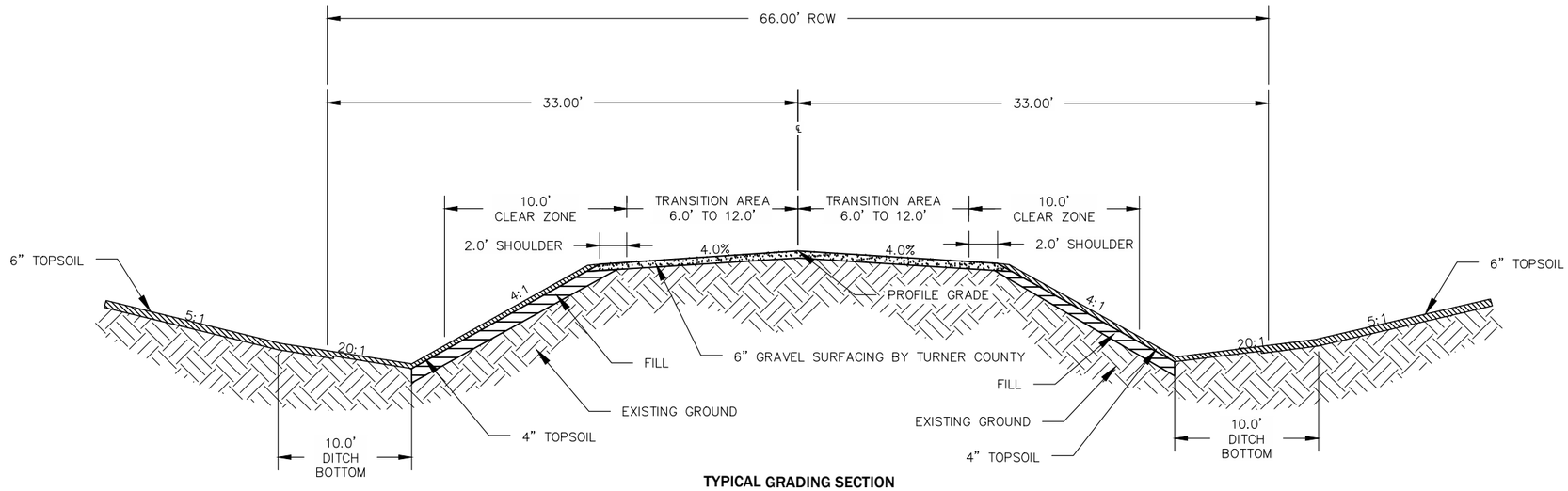
If there are multiple operators at the site, the Contractor's Erosion Control Supervisor must notify each operator that may be impacted by the change to the SWPPP within 24 hours.

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 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.

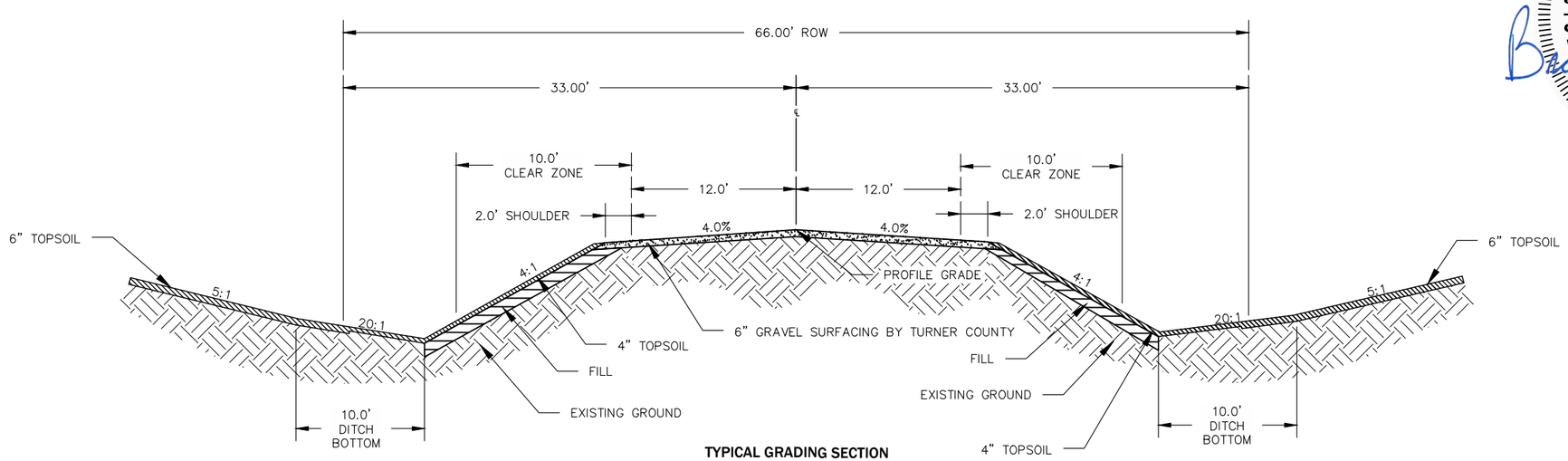
TYPICAL SECTIONS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	13	55



TYPICAL GRADING SECTION
Sta. 24+75.00 to Sta. 29+44.55



TYPICAL GRADING SECTION
Sta. 29+44.55 to Sta. 29+94.55

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5382
BRADLEY D. STANGOHR
SOUTH DAKOTA
02/06/2026

TYPICAL SECTIONS

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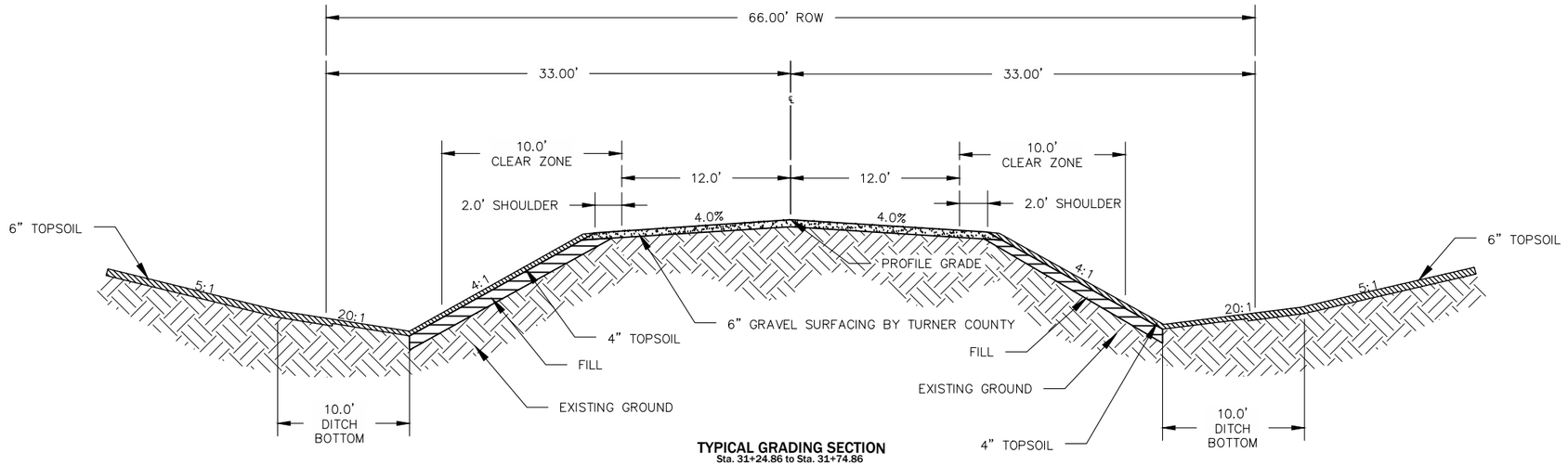
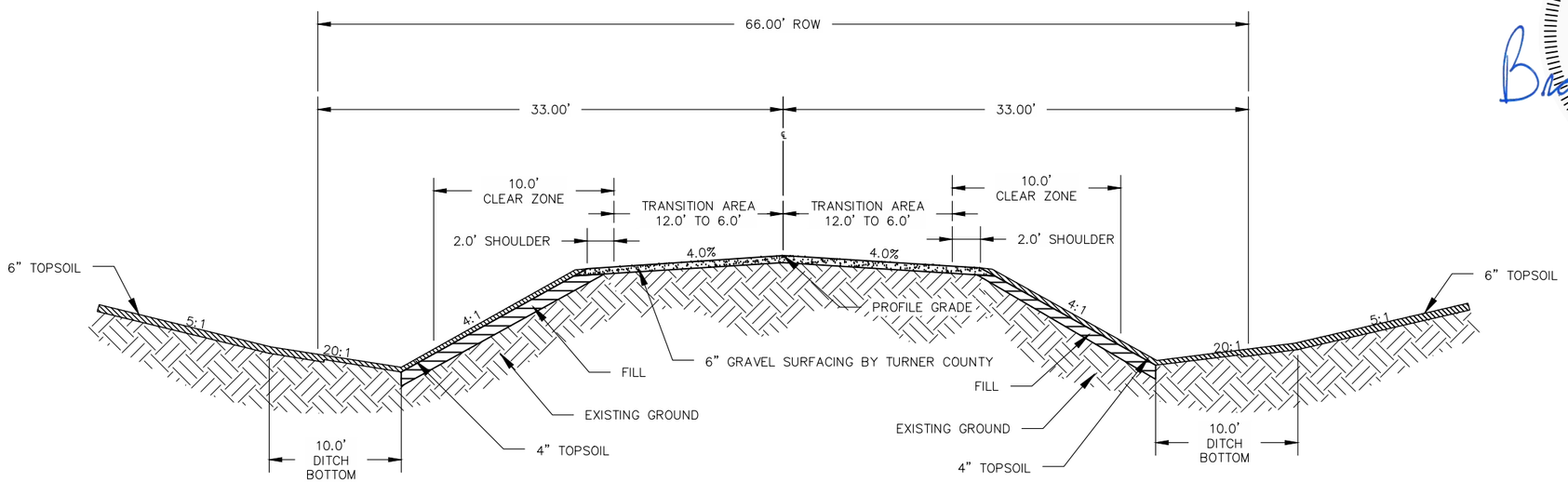
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	14	55



TYPICAL GRADING SECTION
Sta. 31+24.86 to Sta. 31+74.86



TYPICAL GRADING SECTION
Sta. 31+74.86 to Sta. 36+00.00

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TRAFFIC CONTROL

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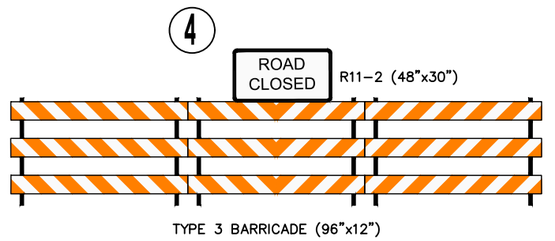
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	15	55

TYPE 3 BARRICADE (72"x12")

W20-3 (48"x48")

W20-3 (48"x48")



TYPE 3 BARRICADE (96"x12")

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS					
		CONVENTIONAL ROAD			
SIGN CODE	SIGN DESCRIPTION	NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R11-2	ROAD CLOSED	2	48" x 30"	10	20
R11-3a	ROAD CLOSED XXX MILES AHEAD	2	60" x 30"	12.5	25
W20-3	ROAD CLOSED XXX FEET AHEAD	4	48" x 48"	16	64
		CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT			109

TYPE 3 BARRICADES	
ITEM DESCRIPTION	QUANTITY
Type 3 Barricades	8

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EROSION CONTROL

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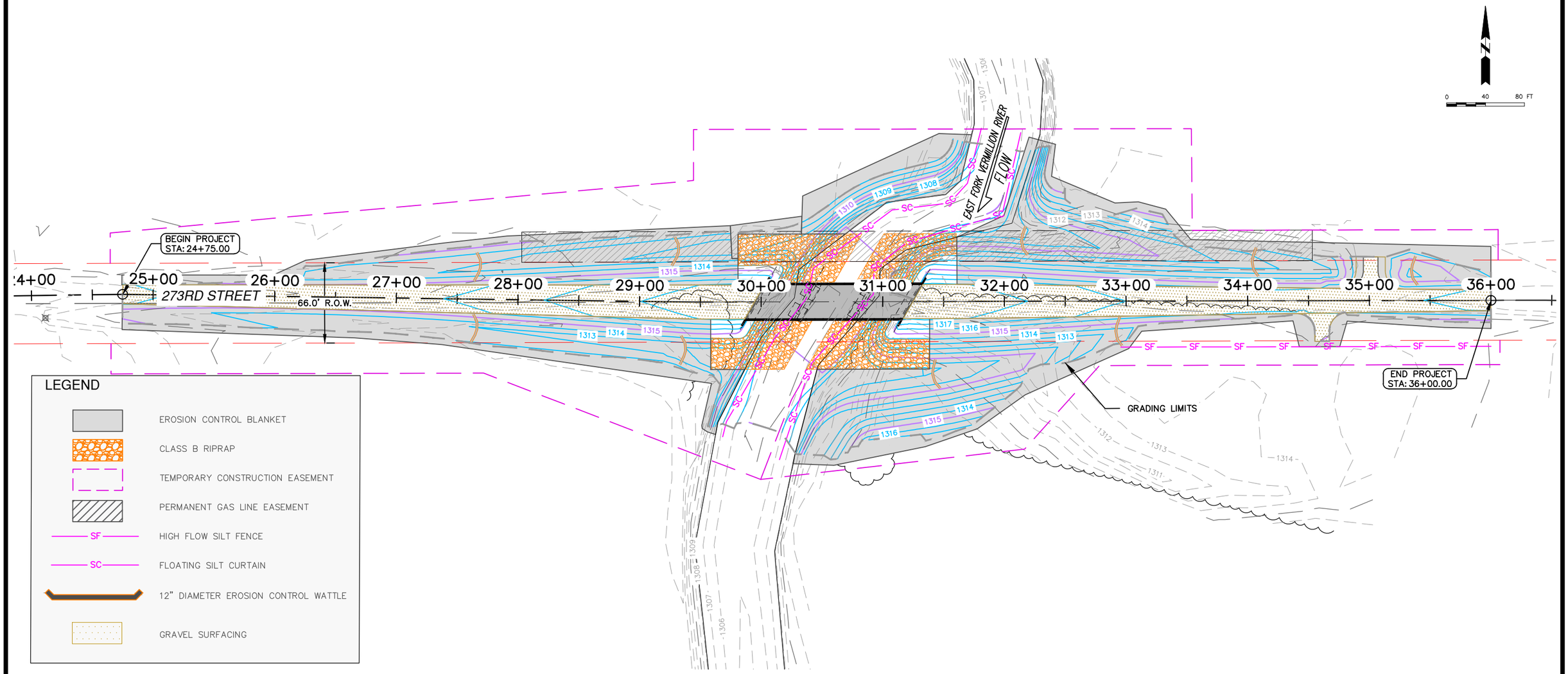
Revised: 3/16/26 BDS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	16	55



12" Diameter Wattle			
Station	L/R	Diameter (Inch)	Quantity (Ft)
27+67.40	R	12	40
27+67.40	L	12	40
29+32.48	L	12	40
29+39.12	R	12	40
31+40.11	R	12	40
32+13.05	L	12	40
32+90.75	R	12	40
34+02.34	L	12	40
35+34.36	L	12	40
Miscellaneous			100
Total			460

High Flow Silt Fence				
Station		Station	L/R	Quantity (Ft)
32+95.62	To	36+00.00	R	305
Miscellaneous				120
Total				425

Type 2 Erosion Control Blanket				
Station		Station	L/R	Quantity (SqYd)
24+74.42	To	30+33.09	L	1718
24+73.25	To	29+86.34	R	1748
30+33.09	To	31+73.44	L	634
30+25.82	To	36+00.49	R	2393
31+61.02	To	35+99.62	L	2528
Miscellaneous				100
Total				9121

Floating Silt Curtain		
Station	L/R	Quantity (Ft)
30+35.09	L/R	357
30+86.79	L/R	370
Total		727

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SOUTH DAKOTA
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SURVEY DATA & EASEMENTS

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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	17	55

S 1/2, SW 1/4, SEC 34, T100N, R53W
SCHIMKAT GREG & ELAINE JT

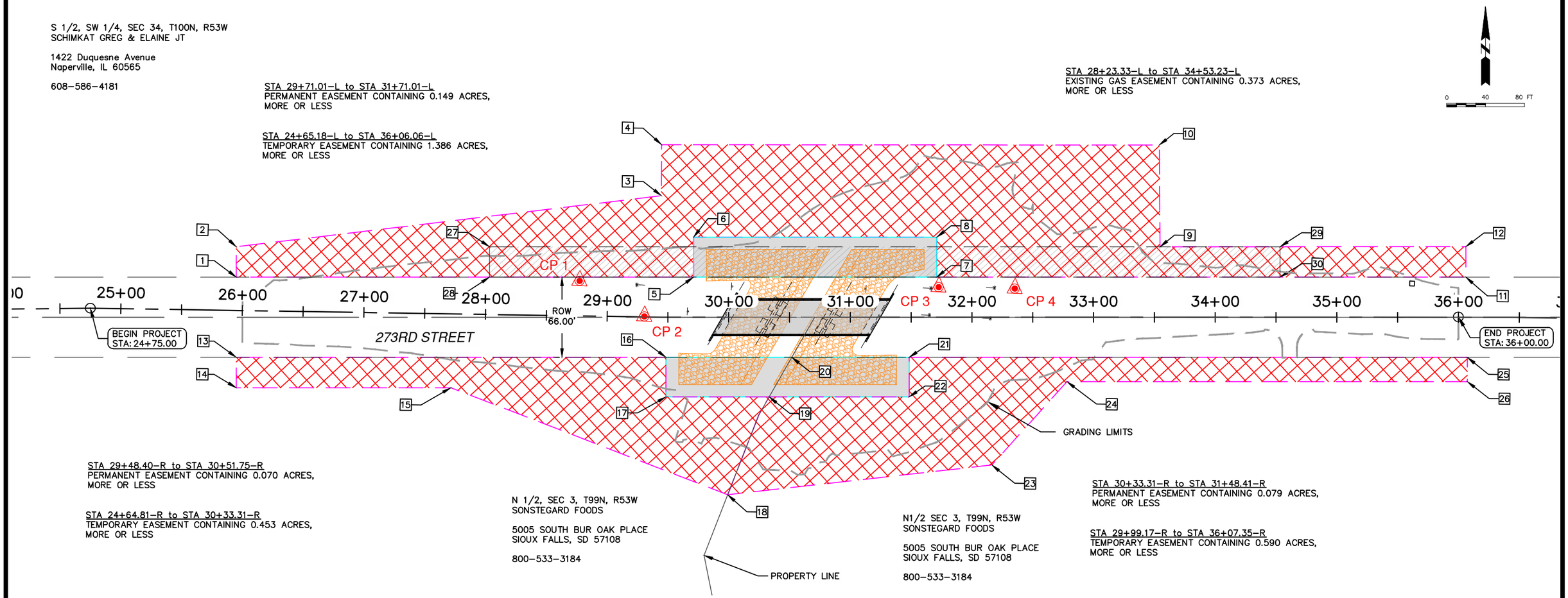
1422 Duquesne Avenue
Naperville, IL 60565

608-586-4181

STA 29+71.01-L to STA 31+71.01-L
PERMANENT EASEMENT CONTAINING 0.149 ACRES,
MORE OR LESS

STA 24+65.18-L to STA 36+06.06-L
TEMPORARY EASEMENT CONTAINING 1.386 ACRES,
MORE OR LESS

STA 28+23.33-L to STA 34+53.23-L
EXISTING GAS EASEMENT CONTAINING 0.373 ACRES,
MORE OR LESS



STA 29+48.40-R to STA 30+51.75-R
PERMANENT EASEMENT CONTAINING 0.070 ACRES,
MORE OR LESS

STA 24+64.81-R to STA 30+33.31-R
TEMPORARY EASEMENT CONTAINING 0.453 ACRES,
MORE OR LESS

N 1/2, SEC 3, T99N, R53W
SONSTEGARD FOODS

5005 SOUTH BUR OAK PLACE
SIOUX FALLS, SD 57108

800-533-3184

N1/2 SEC 3, T99N, R53W
SONSTEGARD FOODS

5005 SOUTH BUR OAK PLACE
SIOUX FALLS, SD 57108

800-533-3184

STA 30+33.31-R to STA 31+48.41-R
PERMANENT EASEMENT CONTAINING 0.079 ACRES,
MORE OR LESS

STA 29+99.17-R to STA 36+07.35-R
TEMPORARY EASEMENT CONTAINING 0.590 ACRES,
MORE OR LESS

LEGEND

PERMANENT EASEMENT

TEMPORARY CONSTRUCTION EASEMENT

EXISTING PERMANENT GAS LINE EASEMENT

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5382
BRADLEY D. STANGOHR
SOUTH DAKOTA
03/16/2026

Control Point Table

Point #	Station	Offset	Northing	Easting	Elevation	Description
1	28+76.87	-28.81	416782.855	2828414.164	1314.508	100 5/8 RB W PPC
2	29+30.62	-0.45	416756.139	2828468.751	1314.152	100 5/8 RB W PPC
3	31+72.59	-24.76	416791.382	2828709.337	1315.843	100 5/8 RB W PPC
4	32+35.17	-23.58	416793.069	2828771.913	1315.198	100 5/8 RB W PPC

Gas Easement Table

#	Station	Offset	Side
27	*28+02.33*	*55.75*	*LT*
28	*28+02.73*	*30.75*	*LT*
29	*34+53.22*	*58.09*	*LT*
30	*34+53.23*	*33.09*	*LT*

Permanent and Temporary Easements

#	Station	Offset	Side	#	Station	Offset	Side
1	25+94.56	27.44'	LT	13	25+95.61	38.55'	RT
2	25+97.17	52.44'	LT	14	25+96.01	63.54'	RT
3	29+43.07	99.96'	LT	15	27+72.43	60.74'	RT
4	29+42.47	141.93'	LT	16	29+48.40	33.00'	RT
5	29+71.01	33.00'	LT	17	29+48.41	65.51'	RT
6	29+71.01	65.75'	LT	18	29+99.17	145.98'	RT
7	31+71.01	33.00'	LT	19	30+33.23	65.51'	RT
8	31+71.01	65.75'	LT	20	30+51.75	33.00'	RT
9	33+54.56	58.06'	LT	21	31+48.40	33.00'	RT
10	33+53.97	141.69'	LT	22	31+48.41	65.51'	RT
11	36+06.06	33.14'	LT	23	32+16.35	121.55'	RT
12	36+06.05	53.14'	LT	24	32+78.14	52.97'	RT
				25	36+07.35	32.86'	RT
				26	36+07.35	52.86'	RT

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PLAN AND PROFILE

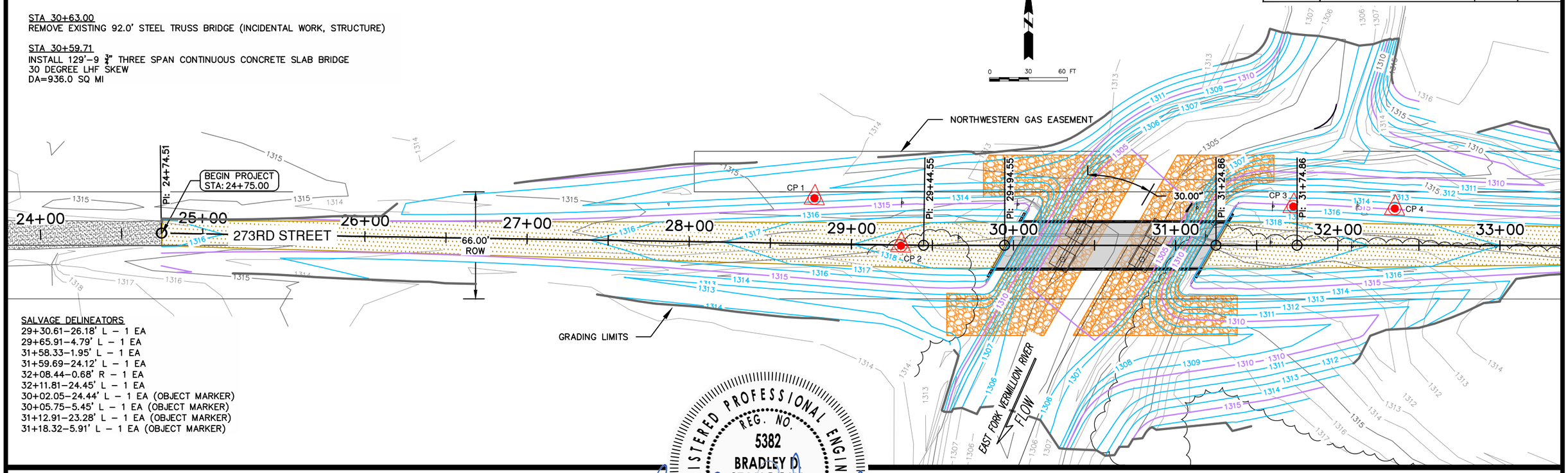
FOR BIDDING PURPOSES ONLY

Revised: 3/16/26 BDS

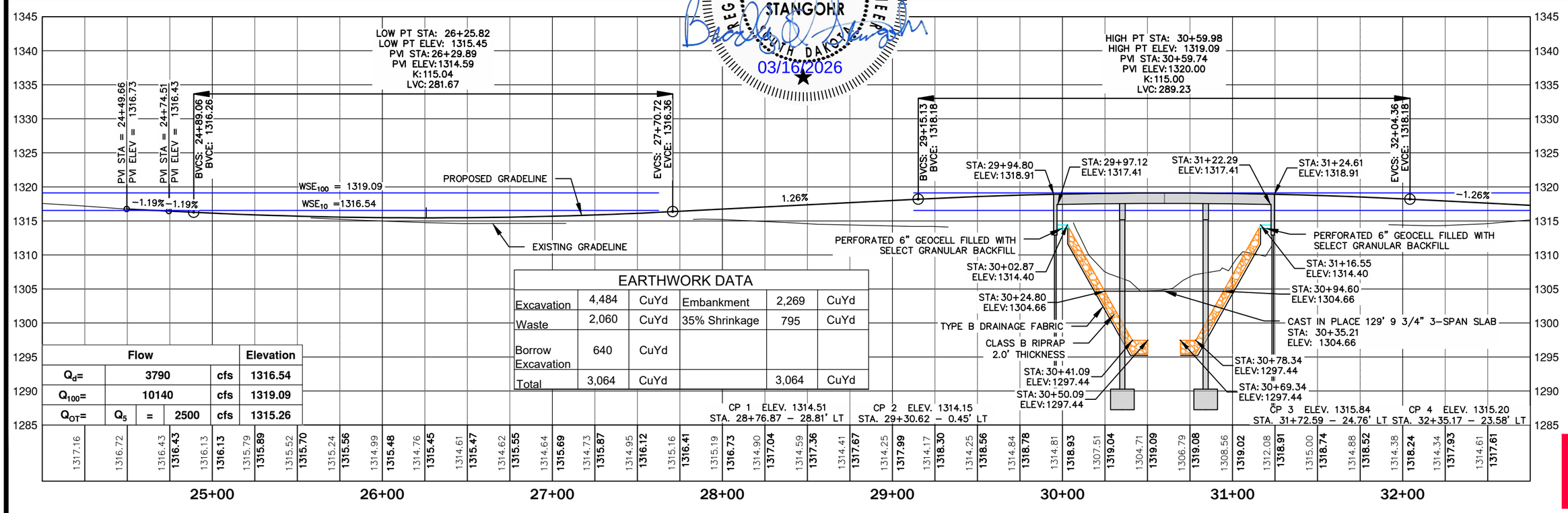
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	18	55

STA 30+63.00
REMOVE EXISTING 92.0' STEEL TRUSS BRIDGE (INCIDENTAL WORK, STRUCTURE)

STA 30+59.71
INSTALL 129'-9 ¾" THREE SPAN CONTINUOUS CONCRETE SLAB BRIDGE
30 DEGREE LHF SKEW
DA=936.0 SQ MI



SALVAGE DELINEATORS
29+30.61–26.18' L – 1 EA
29+65.91–4.79' L – 1 EA
31+58.33–1.95' L – 1 EA
31+59.69–24.12' L – 1 EA
32+08.44–0.68' R – 1 EA
32+11.81–24.45' L – 1 EA
30+02.05–24.44' L – 1 EA (OBJECT MARKER)
30+05.75–5.45' L – 1 EA (OBJECT MARKER)
31+12.91–23.28' L – 1 EA (OBJECT MARKER)
31+18.32–5.91' L – 1 EA (OBJECT MARKER)



Flow					Elevation
Q_d=	3790			cfs	1316.54
Q_{100}=	10140			cfs	1319.09
Q_{OT}=	Q_5	=	2500	cfs	1315.26

EARTHWORK DATA

Excavation	4,484	CuYd	Embankment	2,269	CuYd
Waste	2,060	CuYd	35% Shrinkage	795	CuYd
Borrow Excavation	640	CuYd			
Total	3,064	CuYd		3,064	CuYd

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5382
BRADLEY D. STANGOHR
SOUTH DAKOTA
03/16/2026

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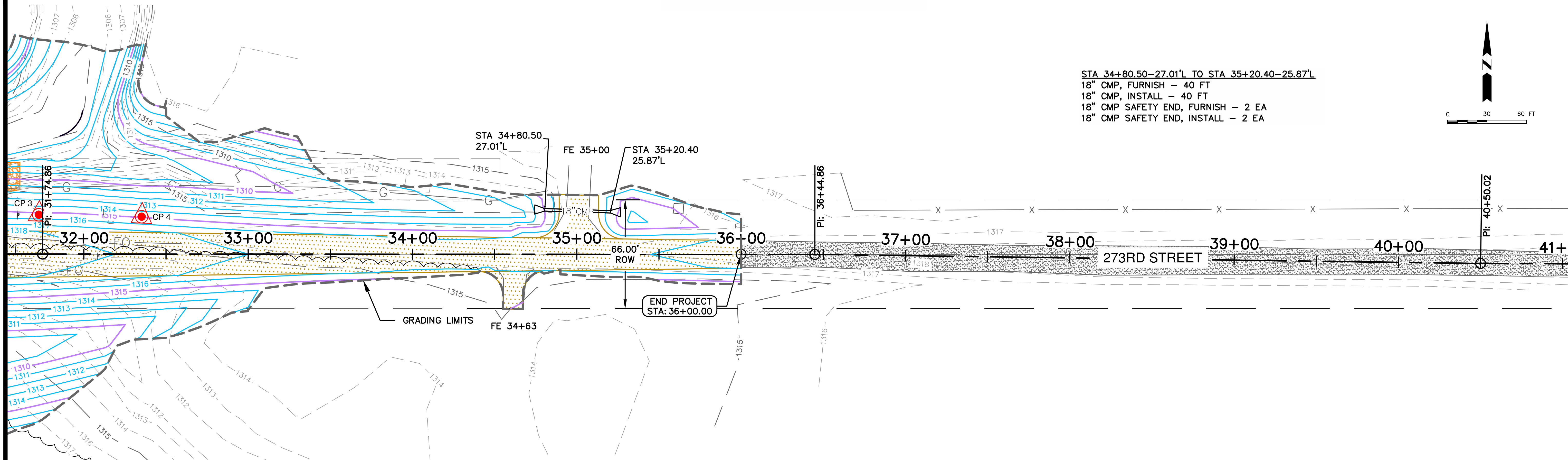
G:\2024\24.00361\C3D Design\Plan Sheets\11 – Plan & Profile Sheets\24.00361_PLAN_PROF.dwg PLOT DATE: 3/13/2026 2:13 PM Mason Blerema Autodesk-MONO.stb

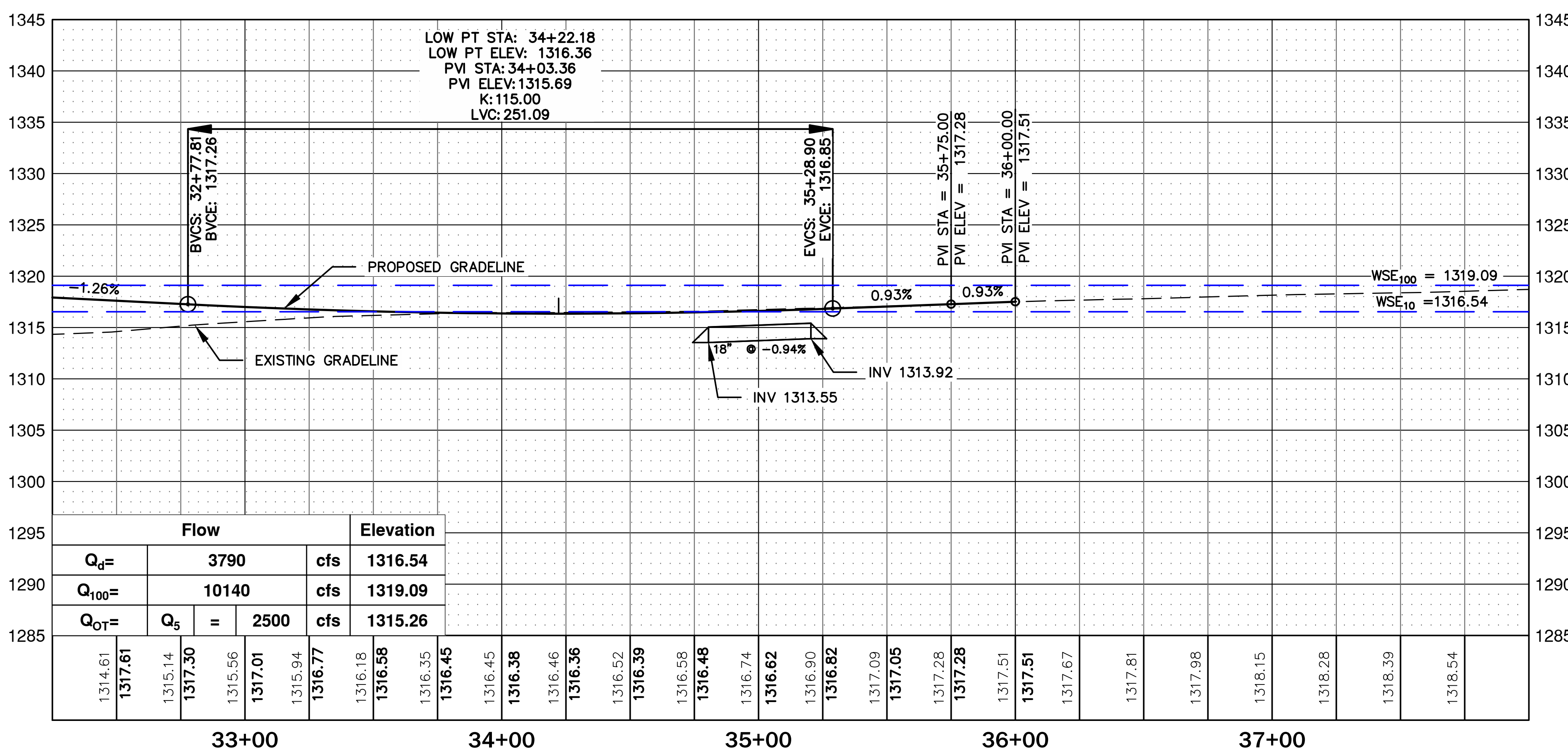
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	19	55

PLAN AND PROFILE

FOR BIDDING PURPOSES ONLY

STA 34+80.50–27.01'L TO STA 35+20.40–25.87'L
18" CMP, FURNISH – 40 FT
18" CMP, INSTALL – 40 FT
18" CMP SAFETY END, FURNISH – 2 EA
18" CMP SAFETY END, INSTALL – 2 EA





Flow					Elevation
Q_d=	3790			cfs	1316.54
Q_{100}=	10140			cfs	1319.09
Q_{OT}=	Q_5	=	2500	cfs	1315.26

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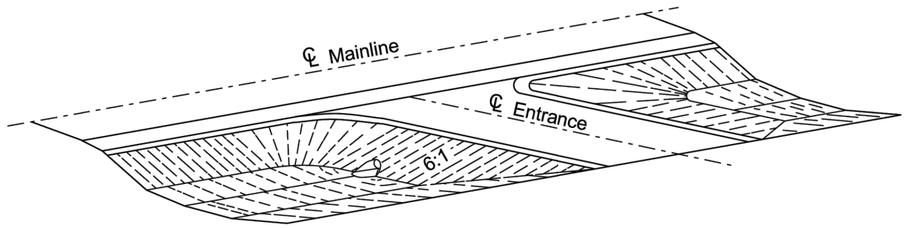
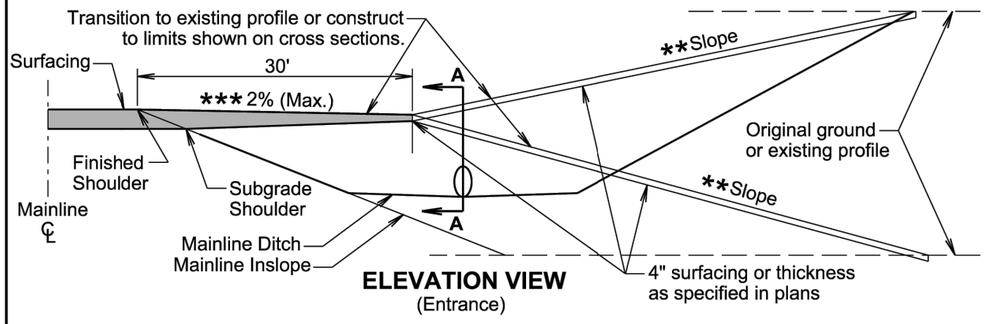


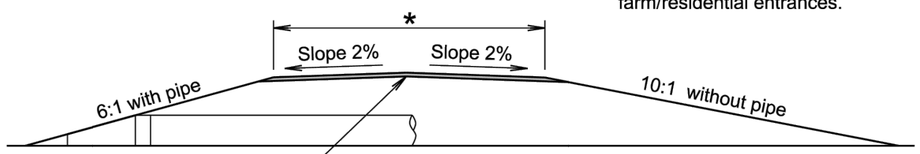
PERSPECTIVE OF ENTRANCE



ELEVATION VIEW
(Entrance)

*** 2% When on the inside of superelevation and 0% or flat when on outside of superelevation.

** Entrance maximum slope is typically 10:1 for field entrances and 15:1 for farm/residential entrances.



SECTION A-A
(Entrance and Intersecting Road)

* The finished surfacing width is stated elsewhere in the plans. The subgrade width is 4' wider than the finished surfacing width unless stated otherwise in the plans.

GENERAL NOTES:

The ditch section shown above in the perspective view is only for illustrative purpose.

The elevation view above is typical for either a ditch cut or fill section. Entrances that vary from above should be specified in the plans.

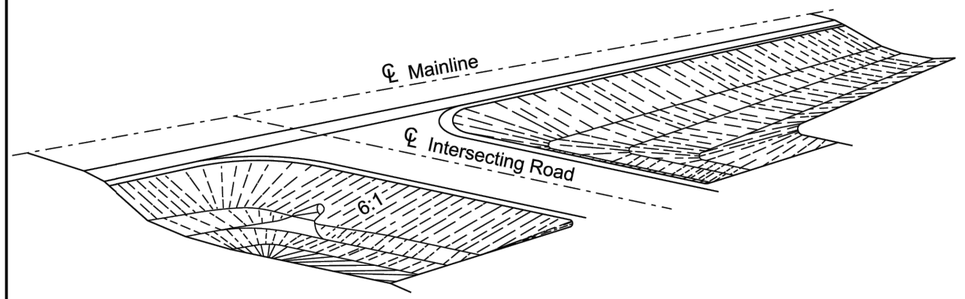
Pipe length will be adjusted if necessary during construction to obtain the 6:1 slope. For grading projects, the pipe length is estimated typically using a 4" thickness of surfacing directly over the subgrade above the pipe.

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

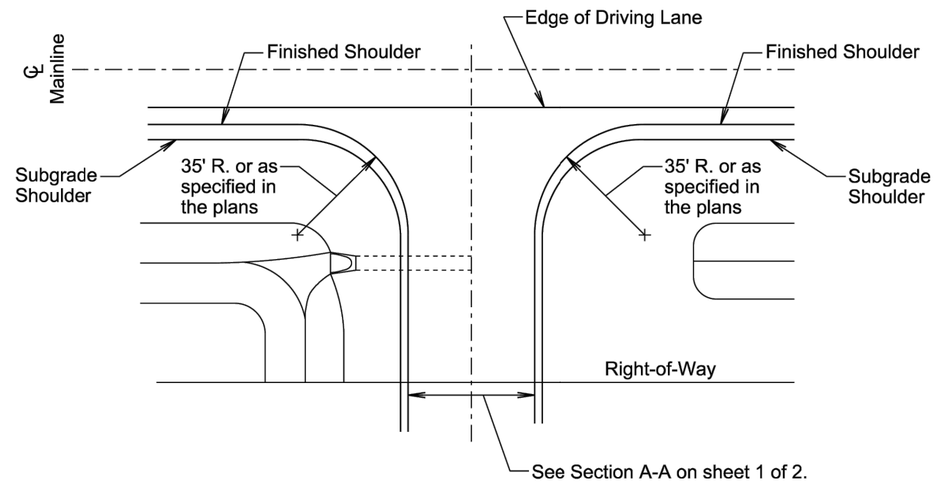
The turning radii will be 35' for intersecting roads and entrances unless stated otherwise in the plans.

November 19, 2021

Published Date: 2026	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 1 of 2



PERSPECTIVE OF INTERSECTING ROAD



PLAN VIEW

GENERAL NOTES:

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

November 19, 2021

Published Date: 2026	SDDOT	INTERSECTING ROADS AND ENTRANCES	PLATE NUMBER 120.01
			Sheet 2 of 2

Published Date: 2026

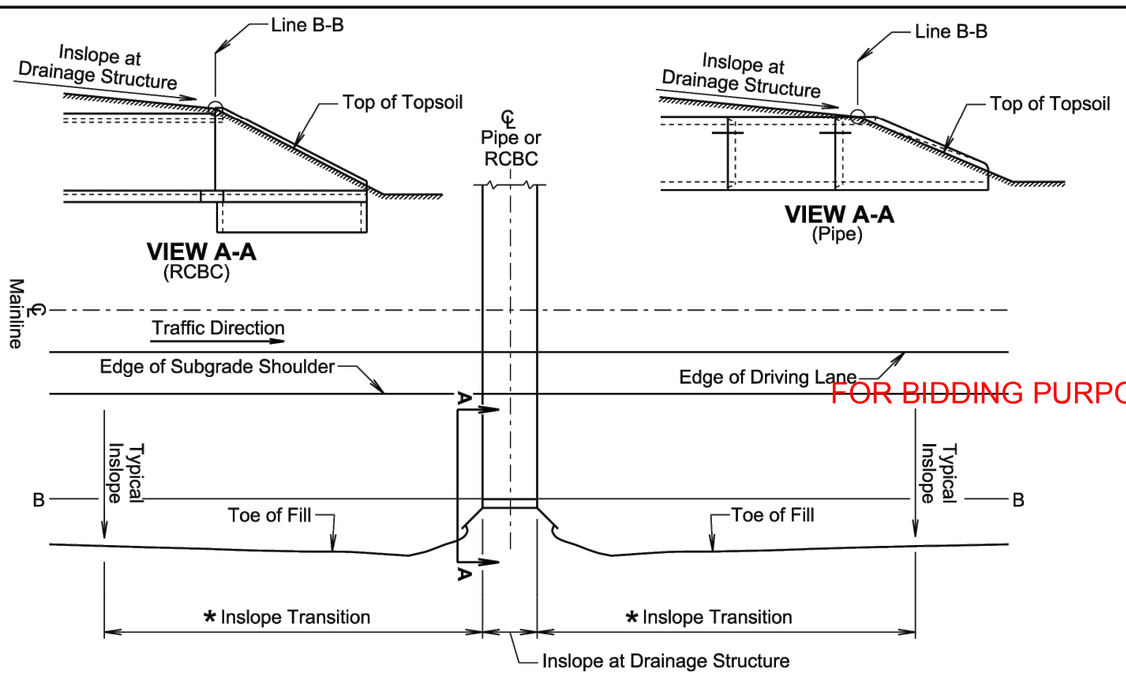
SDDOT

INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

PLATE NUMBER 120.05

Sheet 1 of 2

September 14, 2018



TYPE 1 INSLOPE TRANSITION

GENERAL NOTES:

This Type 1 Inslope Transition is used when the specified inslope at the drainage structure is flatter than the typical inslope and the inslope at the drainage structure is between a 4:1 slope and 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from the typical inslope to the inslope at the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone will be transitioned gradually to the slope necessary adjacent to the RCBC wing wall or pipe culvert end section within the transition length necessary for the transition within the clear zone.

Published Date: 2026

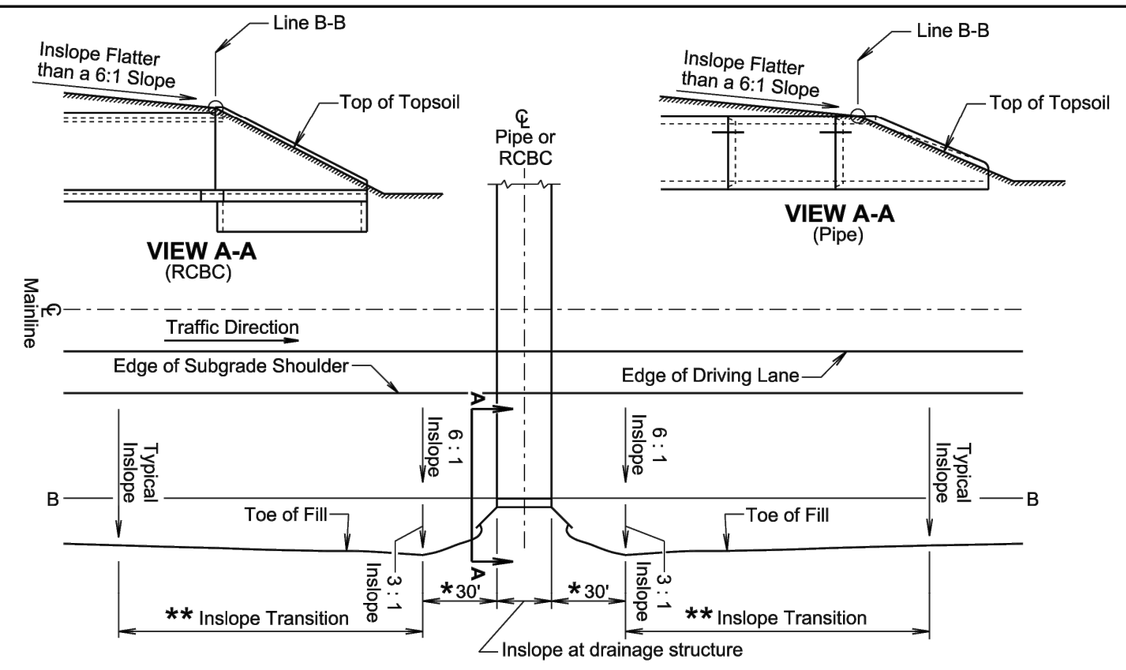
SDDOT

INSLOPE TRANSITIONS AT PIPE CULVERTS OR REINFORCED CONCRETE BOX CULVERTS

PLATE NUMBER 120.05

Sheet 2 of 2

September 14, 2018



TYPE 2 INSLOPE TRANSITION

GENERAL NOTES:

This Type 2 Inslope Transition is used when the specified inslope at the pipe or RCBC is flatter than a 6:1 slope.

Line B-B represents the clear zone line, the location where soil intercepts the parapet on an RCBC, the location where the soil intercepts the top of the pipe adjacent to the opening of the pipe end section, or may represent a change in slope.

* Transition from Inslope at drainage structure to a 6 : 1 inslope and 3:1 inslope.

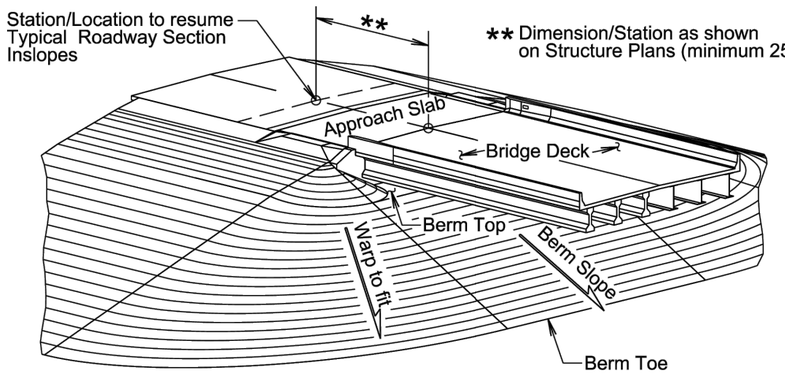
** Transition from typical inslope to the inslopes adjacent to the drainage structure. Within the clear zone (area from edge of subgrade shoulder to line B-B) use 100' length for each 1:1 slope change. Example: transition from a 4:1 to a 6:1 would require a 200' length transition. The typical inslope outside of the clear zone will be transitioned to a 3:1 inslope within the transition length necessary for the transition within the clear zone.

STATE OF SOUTH DAKOTA

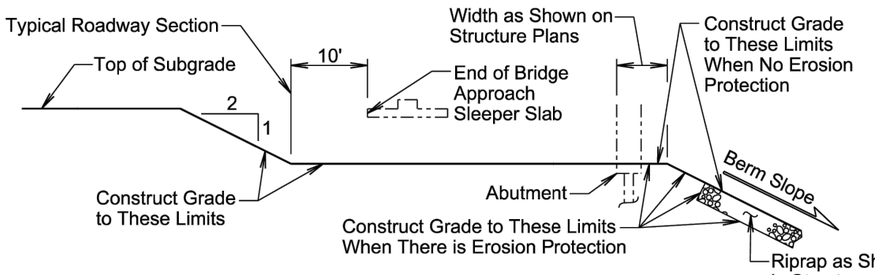
PROJECT BRO-B 8063(19)

SHEET 21

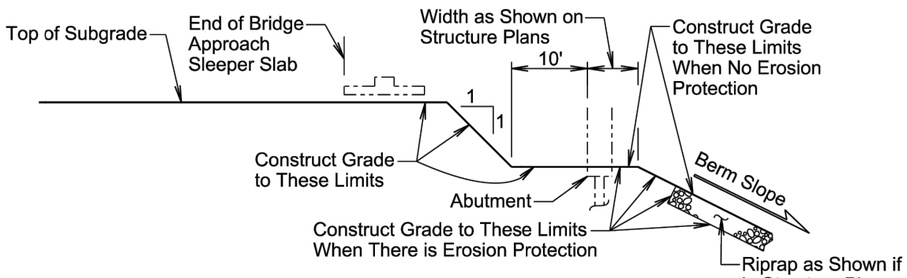
TOTAL SHEETS 55



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



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



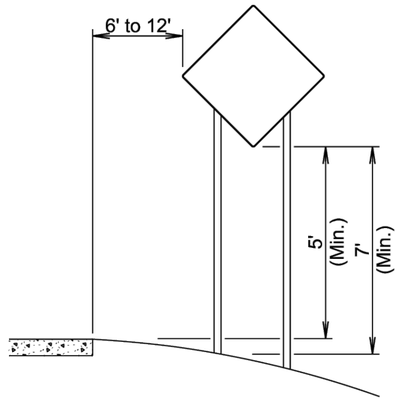
TYPICAL GRADING PROFILE AT BRIDGE BERM
(Normal to ℄ Abutment at ℄ Roadway)

GENERAL NOTES:

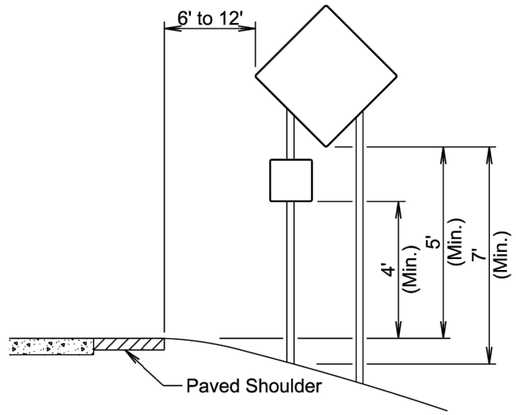
The bridge berm elevation and slope will be as shown in the Structure Plans.
See Structure Plans to determine which grading profile to use.

January 22, 2021

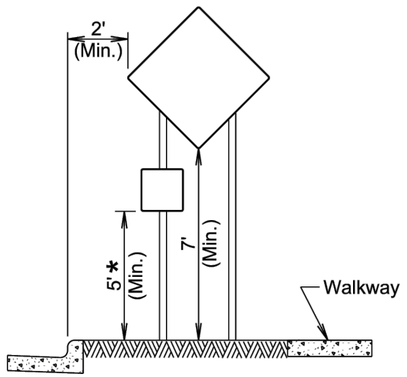
Published Date: 2026	SDDOT	***BRIDGE BERM (PROJECTING EMBANKMENT)***	*PLATE NUMBER* 120.11
			Sheet 1 of 1



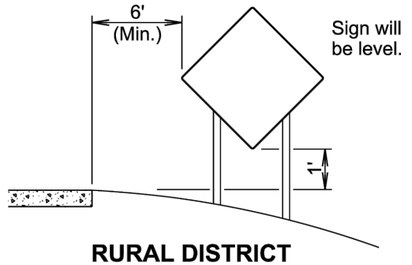
RURAL DISTRICT



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.

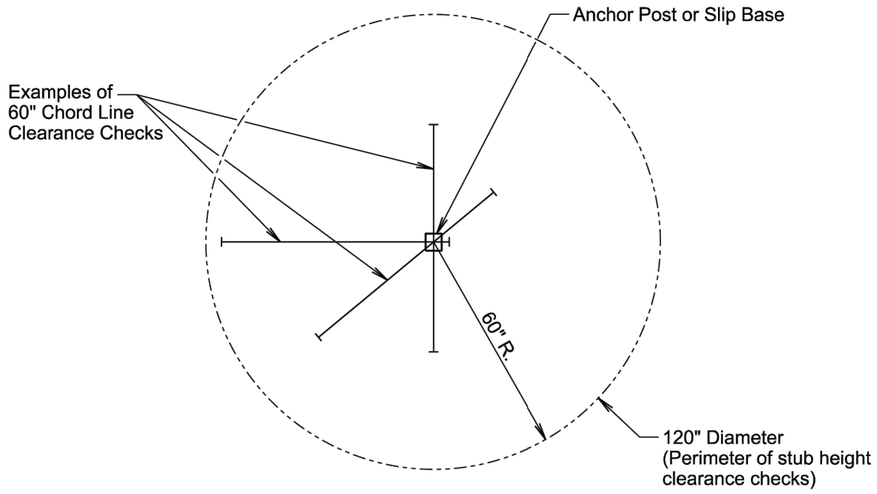
January 22, 2021

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

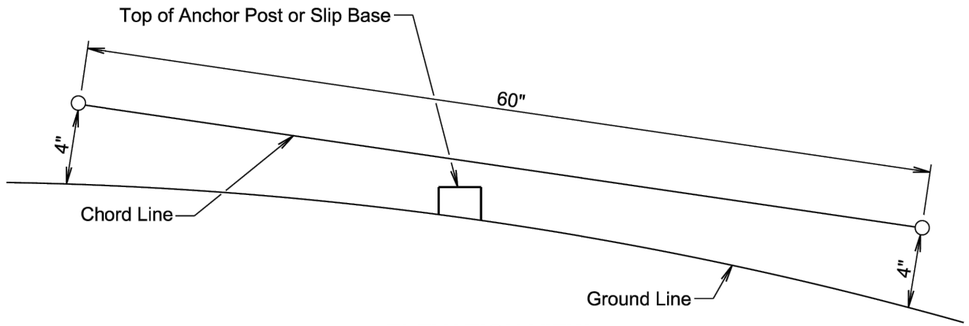
STANDARD PLATES

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	23	55



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

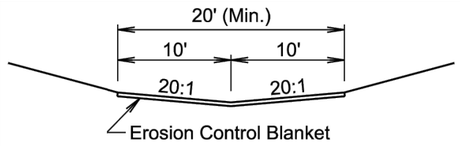
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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.

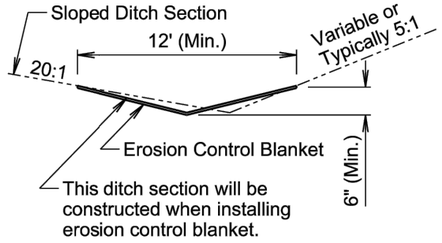
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

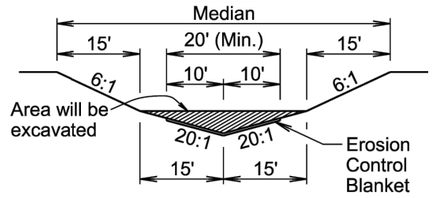
Published Date: 2026	SDDOT	**BREAKAWAY SUPPORT STUB CLEARANCE**	PLATE NUMBER 634.99 Sheet 1 of 1



STANDARD DITCH SECTION

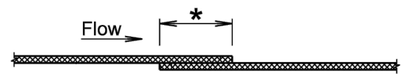


SLOPED DITCH SECTION



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

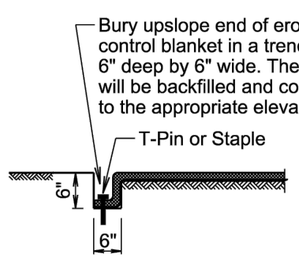
MEDIAN SECTION



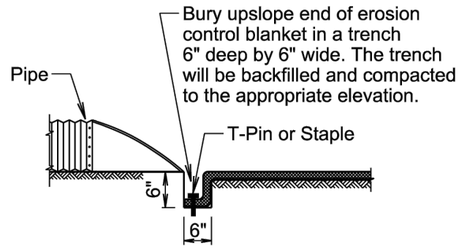
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* 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".

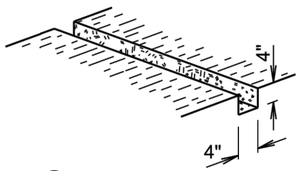
February 14, 2020

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

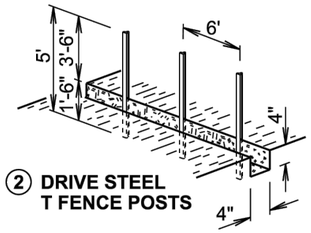
STANDARD PLATES

FOR BIDDING PURPOSES ONLY

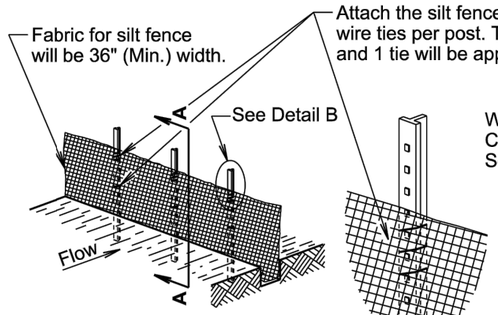
MANUAL HIGH FLOW SILT FENCE INSTALLATION



① EXCAVATE TRENCH

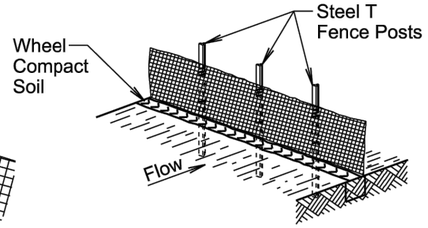


② DRIVE STEEL T FENCE POSTS

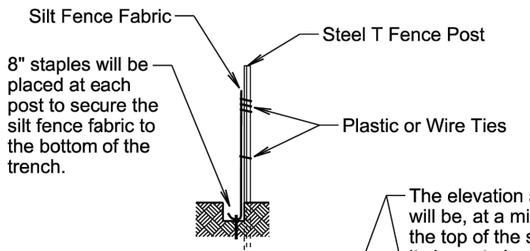


③ ATTACH SILT FENCE FABRIC

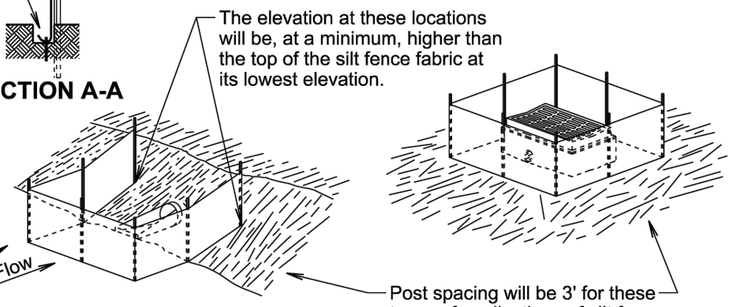
DETAIL B



④ BACKFILL TRENCH AND WHEEL COMPACT SOIL



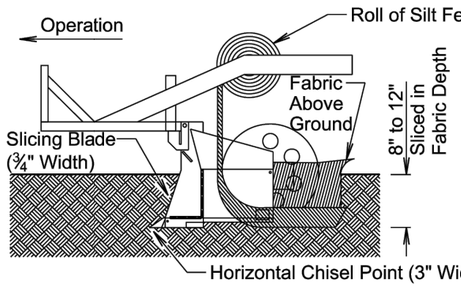
SECTION A-A



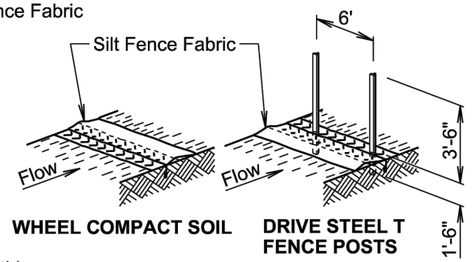
February 14, 2020

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

MACHINE SLICED HIGH FLOW SILT FENCE INSTALLATION



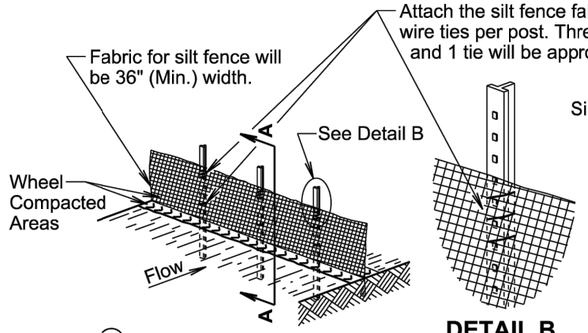
① INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.



WHEEL COMPACT SOIL

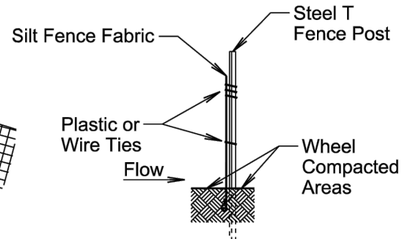
DRIVE STEEL T FENCE POSTS

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

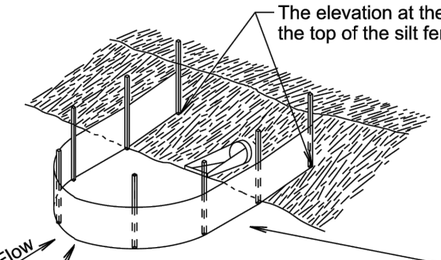


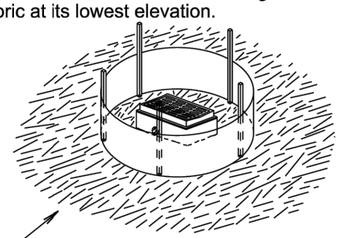
③ ATTACH SILT FENCE FABRIC

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.

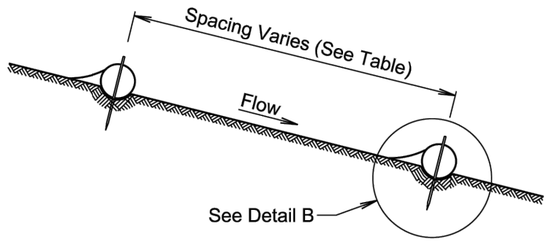
February 14, 2020

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

STANDARD PLATES

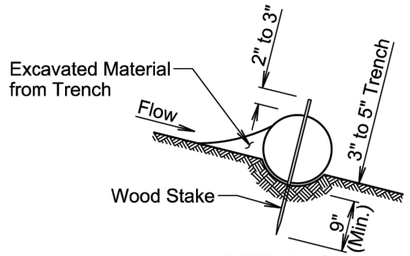
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	25	55

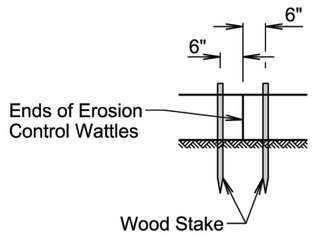


ELEVATION VIEW
(Cut or Fill Slope Installation)

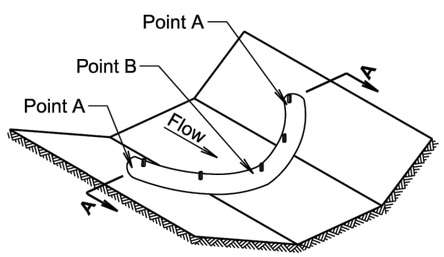
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



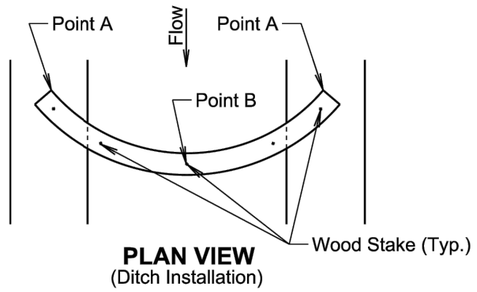
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

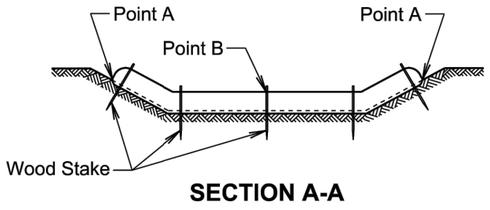


ISOMETRIC VIEW
(Ditch Installation)



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".

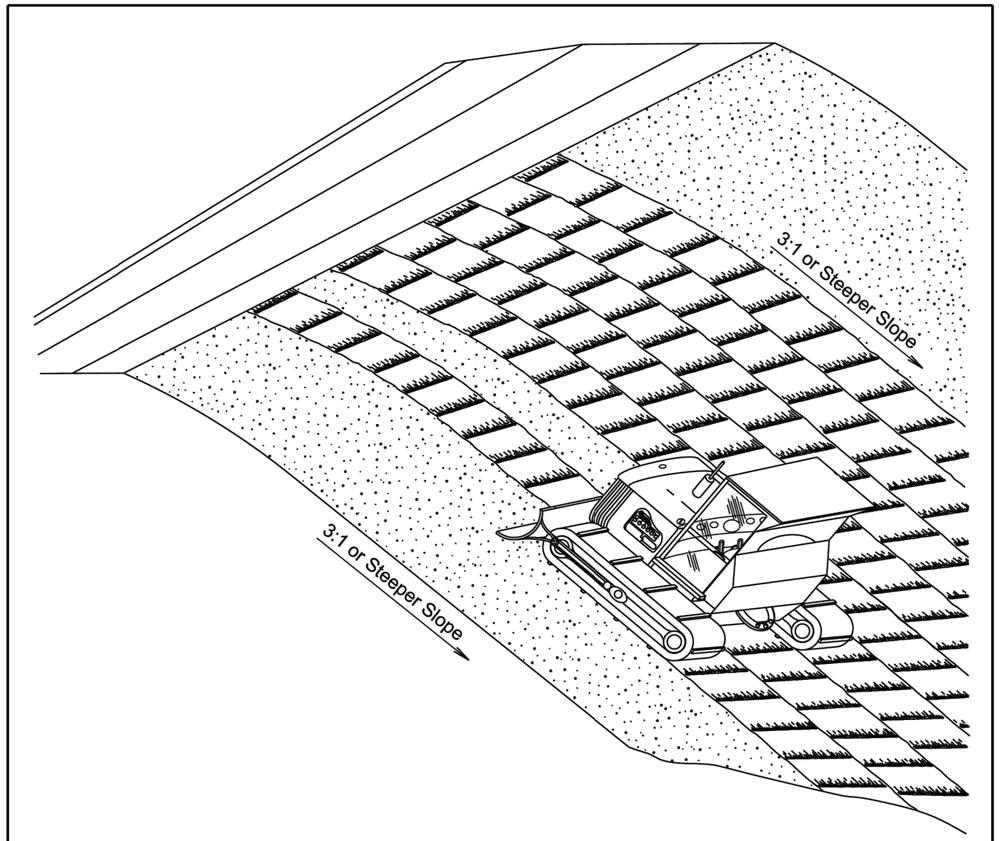
All costs for furnishing and installing the erosion control wattles including labor, equipment, and materials will be incidental to the contract unit price per foot for the corresponding erosion control wattle contract item.

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

STANDARD PLATES



GENERAL NOTES:

Where practical, surface roughening will be done on slopes 3:1 and steeper and on slopes deemed necessary by the Engineer.

The equipment used for surface roughening will be equipped with tracks that are capable of creating ridges in the soil that are perpendicular to the slope. The final condition of the surface roughening will be approved by the Engineer.

Measurement for surface roughening will be to the nearest tenth of an acre.

All costs associated with surface roughening including labor, equipment, and materials will be incidental to the contract unit price per acre for "Surface Roughening".

February 14, 2020

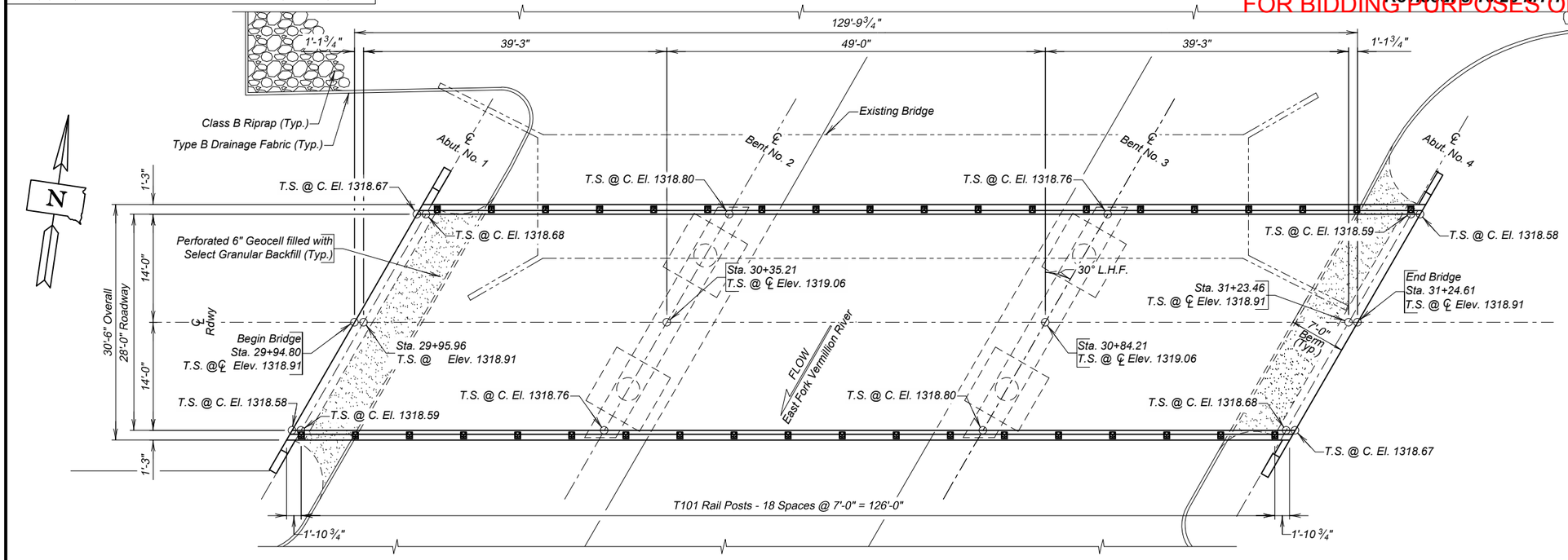
Published Date: 2026	SDDOT	***SURFACE ROUGHENING***	***PLATE NUMBER*** *734.25*
			Sheet 1 of 1

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

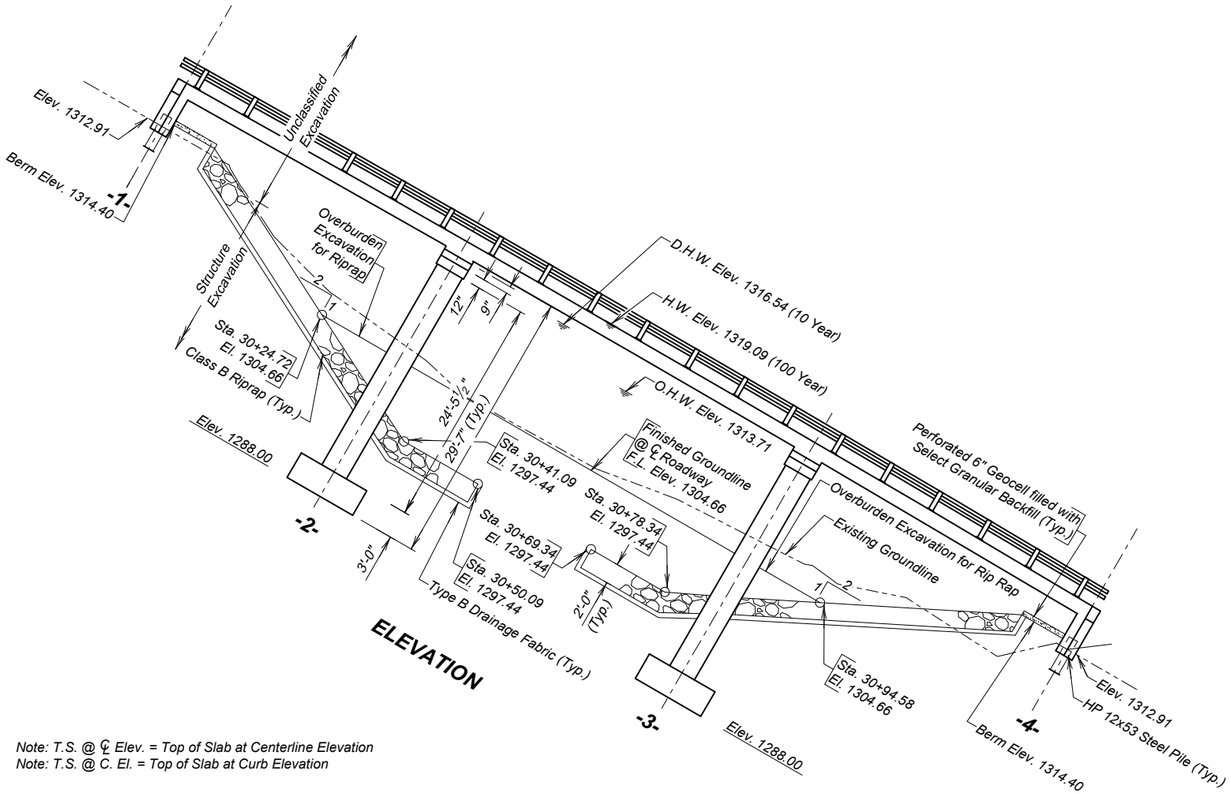
Revised: 3/16/26 MTH

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	27	55

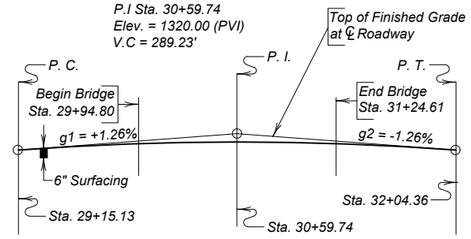


PLAN



ELEVATION

Note: T.S. @ ℄ Elev. = Top of Slab at Centerline Elevation
Note: T.S. @ C. El. = Top of Slab at Curb Elevation



VERTICAL CURVE DATA

-X020-
INDEX OF BRIDGE SHEETS-

HYDRAULIC DATA

Q_d	3790 cfs
A_d	1219 sq. ft.
V_d	1.6 fps
Q_F	3790 cfs
Q_{100}	10140 cfs
Q_{OT}	2500 cfs
V_{max}	4.2 fps

Q_d = Design discharge for the proposed bridge based on 10 year frequency. El. 1316.54.

Q_{ot} = Overtopping discharge and frequency 5 year recurrence interval. El. 1315.26 at Sta. 26+00.

Q_f = Designated peak discharge for the basin approaching proposed project based on 10 year frequency.

Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency. El. 1319.09.

V_{max} = Maximum computed outlet velocity for the proposed bridge based on a 5 year frequency.

℄ Topeka Shiner Stream

PLANS BY: ULTEIG ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
3/16/2026

GENERAL DRAWING
FOR
129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY
℄ E. FORK VERMILLION RIVER
STA. 29+94.80 TO STA. 31+24.61
STR. NO. 63-153-050
PCN 09A9

30° LHF SKEW
SEC. 03-T99/100N-R53W
BRO-B 8063(19)
HL-93

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

-X020-

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MTH	VV	SAH	BRIDGE ENGINEER

G:\2024\24.00361\C3D Design\Structures Drawings\24.00361_Structures Sheets.dwg PLOT DATE: 3/13/2026 2:16 PM Mason Bierema Autodesk-MONO.stb

Revised: 3/16/26 MTH

ESTIMATE OF STRUCTURE QUANTITIES

DESCRIPTION	QUANTITY	UNIT	REMARKS
Concrete Penetrating Sealer	439.9	SqYd	See Special Provision
Select Granular Backfill	12.0	Ton	
Incidental Work, Structure	Lump Sum	LS	
Structure Excavation, Bridge	256	CuYd	
Bridge End Embankment	358	CuYd	
Granular Bridge End Backfill	30.0	CuYd	
Class A45 Concrete, Bridge Deck	220.0	CuYd	
Class A45 Concrete, Bridge	99.0	CuYd	
Type T101 Bridge Railing	292	Ft	
Reinforcing Steel	15,068	Lb	
Epoxy Coated Reinforcing Steel	76,428	Lb	
Preboring Pile	100	Ft	
HP 12 Pile Tip Reinforcement	10	Each	
HP 12x53 Steel Test Pile, Furnish and Drive	60	Ft	
HP 12x53 Steel Bearing Pile, Furnish and Drive	240	Ft	
Class B Riprap	1,511	Ton	
Overburden Excavation for Riprap	741	CuYd	
Type B Drainage Fabric	1,870	SqYd	
Perforated Geocell	342	SqFt	
Bridge Elevation Survey	Lump Sum	LS	

BRIDGE SPECIFICATIONS

1. Design Specifications: AASHTO LRFD Bridge Design Specifications, 9th Edition.

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

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
Piling (ASTM A572 Grade 50)	f_y = 50,000 psi

DESIGN MIX OF CONCRETE

1. All structural concrete will be Class A45 unless otherwise indicated.

2. Type II cement is required.

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. 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.

6. Bridge berms will be constructed to the plans template prior to any pile driving or construction of abutment footings. See Standard Plate 120.11. Berm slopes will not be disturbed after construction. Any alterations to the berm or slopes after berm construction will be submitted to the Bridge Construction Engineer for approval. Allow 30 days for review of proposals.

7. Compaction of the earth embankment and bridge berm material shall be governed by the Specified Density Method

8. The elevation of the bridge deck is 12” above subgrade elevation.

INCIDENTAL WORK, STRUCTURE

1. In place centerline Sta. 30+18.31 to centerline Sta. 31+05.66 is a 91.5 foot, one-span steel truss bridge with a 12’-1” clear roadway. The superstructure consists of a steel through truss composed of 4 floor beams and 15 gusset plates per truss supporting timber stringers and non-standard steel angle rails attached to each side of the roadway. The deck consists of timber planks laid transverse to roadway with a timber plank wearing surface. The substructure is composed of two vertical reinforced concrete abutments.

2. Break down and remove the existing bridge to 1-foot below bottom of the riprap, or as required to construct the new structure in accordance with Section 110 of the Construction Specifications. All portions of the existing bridge should be removed and disposed of by the Contractor on a site obtained by the Contractor and approved by the Engineer in accordance with the Environmental Commitments found elsewhere in these plans.

3. The County would like to salvage the timber beams from the structure. The Contractor will make arrangements for County forces to collect the timber beams or stockpile the beams on site.

4. During demolition of the structure, efforts will be taken to prevent material from falling into the river. Under no circumstances is asphalt allowed to fall into the river.

5. 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.

6. Costs associated with the forgoing work will be incidental to the contract lump sum price for “Incidental Work, Structure”.

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

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
3/16/2026

ESTIMATE OF STRUCTURE QUANTITIES & NOTES FOR
129'-9 3/4" CONT. CONCRETE BRIDGE

Str. No. 63-153-050

APRIL 2025

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
MTH	SAH	VV	BRIDGE ENGINEER

PILE DRIVING

1. A hammer with a driving weight of 4,000 pounds or smaller will be required for pile driving operations. Submit the proposed driving system for evaluation and approval to the Geotechnical Engineering Activity a minimum of 5 business days prior to installation of piles.

2. Steel piling will obtain bearing on Sioux Quartzite bedrock. This material is extremely hard and impenetrable by nature. The Site Plan & Subsurface profile sheet should be reviewed to obtain the approximate Sioux Quartzite elevation prior to pile driving operations. Some piles are likely to be shorter than the projected depth. Extreme care should be taken during pile driving operations not to over-stress the piles when the tips encounter Sioux Quartzite bedrock.

ABUTMENTS

1. Preboring piling at each abutment is required to whichever is greater, ten feet or to natural ground.

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.

2. One test pile will be driven at each abutment and will become part of the pile group. The test pile will be driven before any other pile and will be driven to the required field verified nominal bearing resistance or as directed by the Engineer prior to driving any portion of the bearing piles.

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

4. 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.

ABUTMENT DRAINAGE SYSTEM

1. A vertical composite drain will be placed behind the abutments as shown in the plans in accordance with Section 435 of the Construction Specifications.

2. The 2-inch diameter PVC Outlet Pipe will be Schedule 40 PVC Pipe conforming to ASTM D1785 designated as PVC 1120, PVC 1220, or PVC 2120.

3. Care will be taken to ensure that the 2-inch diameter PVC Outlet Pipe is not damaged during construction. Any damaged pipes will be replaced by the Contractor at no additional cost to the County.

4. All labor, tools, equipment, and any incidentals necessary for the Installation of vertical composite drain and 2-inch diameter PVC Outlet Pipe will be incidental to the contract unit price per cubic yard for Granular Bridge End Backfill.

SPREAD FOOTING ON ROCK AT PIERS

1. Before exposure of the foundation area the Geotechnical Engineering Activity will be contacted through proper channels so that a member of the Geotechnical Engineering Activity may be present during excavation of the foundation area.

2. If upon inspection, the Geotechnical Engineering Activity personnel determine that the material at the plan shown footing elevation is unsuitable for foundation support or if sound bedrock is encountered at an elevation other than the plan shown footing elevation, the Engineer will order the footing elevation changed to an elevation approved by the Geotechnical Engineering Activity personnel. If the footing elevations are changed, the Consultant will be contacted prior to proceeding with construction to determine if a redesign of the substructure unit is required. If a redesign is required, a maximum of 5 working days may be required to perform this design. Any costs associated to delays within the 5 working day period for redesign will be borne by the contractor at no additional cost to the County.

3. If the footing elevations are lowered due to bedrock conditions, the excavation below the plan shown footing elevation ordered by the Engineer will be paid for at the contract unit price per cubic yard for Structure Excavation, Bridge. The additional concrete and reinforcing steel required for bent construction will be paid for at the contract unit price per cubic yard for Class A45 Concrete, Bridge and contract unit price per pound for Reinforcing Steel, respectively.

4. The rock surface will be cleaned of all soil and debris prior to placing reinforcing steel for the spread footing. Cleaning will be accomplished by water washing or air jetting. Material washed from the rock surface will be directed into a sump or low area and physically removed from the exposed rock surface.

5. Vertical fractures in the foundation rock that the Geotechnical Engineer determines to be detrimental to the integrity of the foundation will be repaired. Designated fractures will be repaired by cleaning to remove soil and other relatively weak material to a depth of 1.5 to 2 times the width of the fracture. The cleaned opening will then be filled with grout or a lean concrete mix.

6. The cost of cleaning the rock will be included in the contract unit price per cubic yard for Structure Excavation, Bridge. Payment will be considered full compensation for all materials, labor, equipment and incidentals necessary to satisfactorily complete the work.

7. If cleaning and filling of rock fractures is ordered, the work will be paid for as EXTRA WORK, in accordance with Section 4.4 of the Construction Specifications.

8. Due to the possibility of variance in the final elevations for the bent footings, the reinforcing steel in the bent shall not be ordered until final footing elevations have been approved by the Geotechnical Engineering Activity personnel.

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

4. Concrete used in the bridge deck slab will be in accordance with the requirements for bridge deck concrete as specified in Section 460.3 A of the Construction Specifications.

5. Superstructure falsework will not be removed until bridge deck concrete has attained a strength of 2400 psi.

6. See Special Provision for Concrete Penetrating Sealer.

COFFERDAMS

1. It is anticipated that cofferdams will be necessary at pier locations. Cofferdams shall be designed and constructed in accordance with Section 423 of the Specifications. It is anticipated that sheets will be damaged during driving through the gravel and cobbles. Due to the irregular surface of the bedrock, additional effort will be required to seal the cofferdam.

2. The design of the Cofferdam must be done by a Professional Engineer registered in South Dakota. Sealed calculations of both the original design and design check, performed by different engineers, shall be submitted with the cofferdam plans. The Cofferdam plans, design, and check design shall be submitted to the Consultant a minimum of 15 days prior to Cofferdam construction.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
02/6/2026

NOTES (CONTINUED)
FOR
129'-9 3/4" CONT. CONCRETE BRIDGE

Str. No. 63-153-050

APRIL 2025 3 OF 18

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
MTH	SAH	VV	BRIDGE ENGINEER

PERFORATED GEOCELL

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

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

2. Perforated Geocell will be 6 inches tall and will be installed according to the manufacturer's recommendation.

3. The Perforated Geocell will have Type B Drainage Fabric placed underneath according to the manufacturer's recommendations.

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

5. 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.

6. 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.

AS-BUILT ELEVATION SURVEY

The Contractor will be responsible for producing an as-built elevation survey soon after construction is completed but before the bridge is opened to traffic. The Contractor will be responsible for recording the as-built elevation shown in the plans. The completed table will be given to the Engineer and copies forwarded to the Office of Bridge Design and the Senior Region Bridge Engineer. The elevations will be based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88). The Engineer will provide the Contractor with a description, elevation, and location of the nearest benchmark that has a NAVD88 established elevation for the Contractor's use. The benchmark shown in the plans has not been tied to the NAVD88. The Contractor will be responsible for establishing a NAVD88 elevation for the benchmark provided in the plans. All cost associated with obtaining the NAVD88 elevations at the locations shown in the table and for the benchmark shown in the plans, including all equipment, labor, and any incidentals required will be incidental to the contract lump sum price for Bridge Elevation Survey.

SHOP PLANS

Shop plans will be required as specified by the Construction Specifications.

The fabricator will submit shop plans in accordance with the Construction Specifications. Send shop plan submittals to Matthew Henderson, Ulteig Engineers, Inc, 5575 DTC Parkway, Suite 200 Greenwood Village, CO 80111. (matthew.henderson@ulteig.com). After review, corrections (if necessary), and approval by Ulteig Engineers, the Office of Bridge Design will review the submittals, authorize fabrication, arrange for fabrication inspection, and distribute the shop drawings.

ROCK DOWELS

1. The steel dowels will be deformed bars conforming to ASTM A615 Grade 60.

2. Following the engineering evaluation of the foundation rock, the engineer may order the number of dowels and/or spacing to be increased or decreased in accordance with the Geotechnical Engineer's recommendations. Increases or decreases in quantity will be at the unit price per foot for Install Dowel in Rock.

3. The steel dowel for use with the item Install Dowel in Rock is included in the Reinforcing Schedule and will be paid for at the contract unit price per pound for Reinforcing Steel.

4. Dowel bond material shall be a fast set polyester resin rock anchoring system in a 40 mm (minimum) capsule from one of the following manufacturer's: Dywidag Systems International (Falsoc), Minova (Lokset), Williams Form Engineering Corp. The resin will be suitable for bonding steel dowel bars to rock in the existing moisture conditions. The diameter of the hole, drilled into the rock, will be a maximum of 3/8-inch larger than the diameter of the steel dowel, or as specified by the dowel bond material manufacturer. The drilled holes will be blown out with compressed air using a device that will reach the bottom of the hole to ensure that all debris or loose material has been removed prior to epoxy injection. The Contractor must submit dowel bonding material product data and installation plan to the Engineer for approval.

5. A demonstration of the Contractor's rock dowel installation method must be performed and accepted by the Engineer prior to installation of any production dowels. The demonstration may either conducted within the footprint of the footing or adjacent exposed bedrock as approved by the Engineer. Additional dowels may be required at the expense of the Contractor should the demonstration not yield acceptable results. Dowels used for demonstration will be incidental to the contract unit price per foot for Install Dowel in Rock.

6. Install Dowel in Rock will not be measured unless a change is ordered. Payment will be for the linear foot of embedment into the rock and, will be considered full compensation for all materials, labor, equipment, and incidentals necessary to satisfactorily complete the work.

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 Riprap Details sheet.

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 upstream and downstream channel and flood plain.

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 of 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.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
02/6/2026

NOTES (CONTINUED)
FOR
129'-9 3/4" CONT. CONCRETE BRIDGE

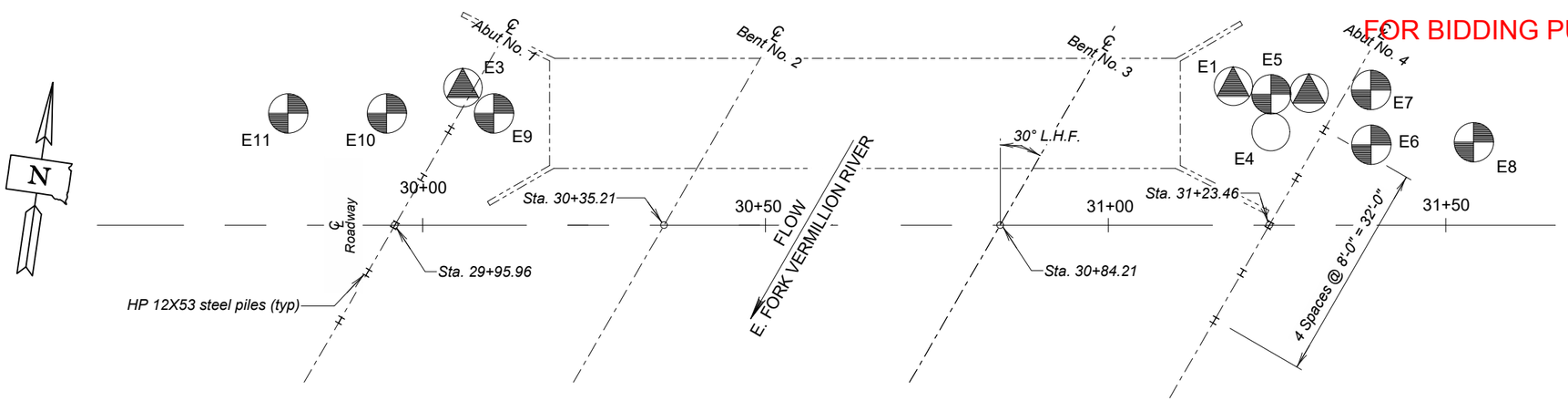
Str. No. 63-153-050

APRIL 2025

DESIGNED BY:	DRAWN BY:	CHECKED BY:	
MTH	SAH	VV	BRIDGE ENGINEER

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	31	55

FOR BIDDING PURPOSES ONLY



PILING LAYOUT

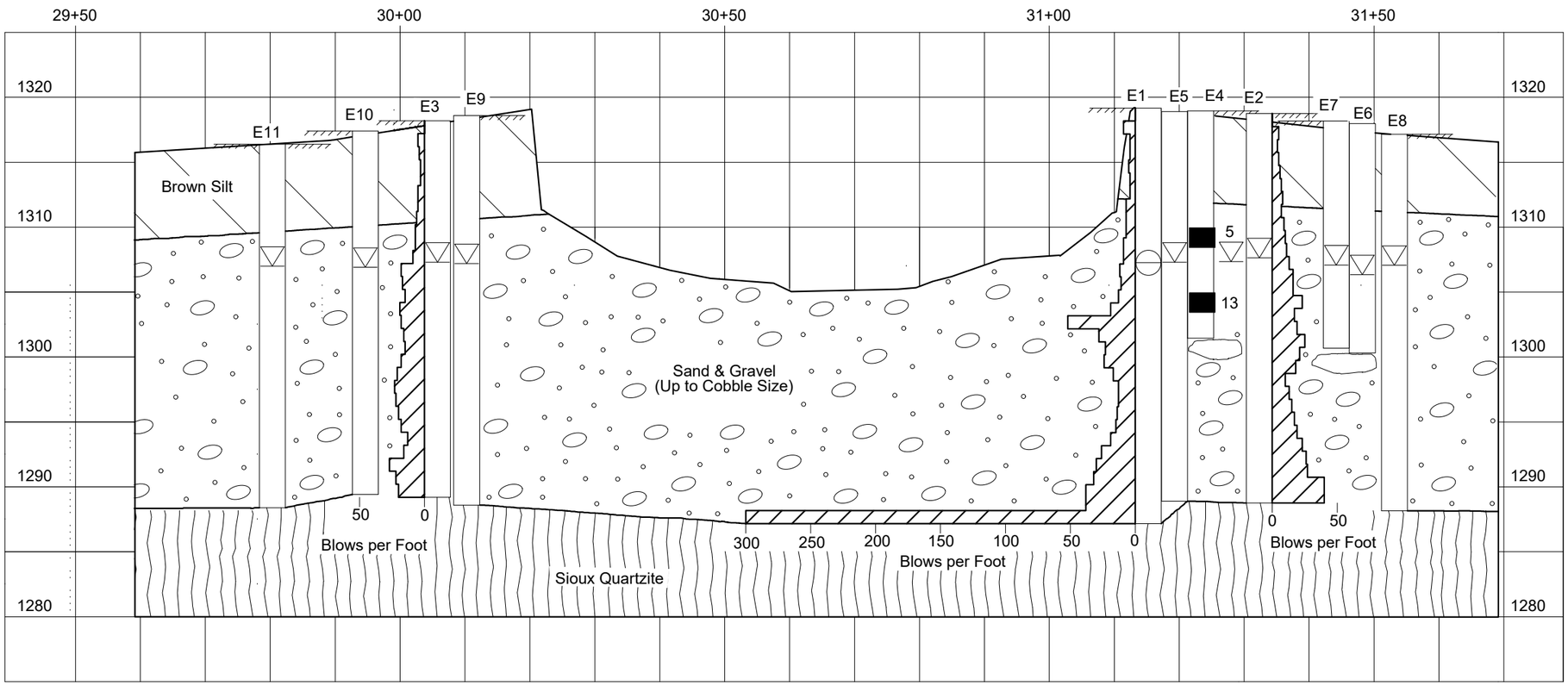
NOTE:
This sheet is to be used in conjunction with the PILING LAYOUT sheet.

COFFERDAM SOIL PARAMETERS

	Friction Angle (Φ)	Cohesion (c)	Wet Unit Weight (γw)
Sand & Gravel	34°	0 psf	125 pcf

Hole Number	E4	
Station	31+24.10	
Depth	15.5	ft
Soil Color	Gray	
Classification	Sand	
Strength (Qu)	No Test	psf
Dry Density	109.6	pcf
Wet Density	125.3	pcf
Moisture	14.3	%
Pass No. 10	88.3	%
Pass No. 40	61.3	%
Pass No. 200	18.1	%
Sand Content	70.2	%
Silt Content	11.8	%
Clay Content	6.4	%

Boulder / Detached Quartzite Block



Sioux Quartzite is pink to red, hard silica cemented sandstone. It is jointed, bedded, and cross-bedded with thin red to purple pipestone shales and coarse conglomerate. Layers of poorly cemented sands may also be present. The surface of the quartzite is not flat. It may vary several feet vertically in a short horizontal distance.

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 2_{78} inch drill stem to measure the resistance to penetration of the soil.

Penetration test holes are drilled with a 6_{58} inch 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.

GROUNDWATER ELEVATIONS

JULY 2023

E1	(DRY)	1307.3
E2		1307.6
E3		1307.3

AUGUST 2023

E4	1307.3
E5	1307.3
E6	1307.3
E7	1307.1
E8	1307.1
E9	1307.2
E10	1306.9
E11	1307.0

MEASURED SKIN FRICTION

	ELEV.	PSF
E1	1287.2	480
E2	1289.7	532
E3	1289.2	446

SUBSURFACE INVESTIGATION

FOR

129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY — 30° LHF SKEW
E. FORK VERMILLION RIVER — SEC. 03-T99/100N-R53W
STA. 29+94.80 TO STA. 31+24.61 — BRO-B 8063(19)
STR. NO. 63-153-050 — HL-93
PCN 09A9

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

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

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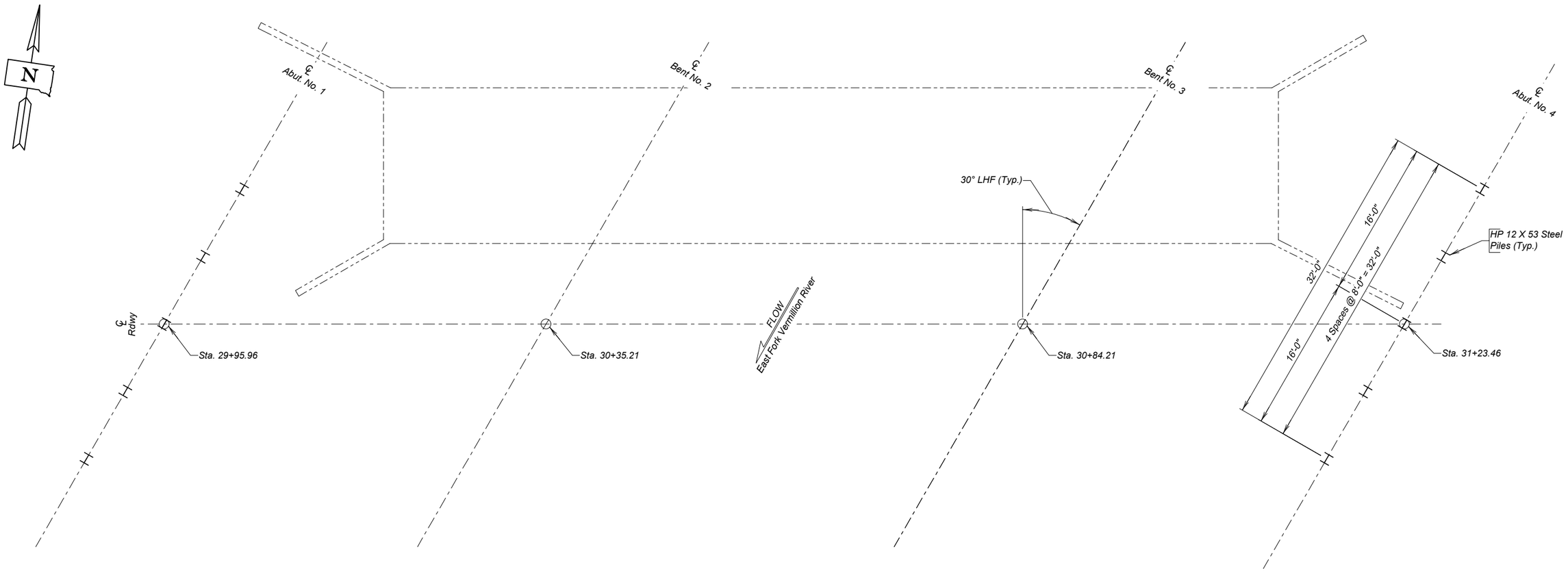
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	32	55



PILING LAYOUT

NOTE:
This sheet is to be used in conjunction with the SUBSURFACE INVESTIGATION sheet.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
02/6/2026

PLANS BY: ULTEIG ENGINEERS, INC.

PILING LAYOUT
FOR
129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY — 30° LHF SKEW
E. FORK VERMILLION RIVER — SEC. 03-T99/100N-R53W
STA. 29+94.80 TO STA. 31+24.61 — BRO-B 8063(19)
STR. NO. 63-153-050 — HL-93
PCN 09A9

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

6 OF 18

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MTH	VV	SAH	BRIDGE ENGINEER

G:\2024\24.00361\C3D Design\Structures Drawings\24.00361_Structures Sheets.dwg PLOT DATE: 2/5/2026 10:24 AM Charlie Petersen Autodesk-MONO.stb

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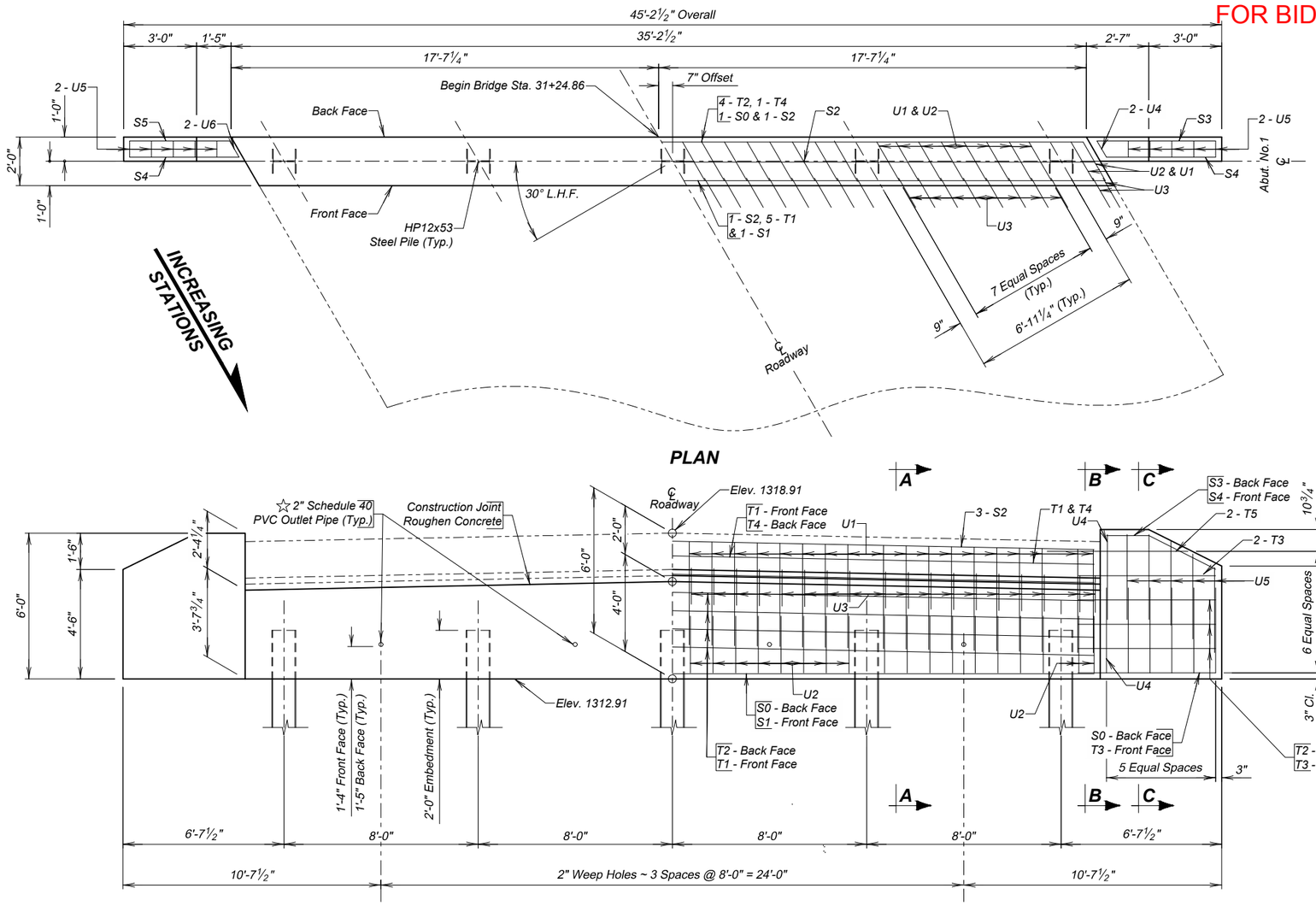
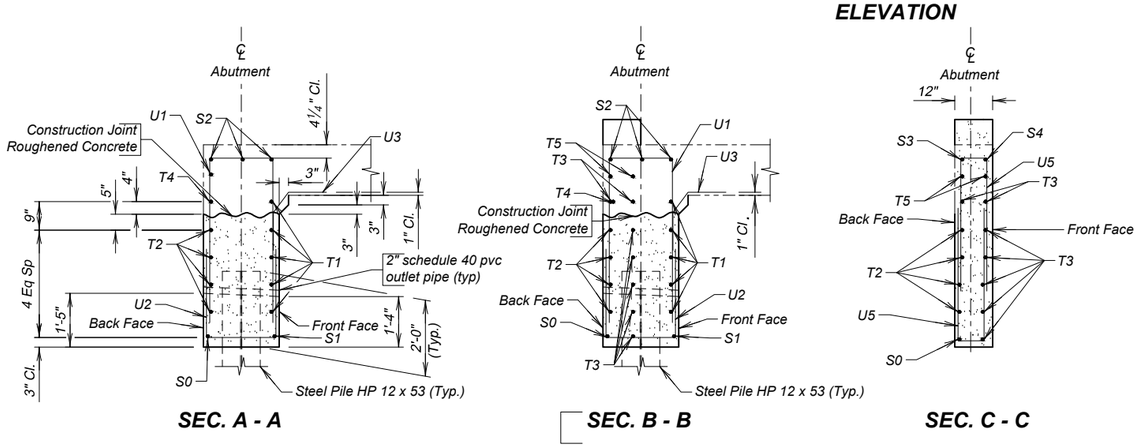
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	33	55



PLAN

ELEVATION

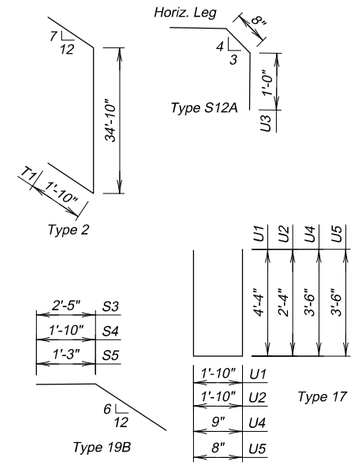


☆ See BRIDGE END BACKFILL notes for payment and quantity.

REINFORCING SCHEDULE

	Mk.	No.	Size	Length	Type
≠△	S0	1	9	44'-10"	Str.
≠△	S1	1	9	34'-10"	Str.
≠△	S2	3	9	34'-10"	Str.
	S3	1	9	5'-6"	19B
	S4	2	9	4'-11"	19B
	S5	1	9	4'-4"	19B
≠	T1	5	5	38'-6"	2
	T2	4	5	44'-10"	Str.
	T3	14	5	6'-9"	Str.
≠△	T4	2	5	34'-10"	Str.
△	T5	4	5	4'-6"	Str.
	U1	36	6	10'-6"	17
	U2	36	4	6'-6"	17
△	U3	36	4	2'-9"	S12A
	U4	4	6	7'-9"	17
	U5	20	4	7'-8"	17

Bending Details



NOTES:
All dimensions are out to out of bars.

△ Bars to be epoxy coated.
≠ Bend in field as necessary to fit.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class A45 Concrete, Bridge	Cu. Yd.	14.5
Reinforcing Steel	Lb.	1,698
Epoxy Coated Reinforcing Steel	Lb.	513
Structure Excavation, Bridge	Cu. Yd.	39
HP 12 X 53 Steel Test Pile, Furnish and Drive	Ft.	1 @ 30' = 30'
HP 12 X 53 Steel Bearing Pile, Furnish and Drive	Ft.	4 @ 30' = 120'
Preboring Pile	Ft.	5 @ 10' = 50'
HP 12 Pile Tip Reinforcement	Ea.	5

PLANS BY: ULTEIG ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
15242
MATTHEW THOMAS
HENDERSON
SOUTH DAKOTA
02/6/2026

ABUTMENT NO. 1 DETAILS
FOR
129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY
E. FORK VERMILLION RIVER
STA. 29+94.80 TO STA. 31+24.61
STR. NO. 63-153-050
PCN 09A9

30° LHF SKEW
SEC. 03-T99/100N-R53W
BRO-B 8063(19)
HL-93

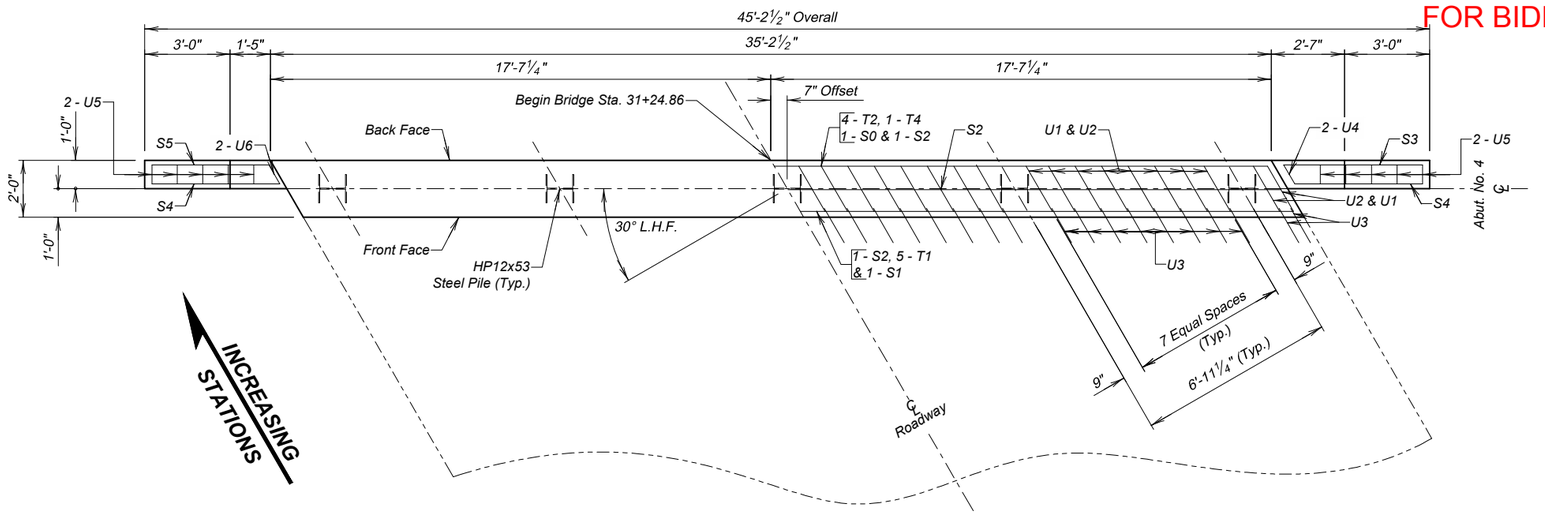
TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

7 OF 18

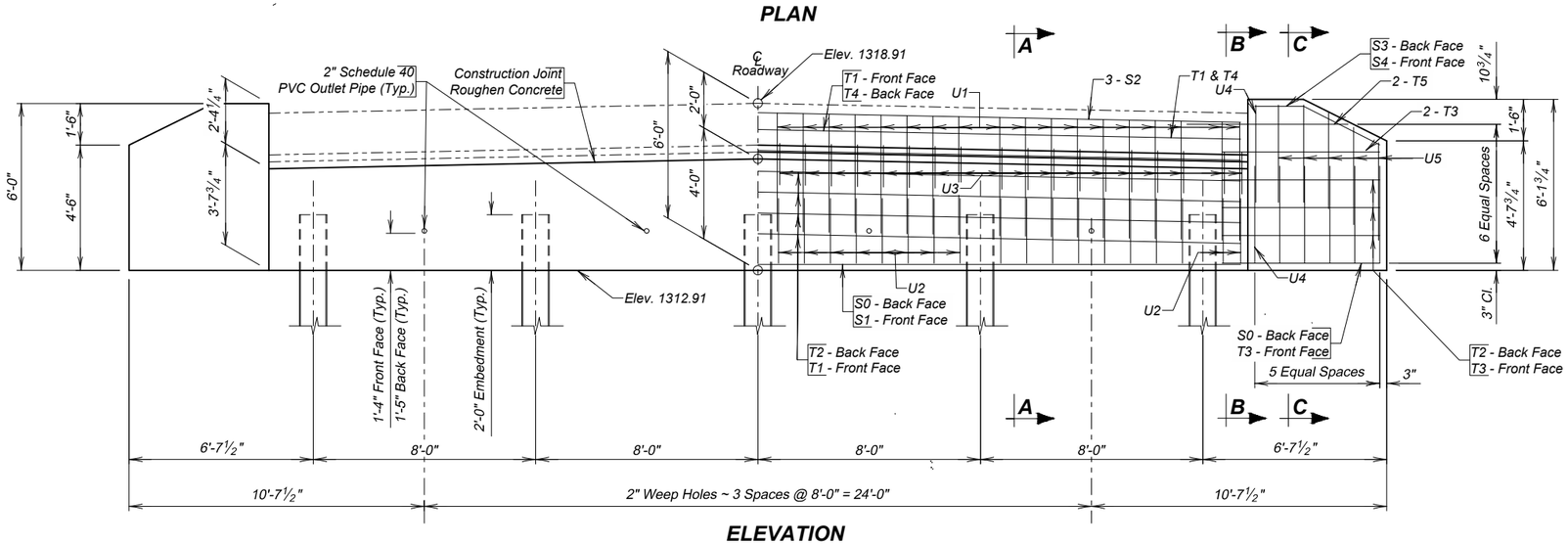
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MTH	VV	SAH	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

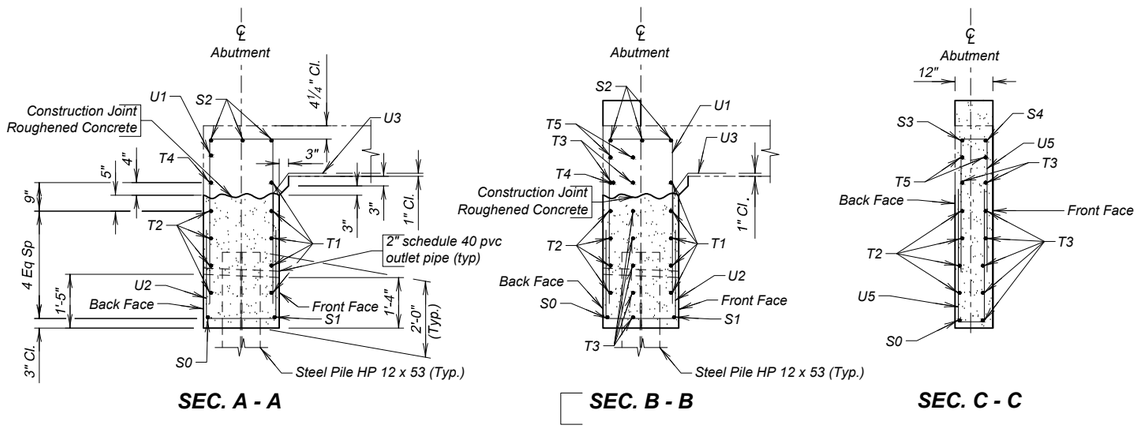
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	34	55



PLAN



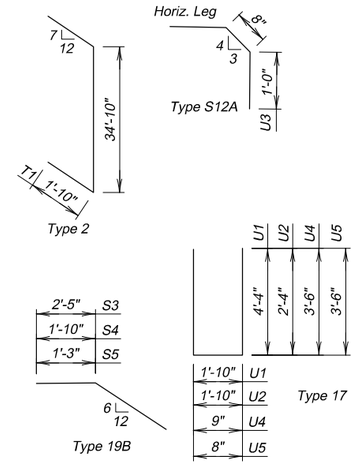
ELEVATION



REINFORCING SCHEDULE

	Mk.	No.	Size	Length	Type
	S0	1	9	44'-10"	Str.
	S1	1	9	34'-10"	Str.
≠△	S2	3	9	34'-10"	Str.
	S3	1	9	5'-6"	19B
	S4	2	9	4'-11"	19B
	S5	1	9	4'-4"	19B
≠	T1	5	5	38'-6"	2
	T2	4	5	44'-10"	Str.
	T3	14	5	6'-9"	Str.
≠△	T4	2	5	34'-10"	Str.
△	T5	4	5	4'-6"	Str.
	U1	36	6	10'-6"	17
	U2	36	4	6'-6"	17
△	U3	36	4	2'-9"	S12A
	U4	4	6	7'-9"	17
	U5	20	4	7'-8"	17

Bending Details



NOTES:
All dimensions are out to out of bars.

△ Bars to be epoxy coated.
≠ Bend in field as necessary to fit.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class A45 Concrete, Bridge	Cu. Yd.	14.5
Reinforcing Steel	Lb.	1,698
Epoxy Coated Reinforcing Steel	Lb.	513
Structure Excavation, Bridge	Cu. Yd.	39
HP 12 X 53 Steel Test Pile, Furnish and Drive	Ft.	1 @ 30' = 30'
HP 12 X 53 Steel Bearing Pile, Furnish and Drive	Ft.	4 @ 30' = 120'
Preboring Pile	Ft.	5 @ 10' = 50'
HP 12 Pile Tip Reinforcement	Ea.	5

ABUTMENT NO. 4 DETAILS
FOR
129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY — 30° LHF SKEW
E. FORK VERMILLION RIVER — SEC. 03-T99/100N-R53W
STA. 29+94.80 TO STA. 31+24.61 — BRO-B 8063(19)
STR. NO. 63-153-050 — HL-93
PCN 09A9

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

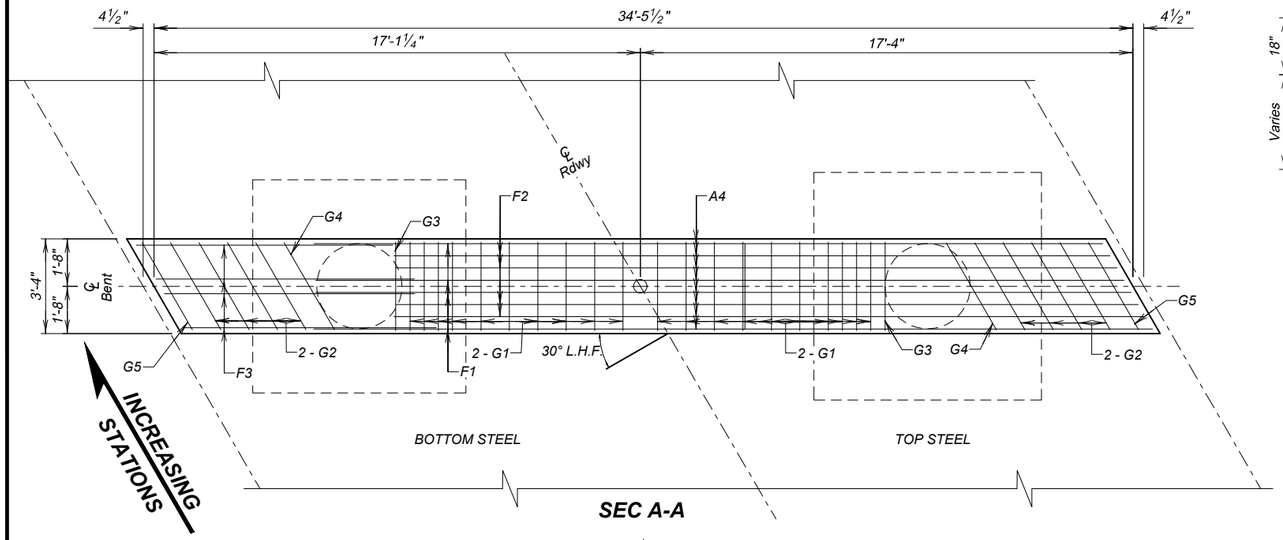
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
02/6/2026

PLANS BY: ULTEIG ENGINEERS, INC.

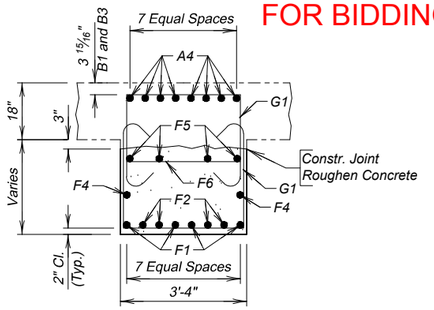
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MTH	VV	SAH	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

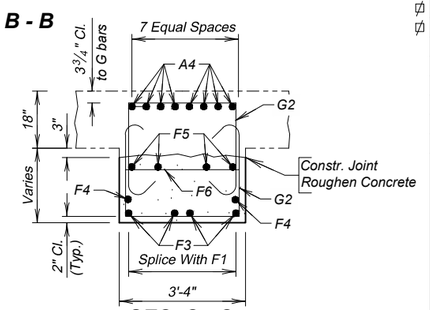
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	35	55



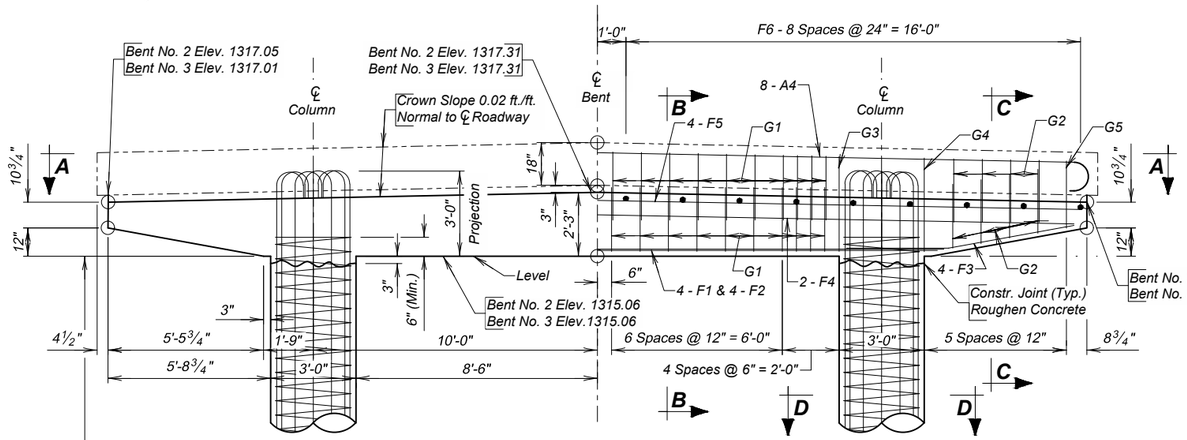
SEC A-A



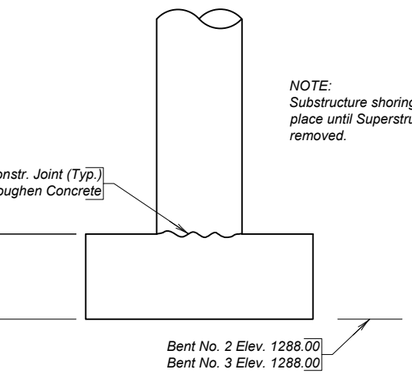
SEC. B - B



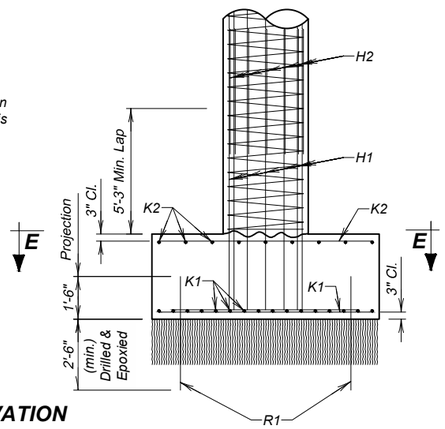
SEC. C - C

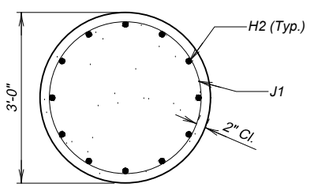


ELEVATION

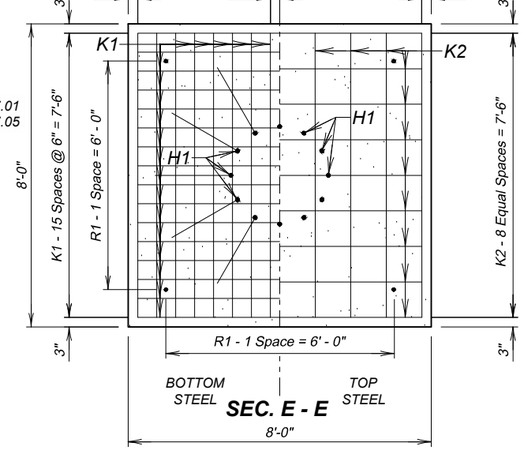


NOTE:
Substructure shoring shall remain in place until Superstructure shoring is removed.





SEC. D - D

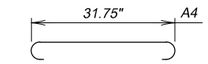


SEC. E - E

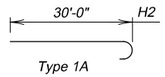
REINFORCING SCHEDULE
(For One Bent)

	Mk.	No.	Size	Length	Type
℄	A4	8	9	35'-9"	1
	F1	4	9	23'-4"	Str.
	F2	4	9	17'-0"	Str.
	F3	8	6	8'-2"	19B
	F4	2	4	33'-6"	Str.
	F5	4	6	34'-0"	Str.
	F6	18	4	3'-0"	Str.
℄	G1	40	5	8'-8"	S3
℄	G2	16	5	8'-4"	S3
℄	G3	2	5	13'-5"	T1
℄	G4	2	5	14'-3"	T1
℄	G5	2	5	12'-5"	T1
	H1	24	9	10'-3"	17A
	H2	24	9	28'-4"	1A
	J1	2	4	436'-5"	Spiral
	K1	64	6	7'-6"	Str.
	K2	36	5	7'-6"	Str.
	R1	8	11	4'-0"	Str.

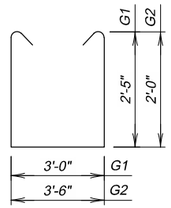
Bending Details



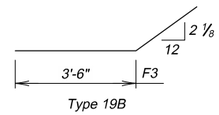
Type 1



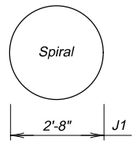
Type 1A

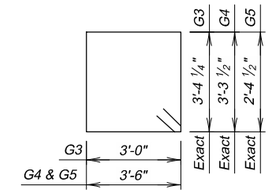


Type S3

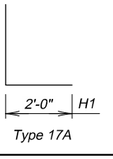


Type 19B





Type T1



Type 17A

NOTES:
All dimensions are out to out of bars.

℄ Bars to be Epoxy Coated

Spirals - use 6" pitch and 1½ extra turns at each end. Use 1½ turns for lap at splice as required, or weld as approved by the Office of Bridge Design. Use 3 vertical spacer bars per column. Spirals may be smooth bars. Bar length shown does not include splices.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	
		Bent No. 2	Bent No. 3
Class A45 Concrete, Bridge	Cu. Yd.	35.0	35.0
Reinforcing Steel	Lb.	5,836	5,836
Epoxy Coated Reinforcing Steel	Lb.	1,557	1,557
Structure Excavation	Cu. Yd.	89	89

BENT DETAILS
FOR
129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY
E. FORK VERMILLION RIVER
STA. 29+94.80 TO STA. 31+24.61
STR. NO. 63-153-050
PCN 09A9

30° LHF SKEW
SEC. 03-T99/100N-R53W
BRO-B 8063(19)
HL-93

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

9 OF 18

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
02/6/2026

PLANS BY: ULTEIG ENGINEERS, INC.

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MTH	VV	SAH	BRIDGE ENGINEER

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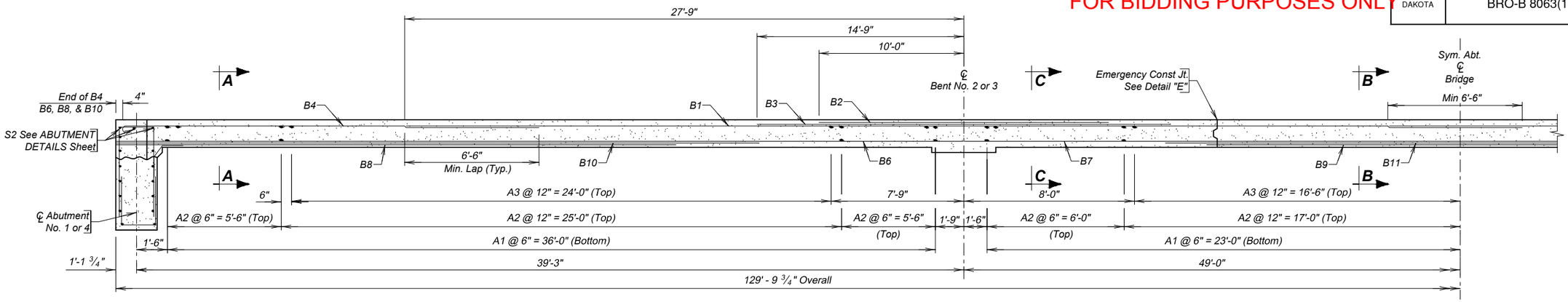
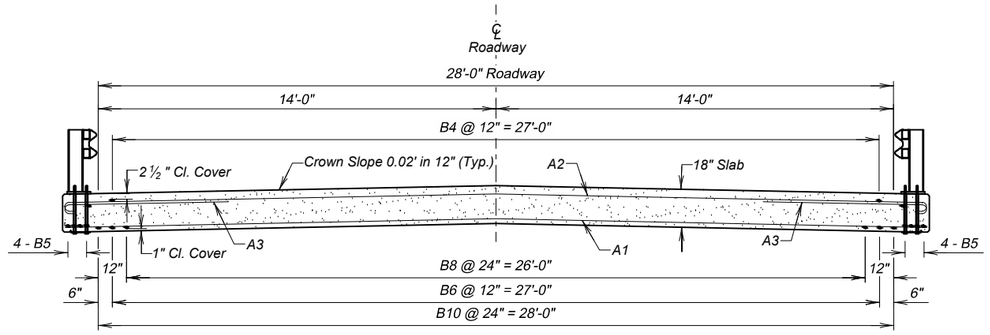
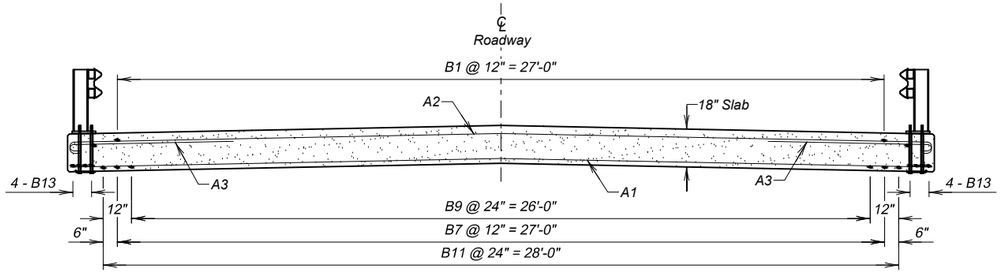
FOR BIDDING PURPOSES ONLY



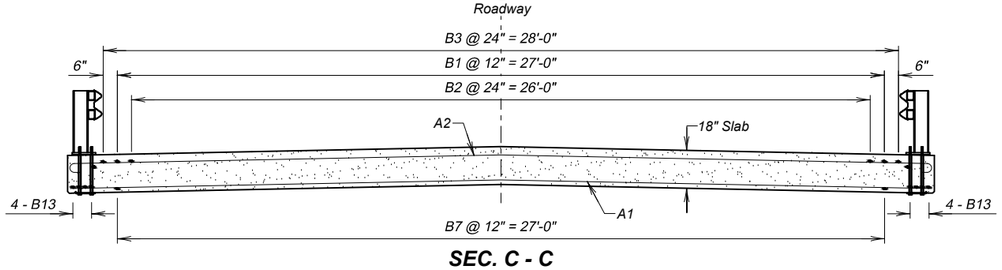
HALF LONGITUDINAL SECTION VIEW



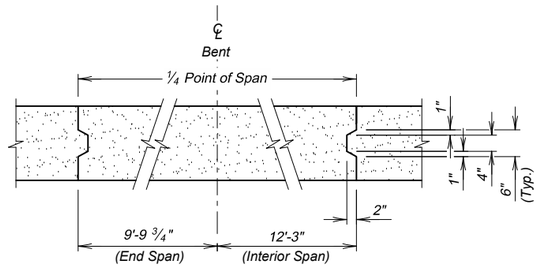
SEC. A - A



SEC. B - B



SEC. C - C

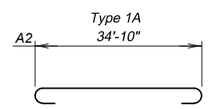


DETAIL "E"

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
A1	239	5	34'-10"	Str.
A2	155	5	35'-10"	1
A3	84	5	7'-10"	1A
B1	56	11	55'-6"	Str.
B2	28	11	20'-0"	Str.
B3	30	11	29'-6"	Str.
B4	56	8	19'-4"	1A
B5	16	5	40'-0"	Str.
B6	56	10	40'-0"	Str.
B7	28	10	49'-0"	Str.
B8	28	10	34'-3"	Str.
B9	14	10	29'-0"	Str.
B10	30	10	38'-3"	Str.
B11	15	10	40'-6"	Str.
B13	8	5	49'-0"	Str.

Bending Details



Type 1A

Type 1

NOTES:
All reinforcing steel shall be epoxy coated.
All dimensions are out to out of bars.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class A45 Concrete, Bridge Deck	Cu. Yd.	220.0
Epoxy Coated Reinforcing Steel	Lb.	72,288
Concrete Penetrating Sealer	Sq. Yd.	439.9

PLANS BY: ULTEIG ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
02/6/2026

SUPERSTRUCTURE DETAILS (A)

FOR

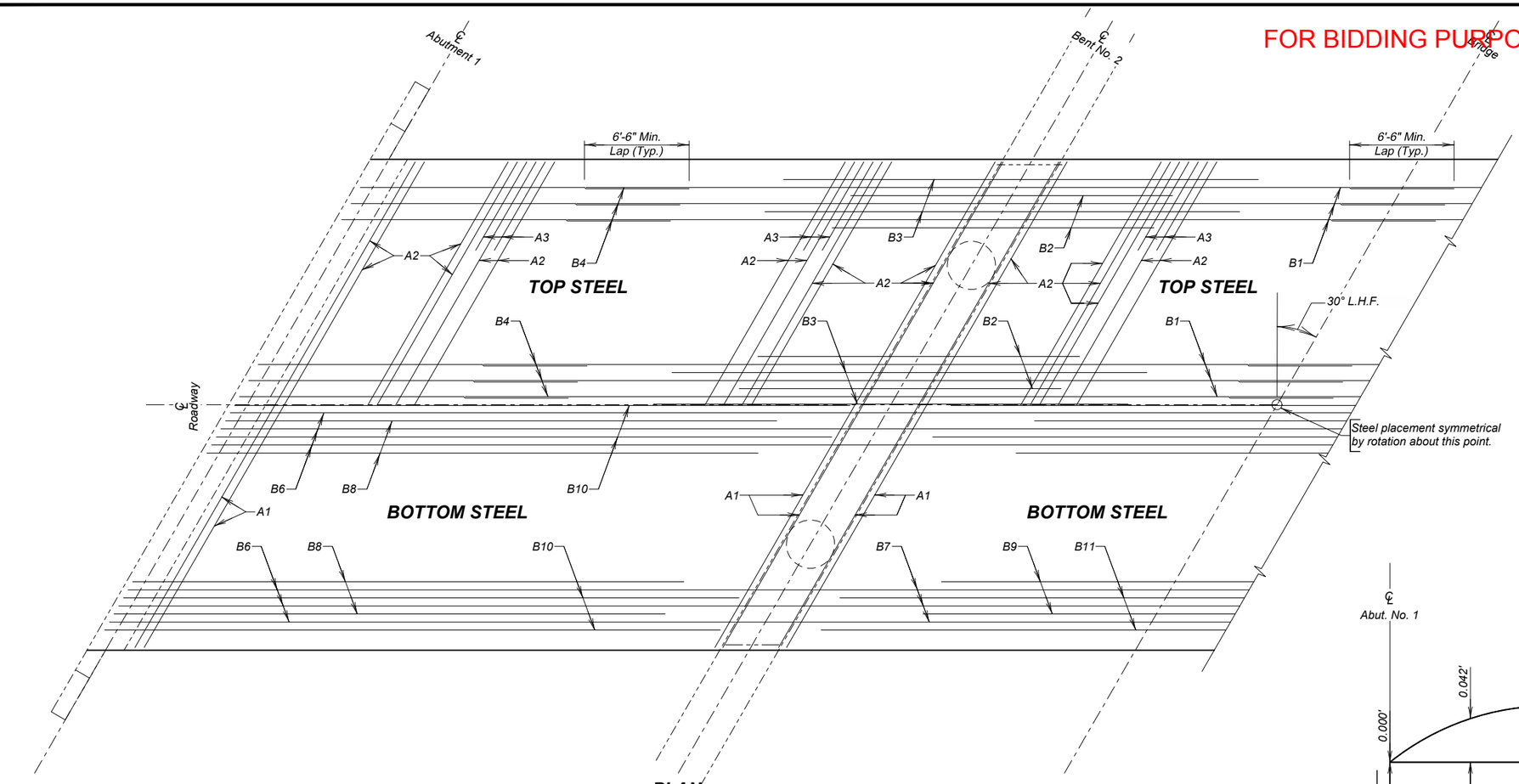
129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY — 30° LHF SKEW
E. FORK VERMILLION RIVER — SEC. 03-T99/100N-R53W
STA. 29+94.80 TO STA. 31+24.61 — BRO-B 8063(19)
STR. NO. 63-153-050 — HL-93
PCN 09A9

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

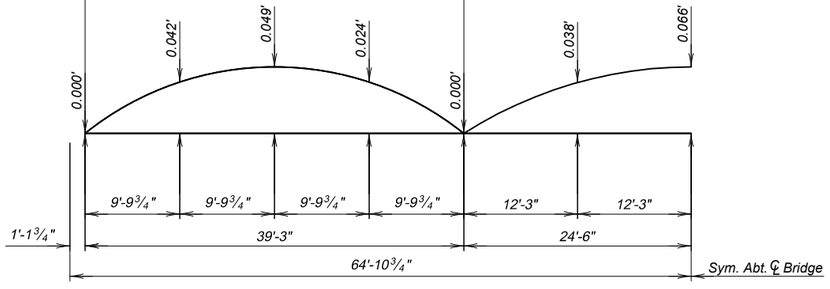
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MTH	VV	SAH	BRIDGE ENGINEER

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	37	55



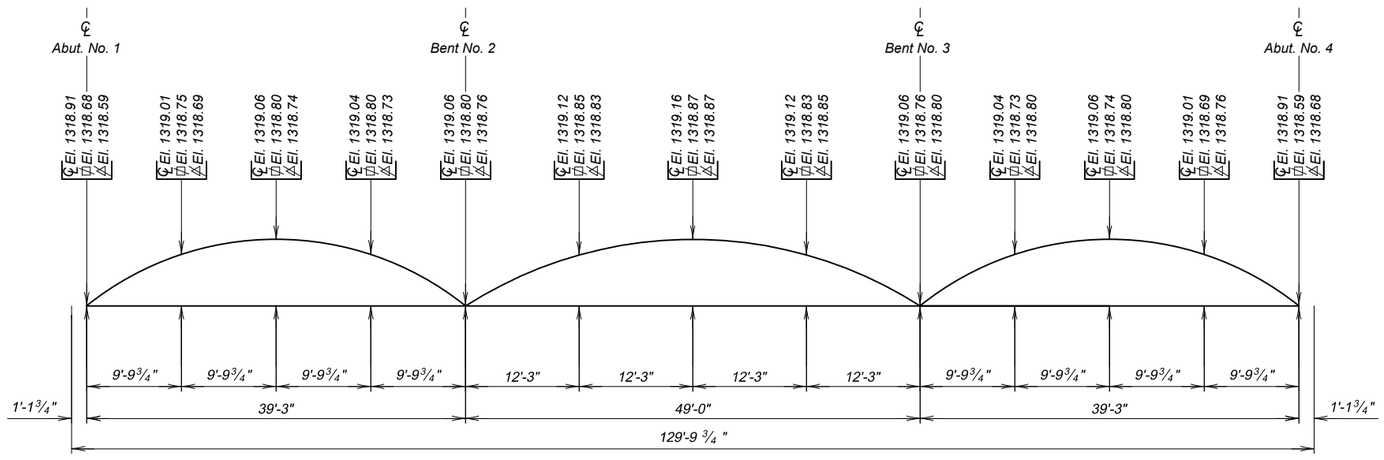
PLAN

(Steel Layout, Barrier Curb not shown)



CAMBER DIAGRAM

Camber is calculated for dead load deflections plus plastic flow and will be added to the proposed grade elevations at the respective stations to establish the elevations of the top of the finished roadway.



CURB AND CENTERLINE ELEVATION

Elevations with ⏍ are Top of Finished Slab at Left Curb Line, with ℄ are Top of Finished Slab at Centerline Roadway, and with ⏢ are Top of Finished Slab at Right Curb Line.
Camber for Dead Load Deflection Plus Plastic Flow have been included in the elevations shown above.

SUPERSTRUCTURE DETAILS (B)

FOR

129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY — 30° LHF SKEW
E. FORK VERMILLION RIVER — SEC. 03-T99/100N-R53W
STA. 29+94.80 TO STA. 31+24.61 — BRO-B 8063(19)
STR. NO. 63-153-050 — HL-93
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TURNER COUNTY
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REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
02/6/2026

PLANS BY: ULTEIG ENGINEERS, INC.

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MTH	VV	SAH	BRIDGE ENGINEER

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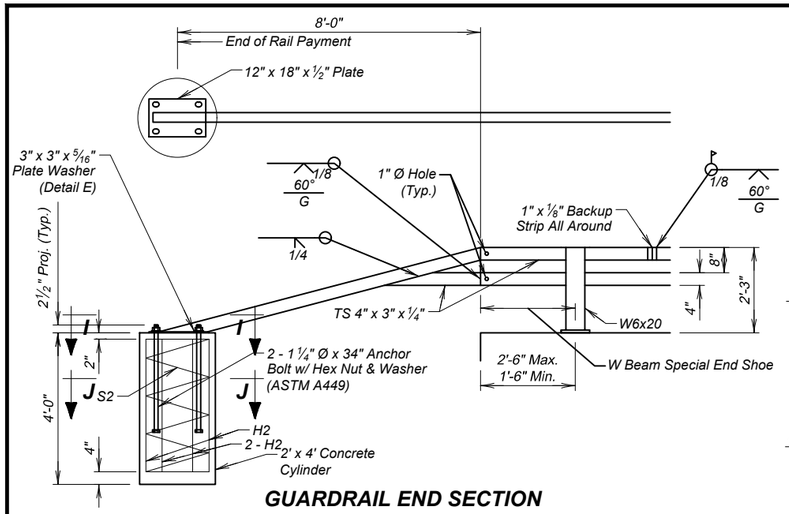
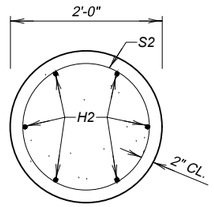
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	38	55

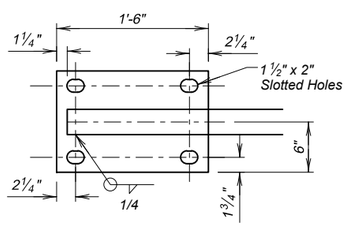
FOR BIDDING PURPOSES ONLY



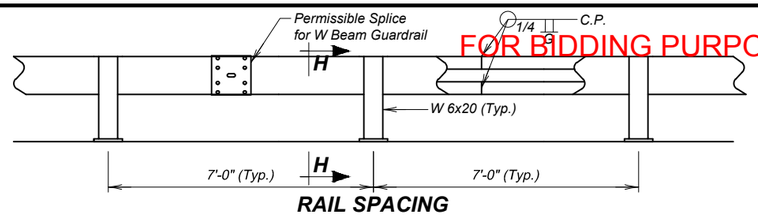
GUARDRAIL END SECTION



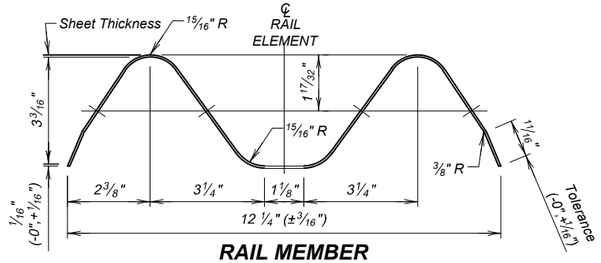
SECTION J - J



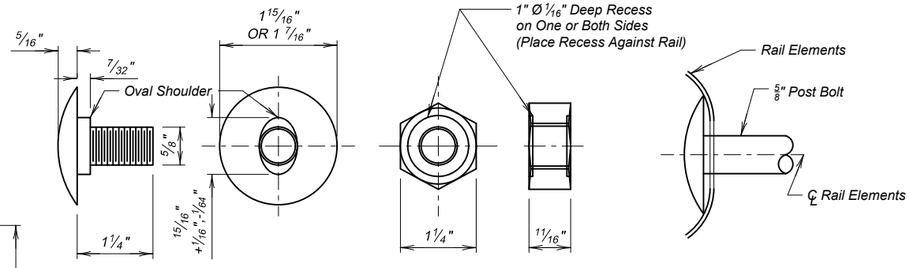
SECTION I - I



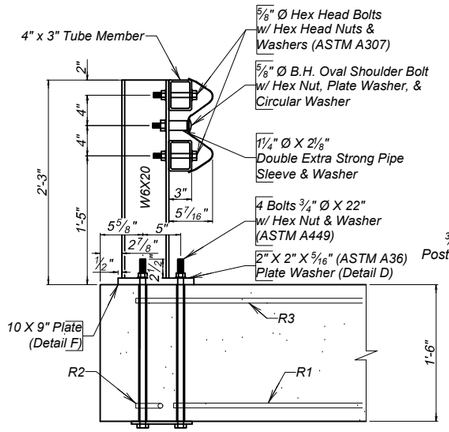
RAIL SPACING



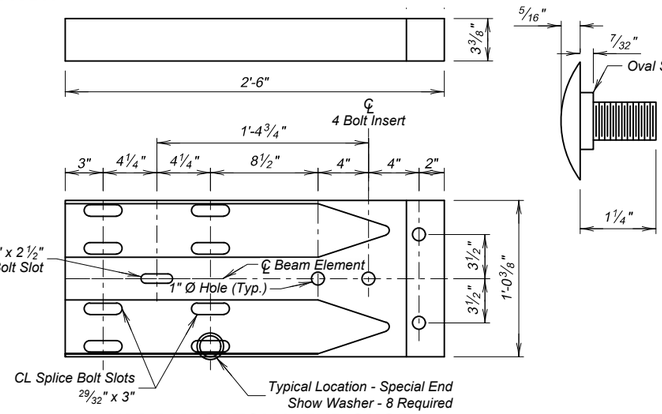
RAIL MEMBER



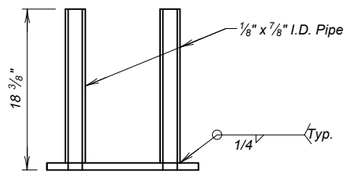
SPLICE BOLT



SECTION H-H



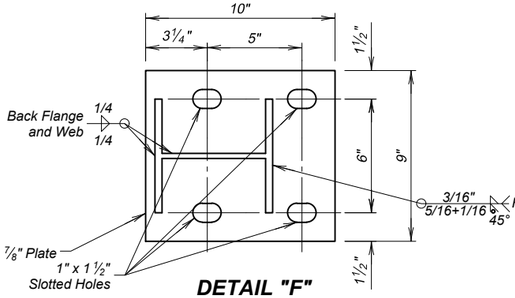
W BEAM SPECIAL END SHOE



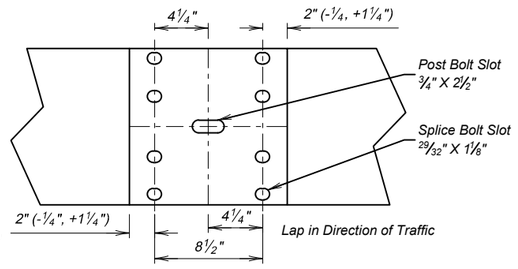
SECTION K-K

ESTIMATED QUANTITIES

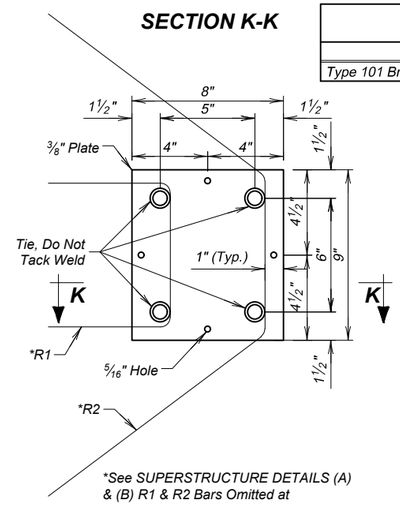
ITEM	UNIT	QUANTITY
Type 101 Bridge Railing	Ft	292



DETAIL "F"

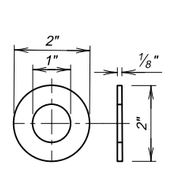


RAIL SPLICE

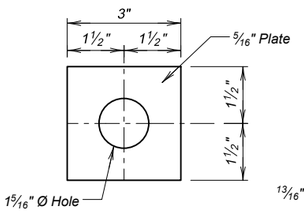


*See SUPERSTRUCTURE DETAILS (A) & (B) R1 & R2 Bars Omitted at Abutment and Wingwall Post Locations

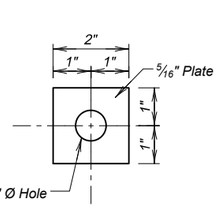
PIPE SLEEVE BASE DETAIL



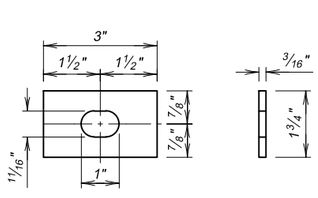
SECTION END SHOW WASHER



DETAIL "E"



DETAIL "D"



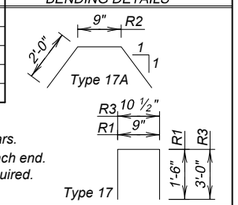
RECTANGULAR PLATE WASHER

NOTES:

1. Rail posts will be perpendicular to centerline of roadway.
2. W-beam guardrail, pipe sleeves, nuts, washers, and plate washers that go with these will be galvanized. Bolts, nuts, and washers will be galvanized according to ASTM F2329. Pipe sleeves will be galvanized according to ASTM A123.
3. Post bolts will be ¾" diameter F3125 Grade A325. Each bolt will have one hardened and one 2" x 2" x 5/16" ASTM A36 plate washer. Nuts will be A563.
4. Steel W-beam guardrail will be Class A, Type 1, conforming to AASHTO M180 and will be fabricated from standard 12.5' or 25' nominal W-beam sections.
5. The rail posts, 4" x 3" tube members, base plates, pipe sleeve bases, anchor bolts, nuts, and washers will be galvanized. The nuts, bolts, and washers will be galvanized in accordance with ASTM F2329. The rail posts, tube members, and pipe sleeve bases will be galvanized in accordance with ASTM A123.
6. All structural steel parts for the Type 101 bridge railing will conform to ASTM A709 Gr. 36. Tubes will conform to ASTM A500 Gr. B.
7. Provide ½ " drain holes in the tubes near ends of rail and near splices.
8. All concrete will be class M6 as specified in Section 462 of the specifications.
9. All reinforcing steel will conform to ASTM A615, Gr. 60.
10. When posts are located at abutment and wingwall locations, the 9" x 8" x ⅜" plate and bolts are to be embedded into the abutment/wingwall at a depth equal to the slab thickness. The ¾" Dia. Std. Wt. Steel Pipe Sleeves are not required at these locations.
11. All bolts, nuts, washers, posts, plates, pipe sleeves, steel W-beam, welding, galvanizing, and all costs of installing four rail anchors including concrete, excavation, forming, reinforcing steel, and anchor bolts will be included in the contract price per foot for Type 101 Bridge Railing.
12. Measurement for payment will be from center of anchor to center of anchor for each side of the bridge.

REINFORCING SCHEDULE

MK.	NO.	SIZE	LENGTH	TYPE	BENDING DETAILS
S2	4	3	51'-7"	Spiral	
H2	24	5	3'-6"	Str.	
R1	38	4	3'-9"	17	
R2	38	4	4'-9"	17A	
R3	38	6	6'-11"	17	



NOTES:
All dimensions are Out to Out of Bars.
Spiral - 6" Pitch and 1 ½ turns at each end.
Use 1 ½ turns for lab splices as required.
Use 2 vertical space bars.

T101 RAIL DETAILS
FOR
129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY
EAST FORK VERMILLION
STA. 29+94.80 TO STA. 31+24.61
STR. NO. 63-153-050
PCN 09A9

30° LHF SKEW
SEC. 03-T99/100N-R53W
BRO-B 8063(19)
HL-93

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

12 OF 18

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
02/6/2026

PLANS BY: ULTEIG ENGINEERS, INC.

DESIGNED BY	CK. DES. BY	DRAFTED BY	
SAH	MTH	SAH	BRIDGE ENGINEER

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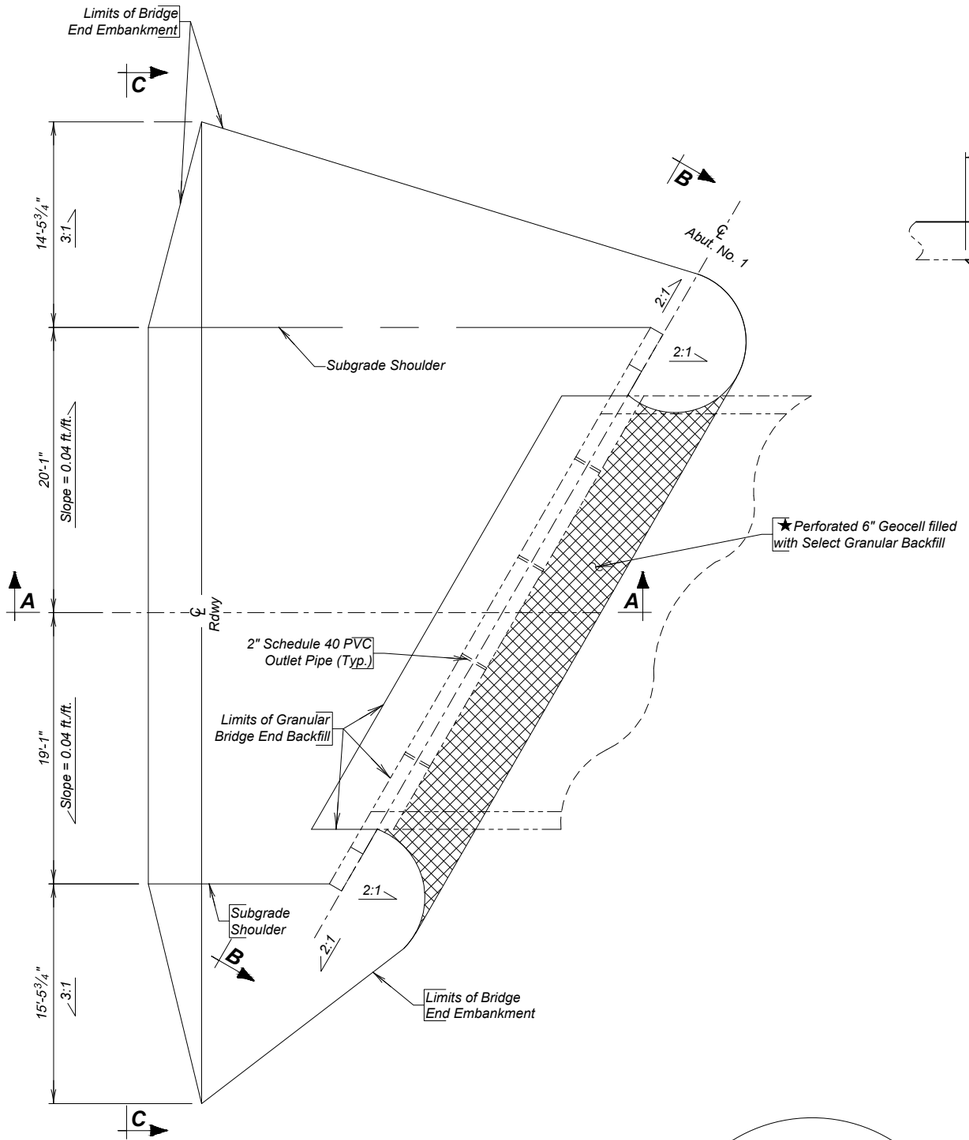
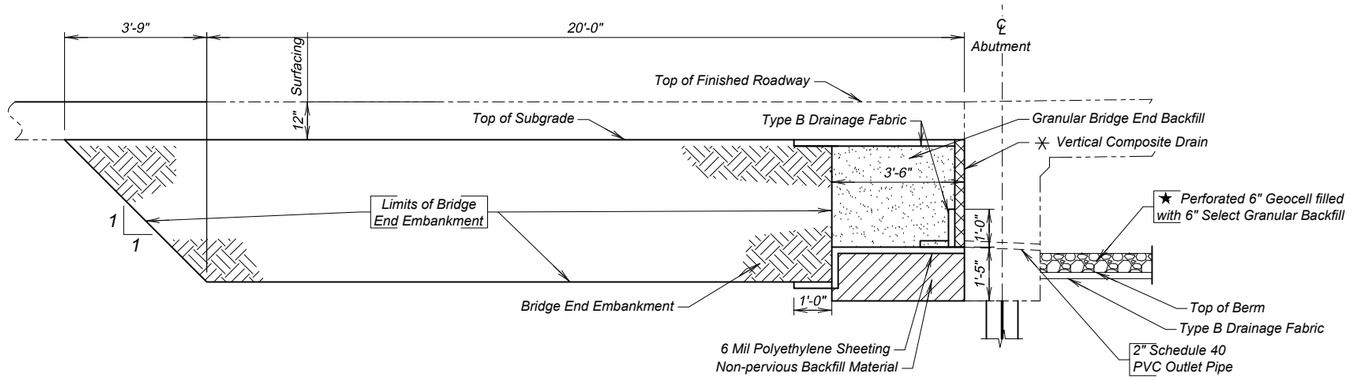
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	39	55



PLAN

(Bridge End Backfill shown adjacent to Abut. No. 1
Abut. No. 4 similar opposite hand expect as shown)



SEC. A - A
(at ℄ Roadway)

★ *See PERFORATED GEOCELL notes for payment information.*

ESTIMATED QUANTITIES
(For Two Abutments)

	ITEM	UNIT	QUANTITY
	Granular Bridge End Backfill	Cu. Yd.	30.0
⍓	Bridge End Embankment	Cu. Yd.	358
⍁	Select Granular Backfill	Ton	12.0
☆	Perforated Geocell	Sq. Ft.	342

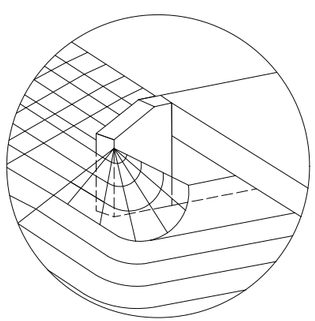
1. 16 ft. 2" Dia. PVC Outlet Pipe.
2. 232 sq. ft. Vertical Composite Drain.
3. 356 sq. ft. 6 mil Polyethylene Sheeting, not including laps.
4. 43 sq. yd. Type B Drainage Fabric.

Items 1 through 4 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 1.25 Used.*

☆ *See PERFORATED GEOCELL notes for payment information.*



SPILL CONE DETAIL AT EMBANKMENT

(Railing not shown)

PLANS BY: ULTEIG ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
02/6/2026

DETAILS OF BRIDGE END BACKFILL (A)

FOR

129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY — 30° LHF SKEW
E. FORK VERMILLION RIVER — SEC. 03-T99/100N-R53W
STA. 29+94.80 TO STA. 31+24.61 — BRO-B 8063(19)
STR. NO. 63-153-050 — HL-93
PCN 09A9

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

13 OF 18

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MTH	VV	SAH	BRIDGE ENGINEER

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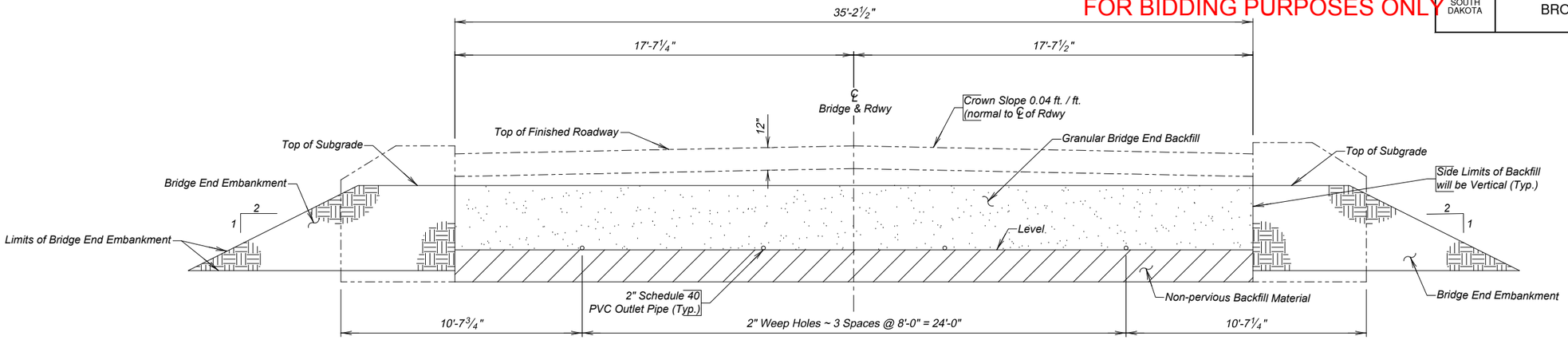
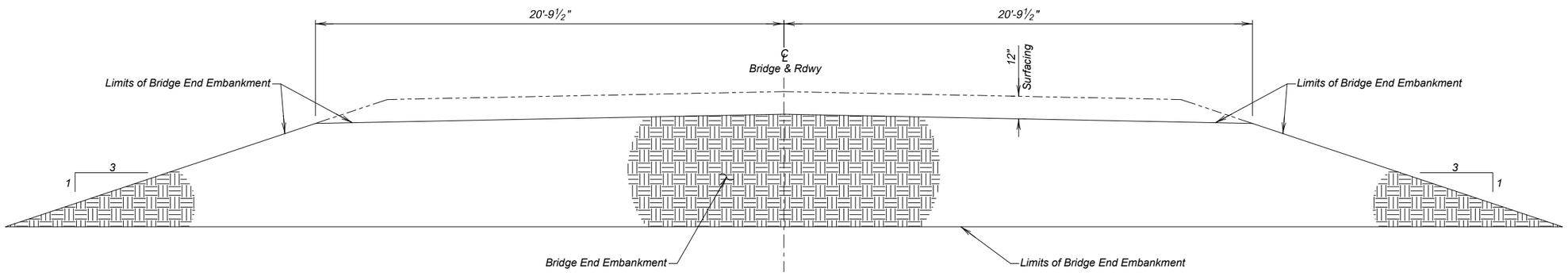
STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	40	55

FOR BIDDING PURPOSES ONLY



SEC. B - B



SEC. C - C

DETAILS OF BRIDGE END BACKFILL (B)

FOR

129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY — 30° LHF SKEW
E. FORK VERMILLION RIVER — SEC. 03-T99/100N-R53W
STA. 29+94.80 TO STA. 31+24.61 — BRO-B 8063(19)
STR. NO. 63-153-050 — HL-93
PCN 09A9

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
02/6/2026

PLANS BY: ULTEIG ENGINEERS, INC.

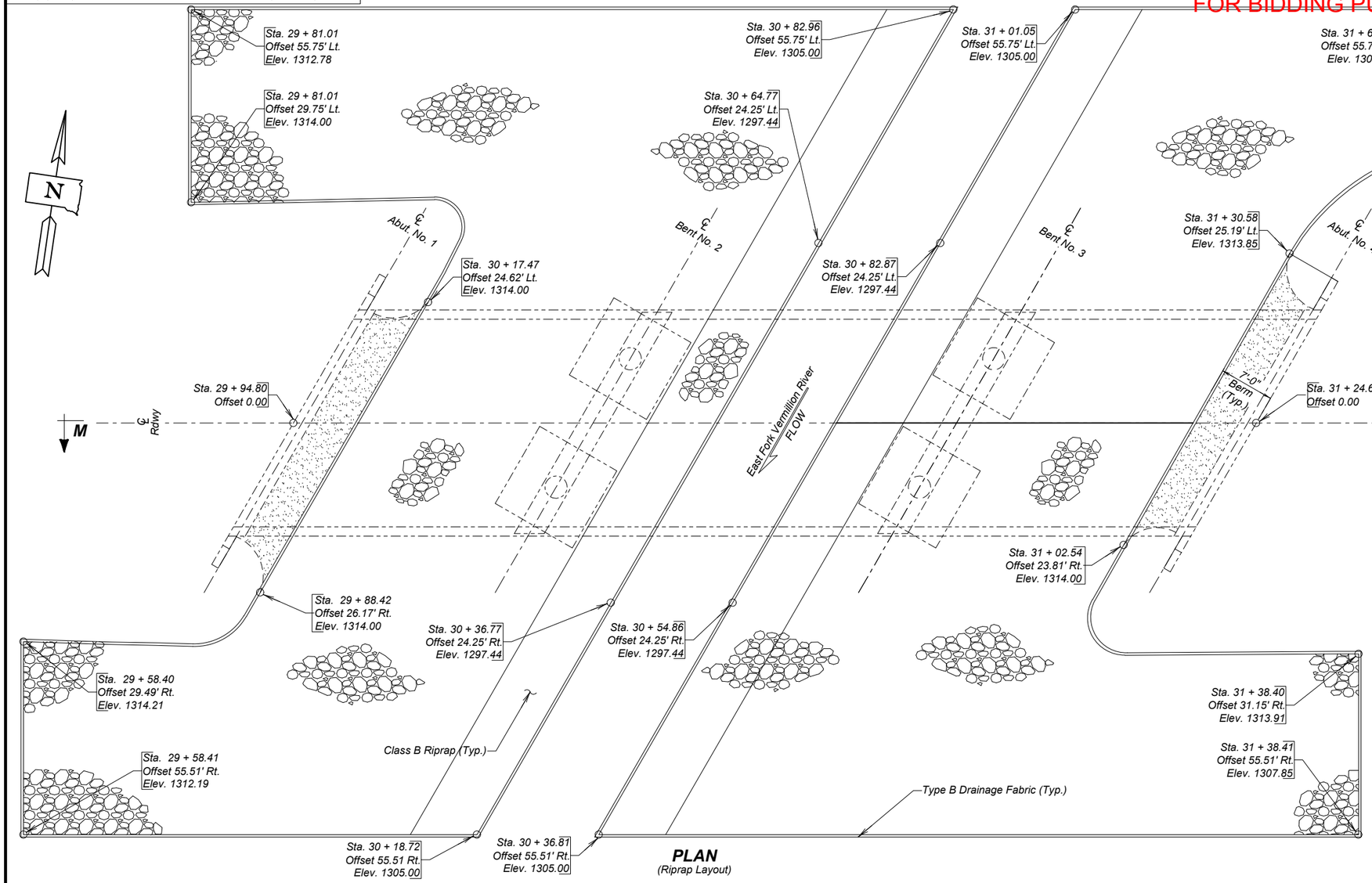
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MTH	VV	SAH	BRIDGE ENGINEER

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

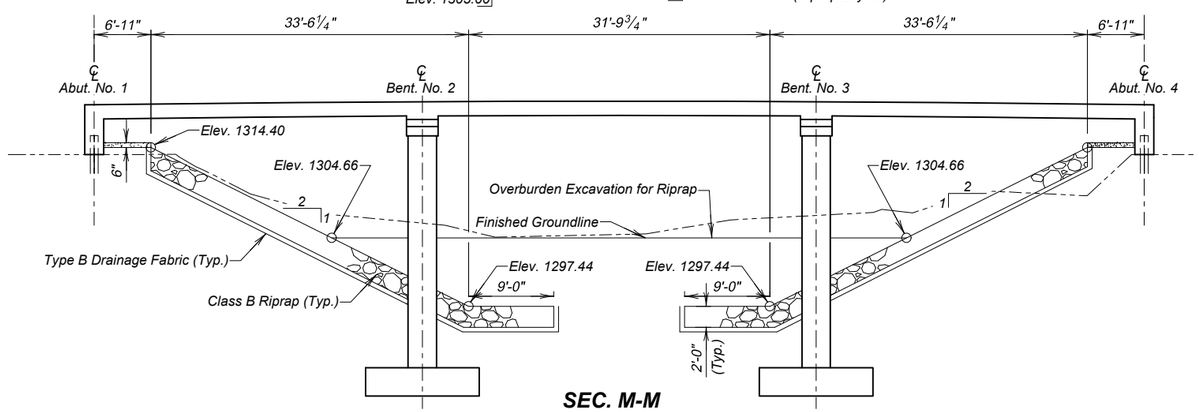
Revised: 3/16/26 MTH

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	41	55



PLAN
(Riprap Layout)



SEC. M-M

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
✳	Class B Riprap	Ton	1511
	Type B Drainage Fabric	Sq. Yd.	1870
	Overburden Excavation for Riprap	Cu. Yd.	741

✳ For estimating purposes only, a factor of 1.4 tons/cu.yd. was used to convert Cu. Yds. to Tons.

PLANS BY: ULTEIG ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
3/16/2026

RIPRAP DETAILS
FOR
129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY — 30° LHF SKEW
E. FORK VERMILLION RIVER — SEC. 03-T99/100N-R53W
STA. 29+94.80 TO STA. 31+24.61 — BRO-B 8063(19)
STR. NO. 63-153-050 — HL-93
PCN 09A9

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

15 OF 18

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MTH	VV	SAH	BRIDGE ENGINEER

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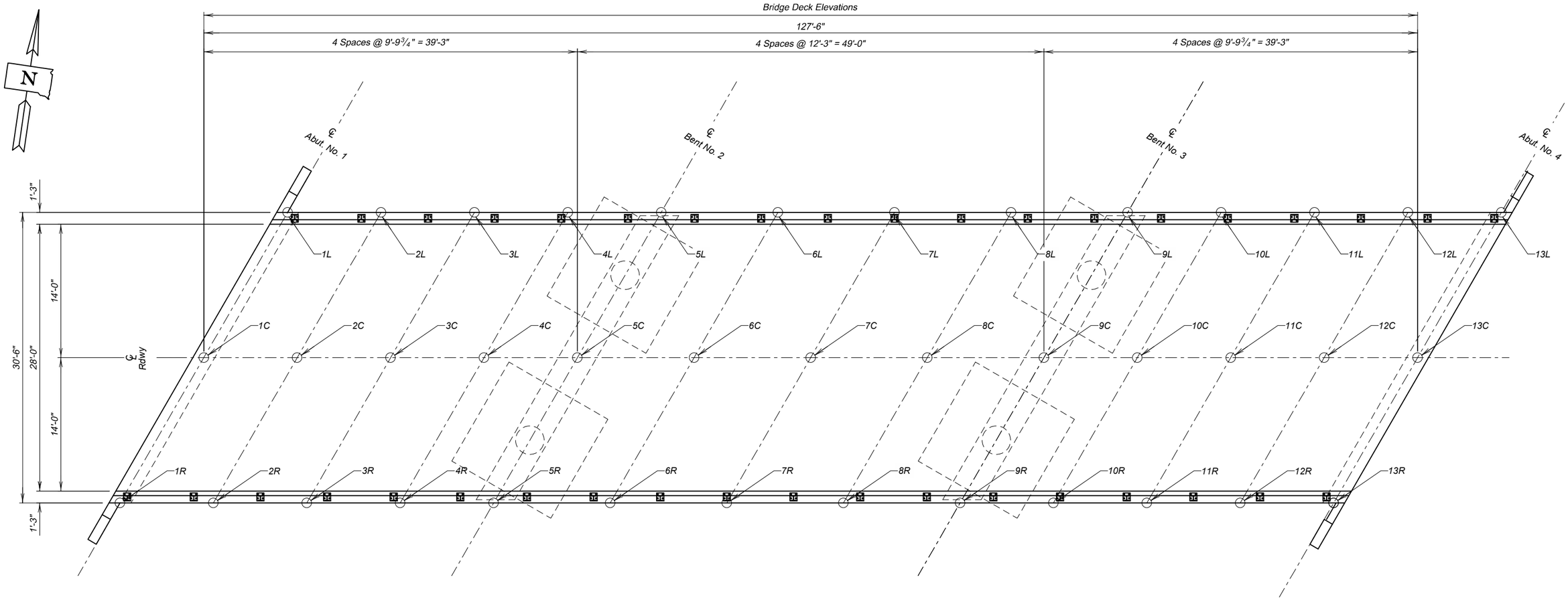
The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO-B 8063(19)	42	55



PLAN

Table of As-Built Elevations - Bridge Deck					
Location	Elevation	Location	Elevation	Location	Elevation
1L		1C		1R	
2L		2C		2R	
3L		3C		3R	
4L		4C		4R	
5L		5C		5R	
6L		6C		6R	
7L		7C		7R	
8L		8C		8R	
9L		9C		9R	
10L		10C		10R	
11L		11C		11R	
12L		12C		12R	
13L		13C		13R	

Table of Elevations - Bridge Survey Markers		
Location	Station - Offset	Elevation
Begin Bridge		
End Bridge		

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Bridge Elevation Survey	LS	Lump Sum

NOTE:
The Contractor will be responsible for producing the As - Built Elevation Survey soon after construction is complete and before the bridge is opened to traffic. The As - Built Elevations of the Bridge will be taken and recorded at the locations shown by the tables on this sheet. The completed tables will be given to the Engineer who will forward a copy to the Office of Bridge Design and the Region Office.

PLANS BY: ULTEIG ENGINEERS, INC.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 15242
MATTHEW THOMAS HENDERSON
SOUTH DAKOTA
02/6/2026

AS-BUILT ELEVATION SURVEY
FOR
129'-9 3/4" CONT. CONCRETE BRIDGE

28'-0" ROADWAY — 30° LHF SKEW
E. FORK VERMILLION RIVER — SEC. 03-T99/100N-R53W
STA. 29+94.80 TO STA. 31+24.62 — BRO-B 8063(19)
STR. NO. 63-153-050 — HL-93
PCN 09A9

TURNER COUNTY
S. D. DEPT. OF TRANSPORTATION
APRIL 2025

16 OF 18

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MTH	VV	SAH	BRIDGE ENGINEER

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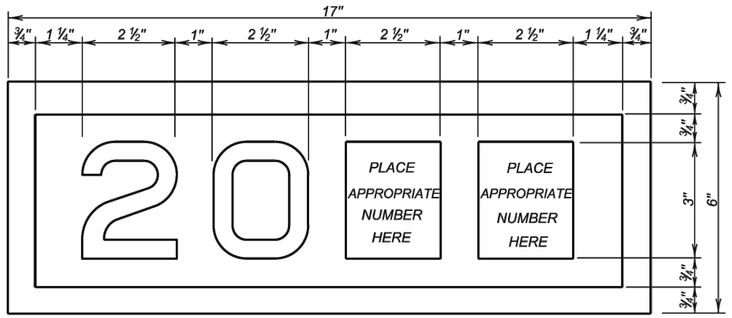


YEAR PLATE DETAILS

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.

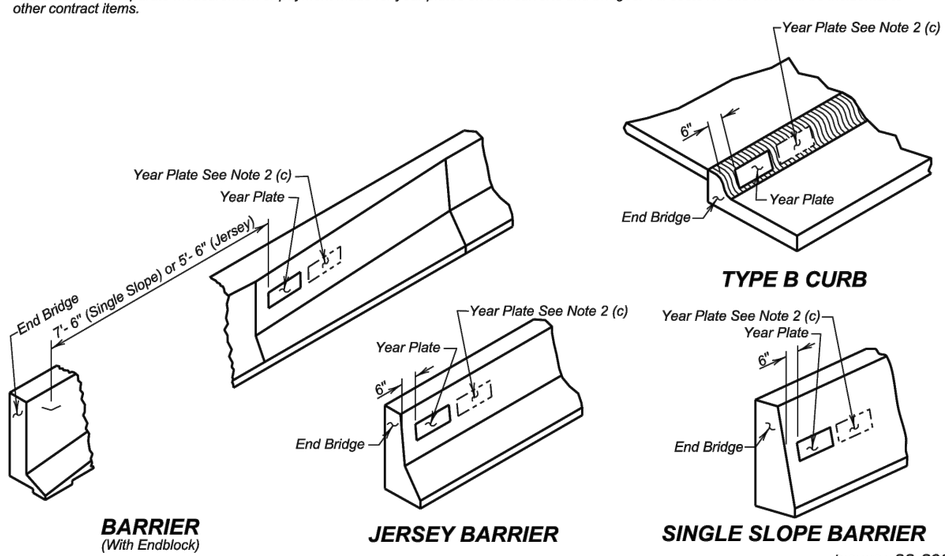
2. Year plates will be located on structure(s) as follows:

   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.



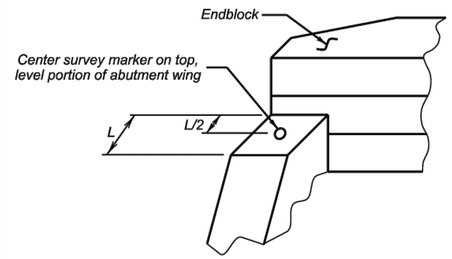
BARRIER (With Endblock)

JERSEY BARRIER

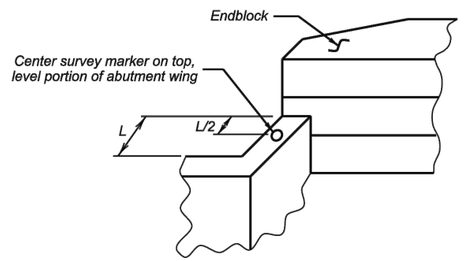
SINGLE SLOPE BARRIER

January 22, 2021

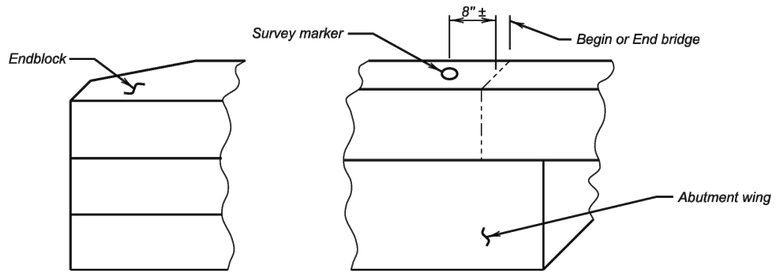
Published Date: 2026	SDDOT	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1



ABUTMENT WITH "STRAIGHT" WINGS



ABUTMENT WITH "SWEPT BACK" WINGS



ABUTMENT WITH "SWEPT BACK" WINGS

(Endblock on top of wings)

GENERAL NOTES:

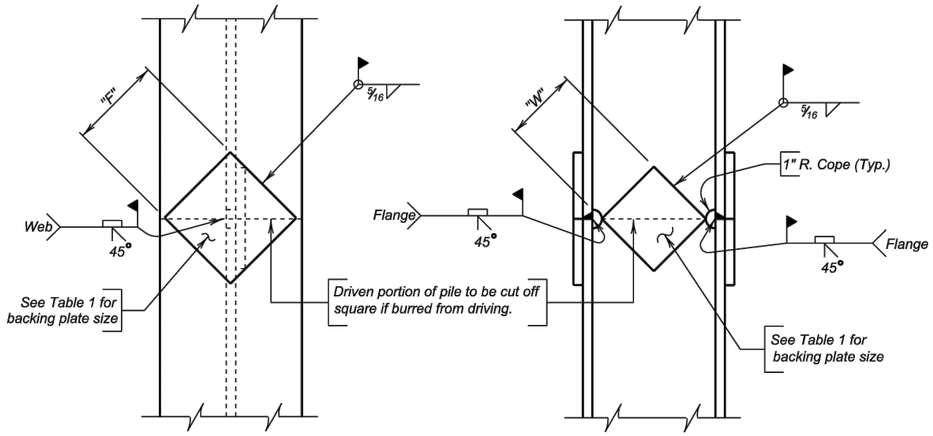
1. Survey markers shall be located at each abutment on the same side of the bridge as the year plate. Place survey markers on abutment wings as shown. Two survey markers will be required at each bridge.

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

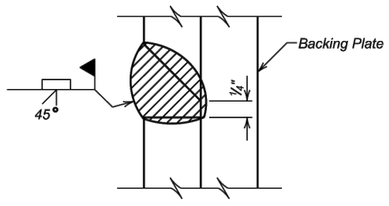
Published Date: 2026	SDDOT	BRIDGE SURVEY MARKER	PLATE NUMBER 460.05
			Sheet 1 of 1



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:

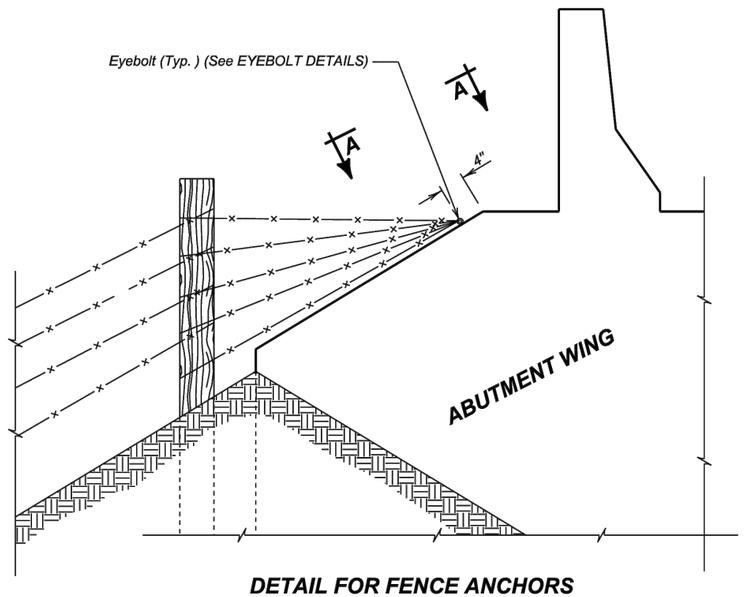
1. Steel for backing plates shall conform to ASTM A709 Grade 50.
2. Welding and weld inspection shall be in conformance with AWS D1.5 (Current Year) Bridge Welding Code - Steel.
3. Welder must be certified and registered with the SDDOT.
4. Backing plate shall at a minimum be as thick as the web of the 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

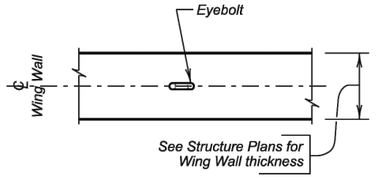
Published Date: 2026	SDDOT	STEEL PILE SPLICE DETAILS	PLATE NUMBER 510.40
			Sheet 1 of 1



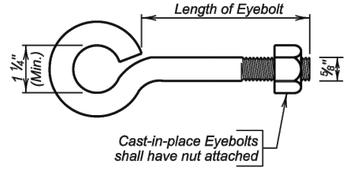
DETAIL FOR FENCE ANCHORS

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

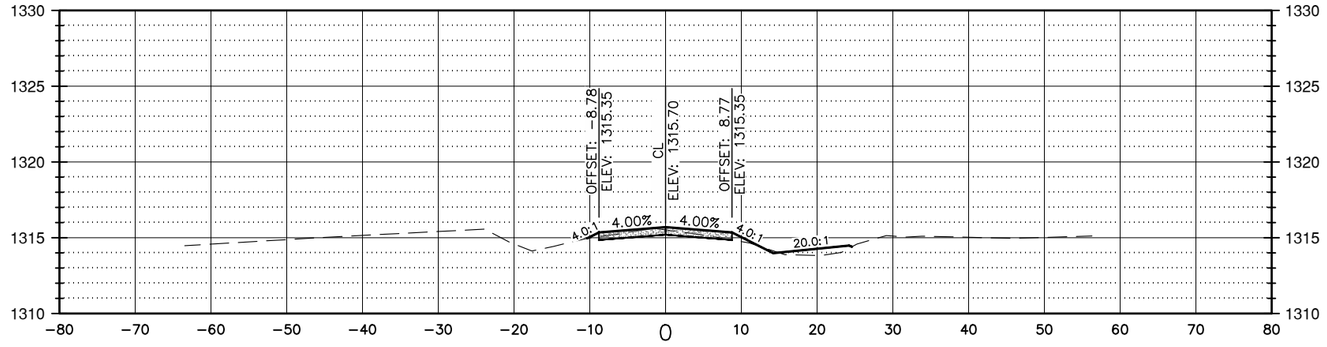
129'-9 3/4" CONT. CONCRETE BRIDGE
STR. NO. 63-153-050
APRIL 2025

CROSS SECTIONS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	45	55

273RD STREET CL
STA 25+50.00



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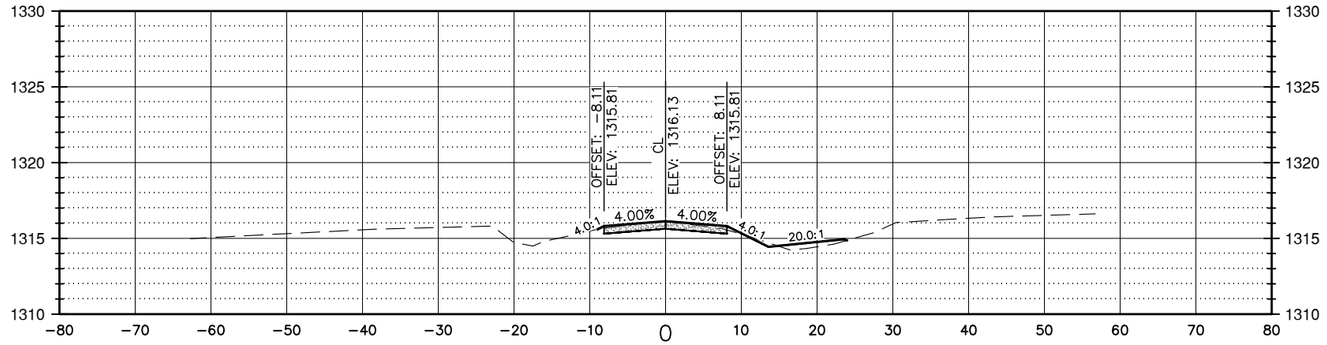

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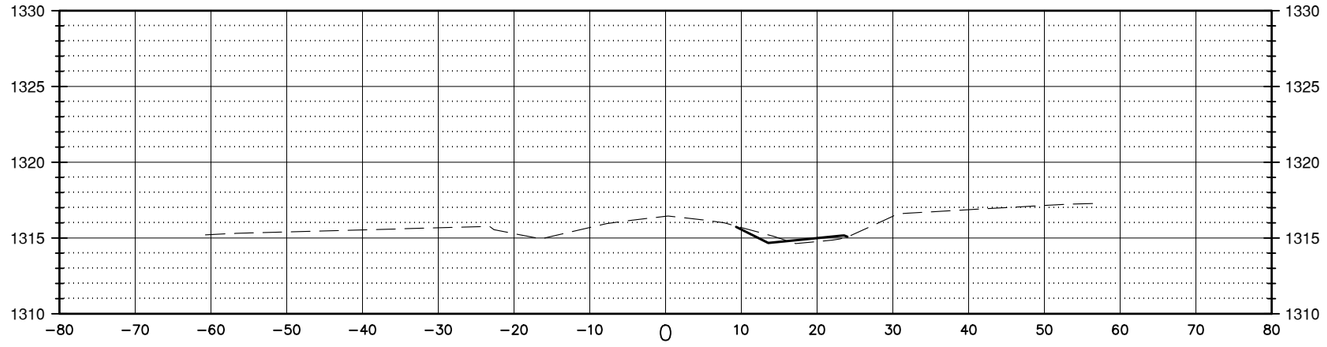


REGISTERED PROFESSIONAL ENGINEER
REG. NO.
5382
BRADLEY D.
STANGOHR
SOUTH DAKOTA

02/06/2026

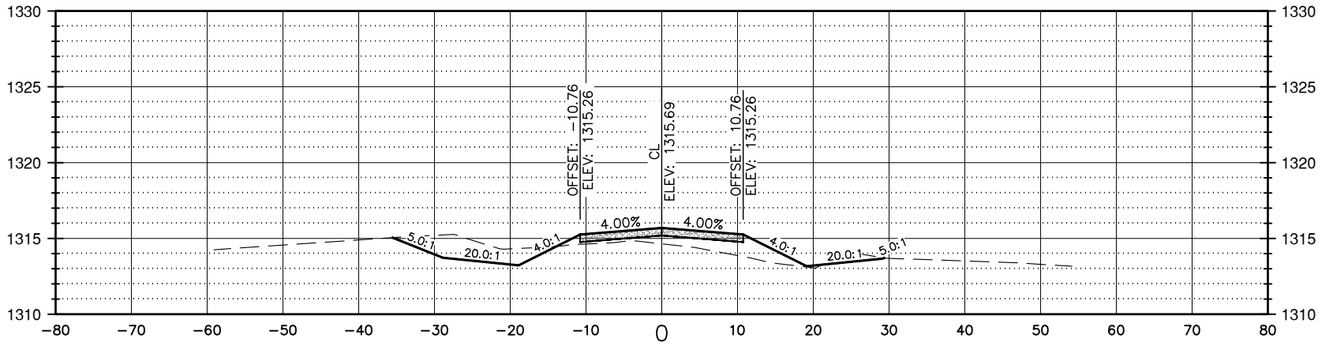
Ulteig
We listen. We solve.®

CROSS SECTIONS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	46	55

273RD STREET CL
STA 27+00.00



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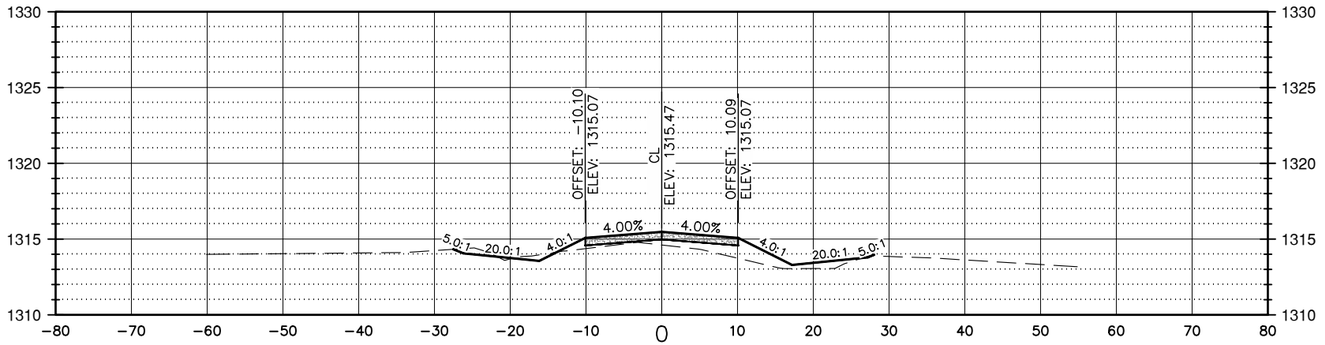
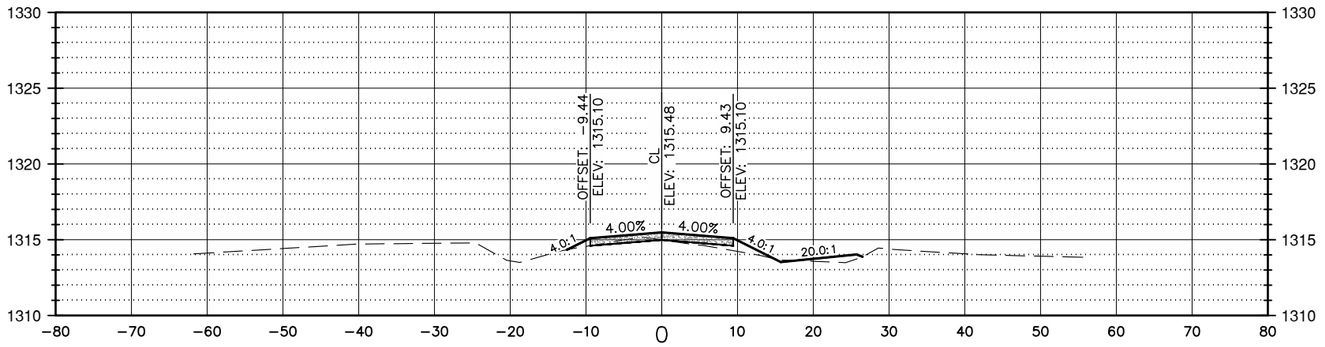


273RD STREET CL
STA 26+00.00

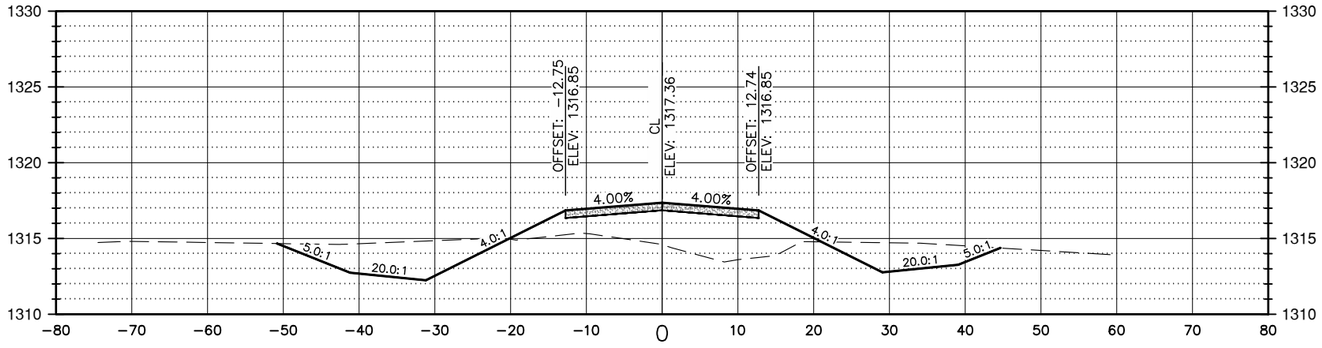


CROSS SECTIONS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	47	55

273RD STREET CL
STA 28+50.00



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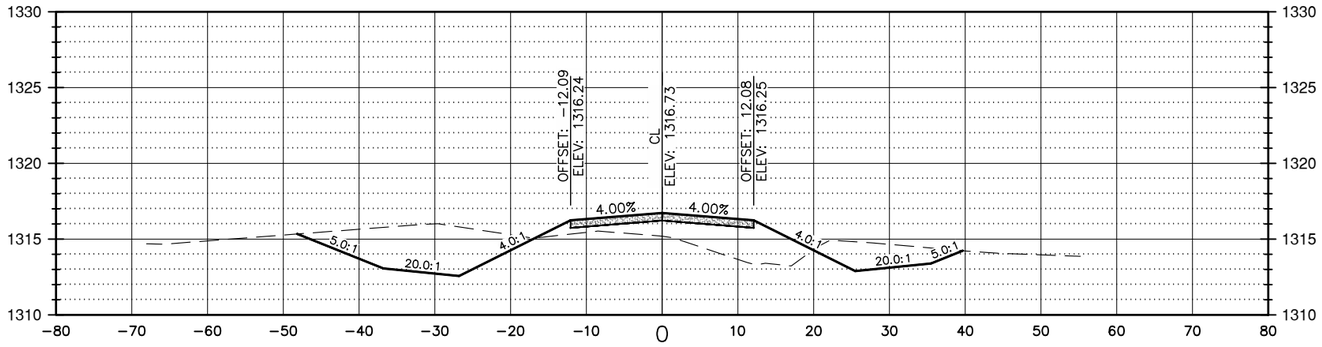
STA 28+00.00



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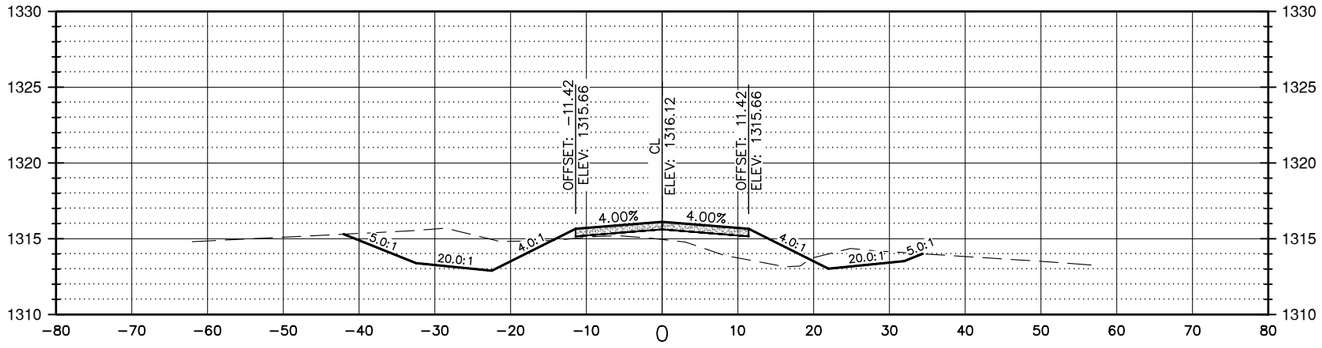
STA 27+50.00



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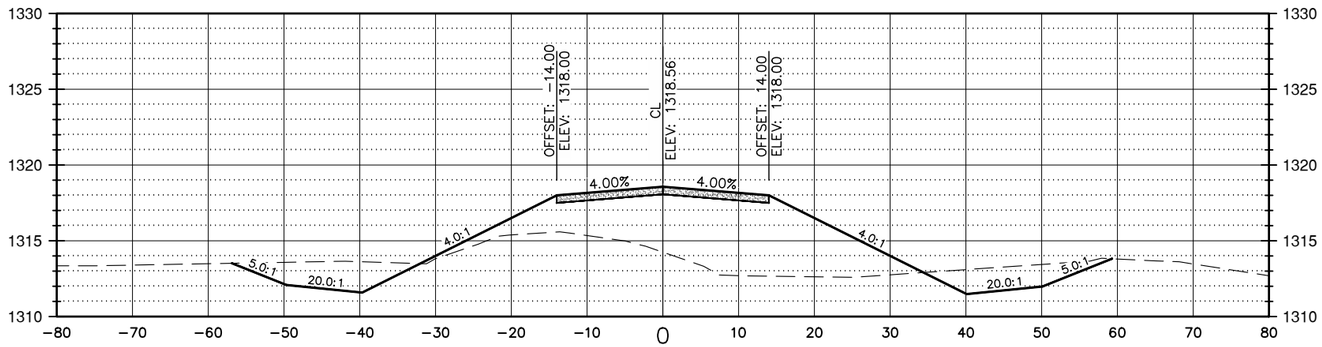
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	48	55

273RD STREET CL
STA 29+50.00



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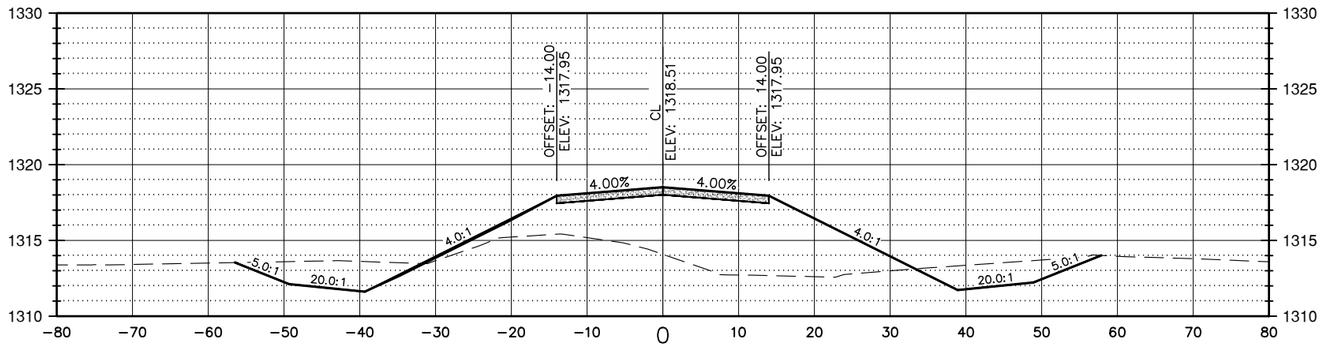
STA 29+44.55



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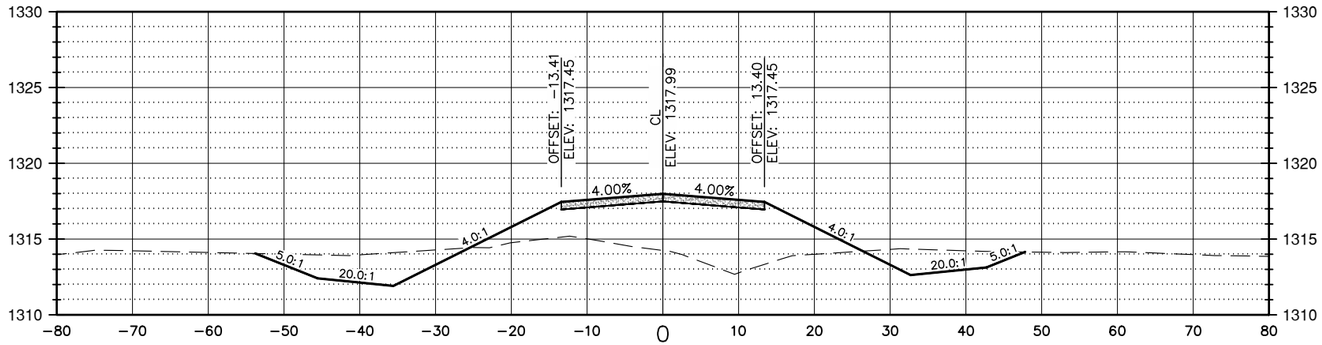
STA 29+00.00



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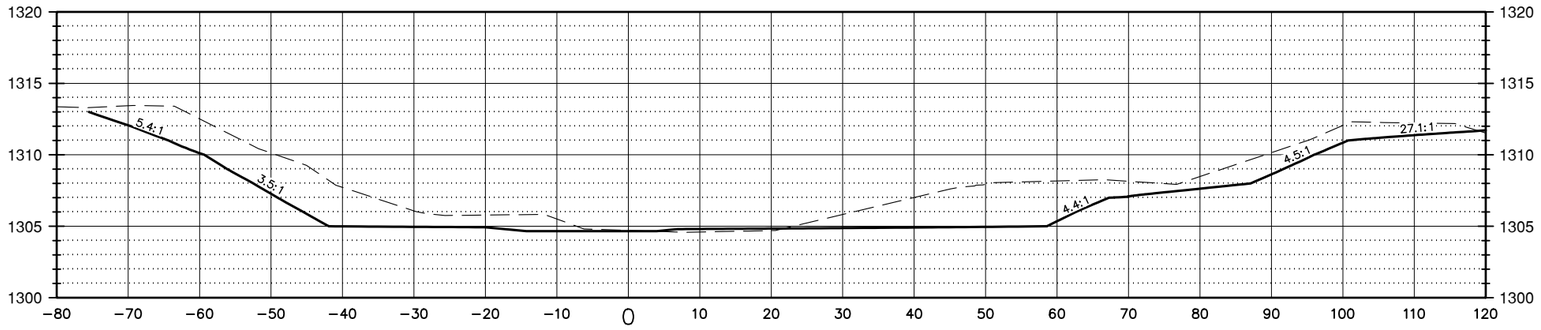
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	49	55

273RD STREET CL
STA 30+50.00



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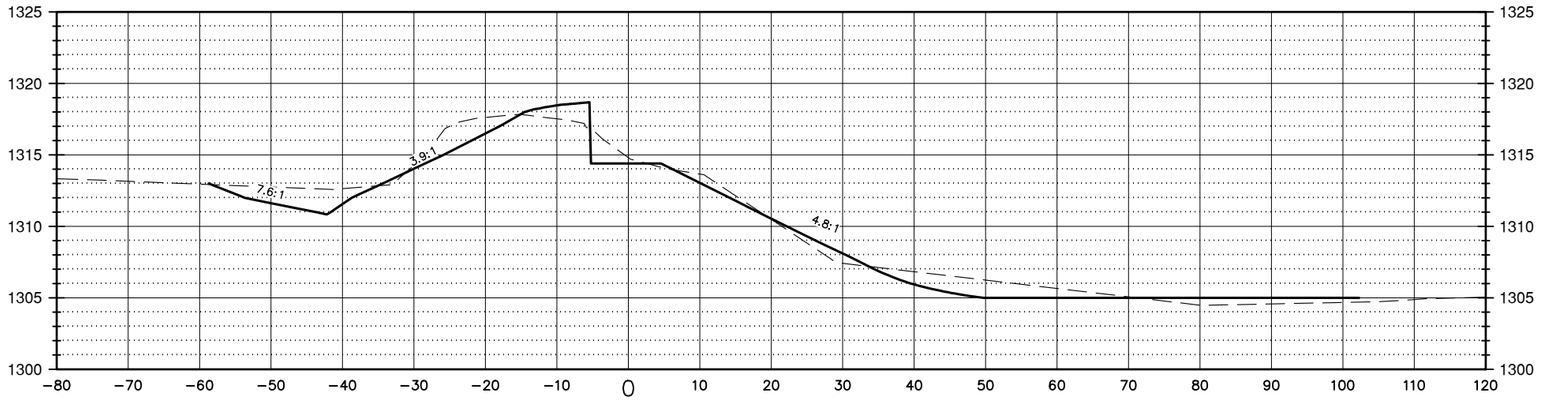
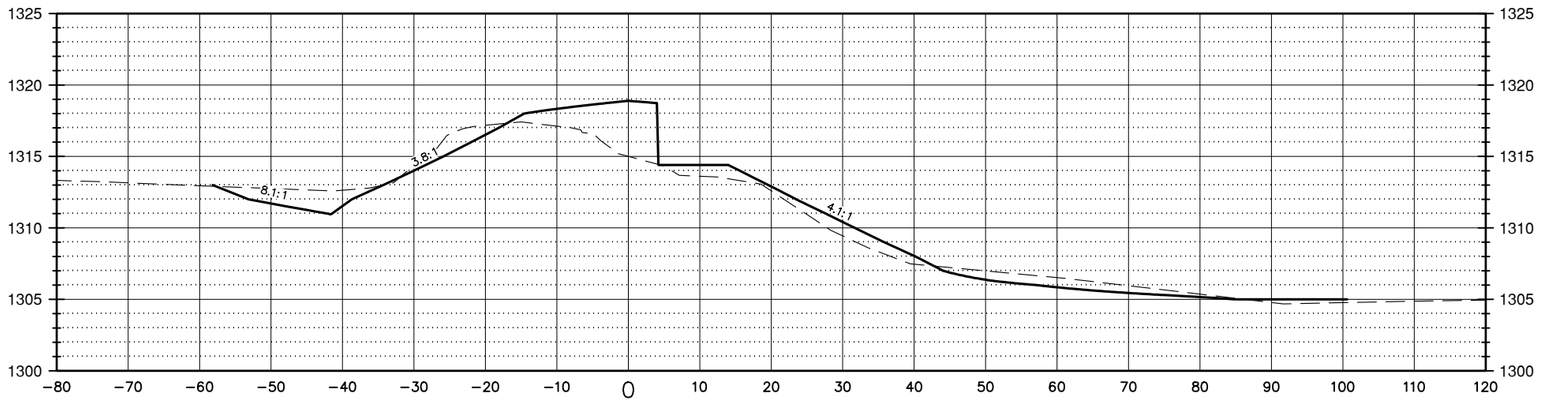
STA 30+00.00



273RD STREET CL
STA 29+94.55



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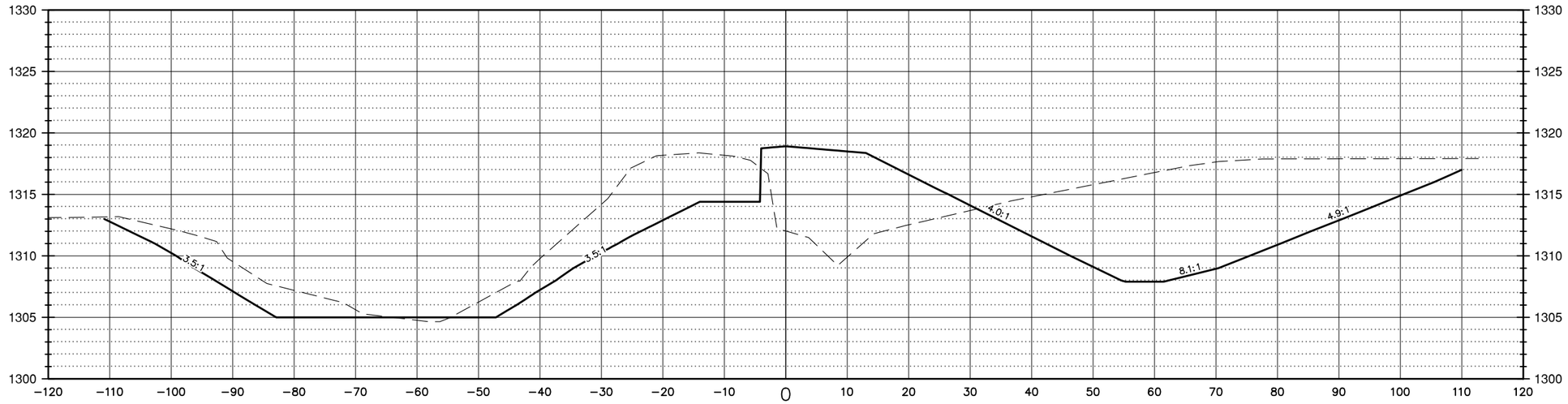
G:\2024\24.00361\C3D Design\Plan Sheets\23 – Cross Sections\24.00361 – CROSS SECTIONS.dwg PLOT DATE: 6/23/2025 12:22 PM Mason Blerema Autodesk-MONO.stb

CROSS SECTIONS

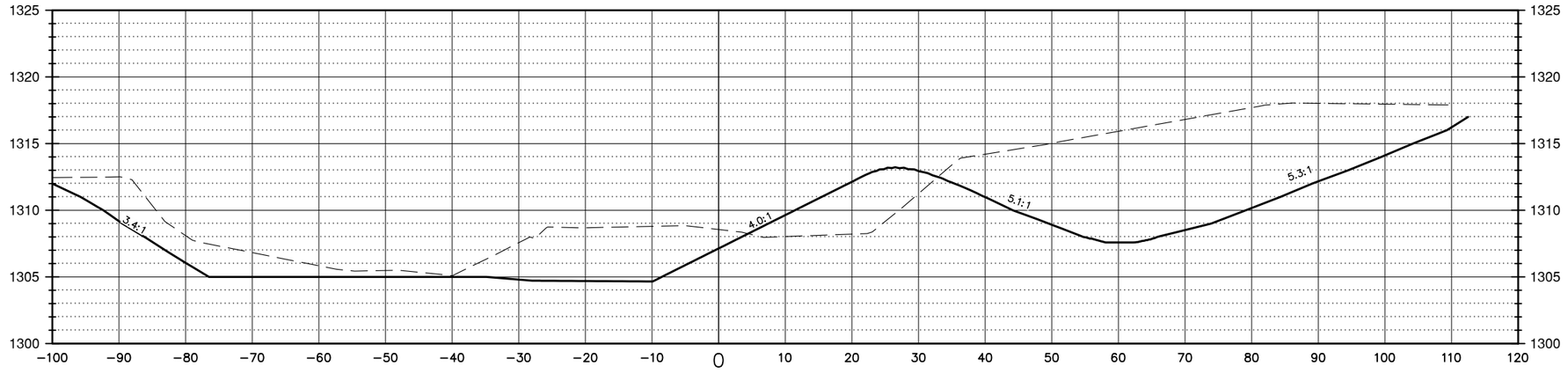
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	50	55

273RD STREET CL
STA 31+24.86



273RD STREET CL
STA 31+00.00



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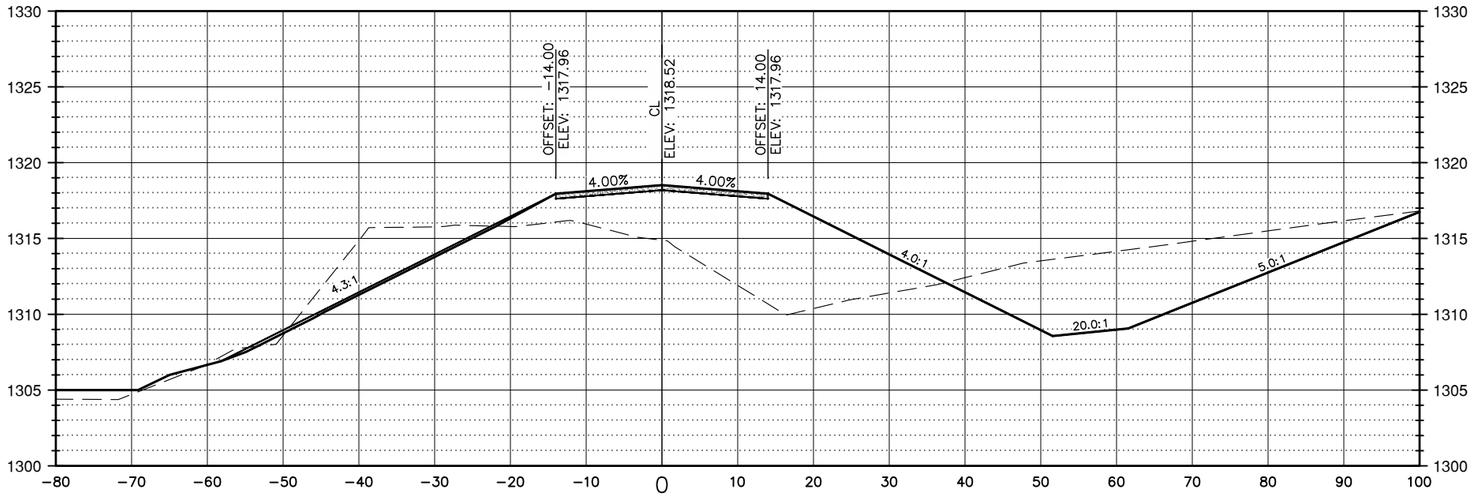
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	51	55

273RD STREET CL
STA 31+74.86



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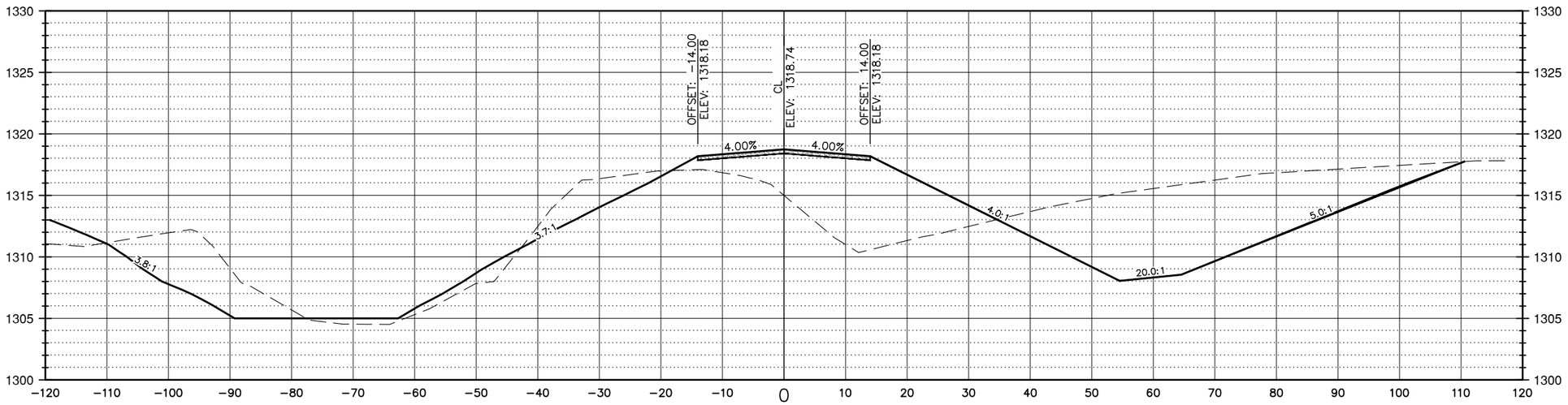
STA 31+50.00



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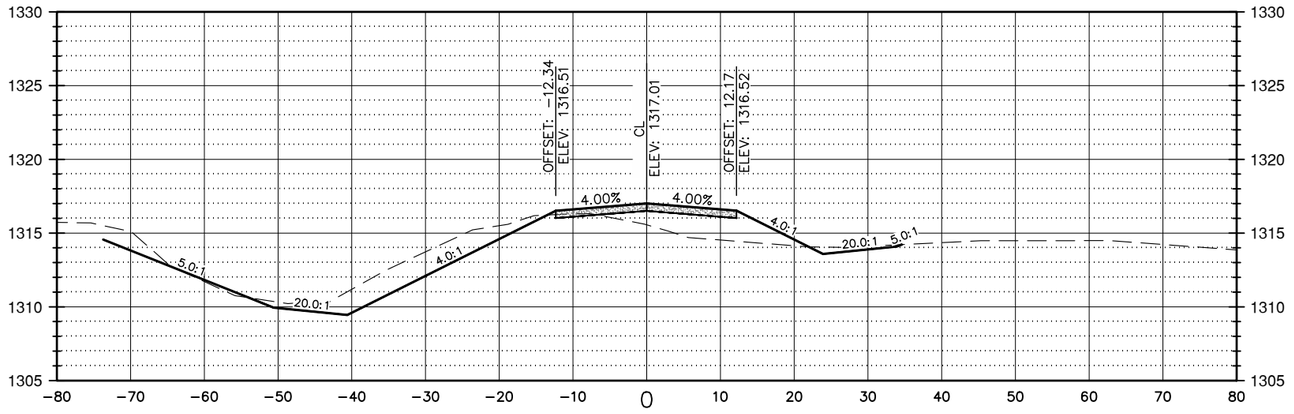
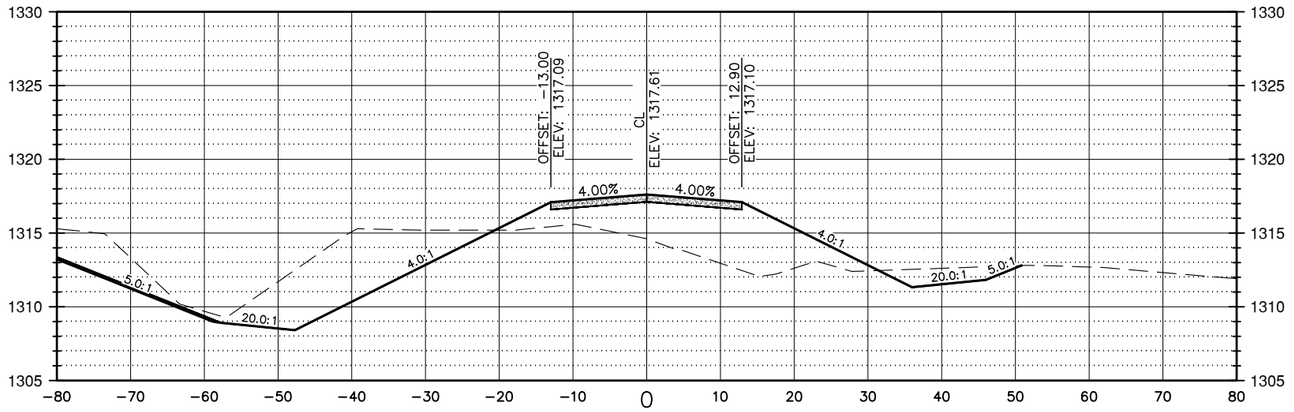
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	52	55



273RD STREET CL
STA 32+50.00



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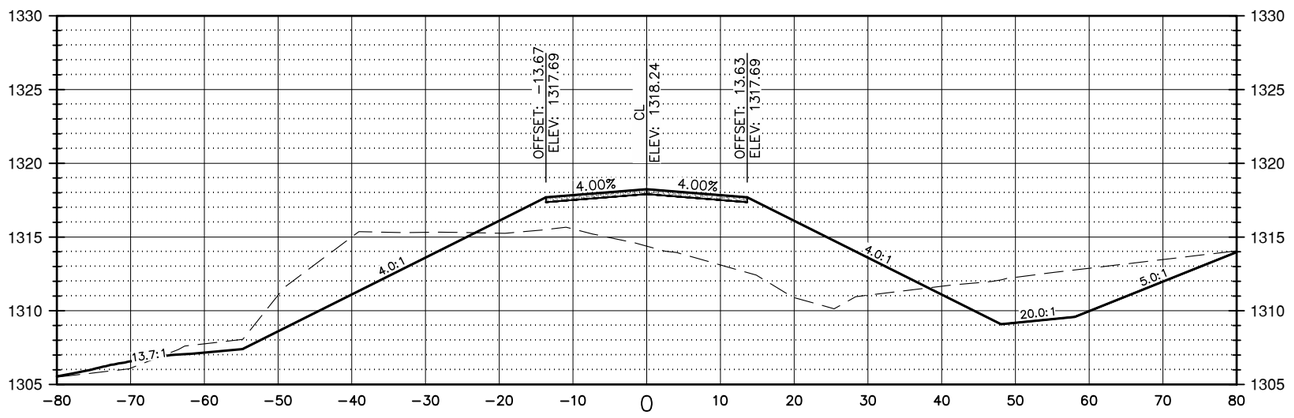
STA 32+00.00



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STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	53	55

CROSS SECTIONS

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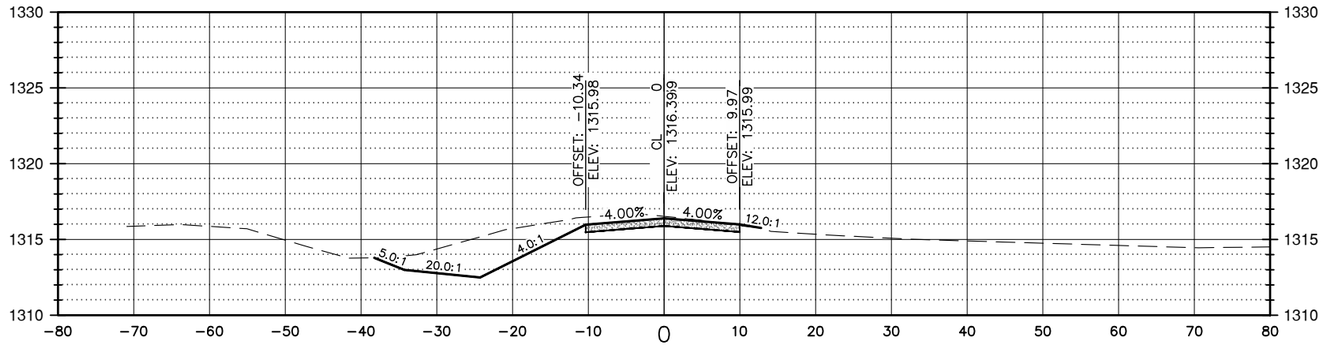
273RD STREET CL
STA 34+50.00



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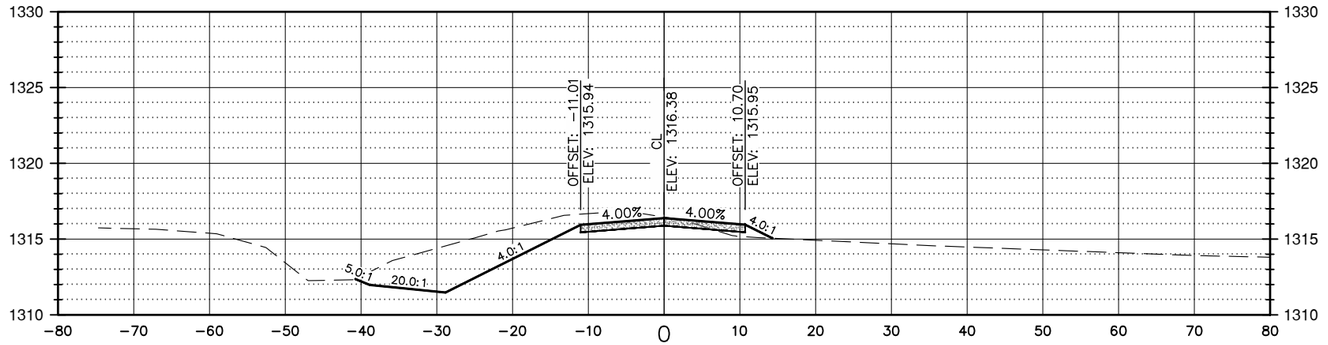
STA 34+00.00



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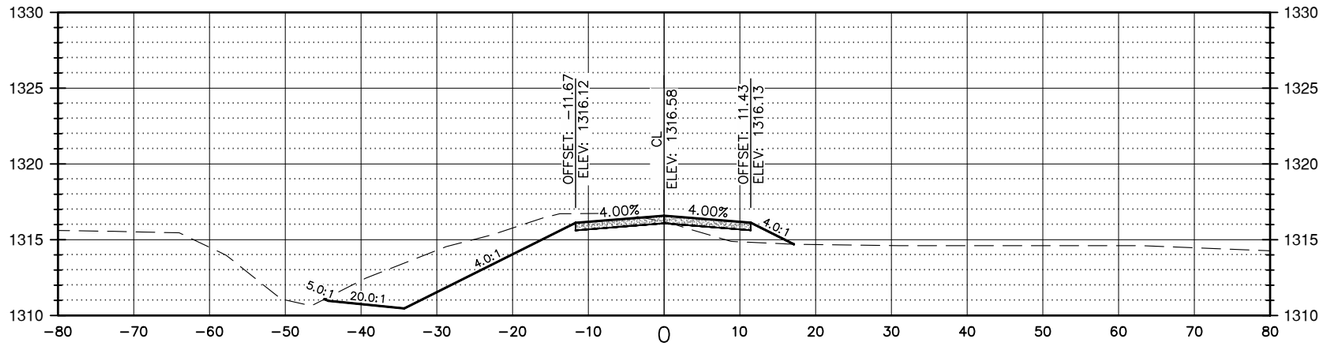
STA 33+50.00



CROSS SECTIONS

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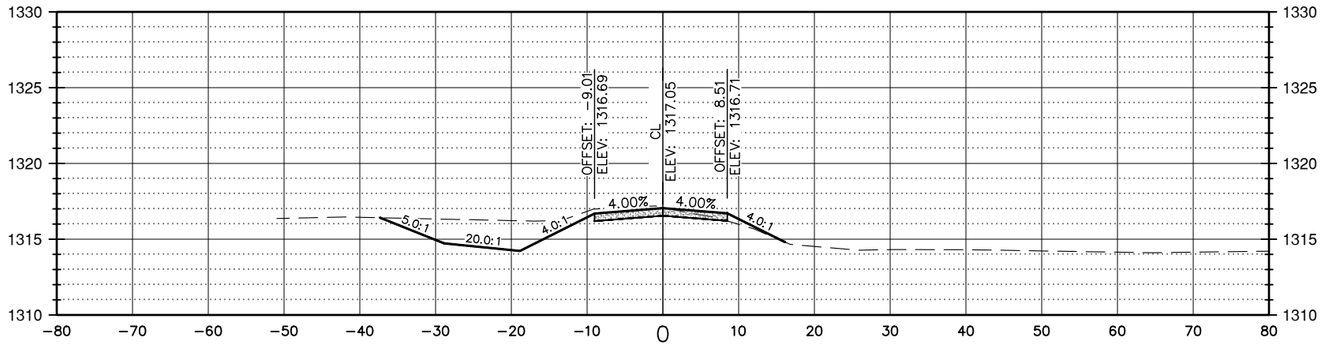
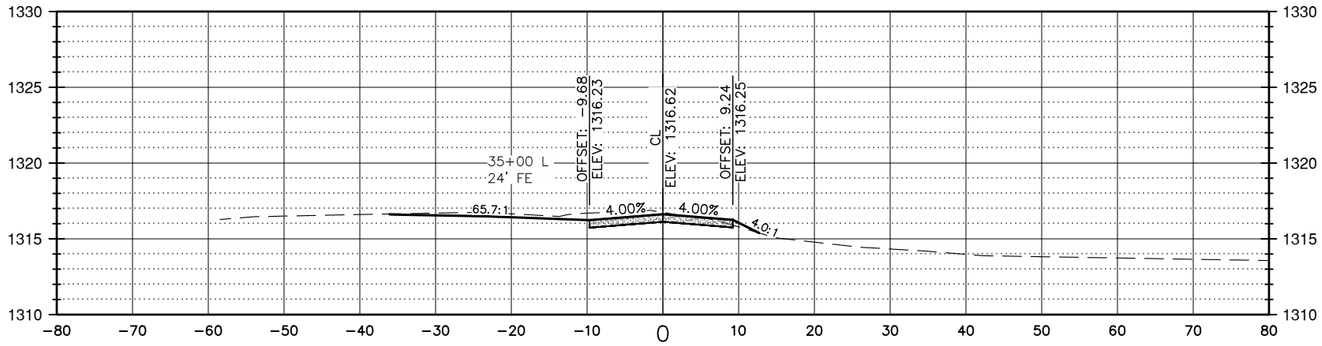
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	54	55

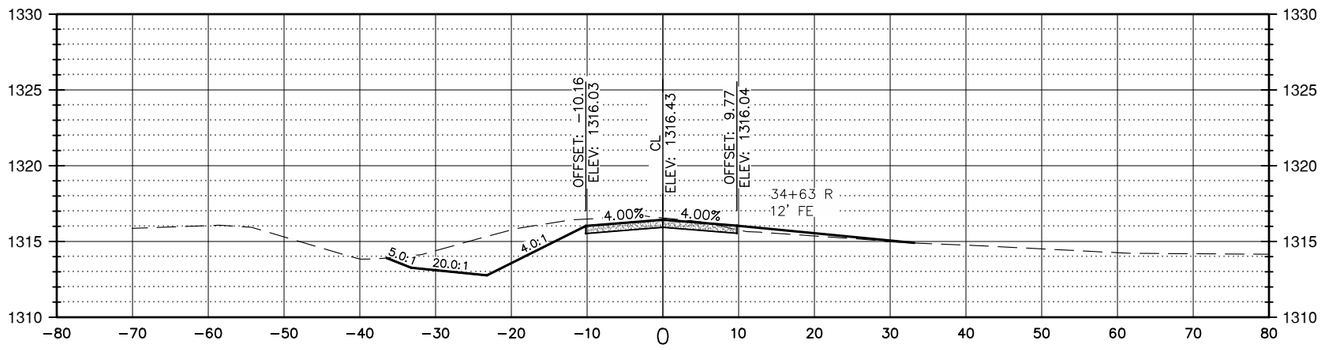
273RD STREET CL
STA 35+50.00



273RD STREET CL
STA 35+00.00



273RD STREET CL
STA 34+63.92



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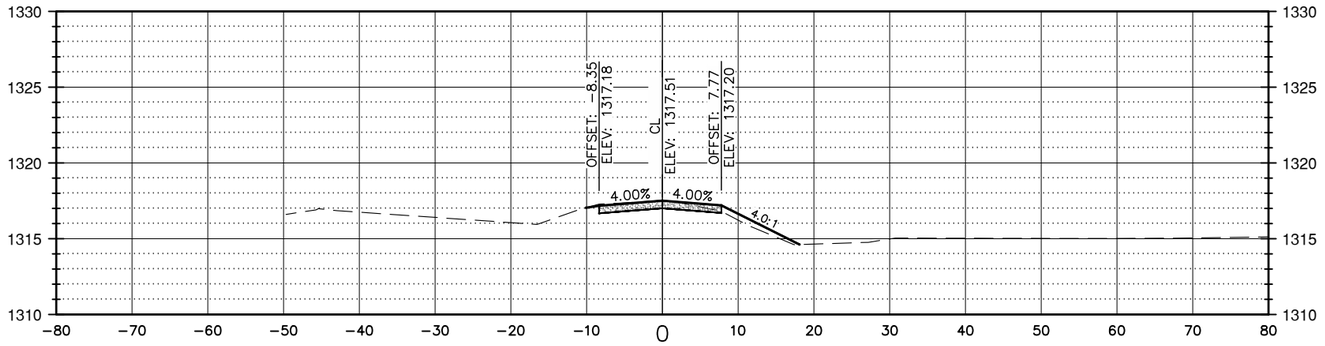
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8063(19)	55	55

273RD STREET CL
STA 36+00.00



273RD STREET CL
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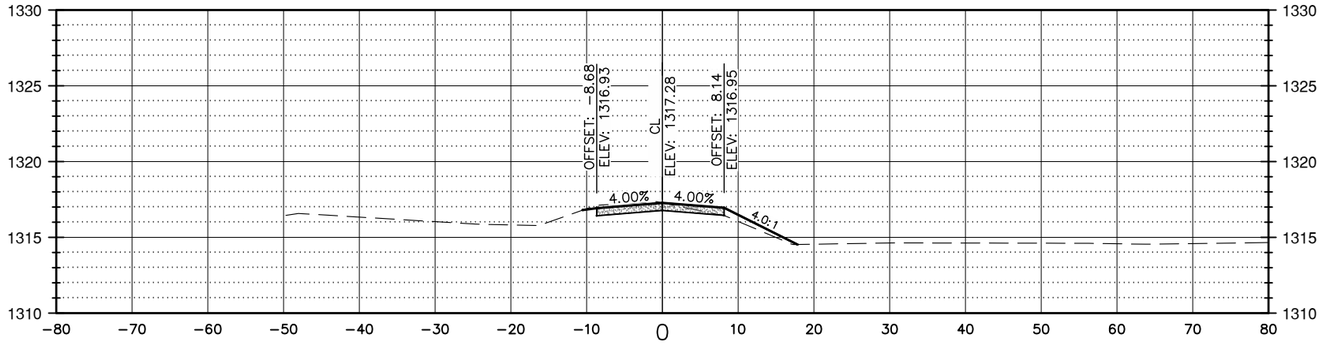

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