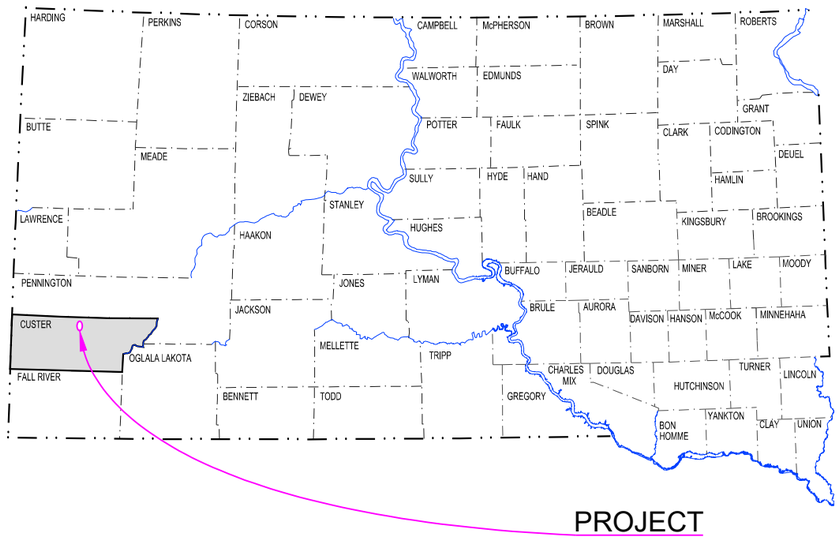


STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6642(03) BRO-B 8017(10) BRO-B 8017(11)	1	83

Plotting Date: 09/27/2024 Rev: 09/26/2024 LAJ

PLANS FOR PROPOSED

PROJECT BRF-B 6642(03)

STRUCTURE NO. 17-314-043

PCN 08NT

PROJECT BRO-B 8017(10)

STRUCTURE NO. 17-316-043

PCN 08NU

PROJECT BRO-B 8017(11)

STRUCTURE NO. 17-320-044

PCN 08NV

SOUTH DAKOTA GAME, FISH, AND PARKS
CUSTER STATE PARK

STRUCTURES AND APPROACH GRADING

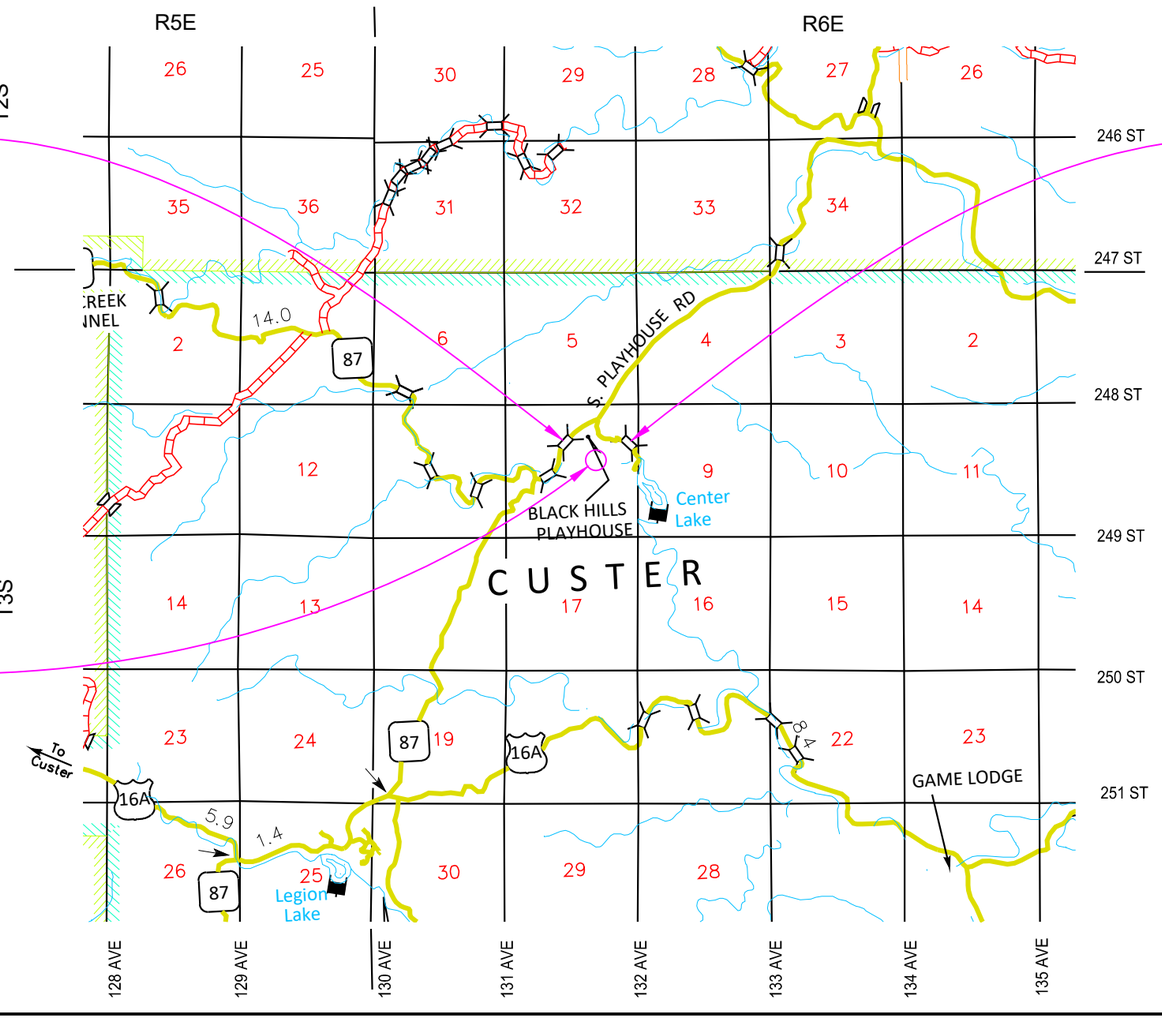
INDEX OF SHEETS

N

A - PCN 08NT
Station 0+94 to 1+94
Str. No. 17-314-043
10' x 6' Precast Concrete Box Culvert

B - PCN 08NU
Station 0+68 to 1+80
Str. No. 17-316-043
2-8' x6' Precast Concrete Box Culvert

C - PCN 08NV
Station 0+60 to 1+90
Str. No. 17-320-044
3 - 5' Reinforced Concrete Pipe Culverts



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9235
MARK JUNKER
SOUTH DAKOTA
9/26/2024

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

PLANS BY:

BANNER
engineering a better community

BANNER ASSOCIATES, INC.
803 S. DAKOTA ST.
MILBANK, SD 57252
855-323-6342

3

December 11, 2024

FOR BIDDING PURPOSES ONLY

Rev: 9/26/2024 LAJ

ESTIMATE OF QUANTITIES

A – PCN 08NT

Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	152.0	SqYd
110E1690	Remove Sediment	1.0	CuYd
120E0010	Unclassified Excavation	516	CuYd
120E0600	Contractor Furnished Borrow Excavation	296	CuYd
230E0010	Placing Topsoil	51	CuYd
260E1010	Base Course	260.0	Ton
634E0110	Traffic Control Signs	186.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	9	Each
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	88	SqYd
734E0154	12" Diameter Erosion Control Wattle	300	Ft
734E0165	Remove and Reset Erosion Control Wattle	50	Ft

Str. No. 17-314-043

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0200	Structure Excavation, Box Culvert	20	CuYd
421E0200	Box Culvert Undercut	95	CuYd
560E0134	10'x6' Precast Concrete Box Culvert, Furnish	42.0	Ft
560E0135	10'x6' Precast Concrete Box Culvert, Install	42.0	Ft
560E1134	10'x6' Precast Concrete Box Culvert End Section, Furnish	2	Each
560E1135	10'x6' Precast Concrete Box Culvert End Section, Install	2	Each
700E2010	Place Riprap	49.4	Ton
831E0110	Type B Drainage Fabric	70	SqYd

B – PCN 08NU

Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E0720	Extra Work, Utilities	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0370	Remove Curb Stop	1	Each
110E1690	Remove Sediment	1.0	CuYd
120E0010	Unclassified Excavation	450	CuYd
230E0010	Placing Topsoil	25	CuYd
634E0110	Traffic Control Signs	20.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	6	Each
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	32	SqYd
734E0154	12" Diameter Erosion Control Wattle	300	Ft
734E0165	Remove and Reset Erosion Control Wattle	50	Ft

Str. No. 17-316-043

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0200	Structure Excavation, Box Culvert	16	CuYd
421E0200	Box Culvert Undercut	69	CuYd
470E0044	Timber Pedestrian Railing	53.0	Ft
560E2074	2-8'x6' Precast Concrete Box Culvert, Furnish	12.0	Ft
560E2075	2-8'x6' Precast Concrete Box Culvert, Install	12.0	Ft
560E3074	2-8'x6' Precast Concrete Box Culvert End Section, Furnish	2	Each
560E3075	2-8'x6' Precast Concrete Box Culvert End Section, Install	2	Each
700E0210	Class B Riprap	40.0	Ton
700E2010	Place Riprap	35.8	Ton
831E0110	Type B Drainage Fabric	118	SqYd

C – PCN 08NV

Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	216.0	SqYd
110E1690	Remove Sediment	1.0	CuYd
120E0010	Unclassified Excavation	166	CuYd
230E0010	Placing Topsoil	55	CuYd
260E1010	Base Course	273.8	Ton
634E0110	Traffic Control Signs	28.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	4	Each
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	280	Ft
734E0165	Remove and Reset Erosion Control Wattle	40	Ft

Str. No. 17-320-044

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
260E6010	Granular Material	255.2	Ton
421E0100	Pipe Culvert Undercut	135	CuYd
450E0222	60" RCP Class 2, Furnish	96	Ft
450E0230	60" RCP, Install	96	Ft
450E2044	60" RCP Flared End, Furnish	6	Each
450E2045	60" RCP Flared End, Install	6	Each
464E0100	Controlled Density Fill	57.4	CuYd
470E0044	Timber Pedestrian Railing	81.0	Ft
700E0210	Class B Riprap	67.6	Ton
700E2010	Place Riprap	29.9	Ton
831E0110	Type B Drainage Fabric	183	SqYd

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A.
JOHNSON
SOUTH DAKOTA
9/26/24

BAI JOB # 23190.63

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6642(03)	A1	A27

Plotting Date: 07/17/2024

FOR BIDDING PURPOSES ONLY

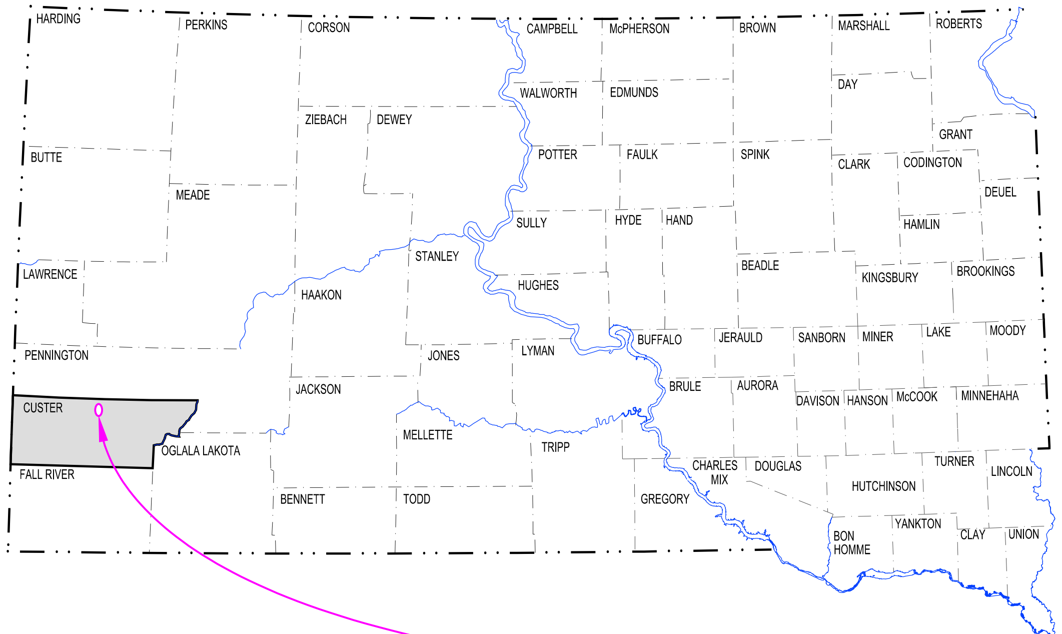
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT
BRF-B 6642(03)
SOUTH DAKOTA GAME, FISH, AND PARKS
CUSTER STATE PARK

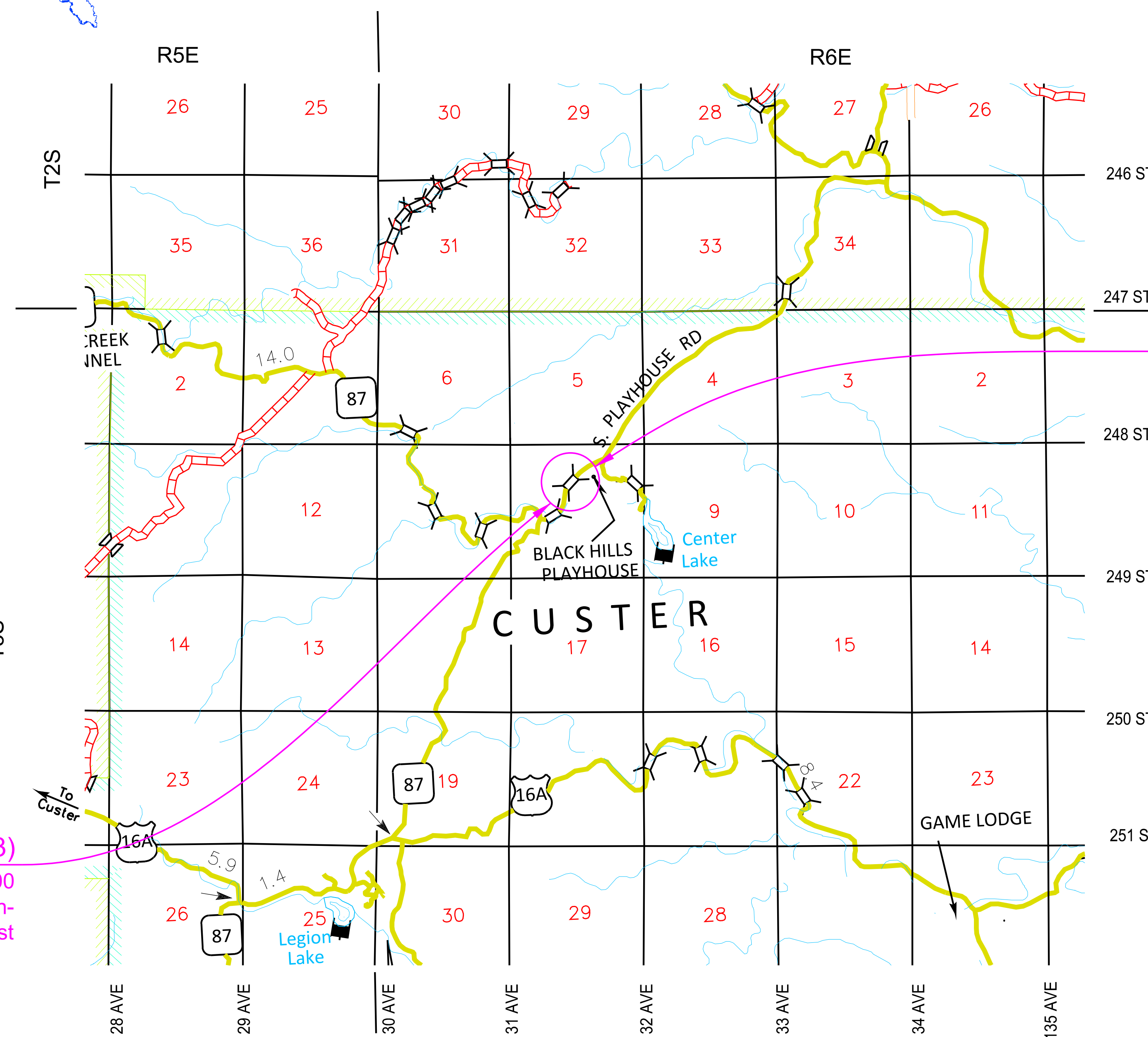
STRUCTURE AND APPROACH GRADING
STRUCTURE NO. 17-314-043
PCN 08NT

INDEX OF SHEETS



STORM WATER PERMIT
Major Receiving Body of Water: Tributary to Grace Coolidge Creek
Total Project Area: 0.2 Acre
Area Disturbed: 0.1 Acre
Approx. Begin Lat/Long: 43.80573° N
-103.43078° W

DESIGN DESIGNATION
AADT 505
V 35 MPH



END BRF-B 6642(03)
Station 1+94.00
Located in Section 8 - Township 3 South - Range 6 East

BEGIN BRF-B 6642(03)
Station 0+94.00
Located in Section 8 - Township 3 South- Range 6 East

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9061
LUCAS A. JOHNSON
SOUTH DAKOTA
7/29/24

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6642(03)	A2	A27

FOR BIDDING PURPOSES ONLY

Rev: 9/26/2024 LAJ

ESTIMATE OF QUANTITIES

Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	152.0	SqYd
110E1690	Remove Sediment	1.0	CuYd
120E0010	Unclassified Excavation	516	CuYd
120E0600	Contractor Furnished Borrow Excavation	296	CuYd
230E0010	Placing Topsoil	51	CuYd
260E1010	Base Course	260.0	Ton
634E0110	Traffic Control Signs	186.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	9	Each
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	88	SqYd
734E0154	12" Diameter Erosion Control Wattle	300	Ft
734E0165	Remove and Reset Erosion Control Wattle	50	Ft

Str. No. 17-314-043

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0200	Structure Excavation, Box Culvert	20	CuYd
421E0200	Box Culvert Undercut	95	CuYd
560E0134	10'x6' Precast Concrete Box Culvert, Furnish	42.0	Ft
560E0135	10'x6' Precast Concrete Box Culvert, Install	42.0	Ft
560E1134	10'x6' Precast Concrete Box Culvert End Section, Furnish	2	Each
560E1135	10'x6' Precast Concrete Box Culvert End Section, Install	2	Each
700E2010	Place Riprap	49.4	Ton
831E0110	Type B Drainage Fabric	70	SqYd

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

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

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

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

COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.008 acre of wetlands (includes temporary and permanent) becoming impacted. Refer to NonSection Grading Plans/plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
1	1+44	0.001	0.0006	0.00	0.00	0.008

Action Taken/Required:

Mitigation is required in accordance with the "*Statewide Finding Regarding Wetlands for South Dakota Federal-Aid Highway Projects (February 2018)*". Replacement 0.008 acre of permanent wetland impacts will be completed through another wetland mitigation opportunity in a manner which considers FHWA's program-wide goal of 'net gain' of wetlands through enhancement, creation, and preservation.

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

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

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 Section B – NonSection Grading Plans. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.21 D of the Specifications.

COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.014 acre of stream (includes temporary and permanent) becoming impacted. Refer to NonSection - Grading Plans/plans for location and boundaries of the impacted streams.

Table of Impacted Streams

Stream Name	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
Grace Coolidge Ck	1+44	0.004	0.004	0.001	0.005	0.014

Action Taken/Required:

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

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT B5: NORTHERN LONG-EARED BAT

This project is within the range of suitable habitat for the Northern Long-Eared Bat (NLEB) and project work will avoid conflicts with NLEB roosting habitat.

Action Taken/Required:

Project activities that include tree removal, structure work, and/or work within one-quarter mile of a known hibernacula or 150 feet of a known maternity roost tree, or suitable habitat should not occur within the location(s) listed below during the NLEB seasonal work restriction timeframe without approval from the SDDOT Environmental Office.

Station	NLEB Seasonal Work Restriction
Entire Project Corridor	April 1 to October 31

If project activities cannot be conducted outside of the seasonal restriction the Contractor will notify the Project Engineer and the Environmental Office Biologist (605-773-3309) to schedule a presence/absence survey.

COMMITMENT C: WATER SOURCE

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

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:
< https://sdleastwanted.sd.gov/maps/default.aspx >

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

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

Grace Coolidge Creek is classified as a cold water permanent fishery with a total suspended solids standard of less than 30 mg/L 30-day average, less than 53 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/Ereporting.aspx >

COMMITMENT E: STORM WATER

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

Action Taken/Required:

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

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

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

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

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

REGISTERED PROFESSIONAL ENGINEER
9061
LUCAS A. JOHNSON
SOUTH DAKOTA
7/29/24

COMMITMENT E: STORM WATER (CONTINUED)

Storm Water Pollution Prevention Plan

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

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

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

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

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

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

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

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

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

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

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

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

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

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

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

Action Taken/Required:

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

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

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

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

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

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

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

Table of U.S. Waterways to Protect

Station	Waterway	Ordinary High-Water Elevation
1+44	Grace Coolidge Creek	4752.37'

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

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

COMMITMENT 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
1+44 (L and R)	Historic Structure 17-314-043

Action Taken/Required:

The following measures are required to minimize harm to the above Section 4(f) property.

The removal and replacement of structure 17-314-043 has resulted in an Adverse Effect to historic properties. A Memorandum of Agreement was signed and MOA stipulations I-III must be fulfilled prior to construction. Stipulations I-III were fulfilled and approved by the SHPO. SDDOT will ensure Stipulation IV is fulfilled.

A programmatic Section 4(f) Evaluation for Use of Historic Bridge 17-314-043 was approved by FHWA.

The Contractor is not permitted to stage equipment or materials within Custer State Park which interfere with the attributes, features, or activities of the park. 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 M2: SECTION 6(f) PROPERTY

There will be a Temporary Non-Conforming Use of the following properties encumbered by a Land and Water Conservation Fund grant:

Station	Section 6(f) Property
Project Area	Custer State Park

Action Taken/Required:

The following actions are required to ensure there is no 6(f) Conversion of Use requiring replacement lands of equal value and usefulness are achieved:

The contractor will adhere to the Special Provision for Construction Time limited construction activities seasonally between October 1 until May 1 and construction activities to less than 60 days in duration.

The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 6(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 6(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.

COMMITMENT S: FIRE PREVENTION IN THE BLACK HILLS AREA

This project is located within the Black Hills Forest Fire Protection Boundary.

Action Taken/Required:

The Contractor will adhere to the "Special Provision for Fire Plan".

SOUTH DAKOTA GAME, FISH AND PARKS (GF&P) REQUIREMENTS

The GF&P will perform the following items:

1. Furnish & install permanent signing in accordance with the MUTCD.

EXISTING UTILITIES

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

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

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

UTILITY CONTACT INFORMATION

Black Hills Power and Light Company
Overhead Electric (2 wire #2ACSR) crossing at Sta. 2+09.
25153 Little Teton Rd
Custer, SD 57730
Corey Virtue, 605-517-0193

South Dakota Game, Fish and Parks
Custer State Park
No utility lines present as of 9/27/2021.
13329 US Hwy 16A
Custer, SD 57730
Jamie Severyn, 605-280-1811 cell 605-255-4515 office

Mt. Rushmore Telephone Company
No utility lines present as of 9/27/2021.
320 1st St.
Keystone, SD 57751
605-255-4771

TABLE OF ANTICIPATED UTILITY ADJUSTMENTS

Location	Description
0+94 L to 1+94 L	None anticipated.
0+94 R to 1+94 R	None anticipated.

GENERAL MAINTENANCE OF TRAFFIC

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

Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. The Contractor will coordinate with GF&P to determine which signs will be reset and to verify reset locations. Cost of this work will be incidental to the contract unit prices for various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

STREAM DIVERSION

Any stream diversion will be considered temporary works in accordance with Section 423.

CLEARING

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

Any tree removal and disposal needed for the temporary stream diversion will be incidental to the contract lump sum price for “Clearing”.

The Table of Clearing is for informational purposes only. All tree removal and disposal needed to construct the project will be incidental to the contract lump sum price for Clearing.

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

TABLE OF CLEARING

Location	(Approximate Number) Approximate Size
0+94 to 1+94 L	(24) Under 12” - (6) 12” to 18” - (1) Over 18”
0+94 to 1+94 R	(6) Under 12” - (14) 12” to 18” - (3) Over 18”

Stream Diversion – Remove shrubs and trees as needed.

REMOVAL OF EXISTING ASPHALT CONCRETE PAVEMENT

The Contractor will remove the existing asphalt concrete pavement. The existing mainline asphalt concrete pavement is typically 18 feet wide with an unknown thickness. For earthwork calculations, a thickness of 3” was assumed. Prior to the removal of the existing asphalt concrete pavement at Station 0+94 and 1+94, the existing pavement will be sawed full depth to a true line with a vertical face. The asphalt concrete pavement will be disposed of in a manner compliant with the Environmental Conditions and its reuse in grading operations is not permitted. All costs associated with sawing, removal, hauling, and disposal will be incidental to the contract unit price per square yard for “Remove Asphalt Concrete Pavement”.

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Station	to	Station	Quantity (SqYd)
0+94		1+94	152
		Total:	152

GRADING OPERATIONS

Shrinkage factor: Embankment plus 30%.

Compaction of roadway embankment and box culvert backfill material will be governed by the Specified Density Method.

Water for Embankment and Backfill is estimated at the rate of 10 gallons of water per cubic yard of Embankment. The estimated quantity of Water is **9.8 MGal**. No separate payment will be made for the Water and all costs associated will be incidental to the contract unit price per cubic yard for “Unclassified Excavation” and “Contractor Furnished Borrow Excavation”.

TABLE OF EXCAVATION QUANTITIES

Station to Station		Excavation General (CuYd)	* Str Exc Box, Undercut, & Riprap Exc (CuYd)	*Contractor Furnished Borrow Excavation (CuYd)	Total Excavation (CuYd)	** Waste (CuYd)
0+94	1+94	75	147	296	518	0

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

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

UNCLASSIFIED EXCAVATION

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

TABLE OF UNCLASSIFIED EXCAVATION

Excavation General		75	
+ Excavation For RCBC Installation	+	390	
+ Topsoil	+	51	
Total Unclassified Excavation	**=**	**516**	**CuYd**

The Excavation General quantity includes excavation for the roadway, excavation in the channel to the box culvert flowline, and excavation in the channel to the top of the riprap.

Channel bank shaping will be done at the ends of the box culvert wingwalls and ends of the riprap as directed by the Engineer. The shaping will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”.

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

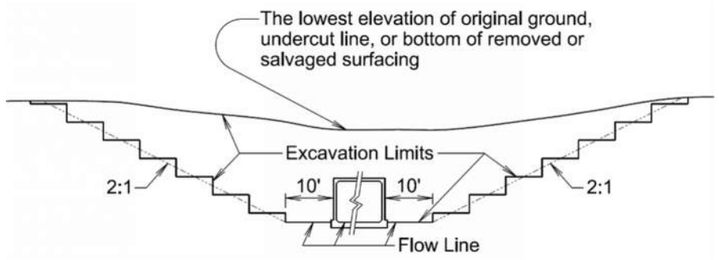
Rocks larger than 1 ft diameter will be salvaged and stockpiled for use as riprap. All costs for salvaging and stockpiling the rocks will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”.

EXCAVATION FOR BOX CULVERT INSTALLATION

Included in the quantity of "Unclassified Excavation" are **390** cubic yards of excavation for installation of the box culvert.

All work necessary to excavate a trench for installation of the box culvert including labor, equipment, and incidentals will be incidental to the contract unit price per cubic yard for "Unclassified Excavation". Payment for excavation of the box culvert will be based only on plans quantity and measurement of these excavation quantities during construction will not be performed.

The excavation quantity for installation of the box culvert is not included in the Table of Excavation Quantities nor with the earthwork balance quantities on the plans profile sheet. The quantity computed for excavation of the box culvert is based on the limits shown in the drawing below.



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 Contractor Furnished Borrow Excavation material will be uniform in texture and free from organic material. The liquid limit will not exceed 45 and the plastic index will not exceed 25. The borrow material will be approved by the Engineer.

Restoration of the Contractor Furnished Borrow Excavation site will be the responsibility of the Contractor.

PLACING TOPSOIL

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

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

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

The amount of topsoil shown in the Estimate of Quantities is based upon a 4" depth.

WATER FOR COMPACTION OF BASE COURSE

The cost of water for compaction of the Base Course will be incidental to the various other contract items. A minimum of 4% moisture will be required at the time of compaction unless otherwise directed by the Engineer.

EROSION CONTROL

All areas of soil disturbed by construction will require erosion control. For informational purposes only, the estimated area requiring erosion control is **0.2 acres**. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding and mulching will be incidental to the contract lump sum price for "Erosion Control".

Type E Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Canada Wildrye	Mandan	2
Wildflowers		
Dotted Gayfeather (*Liatris punctata*)		0.5
Black-eyed Susan (*Rudbeckia hirta*)		0.5
Blue Flax (*Linum lewisii*)		0.5
Pale Purple Coneflower (*Echinacea angustifolia*)		0.5
	Total:	20

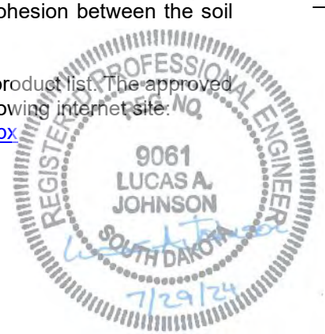
Fiber mulch will be applied to all disturbed areas that are not covered by erosion control blanket. For informational purposes only, the estimated area requiring fiber mulch is 0.1 acre. Fiber mulch will be applied in a separate operation following permanent seeding.

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

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

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

The fiber mulch provided will be from the approved product list. The approved product list for fiber mulch may be viewed at the following internet site: http://apps.sd.gov/HC60ApprovedProducts/main.aspx



EROSION CONTROL BLANKET

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

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

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

TABLE OF TYPE 2 EROSION CONTROL BLANKET

Station	Location	Quantity (SqYd)
1+29 to 1+61 L	Box Inlet	44
1+30 to 1+58 R	Box Outlet	44
	Total Type 2 Erosion Control Blanket:	88

EROSION CONTROL WATTLE

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

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

Erosion control wattles will remain on the project to decompose.

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

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

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

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (inch)	Quantity (Ft)
1+33 L	Box Inlet Stream Bank	12	20
1+44 L	Box Inlet Stream Bank	12	20
1+40 R	Box Outlet Stream Bank	12	30
1+60R	Box Outlet Stream Bank	12	30
	Additional Quantity:	12	200
		Total:	300

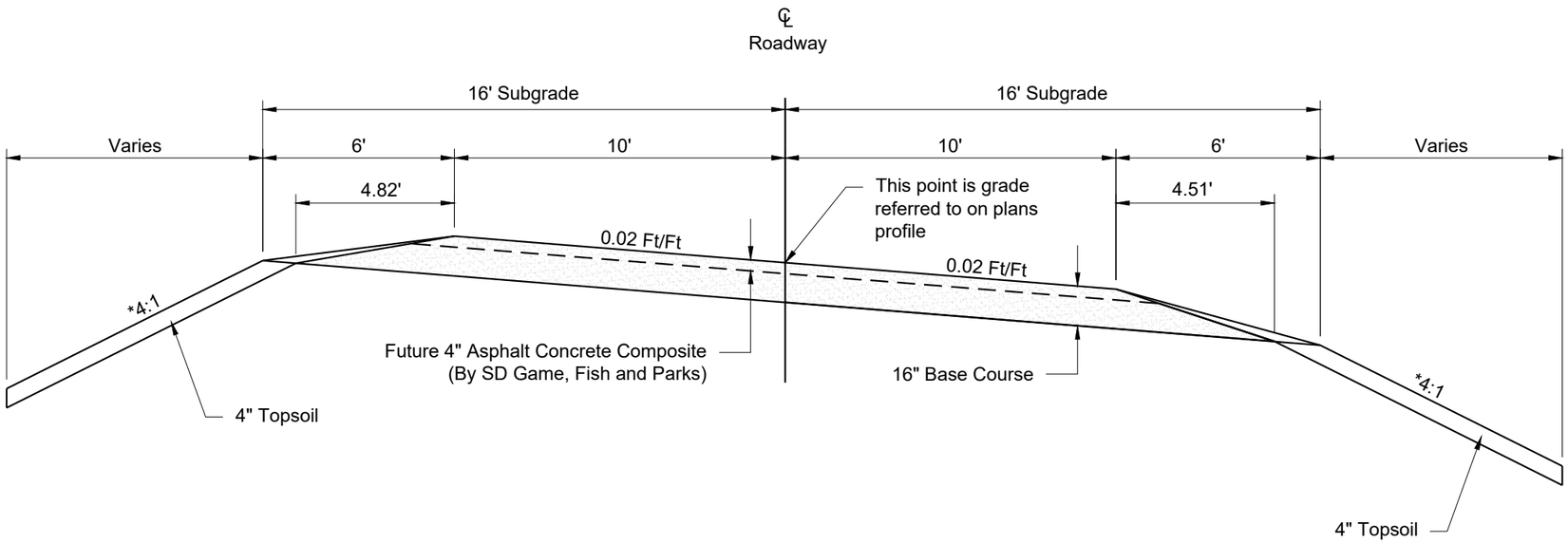
TYPICAL GRADING SECTION

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.63	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 6642(03)	A8	A27

Plotting Date: 10/01/2024 Rev: 09/26/2024 LAJ

0+94 to 1+94



* Inslope Transitions:
4:1 to 2:1 25' From Precast Concrete End Sections

Transition From Existing Section to Typical Section at the Following Location:
0+94 to 1+04

Transition From Typical Section to Existing Section at the Following Location:
1+84 to 1+94

Note:
Base Course will be installed to finished grade (top of asphalt). In the future, the SD Game, Fish and Parks will remove the top 4" of the Base Course to install the 4" Asphalt Concrete Composite.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A.
JOHNSON
SOUTH DAKOTA
9/26/24

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6642(03)	A9	A27

FOR BIDDING PURPOSES ONLY

HORIZONTAL ALIGNMENT DATA

MAINLINE

Type	Station			Northing	Easting
POB	0+00.00			551752.322	1150966.758
		TL= 8.71	N 22°55'51" E		
PC	0+00.00			551752.322	1150966.758
PI	0+08.71	R = 15217.24	Delta = 00°03'56" R	551760.343	1150970.151
PCC	0+17.42			551768.360	1150973.553
		TL= 24.96	N 22°59'47" E		
PCC	0+17.42			551768.360	1150973.553
PI	0+33.67	R = 444.70	Delta = 04°11'09" R	551783.319	1150979.902
PCC	0+49.91			551797.775	1150987.326
		TL= 29.48	N 27°10'56" E		
PCC	0+49.91			551797.775	1150987.326
PI	0+63.14	R = 2132.27	Delta = 00°42'40" R	551809.546	1150993.371
PCC	0+76.37			551821.242	1150999.561
		TL= 28.60	N 27°53'36" E		
PCC	0+76.37			551821.242	1150999.561
PI	0+91.74	R = 9819.83	Delta = 00°10'46" R	551834.827	1151006.753
PCC	1+07.11			551848.391	1151013.987
		TL= 54.55	N 28°04'21" E		
PCC	1+07.11			551848.391	1151013.987
PI	1+46.29	R = 466.04	Delta = 09°36'41" R	551882.961	1151032.424
PCC	1+85.29			551913.969	1151056.375
		TL= 55.46	N 37°41'02" E		
PCC	1+85.29			551913.969	1151056.375
PI	2+01.57	R = 3430.28	Delta = 00°32'38" R	551926.852	1151066.327
PCC	2+17.85			551939.640	1151076.400
		TL= 33.21	N 38°13'40" E		
PCC	2+17.85			551939.640	1151076.400
PI	2+34.78	R = 828.51	Delta = 02°20'29" R	551952.940	1151086.877
PC	2+51.71			551965.802	1151097.889
		TL= 79.18	N 40°34'09" E		
POE	3+13.96			552013.090	1151138.375

CONTROL DATA

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
BM 37-1	0+24.29	17.46' L	5' Rebar w/ Cap	551781.738	1150960.324	4763.51
CP 37-SE	0+80.97	18.23' R	18" Rebar w/ Cap	551816.774	1151017.823	-
BM 37-2	2+70.36	46.78' L	5' Rebar w/ Cap	552010.399	1151074.484	4758.36
CP 37-NW	-	-	18" Rebar w/ Cap	552053.654	1151151.360	-
CP GPS-BASE	-	-	18" Rebar w/ Cap	552209.844	1151634.489	-

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone NAD 83(2011); epoch 2010.00; Geoid 18; SF = 0.9996867534

The elevations shown on this sheet are based on NAVD 88.

LEGEND

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.63	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 6642(03)	A10	A27

Plotting Date: 07/17/2024

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

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

- Drainage Arrow

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

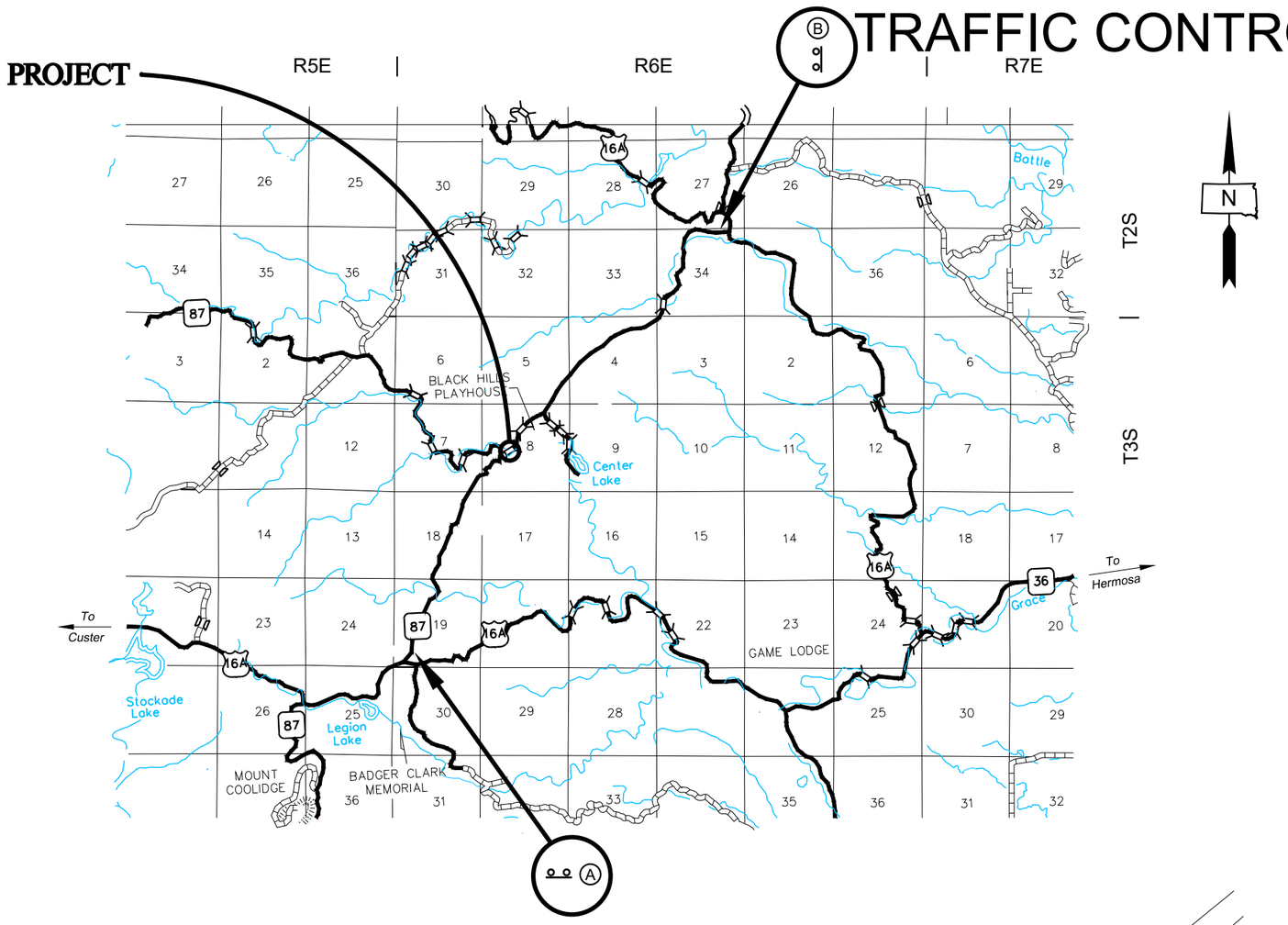
- Detectable Warning Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

TRAFFIC CONTROL

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.63	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 6642(03)	A11	A27

Plotting Date: 07/17/2024



Ⓐ Special 60" x 30"

PLAYHOUSE ROAD CLOSED AHEAD
NO ACCESS TO US HWY 16A

Ⓑ Special 60" x 48"

BRIDGE CLOSED
4 MILES AHEAD
LOCAL TRAFFIC ONLY
NO ACCESS TO SD 87

Ⓒ W20-1 48" x 48"

ROAD WORK AHEAD

Ⓓ W20-3 48" x 48"

ROAD CLOSED 500 FT

Ⓔ W20-3 48" x 48"

ROAD CLOSED 1000 FT

FIXED LOCATION SIGNING

Ⓕ

ROAD CLOSED AHEAD LOCAL TRAFFIC ONLY — R11-3a 60" x 30"

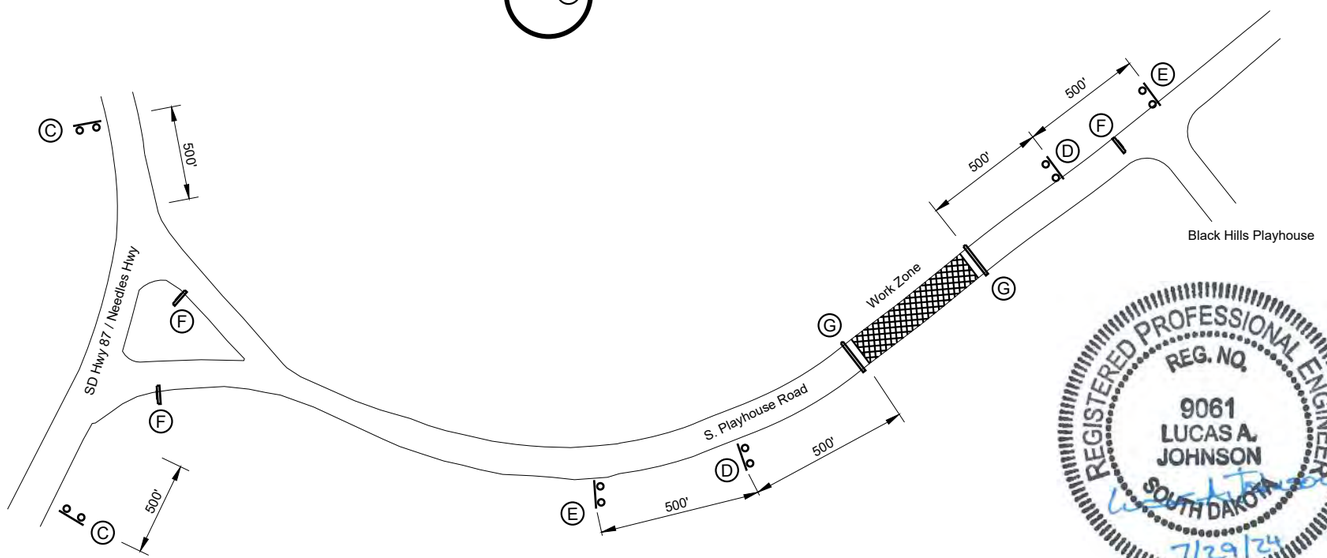
Type 3 Barricade

Ⓖ

ROAD CLOSED — R11-2 48" x 30"

Type 3 Barricade | Type 3 Barricade | Type 3 Barricade

26' - Full Roadway Closure



ITEMIZED LIST FOR TRAFFIC CONTROL

SIGN CODE	DESCRIPTION	NUMBER REQUIRED	SIGN SIZE	SQ. FT. PER SIGN	SQ. FT.
R11-2	ROAD CLOSED	2	48" x 30"	10.0	20.0
R11-3a	ROAD CLOSED AHEAD LOCAL TRAFFIC ONLY	3	60" x 30"	12.5	37.5
W20-1	ROAD WORK AHEAD	2	48" x 48"	16.0	32.0
W20-3	ROAD CLOSED 500 FT OR 1000 FT	4	48" x 48"	16.0	64.0
SPECIAL	PLAYHOUSE ROAD CLOSED AHEAD	1	60" x 30"	12.5	12.5
SPECIAL	BRIDGE CLOSED 4.0 MILES AHEAD	1	60" x 48"	20.0	20.0
		Conventional Road Traffic Control Signs Sq. Ft.			186.0

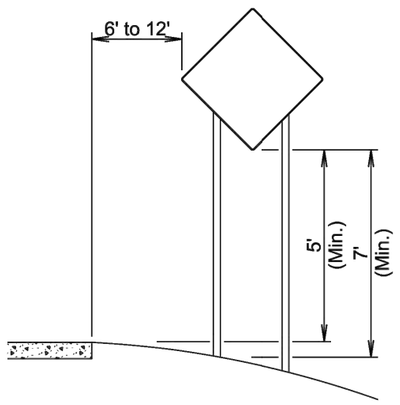
DESCRIPTION	Each
Type 3 Barricade	9

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

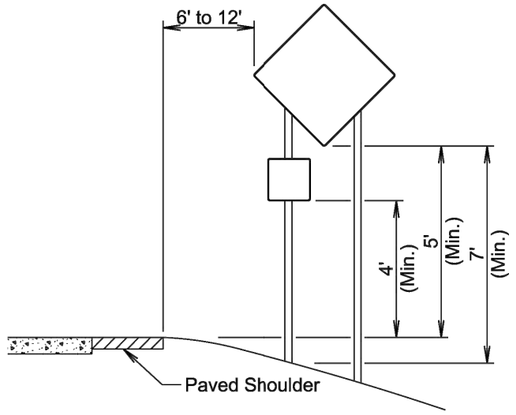
REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A. JOHNSON
SOUTH DAKOTA
7/29/24

FOR BIDDING PURPOSES ONLY

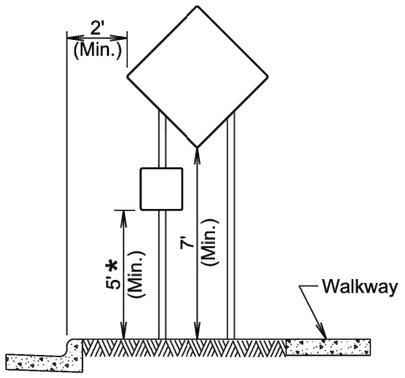
Plotting Date: 07/18/2024



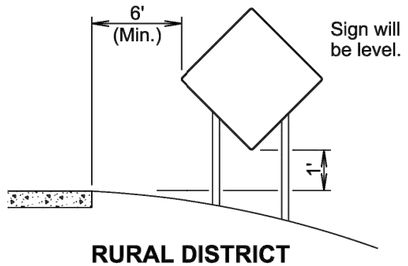
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

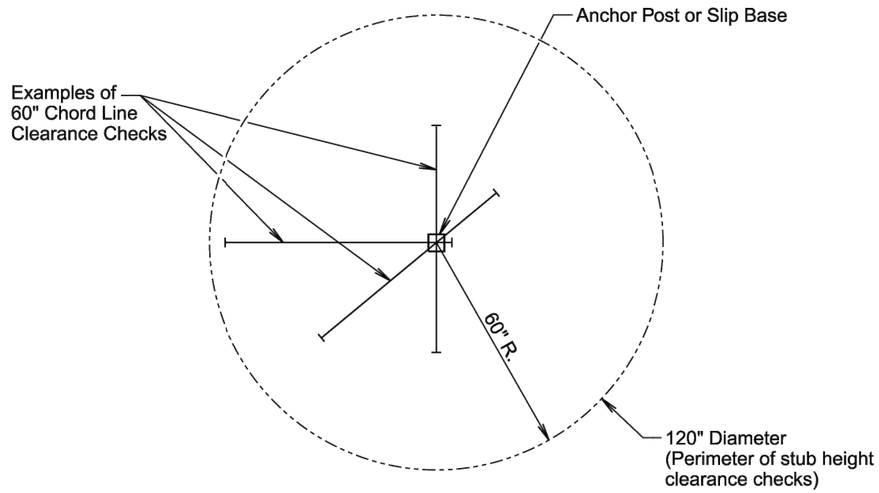


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

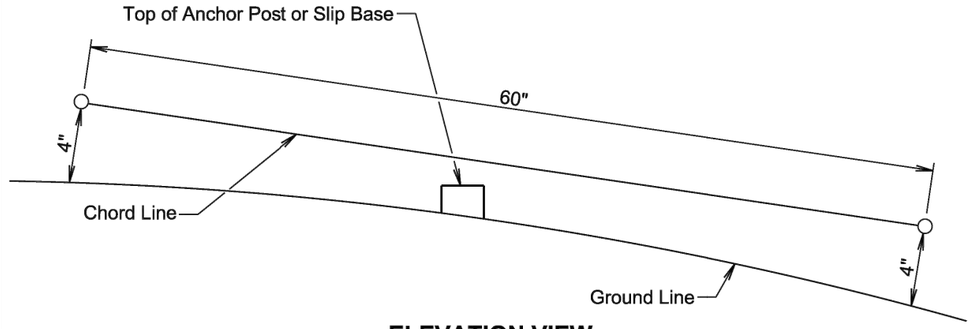
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2025	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

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

January 22, 2021

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6642(03)	A13	A27

FOR BIDDING PURPOSES ONLY

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** 0.2 Acres
- **5.3 (3b): Total Area to be Disturbed** 0.1 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 0.1 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 85
- **5.3 (3d): Description of Vegetative Cover** Grass

- **5.3 (3e): Soil Properties:** A-6
- **5.3 (3f): Name of Receiving Water Body/Bodies** Tributary to Grace Coolidge Creek
- **5.3 (3g): Location of Construction Support Activity Areas** Onsite

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

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

The Contractor will enter the Estimated Start Date.

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

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

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

Perimeter Controls (See Detail Plan Sheets)

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

Structural Erosion and Sediment Controls

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

Dust Controls

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

Dewatering BMPs

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

Stabilization Practices (See Detail Plan Sheets)

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

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

Wetland Avoidance

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

5.3 (6): PROCEDURES FOR INSPECTIONS

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

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

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

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

➢ **Material Management**

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

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

➢ **Spill Control Practices**

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

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

➢ **Spill Response**

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

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

5.3 (8b): WASTE MANAGEMENT PROCEDURES

➢ **Waste Disposal**

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

➢ **Hazardous Waste**

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

➢ **Sanitary Waste**

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

5.3 (9): CONSTRUCTION SITE POLLUTANTS

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

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

Product Specific Practices

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

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

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

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

5.3 (10): NON-STORMWATER DISCHARGES

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

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

5.3 (11): INFEASIBILITY DOCUMENTATION

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

7.0: SPILL NOTIFICATION

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

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

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

5.4: SWPPP CERTIFICATIONS

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

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

➢ **South Dakota Department of Transportation**

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

_____

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

➢ **Prime Contractor**

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

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

_____

Authorized Signature

CONTACT INFORMATION

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

➢ **Contractor Information**:

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

➢ **Erosion Control Supervisor**

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

➢ **SDDOT Project Engineer**

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

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

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

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

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

5.5: REQUIRED SWPPP MODIFICATIONS

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

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

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

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

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

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

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

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

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

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

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

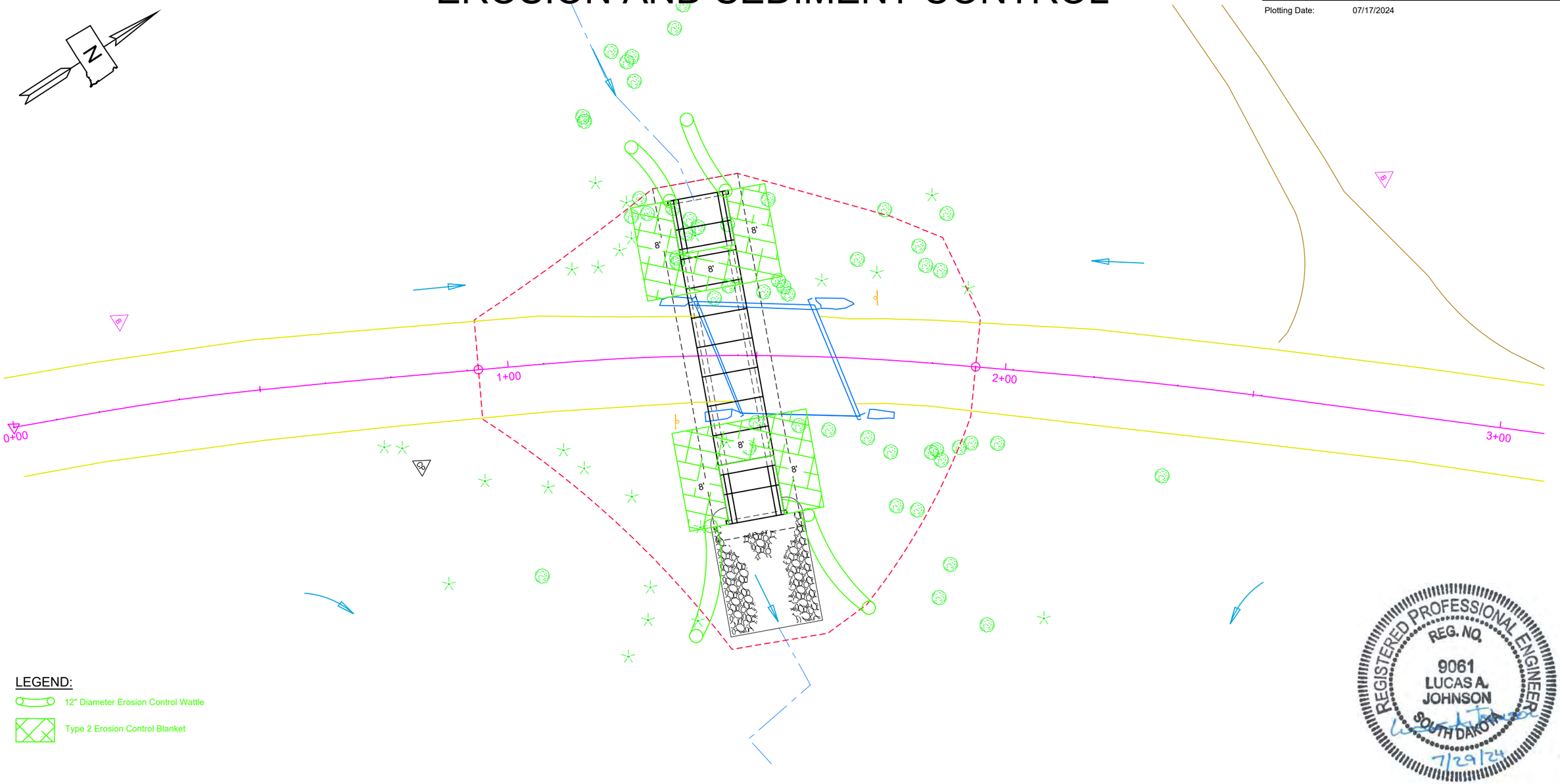
When modifications as described above occur, the SWPPP will be modified to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP using the DOT 298 form and drawings on the plan will be modified to reflect the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

EROSION AND SEDIMENT CONTROL

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.63	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRF-B 6642(03)	A17	A27

Plotting Date: 07/17/2024



LEGEND:

12" Diameter Erosion Control Wattle

Type 2 Erosion Control Blanket

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A. JOHNSON
SOUTH DAKOTA
7/29/24

NOTES:

1. Maintain as much existing vegetation as possible during construction.
2. The final proposed Wattle placement is shown. Wattles will be installed during construction as determined by the Engineer. An additional 200 Ft is included in the quantities. Wattles will be installed per Standard Plate No. 734.06
3. Remove and Reset Wattles as necessary to complete grading work and install Erosion Control Blankets and Riprap. Install additional Wattles as directed by the Engineer.
4. Wattles will remain in place until vegetation has been established in seeded areas and will be left to biodegrade.
5. Install Erosion Control Blanket as shown and as directed by the Engineer. Erosion Control Blanket will be installed as per Standard Plate No. 734.01.

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (inch)	Quantity (Ft)
1+33 L	Box Inlet Stream Bank	12	20
1+44 L	Box Inlet Stream Bank	12	20
1+40 R	Box Outlet Stream Bank	12	30
1+60R	Box Outlet Stream Bank	12	30
	Additional Quantity:	12	200
		Total:	300

TABLE OF EROSION CONTROL BLANKET

Station	Location	Type	Quantity (SqYd)
1+29 to 1+61 L	Box Inlet	2	44
1+30 to 1+58 R	Box Outlet	2	44
	Total Type 2 Erosion Control Blanket:		88

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.63

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6642(03)	A18	A27

Plotting Date: 09/27/2024 Rev: 09/26/2024 LAJ

1+54
Remove 24.4' Long x 22.3' Wide(Clear Roadway)
Single Span Bridge
(Incidental Work, Structure)

1+44 (173 Ft)
Install 10' x 6' - 66
Precast Box Culvert
(See Structure Sheets)

Custer State Park
SD Game, Fish, and Parks
523 East Capitol Ave
Pierre, SD 57501

END PROJECT
STR. NO. 17-314-043
STA. 1+94.00

S. Playhouse Road
Asphalt Road

0+00 1+00 2+00 3+00

BEGIN PROJECT
STR. NO. 17-314-043
STA. 0+94.00

Coolidge Creek
Trib. to Grace

OH

Custer State Park
SD Game, Fish, and Parks
523 East Capitol Ave
Pierre, SD 57501

0+94
Begin Work

Excavation	=	222	Embankment	=	398
+ Borrow	=	296	+ 30%	=	120
		518 CuYd			518 CuYd

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

1+94
End Work

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A. JOHNSON
SOUTH DAKOTA
9/26/24

PVI = 0+94.00
Elev 4760.87
(Finished Grade)

L 100.00
G1 -3.0938%
G2 -2.6901%
K 247.69

PVI 1+44.00
Elev 4759.32

PVI = 1+94.00
Elev 4757.97
(Finished Grade)

-3.0938%
-2.6901%

4760
4750

FLOW			ELEV.
Q_d =	215	cfs	4755.3
Q_{100} =	397	cfs	4757.0
$Q_{O.T.}$ = Q_{65}	335	cfs	4756.5

BM 37-1
0+24.29 - 17.46' L
5' Rebar W/ Cap
Elev. 4763.51

BM 37-2
2+70.36 - 46.78' L
5' Rebar W/ Cap
Elev. 4758.36

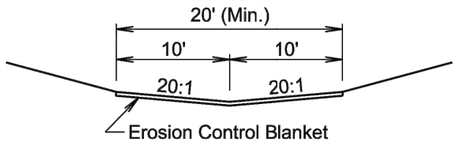
FL 4750.62
FL 4747.98

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

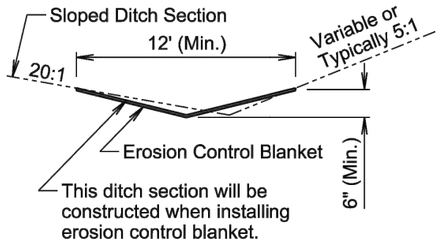
4760.87 4760.68 4759.20 4757.97

Elevations are Centerline Asphalt (Finish Grade)

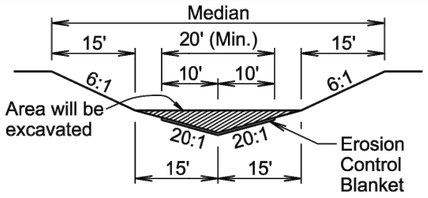
0+00 1+00 2+00 3+00



STANDARD DITCH SECTION

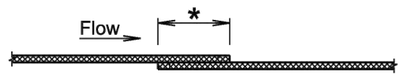


SLOPED DITCH SECTION



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

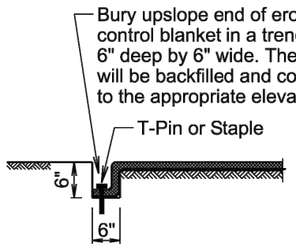
MEDIAN SECTION



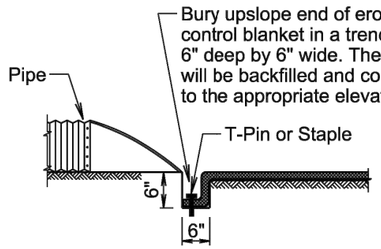
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* 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.

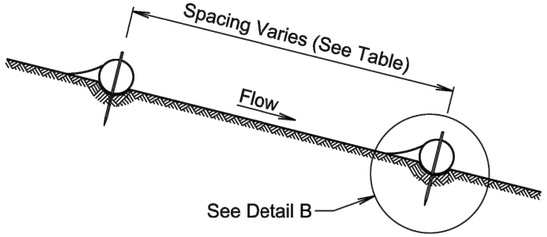
All ditch sections will be shaped when installing the erosion control blanket. All costs for shaping the ditches will be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

February 14, 2020

Published Date: 2025	SDDOT	***EROSION CONTROL BLANKET***	***PLATE NUMBER*** *734.01*
			Sheet 1 of 1

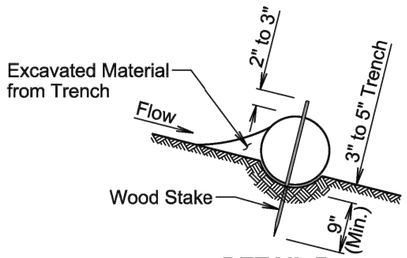
FOR BIDDING PURPOSES ONLY

Plotting Date: 07/18/2024

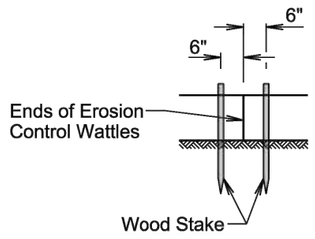


ELEVATION VIEW
(Cut or Fill Slope Installation)

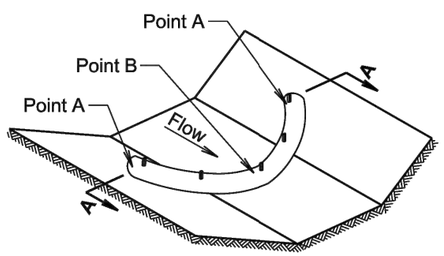
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



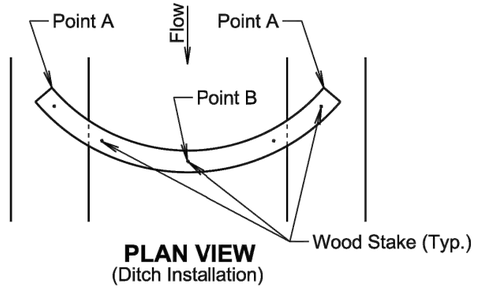
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

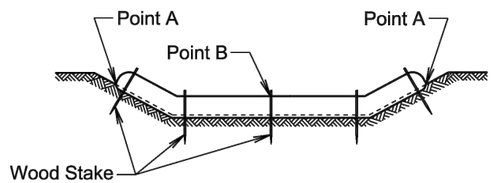


ISOMETRIC VIEW
(Ditch Installation)



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: 2025	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".

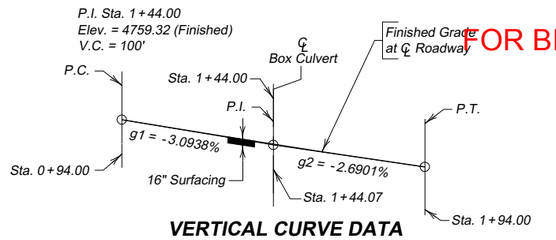
February 14, 2020

Published Date: 2025	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

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

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 6642(03)	A21	A27

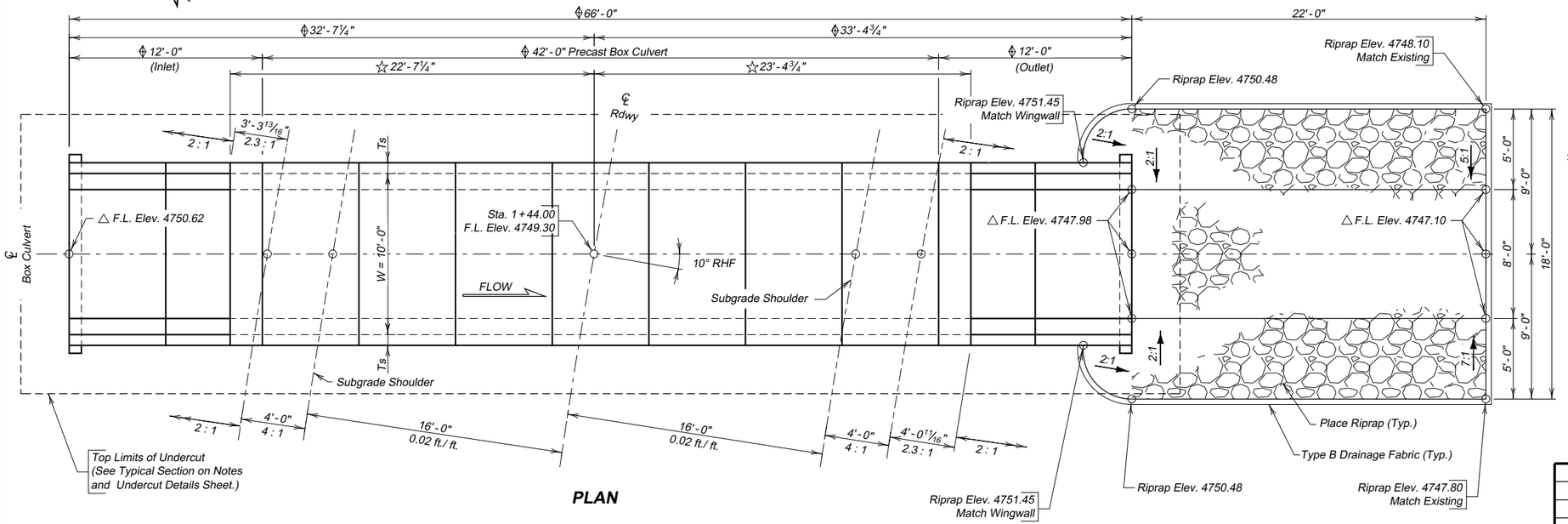
FOR BIDDING PURPOSES ONLY



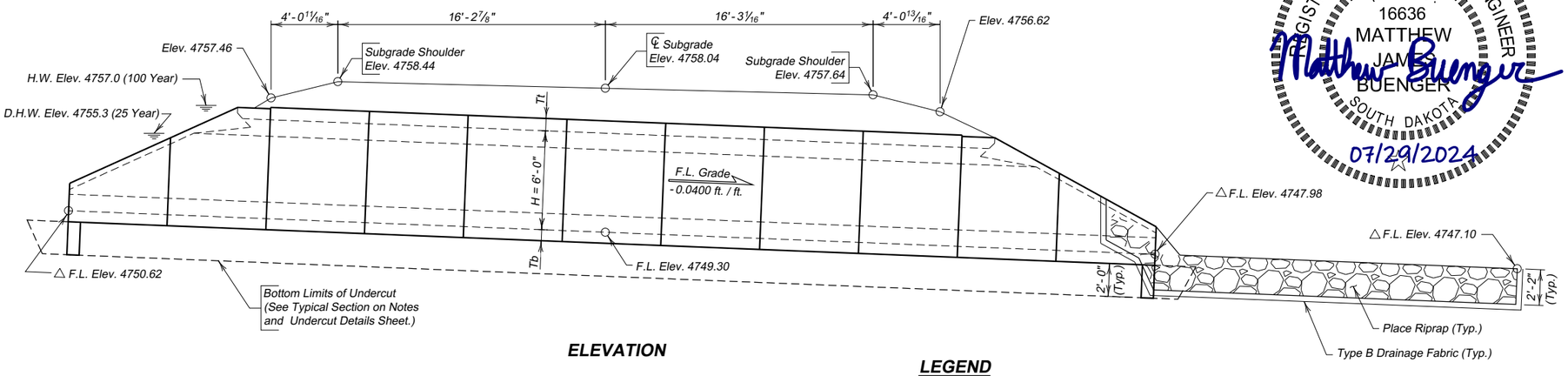
VERTICAL CURVE DATA

INDEX OF CULVERT SHEETS

◈ Dimension may vary with fabricator and/or installation. See Shop Plans for actual installation length.
☆ Minimum distance to satisfy fill slope.
△ Based on dimensions shown.
⧫ Based on 8" walls.



PLAN



ELEVATION

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Incidental Work, Structure	LS	Lump Sum
∉ Structure Excavation, Box Culvert	Cu. Yd.	20
Box Culvert Undercut	Cu. Yd.	95
10' x 6' Precast Concrete Box Culvert, Furnish	Ft.	42.0
10' x 6' Precast Concrete Box Culvert, Install	Ft.	42.0
10' x 6' Precast Concrete Box Culvert End Section, Furnish	Ea.	2
10' x 6' Precast Concrete Box Culvert End Section, Install	Ea.	2
≠ Place Riprap	Ton	49.4
Type B Drainage Fabric	Sq. Yd.	70

∉ Quantity is based on 8" bottom slab, 9" top slab and 8" walls.
≠ For estimating purposes only, a factor of 1.4 tons/cu. yd. was used to convert Cu. Yd. to Tons.

HYDRAULIC DATA

Qd	215 cfs
Ad	16 sq. ft.
Vd	13.4 fps
Qf	215 cfs
Q_{100}	397 cfs
$Q_{O.T.fr.}$	335 cfs
V_{MAX}	15.8 fps

Qd = Design discharge for the proposed culvert or bridge based on 25 year frequency. Elev. = 4755.3.

$Q_{O.T.fr.}$ = Overtopping discharge and frequency 65 year recurrence interval, Elev. = 4756.5. Location: Sta. 2+57 - 25' L.

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

Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency Elev. = 4757.0.

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

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

REGISTERED PROFESSIONAL ENGINEER
REG NO.
16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
07/29/2024

LEGEND

W = Width of Opening
H = Height of Opening
Tt = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall

NOTE:
Box culvert flow line has been depressed 1'-0" below channel flow line to accommodate aquatic organisms. The 1'-0" depression will be allowed to fill in naturally over time.

GENERAL DRAWING AND QUANTITIES

FOR

10' x 6' BOX CULVERT (PRECAST)

OVER TRIB. TO GRACE COOLIDGE CREEK 10° RHF SKEW
STA. 1+44.00 SEC. 8 - T3S - R6E
STR. NO. 17-314-043 BRF-B 6642(03)
PCN 08NT HL-93

CUSTER COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

Plans By: BANNER engineering a better community 23190.63

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

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRF-B 6642(03)	A22	A27

FOR BIDDING PURPOSES ONLY

SPECIFICATIONS

Use South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required Provisions, Supplemental Specifications, and/or Special Provisions as included in the Proposal.

INCIDENTAL WORK, STRUCTURE

In place at station 1+41.8 to 1+66.2 is a 24.4' long x 22.3' wide (clear roadway) single span bridge. The bridge consists of a treated timber deck, steel beams, and mortared native rock abutments and wingwalls.

The Contractor will remove and dispose of the timber railings, timber deck, steel beams, and concrete abutment cap.

The Contractor will salvage and stockpile all of the existing rock from the bridge abutments and wingwalls.

The existing structure will be removed to the bottom of the undercut.

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

All costs for labor, equipment, and materials in performing the foregoing work will be incidental to the contract lump sum price for "Incidental Work, Structure".

GENERAL NOTES

Design will be in accordance with Section 560 of the Construction Specifications with the following criteria:

1. *Box culvert and box culvert end section design will conform to the AASHTO LRFD Bridge Design Specifications, 9th Edition.*
2. *Design Live Load: HL-93. No construction loading in excess of legal load is anticipated. If construction loading in excess of legal load is anticipated by the Contractor, the Contractor will submit a proposal including a design analysis for the anticipated construction loading, through the proper channels, to Banner Associates for approval. Upon approval, the construction load will not be applied until the depth of fill over the box culvert as required by analysis has been placed. At a minimum, 4 feet of fill will be placed over the box culvert prior to applying the construction load. All costs associated with accommodating any construction loads will be borne by the Contractor.*
3. *The box culvert will be load rated in accordance with the AASHTO Manual for Bridge Evaluation, 2018 Edition with latest Interim Revisions using the LRFR method. The rating will include evaluation of the Design HL-93 truck at both Inventory and Operating levels and a Legal Load rating for the three SD legal trucks (Type 3, 3S2, and 3-2) as well as the notional rating load and four specialized hauling vehicles. The structure will also be evaluated for the emergency vehicles, EV2 and EV3, at the legal load rating level. All sections of the box culvert will rate at HL-93 or better (Inventory Level). The three SD Legal Loads, the notional rating load, and the four specialized hauling vehicles will rate greater than 1.0 at legal load rating level. The emergency vehicles, EV2 and EV3, will rate 0.8 or greater at the legal load rating level. AASHTOWare Bridge Rating (BrR) is required to be used to rate the box culvert. Include the BrR rating model and a load rating summary table with load rating calculations. Submit load rating calculations with the design and independent check design calculations or shop plans, as appropriate.*
4. *The design of the barrel sections will be based on a minimum fill height of 2 feet and include all subsequent fill heights up to and including the maximum fill height of 5 feet over the box culvert.*
5. *Minimum inside corner fillet will be 6-inch.*
6. *Minimum precast barrel section length will be 6-foot sections.*
7. *Lift holes will be plugged with an approved non-shrinkable grout.*
8. *The fabricator will imprint on the structure the date of construction as specified and detailed on Standard Plate 460.02.*
9. *Alternate end section details will be allowed, subject to the approval of the Bridge Construction Engineer. No additional payment will be made for any change in the barrel/end section configuration.*
10. *Installation of the precast sections will be in accordance with the final approved shop plans.*
11. *Care will be taken when placing sections. Sections will be only moved using the lifting holes by approved equipment.*
12. *The fabricator will install reinforced concrete parapets as shown on the General Drawing.*
13. *Compaction of earth embankment and box culvert backfill material will be governed by the Specified Density Method.*
14. *Dewatering will be required to construct the box culvert.*

DESIGN MIX OF CONCRETE

1. *Mix will be as per fabricator's design; however, a minimum compressive strength will not be less than 4,500 psi at 28 days.*
2. *The type of cement will be either a Type V or Type II with 20 to 25% Class F Modified Fly Ash substituted for cement in accordance with Section 605 of the Construction Specifications.*

SHOP PLANS

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

SUBSURFACE CONDITIONS

Soils below the bottom of the proposed RCBC consist of predominantly brown-to-gray clay sand (alluvium). Sporadic cobbles and boulders, as noted in the stream channel, will also be encountered at various elevations within the excavation for the proposed RCBC.

Groundwater was encountered in the borings at an elevation of 4749.9 feet during the subsurface investigation conducted in June 2022. Dewatering will be required during the construction of the RCBC.

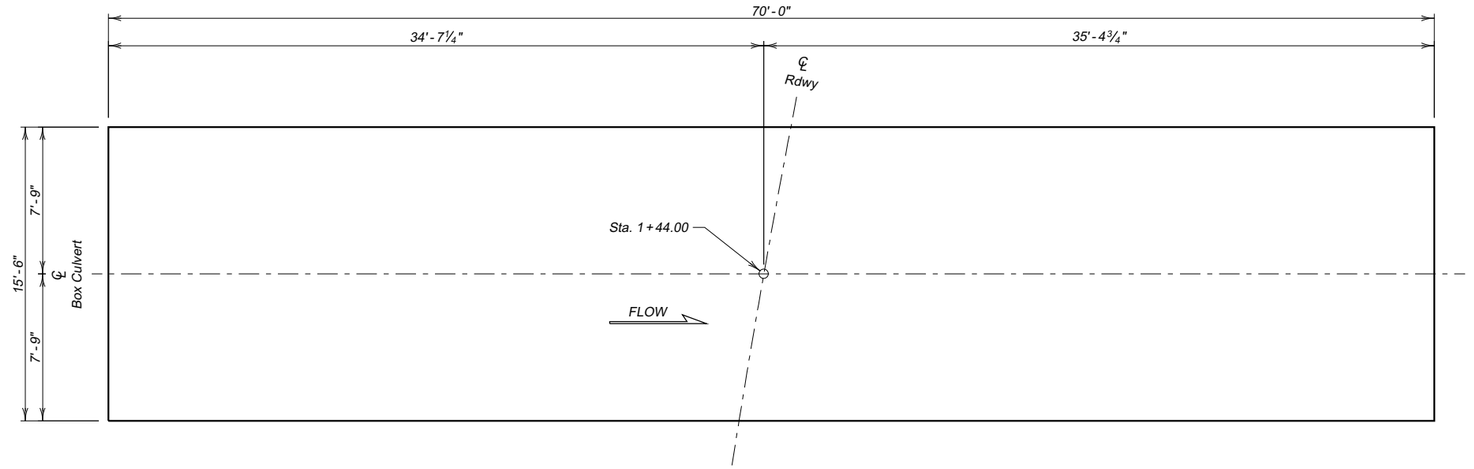
BEDROCK INVESTIGATION

In 2021, (4) test pits were excavated by the SD GF&P near the corners of the existing bridge to a depth of 4' below the stream bed. No bedrock was encountered. If bedrock is encountered within the undercut zone, the Bridge Construction Engineer will be contacted. Every effort will be made to avoid removing any bedrock.

PLACE RIPRAP

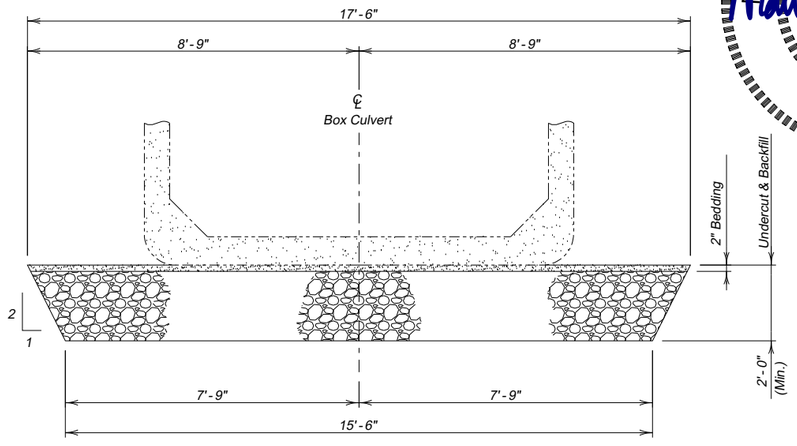
The rock salvaged from the existing bridge abutments, wingwalls, and excavation will be placed in the areas as shown on the General Drawing. Any excess salvaged rock will be moved to the other Custer State Park project site(s) as directed by the Engineer.

All costs to move and place the salvage rock will be incidental to the contract unit price per ton for "Place Riprap".



UNDERCUT LAYOUT

(Bottom Dimensions)



TYPICAL SECTION

(For Limits of Undercut)

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
07/29/2024

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Box Culvert Undercut	Cu. Yd.	95

☑ *For payment, quantity is based on plan shown undercut dimensions and will not be measured unless the Engineer orders a change.*

An additional 10% of box culvert undercut quantity has been included to account for filling voids created by removing cobbles and boulders.

NOTES AND UNDERCUT DETAILS

FOR

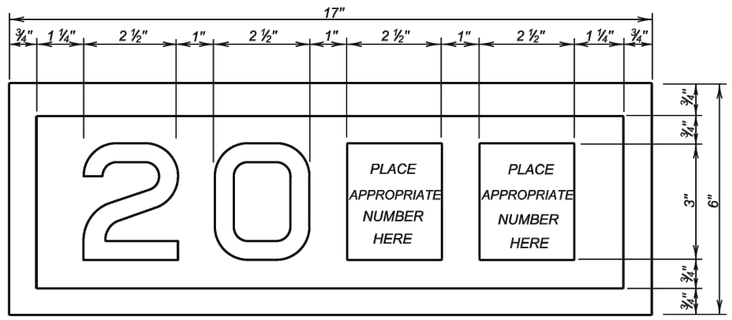
10' x 6' BOX CULVERT (PRECAST)

OVER TRIB. TO GRACE COOLIDGE CREEK 10° RHF SKEW
STA. 1+44.00 SEC. 8 - T3S - R6E
STR. NO. 17-314-043 BRF-B 6642(03)
HL-93

CUSTER COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

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

FOR BIDDING PURPOSES ONLY



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.

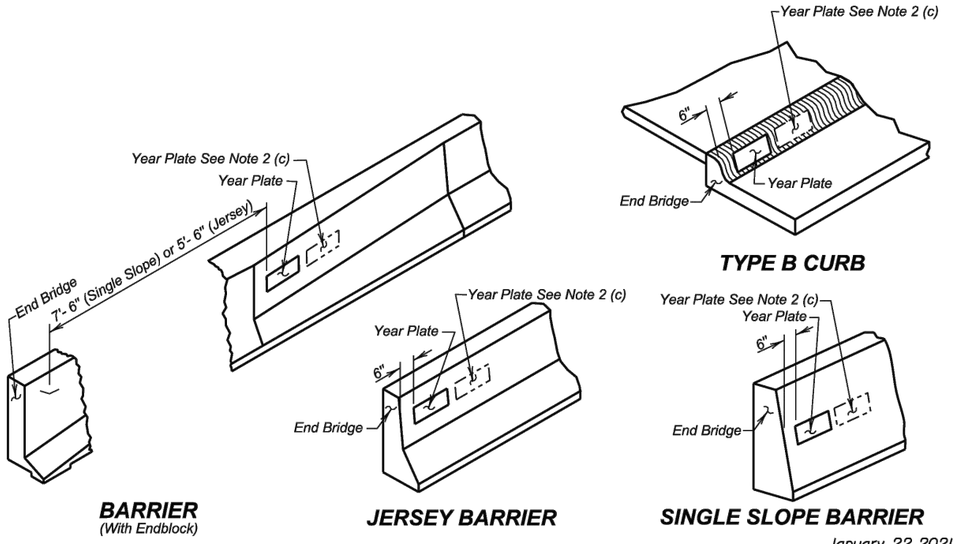
2. Year plates will be located on structure(s) as follows:

   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)

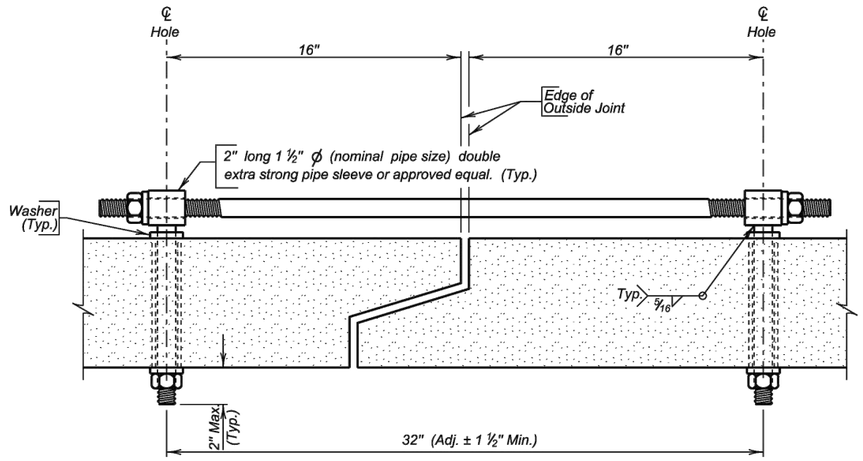
JERSEY BARRIER

SINGLE SLOPE BARRIER

TYPE B CURB

January 22,2021

Published Date: 2025	SDDOT	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1



TIE BOLT ASSEMBLY

GENERAL NOTES:

1. All holes for tie bolts shall be cast-in-place,16 inches from outside edge of joint. Cast in inserts or sleeves, if used, shall be made of a corrosion resistant material.

2. Ties shall be 1 inch ϕ and conform to the requirements of ASTM A36, ASTM A307, or ASTM F1554, Gr. 36. Nuts shall be heavy hex in conformance with ASTM A563. Washers shall conform to ASTM F436, Type 1. The welded pipe sleeve shall conform to ASTM A53, Grade B.

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

4. Tie Bolt Assembly shall be galvanized in accordance with ASTM A153 or ASTM F2329 as applicable.

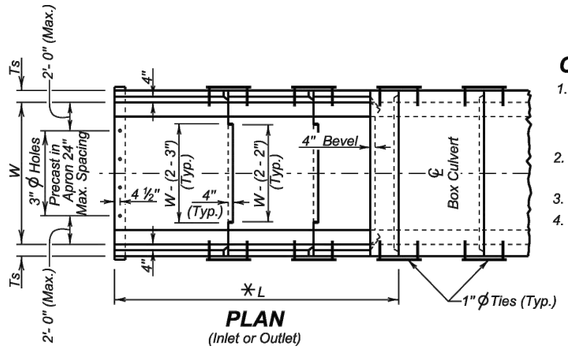
5. Tie Bolt Assembly details may vary from that shown, but alternate tie bolt assemblies are subject to testing to demonstrate equal strength. Submit details, through proper channels, to the Office of Bridge Design for approval.

6. All costs for furnishing and installing the precast box culvert tie bolt assembly shall be incidental to the contract unit price per Foot for "Precast Concrete Box Culvert, Furnish".

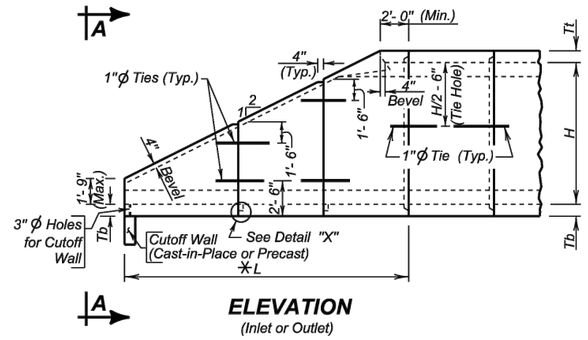
March 21, 2016

Published Date: 2025	SDDOT	PRECAST BOX CULVERT TIE BOLT ASSEMBLY DETAILS	PLATE NUMBER 560.01
			Sheet 1 of 1

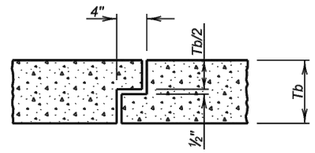
FOR BIDDING PURPOSES ONLY



PLAN
(Inlet or Outlet)

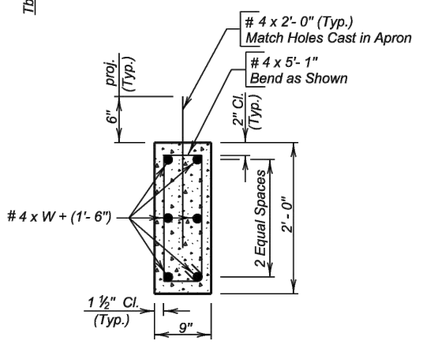


ELEVATION
(Inlet or Outlet)

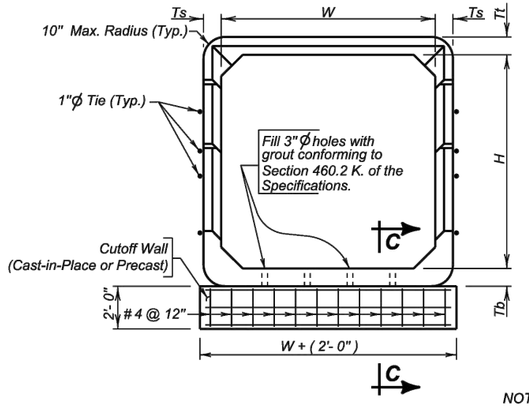


DETAIL " X "

NOTE: Joint details may vary from that shown, according to the manufacturer's design. Submit details with shop plans for approval.



SEC. C - C



VIEW A - A

LEGEND

W = Width of Opening
H = Height of Opening
Tt = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall
L = Length of End Section

NOTES:
See GENERAL DRAWING for W and H dimensions.
Tt, Tb, L, and Ts dimensions shall be furnished by the Contractor.
* Length and number of units may vary from that shown.

June 26, 2015

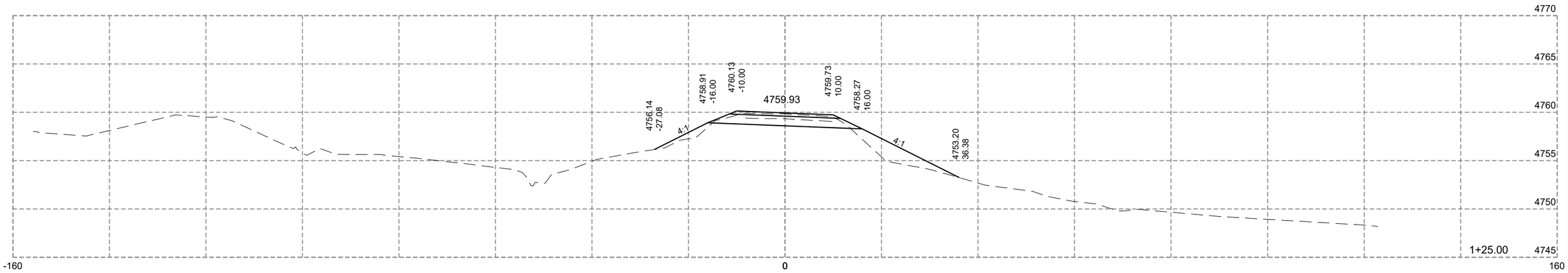
Published Date: 2025	SDDOT	PRECAST SINGLE BOX CULVERT SLOPED END SECTION DETAILS WITH 2'–0" CUTOFF WALL	PLATE NUMBER 560.10 Sheet 1 of 1

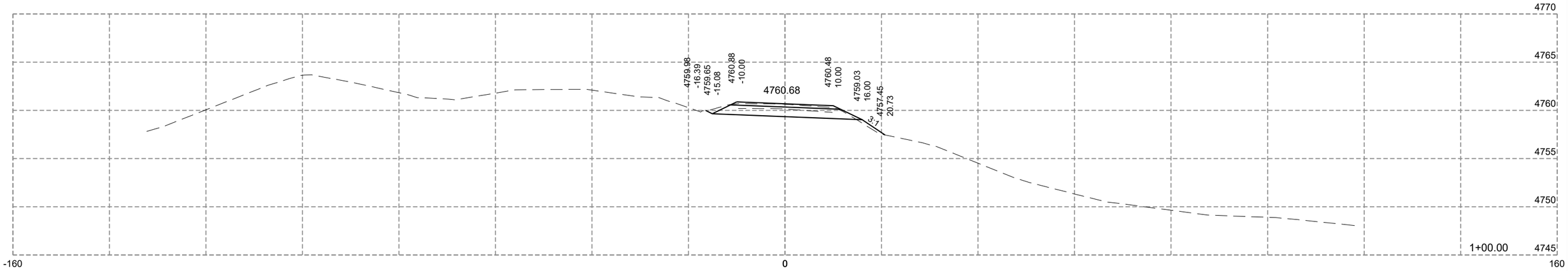
BAI JOB # 23190.63

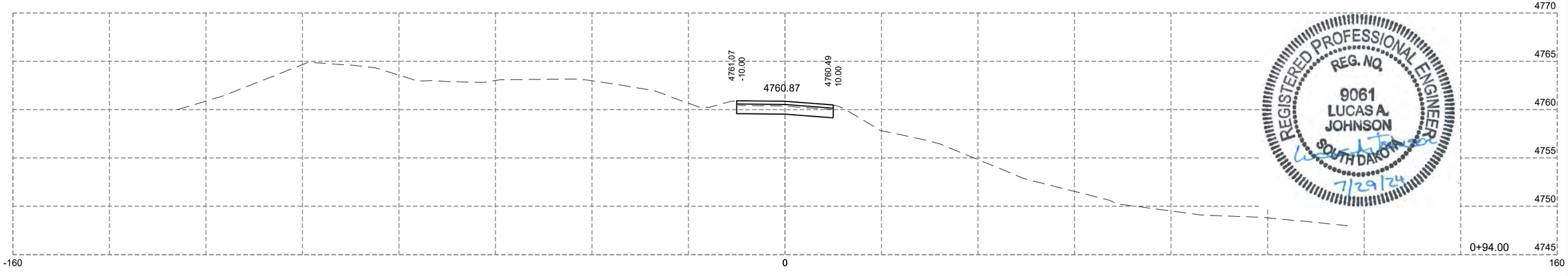
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6642(03)	A25	A27

Plotting Date: 07/17/2024







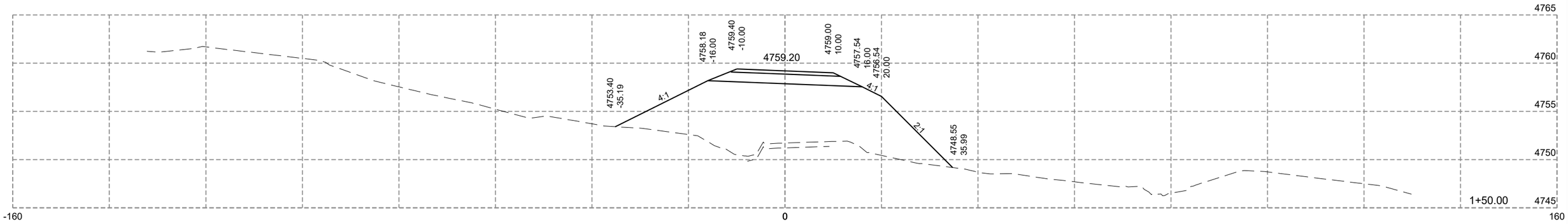
REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A.
JOHNSON
SOUTH DAKOTA
7/29/24

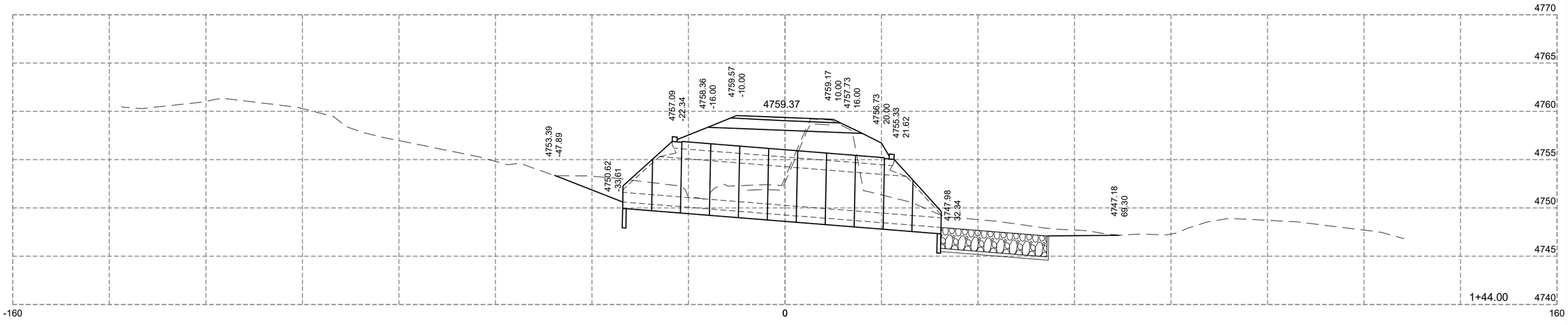
BAI JOB # 23190.63

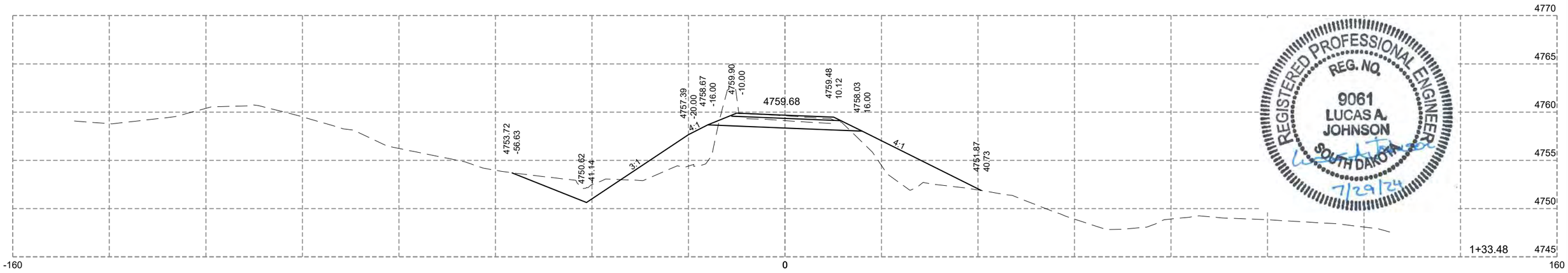
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6642(03)	A26	A27

Plotting Date: 07/17/2024







REGISTERED PROFESSIONAL ENGINEER
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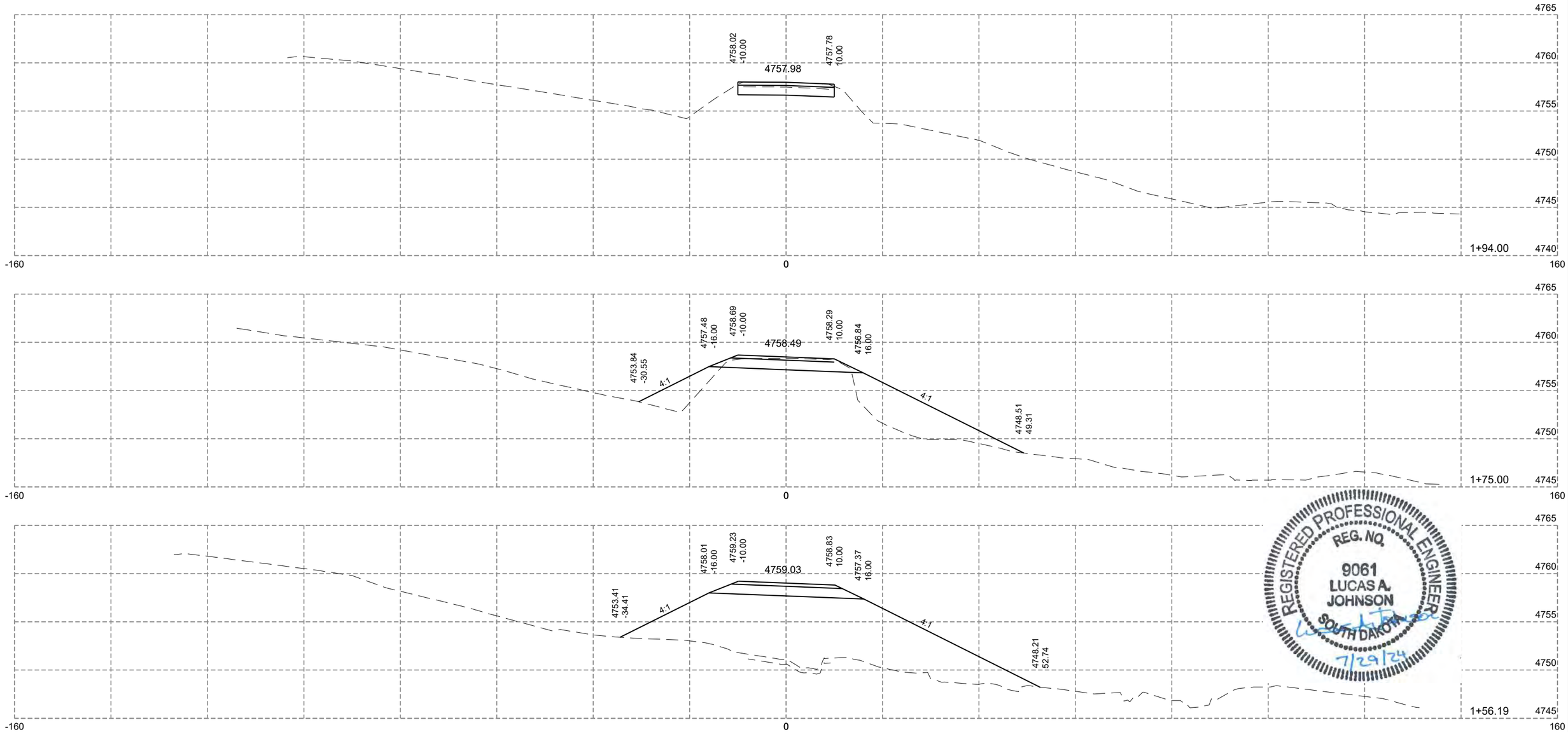
9061
LUCAS A. JOHNSON
SOUTH DAKOTA
7/29/24

BAI JOB # 23190.63

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRF-B 6642(03)	A27	A27

Plotting Date: 07/17/2024



REGISTERED PROFESSIONAL ENGINEER
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LUCAS A.
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SOUTH DAKOTA
7/29/24

BAI JOB # 23190.64

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(10)	B1	B27

Plotting Date: 07/25/2024

FOR BIDDING PURPOSES ONLY

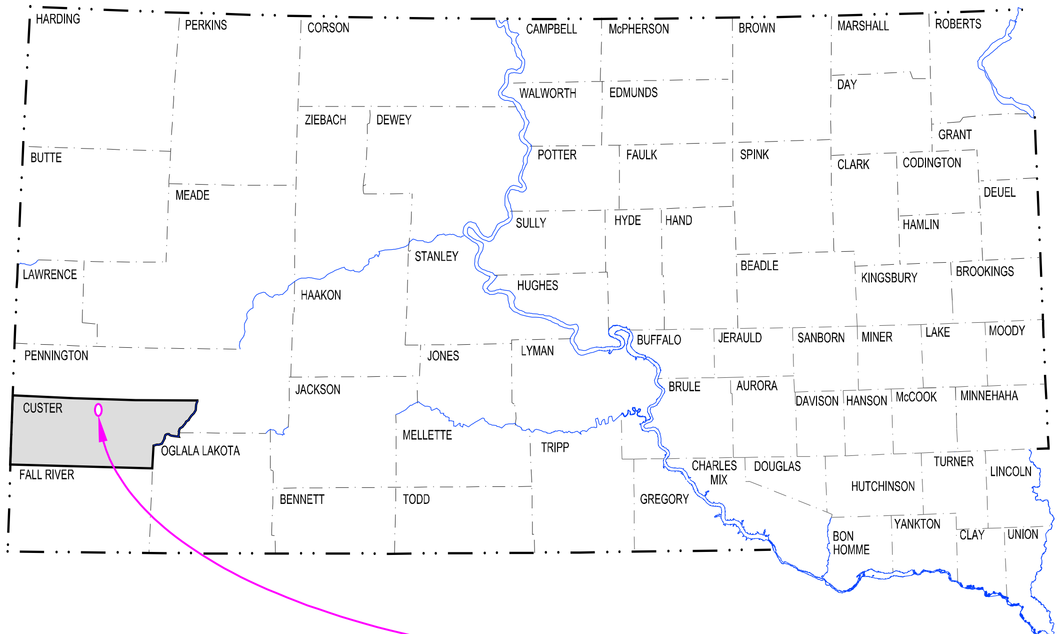
STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED

PROJECT
BRO-B 8017(10)
SOUTH DAKOTA GAME, FISH, AND PARKS
CUSTER STATE PARK

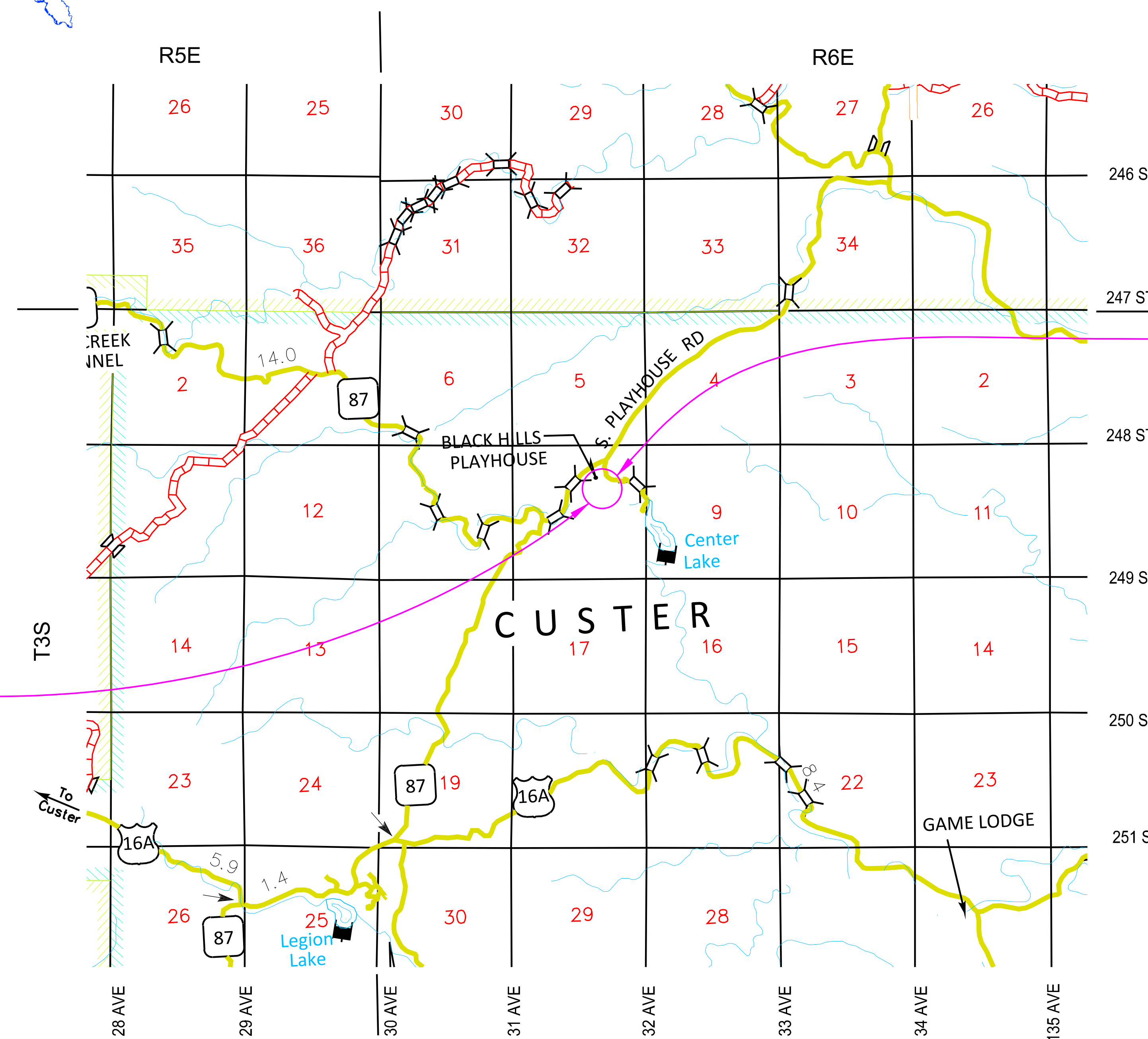
STRUCTURE AND APPROACH GRADING
STRUCTURE NO. 17-316-043
PCN 08NU

INDEX OF SHEETS



STORM WATER PERMIT
Major Receiving Body of Water: Grace Coolidge Creek
Total Project Area: 0.2 Acre
Area Disturbed: 0.1 Acre
Approx. Begin Lat/Long: 43.80622° N
-103.42672° W

DESIGN DESIGNATION
AADT 50
V 10 MPH



END BRO-B 8017(10)
Station 1+80.00
Located in Section 8 - Township 3 South - Range 6 East

BEGIN BRO-B 8017(10)
Station 0+68.00
Located in Section 8 - Township 3 South- Range 6 East

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9061
LUCAS A. JOHNSON
SOUTH DAKOTA
7/29/24

ESTIMATE OF QUANTITIES

Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E0720	Extra Work, Utilities	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0370	Remove Curb Stop	1	Each
110E1690	Remove Sediment	1.0	CuYd
120E0010	Unclassified Excavation	450	CuYd
230E0010	Placing Topsoil	25	CuYd
634E0110	Traffic Control Signs	20.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	6	Each
734E0010	Erosion Control	Lump Sum	LS
734E0102	Type 2 Erosion Control Blanket	32	SqYd
734E0154	12" Diameter Erosion Control Wattle	300	Ft
734E0165	Remove and Reset Erosion Control Wattle	50	Ft

Structure 17-316-043

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0200	Structure Excavation, Box Culvert	16	CuYd
421E0200	Box Culvert Undercut	69	CuYd
470E0044	Timber Pedestrian Railing	53.0	Ft
560E2074	2-8'x6' Precast Concrete Box Culvert, Furnish	12.0	Ft
560E2075	2-8'x6' Precast Concrete Box Culvert, Install	12.0	Ft
560E3074	2-8'x6' Precast Concrete Box Culvert End Section, Furnish	2	Each
560E3075	2-8'x6' Precast Concrete Box Culvert End Section, Install	2	Each
700E0210	Class B Riprap	40.0	Ton
700E2010	Place Riprap	35.8	Ton
831E0110	Type B Drainage Fabric	118	SqYd

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

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

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

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

COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.025 acres of stream (includes temporary and permanent) becoming impacted. Refer to Grading Plans/plans for location and boundaries of the impacted streams.

Table of Impacted Streams

Stream Name	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
Grace Coolidge Creek	1+18	0.006	0.007	0.007	0.005	0.025

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 Grading 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.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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

COMMITMENT B5: NORTHERN LONG-EARED BAT

This project is within the range of suitable habitat for the Northern Long-Eared Bat (NLEB) and project work will avoid conflicts with NLEB roosting habitat.

Action Taken/Required:

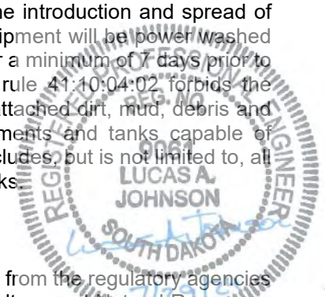
Project activities that include tree removal, structure work, and/or work within one-quarter mile of a known hibernacula or 150 feet of a known maternity roost tree, or suitable habitat should not occur within the location(s) listed below during the NLEB seasonal work restriction timeframe without approval from the SDDOT Environmental Office.

Station	NLEB Seasonal Work Restriction
Trees within work limits	April 1 to October 31

If project activities cannot be conducted outside of the seasonal restriction the Contractor will notify the Project Engineer and the Environmental Office Biologist (605-773-3309) to schedule a presence/absence survey.

COMMITMENT C: WATER SOURCE

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



Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:
< https://sdleastwanted.sd.gov/maps/default.aspx >

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

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

Grace Coolidge Creek is classified as a cold water permanent fishery with a total suspended solids standard of less than 30 mg/L 30-day average, less than 53 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/Ereporting.aspx >

COMMITMENT E: STORM WATER

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

Action Taken/Required:

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

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

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

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

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

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.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9081
LUCAS A. JOHNSON
SOUTH DAKOTA
7/29/24

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

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

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

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

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

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

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

Action Taken/Required:

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

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

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

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

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

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

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

Table of U.S. Waterways to Protect

Station	Waterway	Ordinary High-Water Elevation
1+18	Grace Coolidge Creek	4722.40'

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

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

COMMITMENT 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
Project Area	Custer State Park

Action Taken/Required:

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.

COMMITIMENT M2: SECTION 6(f) PROPERTY

There will be a Temporary Non-Conforming Use of the following properties encumbered by a Land and Water Conservation Fund grant:

Station	Section 6(f) Property
Project Area	Custer State Park

Action Taken/Required:

The following actions are required to ensure there is no 6(f) Conversion of Use requiring replacement lands of equal value and usefulness are achieved:

The contractor will adhere to the Special Provision for Construction Time limited construction activities seasonally between October 1 until May 1 and construction activities to less than 60 days in duration.

The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 6(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 6(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.

COMMITMENT S: FIRE PREVENTION IN THE BLACK HILLS AREA

This project is located within the Black Hills Forest Fire Protection Boundary.

Action Taken/Required:

The Contractor will adhere to the "Special Provision for Fire Plan".

SOUTH DAKOA GAME, FISH AND PARKS (GF&P) REQUIREMENTS

The GF&P will perform the following items:

1. Furnish & install Gravel Surfacing.
2. Furnish & install permanent signing in accordance with the MUTCD.

EXISTING UTILITIES

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

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

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

UTILITY CONTACT INFORMATION

Black Hills Power and Light Company
No utilities present as of 9/27/2021.
25153 Little Teton Rd
Custer, SD 57730
Corey Virtue, 605-517-0193

South Dakota Game, Fish and Parks
Custer State Park
Water lines on upstream and downstream sides of road.
Sanitary Sewer lines on upstream and downstream sides of road.
13329 US Hwy 16A
Custer, SD 57730
Jamie Severyn, 605-280-1811 cell 605-255-4515 office

Mt. Rushmore Telephone Company
Telephone/Fiber upstream side of road.
Telephone/Fiber crossing at Sta. 0+66 and Sta. 1+40.
320 1st St.
Keystone, SD 57751
605-255-4771

EXTRA WORK, UTILITIES

The following Custer State Park utilities are near the box culvert and riprap installation:

- Downstream side: 6” PVC water main (live year-round) and a PVC gravity sewer line. Both lines are believed to be encased in concrete and buried in the same trench at an unknown depth.
- Upstream side: 1½” PVC sanitary sewer force main buried approximately 3 feet deep below the stream bed.

The Contractor will carefully uncover the utility lines before any excavation occurs to determine if there are any conflicts with the box culvert or riprap installation. Coordinate utility locations with Jamie Severyn, 605-280-1811 cell or 605-280-4515. Coordinate with the Project Engineer for box culvert and riprap locations/elevations.

In the event a conflict is found, the Project Engineer will contact Mark Junker, Banner Associates, Inc., 605-690-1957 cell or 605-696-9156 office. Every effort will be made to avoid adjusting the utilities.

In the event a utility line is damaged due to the failure of the Contractor to carefully uncover the utility, the Contractor will repair any damage to the utility at no cost to Custer State Park (South Dakota Game, Fish and Parks).

All costs for uncovering the Custer State Park utilities will be incidental to the contract lump sum price for “Extra Work, Utilities”.

TABLE OF ANTICIPATED UTILITY ADJUSTMENTS

Location	Description
0+68 L to 1+80 L	None anticipated.
0+68 R to 1+80 R	Telephone/Fiber.

GENERAL MAINTENANCE OF TRAFFIC

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

Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. The Contractor will coordinate with GF&P to determine which signs will be reset and to verify reset locations. Cost of this work will be incidental to the contract unit prices for various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

STREAM DIVERSION

Any stream diversion will be considered temporary works in accordance with Section 423.

CLEARING

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

Any tree removal and disposal needed for the temporary stream diversion will be incidental to the contract lump sum price for “Clearing”.

The Table of Clearing is for informational purposes only. All tree removal and disposal needed to construct the project will be incidental to the contract lump sum price for Clearing.

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

TABLE OF CLEARING

Location	Approximate Size & Description
1+26 – 10’ R	36” Deciduous
1+29 – 17’ L	3” Coniferous
1+29 – 22’ L	6” Deciduous
1+50 – 3’ R	24” Deciduous

Stream Diversion – Remove shrubs and trees as needed

GRADING OPERATIONS

Shrinkage factor: Embankment plus 30%.

Compaction of roadway embankment and box culvert backfill material will be governed by the Ordinary Compaction Method.

Water for Embankment and Backfill is estimated at the rate of 10 gallons of water per cubic yard of Embankment. The estimated quantity of Water is **0.6 MGal**. No separate payment will be made for the Water and all costs associated will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”.

TABLE OF EXCAVATION QUANTITIES

Station to Station		Excavation General (CuYd)	* Str Exc Box, Box Undercut, & Riprap Exc (CuYd)	Total Exc (CuYd)	** Waste (CuYd)
0+68	1+80	55	140	195	140

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

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

UNCLASSIFIED EXCAVATION

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

TABLE OF UNCLASSIFIED EXCAVATION

Excavation General		55	
Excavation For RCBC Installation		370	
+ Topsoil	+	25	
Total Unclassified Excavation	**=**	**450**	**CuYd**

The Excavation General quantity includes excavation for the roadway, excavation in the channel to the box culvert flowline, and excavation in the channel to the top of the riprap.

Channel bank shaping will be done at the ends of the box culvert wingwalls and ends of the riprap as directed by the Engineer. The shaping will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”.

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

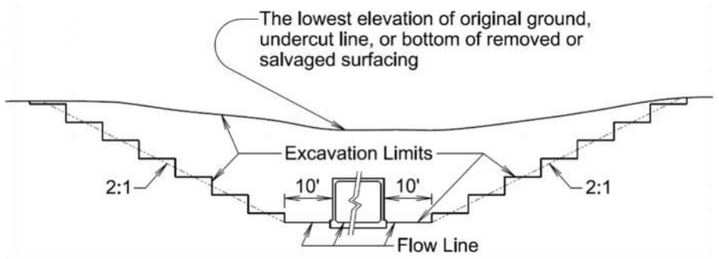
Rocks larger than 1 ft diameter will be salvaged and stockpiled for use as riprap. All costs for salvaging and stockpiling the rocks will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”.

EXCAVATION FOR BOX CULVERT INSTALLATION

Included in the quantity of "Unclassified Excavation" are **370** cubic yards of excavation for installation of the box culvert.

All work necessary to excavate a trench for installation of the box culvert including labor, equipment, and incidentals will be incidental to the contract unit price per cubic yard for "Unclassified Excavation". Payment for excavation of the box culvert will be based only on plans quantity and measurement of these excavation quantities during construction will not be performed.

The excavation quantity for installation of the box culvert is not included in the Table of Excavation Quantities nor with the earthwork balance quantities on the plans profile sheet. The quantity computed for excavation of the box culvert is based on the limits shown in the drawing below.



PLACING TOPSOIL

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

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

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

The amount of topsoil shown in the Estimate of Quantities is based upon a 4-inch depth.

EROSION CONTROL

All areas of soil disturbed by construction will require erosion control. For informational purposes only, the estimated area requiring erosion control is **0.2 acres**. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding and mulching will be incidental to the contract lump sum price for "Erosion Control".

Type E Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Canada Wildrye	Mandan	2
Wildflowers		
Dotted Gayfeather (*Liatris punctata*)		0.5
Black-eyed Susan (*Rudbeckia hirta*)		0.5
Blue Flax (*Linum lewisii*)		0.5
Pale Purple Coneflower (*Echinacea angustifolia*)		0.5
	Total:	20

Fiber mulch will be applied to all disturbed areas that are not covered by erosion control blanket. For informational purposes only, the estimated area requiring fiber mulch is 0.1 acre. Fiber mulch will be applied in a separate operation following permanent seeding.

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

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

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

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

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

EROSION CONTROL BLANKET

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

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

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

TABLE OF TYPE 2 EROSION CONTROL BLANKET

Station	Location	Quantity (SqYd)
1+01 to 1+09 R	NW Inslope	8
1+01 to 1+09 L	NE Inslope	8
1+27 to 1+35 R	SW Inslope	8
1+27 to 1+35 L	SE Inslope	8
	Total Type 2 Erosion Control Blanket:	32

EROSION CONTROL WATTLE

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

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

Erosion control wattles will remain on the project to decompose.

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

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

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

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (inch)	Quantity (Ft)
1+01 L	Ditch Bottom	12	25
1+01 R	Ditch Bottom	12	25
1+35 L	Ditch Bottom	12	25
1+35 R	Ditch Bottom	12	25
	Additional Quantity:	12	200
		Total:	300

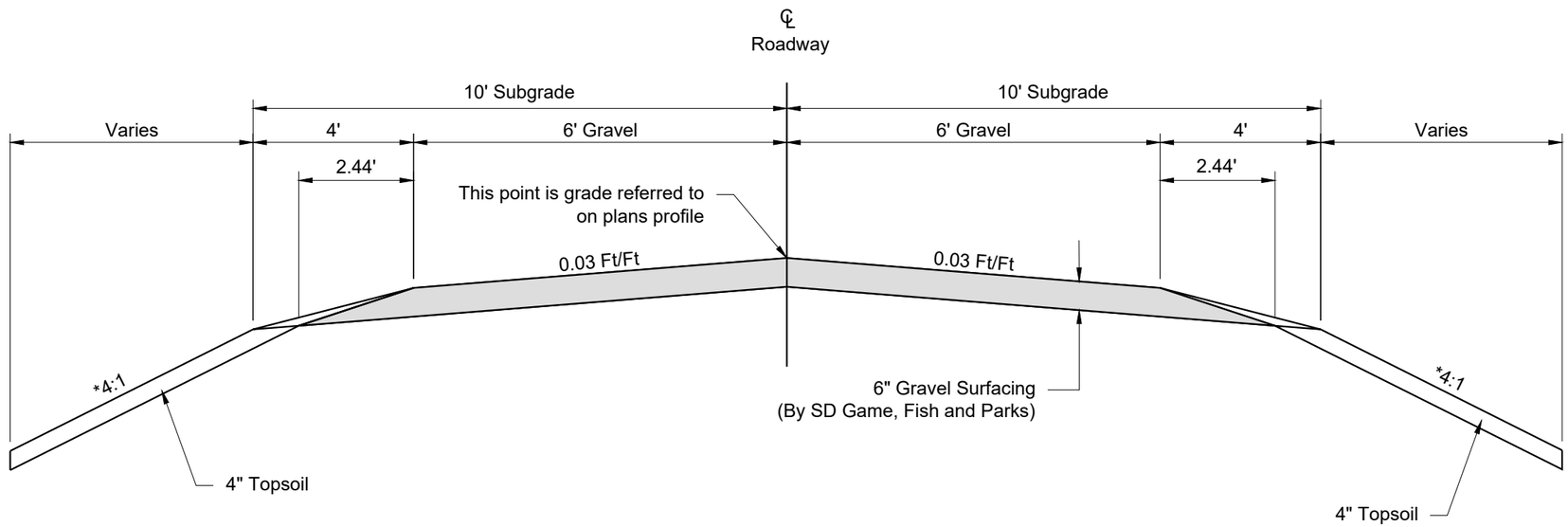
TYPICAL GRADING SECTION

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.64	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRO-B 8017(10)	B7	B27

Plotting Date: 10/01/2024 Rev: 09/26/2024 LAJ

0+68 to 1+80



* Inslope Transitions:
4:1 to 2:1 25' From Precast Concrete End Sections

Transition from Existing to Typical
at the Following Location:
0+68 to 0+78

Transition from Typical to Existing
at the Following Location:
1+70 to 1+80

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A.
JOHNSON
SOUTH DAKOTA
9/26/24

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(10)	B8	B27

FOR BIDDING PURPOSES ONLY

HORIZONTAL ALIGNMENT DATA

MAINLINE

Type	Station			Northing	Easting
POB	0+00.00			552105.319	1152030.043
		TL = 96.81	S 50°00’34” E		
PC	0+85.96			552050.078	1152095.898
PI	0+96.81	R = 40.00	Delta = 30°21’16” R	552043.105	1152104.211
PT	1+07.15			552032.887	1152107.861
		TL = 61.69	S 19°39’19” E		
PC	1+29.16			552012.159	1152115.264
PI	1+58.50	R = 40.00	Delta =72°31’02” R	551984.530	1152125.132
PT	1+79.78			551966.818	1152101.744
		TL = 51.17	S 52°51’43" W		
POE	2+09.67			551948.776	1152077.922

CONTROL DATA

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP GPS-BASE	-	-	18” Rebar w/ Cap	552209.844	1151634.489	-
BM 38-2	-	-	5’ Rebar w/ Cap	552124.442	1152032.353	4730.15
CP 38-NW	0+01.39	30.99’ L	18” Rebar w/ Cap	552128.168	1152051.026	-
CP 38-SE	1+65.18	43.10’ L	18” Rebar w/ Cap	551954.741	1152148.112	-
BM 38-1	1+69.54	95.28’ L	5’ Rebar w/ Cap	551915.058	1152183.909	4727.29

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone NAD 83(2011); Geoid 18; SF = 0.9996884867

The elevations shown on this sheet are based on NAVD 88.

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7/29/24

LEGEND

BAI JOB # 23190.64

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(10)	B9	B27

Plotting Date: 07/17/2024

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

- Drainage Arrow

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

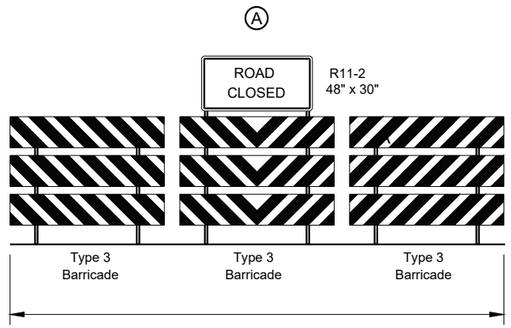
- Detectable Warning Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

TRAFFIC CONTROL

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.64	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRO-B 8017(10)	B10	B27

Plotting Date: 07/17/2024



18' - Full Roadway Closure

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
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LUCAS A.
JOHNSON
SOUTH DAKOTA
7/29/24

ITEMIZED LIST FOR TRAFFIC CONTROL

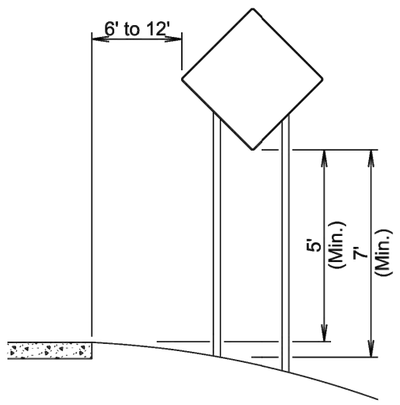
SIGN CODE	DESCRIPTION	NUMBER REQUIRED	SIGN SIZE	SQ. FT. PER SIGN	SQ. FT.
R11-2	ROAD CLOSED	2	48" x 30"	10.0	20.0
		Conventional Road Traffic Control Signs Sq. Ft.			20.0

DESCRIPTION	Each
Type 3 Barricade	6

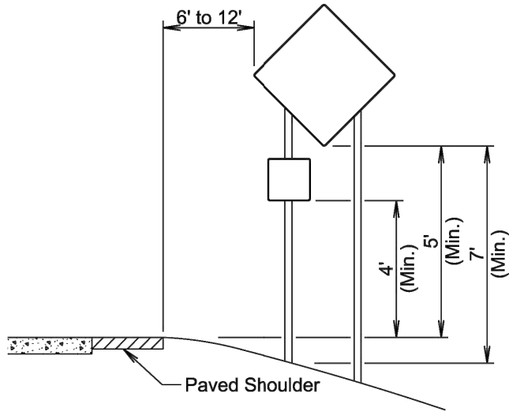
NOTE:
The exact location and spacing of signs shown will be determined in the field by the Engineer.

FOR BIDDING PURPOSES ONLY

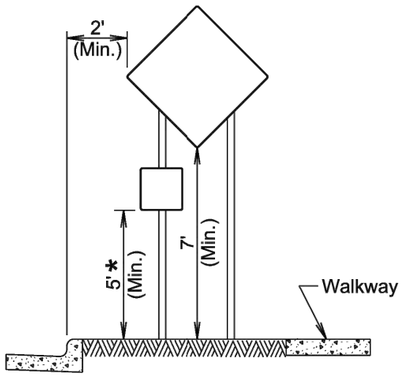
Plotting Date: 07/18/2024



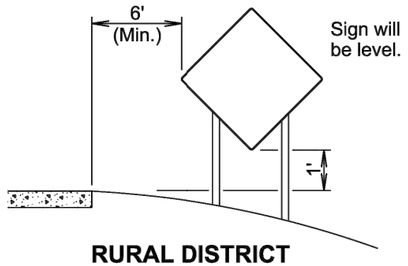
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

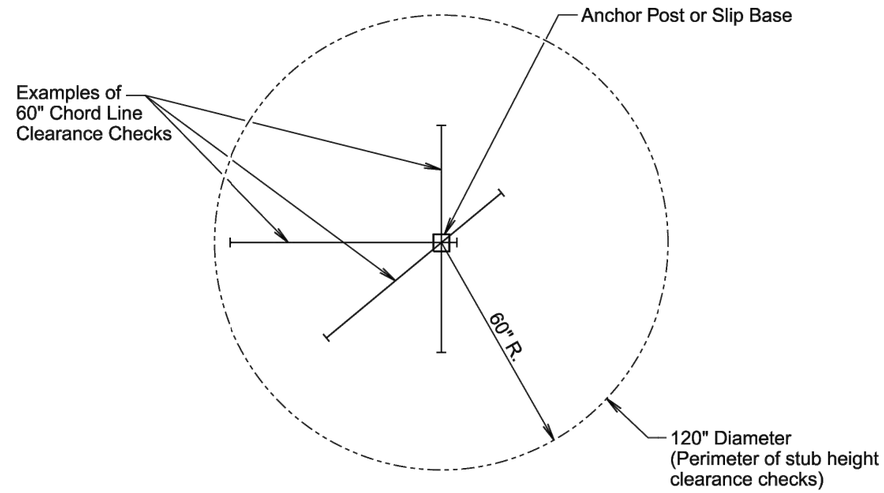


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

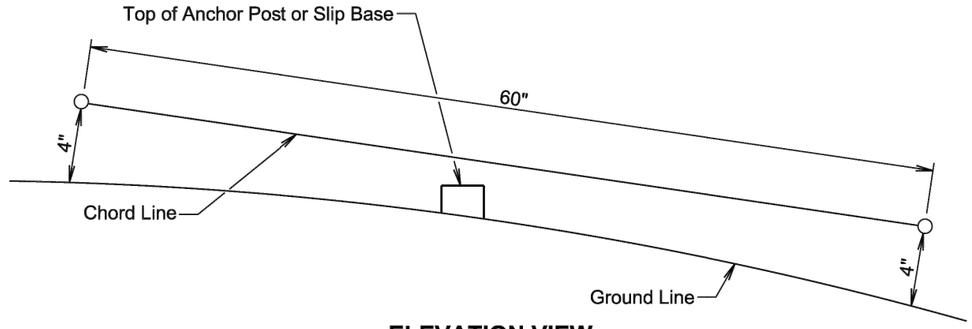
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2025	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

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

January 22, 2021

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(10)	B12	B27

FOR BIDDING PURPOSES ONLY

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** 0.2 Acres
- **5.3 (3b): Total Area to be Disturbed** 0.1 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 0.1 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 85
- **5.3 (3d): Description of Vegetative Cover** Grass
- **5.3 (3e): Soil Properties:** A-6
- **5.3 (3f): Name of Receiving Water Body/Bodies** Grace Coolidge Creek
- **5.3 (3g): Location of Construction Support Activity Areas** Onsite

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

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

The Contractor will enter the Estimated Start Date.

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

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

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

Perimeter Controls (See Detail Plan Sheets)

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

Structural Erosion and Sediment Controls

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

Dust Controls

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

Dewatering BMPs

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

Stabilization Practices (See Detail Plan Sheets)

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

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

Wetland Avoidance

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

5.3 (6): PROCEDURES FOR INSPECTIONS

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

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

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

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

➢ **Material Management**

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

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

➢ **Spill Control Practices**

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

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

➢ **Spill Response**

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

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

5.3 (8b): WASTE MANAGEMENT PROCEDURES

➢ **Waste Disposal**

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

➢ **Hazardous Waste**

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

➢ **Sanitary Waste**

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

5.3 (9): CONSTRUCTION SITE POLLUTANTS

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

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

Product Specific Practices

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

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

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

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

5.3 (10): NON-STORMWATER DISCHARGES

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

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

5.3 (11): INFEASIBILITY DOCUMENTATION

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

7.0: SPILL NOTIFICATION

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

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

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

5.4: SWPPP CERTIFICATIONS

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

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

➢ **South Dakota Department of Transportation**

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

_____

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

➢ **Prime Contractor**

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

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

_____

Authorized Signature

CONTACT INFORMATION

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

➢ **Contractor Information**:

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

➢ **Erosion Control Supervisor**

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

➢ **SDDOT Project Engineer**

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

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

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

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

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

5.5: REQUIRED SWPPP MODIFICATIONS

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

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

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

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

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

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

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

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

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

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

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

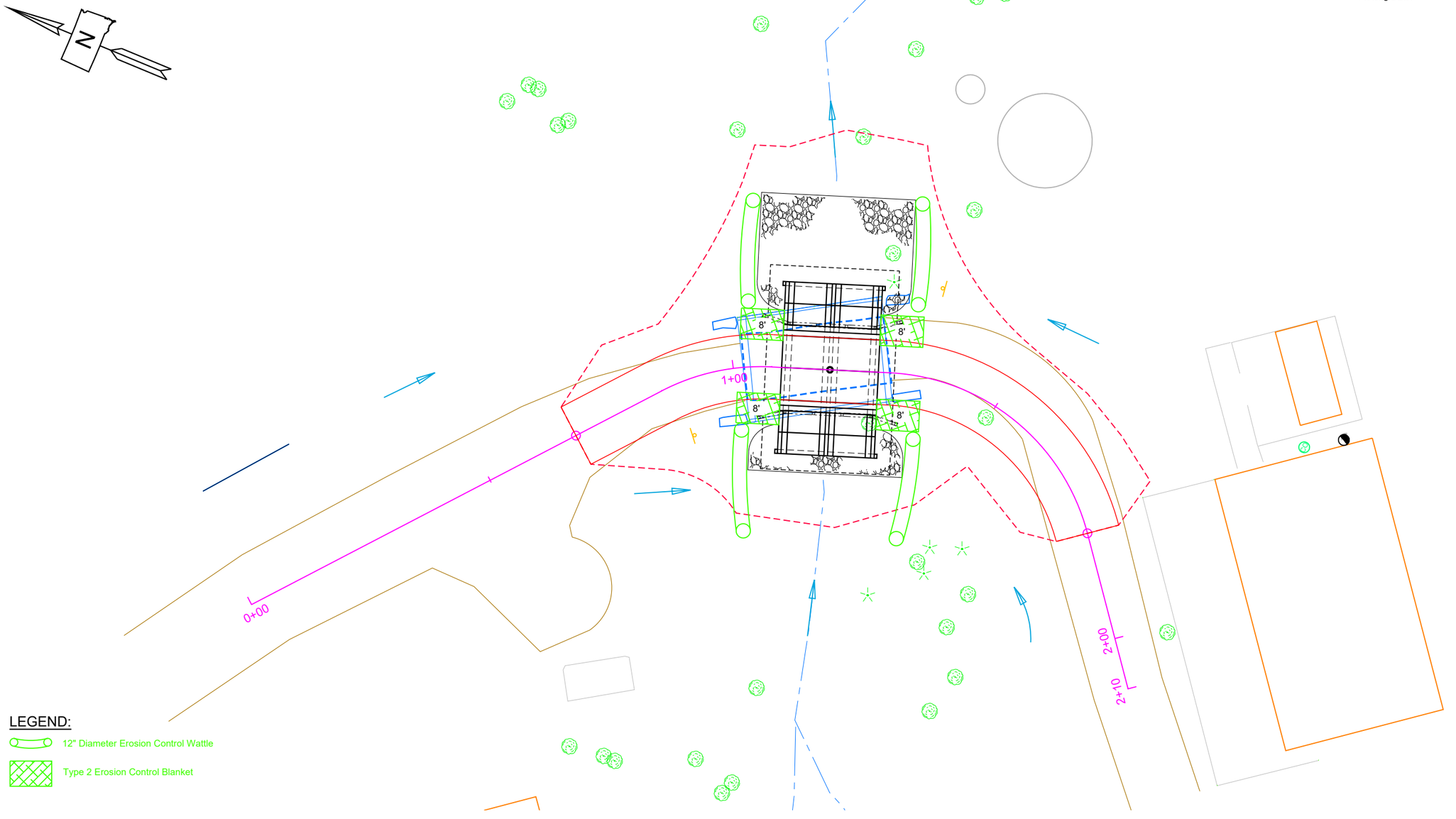
When modifications as described above occur, the SWPPP will be modified to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP using the DOT 298 form and drawings on the plan will be modified to reflect the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

EROSION AND SEDIMENT CONTROL

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.64	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRO-B 8017(10)	B16	B27

Plotting Date: 07/17/2024



LEGEND:

12" Diameter Erosion Control Wattle

Type 2 Erosion Control Blanket

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A.
JOHNSON
SOUTH DAKOTA
7/29/24

NOTES:

1. Maintain as much existing vegetation as possible during construction.
2. The final proposed Wattle placement is shown. Wattles will be installed during construction as determined by the Engineer. An additional 200 Ft is included in the quantities. Wattles will be installed per Standard Plate No. 734.06
3. Remove and Reset Wattles as necessary to complete grading work and install Erosion Control Blankets and Riprap. Install additional Wattles as directed by the Engineer.
4. Wattles will remain in place until vegetation has been established in seeded areas and will be left to biodegrade.
5. Install Erosion Control Blanket as shown and as directed by the Engineer. Erosion Control Blanket will be installed as per Standard Plate No. 734.01.

TABLE OF EROSION CONTROL WATTLE

Station	Location		Diameter (inch)	Quantity (Ft)
1+01 L	Ditch Bottom		12	25
1+01 R	Ditch Bottom		12	25
1+35 L	Ditch Bottom		12	25
1+35 R	Ditch Bottom		12	25
		Additional Quantity:	12	200
			Total:	300

TABLE OF EROSION CONTROL BLANKET

Station	Location	Type	Quantity (SqYd)
1+01 to 1+09 R	NW Inslope	2	8
1+01 to 1+09 L	NE Inslope	2	8
1+27 to 1+35 R	SW Inslope	2	8
1+27 to 1+35 L	SE Inslope	2	8
	Total Type 2 Erosion Control Blanket:		32

BAI JOB # 23190.64

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(10)	B17	B27

Plotting Date: 09/27/2024 Rev: 09/26/2024 LAJ

1+14
Remove 27.1' Long x 16.0' Wide(Clear Roadway)
Single Span Bridge
(Incidental Work, Structure)

1+18 (8.7 SqMi)
Install 2 - 8' x 6' - 32'
Precast Box Culvert
(See Structure Sheets)

Custer State Park
SD Game, Fish, and Parks
523 East Capitol Ave
Pierre, SD 57501

BEGIN PROJECT
STR. NO. 17-316-043
STA. 0+68.00

BM 38-1

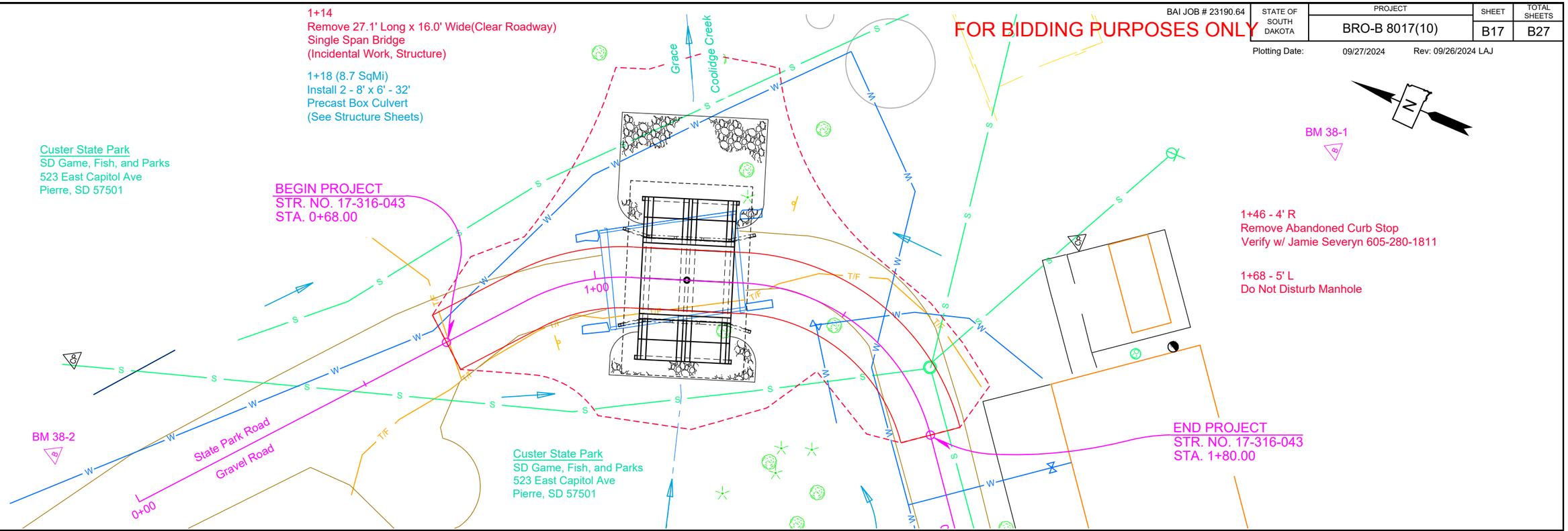
1+46 - 4' R
Remove Abandoned Curb Stop
Verify w/ Jamie Severyn 605-280-1811

1+68 - 5' L
Do Not Disturb Manhole

END PROJECT
STR. NO. 17-316-043
STA. 1+80.00

BM 38-2

Custer State Park
SD Game, Fish, and Parks
523 East Capitol Ave
Pierre, SD 57501



0+68
Begin Work

1+80
End Work

Excavation	=	55	
		55 CuYd	
Embankment	=	42	
+ 30%	=	13	
		55 CuYd	

Waste Site will be approved by the Engineer.

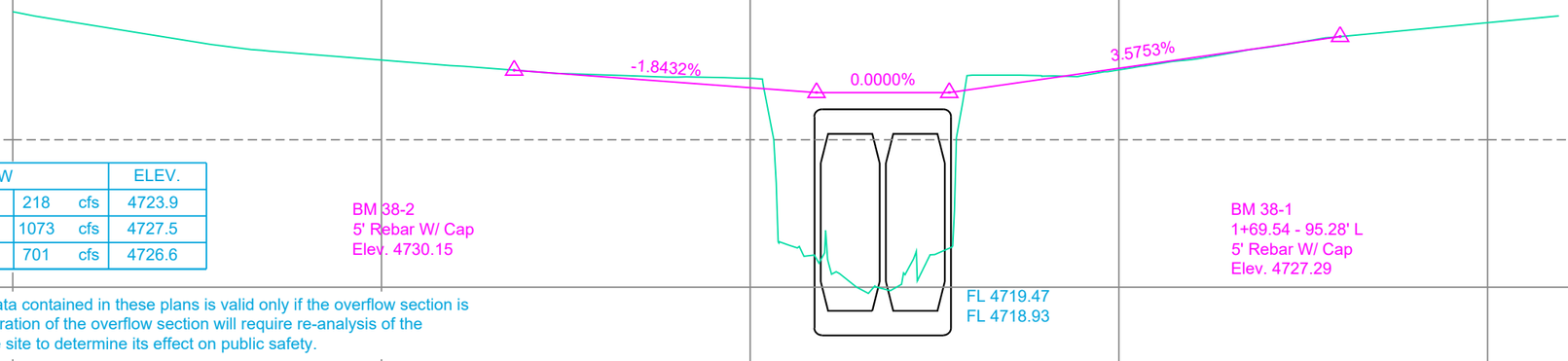
REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A.
JOHNSON
SOUTH DAKOTA
9/26/24

PVI = 0+68.00
Elev 4727.36
(Finished Grade)

PVI = 1+09.00
Elev 4726.60
(Finished Grade)

PVI = 1+27.00
Elev 4726.60
(Finished Grade)

PVI = 1+80.00
Elev 4728.49
(Finished Grade)



FLOW			ELEV.
Q_d =	218	cfs	4723.9
Q_{100} =	1073	cfs	4727.5
$Q_{O.T.}$ = Q_{50}	701	cfs	4726.6

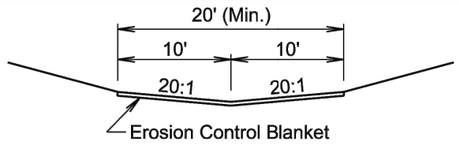
BM 38-2
5' Rebar W/ Cap
Elev. 4730.15

FL 4719.47
FL 4718.93

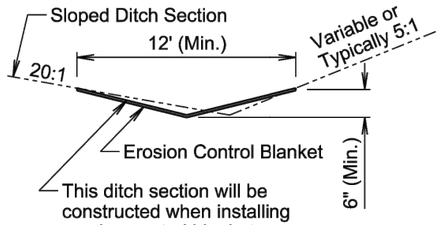
BM 38-1
1+69.54 - 95.28' L
5' Rebar W/ Cap
Elev. 4727.29

Elevations are Centerline Gravel (Finish Grade)

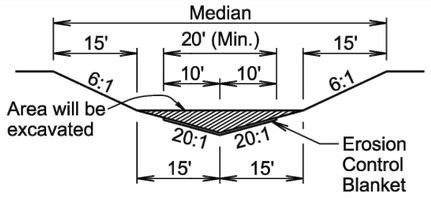
The hydraulic data contained in these plans is valid only if the overflow section is maintained. Alteration of the overflow section will require re-analysis of the hydraulics at the site to determine its effect on public safety.



STANDARD DITCH SECTION

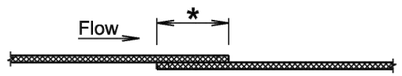


SLOPED DITCH SECTION



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

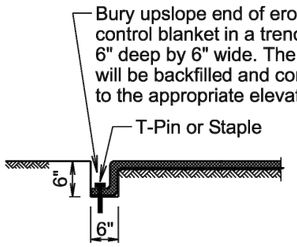
MEDIAN SECTION



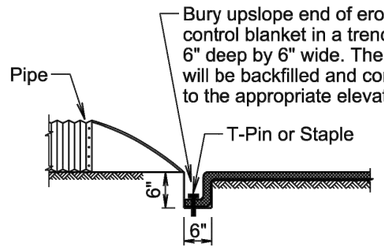
* Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.

* 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.

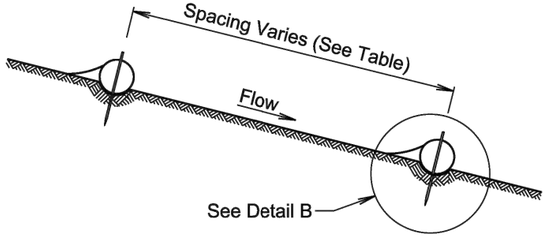
All ditch sections will be shaped when installing the erosion control blanket. All costs for shaping the ditches will be incidental to the contract unit price per foot for "Shaping for Erosion Control Blanket".

February 14, 2020

Published Date: 2025	SDDOT	EROSION CONTROL BLANKET	PLATE NUMBER 734.01 Sheet 1 of 1

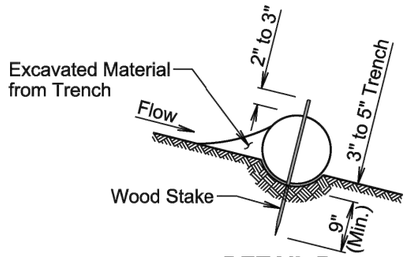
FOR BIDDING PURPOSES ONLY

Plotting Date: 07/18/2024

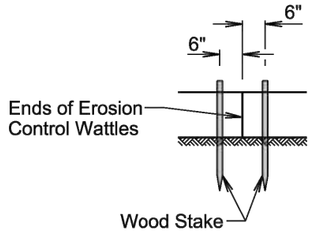


ELEVATION VIEW
(Cut or Fill Slope Installation)

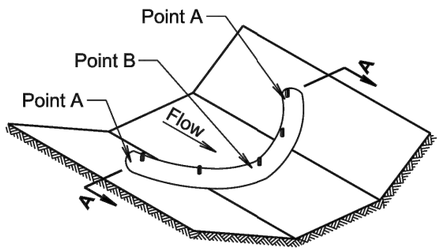
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



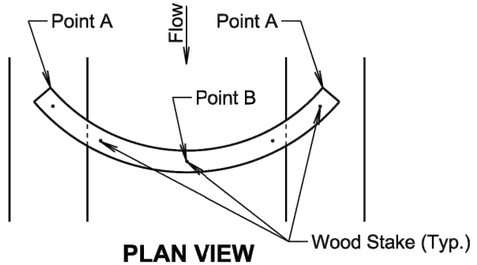
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

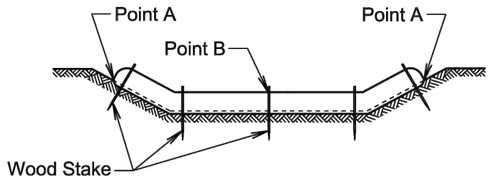


ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)

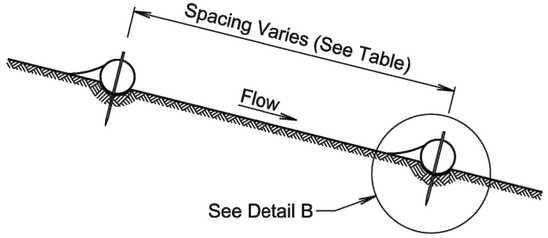
DITCH INSTALLATION	
Grade	Spacing (Ft.)
2%	150
3%	100
4%	75
5%	50



SECTION A-A

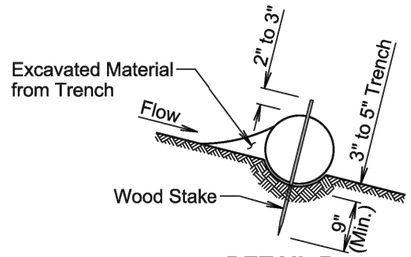
February 14, 2020

Published Date: 2025	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

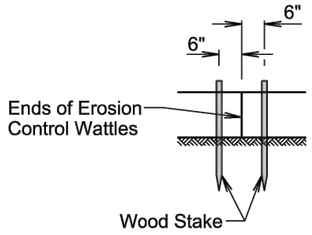


ELEVATION VIEW
(Cut or Fill Slope Installation)

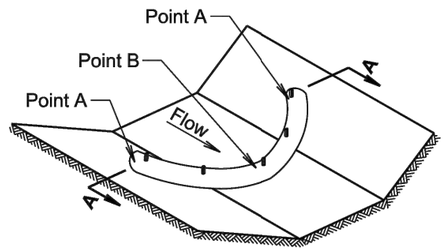
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



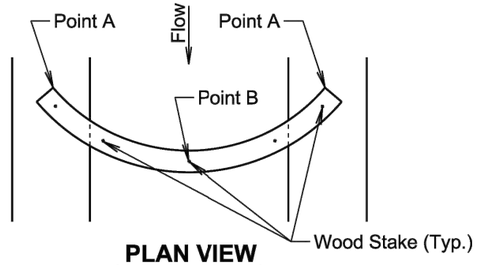
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

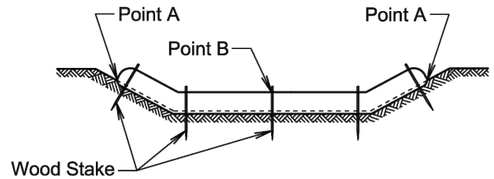


ISOMETRIC VIEW
(Ditch Installation)



PLAN VIEW
(Ditch Installation)

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



SECTION A-A

February 14, 2020

Published Date: 2025	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 1 of 2

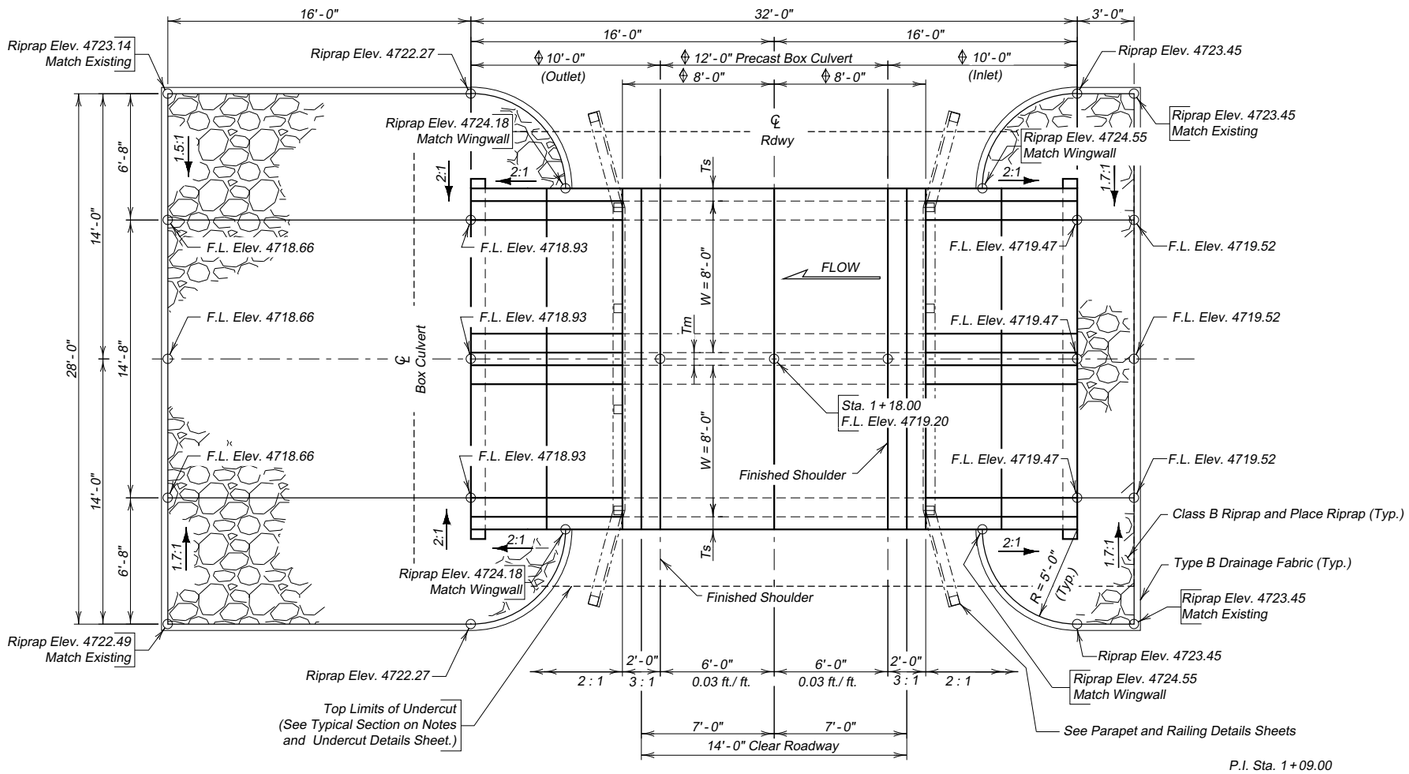
The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum 1988 (NAVD88).

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8017(10)	B20	B27

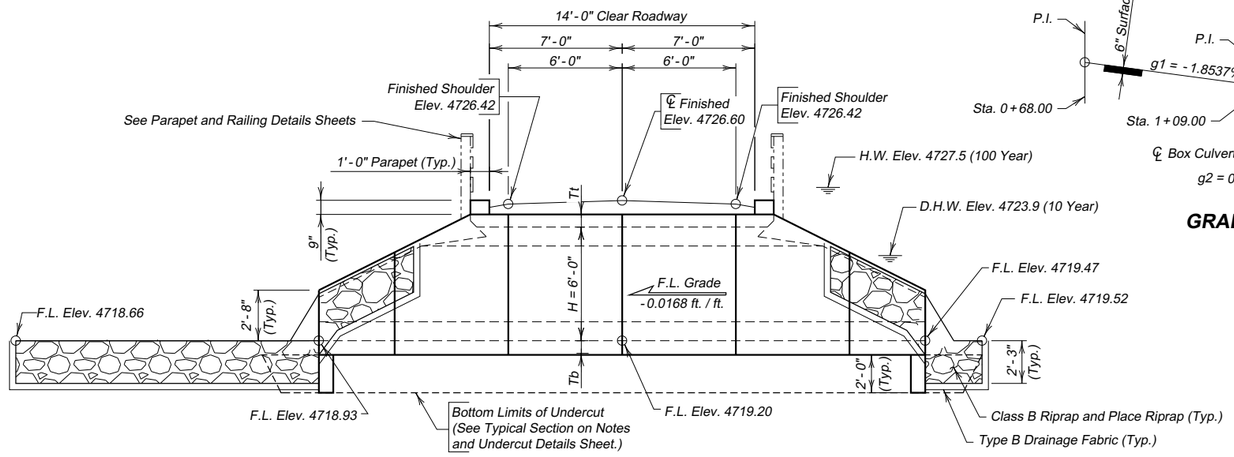
Revised: 09/26/2024 MJB

FOR BIDDING PURPOSES ONLY

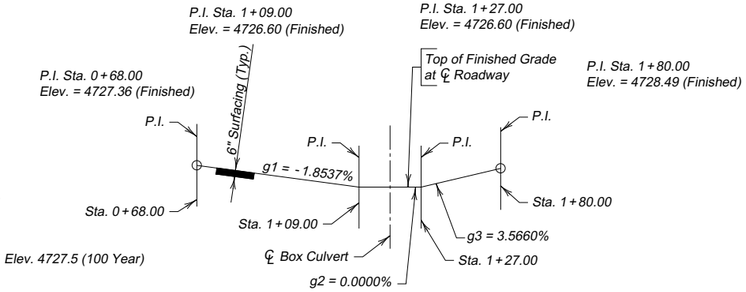
NOTE TO FABRICATOR:
℄ Box culvert and box culvert end sections will be built to exact dimensions shown.



PLAN



ELEVATION



GRADELINE DATA

NOTE:
Box culvert flow line has been depressed 1'-0" below channel flow line to accommodate aquatic organisms. The 1'-0" depression will be allowed to fill in naturally over time.

INDEX OF CULVERT SHEETS

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
	Incidental Work, Structure	LS	Lump Sum
≮	Structure Excavation, Box Culvert	Cu. Yd.	16
	Box Culvert Undercut	Cu. Yd.	69
	Timber Pedestrian Railing	Ft.	53.0
	2 - 8' x 6' Precast Concrete Box Culvert, Furnish	Ft.	12.0
	2 - 8' x 6' Precast Concrete Box Culvert, Install	Ft.	12.0
	2 - 8' x 6' Precast Concrete Box Culvert End Section, Furnish	Ea.	2
	2 - 8' x 6' Precast Concrete Box Culvert End Section, Install	Ea.	2
≠	Class B Riprap	Ton	40.0
≠	Place Riprap	Ton	35.8
	Type B Drainage Fabric	Sq. Yd.	118

≮ Quantity is based on 8" bottom slab, 8" top slab and 8" walls.
≠ For estimating purposes only, a factor of 1.4 tons/cu. yd. was used to convert Cu. Yd. to Tons.

REGISTERED PROFESSIONAL ENGINEER
REG NO 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
Matthew Buenger
09/26/2024

HYDRAULIC DATA

Qd	218 cfs
Ad	47 sq. ft.
Vd	4.6 fps
Qf	218 cfs
Q_{100}	1073 cfs
$Q_{O.T.fr.}$	701 cfs
V_{MAX}	12.7 fps

Qd = Design discharge for the proposed culvert or bridge based on 10 year frequency. Elev. = 4723.9.

$Q_{O.T.fr.}$ = Overtopping discharge and frequency 60 year recurrence interval, Elev. = 4726.6. Location: 1+18 (at the box culvert)

Qf = 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 Elev. = 4727.5.

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

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

LEGEND

W = Width of Opening
H = Height of Opening
Tt = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall
Tm = Thickness of Middle Wall

GENERAL DRAWING AND QUANTITIES

FOR

2 - 8' x 6' BOX CULVERT (PRECAST)

GRACE COOLIDGE CREEK — 0° SKEW
STA. 1+18.00 — SEC. 8 - T3S - R6E
STR. NO. 17-316-043 — BRO-B 8017(10)
PCN 08NU — HL-93

CUSTER COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

Plans By: BANNER engineering a better community 23190.64

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

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8017(10)	B21	B27

FOR BIDDING PURPOSES ONLY

SPECIFICATIONS

Use South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required Provisions, Supplemental Specifications, and/or Special Provisions as included in the Proposal.

INCIDENTAL WORK, STRUCTURE

In place at station 1+00.8 to 1+27.9 is a 27.1' long x 16.0' wide (clear roadway) single span bridge. The bridge consists of a treated timber deck, steel beams, and mortared native rock abutments and wingwalls.

The Contractor will remove and dispose of the timber railings, timber deck, steel beams, and concrete abutment caps.

The Contractor will salvage and stockpile all of the existing rock from the bridge abutments and wingwalls.

The existing structure will be removed to the bottom of the undercut.

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

All costs for labor, equipment, and materials in performing the foregoing work will be incidental to the contract lump sum price for "Incidental Work, Structure".

GENERAL NOTES

Design will be in accordance with Section 560 of the Construction Specifications with the following criteria:

1. *Box culvert and box culvert end section design will conform to the AASHTO LRFD Bridge Design Specifications, 9th Edition.*
2. *Design Live Load: HL-93. No construction loading in excess of legal load is anticipated. If construction loading in excess of legal load is anticipated by the Contractor, the Contractor will submit a proposal including a design analysis for the anticipated construction loading, through the proper channels, to Banner Associates for approval. Upon approval, the construction load will not be applied until the depth of fill over the box culvert as required by analysis has been placed. At a minimum, 4 feet of fill will be placed over the box culvert prior to applying the construction load. All costs associated with accommodating any construction loads will be borne by the Contractor.*
3. *The box culvert will be load rated in accordance with the AASHTO Manual for Bridge Evaluation, 2018 Edition with latest Interim Revisions using the LRFR method. The rating will include evaluation of the Design HL-93 truck at both Inventory and Operating levels and a Legal Load rating for the three SD legal trucks (Type 3, 3S2, and 3-2) as well as the notional rating load and four specialized hauling vehicles. The structure will also be evaluated for the emergency vehicles, EV2 and EV3, at the legal load rating level. All sections of the box culvert will rate at HL-93 or better (Inventory Level). The three SD Legal Loads, the notional rating load, and the four specialized hauling vehicles will rate greater than 1.0 at legal load rating level. The emergency vehicles, EV2 and EV3, will rate 0.8 or greater at the legal load rating level. AASHTOWare Bridge Rating (BrR) is required to be used to rate the box culvert. Include the BrR rating model and a load rating summary table with load rating calculations. Submit load rating calculations with the design and independent check design calculations or shop plans, as appropriate.*
4. *The design of the barrel sections will be based on a minimum fill height of 0 feet and include all subsequent fill heights up to and including the maximum fill height of 5 feet over the box culvert.*
5. *Minimum inside corner fillet will be 6-inch.*
6. *Minimum precast barrel section length will be 6-foot sections.*
7. *Lift holes will be plugged with an approved non-shrinkable grout.*
8. *The fabricator will imprint on the structure the date of construction as specified and detailed on Standard Plate 460.02.*
9. *Alternate end section details will not be allowed.*
10. *The height of the end section walls will be 2'-8" above the flow line instead of the 1'-9" (Max.) dimension shown on the elevation view on Standard Plate 560.20.*
11. *Installation of the precast sections will be in accordance with the final approved shop plans.*
12. *Care will be taken when placing sections. Sections will be only moved using the lifting holes by approved equipment.*
13. *The fabricator will install reinforced concrete parapets as shown on the Parapet and Railing Details Sheets. The parapets will be cast-in-place onto the end section. Precast parapets will not be allowed.*
14. *Compaction of earth embankment and box culvert backfill material will be governed by the Ordinary Compaction Method.*
15. *Dewatering will be required to construct the box culvert.*

DESIGN MIX OF CONCRETE

1. *Mix will be as per fabricator's design; however, a minimum compressive strength will not be less than 4,500 psi at 28 days.*
2. *The type of cement will be either a Type V or Type II with 20 to 25% Class F Modified Fly Ash substituted for cement in accordance with Section 605 of the Construction Specifications.*

SHOP PLANS

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

BEDROCK INVESTIGATION

In 2021, (4) test pits were excavated by the SD GF&P near the corners of the existing bridge to a depth of 4' below the stream bed. No bedrock was encountered. If bedrock is encountered within the undercut zone, the bridge construction engineer will be contacted. Every effort will be made to avoid removing any bedrock.

SUBSURFACE CONDITIONS

Soils below the bottom of the proposed RCBC consist of predominantly brown-to-black gravelly clay sand (alluvium). Sporadic cobbles and boulders, as noted in the stream channel, will also be encountered at various elevations within the excavation for the proposed RCBC.

Groundwater was encountered in the borings at an elevation of 4723.4 feet during the subsurface investigation conducted in June 2022. Dewatering will be required during the construction of the RCBC.

PLACE RIPRAP

The rock salvaged from the existing bridge abutments, wingwalls, and excavation will be placed in the areas as shown on the General Drawing. Any excess salvaged rock will be moved to the other Custer State Park Project site(s) as directed by the Engineer.

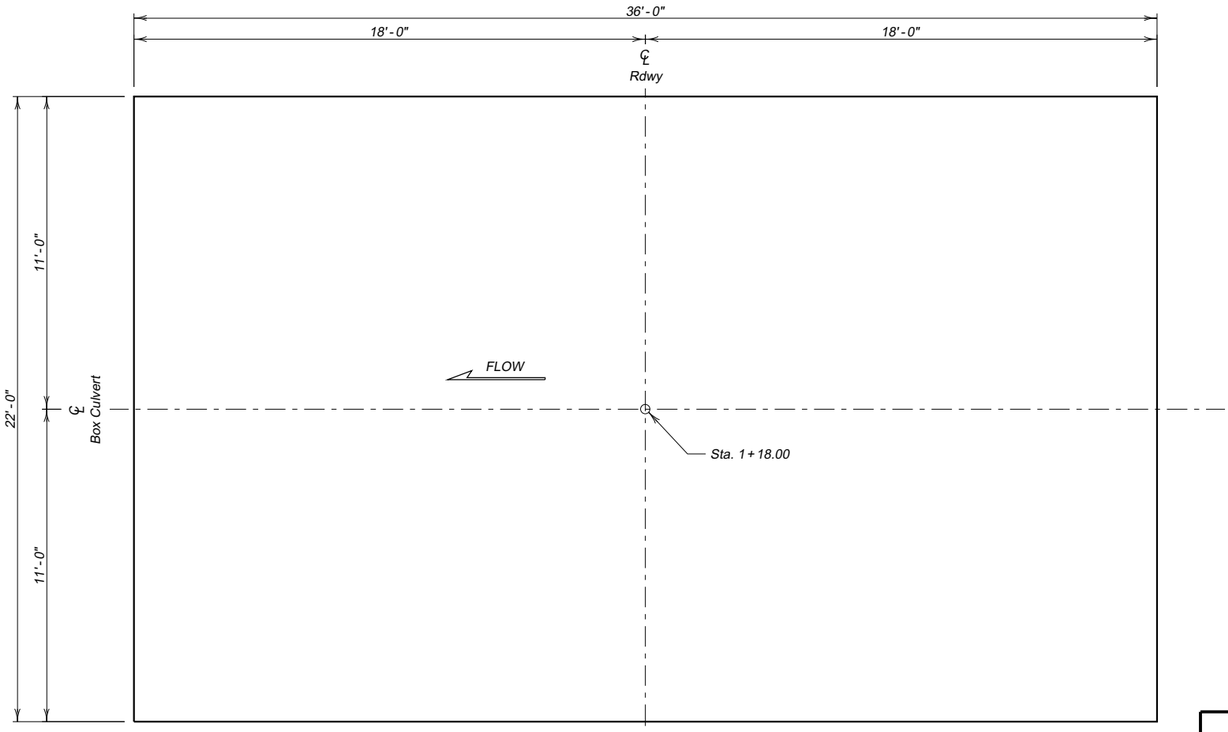
All costs to move and place the salvage rock will be incidental to the contract unit price per ton for "Place Riprap".

CLASS B RIPRAP

If used, Class B Riprap will be installed in areas that will be under water.

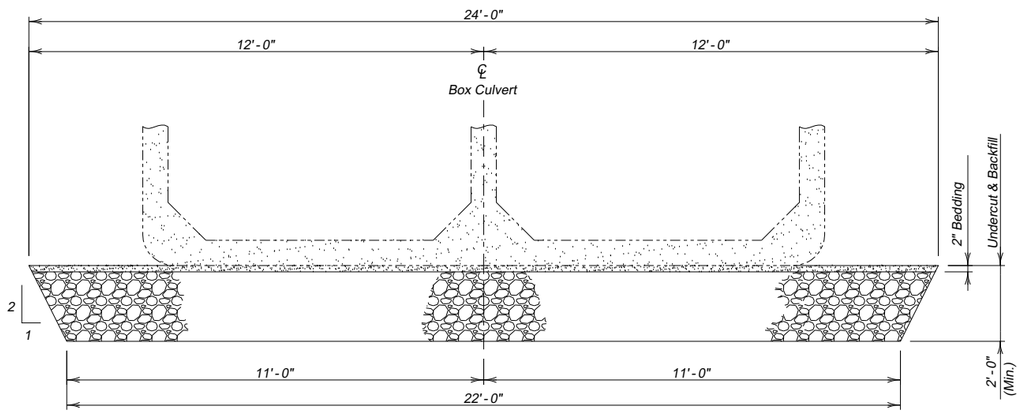
The Class B Riprap contract item (riprap furnished and installed) may be omitted from the project as determined by the Engineer.

The goal is to utilize the salvaged rock among the (3) project sites to avoid using "Class B Riprap".



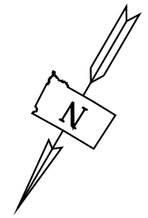
UNDERCUT LAYOUT

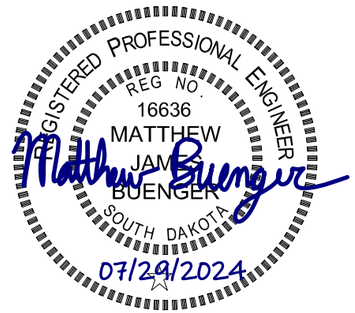
(Bottom Dimensions)



TYPICAL SECTION

(For Limits of Undercut)





ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
☒ Box Culvert Undercut	Cu. Yd.	69

☒ *For payment, quantity is based on plan shown undercut dimensions and will not be measured unless the Engineer orders a change.*

An additional 10% of box culvert undercut quantity has been included to account for filling the voids created by removing cobbles and boulders.

NOTES AND UNDERCUT DETAILS

FOR

2 - 8' x 6' BOX CULVERT (PRECAST)

GRACE COOLIDGE CREEK
STA. 1+18.00
STR. NO. 17-316-043

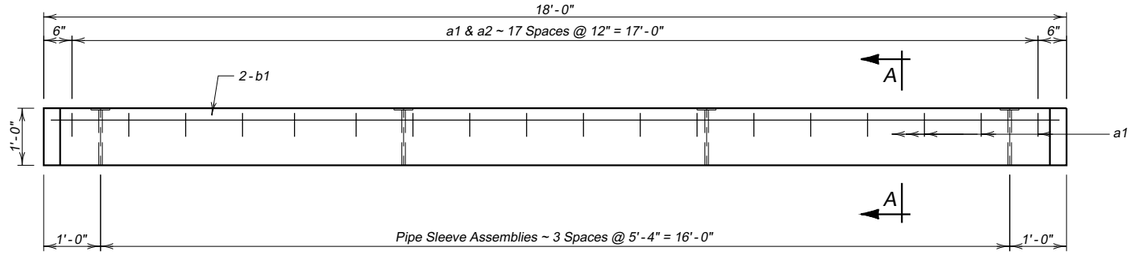
0° SKEW
SEC. 8 - T3S - R6E
BRO-B 8017(10)
HL-93

CUSTER COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

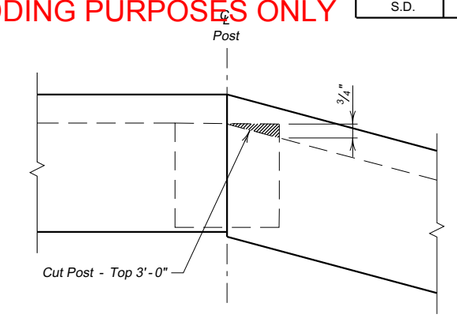
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	MRJ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8017(10)	B22	B27

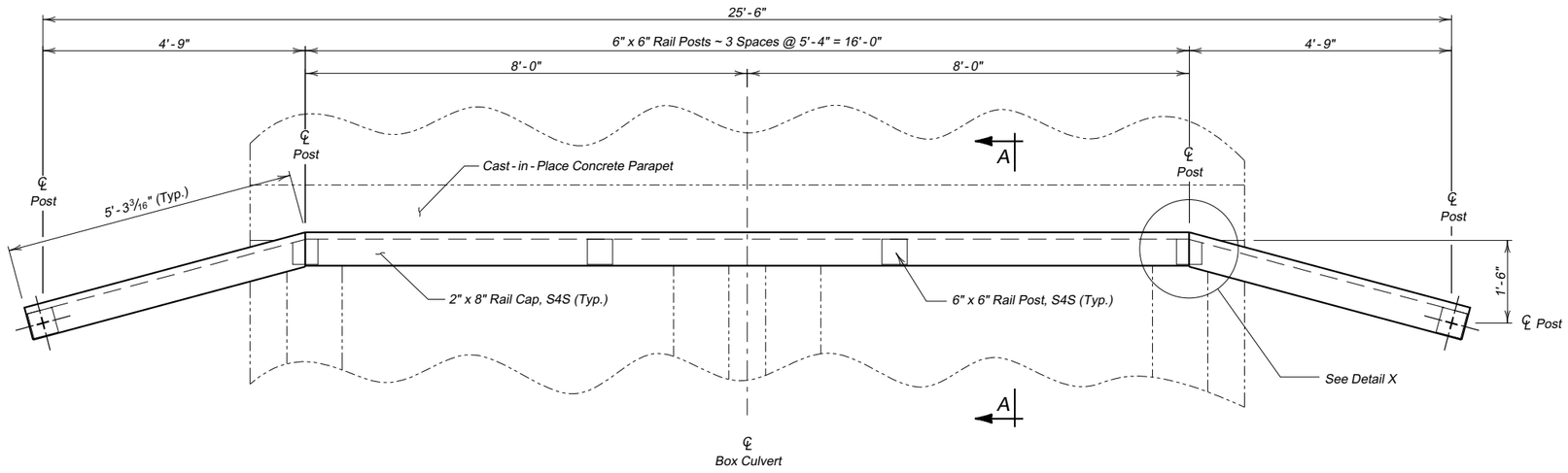
FOR BIDDING PURPOSES ONLY



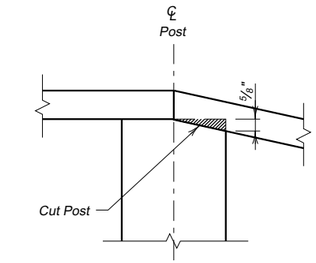
CAST-IN-PLACE CONCRETE PARAPET
PLAN VIEW



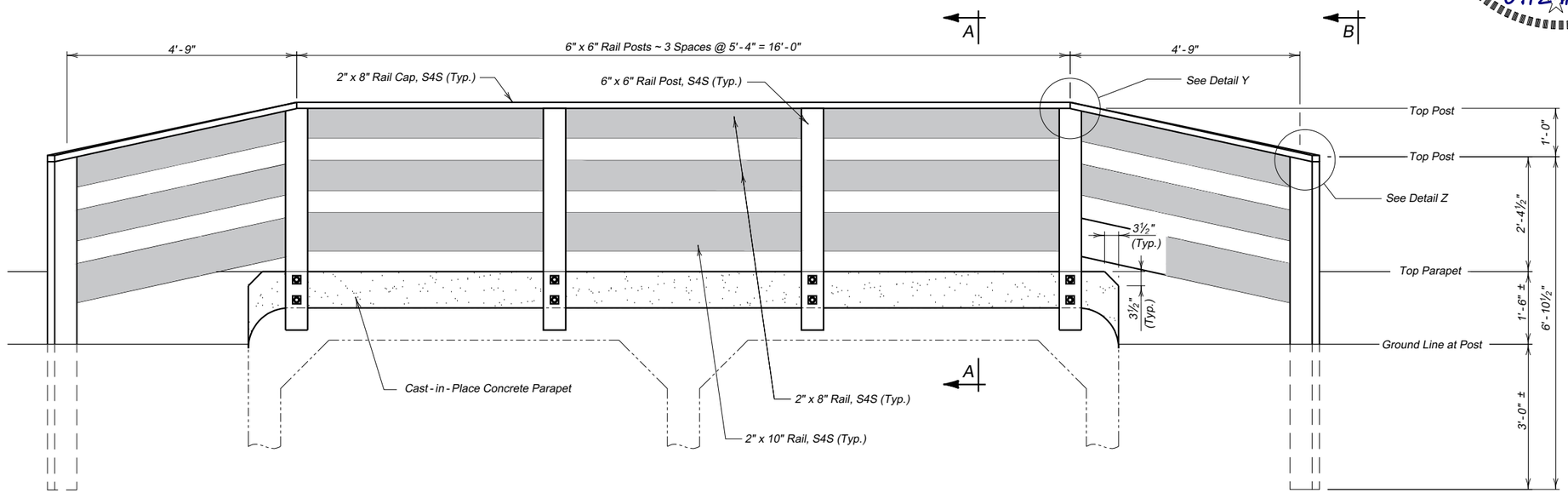
DETAIL X



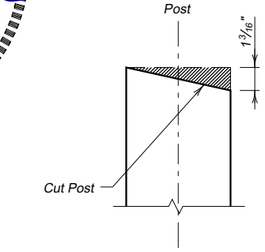
RAILING PLAN VIEW



DETAIL Y



RAILING ELEVATION VIEW



DETAIL Z

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
07/29/2024

PARAPET AND RAILING DETAILS (A)
FOR
2 - 8' x 6' BOX CULVERT (PRECAST)

GRACE COOLIDGE CREEK
STA. 1+18.00
STR. NO. 17-316-043

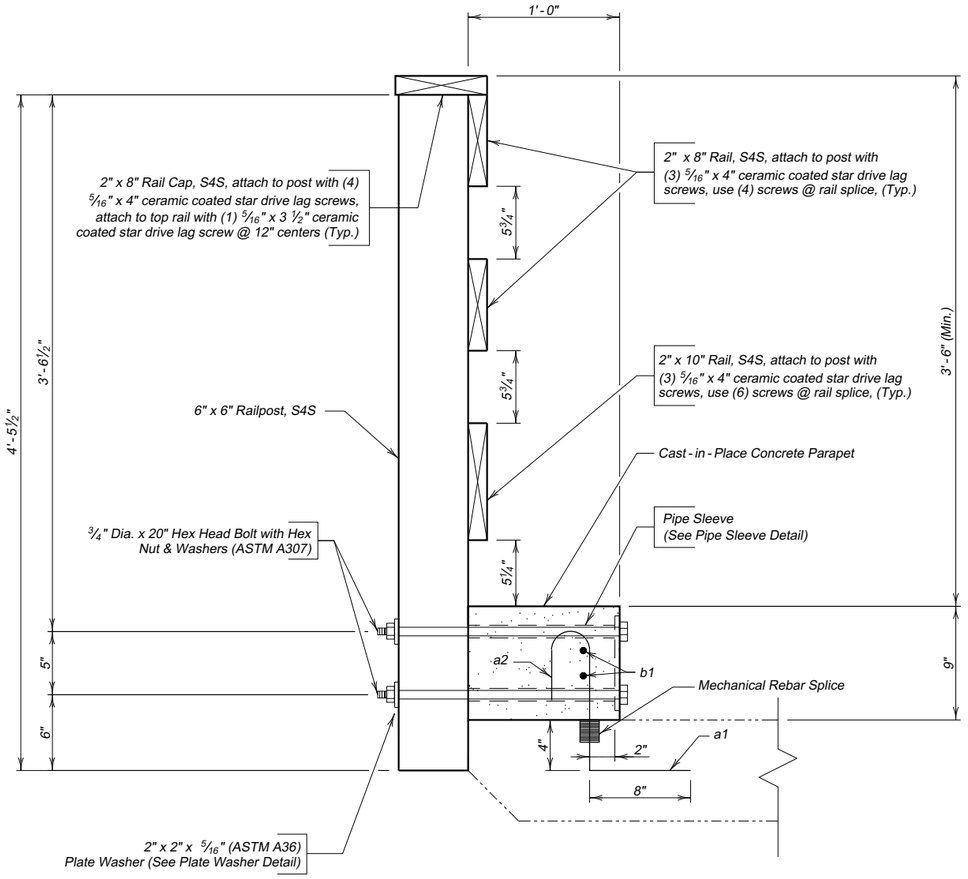
0° SKEW
SEC. 8 - T3S - R6E
BRO-B 8017(10)
HL-93

CUSTER COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

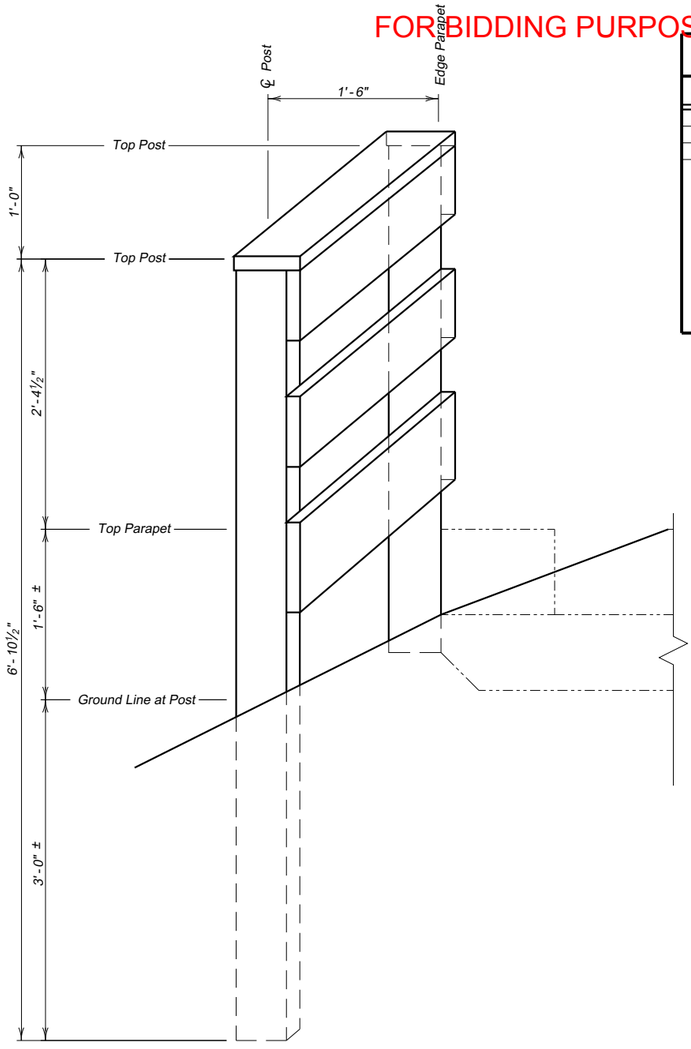
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	MRJ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8017(10)	B23	B27

FOR BIDDING PURPOSES ONLY



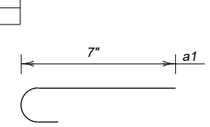
SECTION A - A



VIEW B - B

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type	Bending Details
a1	36	4	1'-3"	17A	
a2	36	4	1'-0"	1A	
b1	4	4	17'-6"	Str.	



Notes:
All dimensions are out to out of bars.

ESTIMATED QUANTITIES

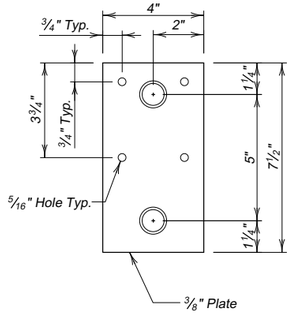
ITEM	UNIT	QUANTITY
Timber Pedestrian Railing	Ft.	53.0

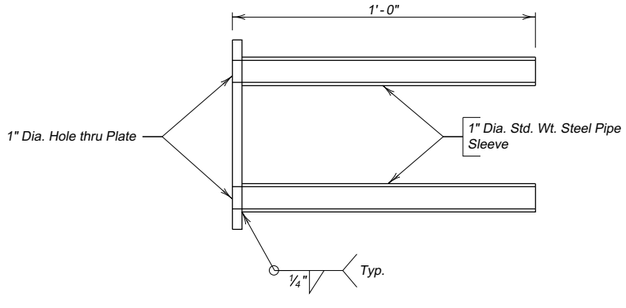
Cast-in-place concrete parapet items 1 and 2 are an approximate quantity for information only

1.	Class A45 Concrete, Box Culvert	1.0 Cu. Yd.
2.	Reinforcing Steel	148 Lbs.

GENERAL NOTES:

1. Rail posts will be installed plumb.
2. Post bolts will be 3/4" diameter Grade A307. Each bolt will have one 2" x 2" x 5/16" ASTM A36 plate washer. Nuts will be A563. Supply six washers with each bolt. Install one washer at bolt head and nut. Extra washers can be used to plumb posts or tighten nut, as needed.
3. The pipe sleeves, post bolts, washers, plate washers, and nuts will be galvanized. The post bolts, washers, plate washers, and nuts will be galvanized in accordance with ASTM F2329. The pipe sleeves will be galvanized in accordance with ASTM A123.
4. All steel plates will conform to ASTM A709 Gr. 36.
5. All timber will be Douglas Fir-Larch, No. 1 and Better, S4S pressure treated with copper naphthenate in Type A hydrocarbon solvent in accordance with AWPA standards and AASHTO Designation M 133.
6. All field cuts will be thoroughly coated with copper naphthenate in accordance with AWPA M4.
7. Installation of the railing will be accordance with the final approved shop plans.
8. All post bolts, washers, plate washers, nuts, lag screws, galvanizing, timber rail, timber rail cap, timber railposts, and installation will be incidental to the contract unit price per foot for Timber Pedestrian Railing.
9. All parapet concrete, reinforcing steel, pipe sleeves, galvanizing, and installation will be incidental to the contract unit price per each for 2-8' x 6' Precast Concrete Box Culvert End Section, Furnish.





PIPE SLEEVE DETAIL

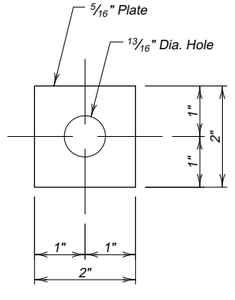


PLATE WASHER DETAIL

REGISTERED PROFESSIONAL ENGINEER
REG NO.
16636
MATTHEW
JAMES
BUENGER
SOUTH DAKOTA
07/29/2024

PARAPET AND RAILING DETAILS (B)
FOR
2 - 8' x 6' BOX CULVERT (PRECAST)

GRACE COOLIDGE CREEK
STA. 1+18.00
STR. NO. 17-316-043

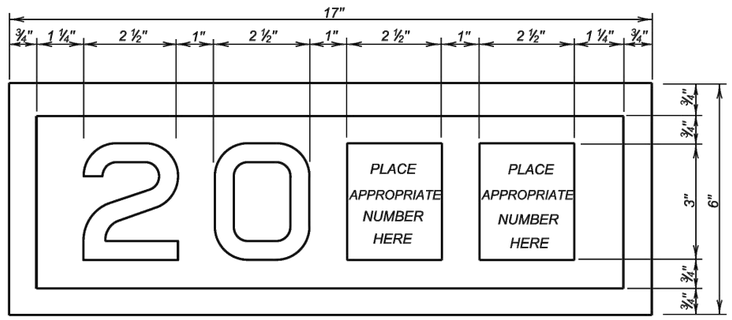
0° SKEW
SEC. 8 - T3S - R6E
BRO-B 8017(10)
HL-93

CUSTER COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

4 OF 6

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

FOR BIDDING PURPOSES ONLY



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.

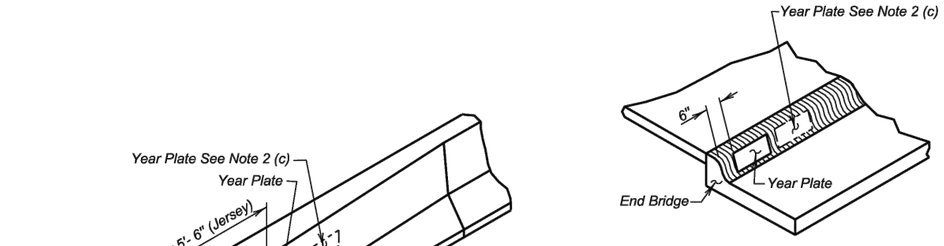
2. Year plates will be located on structure(s) as follows:

   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.

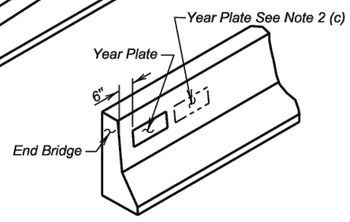
   b. On bridges with six (6) inch curbs, "Jersey" shaped barriers with no endblocks, or "Single Slope" shaped barriers with no endblocks, the year plate will be centered vertically on the curb face approximately six (6) inches from the end of the bridge, or as designated by the Engineer. On bridges with 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.

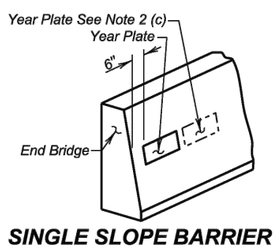


BARRIER
(With Endblock)



JERSEY BARRIER

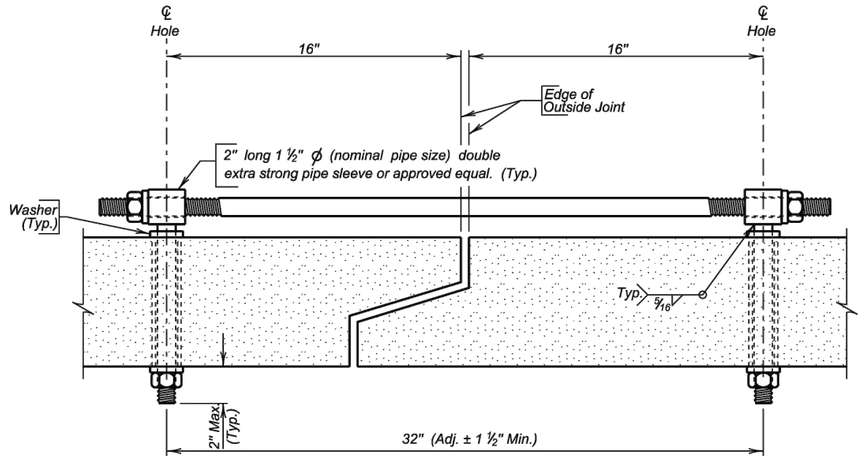
TYPE B CURB



SINGLE SLOPE BARRIER

January 22, 2021

Published Date: 2025	SDDOT	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1



TIE BOLT ASSEMBLY

GENERAL NOTES:

1. All holes for tie bolts shall be cast-in-place,16 inches from outside edge of joint. Cast in inserts or sleeves, if used, shall be made of a corrosion resistant material.

2. Ties shall be 1 inch ϕ and conform to the requirements of ASTM A36, ASTM A307, or ASTM F1554, Gr. 36. Nuts shall be heavy hex in conformance with ASTM A563. Washers shall conform to ASTM F436, Type 1. The welded pipe sleeve shall conform to ASTM A53, Grade B.

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

4. Tie Bolt Assembly shall be galvanized in accordance with ASTM A153 or ASTM F2329 as applicable.

5. Tie Bolt Assembly details may vary from that shown, but alternate tie bolt assemblies are subject to testing to demonstrate equal strength. Submit details, through proper channels, to the Office of Bridge Design for approval.

6. All costs for furnishing and installing the precast box culvert tie bolt assembly shall be incidental to the contract unit price per Foot for "Precast Concrete Box Culvert, Furnish".

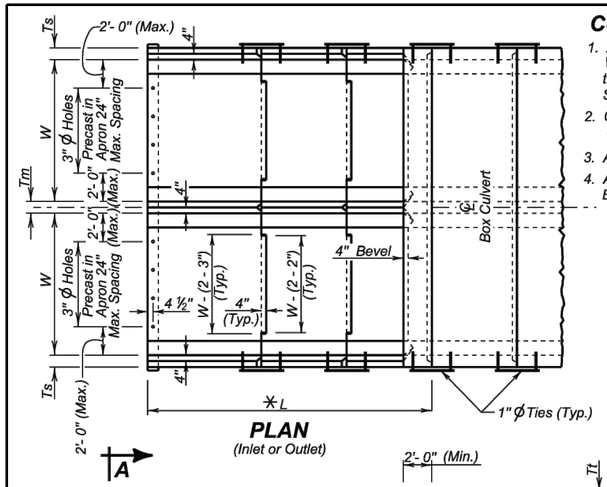
March 21, 2016

Published Date: 2025	SDDOT	PRECAST BOX CULVERT TIE BOLT ASSEMBLY DETAILS	PLATE NUMBER 560.01
			Sheet 1 of 1

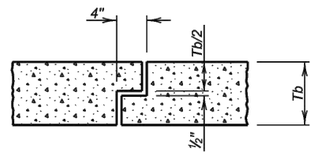
FOR BIDDING PURPOSES ONLY

CUTOFF WALL

1. All costs associated with furnishing and installing the Cutoff Wall, whether precast or cast-in-place, shall be incidental to the contract unit price per each for "Precast Box Culvert End Section, Furnish".
2. Concrete for cast-in-place cutoff wall shall be Class M6 concrete in accordance with Section 462 of the Specifications.
3. All reinforcing steel shall conform to ASTM A615 Grade 60.
4. Alternate details will be allowed, subject to the approval of the Bridge Construction Engineer.

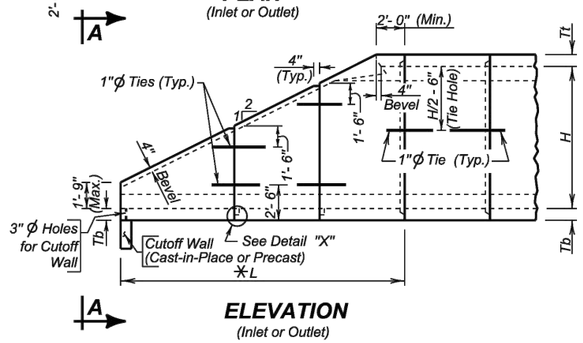


PLAN
(Inlet or Outlet)

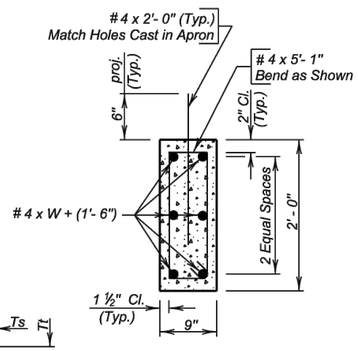


DETAIL " X "

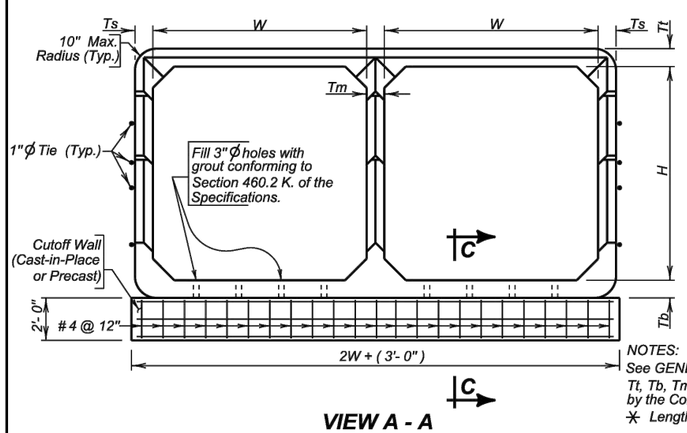
NOTE: Joint details may vary from that shown, according to the manufacturer's design. Submit details with shop plans for approval.



ELEVATION
(Inlet or Outlet)



SEC. C - C



VIEW A - A

LEGEND

W = Width of Opening
H = Height of Opening
Tt = Thickness of Top Slab
Tb = Thickness of Bottom Slab
Ts = Thickness of Side Wall
Tm = Thickness of Middle Wall
L = Length of End Section

NOTES:
See GENERAL DRAWING for W and H dimensions.
Tt, Tb, Tm, L, and Ts dimensions shall be furnished by the Contractor.
⁎ Length and number of units may vary from that shown.

June 26, 2015

Published Date: 2025	SDDOT	PRECAST DOUBLE BOX CULVERT SLOPED END SECTION DETAILS WITH 2'–0" CUTOFF WALL	PLATE NUMBER 560.20
			Sheet 1 of 1

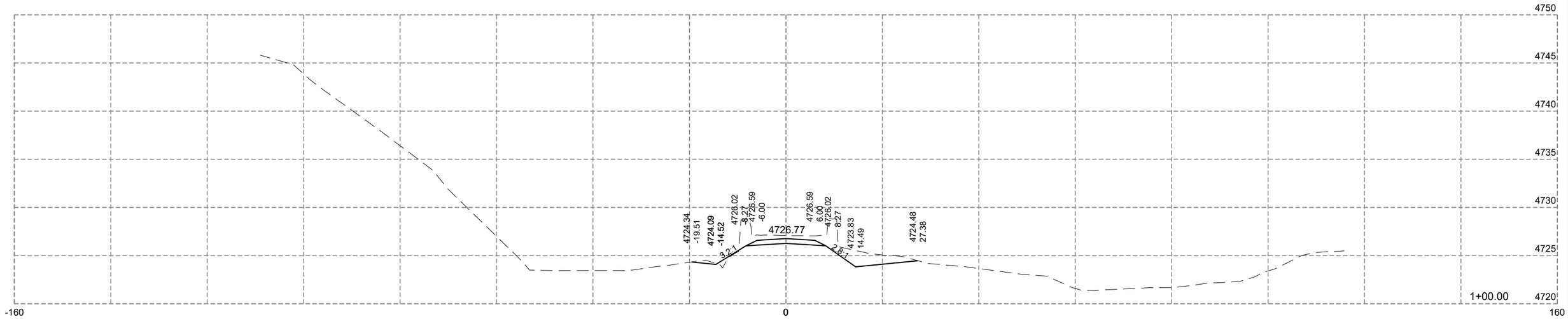
2 - 8' x 6' BOX CULVERT (PRECAST)
STR. NO. 17-316-043
JULY 2024

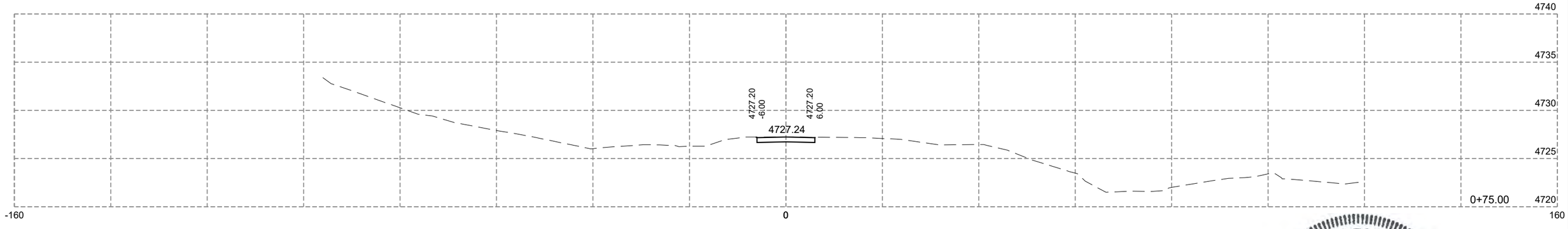
BAI JOB # 23190.64

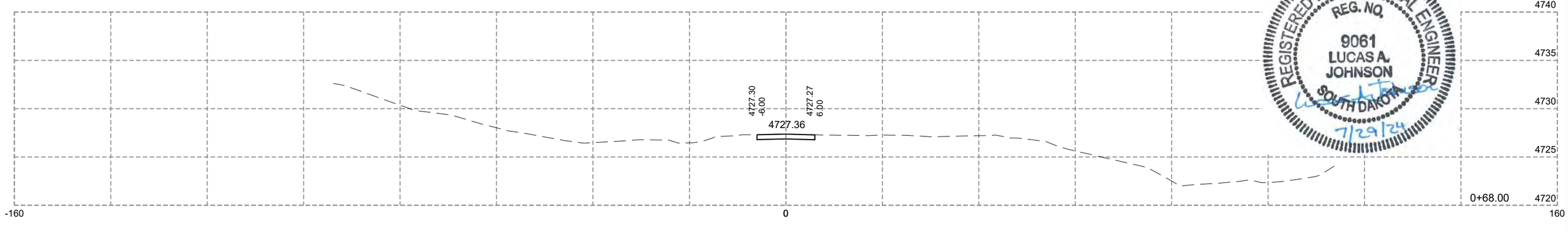
FOR BIDDING PURPOSES ONLY

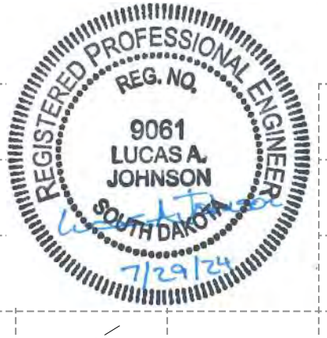
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(10)	B26	B27

Plotting Date: 07/25/2024







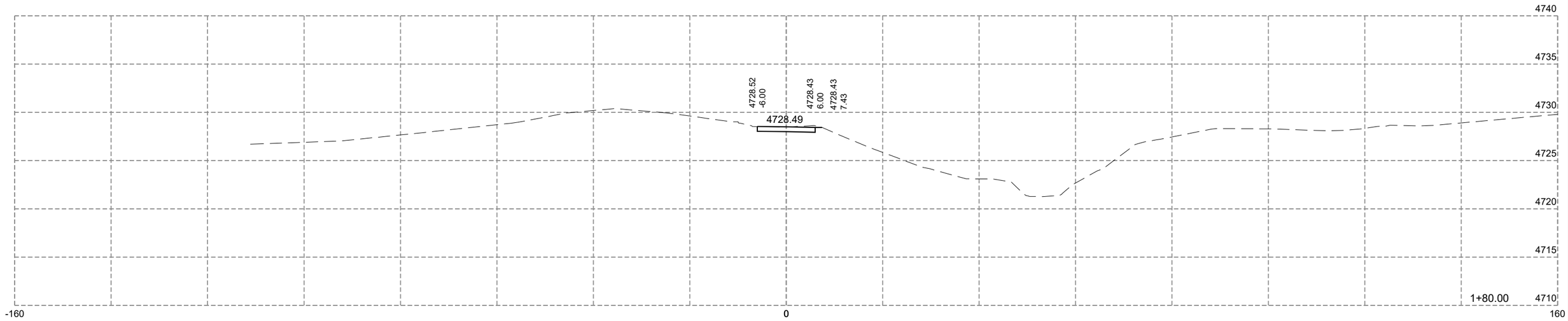


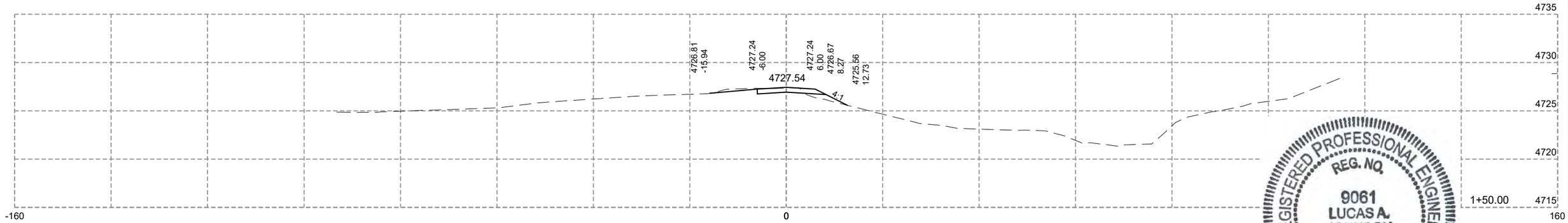
BAI JOB # 23190.64

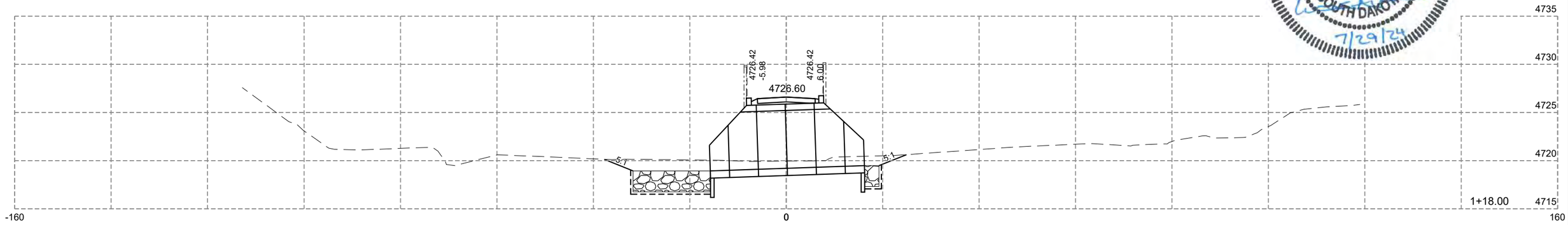
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(10)	B27	B27

Plotting Date: 07/25/2024







REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A.
JOHNSON
SOUTH DAKOTA
7/29/24

BAI JOB # 23190.65	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRO-B 8017(11)	C1	C27

Plotting Date: 07/17/2024

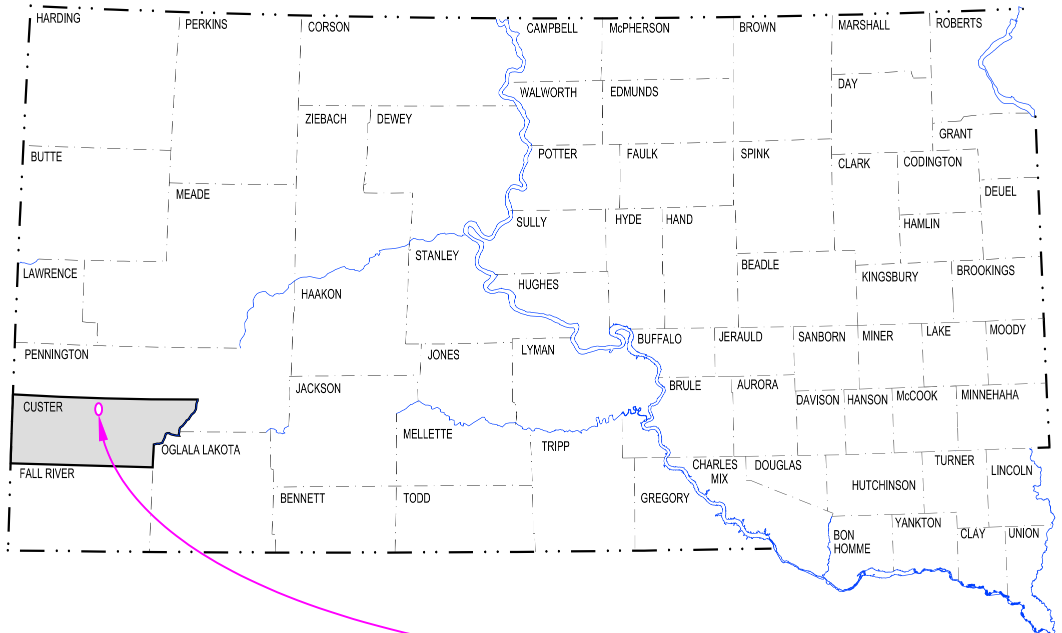
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

PLANS FOR PROPOSED
PROJECT
BRO-B 8017(11)
SOUTH DAKOTA GAME, FISH, AND PARKS
CUSTER STATE PARK

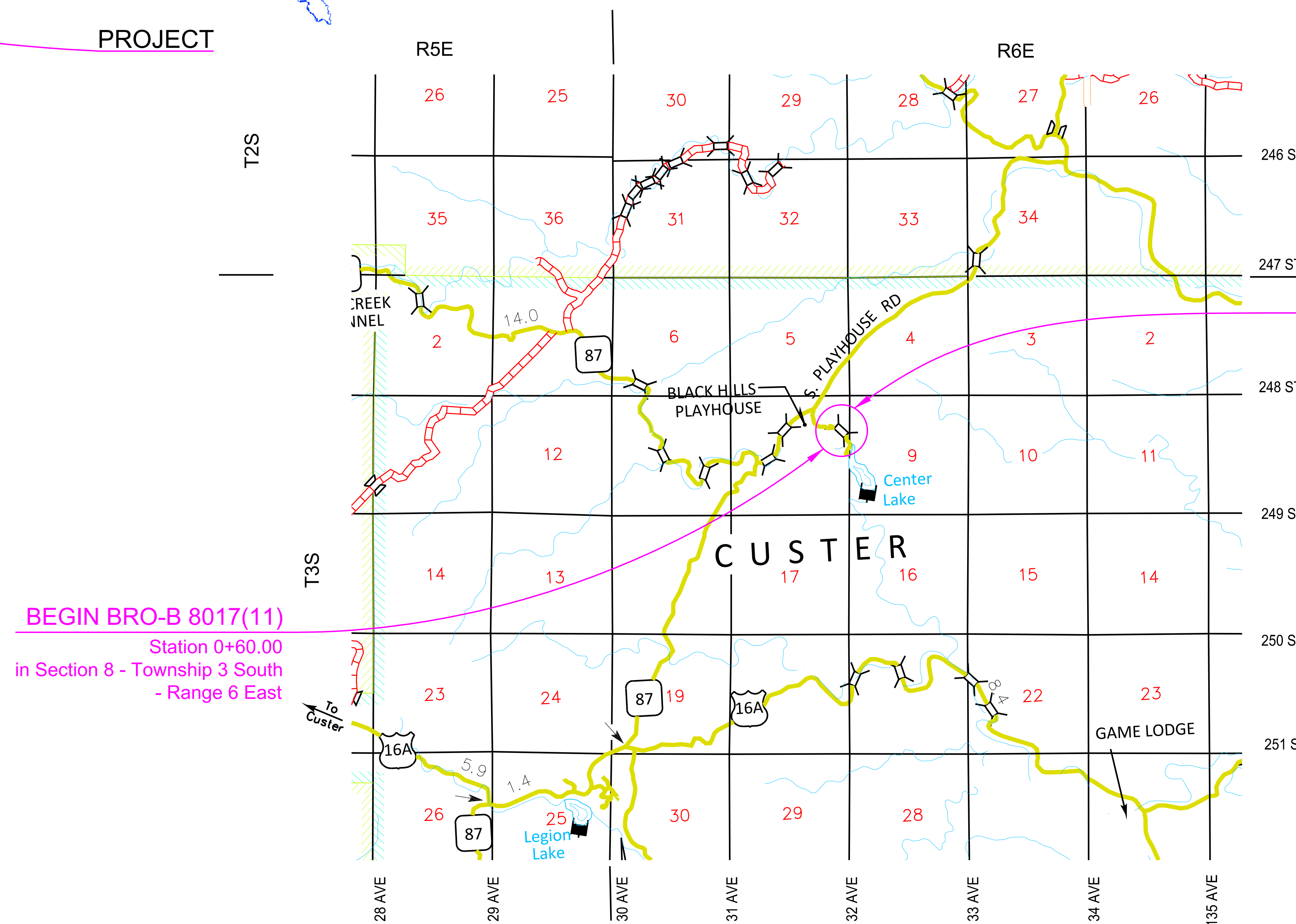
STRUCTURE AND APPROACH GRADING
STRUCTURE NO. 17-320-044
PCN 08NV

INDEX OF SHEETS



STORM WATER PERMIT
Major Receiving Body of Water: Grace Coolidge Creek
Total Project Area: 0.4 Acre
Area Disturbed: 0.2 Acre
Approx. Begin Lat/Long: 43.80461° N -103.41942° W

DESIGN DESIGNATION
AADT (2022) 100
V 10 MPH



REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9061
LUCAS A. JOHNSON
SOUTH DAKOTA
7/29/24

ESTIMATE OF QUANTITIES

Grading

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	216.0	SqYd
110E1690	Remove Sediment	1.0	CuYd
120E0010	Unclassified Excavation	166	CuYd
230E0010	Placing Topsoil	55	CuYd
260E1010	Base Course	273.8	Ton
634E0110	Traffic Control Signs	28.5	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	4	Each
734E0010	Erosion Control	Lump Sum	LS
734E0154	12" Diameter Erosion Control Wattle	280	Ft
734E0165	Remove and Reset Erosion Control Wattle	40	Ft

Str. No. 17-320-044

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
250E0030	Incidental Work, Structure	Lump Sum	LS
260E6010	Granular Material	255.2	Ton
421E0100	Pipe Culvert Undercut	135	CuYd
450E0222	60" RCP Class 2, Furnish	96	Ft
450E0230	60" RCP, Install	96	Ft
450E2044	60" RCP Flared End, Furnish	6	Each
450E2045	60" RCP Flared End, Install	6	Each
464E0100	Controlled Density Fill	57.4	CuYd
470E0044	Timber Pedestrian Railing	81.0	Ft
700E0210	Class B Riprap	67.6	Ton
700E2010	Place Riprap	29.9	Ton
831E0110	Type B Drainage Fabric	183	SqYd

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

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

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

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

COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.024 acre of wetlands (includes temporary and permanent) becoming impacted. Refer to Nonsection – Grading Plans/plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
1	1+18	0.00	0.006	0.014	0.004	0.024

Action Taken/Required:

Mitigation is required in accordance with the "*Statewide Finding Regarding Wetlands for South Dakota Federal-Aid Highway Projects (February 2018)*". Replacement 0.006 acre of permanent wetland impacts will be completed through another wetland mitigation opportunity in a manner which considers FHWA's program-wide goal of 'net gain' of wetlands through enhancement, creation, and preservation.

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

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

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 Nonsection – Grading Plans. Prior to initiating temporary work in wetlands, the Contractor will submit a plan to the Project Engineer in accordance with Section 7.21 D of the Specifications.

COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.017 acre of stream (includes temporary and permanent) becoming impacted. Refer to NonSection – Grading Plans/plans for location and boundaries of the impacted streams.

Table of Impacted Streams

Stream Name	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
Center Lake Inlet	1+18	0.003	0.002	0.007	0.004	0.017

Action Taken/Required:

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

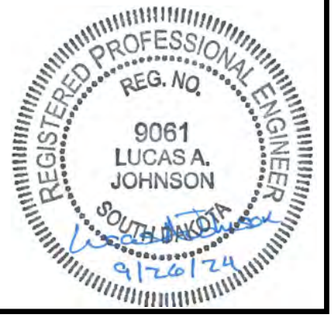
COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

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

Action Taken/Required:

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



COMMITMENT C: WATER SOURCE

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

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at:
< https://sdleastwanted.sd.gov/maps/default.aspx >

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

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

Grace Coolidge Creek is classified as a cold water permanent fishery with a total suspended solids standard of less than 30 mg/L 30-day average, less than 53 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/Ereporting.aspx >

COMMITMENT E: STORM WATER

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

Action Taken/Required:

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

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

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

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

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

Storm Water Pollution Prevention Plan

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

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

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

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

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

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

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

COMMITMENT H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

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

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

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

Action Taken/Required:

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

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

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

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

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

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

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

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

Action Taken/Required:

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

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

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

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

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

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

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

Table of U.S. Waterways to Protect

Station	Waterway	Ordinary High-Water Elevation
1+18	Grace Cooldige Creek	4690.50’

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

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

COMMITMENT 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
1+18 (L and R)	Historic Structure 17-320-044

Action Taken/Required:

The following measures are required to minimize harm to the above Section 4(f) property.

The removal and replacement of structure 17-320-044 has resulted in an Adverse Effect to historic properties. A Memorandum of Agreement was signed and MOA stipulations I-III must be fulfilled prior to construction. Stipulations I-III were fulfilled and approved by the SHPO. SDDOT will ensure Stipulation IV is fulfilled.

A programmatic Section 4(f) Evaluation for Use of Historic Bridge 17-314-043 was approved by FHWA.

The Contractor is not permitted to stage equipment or materials within Custer State Park which interfere with the attributes, features, or activities of the park. 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 M2: SECTION 6(f) PROPERTY

There will be a Temporary Non-Conforming Use of the following properties encumbered by a Land and Water Conservation Fund grant:

Station	Section 6(f) Property
Project Area	Custer State Park

Action Taken/Required:

The following actions are required to ensure there is no 6(f) Conversion of Use requiring replacement lands of equal value and usefulness are achieved:

The contractor will adhere to the Special Provision for Construction Time limited construction activities seasonally between October 1 until May 1 and construction activities to less than 60 days in duration.

The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 6(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 6(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.

COMMITMENT S: FIRE PREVENTION IN THE BLACK HILLS AREA

This project is located within the Black Hills Forest Fire Protection Boundary.

Action Taken/Required:

The Contractor will adhere to the “Special Provision for Fire Plan”.

SOUTH DAKOTA GAME, FISH AND PARKS (GF&P) REQUIREMENTS

The GF&P will perform the following items:

1. Furnish & install permanent signing in accordance with the MUTCD.

EXISTING UTILITIES

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

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

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

UTILITY CONTACT INFORMATION

Black Hills Power and Light Company
No utilities present as of 9/27/2021.
25153 Little Teton Rd
Custer, SD 57730
Corey Virtue, 605-517-0193

South Dakota Game, Fish and Parks
Custer State Park
Water line 75’ +/- to west of road centerline.
Sanitary Sewer 70’ +/- to west of road centerline.
13329 US Hwy 16A
Custer, SD 57730
Jamie Severyn, 605-280-1811 cell 605-255-4515 office

Mt. Rushmore Telephone Company
No utilities present as of 9/27/2021.
320 1st St.
Keystone, SD 57751
605-255-4771

TABLE OF ANTICIPATED UTILITY ADJUSTMENTS

Location	Description
0+60 L to 1+90 L	None anticipated.
0+60 R to 1+90 R	None anticipated.

GENERAL MAINTENANCE OF TRAFFIC

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

Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. The Contractor will coordinate with GF&P to determine which signs will be reset and to verify reset locations. Cost of this work will be incidental to the contract unit prices for various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

STREAM DIVERSION

Any stream diversion will be considered temporary works in accordance with Section 423.

CLEARING

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

Any tree removal and disposal needed for the temporary stream diversion will be incidental to the contract lump sum price for “Clearing”.

The Table of Clearing is for informational purposes only. All tree removal and disposal needed to construct the project will be incidental to the contract lump sum price for Clearing.

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

TABLE OF CLEARING

Location	(Approximate Number) Approximate Size
0+60 to 1+90 L	(3) Under 12” - (4) 12” to 18” - (2) Over 18”
0+60 to 1+90 R	(0) Under 12” - (1) 12” to 12” - (0) Over 18”

Stream Diversion – Remove shrubs and trees as needed.

REMOVAL OF EXISTING ASPHALT CONCRETE PAVEMENT

The Contractor will remove the existing asphalt concrete pavement. The existing mainline asphalt concrete pavement is typically 18 feet wide with an unknown thickness. For earthwork calculations, a thickness of 3” was assumed. Prior to the removal of the existing asphalt concrete pavement at Station 0+60 and 1+90, the existing pavement will be sawed full depth to a true line with a vertical face. The asphalt concrete pavement will be disposed of in a manner compliant with the Environmental Conditions and its reuse in grading operations is not permitted. All costs associated with sawing, removal, hauling, and disposal will be incidental to the contract unit price per square yard for “Remove Asphalt Concrete Pavement”.

TABLE OF ASPHALT CONCRETE PAVEMENT REMOVAL

Station	to	Station		Quantity (SqYd)
0+60		1+90	L & R	216
			Total:	216

GRADING OPERATIONS

Shrinkage factor: Embankment plus 30%.

Compaction of roadway embankment and box culvert backfill material will be governed by the Specified Density Method.

Water for Embankment and Backfill is estimated at the rate of 10 gallons of water per cubic yard of Embankment. The estimated quantity of Water is **5 MGal**. No separate payment will be made for the Water and all costs associated will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”.

TABLE OF EXCAVATION QUANTITIES

Station to Station	Excavation (CuYd)	* Pipe Culvert Undercut & Riprap Exc (CuYd)	Total Excavation (CuYd)	** Waste (CuYd)
0+60 to 1+90	111	164	275	205

* The quantities for these items are under their respective contract items.

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

UNCLASSIFIED EXCAVATION

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

TABLE OF UNCLASSIFIED EXCAVATION

Excavation General		111	
+ Topsoil	+	55	
Total Unclassified Excavation	**=**	**166**	**CuYd**

The Excavation General quantity includes excavation for the roadway, excavation in the channel to the reinforced concrete pipe flowline, and excavation in the channel to the top of the riprap.

Channel bank shaping will be done at the flared ends and ends of the riprap as directed by the Engineer. The shaping will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”.

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

Rocks larger than 1 ft diameter will be salvaged and stockpiled for use as riprap. All costs for salvaging and stockpiling the rocks will be incidental to the contract unit price per cubic yard for “Unclassified Excavation”.

PLACING TOPSOIL

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

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

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

The amount of topsoil shown in the Estimate of Quantities is based upon a 6 inch depth.

WATER FOR COMPACTION OF BASE COURSE

The cost of water for compaction of the Base Course will be incidental to the various other contract items. A minimum of 4% moisture will be required at the time of compaction unless otherwise directed by the Engineer.

EROSION CONTROL

All areas of soil disturbed by construction will require erosion control. For informational purposes only, the estimated area requiring erosion control is **0.2 acres**. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, seeding and mulching will be incidental to the contract lump sum price for “Erosion Control”.

Type E Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Green Needlegrass	Lodorm, AC Mallard Ecovar	4
Sideoats Grama	Butte, Pierre	3
Blue Grama	Bad River	2
Canada Wildrye	Mandan	2
Wildflowers		
Dotted Gayfeather (*Liatris punctata*)		0.5
Black-eyed Susan (*Rudbeckia hirta*)		0.5
Blue Flax (*Linum lewisii*)		0.5
Pale Purple Coneflower (*Echinacea angustifolia*)		0.5
	Total:	20

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

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

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

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

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

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

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

EROSION CONTROL WATTLE

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

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

Erosion control wattles will remain on the project to decompose.

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

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

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

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (inch)	Quantity (Ft)
0+82 R	Where Water Sheds to Creek	12	20
1+05 L	Where Water Sheds to Creek	12	20
1+72 R	Where Water Sheds to Creek	12	20
1+56 L	Where Water Sheds to Creek	12	20
	Additional Quantity:	12	200
		Total:	280

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
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LUCAS A. JOHNSON
SOUTH DAKOTA
7/29/24

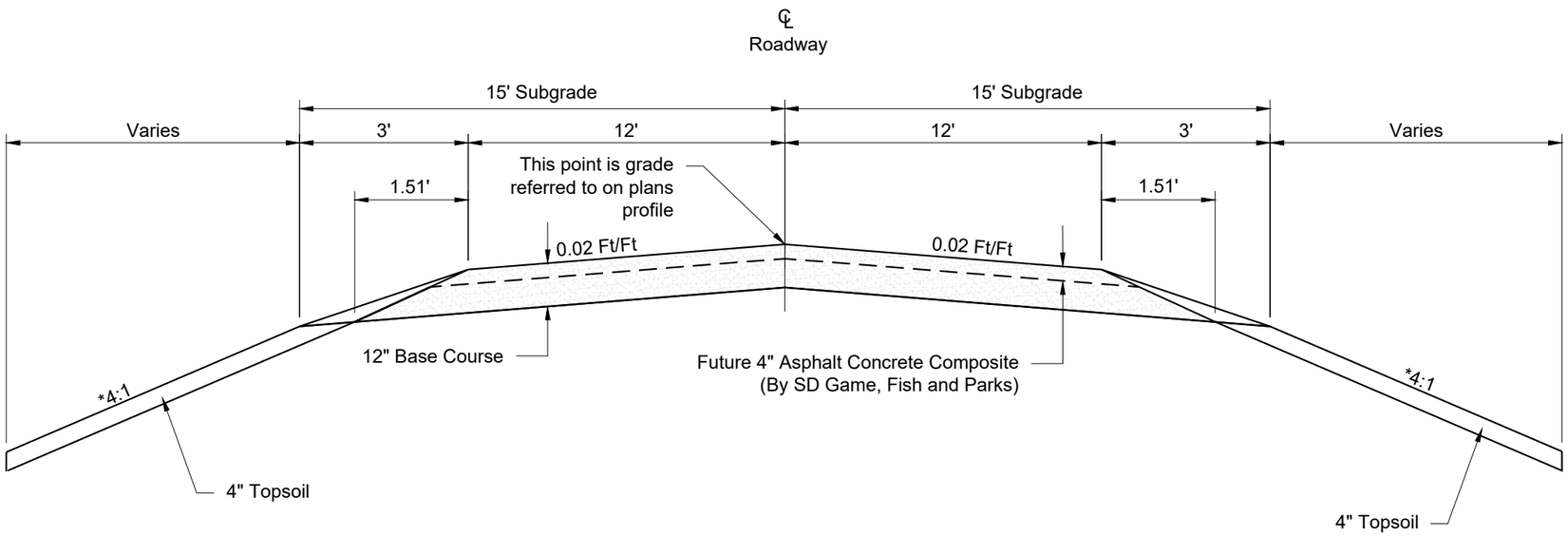
TYPICAL GRADING SECTION

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.65	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRO-B 8017(11)	C8	C27

Plotting Date: 10/01/2024 Rev: 09/26/2024 LAJ

0+60 to 1+90



* Inslope Transitions:
4:1 to 2:1 25' From Flared End Sections

Transition from Existing to Typical Section at the Following Location:
0+60 to 0+94

Transition from Existing to Typical Section at the Following Location:
1+80 to 1+90

Note:
Base Course will be installed to finished grade (top of asphalt). In the future, the SD Game, Fish and Parks will remove the top 4" of the Base Course to install the 4" Asphalt Concrete Composite.

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SOUTH DAKOTA
9/26/24

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(11)	C9	C27

FOR BIDDING PURPOSES ONLY

HORIZONTAL ALIGNMENT DATA

MAINLINE

Type	Station			Northing	Easting
POB	0+00.00			551463.614	1153943.074
		TL = 44.31	S 41°33'27" E		
PC	0+31.11			551440.336	1153963.710
PI	0+44.31	R = 500.00	Delta = 03°01'32" R	551430.455	1153972.470
PCC	0+57.51			551420.125	1153980.696
		TL =202.88	S 38°31'54" E		
PCC	1+90.36			551316.207	1154063.450
PI	2+47.19	R = 100.00	Delta = 59°13'27" R	551271.747	1154098.856
PC	2+93.72			551218.577	1154078.773
		TL = 68.50	S 20°41'33" W		
POE	3+05.39			551207.662	1154074.650

CONTROL DATA

HORIZONTAL AND VERTICAL CONTROL POINTS						
POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP GPS-BASE	-	-	18” Rebar w/ Cap	552209.844	1151634.489	-
CP 39-NW	0+19.49	31.20’ R	18” Rebar w/ Cap	551428.333	1153932.662	-
BM 39-2	0+27.18	20.29’ L	5’ Rebar w/ Cap	551456.738	1153976.287	4697.44
BM 39-1	1+94.28	30.76’ R	5’ Rebar w/ Cap	551294.887	1154041.045	4692.40
CP 39-SE	2+11.90	20.99’ L	18” Rebar w/ Cap	551307.308	1154093.798	-

The coordinates shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone NAD 83(2011); epoch 2010.00; Geoid 18; SF = 0.9996898544

The elevations shown on this sheet are based on NAVD 88.

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LEGEND

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.65	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRO-B 8017(11)	C10	C27

Plotting Date: 07/17/2024

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

- Drainage Arrow

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

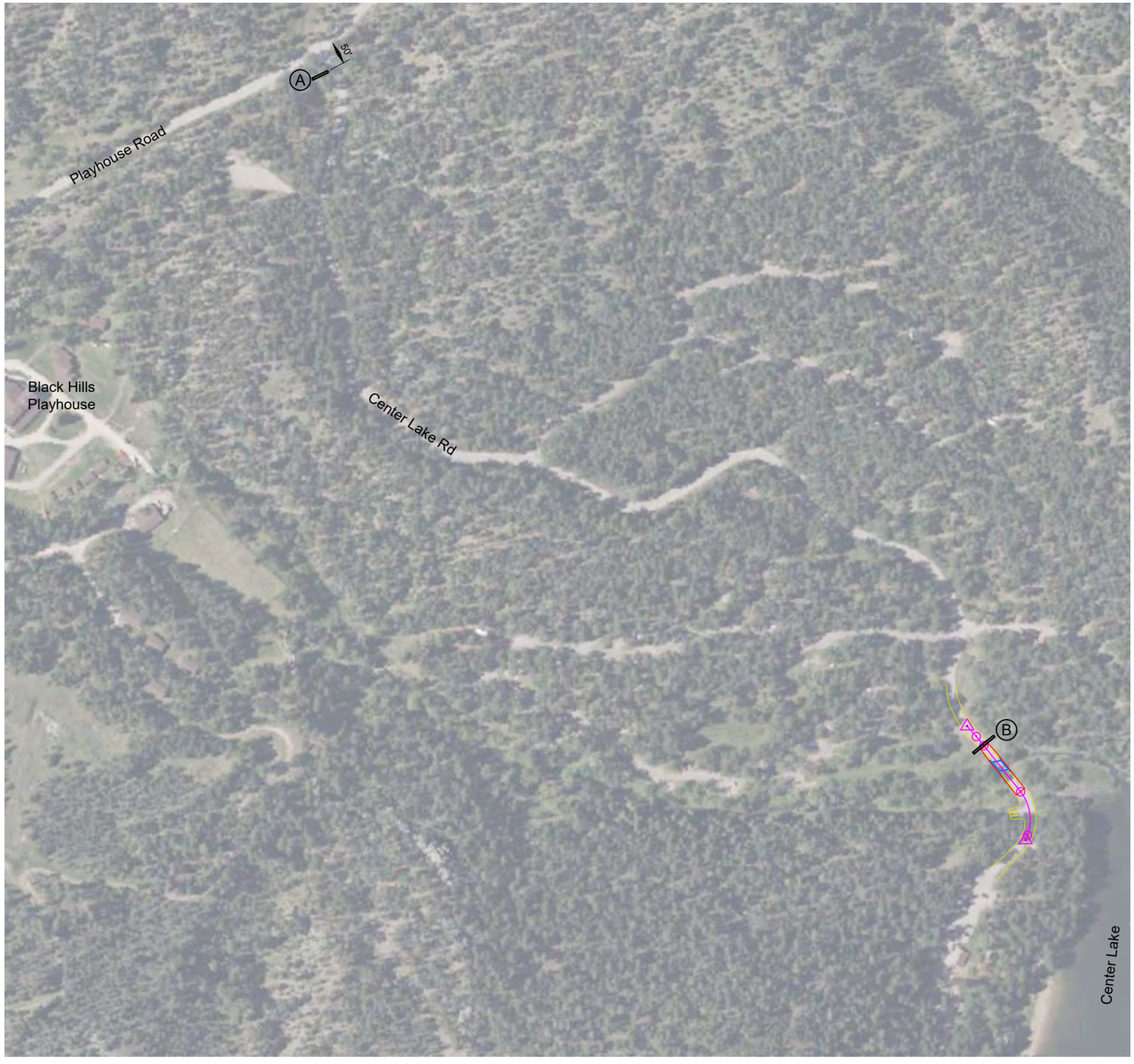
- Detectable Warning Pedestrian Push Button Pole and 30" x 48" Clear Space with 1.5% slope

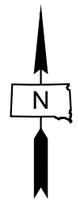
TRAFFIC CONTROL

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.65	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRO-B 8017(11)	C11	C27

Plotting Date: 07/17/2024





Ⓐ

R11-3a
60" x 30"

Type 3
Barricade

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SOUTH DAKOTA
7/29/24

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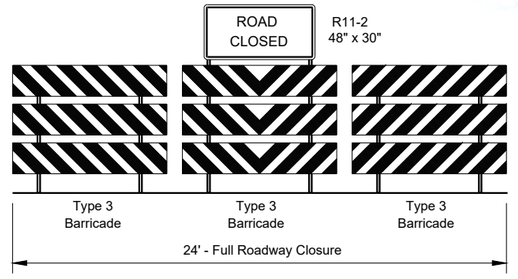


R11-2
48" x 30"

ITEMIZED LIST FOR TRAFFIC CONTROL

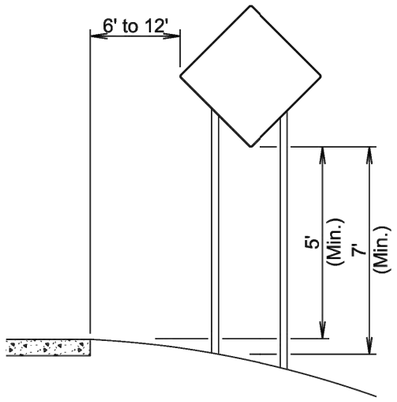
SIGN CODE	DESCRIPTION	NUMBER REQUIRED	SIGN SIZE	SQ. FT. PER SIGN	SQ. FT.
R11-3a	ROAD CLOSED AHEAD LOCAL TRAFFIC ONLY	1	60" x 30"	12.5	12.5
W20-3	ROAD CLOSED AHEAD OR 500 FT	1	48" x 48"	16.0	16.0
		Conventional Road Traffic Control Signs Sq. Ft.			28.5

DESCRIPTION	Each
Type 3 Barricade	4

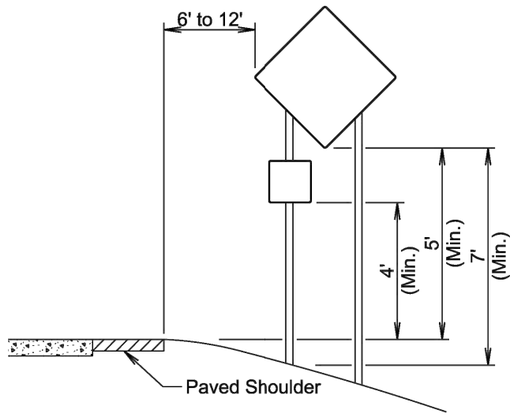
NOTE:
The exact location and spacing of signs shown will be determined in the field by the Engineer.

FOR BIDDING PURPOSES ONLY

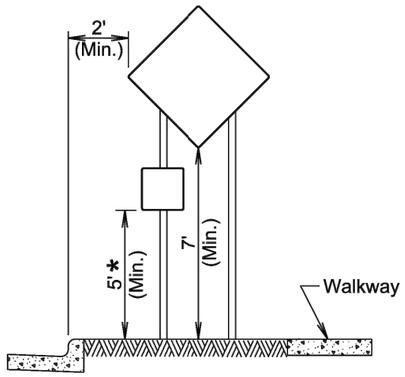
Plotting Date: 07/18/2024



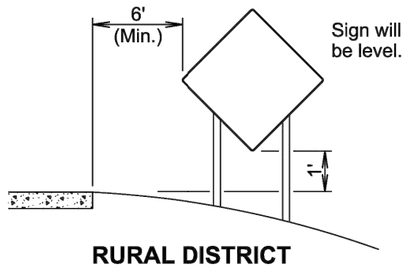
RURAL DISTRICT



RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

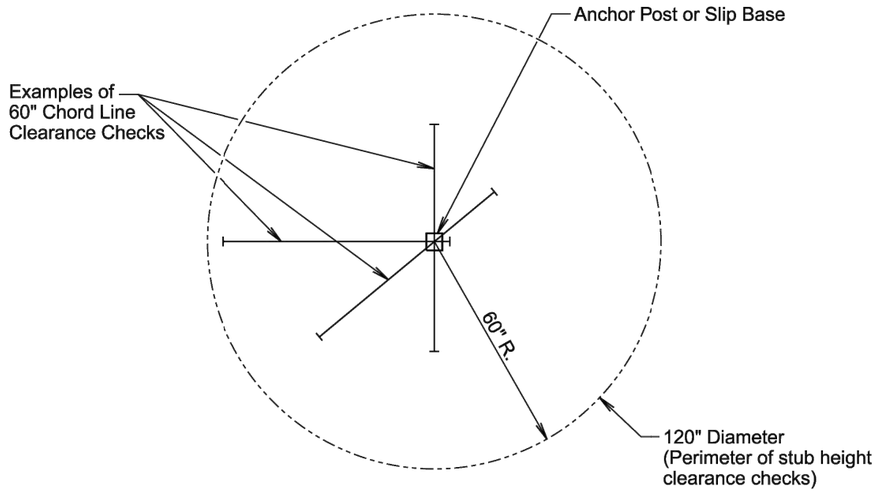


RURAL DISTRICT
3 DAY MAXIMUM
(Not applicable to regulatory signs)

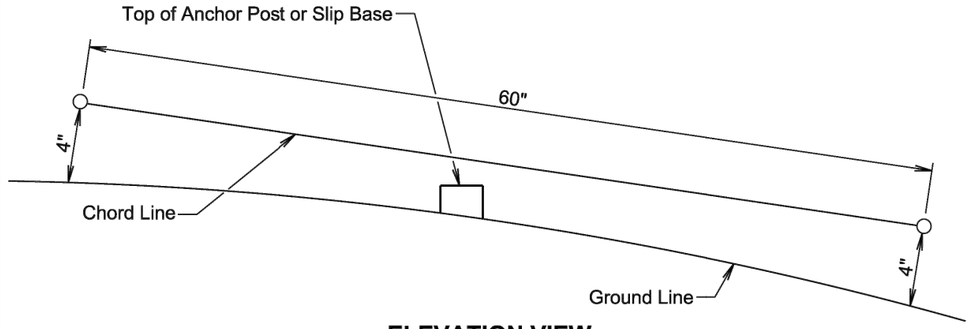
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2025	SDDOT	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

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

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

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

January 22, 2021

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

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(11)	C13	C27

FOR BIDDING PURPOSES ONLY

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** 0.4 Acres
- **5.3 (3b): Total Area to be Disturbed** 0.2 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 0.2 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 85
- **5.3 (3d): Description of Vegetative Cover** Grass
- **5.3 (3e): Soil Properties:** A-6
- **5.3 (3f): Name of Receiving Water Body/Bodies** Grace Coolidge Creek
- **5.3 (3g): Location of Construction Support Activity Areas** Onsite

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

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

The Contractor will enter the Estimated Start Date.

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

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

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

Perimeter Controls (See Detail Plan Sheets)

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

Structural Erosion and Sediment Controls

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

Dust Controls

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

Dewatering BMPs

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

Stabilization Practices (See Detail Plan Sheets)

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

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

Wetland Avoidance

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

5.3 (6): PROCEDURES FOR INSPECTIONS

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

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

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

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

➢ **Material Management**

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

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

➢ **Spill Control Practices**

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

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

➢ **Spill Response**

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

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

5.3 (8b): WASTE MANAGEMENT PROCEDURES

➢ **Waste Disposal**

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

➢ **Hazardous Waste**

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

➢ **Sanitary Waste**

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

5.3 (9): CONSTRUCTION SITE POLLUTANTS

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

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

Product Specific Practices

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

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

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

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

5.3 (10): NON-STORMWATER DISCHARGES

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

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

5.3 (11): INFEASIBILITY DOCUMENTATION

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

7.0: SPILL NOTIFICATION

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

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

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

5.4: SWPPP CERTIFICATIONS

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

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

➢ **South Dakota Department of Transportation**

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

_____

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

➢ **Prime Contractor**

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

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

_____

Authorized Signature

CONTACT INFORMATION

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

➢ **Contractor Information**:

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

➢ **Erosion Control Supervisor**

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

➢ **SDDOT Project Engineer**

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

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

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

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

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

5.5: REQUIRED SWPPP MODIFICATIONS

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

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

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

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

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

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

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

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

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

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

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

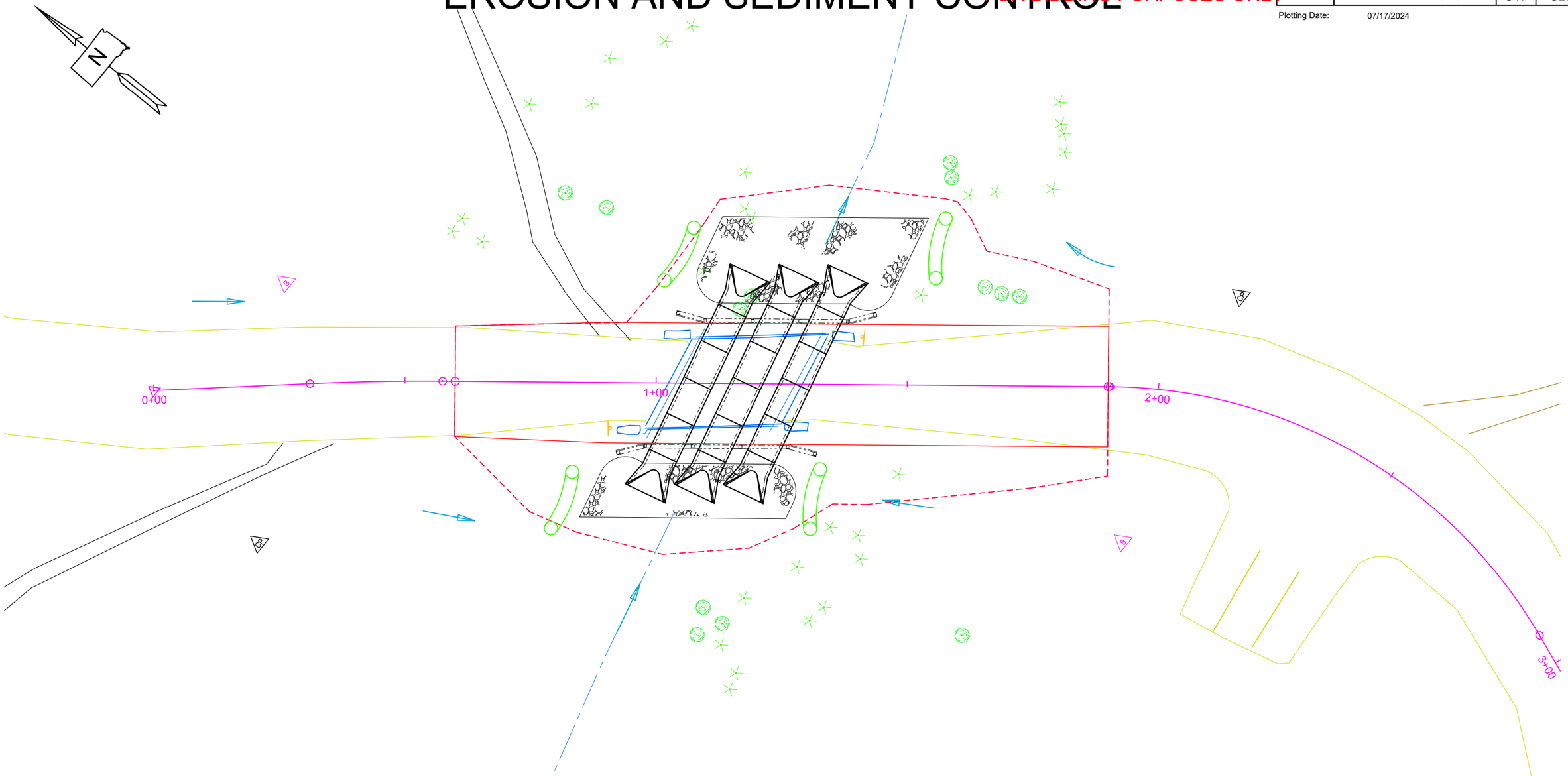
When modifications as described above occur, the SWPPP will be modified to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SDDOT Project Engineer will modify the SWPPP using the DOT 298 form and drawings on the plan will be modified to reflect the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

EROSION AND SEDIMENT CONTROL

FOR BIDDING PURPOSES ONLY

BAI JOB # 23190.65	STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
		BRO-B 8017(11)	C17	C27

Plotting Date: 07/17/2024



NOTES:

1. Maintain as much existing vegetation as possible during construction.
2. The final proposed Wattle placement is shown. Wattles will be installed during construction as determined by the Engineer. An additional 200 Ft is included in the quantities. Wattles will be installed per Standard Plate No. 734.06
3. Remove and Reset Wattles as necessary to complete grading work and install Riprap. Install additional Wattles as directed by the Engineer.
4. Wattles will remain in place until vegetation has been established in seeded areas and will be left to biodegrade.

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (inch)	Quantity (Ft)
0+82 R	Where Water Sheds to Creek	12	20
1+05 L	Where Water Sheds to Creek	12	20
1+72 R	Where Water Sheds to Creek	12	20
1+56 L	Where Water Sheds to Creek	12	20
	Additional Quantity:	12	200
		Total:	280

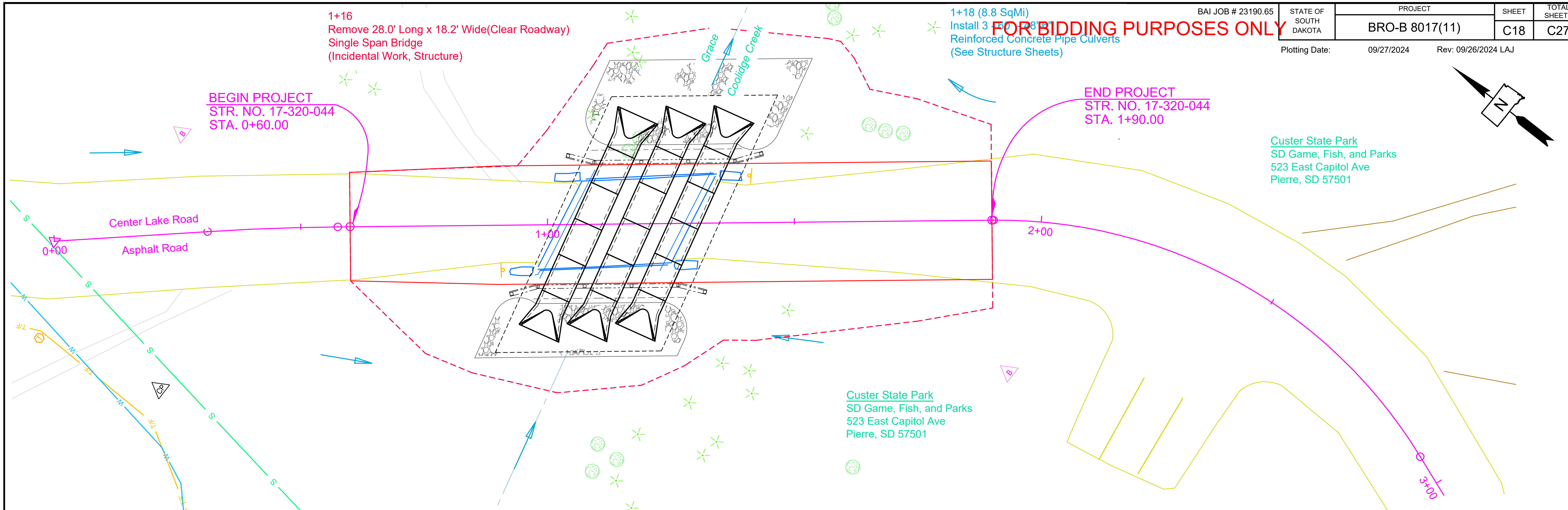
REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A. JOHNSON
SOUTH DAKOTA
7/29/24

BAI JOB # 23190.65

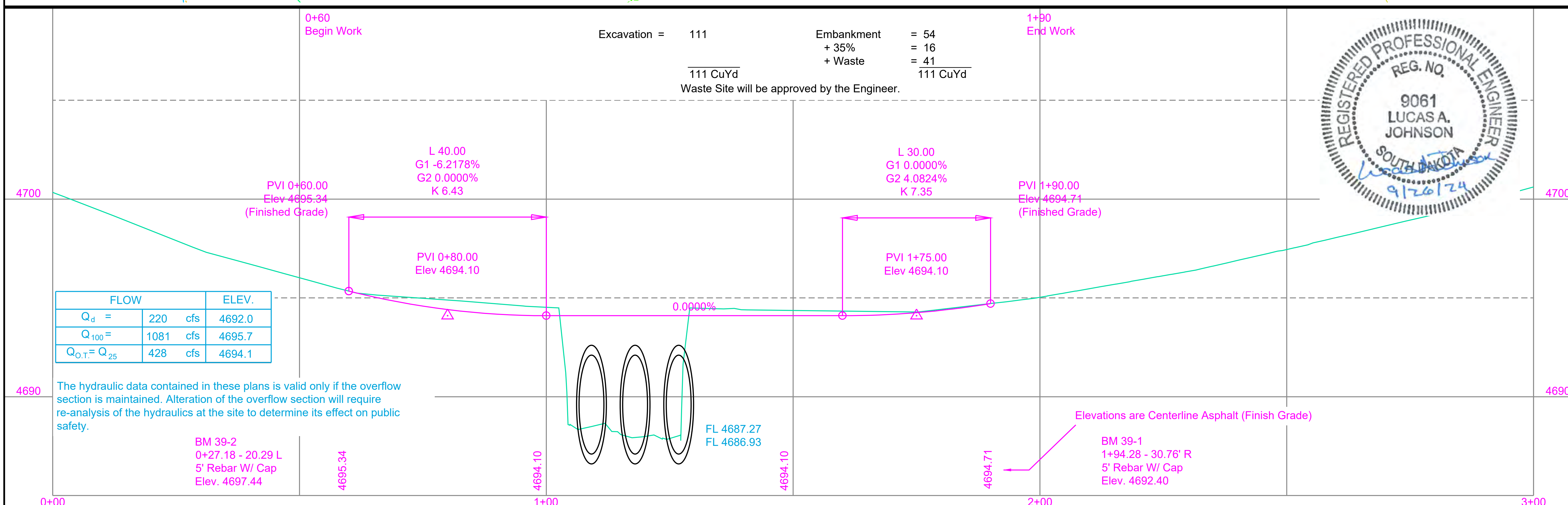
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(11)	C18	C27

Plotting Date: 09/27/2024 Rev: 09/26/2024 LAJ

FOR BIDDING PURPOSES ONLY



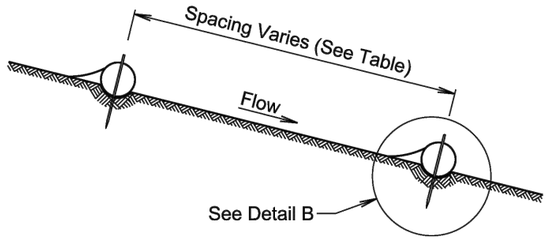
1+16
Remove 28.0' Long x 18.2' Wide(Clear Roadway)
Single Span Bridge
(Incidental Work, Structure)
1+18 (8.8 SqMi)
Install 3 - 50" x 38" RCP
Reinforced Concrete Pipe Culverts
(See Structure Sheets)
BEGIN PROJECT
STR. NO. 17-320-044
STA. 0+60.00
END PROJECT
STR. NO. 17-320-044
STA. 1+90.00
Grace
Coolidge Creek
Center Lake Road
Asphalt Road
0+00
1+00
2+00
3+00
Custer State Park
SD Game, Fish, and Parks
523 East Capitol Ave
Pierre, SD 57501
Custer State Park
SD Game, Fish, and Parks
523 East Capitol Ave
Pierre, SD 57501
N



0+60
Begin Work
1+90
End Work
Excavation = 111
111 CuYd
Embankment = 54
+ 35% = 16
+ Waste = 41
111 CuYd
Waste Site will be approved by the Engineer.
L 40.00
G1 -6.2178%
G2 0.0000%
K 6.43
L 30.00
G1 0.0000%
G2 4.0824%
K 7.35
PVI 0+60.00
Elev 4695.34
(Finished Grade)
PVI 1+90.00
Elev 4694.71
(Finished Grade)
PVI 0+80.00
Elev 4694.10
PVI 1+75.00
Elev 4694.10
0.0000%
FL 4687.27
FL 4686.93
4700
4690
4695.34
4694.10
4694.10
4694.71
BM 39-2
0+27.18 - 20.29 L
5' Rebar W/ Cap
Elev. 4697.44
BM 39-1
1+94.28 - 30.76' R
5' Rebar W/ Cap
Elev. 4692.40
Elevations are Centerline Asphalt (Finish Grade)
0+00
1+00
2+00
3+00
REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A.
JOHNSON
SOUTH DAKOTA
9/26/24

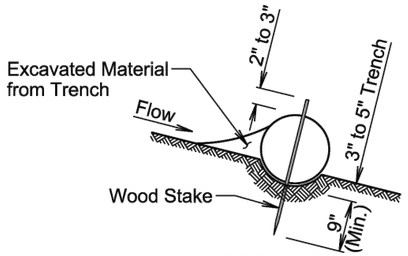
FLOW			ELEV.
Q_d =	220	cfs	4692.0
Q_{100} =	1081	cfs	4695.7
$Q_{O.T.} = Q_{25}$	428	cfs	4694.1

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

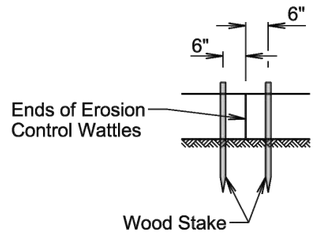


ELEVATION VIEW
(Cut or Fill Slope Installation)

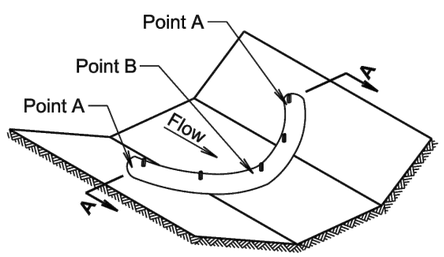
CUT OR FILL SLOPE INSTALLATION	
Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40



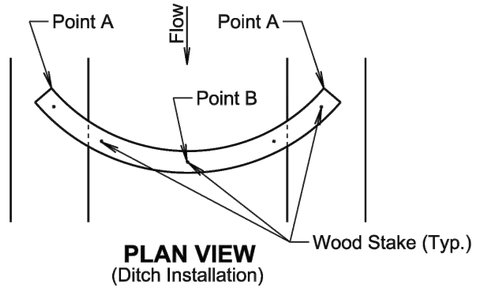
DETAIL B
(Typical of All Installations)



DETAIL C
(See General Notes)

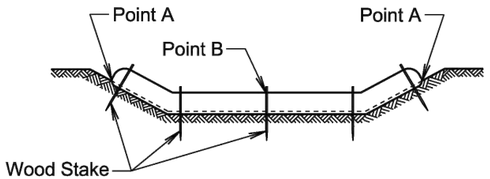


ISOMETRIC VIEW
(Ditch Installation)



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: 2025	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: 2025	SDDOT	EROSION CONTROL WATTLE	PLATE NUMBER 734.06
			Sheet 2 of 2

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

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8017(11)	C20	C27

INDEX OF CULVERT SHEETS

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
	Incidental Work, Structure	LS	Lump Sum
	Pipe Culvert Undercut	Cu. Yd.	135
	Granular Material	Ton	255.2
	60" RCP Class 2, Furnish	Ft.	96
	60" RCP Class 2, Install	Ft.	96
	60" RCP Flared End, Furnish	Ea.	6
	60" RCP Flared End, Install	Ea.	6
	Controlled Density Fill	Cu. Yd.	57.4
	Timber Pedestrian Railing	Ft.	81.0
≠	Class B Riprap	Ton	67.6
≠	Place Riprap	Ton	29.9
	Type B Drainage Fabric	Sq. Yd.	183

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

HYDRAULIC DATA

Qd	220 cfs
Ad	48 sq. ft.
Vd	4.6 fps
Qf	220 cfs
Q_{100}	1081 cfs
$Q_{O.T.fr.}$	428 cfs
V_{MAX}	8.8 fps

Qd = Design discharge for the proposed culvert or bridge based on 10 year frequency. Elev. = 4692.0.

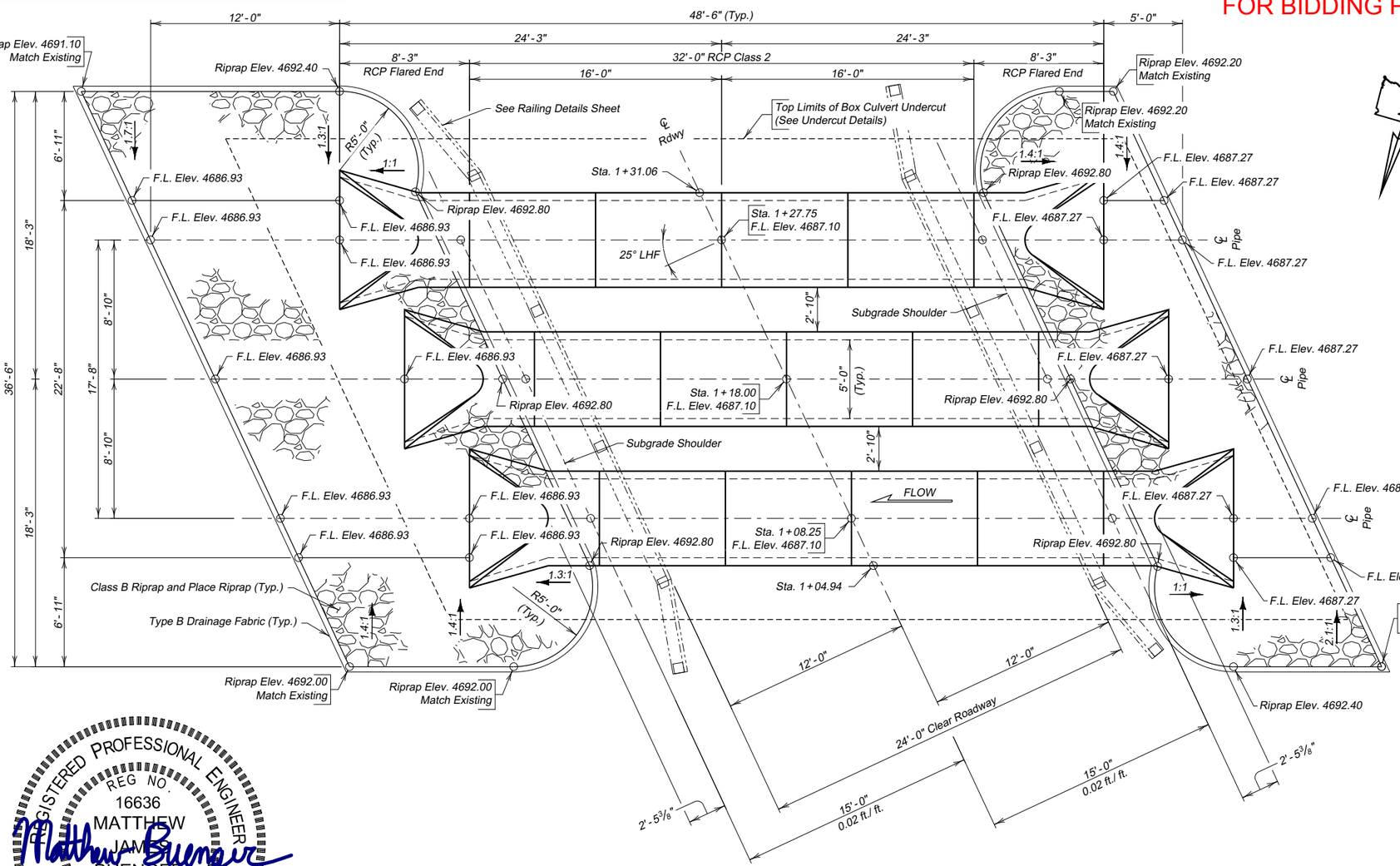
$Q_{O.T.fr.}$ = Overtopping discharge and frequency 25 year recurrence interval, Elev. = 4694.1. Location: 1+18 (at the pipe culverts)

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

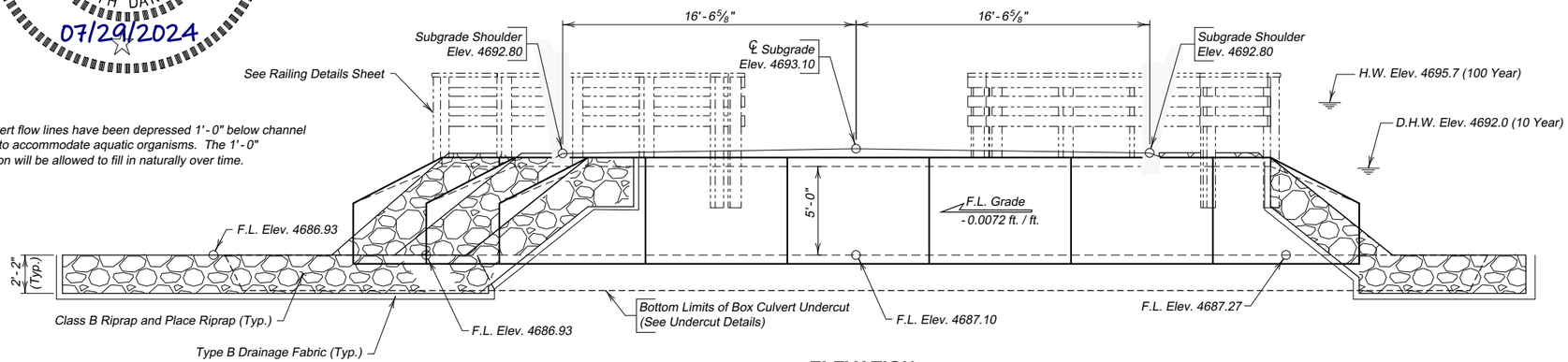
Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency Elev. = 4695.7.

V_{MAX} = Maximum computed outlet velocity for the proposed culvert or bridge, based on a 50 year frequency.

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

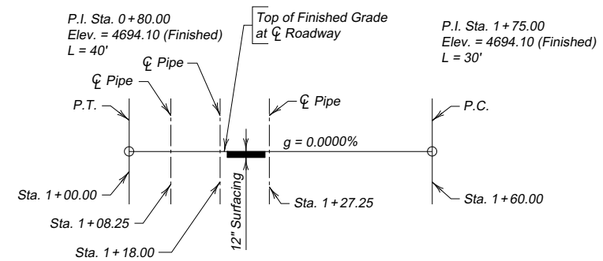


PLAN



ELEVATION

NOTE:
Pipe culvert flow lines have been depressed 1'-0" below channel flow line to accommodate aquatic organisms. The 1'-0" depression will be allowed to fill in naturally over time.



GRADELINE DATA

REGISTERED PROFESSIONAL ENGINEER
REG NO.
16636
MATTHEW
JAMES
BUENGER
SOUTH DAKOTA
07/29/2024

GENERAL DRAWING AND ESTIMATED QUANTITIES
FOR
3 - 60" REINFORCED CONC. PIPE CULVERTS

GRACE COOLIDGE CREEK — 25° LHF SKEW
STA. 1+18.00 — SEC. 8 - T3S - R6E
STR. NO. 17-320-044 — BRO-B 8017(11)
PCN 08NV — HL-93

CUSTER COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

1 OF 6

Plans By: BANNER engineering a better community

23190.65

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

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8017(11)	C21	C27

FOR BIDDING PURPOSES ONLY

SPECIFICATIONS

Use South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and required Provisions, Supplemental Specifications, and/or Special Provisions as included in the Proposal.

INCIDENTAL WORK, STRUCTURE

In place at station 1+02.0 to 1+30.0 is a 28.0' long x 18.2' wide (clear roadway) single span bridge. The bridge consists of a treated timber deck, steel beams, and mortared native rock abutments and wingwalls.

The Contractor will remove and dispose of the timber railings, timber deck, steel beams, and concrete abutment caps.

The Contractor will salvage and stockpile all of the existing rock from the bridge abutments and wingwalls.

The existing structure will be removed to the bottom of the undercut.

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

All costs for labor, equipment, and materials in performing the foregoing work will be incidental to the contract lump sum price for "Incidental Work, Structure".

SHOP PLANS

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

SUBSURFACE CONDITIONS

Soils below the bottom of the proposed RCPs consist of predominantly micaceous black clay silt (alluvium). Sporadic cobbles and boulders, as noted in the stream channel, will also be encountered at various elevations within the excavation for the proposed RCPs.

Groundwater was encountered in the borings at an elevation of 4689.8 feet. Dewatering will be required during construction.

PIPE CULVERT UNDERCUT

Granular material will be required for backfilling the pipe culvert undercut area. Granular material will conform to the gradation requirements in Section 421.2.A of the Specifications and will be paid for at the contract unit price per ton for "Granular Material".

REINFORCED CONCRETE PIPE

Flexible watertight gaskets will be used in all joints. In addition, each joint will be wrapped with drainage fabric in accordance with Section 450 of the Specifications.

BEDROCK INVESTIGATION

In 2021, (4) test pits were excavated by the SD GF&P near the corners of the existing bridge to a depth of 4' below the stream bed. No bedrock was encountered. If bedrock is encountered within the undercut zone, the bridge construction engineer will be contacted. Every effort will be made to avoid removing any bedrock.

PLACE RIPRAP

The rock salvaged from the existing bridge abutments, wingwalls, and excavation will be placed in the areas as shown on the General Drawing. Any excess salvaged rock will be moved to the other Custer State Park project site(s) as directed by the Engineer.

All costs to move and place the salvaged rock will be incidental to the contract unit price per ton for "Place Riprap".

CLASS B RIPRAP

If used, Class B Riprap will be installed in areas that will be under water.

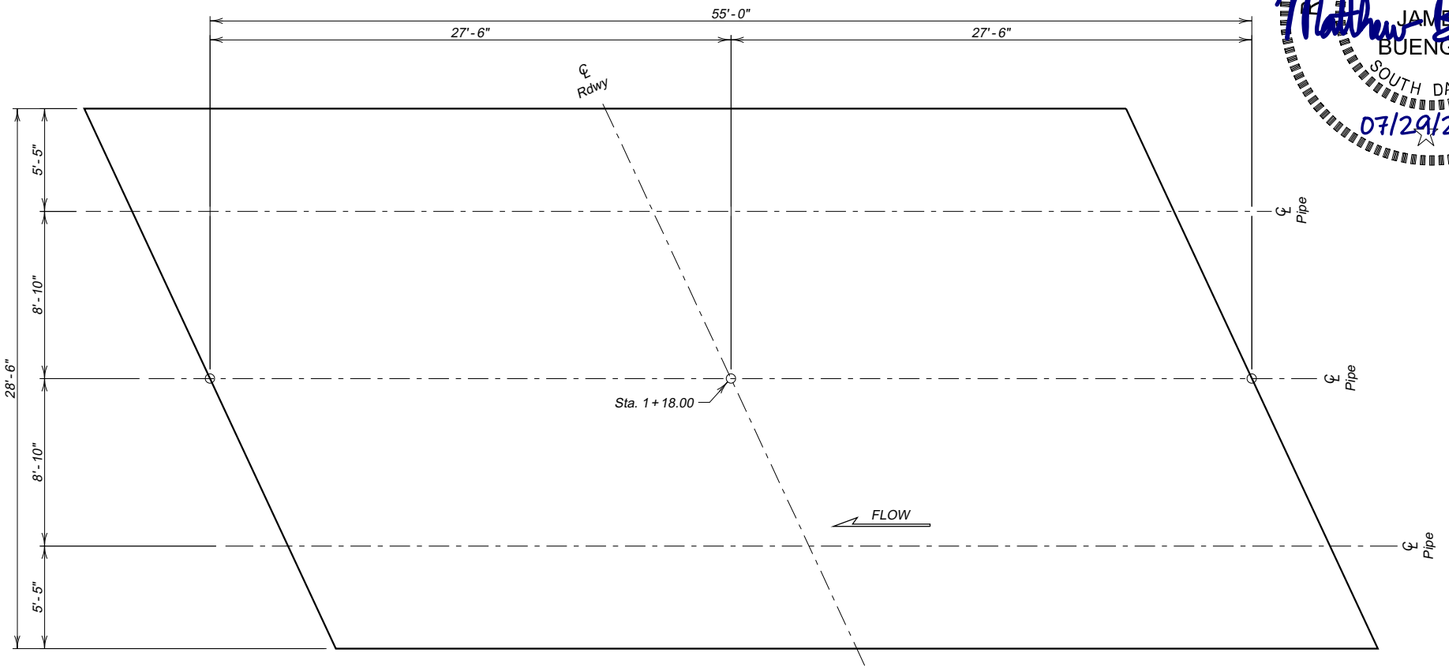
The Class B Riprap contract item (riprap furnished and installed) may be omitted from the project as determined by the Engineer.

The goal is to utilize the salvaged rock among the (3) project sites to avoid using "Class B Riprap".

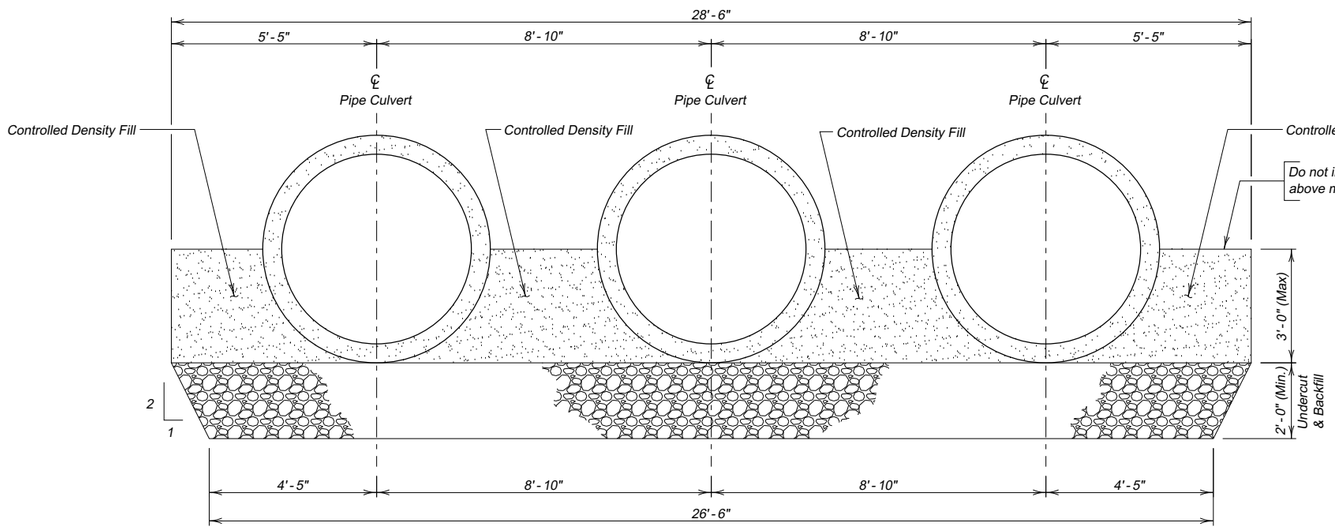
RIPRAP INSTALLATION

Special care will be taken to install the riprap around the flared ends of the pipes. Hand placement of smaller rocks will be necessary to fill voids around the flared ends.

The goal is for all exposed riprap on this project to be uniform and aesthetically pleasing to the public.



UNDERCUT LAYOUT
(Bottom Dimensions)



TYPICAL SECTION
(For Limits of Undercut)

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
⍁	Pipe Culvert Undercut	Cu. Yd.	135
✳	Granular Material	Tons	255.2
	Controlled Density Fill	Cu. Yd.	57.4

⍁ *For payment, quantity is based on plan shown undercut dimensions and will not be measured unless the Engineer orders a change.*

An additional 10% of pipe culvert undercut quantity has been included to account for filling the voids created by removing cobbles and boulders.

✳ *For estimating purposes only, a factor of 1.89 tons/cu. yd. was used to convert cu. yds. to tons.*

NOTES AND UNDERCUT DETAILS

FOR

3 - 60" REINFORCED CONC. PIPE CULVERTS

GRACE COOLIDGE CREEK
STA. 1+18.00
STR. NO. 17-320-044

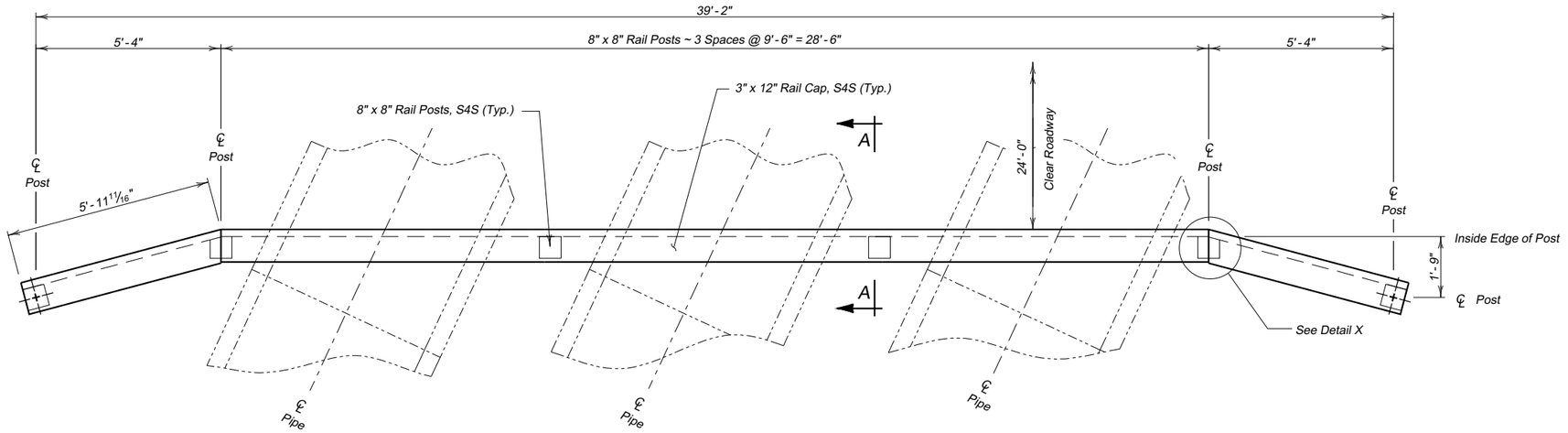
25° LHF SKEW
SEC. 8 - T3S - R6E
BRO-B 8017(11)
HL-93

CUSTER COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

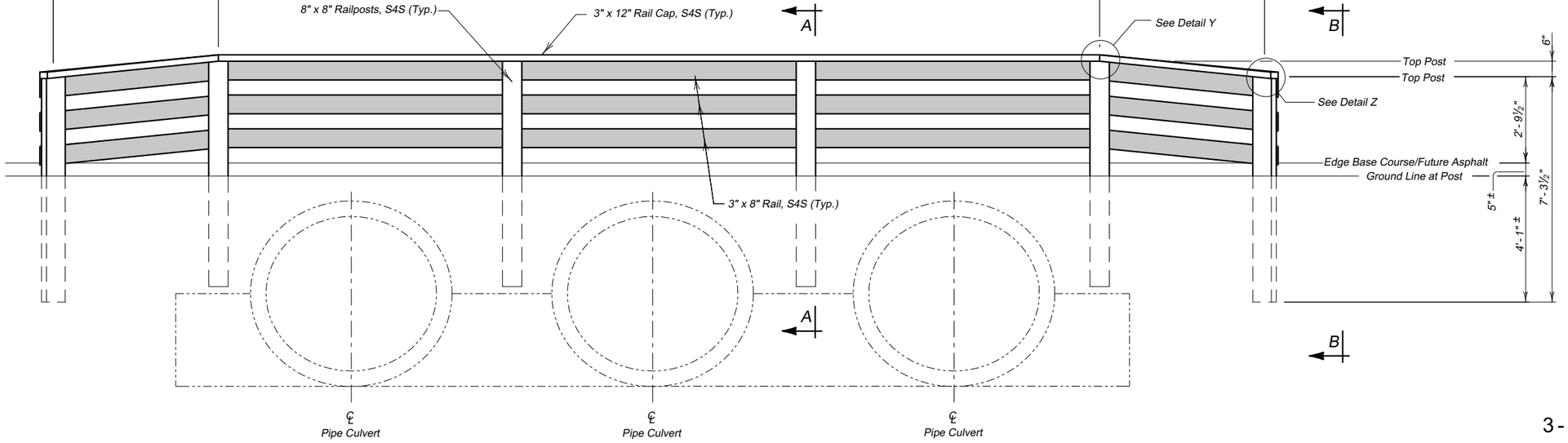
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	MRJ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8017(11)	C22	C27

FOR BIDDING PURPOSES ONLY



RAILING PLAN VIEW



RAILING ELEVATION VIEW

GENERAL NOTES:

1. *Rail posts will be installed plumb.*
2. *Carriage bolts will be ⅜" diameter Grade 307. Nuts will be A563. Supply one washer with each bolt. Install one washer at nut.*
3. *All carriage bolts, washers, and nuts will be galvanized in accordance with ASTM A153.*
4. *All timber will be Douglas Fir-Larch, No. 1 and Better, S4S pressure treated with copper naphthenate in Type A hydrocarbon solvent in accordance with AWPA standards and AASHTO Designation M 133.*
5. *All field cuts will be thoroughly coated with copper naphthenate in accordance with AWPA M4.*
6. *Installation of the railing will be in accordance with the final approved shop plans.*
7. *All carriage bolts, washers, nuts, lag screws, galvanizing, timber rail, timber rail cap, timber rail posts, and installation will be incidental to the contract unit price per foot for Timber Pedestrian Railing.*

ESTIMATED QUANTITIES		
ITEM	*UNIT*	*QUANTITY*
Timber Pedestrian Railing	*Ft.*	*81.0*

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
07/29/2024

RAILING DETAILS (A)
FOR
3 - 60" REINFORCED CONC. PIPE CULVERTS

GRACE COOLIDGE CREEK
STA. 1+18.00
STR. NO. 17-320-044

25° LHF SKEW
SEC. 8 - T3S - R6E
BRO-B 8017(11)
HL-93

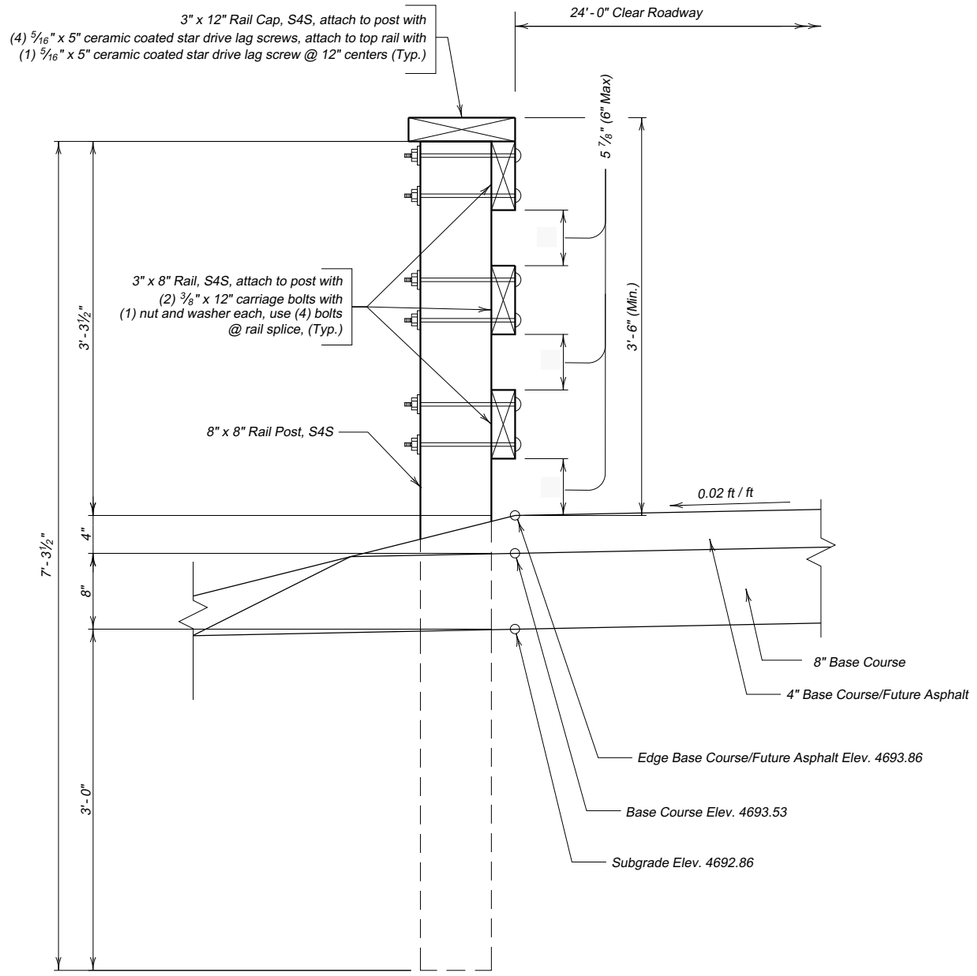
CUSTER COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

3 OF 6

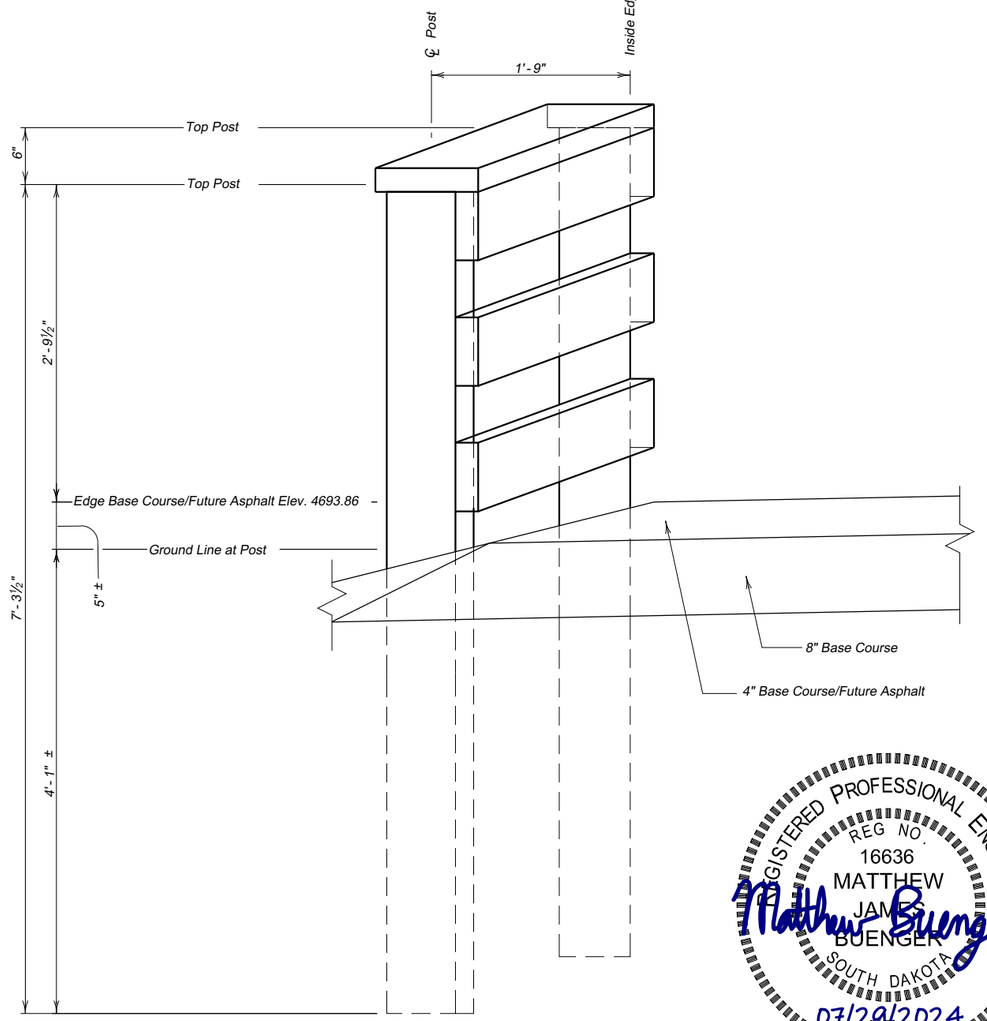
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	MRJ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8017(11)	C23	C27

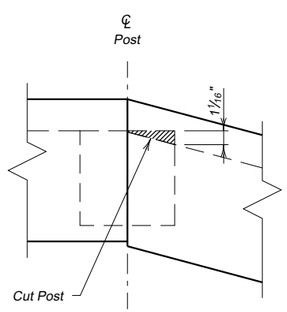
FOR BIDDING PURPOSES ONLY



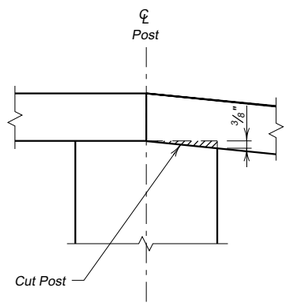
SECTION A - A



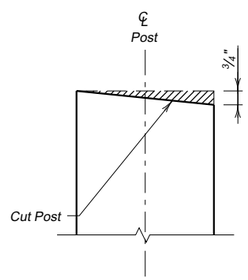
VIEW B - B



DETAIL X



DETAIL Y



DETAIL Z

REGISTERED PROFESSIONAL ENGINEER
REG NO. 16636
MATTHEW JAMES BUENGER
SOUTH DAKOTA
07/29/2024

RAILING DETAILS (B)

FOR

3 - 60" REINFORCED CONC. PIPE CULVERTS

GRACE COOLIDGE CREEK
STA. 1+18.00
STR. NO. 17-320-044

25° LHF SKEW
SEC. 8 - T3S - R6E
BRO-B 8017(11)
HL-93

CUSTER COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

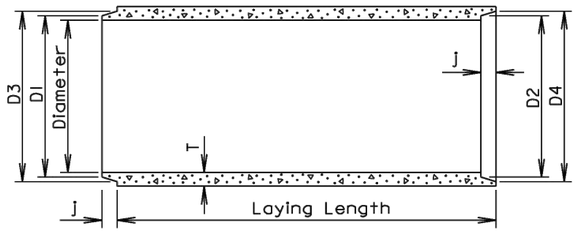
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJB	MRJ	MJB	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8017(11)	C24	C27

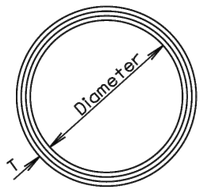
FOR BIDDING PURPOSES ONLY

TOLERANCES IN DIMENSIONS

Diameter: ±1.5% for 24" Dia. or less and ±1% or 3/8" whichever is more for 27" Dia. or greater.
Diameters at joints: ± 3/16" for 30" Dia. or less and ± 1/4" for 36" or greater.
Length of joint (J): ± 1/4".
Wall thickness (T): not less than design T by more than 5% or 3/16", whichever is greater.
Laying length: shall not underrun by more than 1/2".



LONGITUDINAL SECTION



END VIEW

GENERAL NOTES:

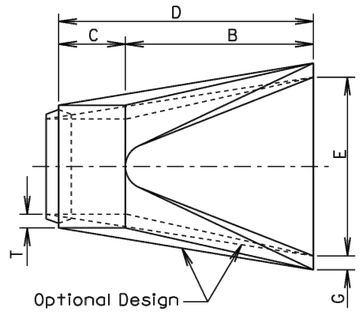
Construction of R. C. P. shall conform to the requirements of Section 990 of the Specifications.

Not more than 2 four-foot sections shall be permitted near the ends of any culvert. Four-foot lengths shall be used only to secure the required length of culvert.

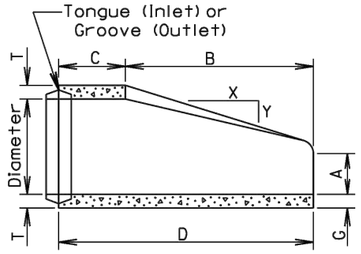
Diam. (in.)	Approx. Wt. /Ft. (lb.)	T (in.)	J (in.)	D1 (in.)	D2 (in.)	D3 (in.)	D4 (in.)
12	92	2	1 3/4	13 1/4	13 5/8	13 7/8	14 1/4
15	127	2 1/4	2	16 1/2	16 7/8	17 1/4	17 5/8
18	168	2 1/2	2 1/4	19 5/8	20	20 3/8	20 3/4
21	214	2 3/4	2 1/2	22 7/8	23 1/4	23 3/4	24 1/8
24	265	3	2 3/4	26	26 3/8	27	27 3/8
27	322	3 1/4	3	29 1/4	29 5/8	30 1/4	30 5/8
30	384	3 1/2	3 1/4	32 3/8	32 3/4	33 1/2	33 7/8
36	524	4	3 3/4	38 3/4	39 1/4	40	40 1/2
42	685	4 1/2	4	45 1/8	45 5/8	46 1/2	47
48	867	5	4 1/2	51 1/2	52	53	53 1/2
54	1070	5 1/2	4 1/2	57 7/8	58 3/8	59 3/8	59 7/8
60	1296	6	5	64 1/4	64 3/4	66	66 1/2
66	1542	6 1/2	5 1/2	70 5/8	71 1/8	72 1/2	73
72	1810	7	6	77	77 1/2	79	79 1/2
78	2098	7 1/2	6 1/2	83 3/8	83 7/8	85 5/8	86 1/8
84	2410	8	7	89 3/4	90 1/4	92 1/8	92 5/8
90	2740	8 1/2	7	95 3/4	96 1/4	98 1/8	98 5/8
96	2950	9	7	102 1/8	102 5/8	104 1/2	105
102	3075	9 1/2	7 1/2	109	109 1/2	111 1/2	112
108	3870	10	7 1/2	115 1/2	116	118	118 1/2

June 26, 2015

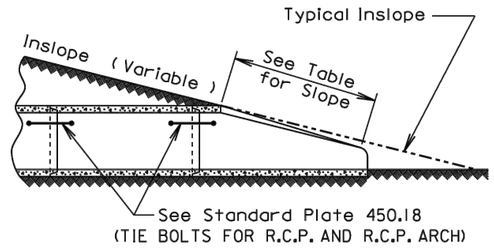
Published Date: 2025	SDDOT	REINFORCED CONCRETE PIPE	PLATE NUMBER 450.01
			Sheet 1 of 1



TOP VIEW



LONGITUDINAL SECTION

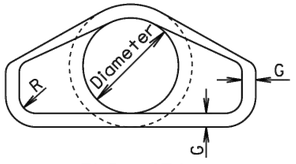


SLOPE DETAIL

GENERAL NOTES:

Lengths of concrete pipe shown on plan sheets are between flared ends only.

Construction of R.C.P. Flared End shall conform to the requirements of Section 990 of the Specifications.



END VIEW

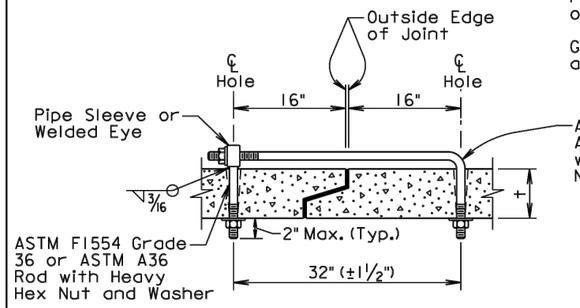
Dia. (in.)	Approx. Wt. of Section (lbs.)	Approx. Slope (X to Y)	T (in.)	A (in.)	B (in.)	C (in.)	D (in.)	E (in.)	G (in.)	R (in.)
12	530	2.4: 1	2	4	24	48 7/8	72 7/8	24	2	1 1/2
15	740	2.4: 1	2 1/4	6	27	46	73	30	2 1/4	1 1/2
18	990	2.3: 1	2 1/2	9	27	46	73	36	2 1/2	1 1/2
21	1280	2.4: 1	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	1 1/2
24	1520	2.5: 1	3	9 1/2	43 1/2	30	73 1/2	48	3	1 1/2
27	1930	2.5: 1	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	1 1/2
30	2190	2.5: 1	3 1/2	12	54	19 3/4	73 3/4	60	3 1/2	1 1/2
36	4100	2.5: 1	4	15	63	34 3/4	97 3/4	72	4	1 1/2
42	5380	2.5: 1	4 1/2	21	63	35	98	78	4 1/2	1 1/2
48	6550	2.5: 1	5	24	72	26	98	84	5	1 1/2
54	8240	2: 1	5 1/2	27	65	33 1/4	98 1/4	90	5 1/2	1 1/2
60	8730	1.9: 1	6	35	60	39	99	96	5	1 1/2
66	10710	1.7: 1	6 1/2	30	72	27	99	102	5 1/2	1 1/2
72	12520	1.8: 1	7	36	78	21	99	108	6	1 1/2
78	14770	1.8: 1	7 1/2	36	90	21	111	114	6 1/2	1 1/2
84	18160	1.6: 1	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2
90	20900	1.5: 1	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	6

June 26, 2015

Published Date: 2025	SDDOT	R. C. P. FLARED ENDS	PLATE NUMBER 450.10
			Sheet 1 of 1

FOR BIDDING PURPOSES ONLY

Wall "t" (in.)	Rod Dia. (in.)	Pipe Sleeve Dia. (nominal)
≤ 3¼	⅝	¾
3½-6½	¾	1
≥ 7	1	1¼



ADJUSTABLE EYE BOLT TIE

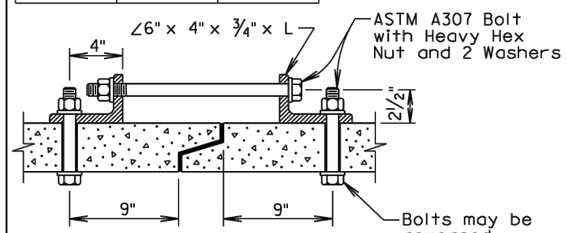
GENERAL NOTES:

Tie bolts shall conform to ASTM F1554 Grade 36 or ASTM A36. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Pipe Sleeve shall conform to ASTM A500 or A53, Grade B.

Galvanize adjustible eye bolt tie assembly in accordance with ASTM A153.

Pipe Dia. (in.)	"L" (in.)	Bolt Dia. (in.)
≤ 48	4	¾
> 48	6	1



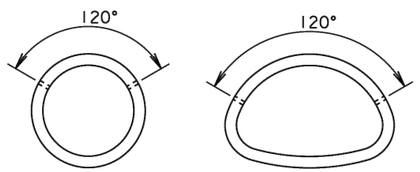
ANGLE AND BOLT TIE

GENERAL NOTES:

Angles shall conform to ASTM A36.

Bolts shall conform to ASTM A307. Nuts shall be heavy hex conforming to ASTM A563. Washers shall conform to ASTM F436.

Galvanize angles, bolts, nuts, and washers in accordance with ASTM A153.



END VIEW "CIRCULAR"

END VIEW "ARCH"

GENERAL NOTES:

In lieu of the tie bolts detailed above other types of tie bolt connections may be installed as approved by the Office of Bridge Design.

All pipe sections of R.C.P. and R.C.P. Arch shall be tied with tie bolts except for pipe located between drop inlets, manholes, and junction boxes. All pipe sections of pipes that only enter or exit drop inlets, manhole, and junction boxes shall be tied with tie bolts.

There will be no separate measurement or payment for the tie bolts. The cost for furnishing and installing the tie bolts shall be incidental to the contract unit price per foot for the corresponding bid item for R.C.P. or R.C.P. Arch.

February 28, 2013

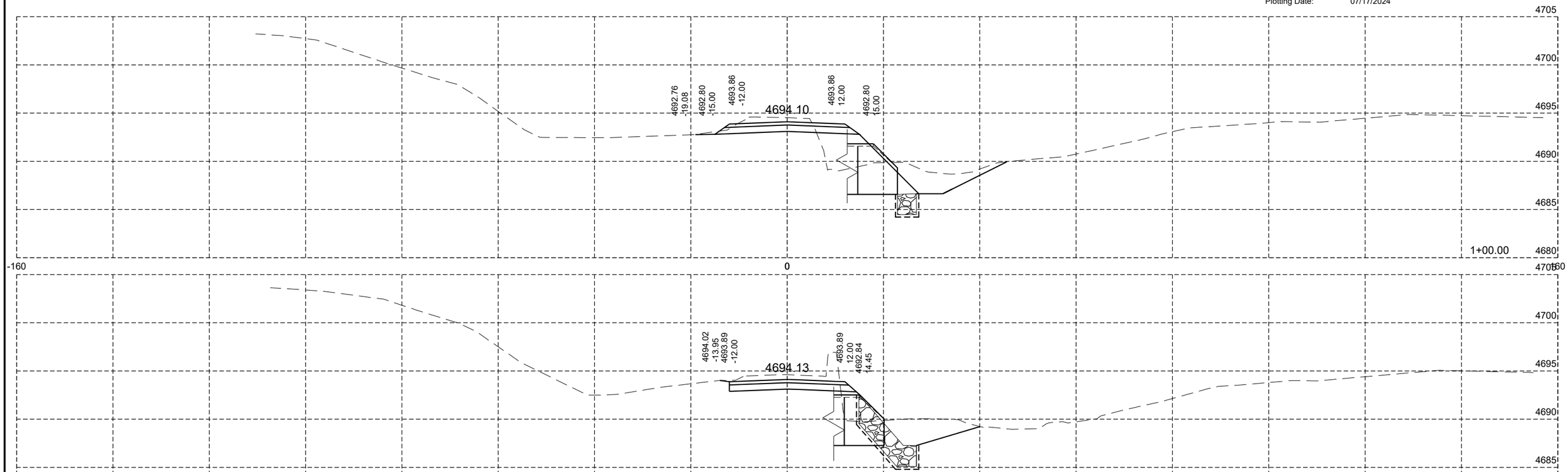
Published Date: 2025	SDDOT	***TIE BOLTS FOR R.C.P. AND R.C.P. ARCH***	***PLATE NUMBER*** *450.18*
			Sheet 1 of 1

BAI JOB # 23190.65

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(11)	C26	C27

Plotting Date: 07/17/2024



REGISTERED PROFESSIONAL ENGINEER
REG. NO.
9061
LUCAS A.
JOHNSON
SOUTH DAKOTA
7/29/24

BAI JOB # 23190.65

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8017(11)	C27	C27

Plotting Date: 07/17/2024