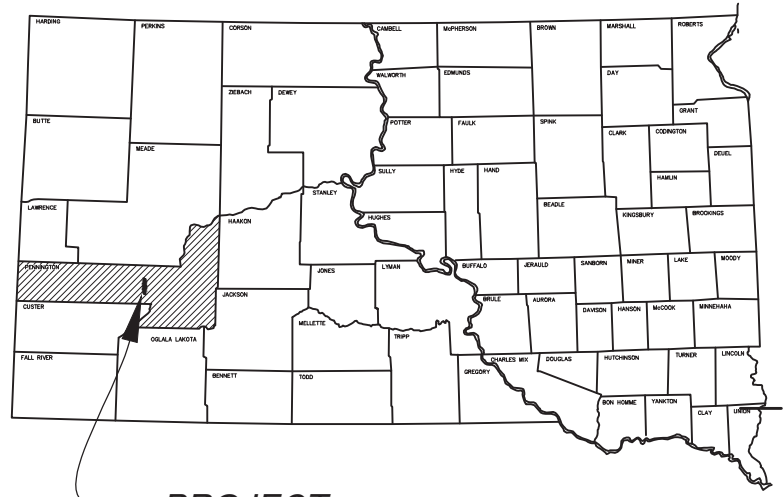


Plotting Date: 7/10/2024

PLANS FOR PROPOSED

PROJECT BRO-B 8052(77) HAMMERQUIST ROAD PENNINGTON COUNTY

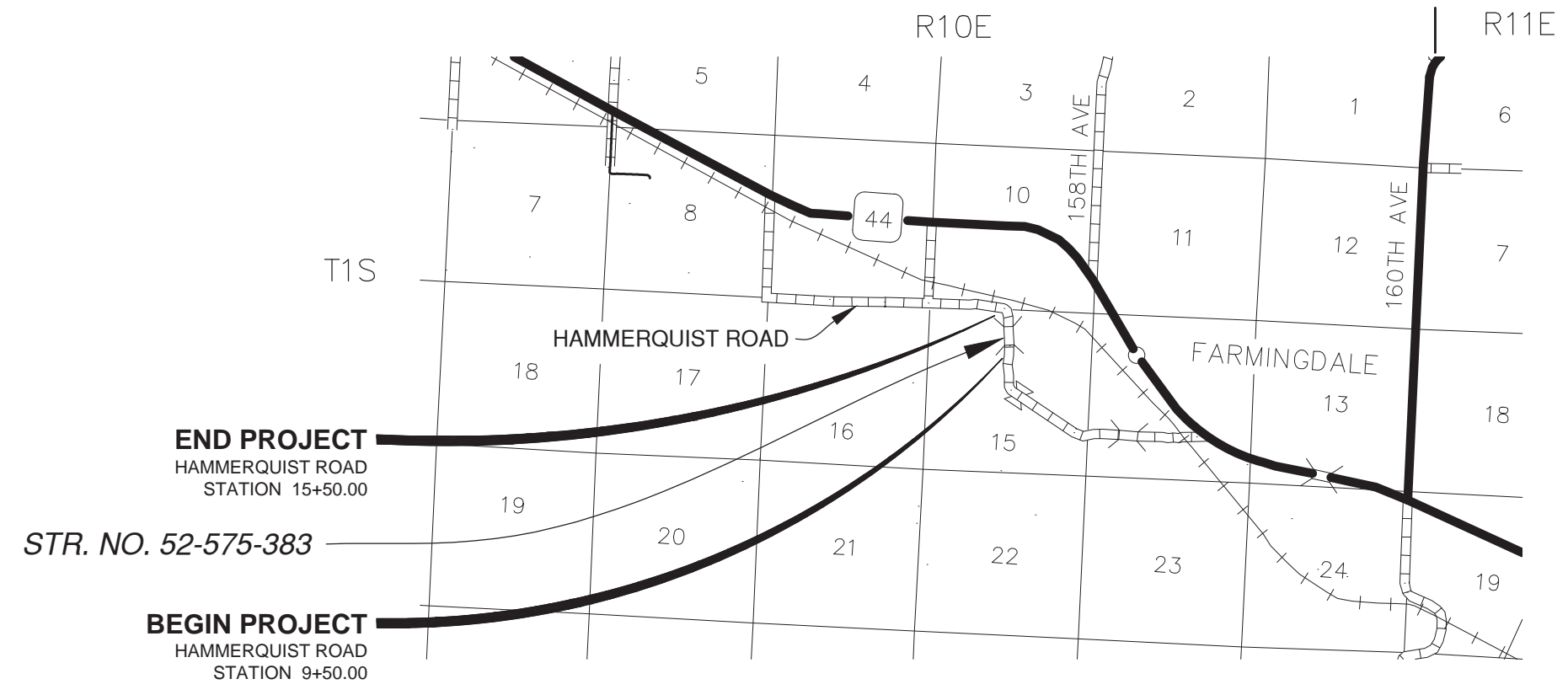
STRUCTURE REPLACEMENT AND APPROACH GRADING
PCN 08N3



PROJECT

INDEX OF SHEETS

SHEET	TITLE SHEET
1	TITLE SHEET
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17	HORIZONTAL ALIGNMENT DATA
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DESIGN DESIGNATION

AADT (2017) 54
V (Design) 50 mph

STORM WATER PERMIT

Major Receiving Body of Water: Rapid Creek
Area Disturbed: 0.68 Acres
Total Project Area: 0.68 Acres
Approx. Begin Lat,Long: 43°, 58', 1" N - 102°, 54', 33" W (Google Earth)

Gross Length	600 Feet	0.114 Miles
Length of Exceptions	0 Feet	0 Miles
Net Length	600 Feet	0.114 Miles

3

October 16, 2024

Plotted From: zach.vlamnick

File: K:\Projects\State\SD\DOT\2102_00972_Hammerquist_Road\CAD\Design\Plans\Sections\2102-00972_Title_Sheet.dwg

ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	2	45

Estimate of Quantities

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3200	Construction Staking	Lump Sum	LS
100E0100	Clearing	Lump Sum	LS
110E0600	Remove Fence	628	Ft
110E0730	Remove Beam Guardrail	292.0	Ft
120E0010	Unclassified Excavation	212	CuYd
120E0600	Contractor Furnished Borrow Excavation	675	CuYd
230E0010	Placing Topsoil	147	CuYd
634E0110	Traffic Control Signs	109.0	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	8	Each
734E0010	Erosion Control	Lump Sum	LS
734E0103	Type 3 Erosion Control Blanket	88	SqYd
734E0150	6" Diameter Erosion Control Wattle	32	Ft
734E0602	Low Flow Silt Fence	530	Ft
734E0610	Mucking Silt Fence	10	CuYd
734E0620	Repair Silt Fence	106	Ft
734E0630	Floating Silt Curtain	244	Ft

Structure No. 52-575-383

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E5000	Concrete Penetrating Sealer	235.6	SqYd
120E7000	Select Granular Backfill	15.4	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
420E0100	Structure Excavation, Bridge	20	CuYd
430E0200	Bridge End Embankment	502	CuYd
430E0300	Granular Bridge End Backfill	35.4	CuYd
460E0030	Class A45 Concrete, Bridge Deck	85.9	CuYd
460E0050	Class A45 Concrete, Bridge	24.6	CuYd
470E0420	Type T101 Bridge Railing	192	Ft
480E0100	Reinforcing Steel	5,014	Lb
480E0200	Epoxy Coated Reinforcing Steel	10,254	Lb
510E0300	Preboring Pile	120	Ft
510E3361	HP 10x42 Steel Test Pile, Furnish and Drive	90	Ft
510E3365	HP 10x42 Steel Bearing Pile, Furnish and Drive	400	Ft
560E8036	36" Minnesota Shape Prestressed Concrete Beam	310	Ft
635E8120	2" Rigid Conduit, Schedule 40	20	Ft
700E0210	Class B Riprap	748.9	Ton
700E1100	Overburden Excavation for Riprap	432	CuYd
831E0110	Type B Drainage Fabric	960	SqYd
831E1030	Perforated Geocell	440	SqFt

SPECIFICATIONS

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

ENVIRONMENTAL COMMITMENTS

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

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

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

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

COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.09 acres of stream (includes temporary and permanent) becoming impacted. Refer to 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)
Rapid Creek	12+00 to 13+00	0.04	0.00	0.05	0.00	0.09

Action Taken/Required:

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

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

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://sdeastwanted.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](https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04) >



COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

Rapid Creek is classified as a warm water permanent fishery with a total suspended solids standard of less than 90 mg/L 30-day average, less than 158 mg/L daily maximum.

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

Action Taken/Required:

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

COMMITMENT D2: SURFACE WATER DISCHARGE

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

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

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

Action Taken/Required:

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

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

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

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

< <https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/swdpermitting/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_CGPAAppendixCCA2018Fillable.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 F: SEASONAL WORK RESTRICTION

The State of South Dakota Game, Fish, and Parks has identified a Great Blue Heron nesting colony within 0.2 miles of the bridge replacement.

Action Taken/Required:

The contractor shall contact the SDDOT Environmental Office to conduct a presence/absence survey to determine if the nearby Great Blue Heron nesting colony is active. If the colony is found to be active, construction or demolition activities should not take place during the Seasonal Work Restriction listed in the below table to avoid conflicts with nesting Great Blue Heron. The Contractor will not conduct project work during the Seasonal Work Restriction without prior approval from the SDDOT Environmental Office.

Resource	Seasonal Work Restriction
Great Blue Heron Nesting Colony	April 15 to July 31



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:

- 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".
- 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) 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
12+00 to 13+00	Rapid Creek	2,791.2'

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
12+00 to 13+00	Historic Structure 52-575-383

Action Taken/Required:

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

The removal and replacement of structure 52-575-383 has resulted in an Adverse Effect to historic properties. A Memorandum of Agreement was signed and MOA stipulations must be fulfilled prior to construction. The SDDOT Environmental Office will ensure MOA Stipulations I-III are completed prior to construction.

A programmatic Section 4(f) Evaluation for Use of Historic Bridge 52-575-383 was approved by FHWA.

COMMITMENT N: SECTION 404 PERMIT

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

Action Taken/Required:

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

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



SEQUENCE OF OPERATIONS

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

1. Install traffic control signs and devices.
2. Install erosion and sediment control measures.
3. Dismantle and remove the existing structure.
4. Construct the new structure.
5. Construct proposed roadway per the typical sections.
6. Place and compact gravel surfacing (by County Forces).
7. Seeding, restoration, and final site clean-up.
8. Remove traffic control signs and devices.

COUNTY RESPONSIBILITIES

Pennington County will be responsible for the following at no cost to the Contractor.

1. Right of way and temporary and permanent easements.
2. Coordination of any utility adjustments.
3. Furnish and install final surfacing.
4. Furnish and install temporary and/or permanent fencing.
5. Remove silt fence in permanently seeded areas.

GENERAL TRAFFIC CONTROL

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

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

All construction operations will be conducted in the general direction of traffic movement.

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

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

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

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

INCIDENTS

The Contractor will notify the entities listed below prior to start of work to plan and coordinate incident responses as needed.

- Pennington County Sheriff
- South Dakota Highway Patrol
- Pennington County Highway Department
- Local Emergency Response Teams

UTILITIES

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

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. The utility contact information is provided elsewhere in the plans or bidding documents.

West River Electric Association
 3250 East Hwy 44
 Rapid City, SD 57703
 Phone: 605-791-6512

UNCLASSIFIED EXCAVATION

The plans quantity for "Unclassified Excavation" as shown in the Table of Unclassified Excavation will be the basis of payment.

Topsoil will be salvaged and stockpiled prior to construction. Limits of the work, depth of salvage, and stockpile location will be approved by the Engineer.

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment. The estimated quantity of Water for Embankment is 7 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

All costs to remove and stockpile the topsoil will be incidental to the contract unit price per cubic yard for "Unclassified Excavation".

TABLE OF UNCLASSIFIED EXCAVATION

Excavation	65
Placing Topsoil	147
Total:	212

SHRINKAGE FACTOR: Embankment +35%

CONTRACTOR FURNISHED BORROW

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

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

The Contractor furnished borrow 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 Contractor will be responsible for the following minimum testing prior to use of each borrow site:

A minimum of one test for liquid limit and plastic index and a 4 point for each location and soil type, with samples obtained according to SD201.

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station to	Station	Excavation (CuYd)	Embankment (CuYd)	*Contractor Furnished Borrow (CuYd)
9+50	15+50	65	740	675
Totals:		65	740	675

*Paid under the contract item per cubic yard for, "Contractor Furnished Borrow".



PLACING TOPSOIL

Following completion of construction, topsoil will be spread evenly over the disturbed areas. The thickness will be approximately 4 inches within the right-of-way and 6 inches within the easements. Payment for Placing Topsoil will be plans quantity unless changes are directed by the Engineer.

The estimated amount of topsoil to be placed is as follows:

Station	to	Station	L/R	Quantity (CuYd)
10+00		12+21	L	31
10+00		12+33	R	30
12+67		15+50	L	44
12+97		15+50	R	42
Total:				147

All costs to place the topsoil will be incidental to the contract unit price per cubic yard for "Placing Topsoil".

REMOVE GUARDRAIL

All removed guardrail will become property of the Contractor. All costs for labor and equipment necessary to dismantle, remove, and dispose of guardrail will be incidental to the unit price per foot for "Remove Beam Guardrail".

TABLE OF REMOVE GUARDRAIL

Station	to	Station	L/R	Quantity (Ft)
11+83		13+34	L	152
11+95		13+34	R	140
Total:				292

SUBGRADE PREPARATION & MAINTENANCE

The subgrade will be scarified a minimum of eight inches (8") and recompacted to the specifications governed by the specified density method in accordance with Section 120.3 B.3 of the Specifications and to the satisfaction of the Engineer. Scarification and recompaction will be considered incidental to the contract unit price per cubic yard for "Unclassified Excavation" and no extra payment will be allowed.

DUST CONTROL PERMIT

The Contractor will be required to obtain a Pennington County Air Quality Construction Permit prior to beginning the project. Contact Pennington Air Quality Office - Telephone (605) 394-6748. The fee for the permit will be approximately \$50.

FENCING

The Contractor will coordinate with Pennington County Highway Department prior to initiating work activities so the County can install temporary fencing along the project perimeter. The Contractor will provide construction staking for all temporary and permanent fencing locations. The coordination and staking will be incidental to the contract lump sum price for, "Construction Staking".

CONSTRUCTION STAKING

All construction staking will be incidental to the contract lump sum price for "Construction Staking".

Roadway and Description	Begin Station	End Station	Number of Lanes	Length (Ft)	Length (Mile)	Lane Factor	Grade Staking				
							*Sets of Stakes	**Grade Staking Quantity (Mile)	Miscellaneous Staking Quantity (Mile)	Slope Staking Quantity (Mile)	Structure Staking Quantity (Each)
Roadway	9+50.00	15+50.00	2	600	0.114	1	1	0.114	0.114	0.114	
Structure #52-575-383	12+10.00	12+90.00									1
Totals:								0.114	0.114	0.114	1

* 1 = Blue Top Stakes Only (Gravel Surfacing)

** Grade Staking Quantity = (Length) x (Lane Factor) x (Sets of Stakes)



EROSION CONTROL

The estimated area requiring erosion control is 11,893 square feet. All costs for the erosion control work for furnishing, placing, and maintaining erosion control including equipment, labor, surface roughening, seeding, fertilizing, and mulching will be incidental to the contract lump sum price for "Erosion Control".

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

Surface Roughening

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

Mycorrhizal Inoculum

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

All seed will be inoculated by the seed supplier with a minimum of 100,000 live propagules of mycorrhizal fungi per acre. All costs of inoculating the seed will be incidental to the contract lump sum price for "Erosion Control".

Product	Manufacturer
MycoApply	Mycorrhizal Applications, Inc. Grants Pass, OR Phone: 1-866-476-7800 www.mycorrhizae.com
AM 120 Multi Species Blend	Reforestation Technologies Int. Gilroy, CA Phone: 1-800-784-4769 www.reforest.com
LALRISE Prime and Max WP	Lallemand Specialties Inc. Milwaukee, WI Phone: 1-844-590-7781 www.lallemandplantcare.com

Fertilizing

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

The fertilizer will be applied at a rate of 1,500 pounds per acre in accordance with the manufacturer's recommended method of application.

The all-natural slow release fertilizer will be as shown below or an approved equal:

Product	Manufacturer
Sustane	Sustane Corporate Headquarters Cannon Falls, Minnesota Phone: 1-800-352-9245 www.sustane.com
Perfect Blend	Perfect Blend, LLC Bellevue, WA Phone: 1-866-456-8890 www.perfect-blend.com
Nature Safe	Nature Safe Fertilizers Irving, TX Phone: 1-605-759-5622 www.naturesafe.com

Permanent Seeding

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

Type F 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
Oats or Spring Wheat: April through May; Winter Wheat: August through November		10
Total:		26

Mulching (Grass Hay or Straw)

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

LOW FLOW SILT FENCE

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

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

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

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

TABLE OF LOW FLOW SILT FENCE

Station	L/R	Location	Quantity (Ft)
11+43 to 11+97	L	Inside perimeter of easement	84
11+92 to 12+56	R	Inside perimeter of easement	70
12+43 to 14+38	L	Inside perimeter of easement /ROW	238
12+99 to 13+34	R	Inside perimeter of easement	50
Additional Quantity:			88
Total:			530



FLOATING SILT CURTAIN

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

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

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

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

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

- | | |
|---|--|
| ABASCO, LLC
Humble, TX
Phone: 1-281-466-1500
www.abasco.net | Aer-Flo, Inc.
Bradenton, FL
Phone: 1-800-823-7356
www.aerflo.com |
| ACME Environmental
Tulsa, OK
Phone: 1-855-563-2666
www.acmeboom.com | ENVIRO-USA, LLC
Cap Canaveral, FL
Phone: 1-321-222-9551
www.enviro-usa.com |
| Elastec/American Marine, Inc.
Carmi, IL
Phone: 1-618-382-2525
www.turbiditycurtains.com | Geo-Synthetics, LLC (GSI)
Waukesha, WI
Phone: 1-800-444-5523
www.geosynthetics.com |
| Parker Systems, Inc.
Chesapeake, VA
Phone: 1-866-472-7537
www.parkersystemsinc.com | |

TABLE OF FLOATING SILT CURTAIN

Station	to	Station	L/R	Quantity (Ft)
11+98		12+56	L & R	128
12+39		12+99	L & R	116
Total:				244

EROSION CONTROL BLANKET

Erosion control blanket will be installed 12 feet wide at the locations noted in the table and at locations determined by the Engineer during construction.

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

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

All costs for shaping for erosion control blanket will be incidental to the contract unit price per square yard for "Type 3 Erosion Control Blanket".

An additional quantity of Type 3 Erosion Control Blanket has been added to the Estimate of Quantities for temporary erosion control.

TABLE OF EROSION CONTROL BLANKET

Station	Location	Type	Quantity (SqYd)
11+63 to 12+24 - L	Embankment	3	78
	Additional Quantity:	3	10
Total Type 3 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 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.


TABLE OF EROSION CONTROL WATTLE

Station - Offset	Location	Diameter (Inch)	Quantity (Ft)
11+85 - L	Ditch Bottom	6	8
12+19 - R	Ditch Bottom	6	8
13+13 - R	Ditch Bottom	6	8
	Additional Quantity:	6	8
Total:			32



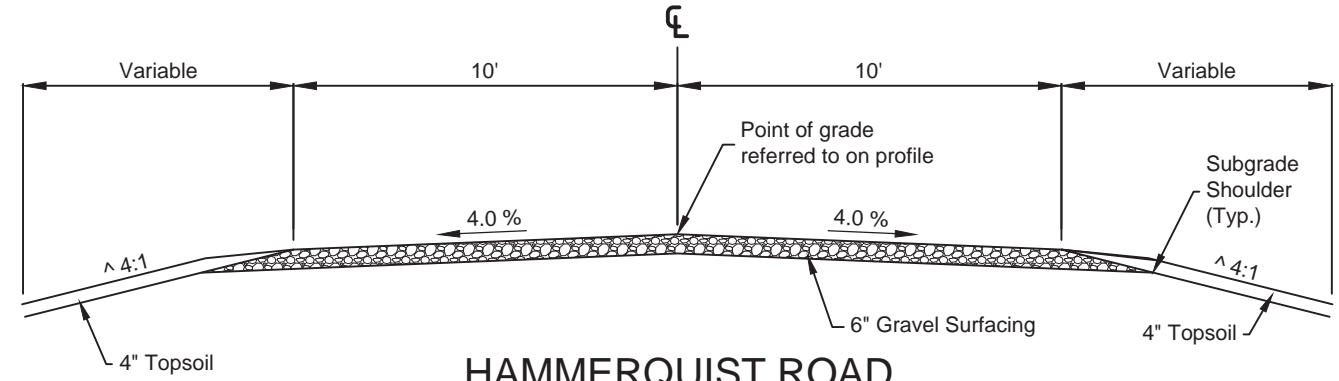
TYPICAL GRADING SECTIONS

FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	10	45

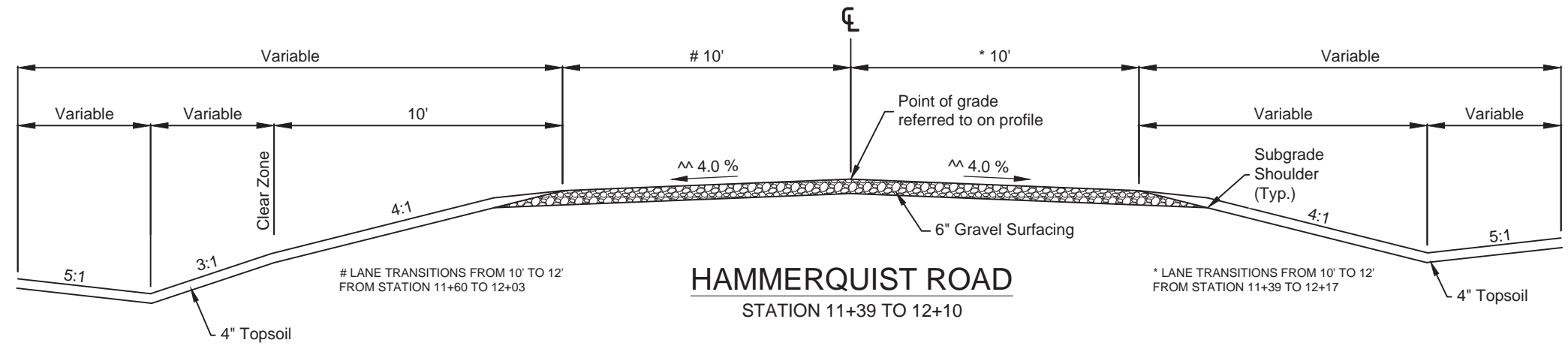
Plotting Date: 7/10/2024

Plot Scale- 1" = 5'



HAMMERQUIST ROAD
STATION 10+00 TO 11+39

^ FLATTEN INSLOPE AND INSTALL GRAVEL SURFACING AT APPROACHES ALONG LEFT AND RIGHT SIDES OF HAMMERQUIST ROAD PER THE "PLAN AND PROFILE" SHEET.

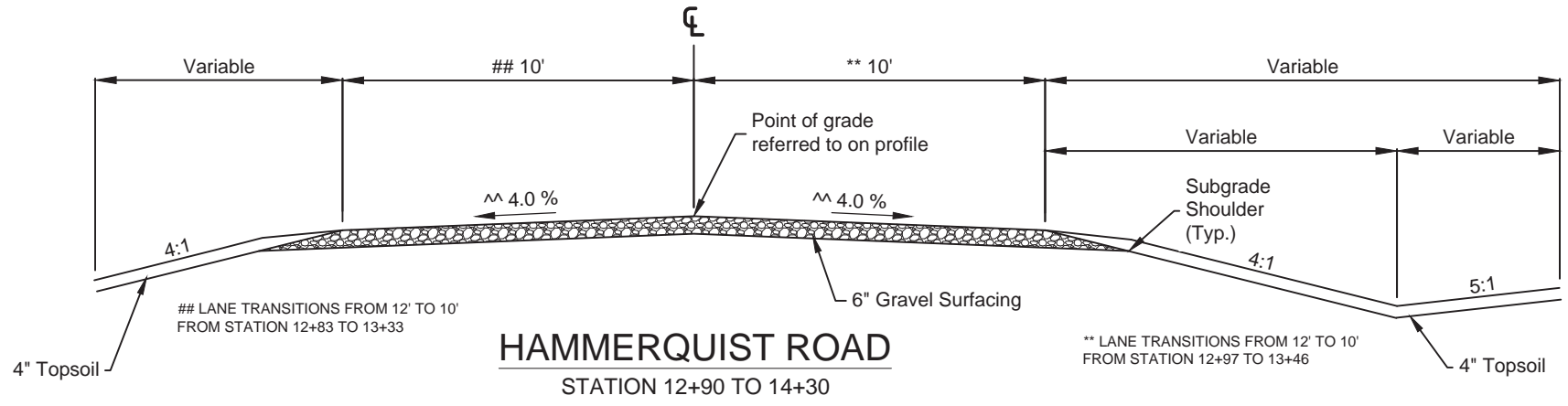


HAMMERQUIST ROAD
STATION 11+39 TO 12+10

LANE TRANSITIONS FROM 10' TO 12' FROM STATION 11+60 TO 12+03

* LANE TRANSITIONS FROM 10' TO 12' FROM STATION 11+39 TO 12+17

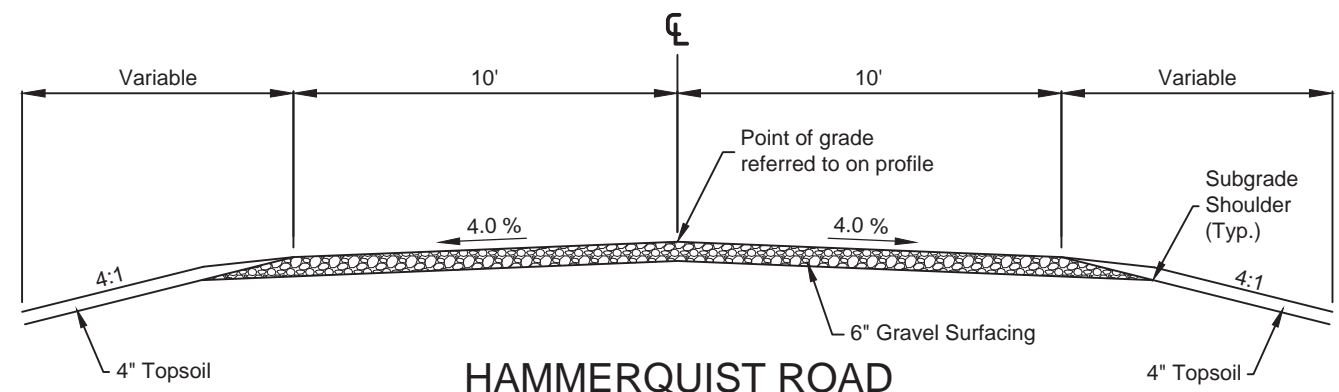
^^ CROSS SLOPE TRANSITION AT BRIDGE THE CROSS SLOPE OF HAMMERQUIST ROAD WILL TRANSITION FROM THE TYPICAL 4% TO 2% OVER 25' ALONG CENTERLINE AT EACH APPROACH END OF THE BRIDGE.



HAMMERQUIST ROAD
STATION 12+90 TO 14+30

LANE TRANSITIONS FROM 12' TO 10' FROM STATION 12+83 TO 13+33

** LANE TRANSITIONS FROM 12' TO 10' FROM STATION 12+97 TO 13+46



HAMMERQUIST ROAD
STATION 14+30 TO 15+50




Plotted From- zach.vlamnick

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TRAFFIC CONTROL

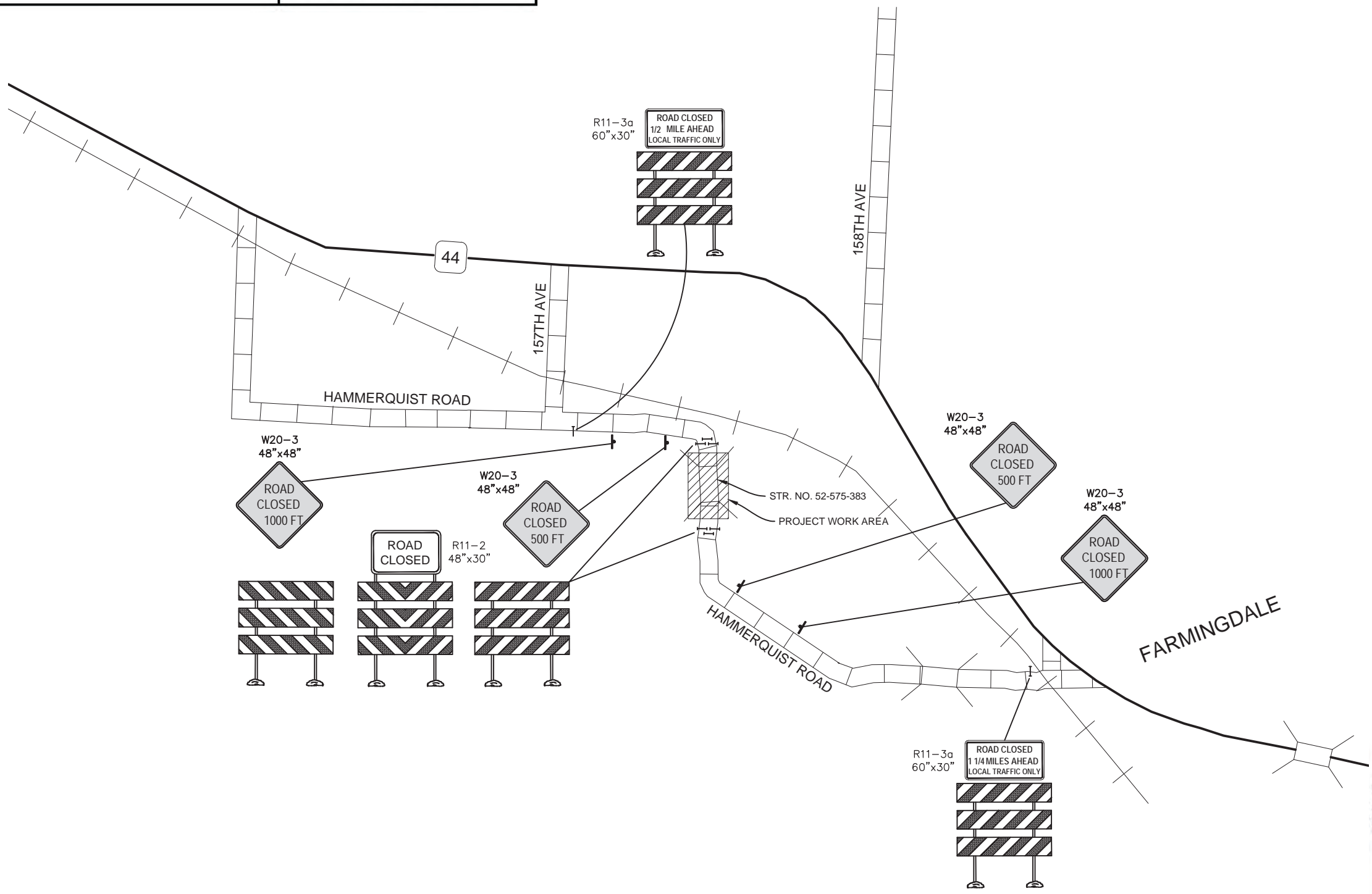
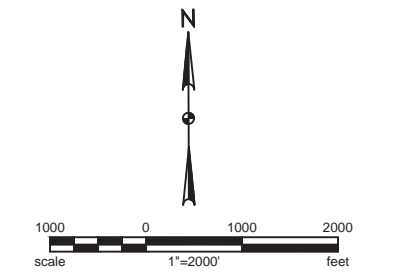
FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	11	45

Plotting Date: 7/10/2024

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
R11-2	ROAD CLOSED	2	48" x 30"	10.0	20.0
R11-3a	ROAD CLOSED 1/2 MILES AHEAD LOCAL TRAFFIC ONLY	2	60" x 30"	12.5	25.0
W20-3	ROAD CLOSED AHEAD	4	48" x 48"	16.0	64.0
CONVENTIONAL ROAD TRAFFIC CONTROL SIGNS SQFT					109.0



Plot Scale: #####

Plotted From: zach.vlamnick

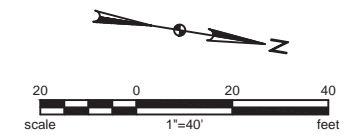
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EROSION AND SEDIMENT CONTROL PLAN

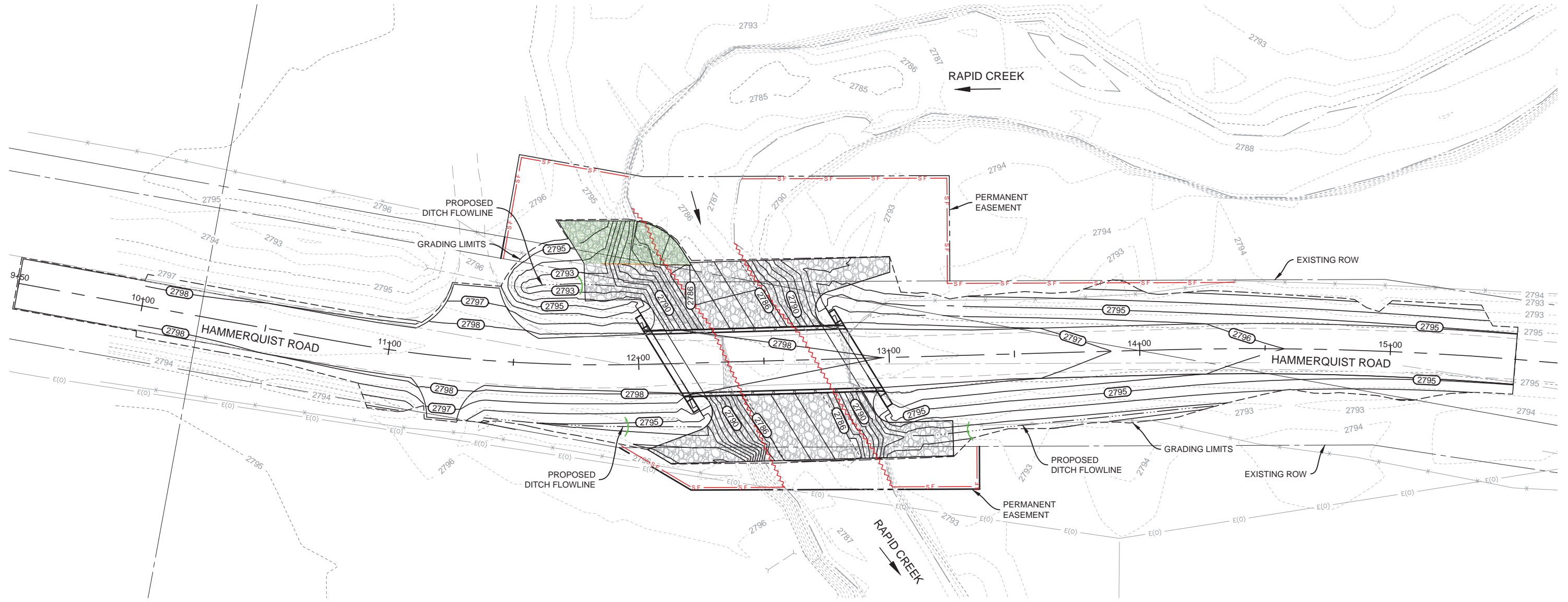
FOR BIDDING PURPOSES ONLY

KJJ STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	12	45

Plotting Date: 7/10/2024



Plot Scale- 1" = 40'



PERIMETER CONTROL

Install Floating Silt Curtain along the banks of the creek in the following locations:
 11+98 to 12+56 - L & R 128 Ft
 12+39 to 12+99 - L & R 116 Ft

Install Low Flow Silt Fence in the following locations:
 11+43 to 11+97 - L Inside perimeter of easement 84 Ft
 11+92 to 12+56 - R Inside perimeter of easement 70 Ft
 12+43 to 14+38 - L Inside perimeter of easement / right of way 238 Ft
 12+99 to 13+34 - R Inside perimeter of easement 50 Ft

FINAL STABILIZATION

Install 6" Diameter Erosion Control Wattles in the following locations:
 11+85 - L Ditch Bottom 8 Ft
 12+19 - R Ditch Bottom 8 Ft
 13+13 - R Ditch Bottom 8 Ft

Install Type 3 Erosion Control Blanket in the following locations:
 11+63 to 12+24 - L Compacted Embankment 78 SqYd

LEGEND	
	FLOATING SILT CURTAIN
	LOW FLOW SILT FENCE
	EROSION CONTROL WATTLE
	EROSION CONTROL BLANKET



Plotted From- zach.vlamnick

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STORMWATER POLLUTION PREVENTION PLAN CHECKLIST

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

5.3 (2): STAFF TRAINING/SWPPP IMPLEMENTATION

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

5.3 (3): DESCRIPTION OF CONSTRUCTION ACTIVITIES

- **5.3 (3a): Project Limits** (See Title Sheet)
- **5.3 (3a): Project Description** (See Title Sheet)
- **5.3 (4): Site Map(s)** (See Title Sheet and Plans)
- **Major Soil Disturbing Activities** (check all that apply)
 - Clearing and grubbing
 - Excavation/borrow
 - Grading and shaping
 - Filling
 - Other (describe):
- **5.3 (3b): Total Project Area** 0.68 Acres
- **5.3 (3b): Total Area to be Disturbed** 0.68 Acres
- **5.3 (3c): Maximum Area Disturbed at One Time** 0.68 Acres
- **5.3 (3d): Existing Vegetative Cover (%)** 75
- **5.3 (3d): Description of Vegetative Cover** Mix of native grasses, shrubs and trees.
- **5.3 (3e): Soil Properties:** Brown silt, sand and gravel overlying Pierre shale.
- **5.3 (3f): Name of Receiving Water Body/Bodies** Rapid Creek
- **5.3 (3g): Location of Construction Support Activity Areas** Onsite

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

- **Special sequencing requirements** (see sheet).
- The Contractor will enter the Estimated Start Date.**

Description	Estimated Start Date
Install traffic control signs and devices	
Install erosion and sediment control measures	
Dismantle and remove the existing structure	
Construct the new structure	
Install gravel surfacing	
Seeding, restoration, and final site clean-up	
Remove traffic control signs and devices	

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
<input checked="" type="checkbox"/> Natural Buffers (within 50 ft of Waters of State)	
<input checked="" type="checkbox"/> Silt Fence	
<input checked="" type="checkbox"/> Erosion Control Wattles	
<input type="checkbox"/> Temporary Berm / Windrow	
<input checked="" type="checkbox"/> Floating Silt Curtain	
<input type="checkbox"/> Stabilized Construction Entrances	
<input type="checkbox"/> Entrance/Exit Equipment Tire Wash	
<input type="checkbox"/> Other:	

Structural Erosion and Sediment Controls

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

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Dust Controls

Description	Estimated Start Date
<input type="checkbox"/> Tarps & Wind impervious fabrics	
<input type="checkbox"/> Watering	
<input type="checkbox"/> Stockpile location/orientation	
<input type="checkbox"/> Dust Control Chlorides	
<input type="checkbox"/> Other	

Dewatering BMPs

Description	Estimated Start Date
<input type="checkbox"/> Sediment Basins	
<input type="checkbox"/> Dewatering bags	
<input type="checkbox"/> Weir tanks	
<input type="checkbox"/> Temporary Diversion Channel	
<input type="checkbox"/> 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
<input type="checkbox"/> Vegetation Buffer Strips	
<input type="checkbox"/> Temporary Seeding (Cover Crop Seeding)	
<input checked="" type="checkbox"/> Permanent Seeding	
<input type="checkbox"/> Sodding	
<input type="checkbox"/> Planting (Woody Vegetation for Soil Stabilization)	
<input checked="" type="checkbox"/> Mulching (Grass Hay or Straw)	
<input type="checkbox"/> Fiber Mulching (Wood Fiber Mulch)	
<input type="checkbox"/> Soil Stabilizer	
<input type="checkbox"/> Bonded Fiber Matrix	
<input type="checkbox"/> Fiber Reinforced Matrix	
<input checked="" type="checkbox"/> Erosion Control Blankets	
<input checked="" type="checkbox"/> Surface Roughening (e.g. tracking)	
<input type="checkbox"/> 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 1/2 the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Inspection and maintenance reports will be prepared on form DOT 298 for each site inspection, this form will also be used to document changes to the SWPPP. A copy of the completed inspection form will be filed with the SWPPP documents.
- The Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

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

5.3 (8): POLLUTION PREVENTION PROCEDURES

5.3 (8a): Spill Prevention and Response Procedures

➤ Material Management

▪ Housekeeping

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

▪ Hazardous Materials

- Products will be kept in original containers unless the container is not resealable and provide secondary containment as applicable.
- Original labels and material safety data sheets will be retained in a safe place to relay important product information.

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

➤ Spill Control Practices

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


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

➤ Spill Response

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

- The Contractor's site superintendent will be notified immediately when a spill or the threat of a spill is observed. The superintendent will assess the situation and determine the appropriate response.
- If spills represent an imminent threat of escaping erosion and sediment controls and entering receiving waters, personnel will be directed to respond immediately to contain the release and notify the superintendent after the situation has been stabilized.

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 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	14	45

- 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 described in the specifications. 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: _____

➤ **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 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 Project Engineer in accordance with the DOT 298 Form.

HORIZONTAL ALIGNMENT DATA

FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	17	45

Plotting Date: 7/10/2024

Plot Scale- 1" = 1'

Table of Alignment Data - Hammerquist Road CL

Type	Parameter Constraint	Length	Radius	Direction	Start Station	End Station	Delta Angle	Chord length	Chord Direction	PI Station	Start Point (E, N)	End Point (E, N)
Line	Two points	128.183'		N1° 56' 29.25"E	9+50.00'	10+78.18'					(1290527.1560',605568.3039')	(1290531.4987',605696.4135')
Curve	Radius	124.451'	600.000'		10+78.18'	12+02.63'	11.8842 (d)	124.228'	N4° 00' 02.24"W	11+40.63'	(1290531.4987',605696.4135')	(1290522.8316',605820.3385')
Line	Two points	205.500'		N9° 56' 33.73"W	12+02.63'	14+08.13'					(1290522.8316',605820.3385')	(1290487.3492',606022.7525')
Curve	Radius	247.993'	1300.000'		14+08.13'	16+56.13'	10.9300 (d)	247.617'	N4° 28' 39.81"W	15+32.51'	(1290487.3492',606022.7525')	(1290468.0174',606269.6137')
Line	Two points	21.207'		N0° 59' 14.11"E	16+56.13'	16+77.33'					(1290468.0174',606269.6137')	(1290468.3828',606290.8176')

Coordinate System

Name: United States/State Plane 1983
 Datum: NAD83/2011 (epoch 2010.00)
 Zone: South Dakota South 4002
 Geoid: GEOID18
 Vertical datum: NAVD 88
 Units: US Survey Feet
 CSP(Grid to Ground): 1.000205657




Plotted From- zach.vlamnick




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CONTROL DATA

FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	18	45

Plotting Date: 7/10/2024

HORIZONTAL AND VERTICAL CONTROL							
SYMBOL	POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION	STATION	OFFSET
	CP1	5/8" REBAR W KLJ CAP	604328.874	1290556.844	2825.96	N/A	N/A
	CP2	5/8" REBAR W KLJ CAP	605708.323	1290560.106	2795.76	10+90.48	28.32' Rt
	CP3	5/8" REBAR W KLJ CAP	606338.476	1290512.935	2794.72	N/A	N/A

Coordinate System
 Name: United States/State Plane 1983
 Datum: NAD83/2011 (epoch 2010.00)
 Zone: South Dakota South 4002
 Geoid: GEOID18
 Vertical datum: NAVD 88
 Units: US Survey Feet
 CSP(Grid to Ground): 1.000205657



Plot Scale- 1" = 1'

Plotted From- zach.vlamnick

Plot Scale- 1" = 1'

LEGEND		
EXISTING	ITEM	PROPOSED
⊕	FIRE HYDRANT	⊕
⊗	GATE VALVE	⊗
⊙	CURB STOP	⊙
⊕	YARD HYDRANT	⊕
⊗	BEND	⊗
⊗	TEE	⊗
⊗	CROSS	⊗
⊗	REDUCER	⊗
⊗	COUPLER	⊗
⊗	VERTICAL BEND	⊗
⊗	WATER MANHOLE	⊗
⊗	SPRINKLER HEAD	⊗
⊗	WATER METER	⊗
	CATHODIC TEST STATION	⊗
	TRACER WIRE ACCESS BOX	⊗
⊗	SANITARY MANHOLE	⊗
⊗	SANITARY FORCEMAIN MANHOLE	⊗
⊗	SANITARY MANHOLE W. VALVE	⊗
⊗	CLEANOUT	⊗
⊗	STORM SEWER MANHOLE	⊗
⊗	CURB INLET	⊗
⊗	CATCH BASIN	⊗
⊗	POWER POLE	⊗
⊗	GUY WIRE	⊗
⊗	LIGHT POLE	⊗
⊗	ELECTRICAL PEDESTAL	⊗
⊗	ELECTRICAL METER	⊗
⊗	ELECTRICAL JUNCTION (PULL BOX)	⊗
⊗	ELECTRICAL BOX	⊗
⊗	ELECTRICAL OUTLET/PLUG-IN	⊗
⊗	ELECTRICAL MANHOLE	⊗
⊗	TELEPHONE MANHOLE	⊗
⊗	TELEPHONE PEDESTAL	⊗
⊗	CABLE TV PEDESTAL	⊗
⊗	FIBER OPTIC PEDESTAL	⊗
⊗	GAS METER	⊗
⊗	GAS MANHOLE	⊗
⊗	FUEL DISPENSER	⊗
⊗	UTILITY MARKER	⊗
⊗	GAS VENT PIPE	⊗
⊗	TREES CONIFEROUS/ DECIDUOUS	⊗
⊗	BUSH/SHRUB	⊗
⊗	SIGN	⊗
⊗	CONTROL POINT	⊗
⊗	BENCHMARK	⊗
⊗	PIPE CAP	⊗
⊗	MAIL BOX	⊗
⊗	PROPERTY PIN	⊗

LEGEND		
EXISTING	ITEM	PROPOSED
---	ASPHALT EDGE	---
---	BUILDING CANOPY	---
TV	CABLE TV - UNDERGROUND	TV
---	CENTERLINE	---
---	CONSTRUCTION LIMITS	---
E(O)	ELECTRICAL - OVERHEAD	E(O)
E	ELECTRICAL - UNDERGROUND	E
x	FENCE - BARBED WIRE	x
o	FENCE - CHAINLINK	o
	FENCE - PLASTIC, VINYL	
□	FENCE - WOOD	□
/	FENCE - WOVEN WIRE	/
FO	FIBER - UNDERGROUND	FO
G	GAS - UNDERGROUND	G
---	GRAVEL EDGE	---
FM	SANITARY SEWER FORCE MAIN	FM
s	SANITARY SEWER SERVICE LINE	s
s	SANITARY SEWER (LESS THAN 24")	s
s	SANITARY SEWER (24" OR MORE)	s
---	STORM SEWER EDGEDRAIN	---
ST	STORM SEWER (LESS THAN 24")	ST
ST	STORM SEWER (24" OR MORE)	ST
T(O)	TELEPHONE - OVERHEAD	T(O)
T	TELEPHONE - UNDERGROUND	T
w	WATER SERVICE LINE	w
w	WATER MAIN	w

AC	ASPHALT CEMENT	ESMT	EASEMENT
AGGR	AGGREGATE	EX	EXISTING
AHD	AHEAD	EXC	EXCAVATION
APPROX	APPROXIMATE OR APPROXIMATELY	FES	FLARED END SECTION
ARV	AIR RELEASE VALVE	FF	FINISHED FLOOR
ASPH	ASPHALT	FG	FINISHED GRADE
BIT	BITUMINOUS	GR	GRAVEL
BK	BACK	HDPE	HIGH DENSITY POLYETHYLENE PIPE
BM	BENCH MARK	HORZ	HORIZONTAL
BLDG	BUILDING	HP	HIGH POINT
C&G	CURB & GUTTER	HYD	HYDRANT
CI	CAST IRON	INST	INSTALL
CMES	CORRUGATED METAL END SECTION	INV	INVERT
CMP	CORRUGATED METAL PIPE	JB	JUNCTION BOX
CP	CONTROL POINT	L	LENGTH
CPP	CORRUGATED PLASTIC PIPE	LF	LINEAR OR LINEAL FEET
CONST	CONSTRUCTION	LONG	LONGITUDINAL
CONC	CONCRETE	LP	LOW POINT OR LIGHT POLE
CPLG	COUPLING	LS	LUMP SUM
CS	CURB STOP	LT	LEFT
CY	CUBIC YARD	MAX	MAXIMUM
D	DEGREE OF CURVATURE	ME	MATCH EXISTING
DB	DITCH BLOCK	MH	MANHOLE
DEFL	DEFLECTION	MIN	MINIMUM
DG	DITCH GRADE	PVC	POLYVINYL CHLORIDE PIPE
EA	EACH	P & P	PLAN & PROFILE
EL	ELEVATION	PC	POINT OF CURVATURE
ELEC	ELECTRIC	PCC	POINT OF COMPOUND CURVE
EMB	EMBANKMENT	PI	POINT OF INTERSECTION
EQ	EQUATION	PIV	POST INDICATOR VALVE
ES	END SECTION	POC	POINT ON CURVE

POT	POINT ON TANGENT
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PRV	PRESSURE REDUCING VALVE
PT	POINT OF TANGENCY
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
RCES	REINFORCED CONCRETE END SECTION
RCP	REINFORCED CONCRETE PIPE
RDWY	ROADWAY
RR	RAILROAD
RT	RIGHT
R/W ROW	RIGHT-OF-WAY
SALV	SALVAGE
SAN	SANITARY
SE	SUPERELEVATION
SEC	SECTION
SF	SQUARE FEET
SHLDR	SHOULDER
SSD	STOPPING SIGHT DISTANCE
SEC LINE	SECTION LINE
SPEC	SPECIFICATION
STA	STATION
STD	STANDARD
STRUCT	STRUCTURE
SURV	SURVEY
SW	SIDEWALK
SY	SQUARE YARD
T	TANGENT
TA	TOP OF ASPHALT
TBC	TOP BACK OF CURB
TC	TOP OF CONCRETE
TEL	TELEPHONE
TEMP	TEMPORARY
THEOR	THEORETICAL
TP	TOP OF PAVEMENT
TR	TRAFFIC
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
WM	WATER MAIN
WV	WATER VALVE
XSEC	CROSS SECTION



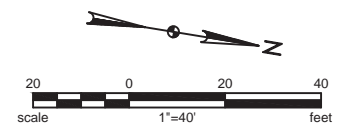
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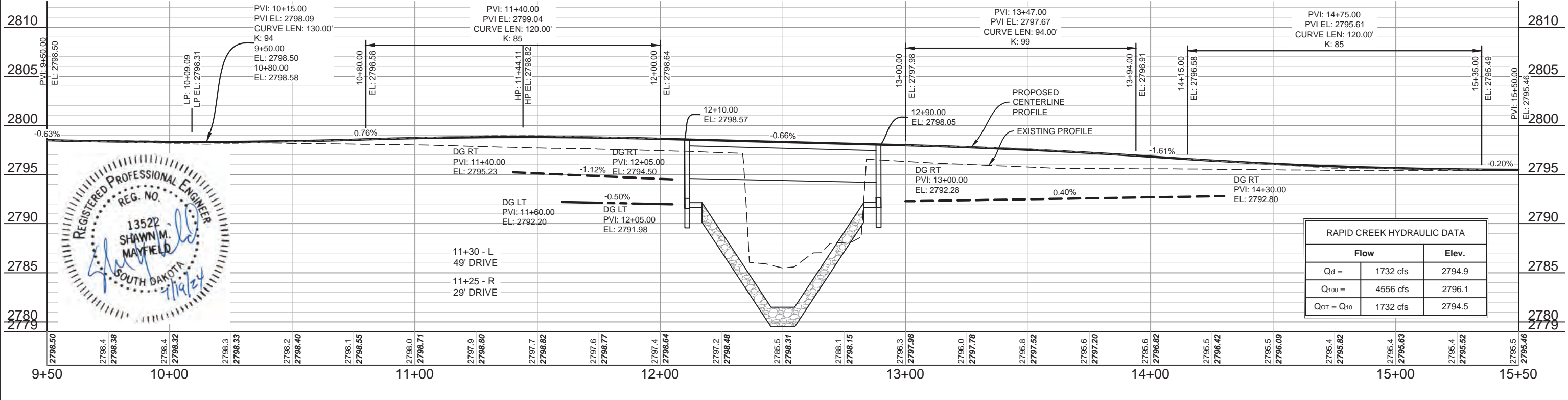
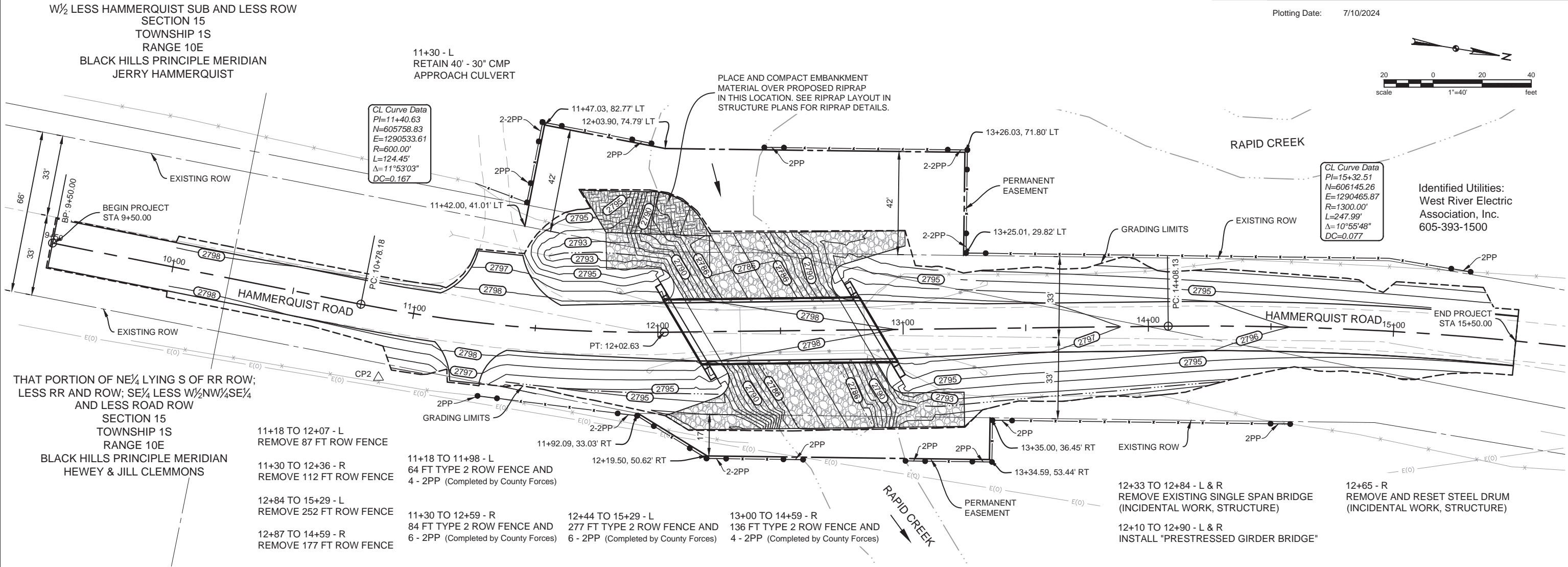
PLAN AND PROFILE

FOR BIDDING PURPOSES ONLY

Plotting Date: 7/10/2024



Plot Scale: 1" = 40'



Plotted From: zach.vlamnick

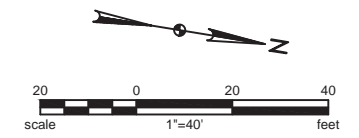
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EASEMENT PLAN

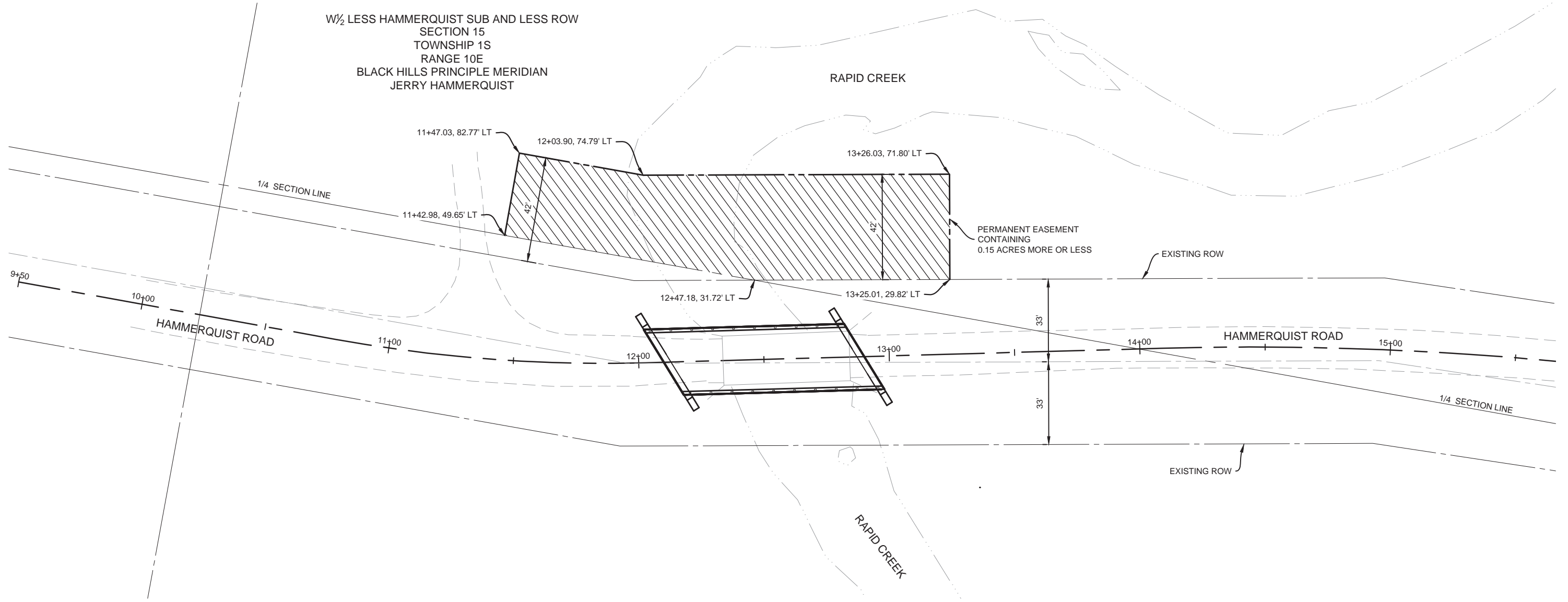
FOR BIDDING PURPOSES ONLY

KJ STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	21	45


Plotting Date: 7/10/2024



W $\frac{1}{2}$ LESS HAMMERQUIST SUB AND LESS ROW
SECTION 15
TOWNSHIP 1S
RANGE 10E
BLACK HILLS PRINCIPLE MERIDIAN
JERRY HAMMERQUIST



LEGEND

 PERMANENT EASEMENT




Plot Scale- 1" = 40'

Plotted From- zach vlamnick

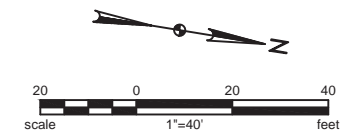
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EASEMENT PLAN

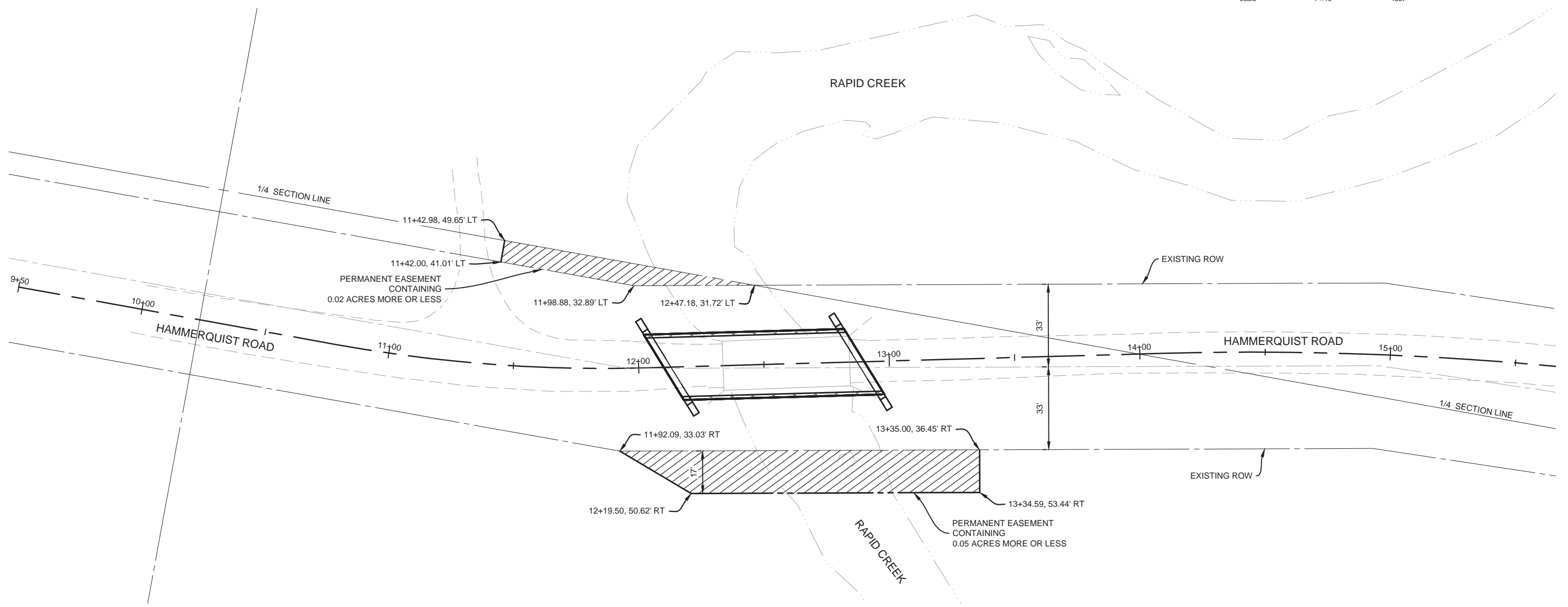
FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	22	45


Plotting Date: 7/10/2024



Plot Scale- 1" = 40'



THAT PORTION OF NE $\frac{1}{4}$ LYING S OF RR ROW;
 LESS RR AND ROW; SE $\frac{1}{4}$ LESS W $\frac{1}{2}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$
 AND LESS ROAD ROW
 SECTION 15
 TOWNSHIP 1S
 RANGE 10E
 BLACK HILLS PRINCIPLE MERIDIAN
 HEWEY & JILL CLEMMONS

LEGEND	
	PERMANENT EASEMENT




Plotted From- zach vlamnick

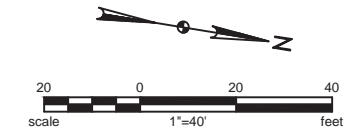
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REMOVAL PLAN

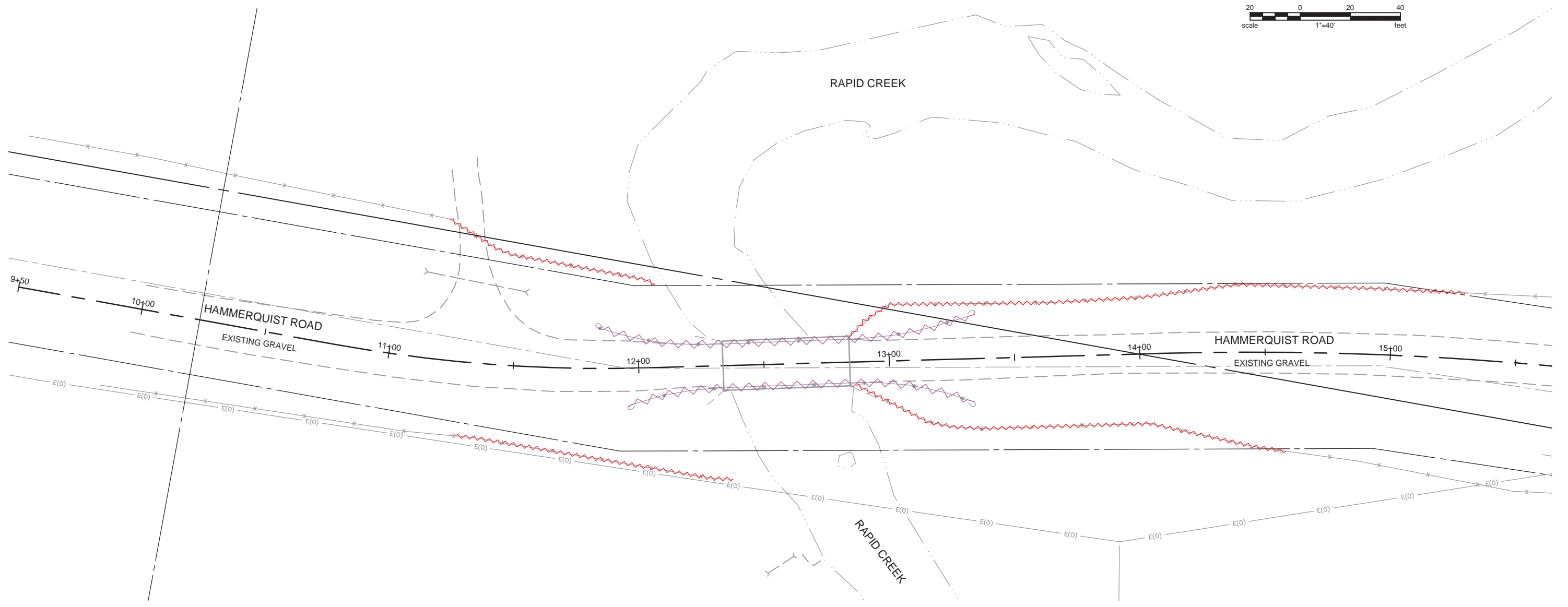
FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	23	45

Plotting Date: 7/10/2024



Plot Scale- 1" = 40'



11+18 TO 12+07 - L
REMOVE 87 FT ROW FENCE

11+29 TO 12+36 - R
REMOVE 112 FT ROW FENCE



12+84 TO 15+29 - L
REMOVE 252 FT ROW FENCE

12+87 TO 14+59 - R
REMOVE 177 FT ROW FENCE

11+83 TO 13+34 - L
REMOVE 152 FT W BEAM GUARDRAIL

11+95 TO 13+34 - R
REMOVE 140 FT W BEAM GUARDRAIL

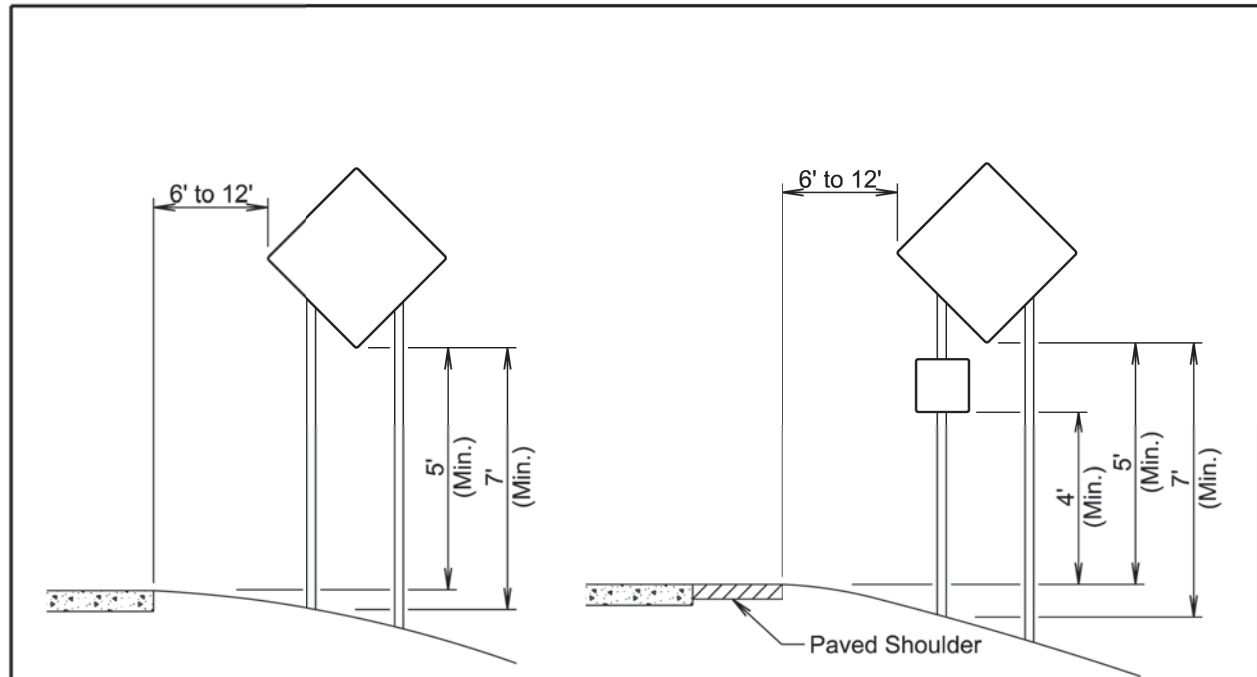
LEGEND

	REMOVE W BEAM GUARDRAIL
	REMOVE ROW FENCE



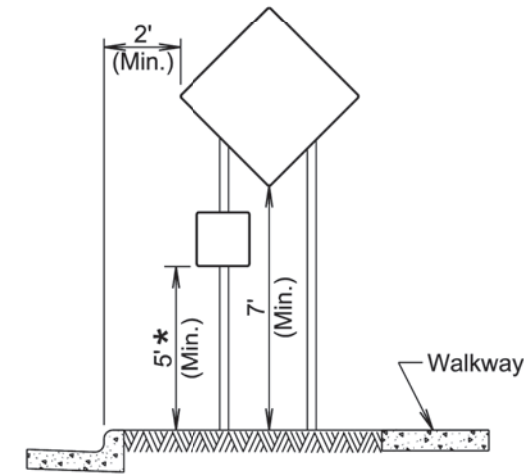
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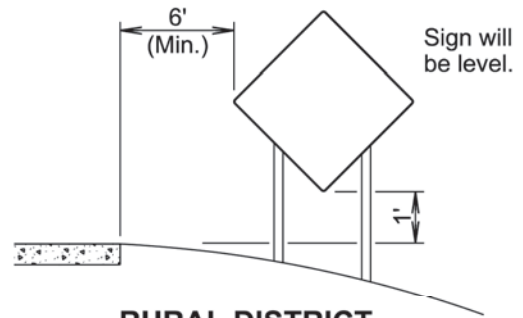


RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



URBAN DISTRICT

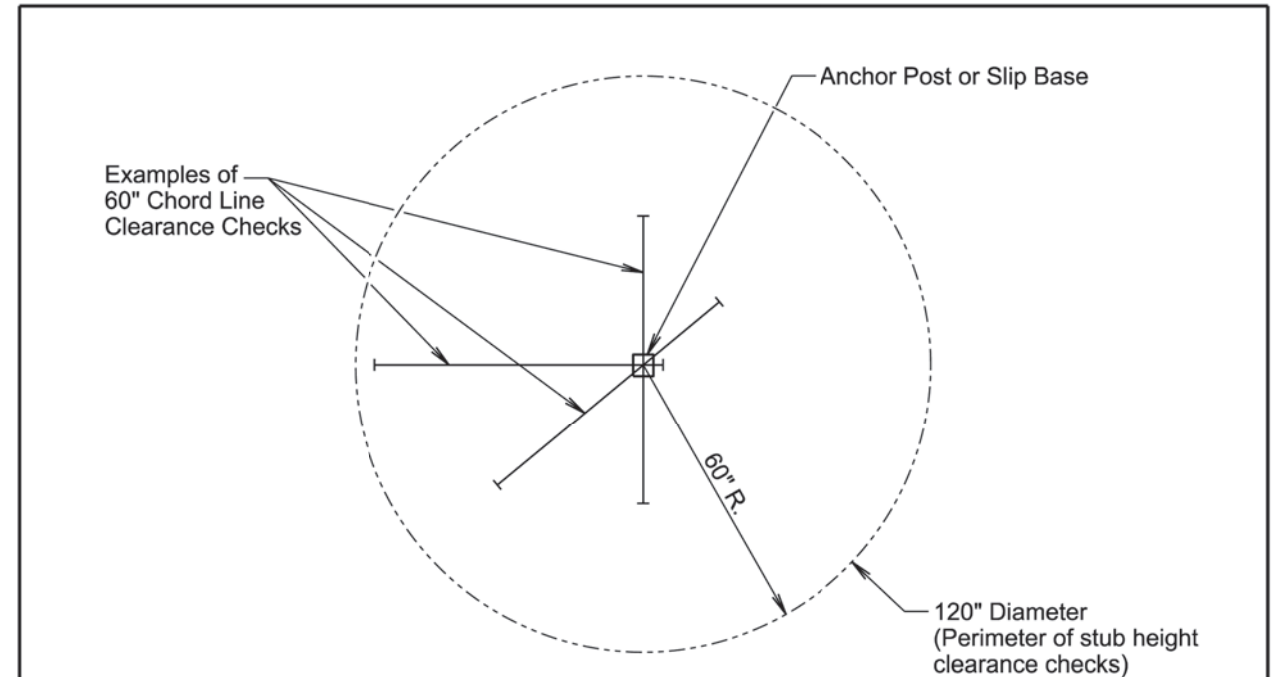


RURAL DISTRICT 3 DAY MAXIMUM
(Not applicable to regulatory signs)

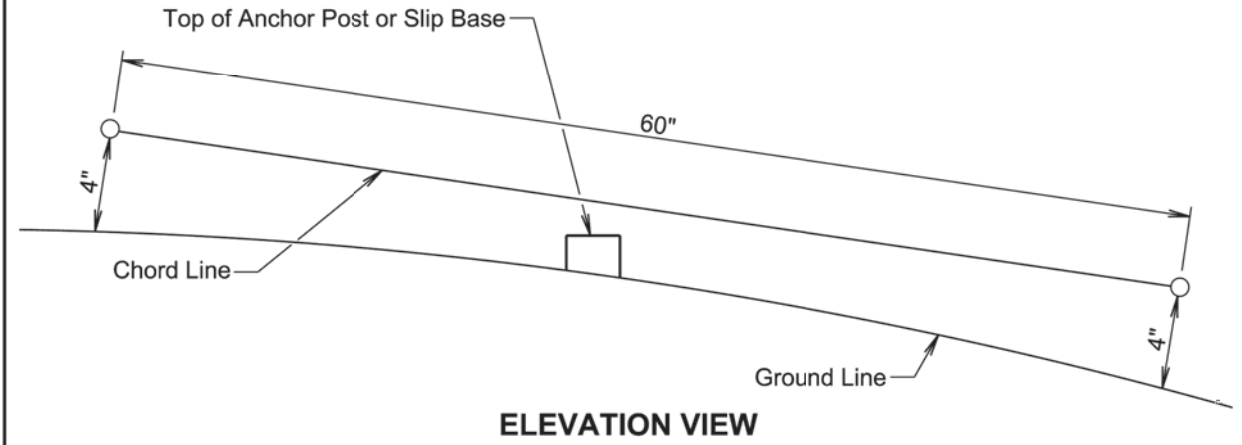
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2025	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER
			634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



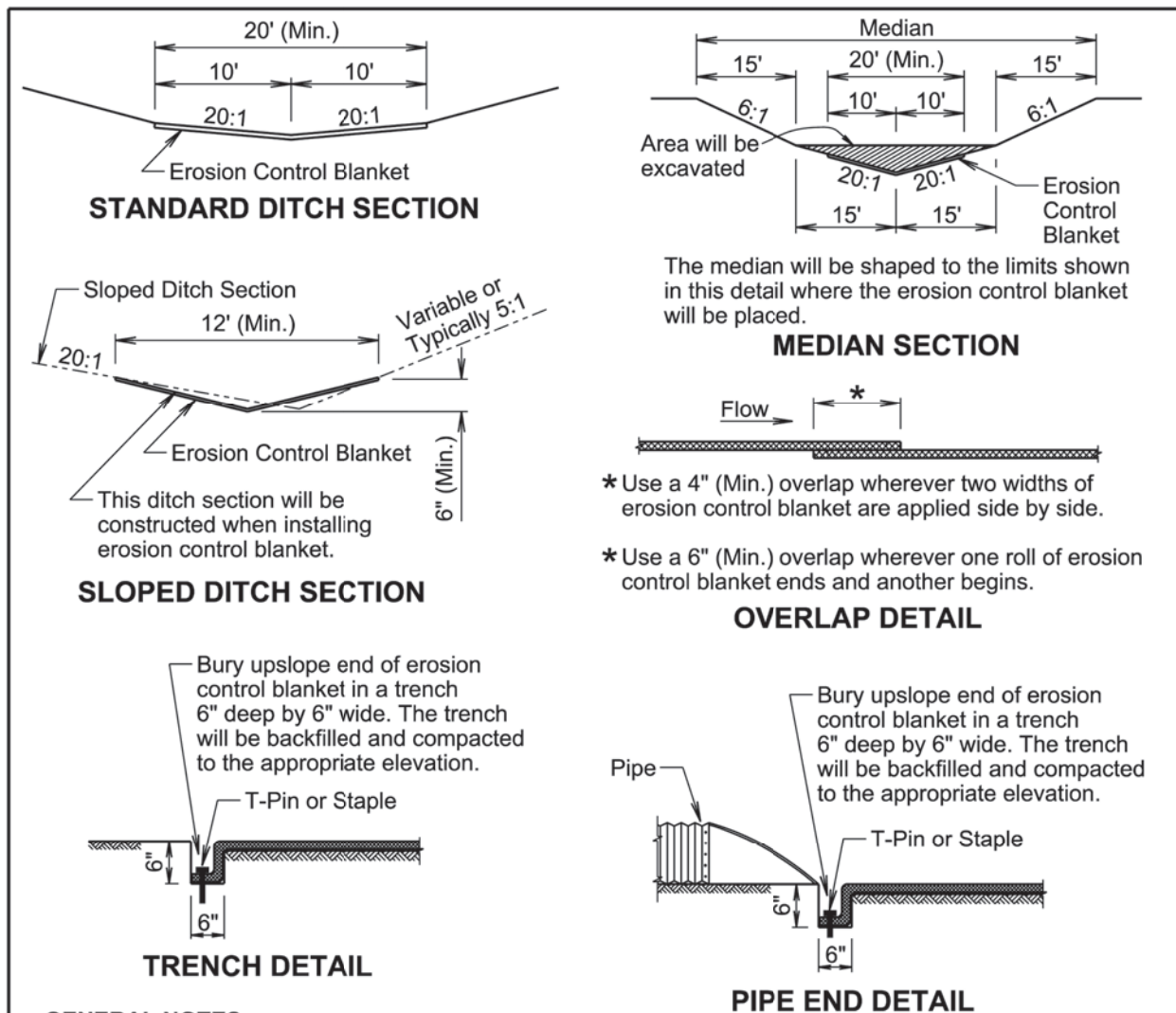
ELEVATION VIEW

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	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER
			634.99
			Sheet 1 of 1



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.

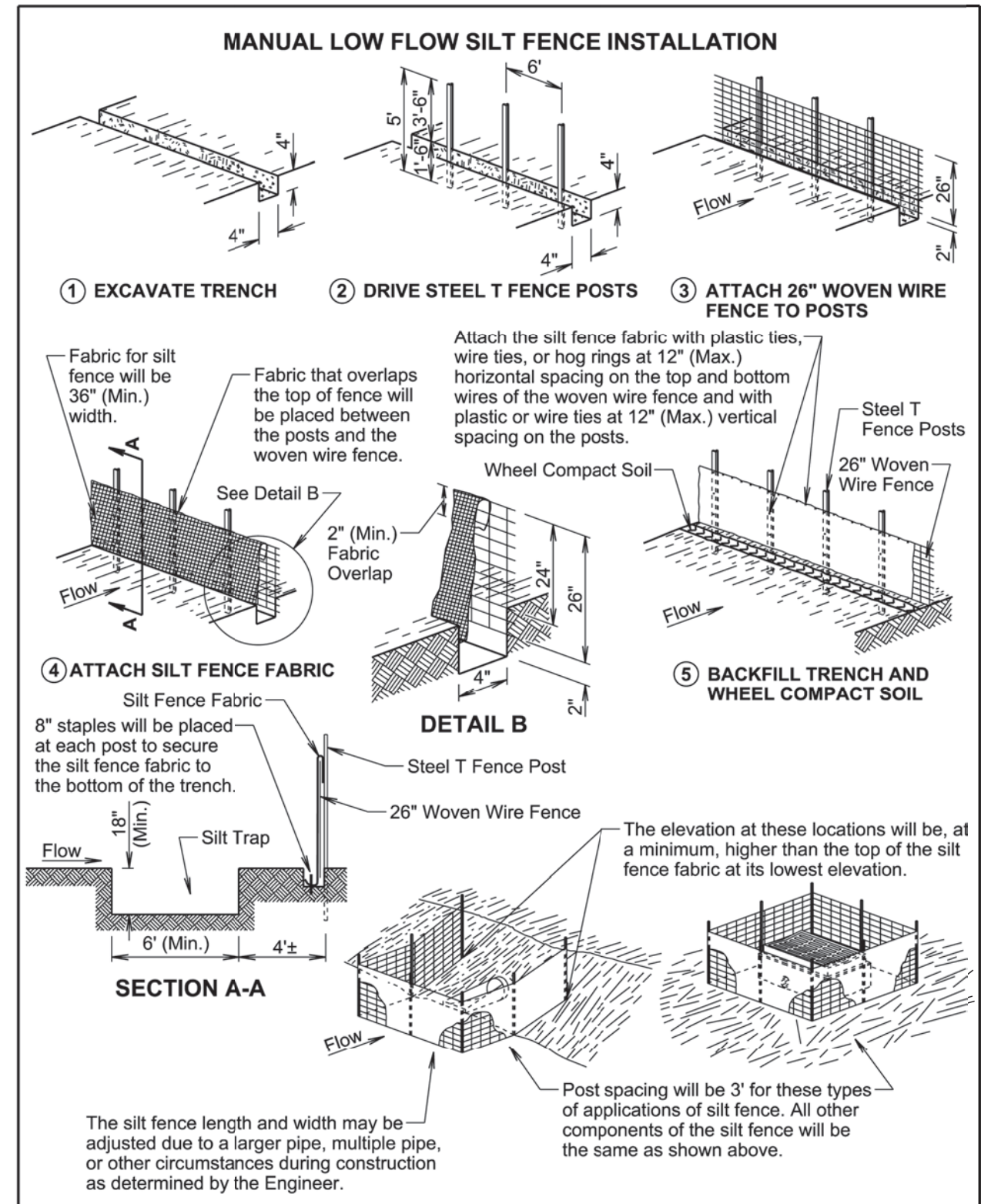
The erosion control blanket will be pinned to the ground according to the manufacturer's installation recommendations.

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

S D D O T	EROSION CONTROL BLANKET	PLATE NUMBER 734.01
		Sheet 1 of 1
		Published Date: 2025



February 14, 2020

S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
		Sheet 1 of 2
		Published Date: 2025

Plotting Date: 7/10/2024

MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION

1 INSTALL SILT FENCE FABRIC BY MACHINE SLICING METHOD.
Silt fence fabric will be overlapped a minimum of 2" at top of woven wire fence.

2 WHEEL COMPACT SOIL ABOVE SLICED IN PORTION OF FABRIC AND THEN DRIVE STEEL T FENCE POSTS.
Attach the silt fence fabric with plastic ties, wire ties, or hog rings at 12" (Max.) horizontal spacing on the top and bottom wires of the woven wire fence and with plastic or wire ties at 12" (Max.) vertical spacing on the posts.

3 ATTACH 26" WOVEN WIRE FENCE TO POSTS AND ATTACH SILT FENCE FABRIC.
The elevation at these locations will be, at a minimum, higher than the top of the silt fence fabric at its lowest elevation.

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

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

GENERAL NOTES:
A silt trap will be provided when specified by a plan note. All costs for constructing the silt trap will be incidental to the contract unit price per cubic yard for "Silt Trap".
If a trench can not be dug or the silt fence fabric can not be sliced in due to the type of earthen material (such as rock), then a row of 30 to 40 pound sandbags butted end to end will be provided on top of the extra length of silt fence fabric to prevent underflow.

February 14, 2020

Published Date: 2025	S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER
			734.04
			Sheet 2 of 2

CUT OR FILL SLOPE INSTALLATION

Slope	Spacing (Ft.)
1:1	10
2:1	20
3:1	30
4:1	40

ELEVATION VIEW (Cut or Fill Slope Installation)

DETAIL B (Typical of All Installations)

DETAIL C (See General Notes)

ISOMETRIC VIEW (Ditch Installation)

PLAN VIEW (Ditch Installation)

SECTION A-A

DITCH INSTALLATION

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

February 14, 2020

Published Date: 2025	S D D O T	EROSION CONTROL WATTLE	PLATE NUMBER
			734.06
			Sheet 1 of 2

Plotted From: zach vlamincik

File: K:\Projects\State\SD\DOT\12102_00972_Hammerquist_Road\CAD\Design\Plans\Sections\12102-00972_Standard Plates.dwg

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.

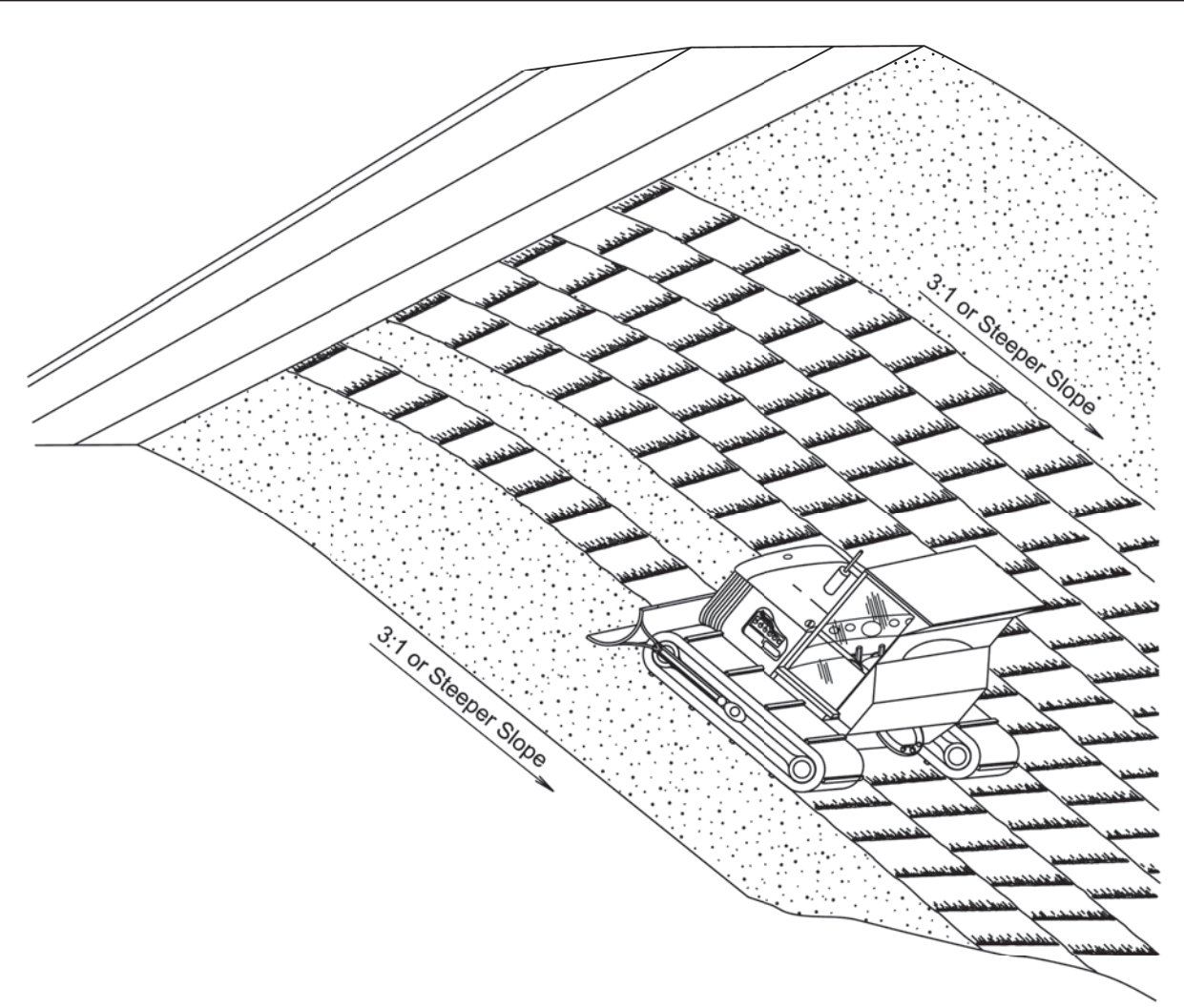
Sediment removal, disposal, or necessary shaping will be as directed by the Engineer. All costs for removing accumulated sediment, disposal of sediment, and necessary shaping will be incidental to the contract unit price per cubic yard for "Remove Sediment".

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		EROSION CONTROL WATTLE	PLATE NUMBER
			734.06
			Sheet 2 of 2



GENERAL NOTES:

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

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

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

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

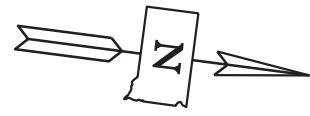
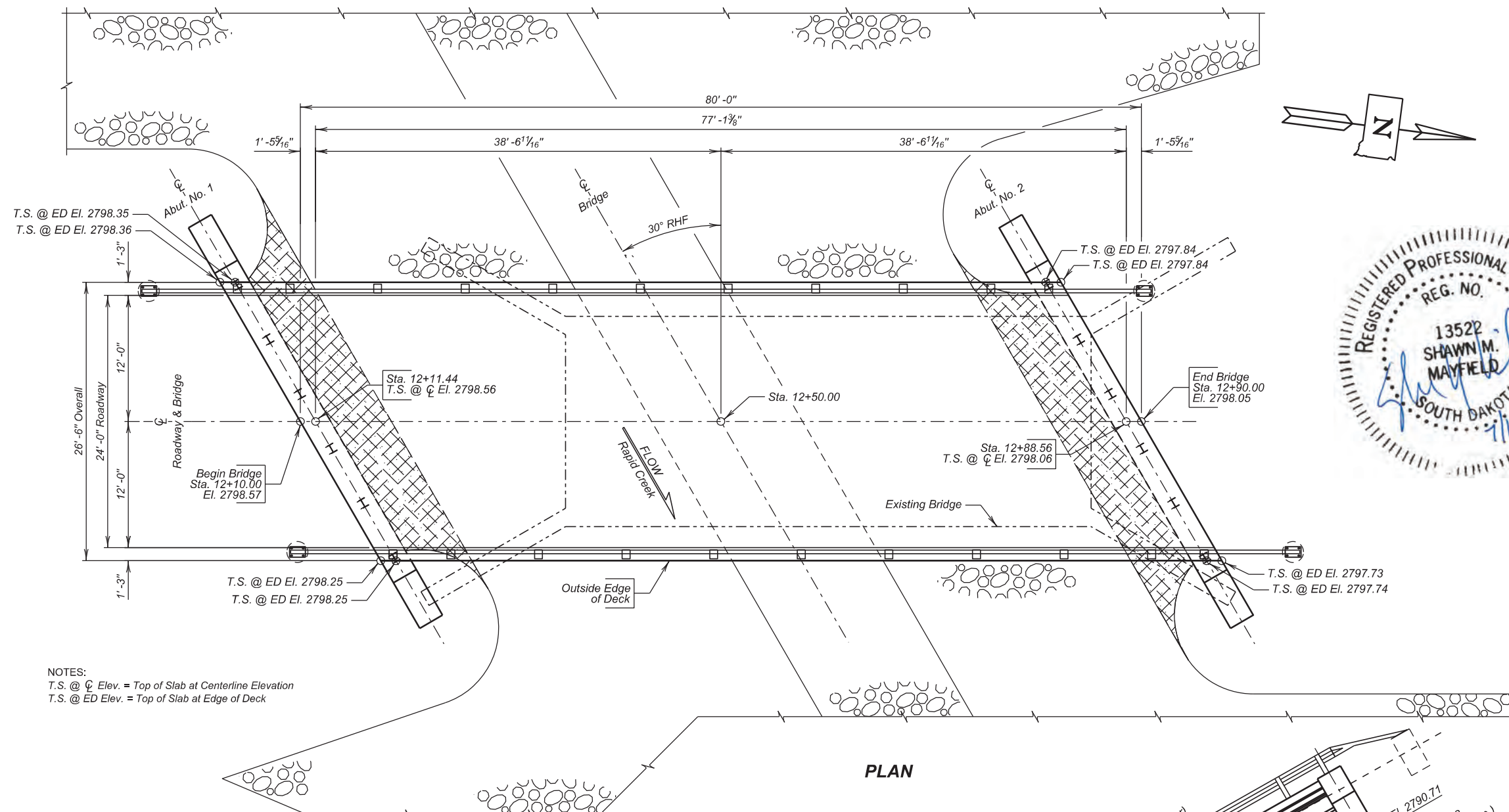
February 14, 2020

Published Date: 2025		SURFACE ROUGHENING	PLATE NUMBER
			734.25
			Sheet 1 of 1

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

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	28	45



- X081- INDEX OF BRIDGE SHEETS**
- Sheet No. 1 - General Drawing
 - Sheet No. 2 - Estimate of Structure Quantities and Notes
 - Sheet No. 3 - Notes (Continued)
 - Sheet No. 4 - Notes (Continued)
 - Sheet No. 5 - Subsurface Investigation and Pile Layout
 - Sheet No. 6 - Abutment Details (A)
 - Sheet No. 7 - Abutment Details (B)
 - Sheet No. 8 - Superstructure Details
 - Sheet No. 9 - Girder Details
 - Sheet No. 10 - Erection Data and Slab Form Elevations
 - Sheet No. 11 - Steel Diaphragm Details
 - Sheet No. 12 - Type T101 Bridge Railing Details
 - Sheet No. 13 - Details of Bridge End Backfill
 - Sheet No. 14 - Riprap Layout
 - Sheet No. 15 - Standard Plates
 - Sheet No. 15 - Standard Plates (Continued)

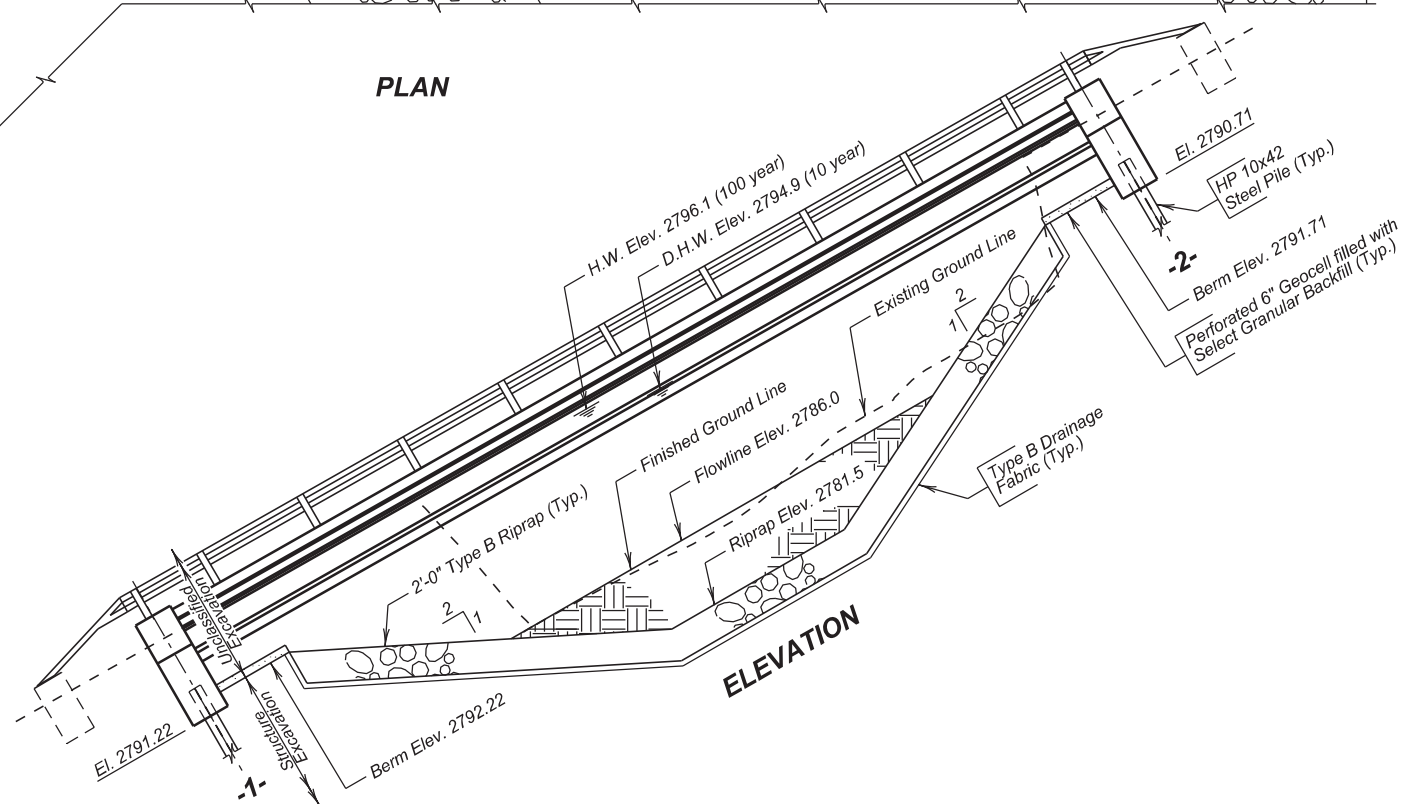
HYDRAULIC DATA

Q_d	1732 cfs
A_d	377 sq. ft.
V_d	4.6 fps
Q_F	1732 cfs
Q_{100}	4556 cfs
$Q_{OT_{Fr}}$	1732 cfs
V_{MAX}	7.2 fps

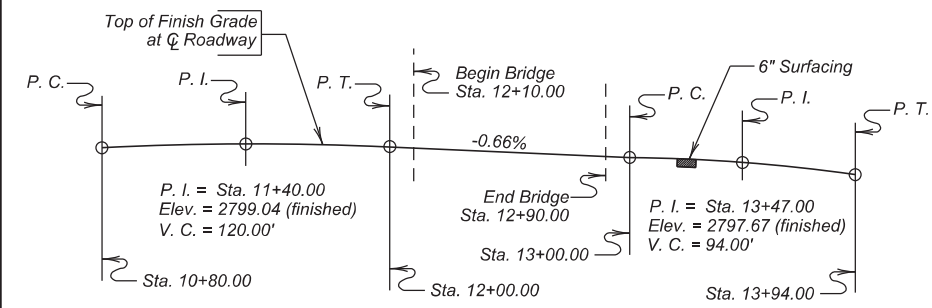
Q_d = Design discharge for the proposed bridge based on 10 year frequency. Elev. 2794.9
 $Q_{OT_{Fr}}$ = Overtopping discharge and frequency 10 year recurrence interval. Elev. 2794.5 @ Sta. 19+50
 Q_F = Designated peak discharge for the basin approaching proposed project based on 10 year frequency.
 Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency. Elev. 2796.1
 V_{MAX} = Maximum computed outlet velocity for the proposed bridge, based on 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 this site to determine its effect on public safety.

NOTES:
 T.S. @ ϕ Elev. = Top of Slab at Centerline Elevation
 T.S. @ ED Elev. = Top of Slab at Edge of Deck

PLAN



ELEVATION



VERTICAL CURVE DATA

GENERAL DRAWING FOR 80'-0" PRESTR. GIRDER BRIDGE
 24'-0" ROADWAY OVER RAPID CREEK
 STA. 12+10.00 to STA. 12+90.00
 STR. NO. 52-575-383
 PCN 08N3
 SEC. 15-T1S-R10E
 30° RHF SKEW
 BRO-B 8052(77)
 HL-93
 PENNINGTON COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JULY 2024

DESIGNED BY SM	CK. DES. BY AB	DRAFTED BY SM	BRIDGE ENGINEER
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ESTIMATE OF STRUCTURE QUANTITIES

ITEM	QUANTITY	UNIT	REMARKS
Concrete Penetrating Sealer	235.6	SqYd	See Special Provision
Select Granular Backfill	15.4	Ton	
Incidental Work, Structure	Lump Sum	LS	
Structural Steel, Miscellaneous	Lump Sum	LS	
Structure Excavation, Bridge	20	CuYd	
Bridge End Embankment	502	CuYd	
Granular Bridge End Backfill	35.4	CuYd	
Class A45 Concrete, Bridge Deck	85.9	CuYd	
Class A45 Concrete, Bridge	24.6	CuYd	
Type 101 Bridge Railing	192	Ft	
Reinforcing Steel	5,014	Lb	
Epoxy Coated Reinforcing Steel	10,254	Lb	
Preboring Pile	120	Ft	
HP 10x42 Steel Test Pile, Furnish and Drive	90	Ft	
HP 10x42 Steel Bearing Pile, Furnish and Drive	400	Ft	
36" Minnesota Shape Prestressed Concrete Beam	310	Ft	
2" Rigid Conduit, Schedule 40	20	Ft	
Class B Riprap	748.9	Ton	
Overburden Excavation for Riprap	432	CuYd	
Type B Drainage Fabric	960	SqYd	
Perforated Geocell	440	SqFt	

BRIDGE SPECIFICATIONS

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

BRIDGE DESIGN LOADING

- Girders are designed simple for AASHTO HL-93 Live Load.
- Dead Load includes 22 psf for future wearing surface on the roadway.

DESIGN MATERIAL STRENGTHS*

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

*For prestressed beams, see notes regarding Prestressed Girders.

GENERAL CONSTRUCTION

- All lap splices shown are contact lap splices unless noted otherwise.
- All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise.
- Use 2-inch clear cover on all reinforcing steel except as shown otherwise on plans.
- The Contractor will imprint on the structure the date of new construction as specified and detailed on Standard Plate 460.02.
- Requests for construction joints or reinforcing steel splices at points other than those shown, must be submitted to the Engineer for prior approval. If additional splices are approved, no payment will be allowed for the added quantity of reinforcing steel.
- The elevation of the bridge deck is 6 inches above subgrade elevation.

INCIDENTAL WORK, STRUCTURE

- In place is a 46' single span cast-in-place concrete arch bridge with a 20' width. The abutments and wingwalls consist of vertical cast-in-place concrete. The existing bridge was constructed in 1916.
- Break down and remove the existing bridge to 1-foot below the riprap line, in accordance with Section 110 of the Construction Specifications. All portions of the existing bridge will be removed and disposed of by the Contractor on a site obtained by the Contractor and approved by the Engineer in accordance with the Environmental Commitments.
- During demolition of the structure, efforts will be taken to prevent material from falling into the creek.
- The foregoing is a general description of the in-place bridge and should not be construed to be complete in all details. Before preparing the bid, it is the responsibility of the Contractor to make a visual inspection of the structure to verify the extent of the work and materials involved.
- An existing steel drum located at 12+65-R will be removed and salvaged for reset. The drum will be reset at a location adjacent to the project limits as determined by the Engineer. All costs to remove and reset the drum will be incidental to the contract lump sum price for "Incidental Work, Structure".

DESIGN MIX OF CONCRETE

- All structural concrete will be Class A45 Concrete unless otherwise indicated.
- Type II cement conforming to Section 750 is required except Type III cement may be used for prestressed beams.

- Grout design mix will be as specified in Section 460.2 K of the Construction Specifications. A compressive strength of 2000 psi will be attained by the grout prior to erection of any beams. Chamfer edges of grout pads 3/4-inch. The quantity of grout is included in and will be paid for at the contract unit price per cubic yard for Class A45 Concrete, Bridge.

ABUTMENTS

- Preboring piling at each abutment is required to whichever is greater, ten feet or to natural ground.
- The HP 10x42 Piling were designed using a factored bearing resistance of 77 tons per pile. Piling will develop a field verified nominal bearing resistance of 192 tons per pile.
- One test pile will be driven at each abutment and will become part of the pile group.
- The Contractor will have sufficient pile splice material on hand before pile driving is started. See Standard Plate 510.40.
- Piles will not be driven out of position by more than three inches in the direction parallel to the girder centerline. A pile-driving template will be used to ensure this accuracy.
- Abutment backwalls above the construction joint must be cast concurrently with the deck slab. The concrete used for the pile cap and wings shall be Class A45 Concrete, Bridge. The concrete used for the backwall shall be Class A45 Concrete, Bridge Deck. All abutment and bridge deck concrete shall have attained design strength prior to backfilling. Abutment wing walls shall not be cast until after the deck has been poured.



ESTIMATE OF QUANTITIES AND NOTES FOR 80'-0" PRESTR. GIRDER BRIDGE

Str. No. 52-575-383

JULY 2024

2 OF 16

DESIGNED BY SM	CK. DES. BY AB	DRAFTED BY SM	BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8052(77)	30	45

PILE DRIVING

1. A drivability analysis was performed using the wave equation analysis program (GRLWEAP). The following pile hammers were evaluated and found to produce acceptable driving stresses.

Delmag D19-42 MVE M-19 APE D19-42 ICE 42-S

2. Pile hammers not listed will require evaluation and approval prior to use from the Geotechnical Engineering Activity. Requests for evaluation of hammers not listed will be submitted a minimum of 5 business days prior to installation of piles.

ABUTMENT BACKWALL COATING

The material for waterproofing the abutment backwall will be one of the products from the approved products list. The acceptable abutment backwall coating suppliers are listed on the approved products list at the following Internet address:

<http://apps.sd.gov/applications/HC60ApprovedProducts/ProductList.aspx>

The cost of furnishing and applying the coating will be incidental to the contract unit price per cubic yard for Class A45 Concrete, Bridge.

PRESTRESSED GIRDERS

- Minimum concrete compressive strength $f'_{ci} = 7000$ psi at 28 days for all girders, $f'_{ci} = 6000$ psi for all Girders.
- All mild reinforcing steel will be deformed bars conforming to ASTM A615, Grade 60.
- Individual tendons in all pretensioned sections will consist of seven-wire uncoated Type 270K Strands having a nominal diameter of 0.6-inch and a minimum ultimate strength of 58600 lbs. per cable. An initial tensile force of 43500 lbs. will be applied to all 0.6-inch cables in all girders. All prestressing steel will conform to AASHTO M203. (low-relaxation strands).
- All prestressed girders within a span will be cast within an 8-day period. If not, the newest girder will be at least 6 weeks old before the deck slab is poured. The girders will be poured in all steel forms.
- Prestressed concrete girders will always be lifted by the devices provided in the top flanges near the ends of the girders. Types of lifting devices other than those shown on the plans may be used provided they are approved by the Office of Bridge Design. The design of the lifting devices will be the responsibility of the fabricator.
- Each beam will be marked showing structure number, casting date, and beam number. Marking will be on the face of the beam near the end and the location will be exposed after the diaphragms have been cast. Facia beams will be marked on an inside face. All markings will be stenciled and clearly legible. For beam designations and locations, see superstructure layout plan and Erection Data sheet.

- The physical properties of the elastomeric bearing pads will conform to the requirements of Section 18.2 of the AASHTO LFRD Bridge Construction Specification and the AASHTO Materials Specification M251. The elastomeric bearing pads will conform to Grade 70 (durometer). The cost of the pads will be incidental to the contract unit price per cubic yard for Class A45 Concrete, Bridge. Certification that pads are 70 durometer and meet the requirements of AASHTO LFRD Bridge Construction Specification Section 18.2 and AASHTO Materials Specification M251 will be furnished to the Engineer with the shop drawings. No laminated bearing pads will be allowed.
- All exposed corners will be chamfered 3/4-inch or rounded to 3/4-inch radius.
- Dead Load of girder taken as effective at transfer. Cut strands flush with end of girder and coat end of strands with mortar, EXCEPT the strands that are to be extended and bent,
- The Contractor will be responsible for ensuring that transportation stresses, handling, and erection do not cause damage to the girders.

SUPERSTRUCTURE

- Girder lifting hooks will be cut off before placement of concrete deck slab.
- The use of an approved deck finishing machine will be required during placement of bridge deck concrete. The deck finishing machine will be adjusted and operated in such a manner that the screed or screeds are parallel with the centerline of the bridge. The finish machine and concrete placement will be parallel to the skew of the bridge.
- The concrete bridge deck will be placed and finished at a minimum rate of 45 feet of deck per hour measured along centerline roadway. If concrete cannot be placed and finished at this rate, the Engineer will order a header installed and operations stopped. If a header is required sometime during the pour operation, its location will be at or as near as possible to the three-quarter point of the span. Notify the Bridge Construction Engineer if deck pour operations are stopped. Operations may resume only when the Engineer is satisfied that a rate of 45 feet per hour can be maintained and the concrete has attained a minimum compressive strength of 2000 psi.
- Snap ties, if used in the barrier curb formwork, will be corrosion resistant. The corrosion resistant ties will be inert in concrete and compatible with the reinforcing steel.
- See Special Provision for Concrete Penetrating Sealer.

BOLT TESTING

The certified mill test reports for all bolts used on the project will include the test results for all the testing specified in section 972.2 D of the Construction Specifications. Some of these tests are supplemental tests that must be requested at the time the bolts are ordered. It is the responsibility of the Contractor to notify the bolt supplier of these requirements.

SHOP PLANS

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

The fabricator will submit shop plans in accordance with the Specifications. Send shop plan submittals to KLJ Engineering, 330 Knollwood Drive, Rapid City, SD 57701 (shawn.mayfield@kljeng.com). After review, corrections (if necessary), and approval by KLJ Engineering, the Office of Bridge Design will review the submittals, authorize fabrication, arrange for fabrication inspection, and distribute the shop drawings.

FALL PROTECTION

- The Contractor will install a Fall Protection System conforming to OSHA Regulations. When working on the girders prior to decking installation, a Horizontal Lifeline – or other OSHA approved system will be installed. The Contractor will have one Personal Fall Arrest System (PFAS) available for use by a Department Inspector. The PFAS will be compatible with the installed Fall Protection System.
- Modifications to any bridge components used to accommodate the Fall Protection System will be shown on the Falsework Plans and/or the appropriate Shop Plans. Field welding to bridge components will not be allowed. Field placed concrete inserts or drilled-in anchor bolts will be allowed if approved by the Engineer. All costs associated with providing the Fall Protection System will be incidental to the other contract items.



NOTES (CONTINUED)
FOR
80'-0" PRESTR. GIRDER BRIDGE

Str. No. 52-575-383

JULY 2024

3 OF 16

DESIGNED BY SM	CK. DES. BY AB	DRAFTED BY SM	BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8052(77)	31	45

PERFORATED GEOCELL

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

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

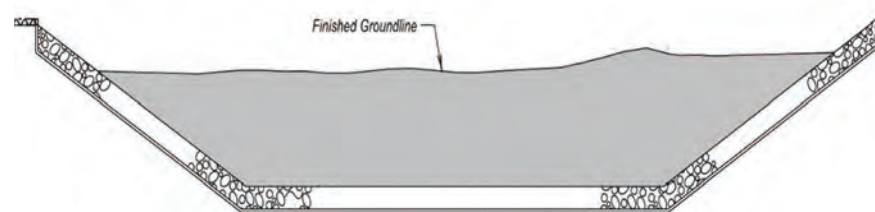
2. Perforated Geocell will be 6 inches tall with Type B Drainage Fabric underlying the perforated Geocell. Installation will adhere to the manufacturer's recommendation.
3. Perforated Geocell will be filled with the Select Granular Backfill in accordance with Section 850 of the Construction Specifications.
4. Perforated Geocell will be paid for at the contract unit price per square foot. Payment will be full compensation for furnishing and installing the Perforated Geocell.
5. Select Granular Backfill will be paid for at the contract unit price per ton of material furnished. Payment will be full compensation for furnishing, loading, hauling, and placing the Select Granular Backfill.

RIPRAP

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

OVERBURDEN EXCAVATION FOR RIPRAP

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



This work also includes the removal and replacement of channel bank material from Sta. 11+63 L to 12+24 L as shown in the plans between the limits of the finished groundline and the top of the riprap.

2. Excavation is to be completed after temporary diversion method is in place, if required, with minimal standing water to create the profile of slope protection specified in plans.
3. The removed material will be placed on top of the riprap to the natural ground, proposed groundline, or specified shape and elevations shown in plans. When overburden extends into the streambed it will form the channel bottom and profile as specified in plans. The finished ground under the bridge will be shaped to match the upstream and downstream channel and flood plain.
4. The overburden material will be placed on top of the riprap and have a maximum lift depth of 1' - 0" and compacted free of flowing water or standing water in excess of four inches above the riprap at the lowest elevation.
5. Compaction effort will produce a surface that does not pump, rut, or otherwise displace when traveled over with construction equipment to the satisfaction of the Engineer. Material may be added to excavated material to facilitate compaction and handling. Importing, stockpiling, blending, and/or wasting of materials will be incidental to the contract unit price per cubic yard for "Overburden Excavation for Riprap".
6. Payment for Overburden Excavation for Riprap will be at the contract unit price and will be full compensation for labor, equipment, tools, and incidentals, including furnishing, installing, and removal of any temporary works necessary to complete the work. Payment will be for plans quantity unless measurement is ordered by the Engineer.
7. Before preparing the bid, it is the responsibility of the Contractor to verify existing conditions to determine if a temporary diversion method and/or dewatering will be required. If required, the Contractor must submit the temporary diversion method and/or dewatering for approval to the Construction Engineer 30 days prior to construction.



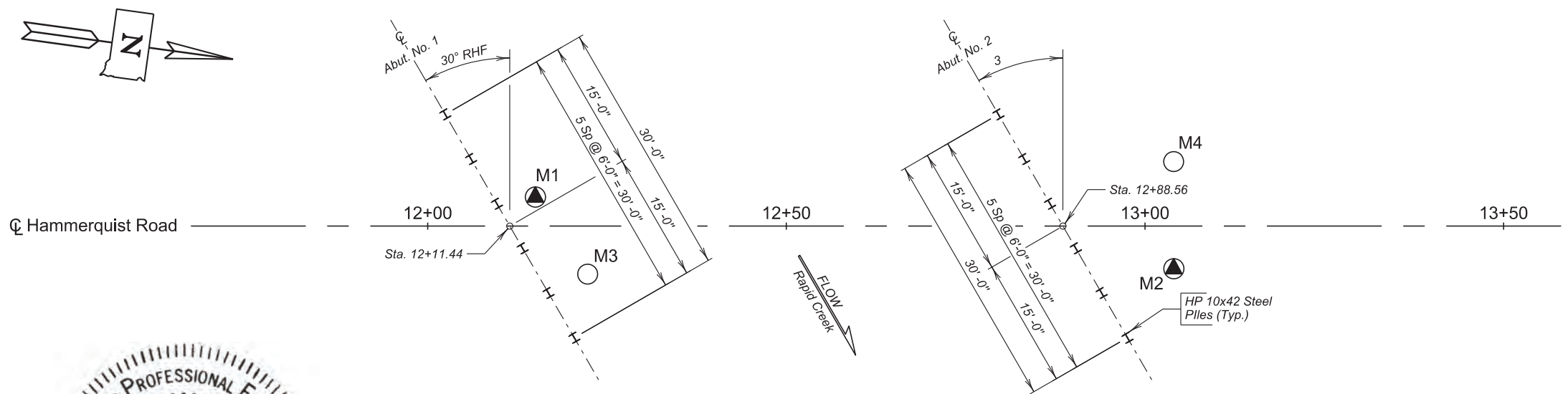
NOTES (CONTINUED)
 FOR
80'-0" PRESTR. GIRDER BRIDGE

Str. No. 52-575-383

JULY 2024

3 OF 16

DESIGNED BY SM	CK. DES. BY AB	DRAFTED BY SM	BRIDGE ENGINEER
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PILING LAYOUT



Hole Number	M3	M3	M4	M4
Station	12+22	12+22	13+04	13+04
Depth	21.5 ft	36.5 ft	11.5 ft	31.2 ft
Soil Color	Gray	Gray	Brown	Gray
Classification	Clay	Clay	Sandy Gravel	Clay
Strength (Qu)	3,558 psf	13,730 psf	No Test	7,510 psf
Dry Density	88.1 pcf	99.7 pcf	116.6 pcf	93.5 pcf
Wet Density	114.7 pcf	122.6 pcf	121.2 pcf	118.3 pcf
Moisture	30.2 %	23 %	4 %	26.5 %
Pass No. 10	100 %	100 %	44 %	100 %
Pass No. 40	100 %	100 %	29.6 %	100 %
Pass No. 200	99.9 %	99.4 %	18.3 %	99.4 %
Sand Content	0.1 %	0.6 %	25.8 %	0.6 %
Silt Content	15.5 %	13 %	9.9 %	15 %
Clay Content	84.4 %	86.4 %	8.4 %	84.4 %

Pierre Shale is a marine shale with a textural classification that varies from silt clay to clay silt. Color varies from buff gray to black. The formation may contain concretion zones that are normally thin but occasionally are massive. These zones may be considered hard and dense. Thin zones may be present that are cemented resulting in claystone or siltstone seams. Bentonite zones may be encountered but are normally less than one half inch thick. Nonweathered Pierre Shale is considered to be "Soft Rock".

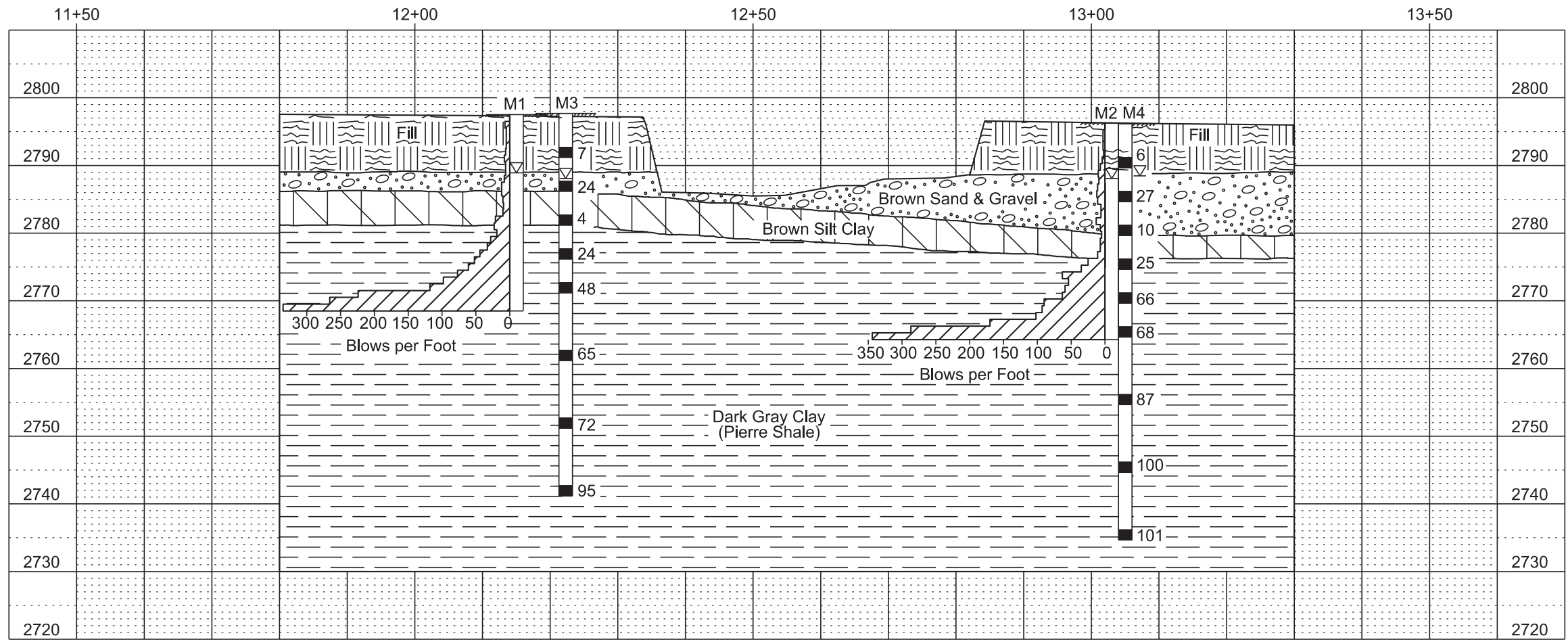
The Geotechnical Engineering Activity has all of the boring logs and laboratory test results available for review at the Central Office in Pierre.

LEGEND

- Penetration Test
- ▽ Water
- ⊙ Drive Test
- ▭ Sample Zone

Drive tests are conducted by dropping a 490 pound hammer 30 inches to drive a 2 7/8 inch drill stem to measure the resistance to penetration of the soil.

Penetration test holes are drilled with a 6 5/8 inch diameter hollow stem auger. Penetration tests are conducted by dropping a 140 pound hammer 30 inches to collect samples and measure the resistance to penetration of the soil. Samples are collected using a lined Modified California Sampler. Penetration test results are listed as uncorrected "N" values in blows per foot. Blows over inches are listed if refusal is achieved, which is 50 blows within one 6 inch set.



GROUNDWATER ELEVATIONS

AUGUST 2022

M1	2788.9
M2	2788.1

SEPTEMBER 2022

M3	2788.1
M4	2788.5

MEASURED SKIN FRICTION

	ELEV.	PSF
M1	2768.5	1816
M2	2164.3	1254

SUBSURFACE INVESTIGATION AND PILING LAYOUT FOR

80'-0" PRESTR. GIRDER BRIDGE

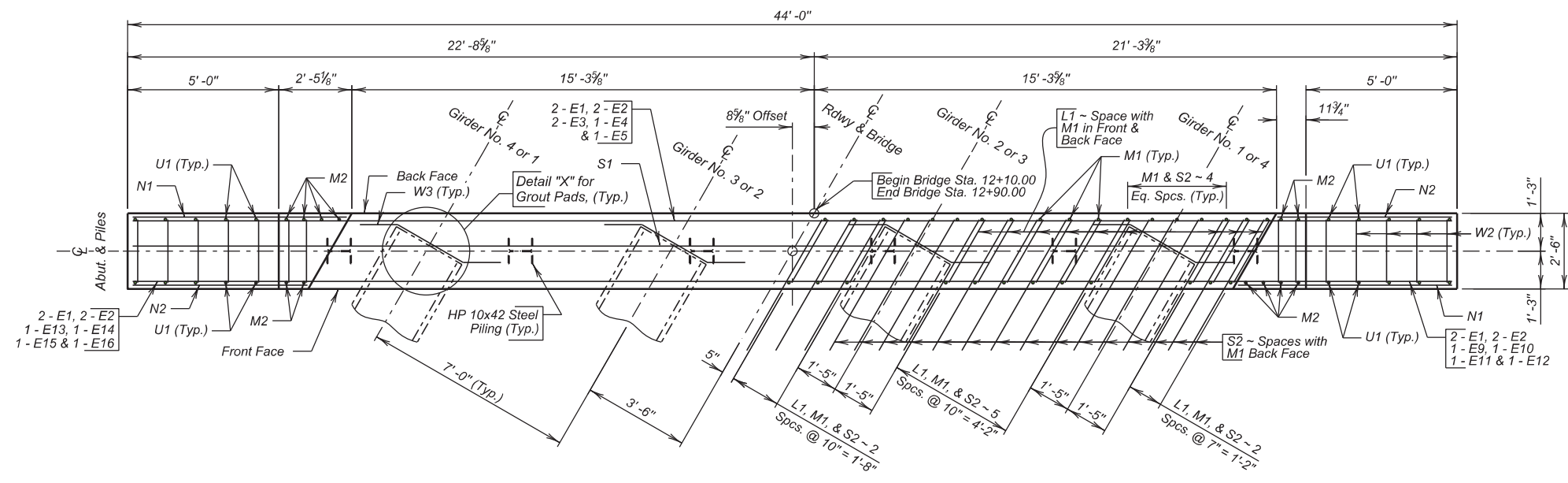
24'-0" ROADWAY OVER RAPID CREEK
 STA. 12+10.00 to STA. 12+90.00
 STR. NO. 52-575-383
 PCN 08N3

SEC. 15-T1S-R10E
 30° RHF SKEW
 BRO-B 8052(77)
 HL-93

PENNINGTON COUNTY
 S. D. DEPT. OF TRANSPORTATION

JULY 2024

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



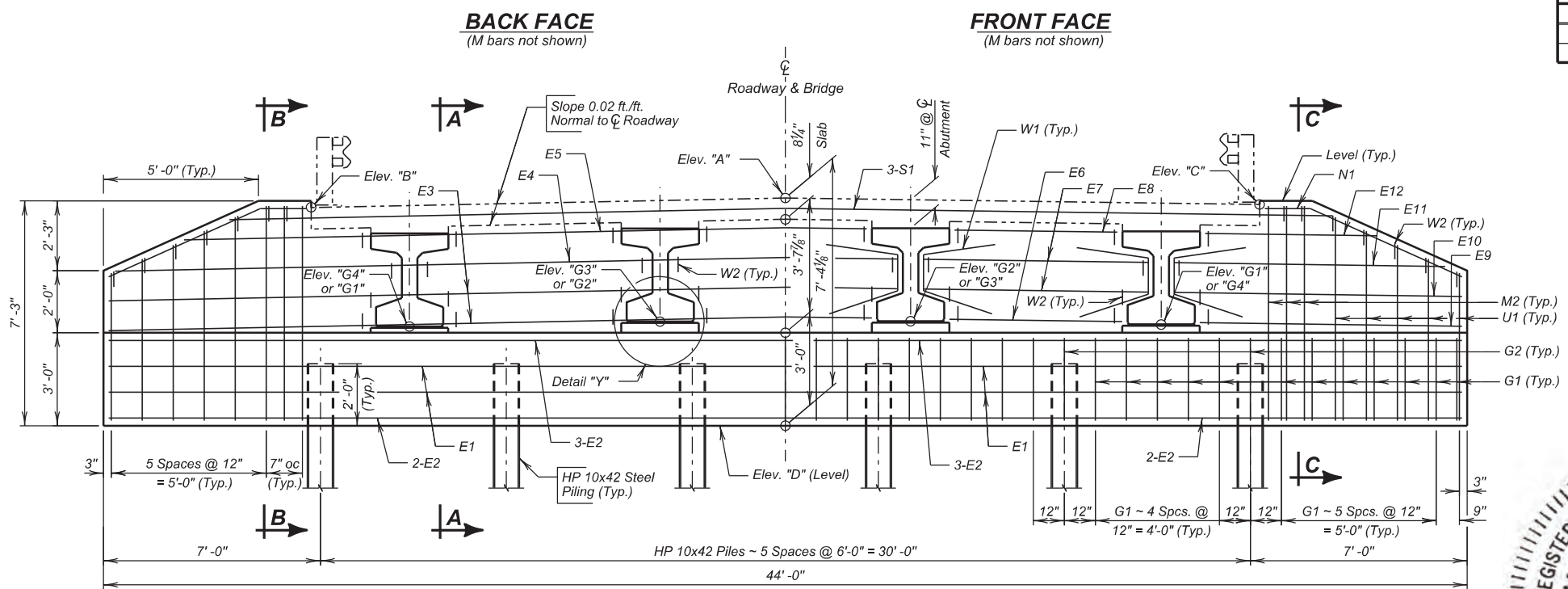
PLAN
(Abut. No. 1 Shown, Abut. No. 2 Similar, by opposite hand)

INCREASING STATIONS
Abut. No. 1
INCREASING STATIONS
Abut. No. 2

ESTIMATED QUANTITIES			
ITEM	UNIT	QUANTITY	
		Abut. No. 1	Abut. No. 2
Class A45 Concrete, Bridge	Cu. Yd.	12.3	12.3
Reinforcing Steel	Lb.	2,507	2,507
Epoxy Coated Reinforcing Steel	Lb.	541	541
Structure Excavation, Bridge	Cu. Yd.	10	10
HP 10x42 Steel Test Pile, Furnish and Drive	Ft.	1 @ 45' = 45'	1 @ 45' = 45'
HP 10x42 Steel Bearing Pile, Furnish and Drive	Ft.	5 @ 40' = 200'	5 @ 40' = 200'
Preboring Pile	Ft.	6 @ 10' = 60'	6 @ 10' = 60'

Includes 0.1 Cu.Yd. for grout pads for each abutment.

TABLE OF ELEVATIONS								
Abutment	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "G1"	Elev. "G2"	Elev. "G3"	Elev. "G4"
No. 1	2798.56	2798.25	2798.35	2791.22	2794.44	2794.55	2794.52	2794.36
No. 2	2798.06	2797.84	2797.74	2790.71	2793.93	2794.04	2794.01	2793.85



ELEVATION
(Along Centerline of Abutment)

NOTE:
Elevations "A", "B" and "C" are top of slab at centerline of abutment.
Elevations "G1", "G2", "G3", and "G4" are top of grout pad at centerline abutment.
Top of grout pad shall be level and smooth.

NOTE:
Concrete will be placed in the space under the beams (within the backwall width) during the pour. Care will be taken to get the concrete vibrated into this area. If upon form removal the space is not completely filled and consolidated, the contractor will grout in the remaining voids.

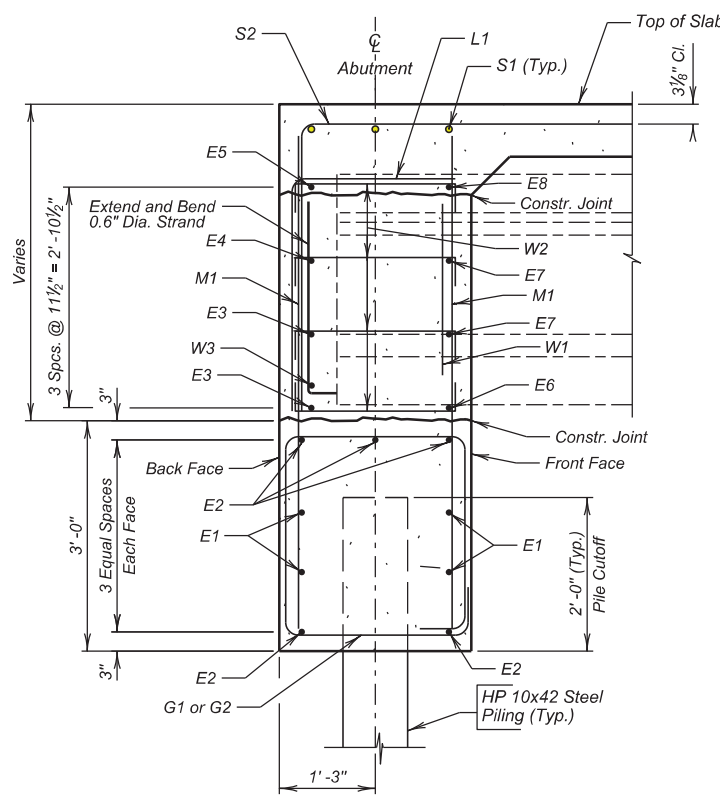


ABUTMENT DETAILS (A)
FOR
80'-0" PRESTR. GIRDER BRIDGE
24'-0" ROADWAY OVER RAPID CREEK
STA. 12+10.00 to STA. 12+90.00
STR. NO. 52-575-383
PCN 08N3

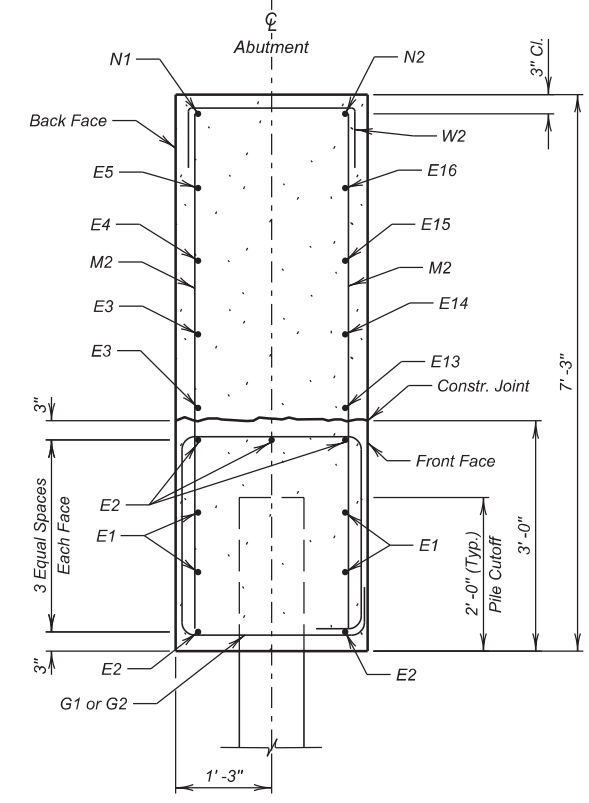
SEC. 15-T1S-R10E
30° RHF SKEW
BRO-B 8052(77)
HL-93

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

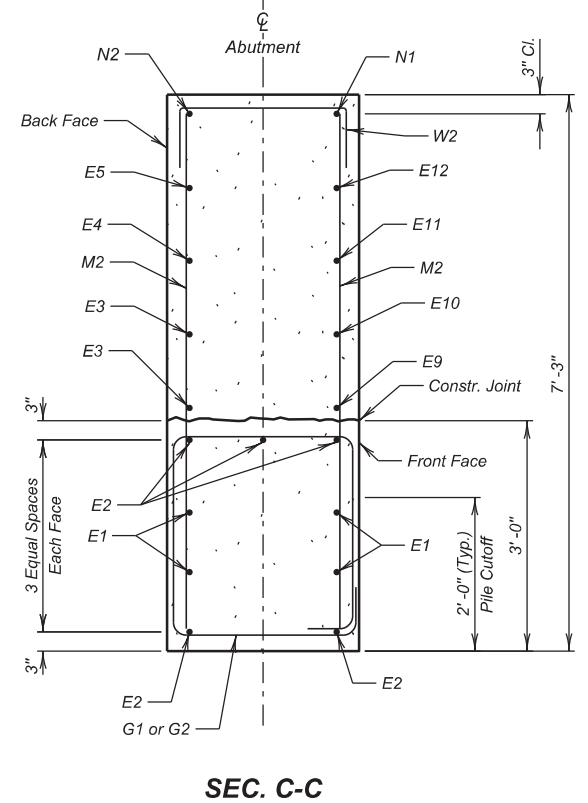
DESIGNED BY SM	CK. DES. BY AB	DRAFTED BY SM	BRIDGE ENGINEER
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SEC. A-A



SEC. B-B

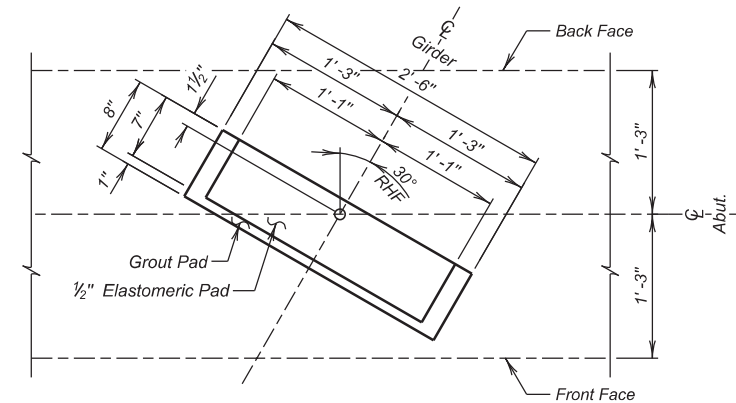


SEC. C-C

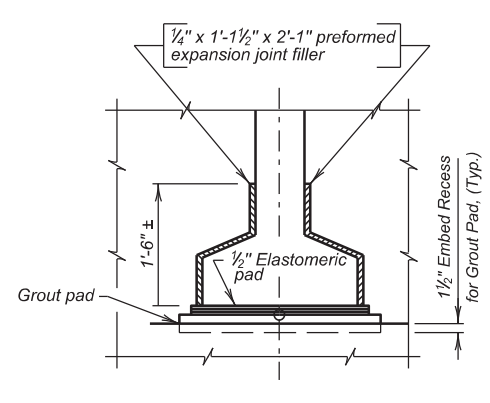
REINFORCING SCHEDULE					Bending Details	
(For One Abutment)						
Mk.	No.	Size	Length	Type		
E1	4	6	43'-8"	Str.		
E2	5	6	43'-8"	Str.		
E3	2	6	43'-8"	Str.		
E4	1	6	43'-1"	Str.		
E5	1	6	38'-11"	Str.		
E6	3	6	5'-5"	Str.		
E7	6	6	7'-4"	Str.		
E8	3	6	5'-0"	Str.		
E9	2	6	8'-10"	Str.		
E10	2	6	9'-10"	Str.		
E11	2	6	9'-3"	Str.		
E12	2	6	6'-0"	Str.		
E13	2	6	7'-8"	Str.		
E14	2	6	8'-8"	Str.		
E15	2	6	8'-2"	Str.		
E16	2	6	5'-1"	Str.		
G1	37	5	10'-8"	T2		
G2	6	5	9'-3"	S6		
M1	60	5	6'-7"	Str.		
M2	12	5	6'-10"	Str.		
N1	2	5	7'-5"	19B		
N2	2	5	6'-1"	19B		
S1	3	7	35'-8"	Str.		
S2	36	5	8'-7"	17A		
L1	24	4	5'-5"	17A		
U1	10	5	11'-3"	Str.		
W1	8	5	5'-10"	14		
W2	46	4	3'-2"	17		
W3	4	4	5'-0"	19		

Type T2		Type S6		Type 17	
Type 19A		Type 19B		Type 19	
Type 14		Type 17A		Type 19	

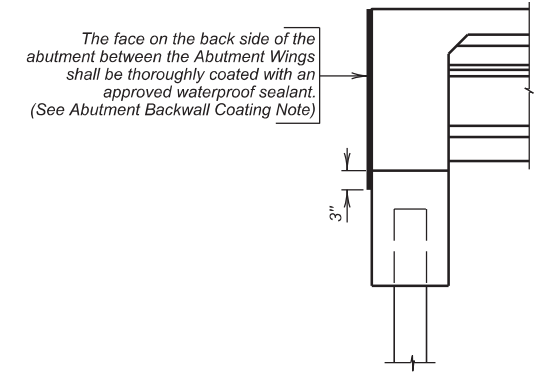
NOTES:
 All dimensions are out to out of bars.
 Δ Bars to be Epoxy Coated.
 # Denotes cut bars.



DETAIL "X"



DETAIL "Y"
(Typical at girder ends)



ABUTMENT BACKWALL COATING DETAIL



ABUTMENT DETAILS (B)
 FOR
80'-0" PRESTR. GIRDER BRIDGE
 24'-0" ROADWAY OVER RAPID CREEK
 STA. 12+10.00 to STA. 12+90.00
 STR. NO. 52-575-383
 PCN 08N3

SEC. 15-T1S-R10E
 30° RHF SKEW
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PENNINGTON COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JULY 2024

FOR BIDDING PURPOSES ONLY

NOTE:
≡ Alternate rows of D1 & D2

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	35	45

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
B1	156	5	26'-2"	Str.
B2	34	5	27'-1"	Str.
D1	46	5	60'-0"	Str.
D2	46	5	22'-5"	Str.

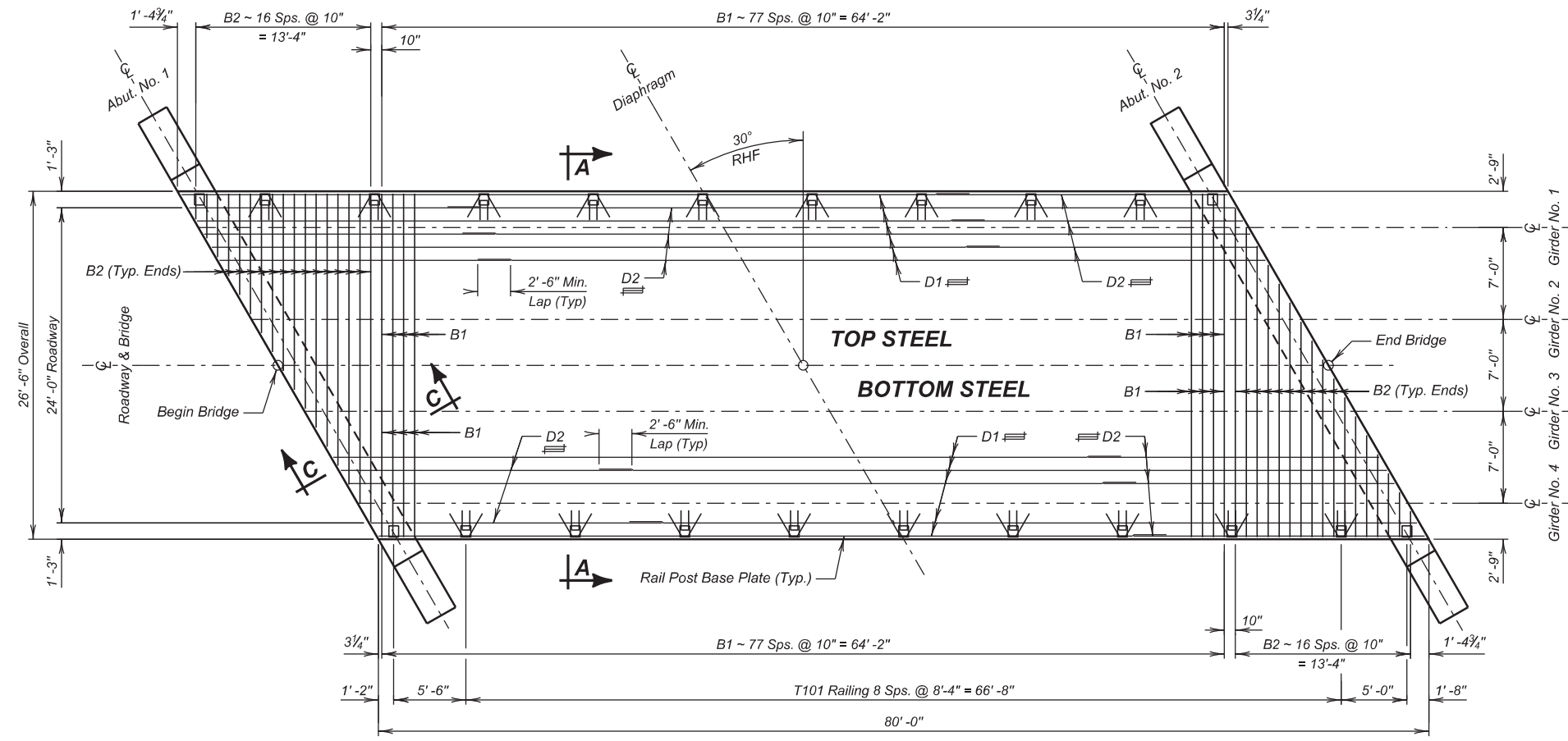
R1	See T101 Bridge Railing Details
R2	See T101 Bridge Railing Details

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

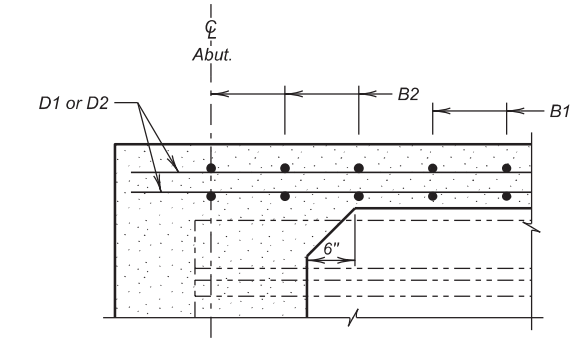
ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Class A45 Concrete, Bridge Deck	Cu. Yd.	85.9
Epoxy Coated Reinforcing Steel	Lb.	9,172
36" Minnesota Shape Prestressed Concrete Beam	Ft.	310

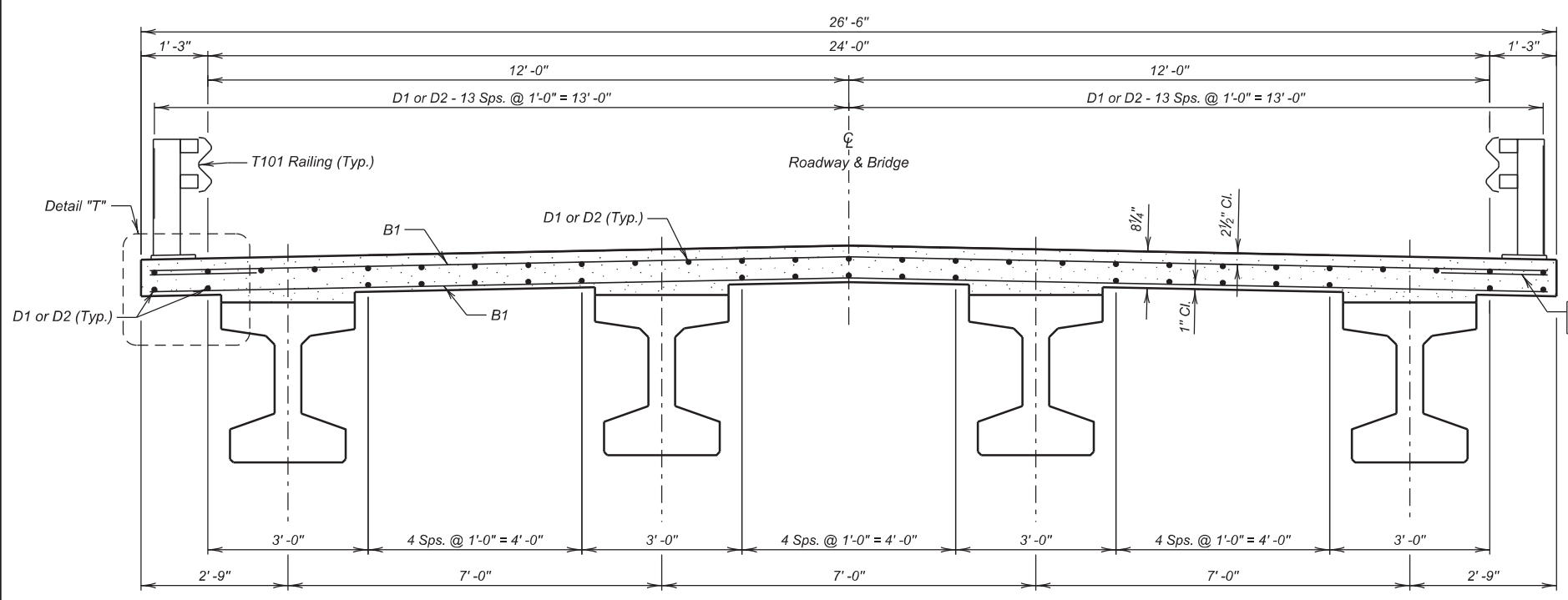
Includes Concrete for the Abutment End Diaphragms, Wingwalls, Haunch and Slab.
Average depth of 2" was used for haunch quantity.
Abutment End Diaphragm Reinforcement is included with the Abutment Quantities.



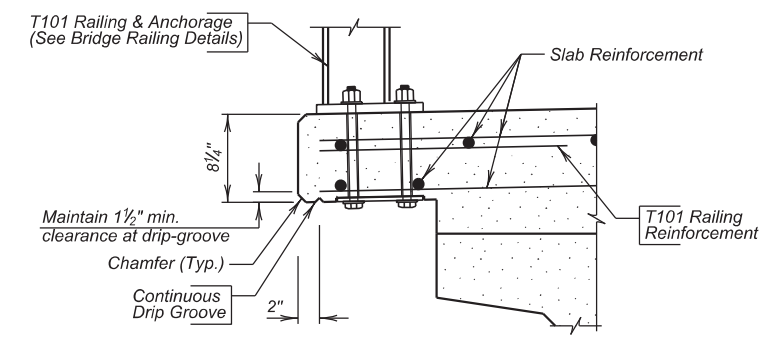
PLAN



SEC. C-C



SEC. A-A



DETAIL "T"

SUPERSTRUCTURE DETAILS

FOR 80'-0" PRESTR. GIRDER BRIDGE

24'-0" ROADWAY OVER RAPID CREEK
STA. 12+10.00 to STA. 12+90.00
STR. NO. 52-575-383
PCN 08N3

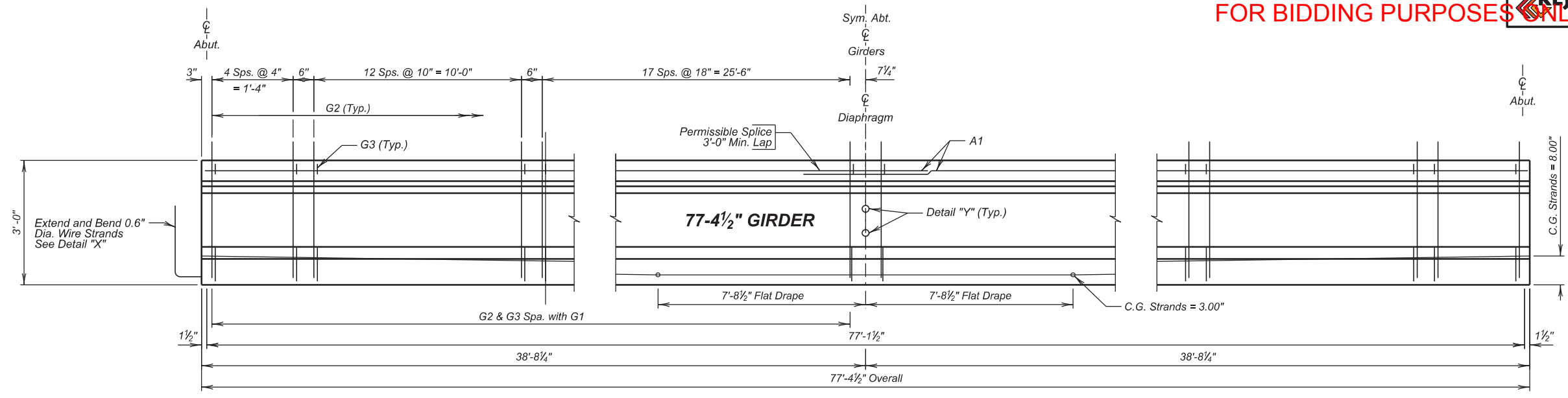
SEC. 15-T1S-R10E
30° RHF SKEW
BRO-B 8052(77)
HL-93



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

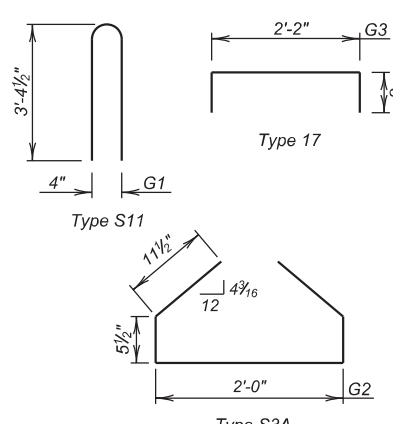
DESIGNED BY SM	CK. DES. BY AB	DRAFTED BY SM	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

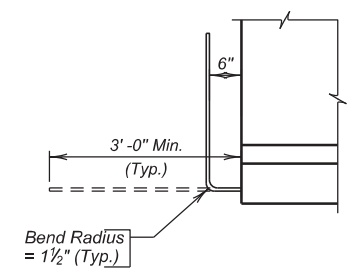


ELEVATION

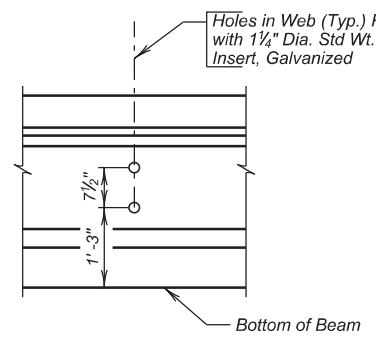
REINFORCING SCHEDULE				
(For One Girder)				
Mk.	No.	Size	Length	Type
A1	8	8	40'-6"	Str.
G1	72	5	7'-0"	S11
G2	72	4	4'-10"	S3A
G3	72	3	2'-8"	17



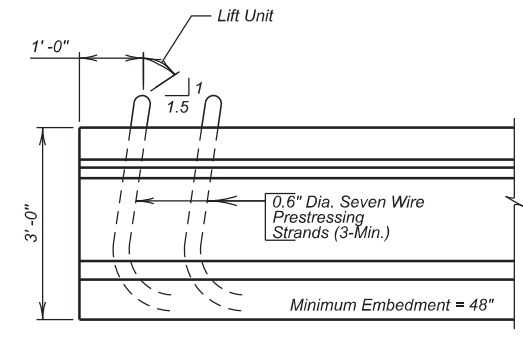
NOTES:
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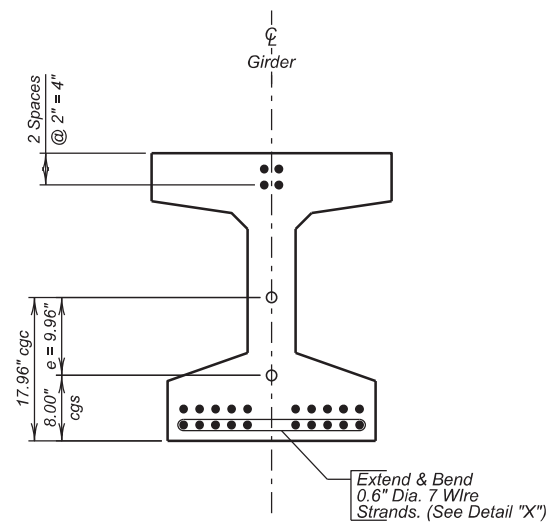
DETAIL "X"
(Abut. End, See Abut. Details)



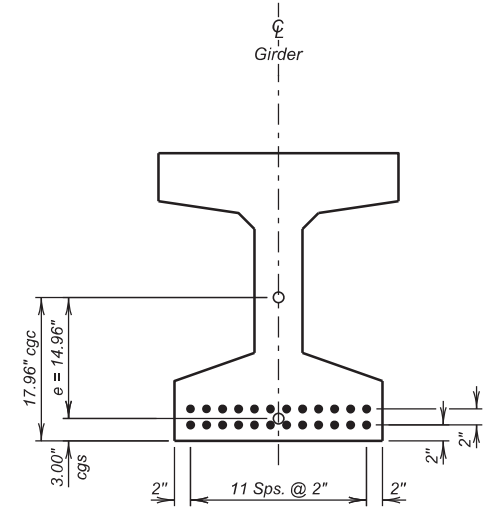
DETAIL "Y"
STEEL INTERMEDIATE DIAPHRAGM
(See Diaphragm Details Sheet)



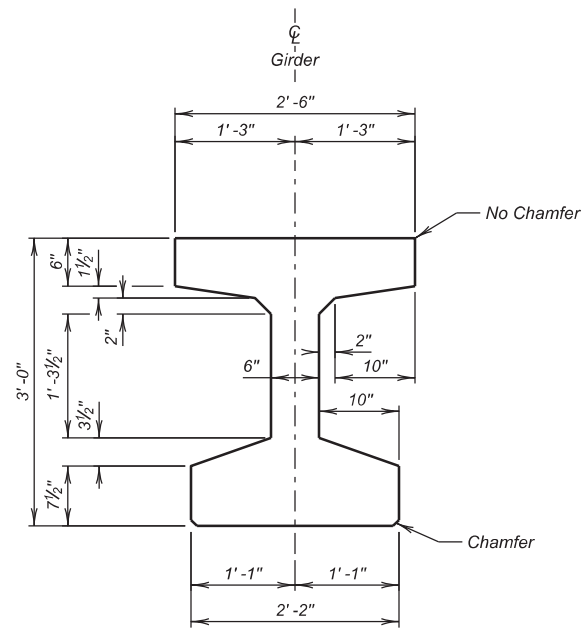
TYPICAL LIFTING DEVICE



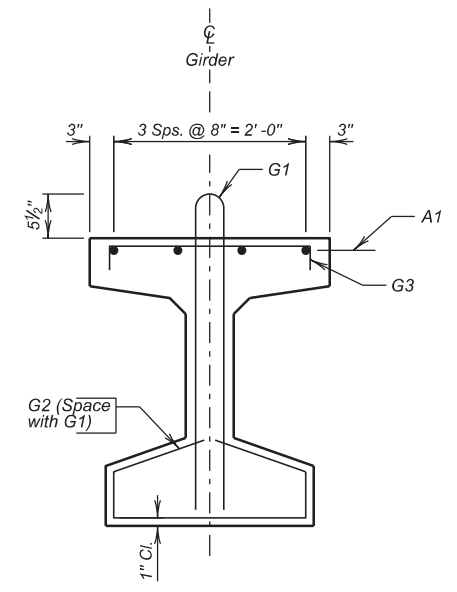
END VIEW



SEC C SPAN



TYPE 36 GIRDER



STIRRUP DETAIL

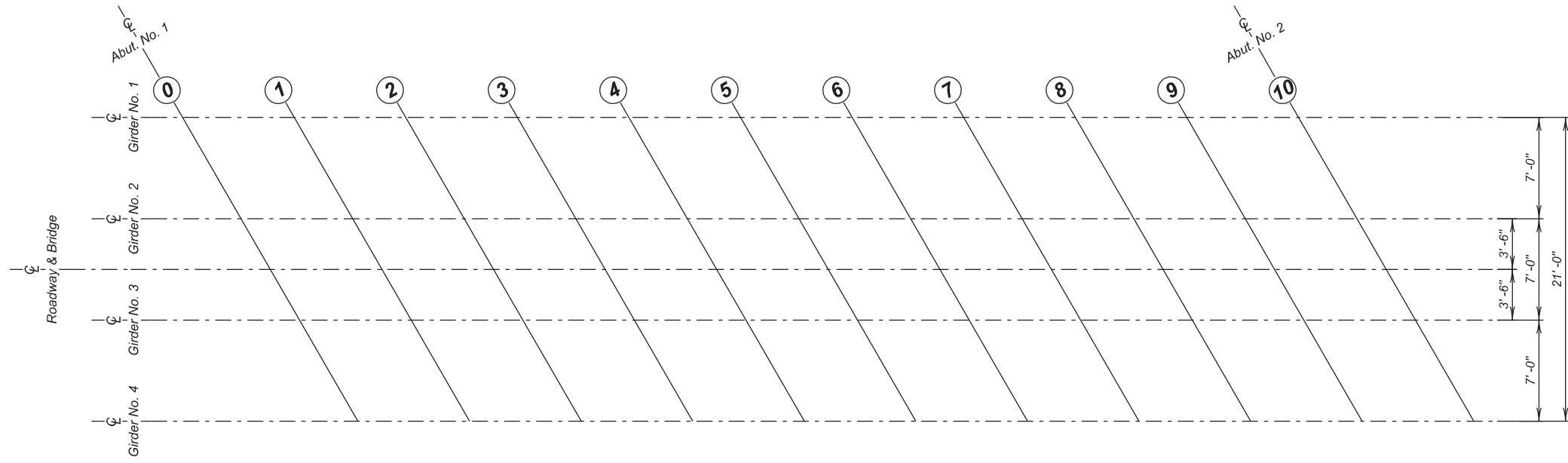


GIRDER DETAILS FOR
80'-0" PRESTR. GIRDER BRIDGE
 24'-0" ROADWAY OVER RAPID CREEK
 STA. 12+10.00 to STA. 12+90.00
 STR. NO. 52-575-383
 PCN 08N3

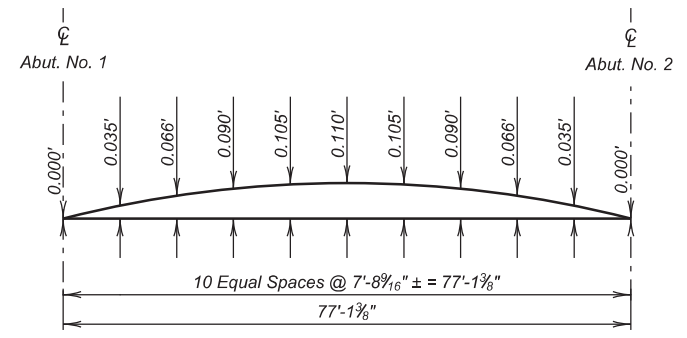
SEC. 15-T1S-R10E
 30° RHF SKEW
 BRO-B 8052(77)
 HL-93

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

77-4 1/2" GIRDER
 (24 - 0.6" Dia. Type 270K Low Relaxation Strands)

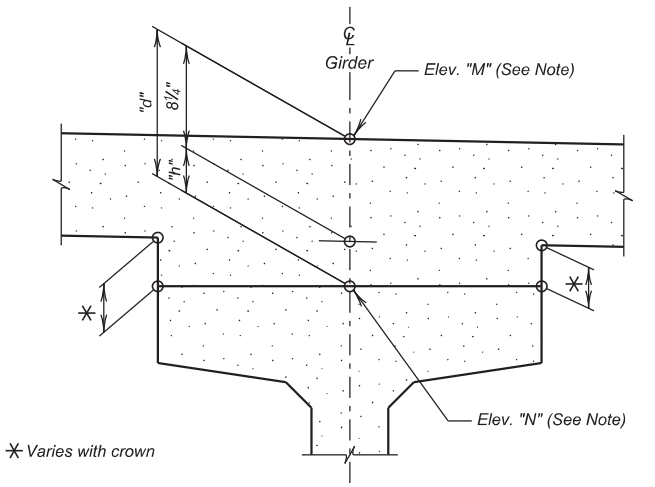


GIRDER LAYOUT



CAMBER DIAGRAM

The Camber shown is the amount which has been added to the theoretical slab elevations to get slab elevations shown in the table of Slab Form Elevations and Calculations. Camber shown is for D.L. of slab, traffic barrier, and haunch, but does not include D.L. of beams.



HAUNCH DETAIL

		0	1	2	3	4	5	6	7	8	9	10
Girder No. 1	Elev. "M"	2798.40	2798.38	2798.36	2798.33	2798.30	2798.25	2798.19	2798.13	2798.05	2797.97	2797.88
	(-) Elev. "N"											
	(=) d											
	(-) 0.688'											
	(=) h											
Girder No. 2	Elev. "M"	2798.51	2798.49	2798.47	2798.45	2798.41	2798.36	2798.31	2798.24	2798.17	2798.08	2798.00
	(-) Elev. "N"											
	(=) d											
	(-) 0.688'											
	(=) h											
Girder No. 3	Elev. "M"	2798.48	2798.47	2798.45	2798.42	2798.38	2798.34	2798.28	2798.21	2798.14	2798.06	2797.97
	(-) Elev. "N"											
	(=) d											
	(-) 0.688'											
	(=) h											
Girder No. 4	Elev. "M"	2798.32	2798.30	2798.28	2798.25	2798.22	2798.17	2798.11	2798.05	2797.97	2797.89	2797.80
	(-) Elev. "N"											
	(=) d											
	(-) 0.688'											
	(=) h											

TABLE OF SLAB FORM ELEVATIONS AND CALCULATIONS

NOTE:
The table contains the information necessary to determine the depth of concrete over the girders at points shown. Calculations may be carried in the spaces provided. Elev. "M" is the design elevation of the top of slab before any concrete has been poured. This elevation includes correction for camber and dead load deflection. Elev. "N" is a field measured elevation taken on top of girders at the points shown with the girders in their positions. The elevation must be taken after erection is completed, but prior to placing any of the deck concrete. Girders shall not be supported between bearings when elevations are taken.

NOTE:
Based on a "d" of 11" at the C of each abutment. It is anticipated that the midspan haunch dimension "h" over the C of each girder will be 1 1/2". If when computing the dimensions in the table, it is found that any dimension "h" is less than zero or greater than 4" the Engineer shall be notified immediately. After the "Table of Slab Form Elevation and Calculations" has been completely filled out and approved for deck forming, a copy must be forwarded to the Engineer for review and analysis for the purpose of securing information relative to camber growth in the beams. This information is necessary for preparing plans for future structures of this type.

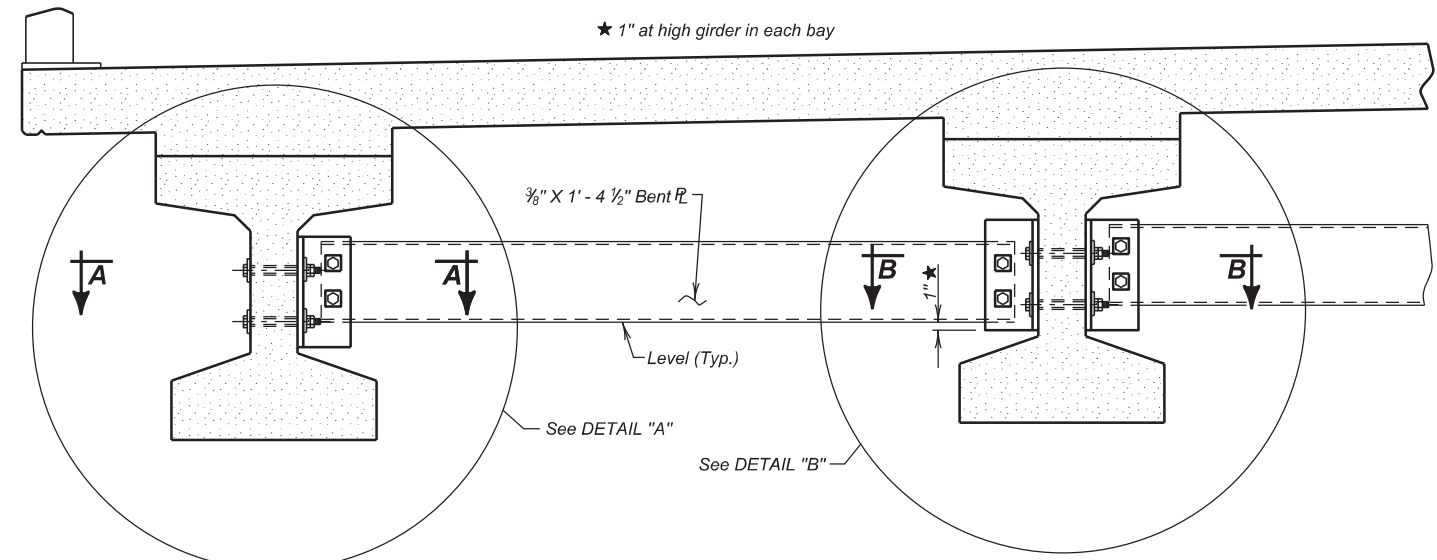
ERECTION DATA AND SLAB FORM ELEVATIONS
FOR
80'-0" PRESTR. GIRDER BRIDGE
24'-0" ROADWAY OVER RAPID CREEK
STA. 12+10.00 to STA. 12+90.00
STR. NO. 52-575-383
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SEC. 15-T1S-R10E
30° RHF SKEW
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PENNINGTON COUNTY
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JULY 2024

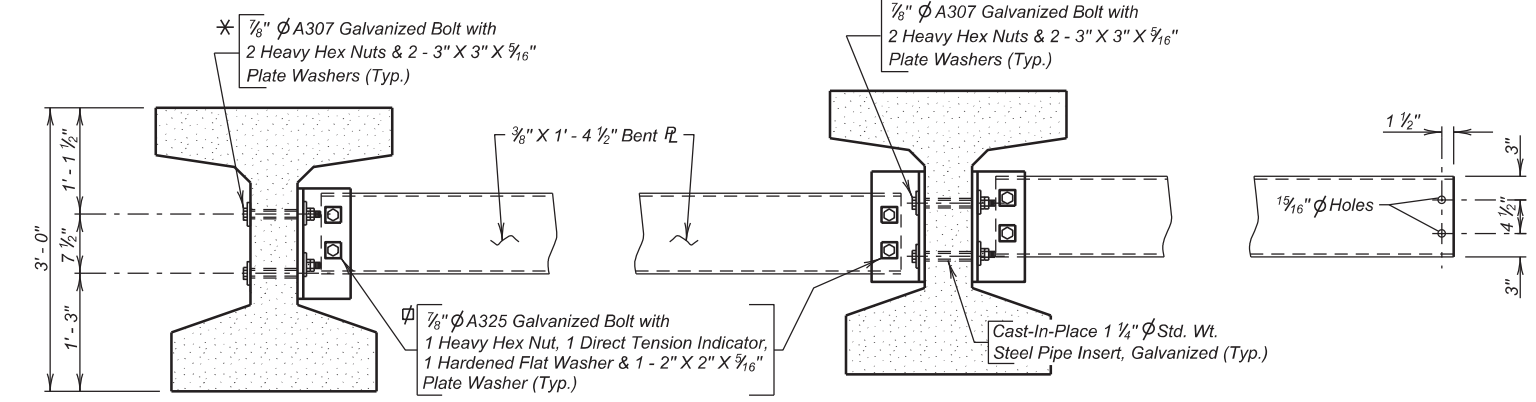
DESIGNED BY SM
CK. DES. BY AB
DRAFTED BY SM

BRIDGE ENGINEER



SECTION AT DIAPHRAGM

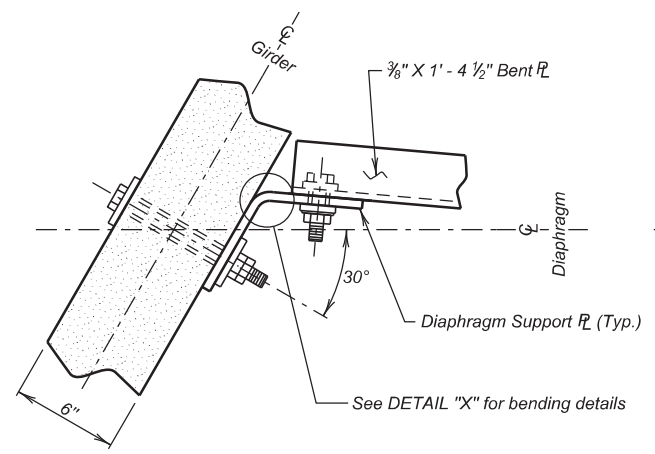
* Bolt head shall be adjacent to the Exterior Face of the Exterior Girder.



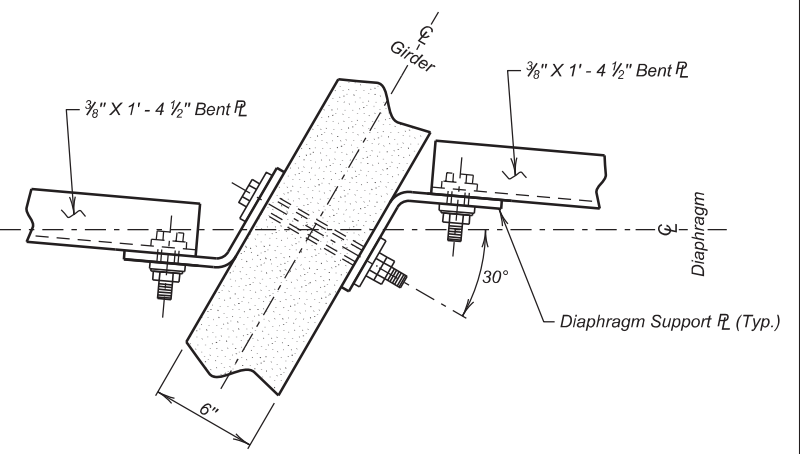
DETAIL "A"
(Typ. Exterior Girder)

⊠ Bolt Head and Direct Tension Indicator shall be adjacent to 1 5/16" holes in Bent Plate Diaphragm.

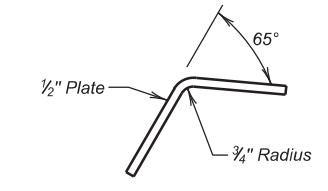
DETAIL "B"
(Typ. Interior Girder)



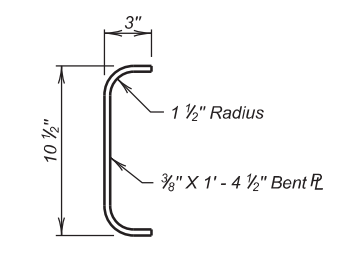
SEC. A - A



SEC. B - B



DETAIL "X"



END VIEW BENT PLATE DIAPHRAGM



NOTES:

1. All steel for the diaphragms including plate washers will conform to ASTM A36 and will be galvanized in accordance with ASTM A123 or A153. Bolts, nuts, and washers will be galvanized in accordance with ASTM F2329. Direct Tension Indicators will conform to Section 410 of the Specifications.
2. The steel diaphragms between adjacent girders will be installed as soon as possible and in conjunction with girder erection.
3. All costs associated with furnishing, fabricating, assembly and installation of diaphragms will be included in the contract lump sum price for Structural Steel, Miscellaneous.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Δ Structural Steel, Miscellaneous	L.S.	Lump Sum

Δ For informational purposes only, the estimated weight of structural steel is 540 Lbs. for 3 diaphragms.

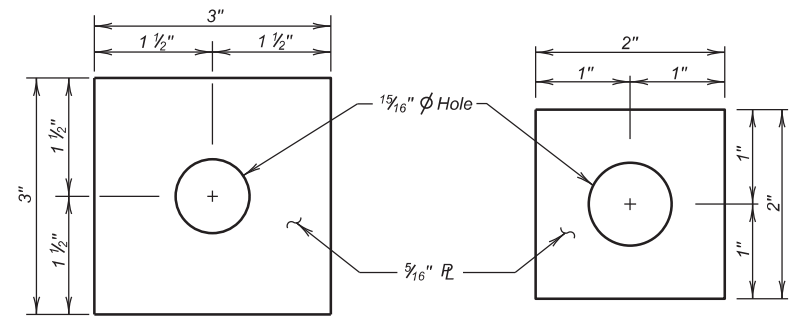
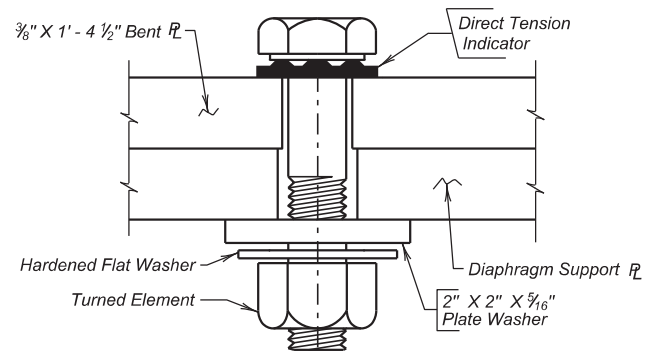
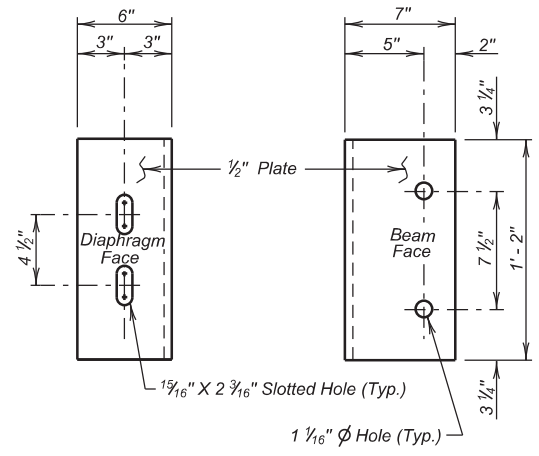


PLATE WASHER DETAILS



DIRECT TENSION INDICATOR DETAIL



DIAPHRAGM SUPPORT PLATE

STEEL DIAPHRAGM DETAILS
FOR
80'-0" PRESTR. GIRDER BRIDGE
24'-0" ROADWAY OVER RAPID CREEK
STA. 12+10.00 to STA. 12+90.00
STR. NO. 52-575-383
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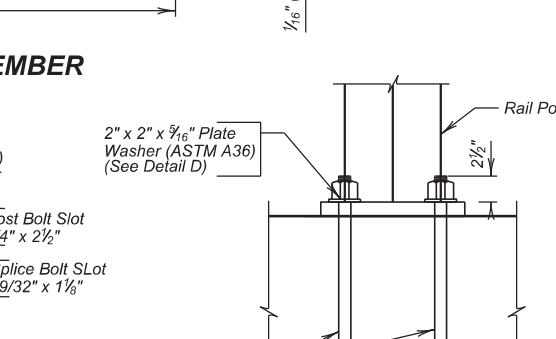
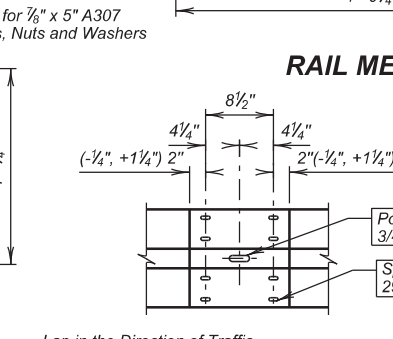
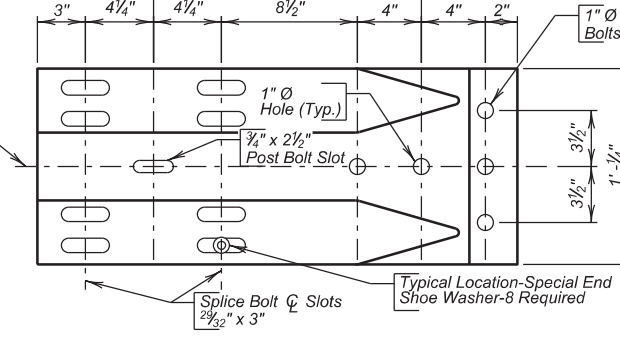
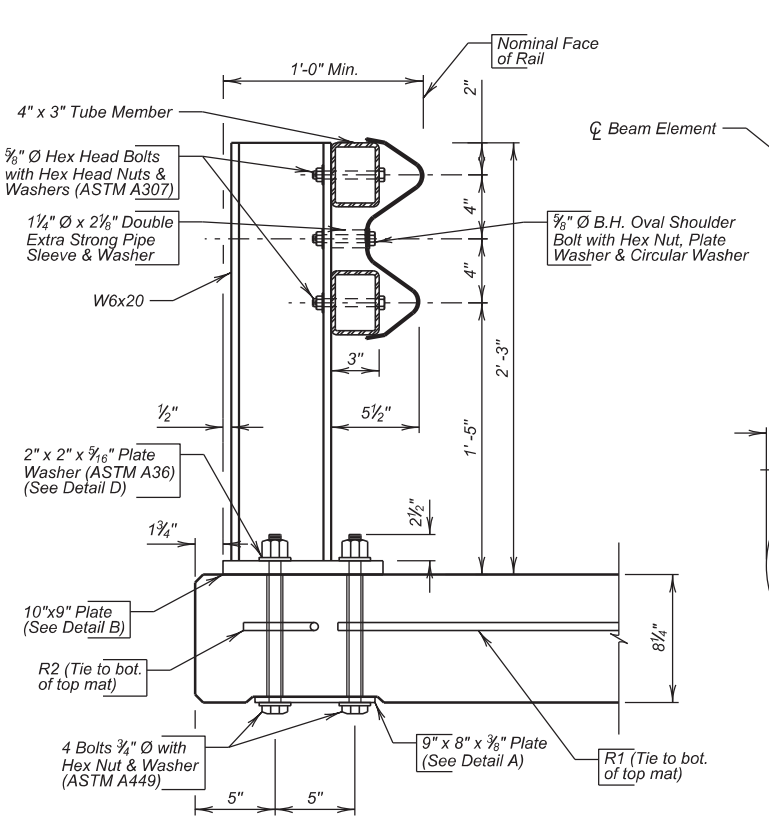
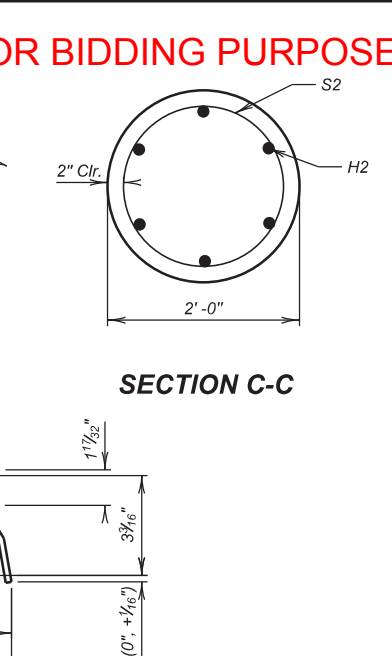
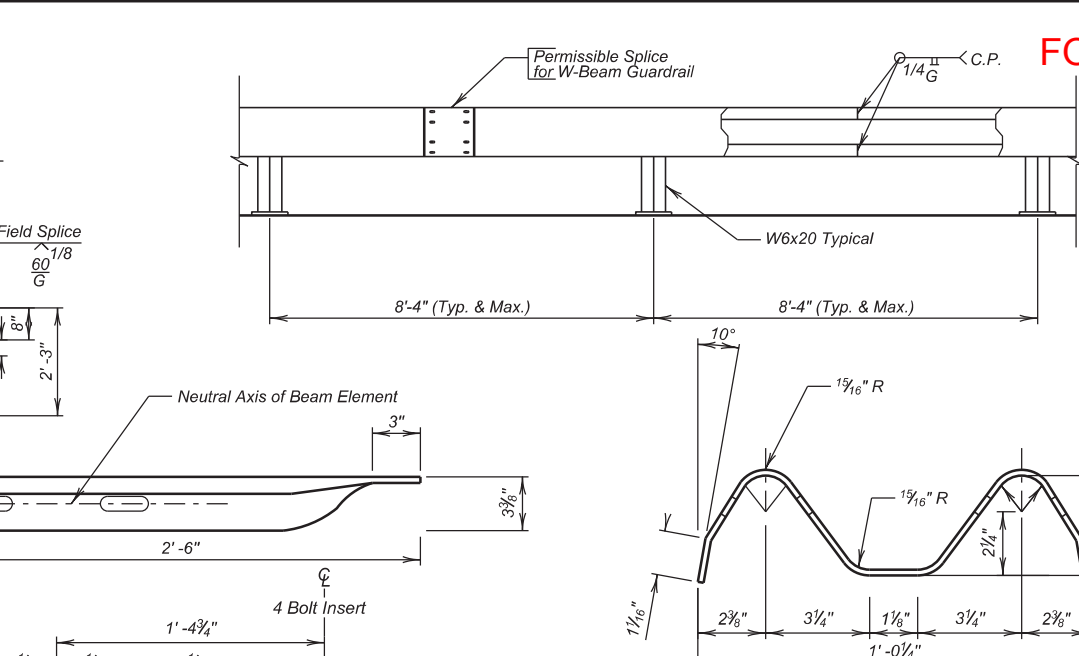
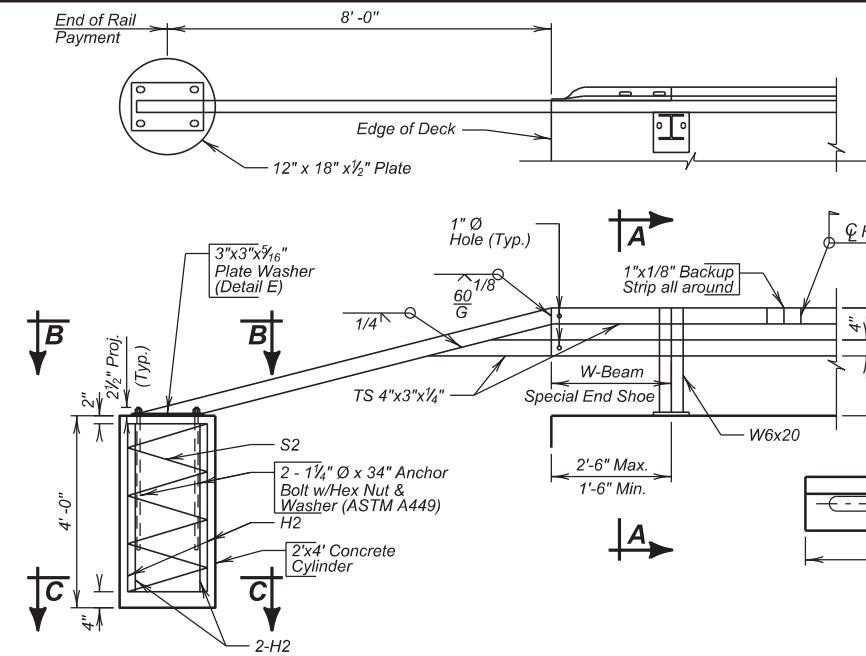
SEC. 15-T1S-R10E
30° RHF SKEW
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PENNINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2024

DESIGNED BY SM	CK. DES. BY AB	DRAFTED BY SM	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

- GENERAL NOTES:**
- Rail posts will be perpendicular to centerline of roadway.
 - W-beam guardrail, pipe sleeves nuts, washers, and plate washers that go with these will be galvanized. Bolts, nuts, and washers will be galvanized according to ASTM F2329. Pipe sleeves will be galvanized according to ASTM A123.
 - Post bolts will be 3/4" diameter ASTM F3125 A325. Each bolt will have one hardened and one 2" x 2" x 5/16" ASTM A36 plate washer. Nuts will be A563.
 - Steel W-Beam guardrail will be Class A, Type 1, conforming to AASHTO M180 and will be fabricated from standard 12.5' or 25' nominal W-beam sections.
 - The rail posts, 4" x 3" tube members, and base plates will be galvanized in accordance with ASTM A123. All bolts, nuts, and washers will be galvanized in accordance with F2329.
 - All structural steel parts for the Type T101 Steel Railing will conform to ASTM A709 Gr. 36. Tubes shall conform to ASTM A500 Gr. B.
 - Provide 1/2" drain holes in the tubes near ends of rail and near splices.
 - All concrete will be Class M6 as specified in section 462 of the specifications.
 - All reinforcing steel will conform to ASTM A615, Gr 60.
 - All bolts, nuts, washers, posts, plates, pipe sleeves, steel W-beam guardrail, welding, painting or galvanizing, and all costs of installing four rail anchors including concrete, excavation, forming, reinforcing steel, and anchor bolts will be included in the unit price bid per linear foot for "Type T101 Bridge Railing".
 - Measurement for payment will be from center of anchor to center of anchor for each side of the bridge.



ESTIMATED QUANTITIES

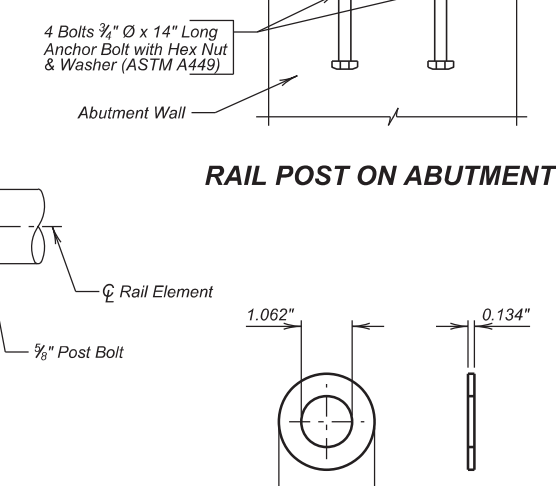
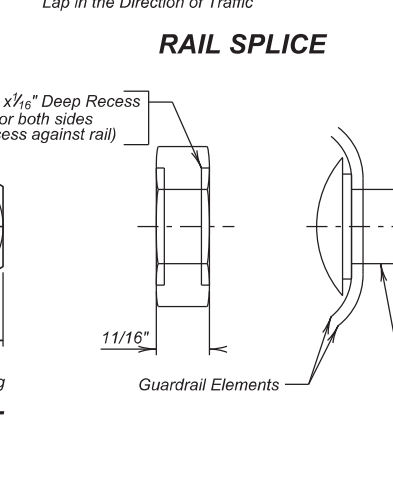
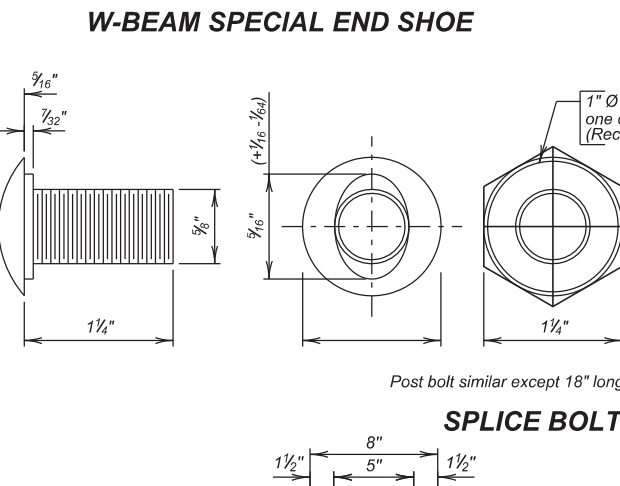
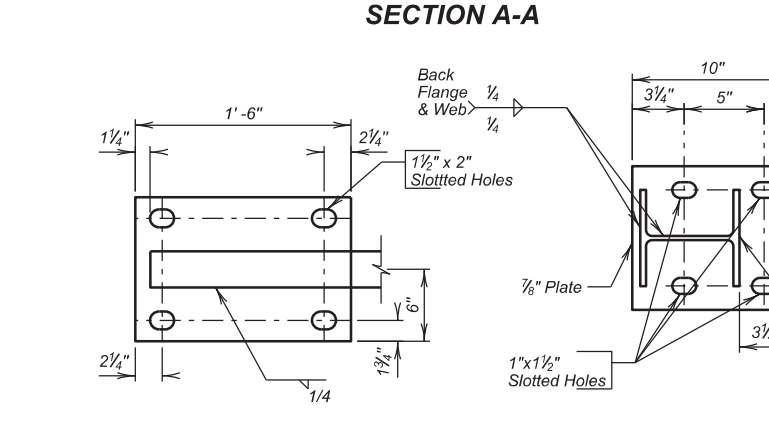
ITEM	UNIT	QUANTITY
Type T101 Steel Railing	Ft.	192

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
H2	20	5	3'-6"	Str.
R1	20	6	3'-9"	17
R2	20	6	4'-9"	17A
S2	4	3	51'-7"	Spiral

NOTE: Spirals - Use 6" pitch and 1 1/2 extra turns at each end. Use 1 1/2 turns for lap at splice as required. All dimensions are out to out of bars. Use 2 vertical spacer bars.

NOTE: R1 and R2 Bars placed during Superstructure Construction. See Superstructure Details Sheets.



REGISTERED PROFESSIONAL ENGINEER
 REG. NO. 13522
 SHAWN M. MAYFIELD
 SOUTH DAKOTA

TYPE T101 BRIDGE RAILING DETAILS FOR 80'-0" PRESTR. GIRDER BRIDGE

24'-0" ROADWAY OVER RAPID CREEK
 STA. 12+10.00 to STA. 12+90.00
 STR. NO. 52-575-383
 PCN 08N3

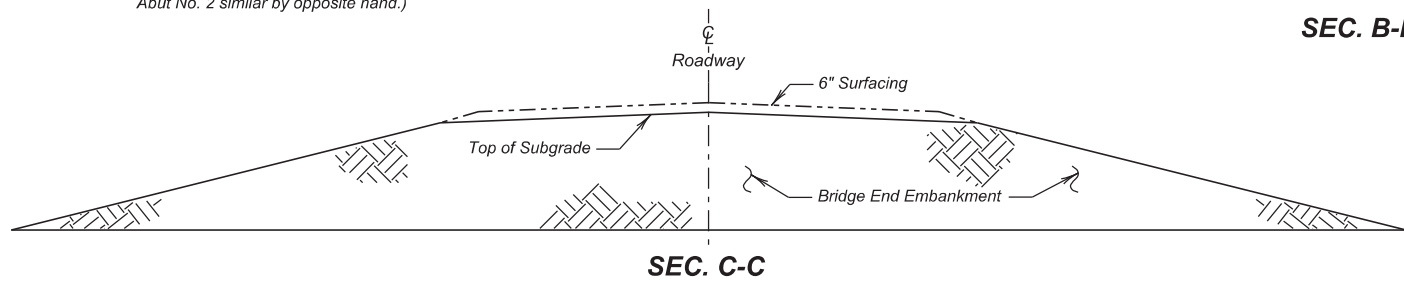
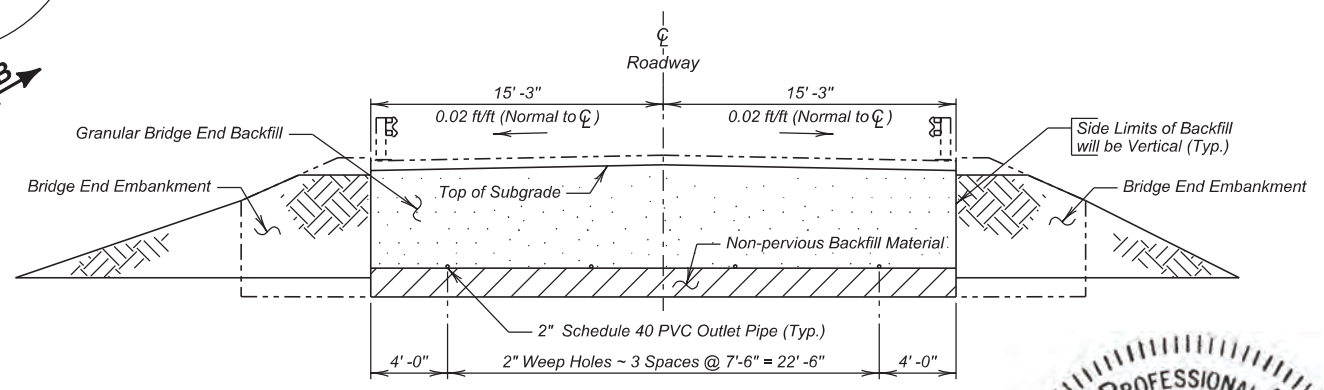
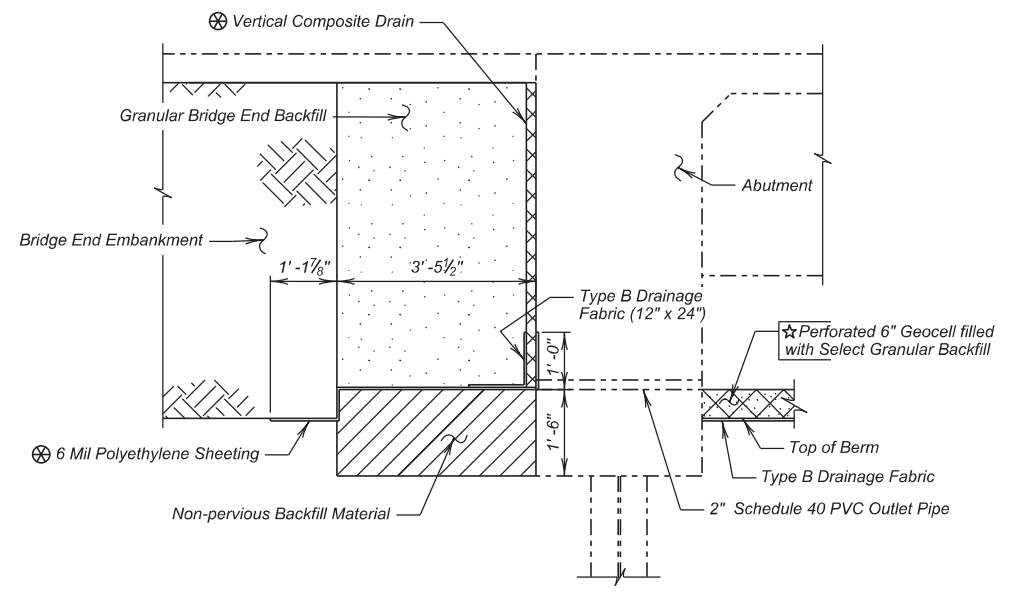
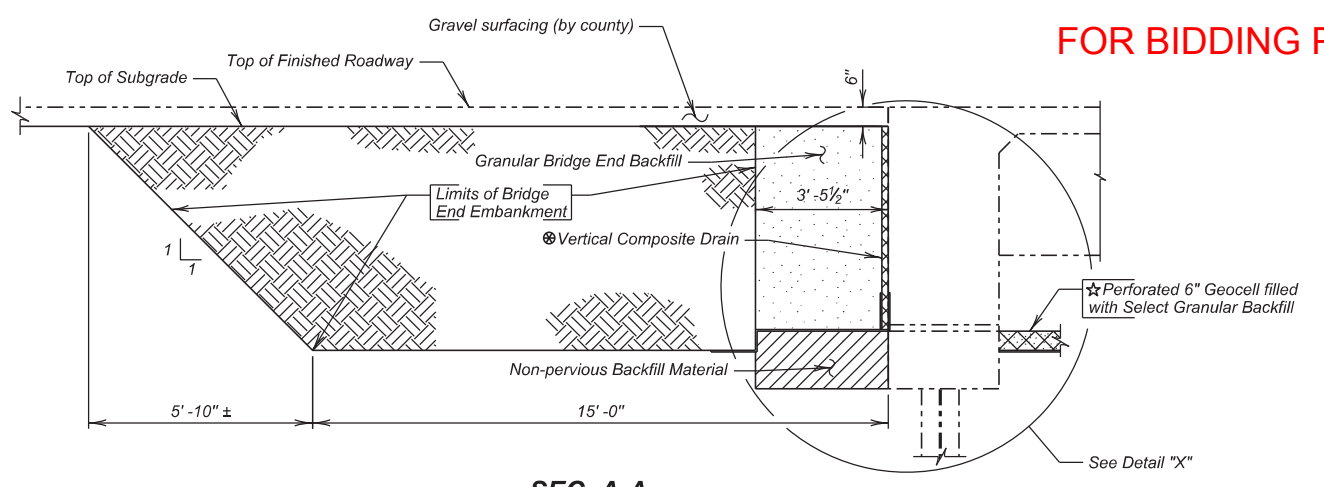
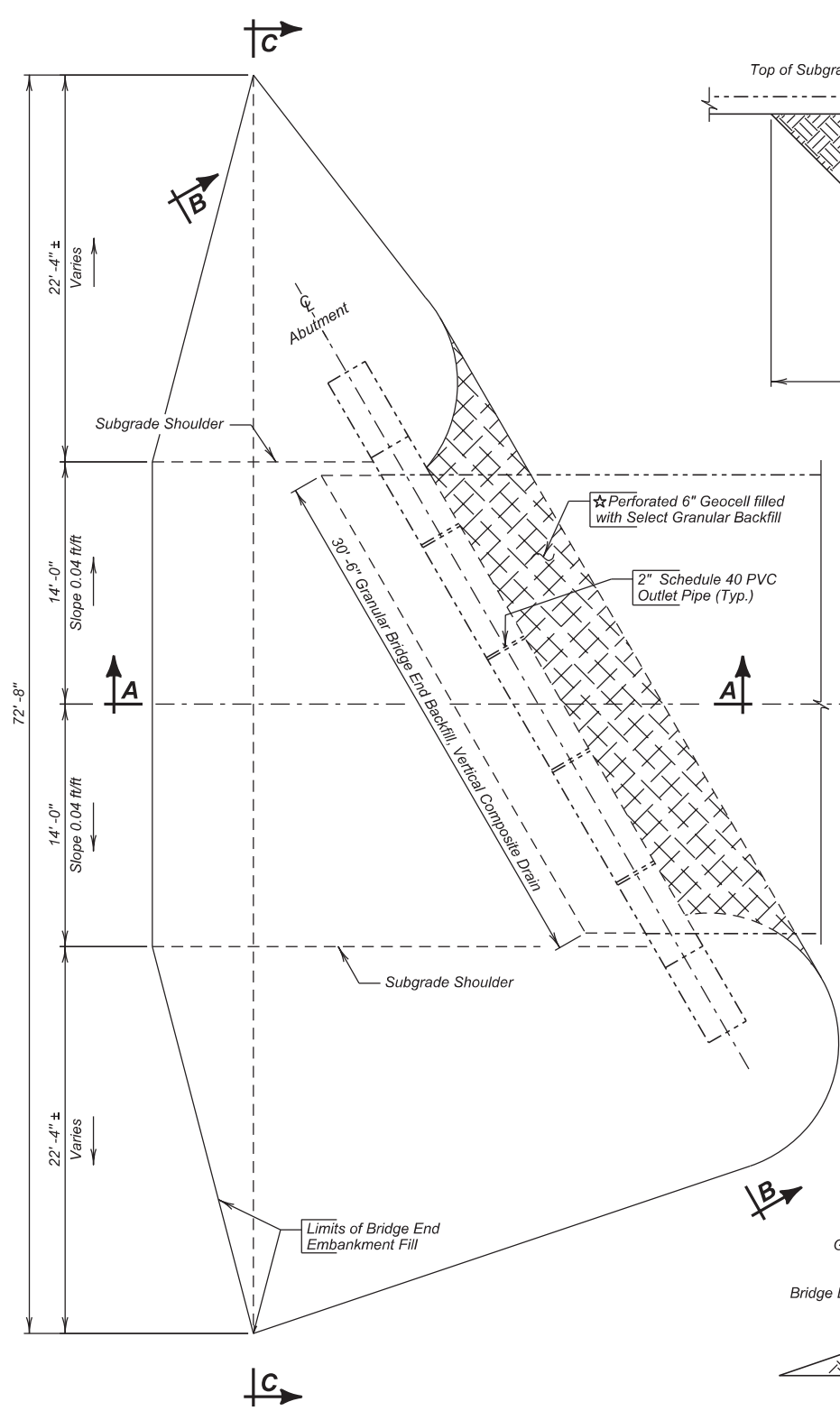
SEC. 15-T1S-R10E
 30° RHF SKEW
 BRO-B 8052(77)
 HL-93

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

DESIGNED BY SM
 CK. DES. BY AB
 DRAFTED BY SM

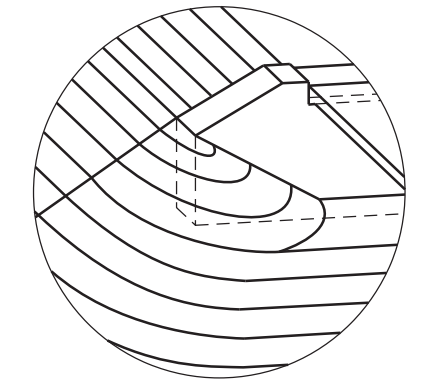
BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY



ESTIMATED QUANTITIES (For Two Abutments)		
ITEM	UNIT	QUANTITY
Granular Bridge End Backfill	Cu. Yd.	35.4
Bridge End Embankment	Cu. Yd.	502
2" Rigid Conduit, Schedule 40	Ft.	20
Perforated Geocell	Sq. Ft.	440
Select Granular Backfill	Ton	15.4

- Items 1 thru 2 are approximate quantities and contained in the 2" Rigid Conduit, Schedule 40 and are for information only.
- 20 ft. 2" dia. Rigid Conduit, Schedule 40
 - 319 sq. ft. Vertical Composite Drain.
- Items 3 and 4 are approximate quantities and contained in the Granular Bridge End Backfill and are for information only.
- 336 sq. ft. 6 mil polyethylene Sheeting, not including laps
 - 64 sq. yd. Type B Drainage Fabric.
- Shrinkage Factor of 1.25 used.
- For estimating purposes only, a factor of 1.89 Tons/Cu. Yds. was used to convert Cu. Yds. to Tons.
- Provide hole in vertical composite drain and 6 mil polyethylene sheeting to provide drainage through weep holes.
- See PERFORATED GEOCELL notes for payment information.



SPILL CONE DETAIL AT ABUTMENT

DETAILS OF BRIDGE END BACKFILL FOR
80'-0" PRESTR. GIRDER BRIDGE

24'-0" ROADWAY OVER RAPID CREEK
STA. 12+10.00 to STA. 12+90.00
STR. NO. 52-575-383
PCN 08N3

SEC. 15-T1S-R10E
30° RHF SKEW
BRO-B 8052(77)
HL-93

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



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Revised 02

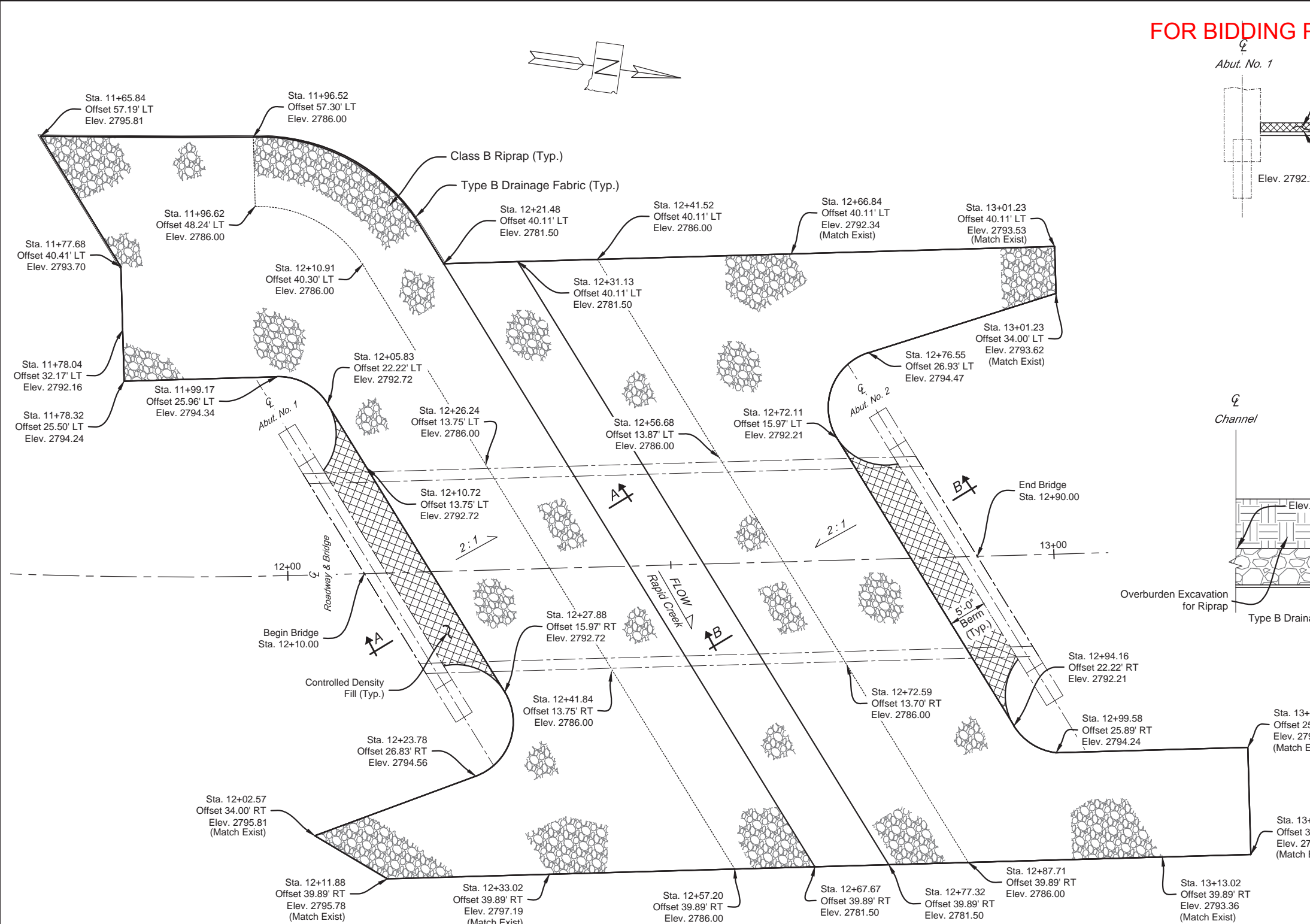


STATE OF SOUTH DAKOTA

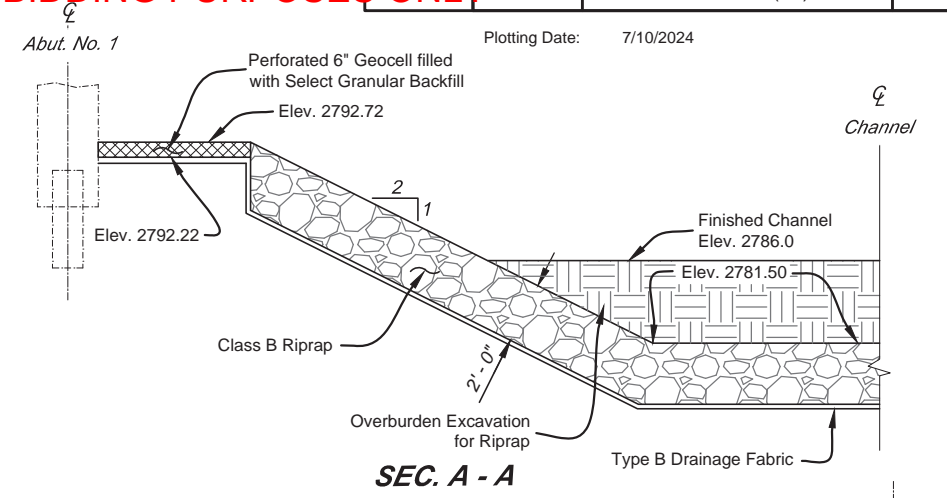
PROJECT
BRO-B 8052(77)

SHEET 41
TOTAL SHEETS 45

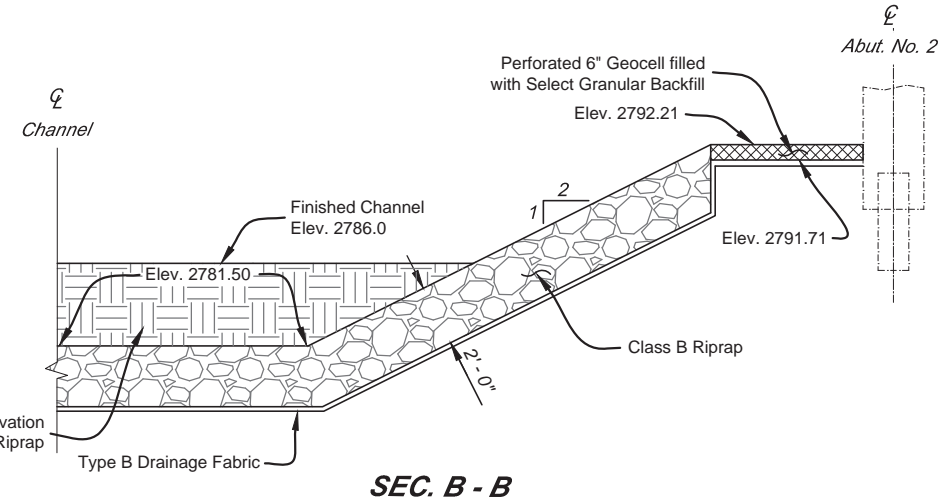
Plotting Date: 7/10/2024



PLAN



SEC. A - A



SEC. B - B

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
* Class B Riprap	Ton	748.9
Overburden Excavation For Riprap	Cu. Yd.	432
Type B Drainage Fabric	Sq. Yd	960

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

RIPRAP DETAILS

FOR

80'-0" PRESTR. GIRDER BRIDGE

24'-0" ROADWAY OVER RAPID CREEK STA. 12+10.00 to STA. 12+90.00 STR. NO. 52-575-383 PCN 08N3

SEC. 15-T1S-R10E 30° RHF SKEW BRO-B 8052(77) HL-93

PENNINGTON COUNTY
S. D. DEPT. OF TRANSPORTATION

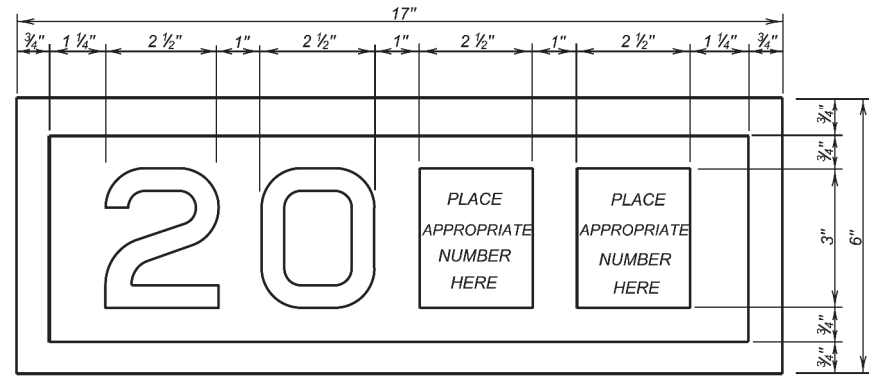
JULY 2024



DESIGNED BY OL	CK. DES. BY SM	DRAFTED BY OL	BRIDGE ENGINEER
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Plotted From- zach.vlamnick

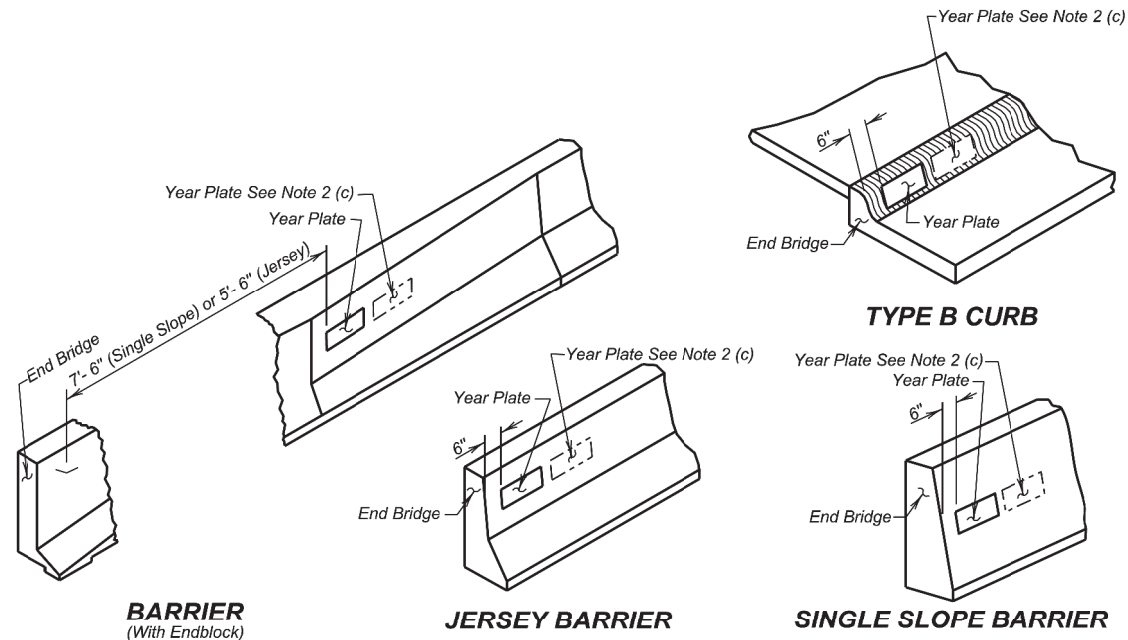
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YEAR PLATE DETAILS

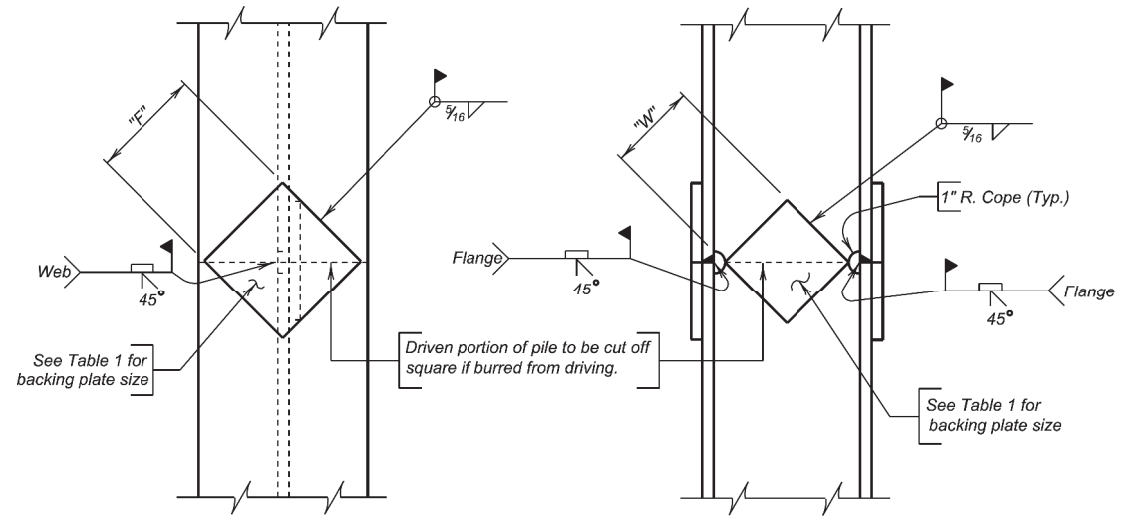
GENERAL NOTES:

1. Year plates of the general dimensions shown will be constructed on all box culverts and bridges. The year plates will be constructed in reverse and attached to the forms in such a manner that the finished imprint in the concrete does not exceed one-half (1/2) inch in depth.
2. Year plates will be located on structure(s) as follows:
 - a. On cast-in-place box culverts the year plates will be four and one-half (4 1/2) inches below the top of the upstream parapet wall and centered laterally on the upstream face. On precast box culverts the year plate will be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate will be centered in an adjacent barrel.
 - b. On bridges with six (6) inch curbs, "Jersey" shaped barriers with no endblocks, or "Single Slope" shaped barriers with no endblocks, the year plate will be centered vertically on the curb face approximately six (6) inches from the end of the bridge, or as designated by the Engineer. On bridges with barrier endblocks, the year plate will be centered on the upper sloped portion of the barrier approximately 5'-6" for "Jersey" shaped barriers from the end of the bridge and 7'-6" for "Single Slope" shaped barriers from the end of bridge, or as designated by the Engineer. There will be one year plate at each end of the bridge on opposite sides.
 - c. When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date will be placed as listed above and the other located adjacent to it. Both year plates will be shown at each end of the bridge on opposite sides.
3. There will be no separate measurement or payment made for year plates on box culverts and bridges. All costs for this work will be incidental to other contract items.



January 22, 2021

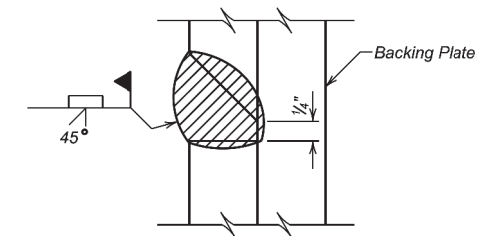
S D D O T	YEAR PLATE DETAILS	PLATE NUMBER 460.02
	Published Date: 2025	Sheet 1 Of 1



NOTE:

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

COMPLETE JOINT PENETRATION WELD DETAIL



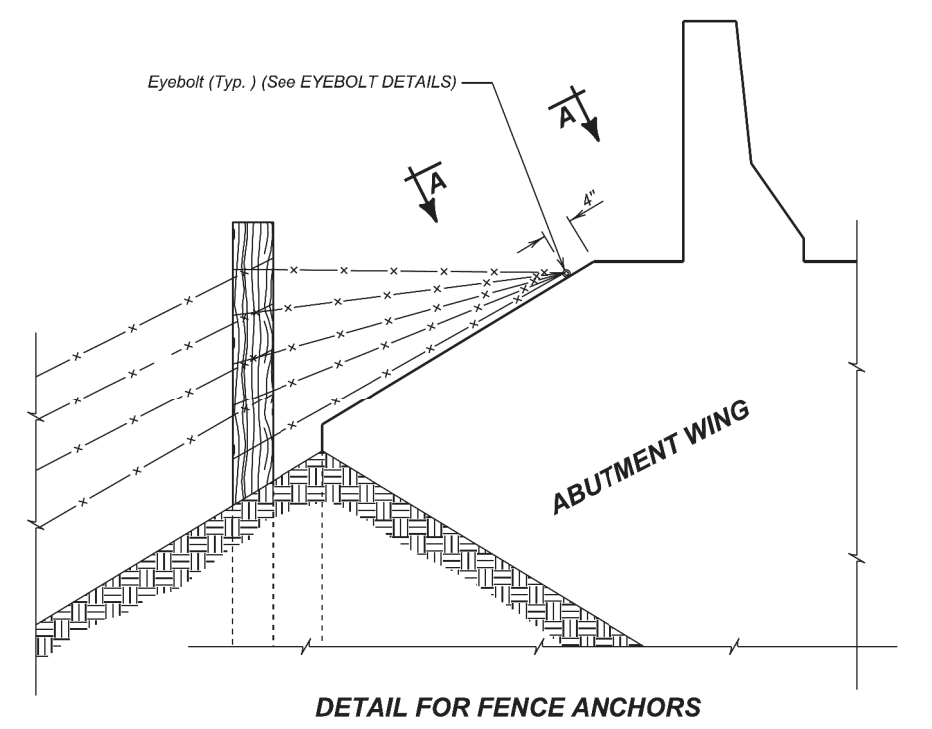
GENERAL NOTES:

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

TABLE 1 (BACKING PLATES)			
PILE	10"	12"	14"
"F" FLANGE	6 1/2"	8"	10"
"W" WEB	4 3/4"	6 1/4"	7 1/2"

December 23, 2012

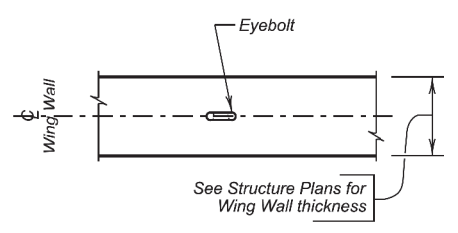
S D D O T	STEEL PILE SPLICE DETAILS	PLATE NUMBER 510.40
	Published Date: 2025	Sheet 1 of 1



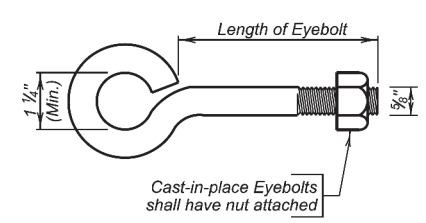
DETAIL FOR FENCE ANCHORS

GENERAL NOTES:

1. The fence and post details shown are for illustrative purpose only. The fence shall be as specified elsewhere in the plans.
2. Eyebolts shall be placed on all of the bridge abutment wings.
3. Eyebolts shall be 5/8 inch diameter and shall conform to ASTM A307.
4. Eyebolts, nuts, and concrete inserts shall be galvanized in accordance with AASHTO M232 (ASTM A153). Concrete inserts of corrosion resistant material need not be galvanized.
5. Cast-in-place eyebolts shall have a nut attached, be 4 1/2 inches (Min.) in length and shall be embedded such that the eye of the bolt is flush with the concrete surface. (See Eyebolt Details) As an alternate, cast-in-place concrete inserts, capable of developing the full strength of the 5/8 inch diameter threaded eyebolt, may be used and shall be set in the concrete in accordance with the manufacturer's recommendations. The eyebolt shall be of sufficient length to develop its full strength. The eye of the eyebolt shall be flush with the concrete surface.
6. The cost for furnishing and installing eyebolts and/or concrete inserts shall be incidental to various contract items.



VIEW A - A



EYEBOLT DETAILS

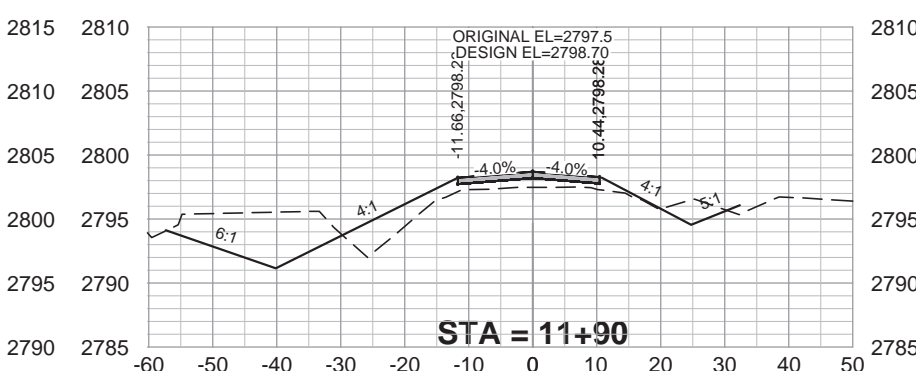
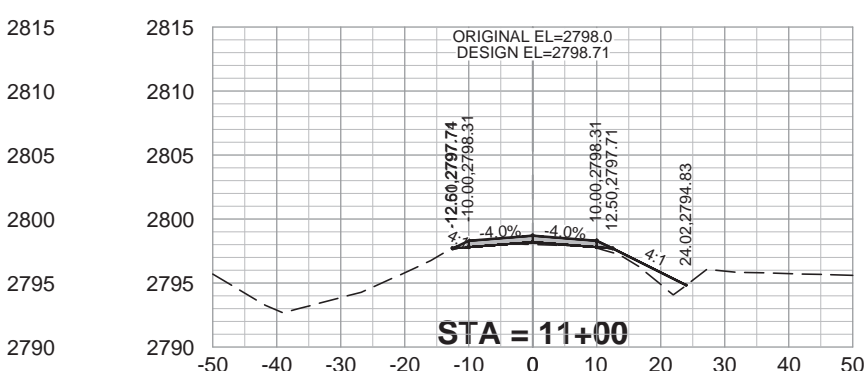
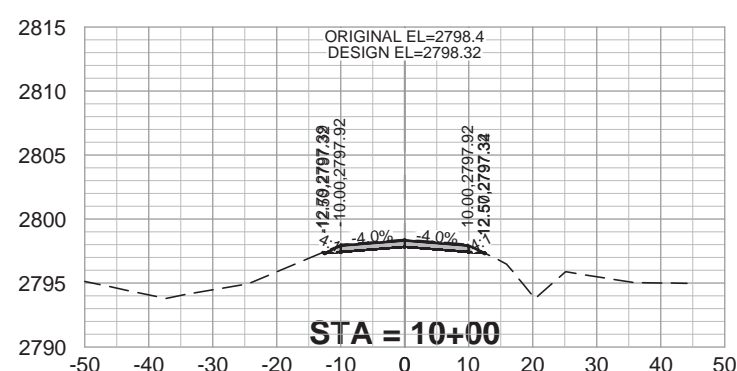
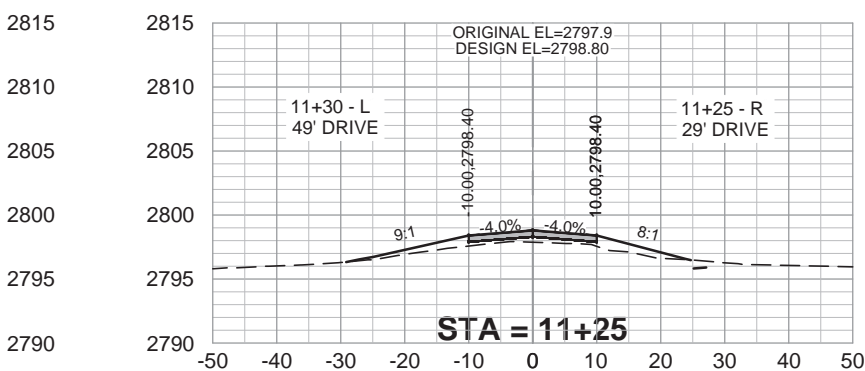
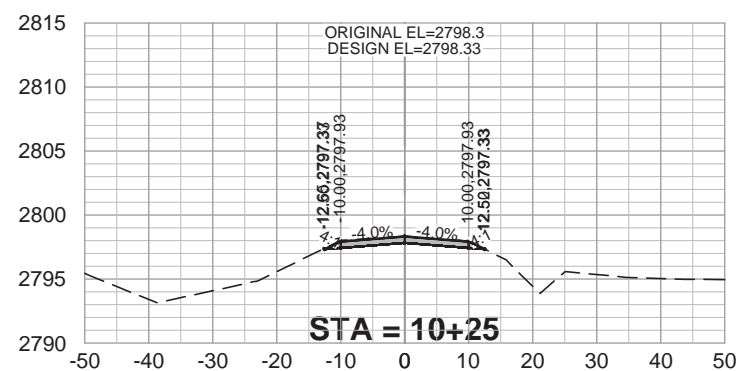
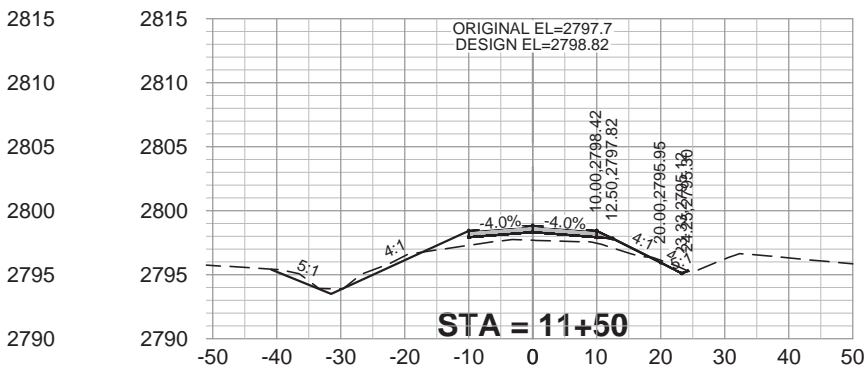
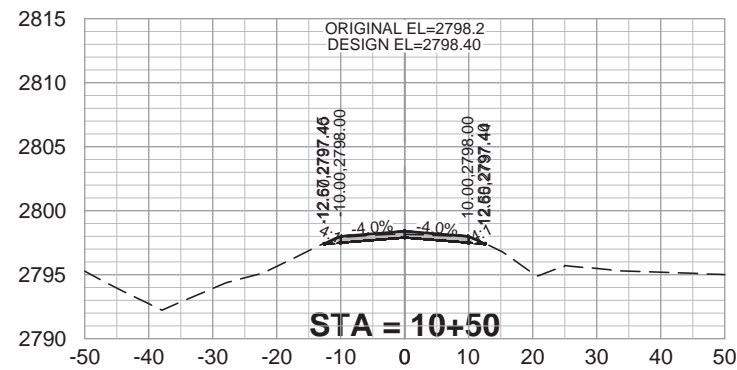
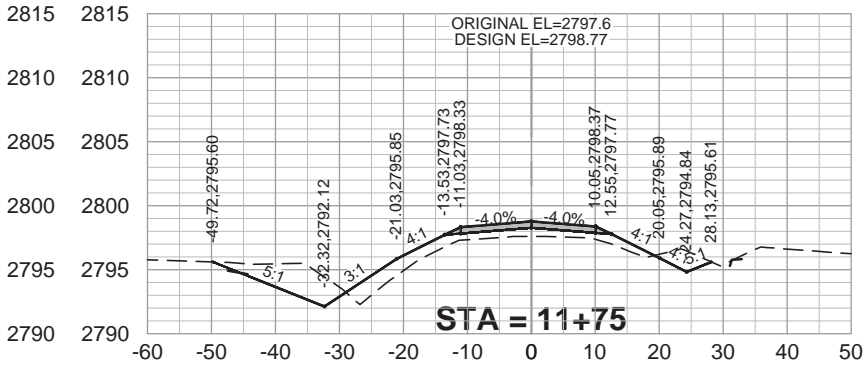
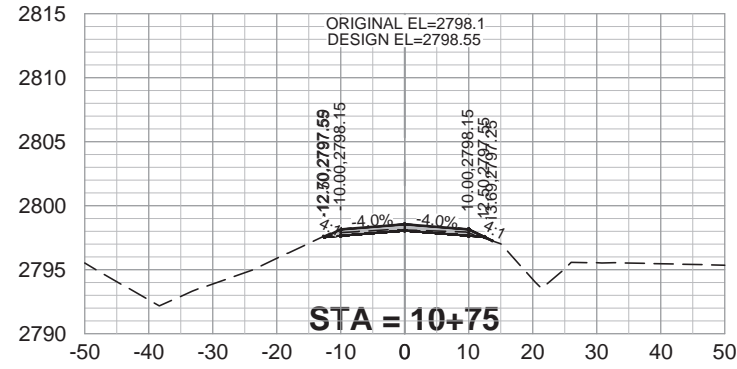
December 23, 2012

Published Date: 2025	S D D O T	FENCE ANCHORS FOR BRIDGE ABUTMENT WINGS (WINGS 6' AND SHORTER)	PLATE NUMBER 620.18
			Sheet 1 of 1

CROSS SECTIONS

MAINLINE

Plot Scale- 1" = 30'




Plotted From- zach.vlamnick

CROSS SECTIONS

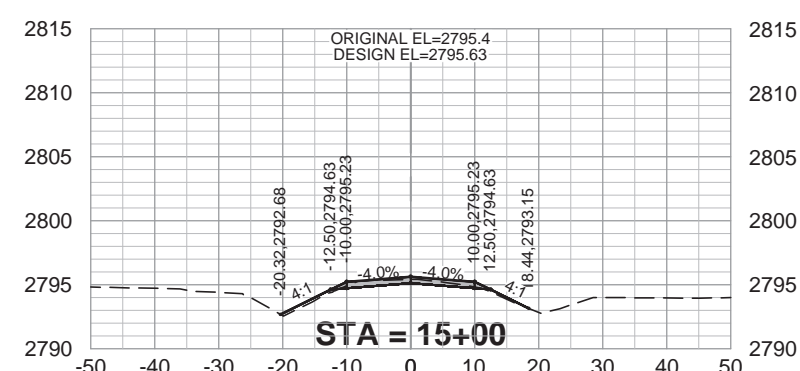
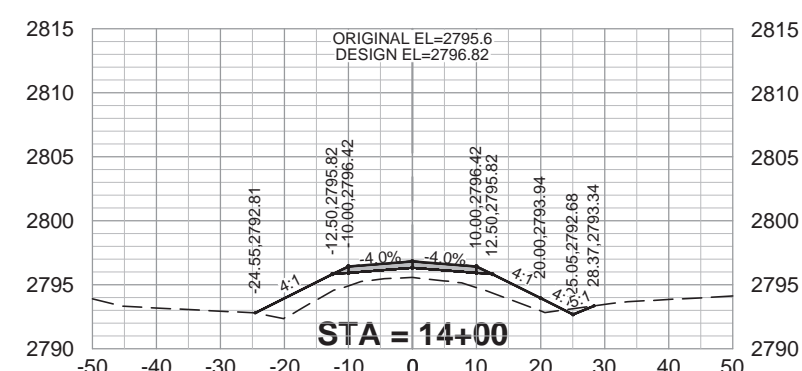
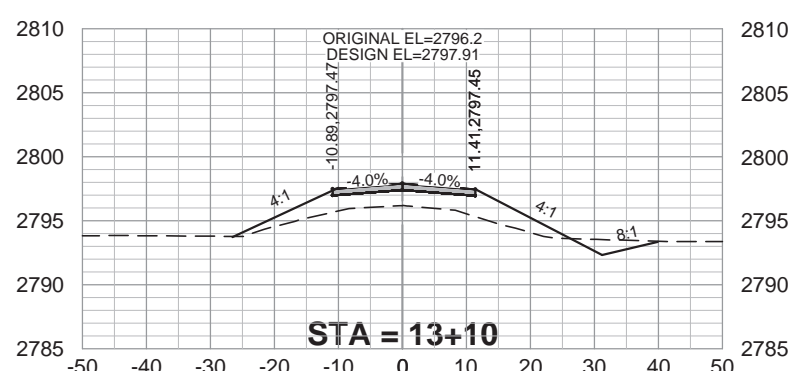
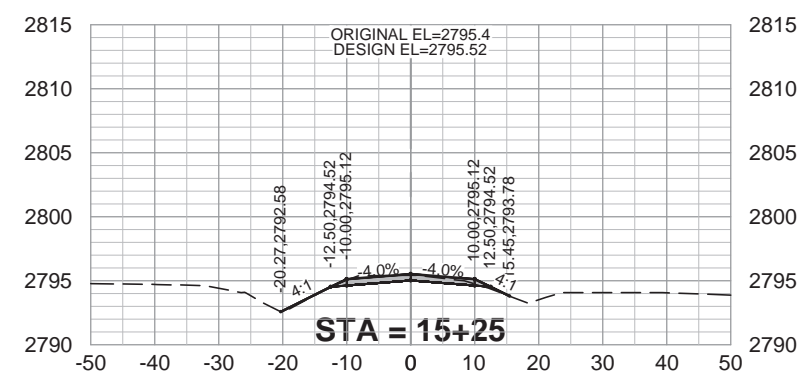
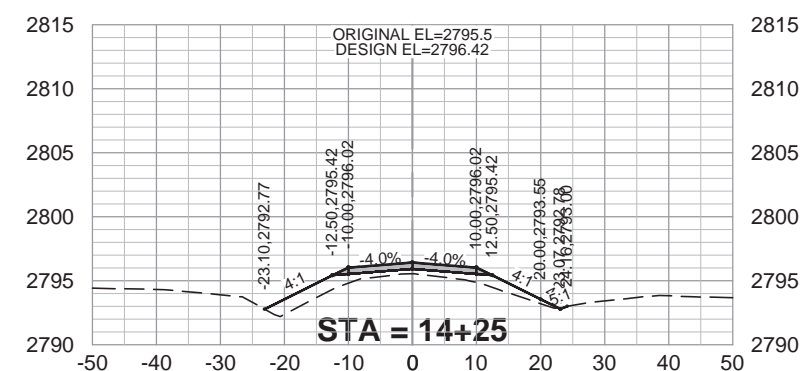
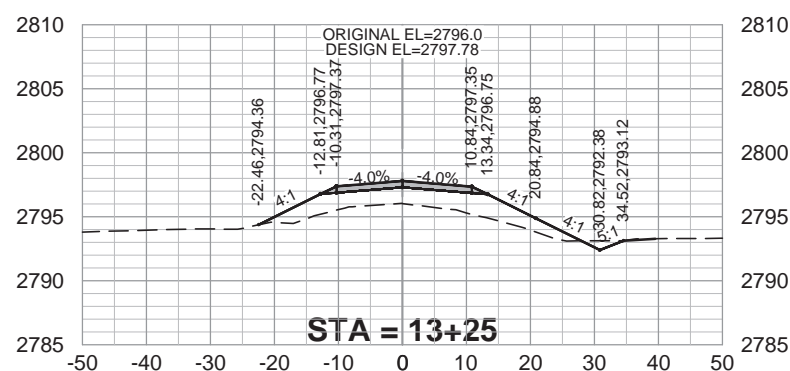
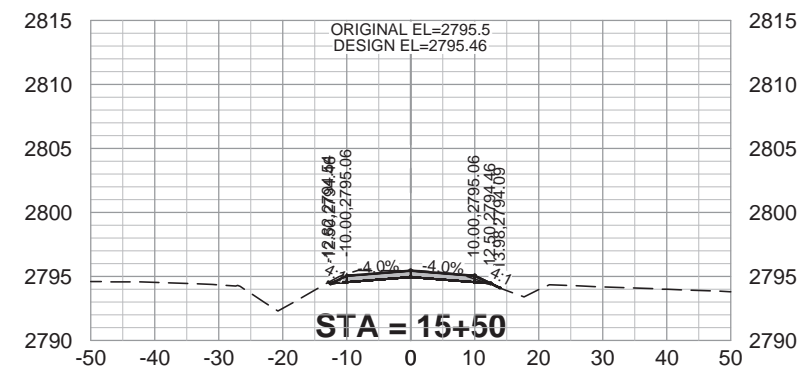
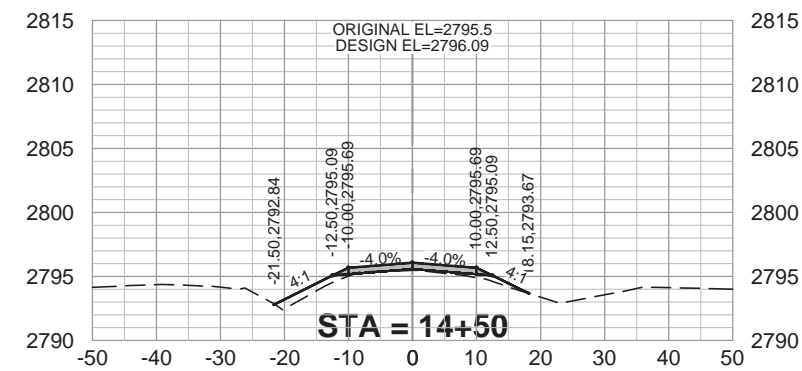
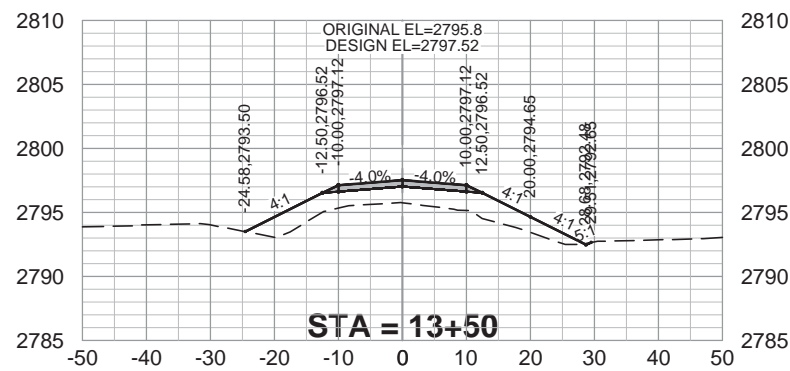
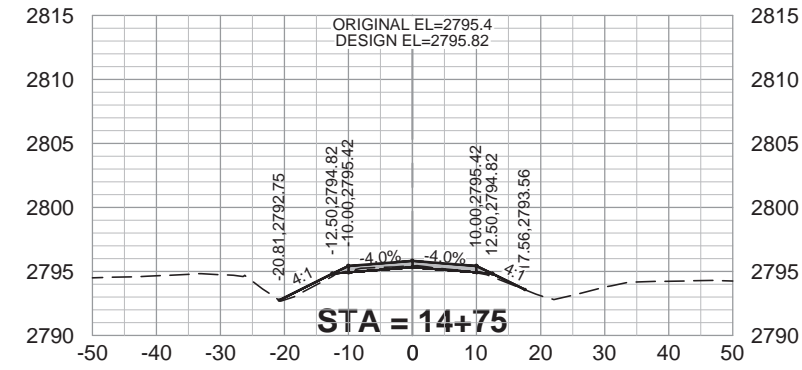
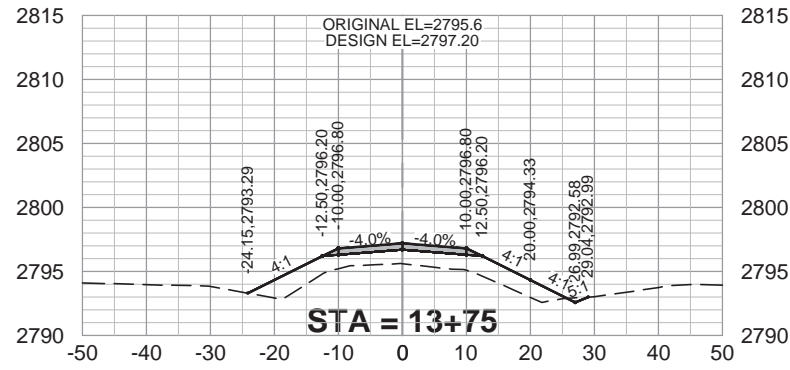
MAINLINE

FOR BIDDING PURPOSES ONLY

 STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8052(77)	45	45

Plotting Date: 7/10/2024

Plot Scale: 1" = 30'



Plotted From: zach.vlamnick