

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED

FOR BIDDING PURPOSES ONLY

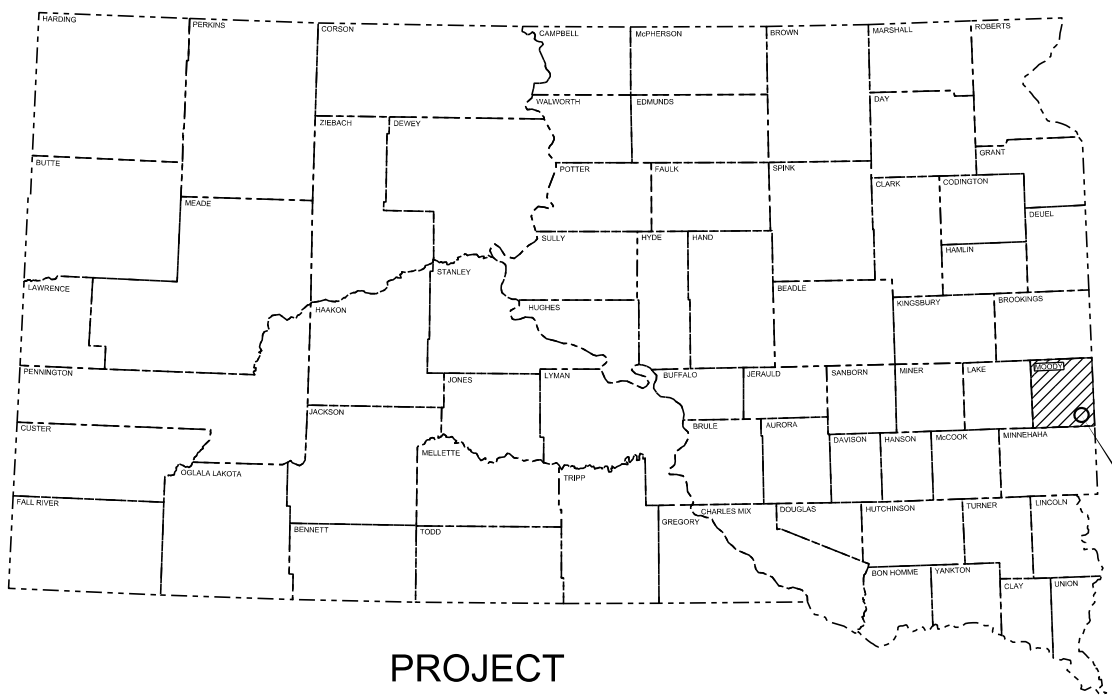
STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8051(16)	1	66
Plotting Date: 7/6/2023			

PROJECT BRO-B 8051(16)
MOODY COUNTY

STRUCTURE AND APPROACH GRADING
 STRUCTURE NO. 51-195-220
 PCN 085Q

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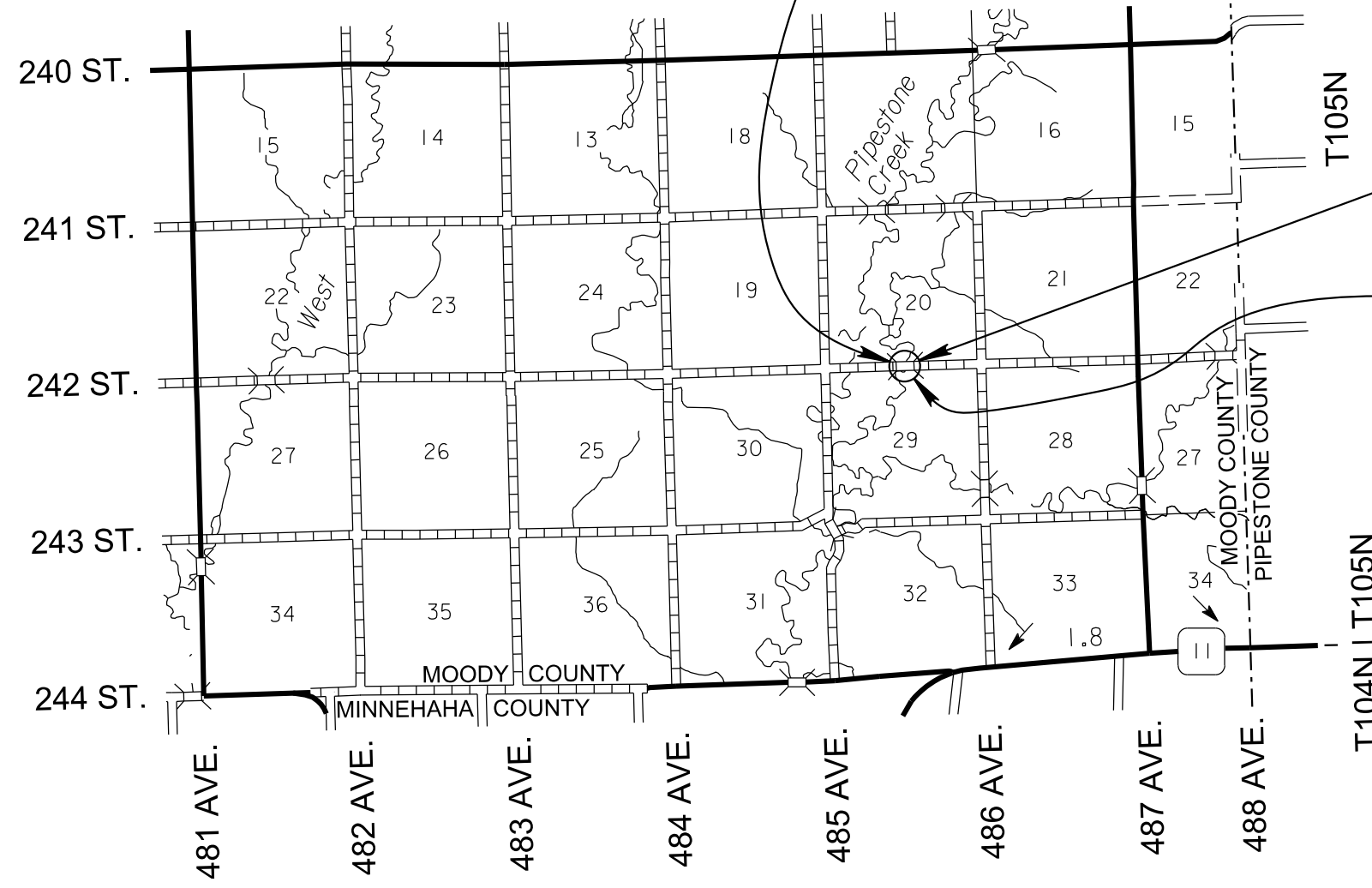
PROJECT

PROJECT

BEGIN PROJECT BRO-B 8051(16)

STA. 101+40
 2,600' ± EAST OF SW CORNER
 OF SEC 20 - T105N - R47W

R48W | R47W



STA. 105+84.00
 Str. No.51-195-220
 162'-0" Continuous Concrete Bridge

END PROJECT BRO-B 8051(16)

STA. 109+31
 2,600' ± WEST OF SE CORNER
 OF SEC 20 - T105N - R47W

DESIGN DESIGNATION

ADT (2023)	69
ADT (2043)	71
DHV	11
d	50%
T DHV%	3.5%
T ADT%	7.7%
V	55 mph

STORM WATER PERMIT
 Major Receiving Body of Water: Pipestone Creek
 Area Disturbed: 1.73 Acres
 Total Project Area: 2.48 Acres
 Approx. Begin Lat,Long: 43.87659, -96.49652

Gross Length	791.00 Feet	0.150 Miles
Length of Exceptions	162 Feet	0.031 Miles
Net Length	629.00 Feet	0.119 Miles



2

September 4, 2024

Plot Scale - 1:200

Plotted From -

Plot Name -

File - ...Eng_Docs\Sheets\Title.dgn

GRADING:

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
009E3200	Construction Staking	Lump Sum	LS
009E3301	Engineer Directed Surveying/Staking	20.0	Hour
110E0130	Remove Traffic Sign	2	Each
110E0135	Remove Delineator	20	Each
110E1690	Remove Sediment	2.0	CuYd
110E1700	Remove Silt Fence	61	Ft
120E0010	Unclassified Excavation	1,726	CuYd
120E0600	Contractor Furnished Borrow Excavation	2,872	CuYd
120E6200	Water for Granular Material	12.0	MGal
230E0010	Placing Topsoil	671	CuYd
260E1010	Base Course	751.6	Ton
630E0500	Type 1 MGS	100.0	Ft
630E1500	Type 1 Guardrail Transition	4	Each
630E2017	MGS MASH Flared End Terminal	4	Each
632E2220	Guardrail Delineator	16	Each
634E0110	Traffic Control Signs	141.0	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	1,380	SqYd
734E0154	12" Diameter Erosion Control Wattle	847	Ft
734E0165	Remove and Reset Erosion Control Wattle	212	Ft
734E0510	Shaping for Erosion Control Blanket	778	Ft
734E0602	Low Flow Silt Fence	243	Ft
734E0610	Mucking Silt Fence	17	CuYd
734E0620	Repair Silt Fence	61	Ft

SPECIFICATIONS

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

STRUCTURE No. 51-195-220:

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
120E7000	Select Granular Backfill	11.5	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
420E0100	Structure Excavation, Bridge	16	CuYd
430E0200	Bridge End Embankment	175	CuYd
430E0300	Granular Bridge End Backfill	22.4	CuYd
460E0030	Class A45 Concrete, Bridge Deck	281.2	CuYd
460E0050	Class A45 Concrete, Bridge	85.8	CuYd
460E0502	Deck Drain, Slab Bridge	12	Each
480E0100	Reinforcing Steel	2,156	Lb
480E0200	Epoxy Coated Reinforcing Steel	85,143	Lb
510E0300	Preboring Pile	80	Ft
510E3361	HP 10x42 Steel Test Pile, Furnish and Drive	150	Ft
510E3365	HP 10x42 Steel Bearing Pile, Furnish and Drive	420	Ft
510E3861	16"x0.375" Steel Pipe Test Pile, Furnish and Drive	210	Ft
510E3865	16"x0.375" Steel Pipe Bearing Pile, Furnish and Drive	1,170	Ft
700E0210	Class B Riprap	549.0	Ton
700E1100	Overburden Excavation for Riprap	306	CuYd
831E0110	Type B Drainage Fabric	551	SqYd
831E1030	Perforated Geocell	328	SqFt

ENVIRONMENTAL COMMITMENTS

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

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

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

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

COMMITMENT A: AQUATIC RESOURCES

COMMITMENT A1: WETLANDS

All efforts to avoid and minimize wetland impacts from the project have resulted in approximately 0.98 acre of wetlands (includes temporary and permanent) becoming impacted. Refer to plans for location and boundaries of the impacted wetlands.

Table of Impacted Wetlands

Wetland No.	Station	Perm. Impact Left (Acres)	Perm. Impact Right (Acres)	Temp. Impact Left (Acres)	Temp. Impact Right (Acres)	Total Impact (Acres)
1	101+40 to 105+42	0.21	0.14	0.00	0.01	0.36
2	100+89 to 101+38	0.00	0.00	0.00	0.00	0.00
3	101+51 to 106+91	0.13	0.17	0.09	0.23	0.62

Action Taken/Required:

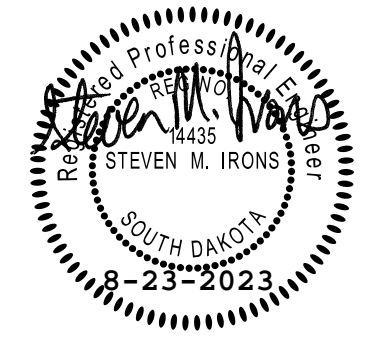
SDDOT will acquire 0.65 acres from a wetland mitigation bank site or In-Lieu Fee program to mitigate permanent impacts.

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

Wetland Topsoil

Wetland topsoil will be stripped from all wetland areas which will be impacted by the project. The wetland topsoil will be stripped to a depth that sufficiently allows 6 inches of the wetland topsoil to be re-utilized as the upper stratum of wetland mitigation site(s).

The wetland topsoil will be stockpiled separately from other topsoil in a location approved by the Project Engineer. Locate wetland stockpile a minimum of 50 feet away from concentrated flows of storm water, waterways, drainage courses, and inlets. All wetland topsoil that is stripped will be spread on the mitigation site(s) so that it is evenly distributed to a minimum depth of 6 inches. Surplus wetland topsoil will be used to flatten embankment slopes or placed in other locations as approved by the Project Engineer.



COMMITMENT A1: WETLANDS (CONTINUED)

Refer to the Wetland Mitigation Site Plan in the plans.

All costs to remove and stockpile the wetland topsoil will be paid for at the contract unit price per cubic yard for "Unclassified Excavation". All costs to place the wetland topsoil will be incidental to the contract unit price per cubic yard for "Placing Topsoil".

COMMITMENT A2: STREAMS

All efforts to avoid and minimize stream impacts from the project have resulted in approximately 0.22 acre(s) 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)
Pipestone Creek	102+90 to 106+17	0.00	0.00	0.11	0.11	0.22

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 plans.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

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

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

Table of Topeka Shiner Streams

Station	Stream Name	Ordinary High-Water Elevation
105+75	Pipestone Creek	1542.00

Action Taken/Required:

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

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

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

COMMITMENT C: WATER SOURCE

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

The Contractor will not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

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

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

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

[South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species:](https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04)

<https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04>

COMMITMENT D: WATER QUALITY STANDARDS

COMMITMENT D1: SURFACE WATER QUALITY

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

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.

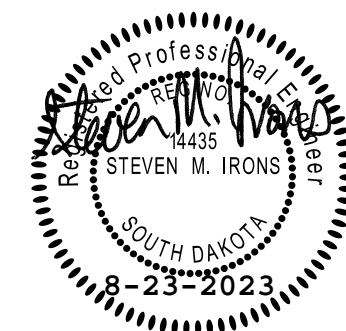
Action Taken/Required:

If construction dewatering is required and this project is not required to be covered under a General Permit for Stormwater Discharges Associated with Construction Activities, the Contractor will obtain the General Permit for Temporary Discharge Activities from the DANR Surface Water Program, 605-773-3351.

https://danr.sd.gov/OfficeOfWater/SurfaceWaterQuality/docs/DANR_TemporaryDischargeNOI2018Fillable.pdf

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



STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8051(16)	4	66

COMMITMENT D2: SURFACE WATER DISCHARGE (CONTINUED)

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 H: WASTE DISPOSAL SITE

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

Action Taken/Required:

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

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

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

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

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

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

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

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

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

The SDDOT has obtained concurrence with the State Historic Preservation Office (SHPO) 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.



COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES (CONTINUED)

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

COMMITMENT M1: SECTION 4(f) PROPERTY

A Section 4(f) Evaluation concluded there is a Section 4(f) property located within the project vicinity.

Station	Section 4(f) Property
101+10	Works Progress Administration Bridge

Action Taken/Required:

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

The Works Progress Administration bridge identified above will be avoided by all construction activities.

The Contractor is not permitted to stage equipment or materials within the area of the WPA bridge. The Contractor will notify the Project Engineer if additional easement is needed to complete the work adjacent to any Section 4(f) property. The Project Engineer will obtain an appropriate course of action from the Environmental Office before proceeding with construction activities that affect any Section 4(f) property.

COMMITMENT N: SECTION 404 PERMIT

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

Action Taken/Required:

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

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

COMMITMENT Q: ARCHAEOLOGICAL COORDINATION

As a result of a Cultural Resources Survey, historic properties have been identified within and/or adjacent to the project rights-of-way.

The following historic properties have been identified that require avoidance of construction activities:

Table of Historic Properties

Station	Offset (Ft.)	L/R	Environmental Sensitive Site	Action
101+10	Varies	L/R	Works Progress Administration Bridge	Do Not Disturb

The locations and boundaries of the site(s) for avoidance are shown in Project Plans.

Action Taken/Required:

If evidence for cultural resources is uncovered 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 consult with the Archaeological Research Center (ARC), SHPO, and FHWA, to determine the appropriate course of action.

All artifacts, features, or other items of interest uncovered by project construction activities will not be displaced unless the landowner and the SHPO consent to it.

GRADING OPERATIONS

Water for Embankment is estimated at the rate of 10 gallons of water per cubic yard of Embankment minus Waste. The estimated quantity of Water for Embankment is 46.0 MGal. No separate payment will be made for the Water for Embankment and all costs associated will be incidental to the contract unit price per cubic yard of "Unclassified Excavation".

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

The estimated excavation required for constructing the Bridge Berm(s) between bridge abutments and shaping the bridge waterway channel(s) are listed in the Table of Unclassified Excavation. Overburden Excavation for Riprap is not included in the Unclassified Excavation quantity. The excavated material from the construction of the Bridge Berm(s) and shaping the bridge waterway channel(s) should be disposed of at a site provided by the Contractor and approved by the Engineer. This waste material is not included in the Waste shown in the Table of Excavation Quantities by Balances.

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

Generally, all shallow inlet and outlet ditches as noted on the plan sheets will be cut with a 10-foot-wide bottom with 3:1 backslopes. However, the Engineer may direct the Contractor to adjust the ditch width for proper alignment with the drainage structure.

UTILITIES

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

SD One Call will be notified at 811 (in-state) or 1-800-781-7474 (out-of-state) a minimum of 48 hours prior to commencing construction. Utilities from the following utility owners are known to exist at this site:

Big Sioux Community Water System
 23343 479th Ave.
 Egan, SD 57024
 Phone: (605) 997-2098

Frontier Communications of Minnesota
 62 W Minnesota St.
 Le Center, MN 56057
 Phone: (507) 322-3712

Alliance Communications.
 612 3rd St.
 Garretson, SD 57030
 Phone: (605) 594-3411

Sioux Valley Energy
 108 N Heritage Rd.
 Brandon, SD 57005
 Phone: (605) 582-2185

SHRINKAGE FACTOR: Embankment +40%

TABLE OF EXCAVATION QUANTITIES BY BALANCES

Station	Station	Side	Exc. (CuYd)	Total Exc. (CuYd)	*Embk (In-Place) (CuYd)	*Embk (w/ Shrinkage Factor) (CuYd)	Contractor Furnished Borrow Exc (CuYd)
101+40	108+21	L/R	570	1726	3284	4598	2872
Totals:			570	1726	3284	4598	2872

Exc.=Excavation, Embk- Embankment
 * The quantities for these items are for information only.



TABLE OF UNCLASSIFIED EXCAVATION

	Cu Yd
Excavation	570
Topsoil	671
Granular Base Material (from fill sections)	485
Total	1726

PROCEDURES FOR DETERMINING UNCLASSIFIED EXCAVATION QUANTITY

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

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

The Topsoil quantity in the Table of Unclassified Excavation is considered final and there will be no field measurement for payment. The quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation, as it will be in both the Excavation and Topsoil quantities. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

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

Existing Granular Base Material will be paid for once as Unclassified Excavation and is available for mixing with other excavation material for placement of embankment. As shown in the Table of Unclassified Excavation, the estimated quantity of 485 cubic yards of Existing Granular Base Material from fill sections will be added to the Excavation quantity to determine the Unclassified Excavation quantity. When finalizing a project, the quantities of Existing Granular Base Material from fill sections will not be adjusted according to field measurements. The quantity of Existing Granular Base Material from cut sections will not be added to the Excavation quantity as it is already in the cuts on the final cross sections.

CONTRACTOR FURNISHED BORROW EXCAVATION

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

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

STOCKPILE SITE

Prior to stockpiling of materials, topsoil will be salvaged from and stockpiled within the Temporary Easement. Topsoil will be considered to consist of the upper 4 inches within right of way and upper 6 inches within temporary easements that represents the natural soil which normally supports vegetation.

Payment for stockpile site preparation will be incidental to the various contract items.

TABLE OF GUARDRAIL

Location	Type 1 MGS (Ft)	Type 1 Guardrail Transition (Each)	MGS MASH Flared End Terminal (Each)
Structure No. 51-195-220	100	4	4
Begin Bridge Sta. 105+03			
End Bridge Sta. 106+65			
Totals:	100	4	4

CONSTRUCTION STAKING FOR PROJECT BRO-B 8051(16))

Construction staking may include and is not limited to grading, miscellaneous, slope and structure staking to complete the construction of the project.

Construction Staking will not be measured and will be paid as a lump sum for work completed by the Contractor.

Base Course

Base Course material will be obtained from a granular source conforming to Section 260 and 882 of the Specifications.

TABLE OF BASE COURSE

Location	Quantity
Sta. 101+40 to Sta. 105+03 L/R	488.5
Sta. 106+65 to Sta. 108+28 L/R	263.1
Total	751.6

WATER FOR GRANULAR MATERIAL AND COMPACTION

Water for compaction will be applied at the following locations and rates per station:

Sta. 101+40 to Sta. 108+28

Water for Granular Material at the rate of 2.5 Mga/Sta.

A minimum of 4% moisture will be required at the time of compaction unless otherwise directed by the Engineer.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the 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.

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.

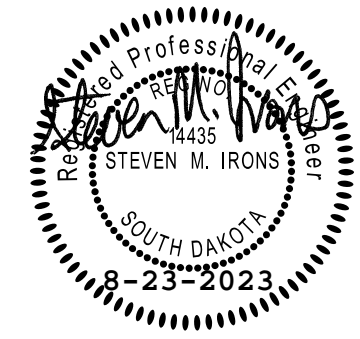
If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

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

The Contractor will notify businesses/homeowners a minimum of two weeks prior to construction to inform them of upcoming construction and again a minimum of 48 hours prior to any blocked access to make appropriate arrangements.



PLACING TOPSOIL

The thickness will be approximately 4 inches within the right-of-way and 6 inches on temporary easements.

TABLE OF PLACING TOPSOIL

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

Location	Topsoil CuYd
Sta. 101+40 to Sta. 105+70 R (4-inch)	80
Sta. 101+40 to Sta. 105+56 L (4-inch)	74
Sta. 105+83 to Sta. 109+13 L (4-inch)	56
Sta. 106+06 to Sta. 106+26 R (4-inch)	6
Sta. 106+48 to Sta. 108+92 R (4-inch)	37
Sta. 101+48 to Sta. 105+39 R (6-inch)	104
Sta. 101+50 to Sta. 105+67 L (6-inch)	200
Sta. 105+87 to Sta. 108+98 L (6-inch)	74
Sta. 106+49 to Sta. 108+21 R (6-inch)	21
Slope Adjustment:	20
Total Topsoil	671

EROSION CONTROL

The following sections for Fertilizing, Permanent Seeding and Mulching are for information purposes only. The total area to be disturbed that will require erosion control is approximately 1.900 acres. There will be no field measurements for these items that are considered a lump sum payment for the project.

FERTILIZING

The Contractor will apply an all-natural slow-release fertilizer prior to seeding. 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 and temporary easements under cultivation.

Type B Permanent Seed Mixture will consist of the following:

Grass Species	Variety	Pure Live Seed (PLS) (Pounds/Acre)
Western Wheatgrass	Arriba, Flintlock, Rodan, Rosana, Walsh	7
Switchgrass	Dacotah, Forestburg, Nebraska 28, Pathfinder, Summer, Sunburst, Trailblazer	3
Indiangrass	Holt, Tomahawk, Chief, Nebraska 54	3
Big Bluestem	Bison, Bonilla, Champ, Sunnyview, Rountree, Bonanza	3
Canada Wildrye	Mandan	2
Total:		18

MULCHING (GRASS HAY OR STRAW)

An additional 1.5 tons of Grass Hay or Straw Mulch has been added to the Estimate of Quantities for temporary erosion control on areas determined by the Engineer during construction.

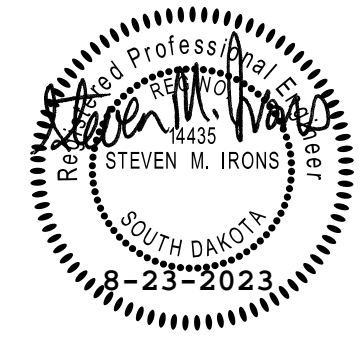
If the Contractor uses a no-till drill, mulch may be applied prior to seeding and the mulch can then be punched into the soil by the no-till drill. If the Contractor uses this process, the no-till drill seeding will be completed immediately following the mulch application and the mulch will be punched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

TABLE OF MULCHING (GRASS HAY OR STRAW)

Station	Location	Quantity (Ton)
Sta. 101+40 to Sta. 109+14 R	Inslope/Backslope /Ditch	2.4
Sta. 101+40 to Sta. 109+50 L	Inslope/Backslope /Ditch	3.3
	Additional	1.5
Total Mulching		7.2

COVER CROP SEEDING

Cover crop seeding may be used on this project as a temporary erosion control measure. The actual limits and use of cover crop seeding will be determined by the Engineer during construction.



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.

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

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

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

TABLE OF EROSION CONTROL WATTLE

Station	Location	Diameter (Inch)	Quantity (Ft)
Sta. 101+60 R	Ditch	12	24
Sta. 101+60 L	Ditch	12	24
Sta. 103+50 L	Ditch	12	24
Sta. 103+90 R	Ditch	12	24
Sta. 104+85 to Sta. 105+29 L	Inslope	12	152
Sta. 105+00 L	Ditch	12	24
Sta. 106+66 L	Ditch	12	24
Sta. 106+80 to Sta. 109+00 L	Inslope	12	407
Sta. 108+00 L	Ditch	12	24
	Additional Quantity	12	120
	Total		847

LOW FLOW SILT FENCE

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

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

Low flow silt fence will be placed at the locations 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	Location	Quantity (Ft)
Sta. 102+38 to Sta. 104+07 R	Inslope	194
	Additional Quantity	49
		243

EROSION CONTROL BLANKET

Erosion control blanket will be installed 16 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>

TABLE OF EROSION CONTROL BLANKET

Station	Location	Type	Quantity (SqYd)
Sta. 101+54 to Sta. 102+30	Inslope/Ditch/Backslope	3	134
Sta. 101+55 to Sta. 105+27	Inslope/Ditch/Backslope	3	667
Sta. 103+71 to Sta. 104+85	Inslope/Ditch/Backslope	3	186
Sta. 106+80 to Sta. 109+01	Inslope/Ditch/Backslope	3	393
	Additional Quantity	-	-
			1380

SHAPING FOR EROSION CONTROL BLANKET

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

REMOVE TRAFFIC SIGN

Existing signs that are shown as being removed will become the property of the Contractor. Existing signposts and bases will be removed in their entirety. All existing signs, posts, and/or hardware removed will not be reused. Holes remaining from the removal of wood posts will be backfilled and compacted with material placed in layers not to exceed 6 inches in depth.

All costs associated with the removal of existing signs, posts, hardware, and backfilled holes will be incidental to the contract unit price per each for "Remove Traffic Sign". Quantities will be per assembly at the contract unit price per each.

OBJECT MARKERS

At locations shown in the plans, where Object Markers will be removed, the cost for removing the existing Object Markers will be included in the contract unit price per each for Remove Delineator.

New Type 2 Object Markers and posts will be furnished and installed according to the details of Standard Plates 632.01 and 632.04 by the Contractor at the locations shown in the plan. Cost for new Type 2 Object Marker and post installation is included in the contract unit price per each for Type 2 Object Marker.

COUNTY RESPONSIBILITIES

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

1. Permanent and temporary easement acquisition.
2. Coordination of any utility adjustments.
3. The County will be responsible for supplying and placing gravel.
4. The County will be responsible for removing all existing fence, supplying, and placing all new fencing.
5. County will remove erosion control devices that need to remain in place until vegetation is established.



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** 2.497 Acre
- **5.3 (3b): Total Area to be Disturbed** 1.900 Acre
- **5.3 (3c): Maximum Area Disturbed at One Time** 1.900 Acre
- **5.3 (3d): Existing Vegetative Cover (%)** 75
 - **5.3 (3d): Description of Vegetative Cover:** Mixture of pasture and native prairie grasses.
- **5.3 (3e): Soil Properties:** Bon loam
- **5.3 (3f): Name of Receiving Water Body/Bodies** Pipestone Choteau Creek
- **5.3 (3g): Location of Construction Support Activity Areas** N/A

5.3 (3h): ORDER OF CONSTRUCTION ACTIVITIES

The Contractor will enter the Estimated Start Date.

Description	Estimated Start Date
Install perimeter protection where runoff may exit site.	
Remove existing structure.	
Install new structure.	
Clearing and grubbing.	
Remove and stockpile topsoil.	
Grade roadway, ditches and channel.	
Stabilize disturbed areas.	
Final grading.	
Final gravel by County.	
Install final fertilizer, seeding, blankets, mulch and wattles.	

5.3 (5): DESCRIPTION AND MAINTENANCE OF CONTROL MEASURES

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

Perimeter Controls (See Detail Plan Sheets)

Description	Estimated Start Date
<input 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 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:	

Dust Controls

Description	Estimated Start Date
<input type="checkbox"/> Tarps & Wind impervious fabrics	
<input type="checkbox"/> Watering	
<input checked="" 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 workday 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 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 $\frac{1}{3}$ 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 $\frac{1}{2}$ 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 SDDOT Project Engineer and Contractor's Erosion Control Supervisor are responsible for inspections. Maintenance and repair activities are the responsibility of the Contractor. The SDDOT Project Engineer will complete the inspection and maintenance reports and distribute copies per the distribution instructions on DOT 298.

5.3 (7): POST CONSTRUCTION STORMWATER MANAGEMENT

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

5.3 (8): POLLUTION PREVENTION PROCEDURES**5.3 (8a): Spill Prevention and Response Procedures**➤ **Material Management**

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

▪ Hazardous Materials

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

➤ **Spill Control Practices**

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

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

➤ **Spill Response**

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

procedures outlined below must be implemented in a timely manner to prevent the release of pollutants.

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

5.3 (8b): WASTE MANAGEMENT PROCEDURES➤ **Waste Disposal**

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

➤ **Hazardous Waste**

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

➤ **Sanitary Waste**

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

5.3 (9): CONSTRUCTION SITE POLLUTANTS

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

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

Product Specific Practices

- **Petroleum Products**

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

- **Fertilizers**

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

- **Paints**

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

- **Concrete Trucks**

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

5.3 (10): NON-STORMWATER DISCHARGES

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

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

5.3 (11): INFEASIBILITY DOCUMENTATION

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

7.0: SPILL NOTIFICATION

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

- A release or spill of a regulated substance (includes petroleum and petroleum products) must be reported to SDDANR immediately **if any one of the following** conditions exists:
 - The release or spill threatens or is able to threaten waters of the state (surface water or ground water)
 - The release or spill causes an immediate danger to human health or safety
 - The release or spill exceeds 25 gallons
 - The release or spill causes a sheen on surface water
 - The release or spill of any substance that exceeds the ground water quality standards of ARSD Chapter 74:54:01
 - The release or spill of any substance that exceeds the surface water quality standards of ARSD Chapter 74:51:01
 - The release or spill of any substance that harms or threatens to harm wildlife or aquatic life
 - The release or spill is required to be reported according to Superfund Amendments and Reauthorization Act (SARA) Title III List of Lists, Consolidated List of Chemicals Subject to Reporting Under the Emergency Planning and Community Right to Know Act, US Environmental Protection Agency.
- To report a release or spill, call SDDANR at 605-773-3296 during regular office hours (8 a.m. to 5 p.m. Central Standard Time). To report the release after hours, on weekends or holidays, call South Dakota Emergency Management at 605-773-3231. Reporting the release to SDDANR does not meet any obligation for reporting to other state, local, or federal agencies. Therefore, you must also contact local authorities to determine the local reporting requirements for releases. A written report of the unauthorized release of any regulated substance, including quantity discharged, and the location of the discharge will be sent to SDDANR within 14 days of the discharge.

5.4: SWPPP CERTIFICATIONS

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

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

➤ **South Dakota Department of Transportation**

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



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

➤ **Prime Contractor**

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

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

Authorized Signature

CONTACT INFORMATION

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

➤ **Contractor Information:**

- Prime Contractor Name: _____
- Contractor Contact Name: _____
- Address: _____
- _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ **Erosion Control Supervisor**

- Name: _____
- Address: _____
- _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ **SDDOT Project Engineer**

- Name: _____
- Business Address: _____
- Job Office Location: _____
- City: _____ State: _____ Zip: _____
- Office Phone: _____ Field: _____
- Cell Phone: _____ Fax: _____

➤ **SDDANR Contact Spill Reporting**

- Business Hours Monday-Friday (605) 773-3296
- Nights and Weekends (605) 773-3231

➤ **SDDANR Contact for Hazardous Materials.**

- (605) 773-3153

➤ **National Response Center Hotline**

- (800) 424-8802.

➤ **SDDANR Stormwater Contact Information**

- SDDANR Stormwater (800) 737-8676
- Surface Water Quality Program (605) 773-3351

5.5: REQUIRED SWPPP MODIFICATIONS

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

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

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

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

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

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

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

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

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

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

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

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

TYPICAL ROADWAY SECTIONS

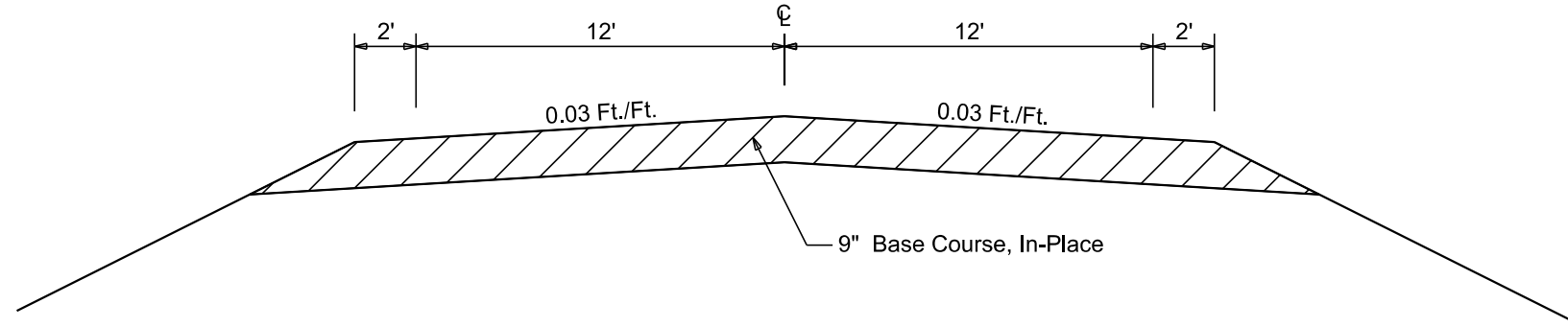
FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8051(16)	13	66

Plotting Date: 8/22/2023
 Revised: 8/23/2023 SMI



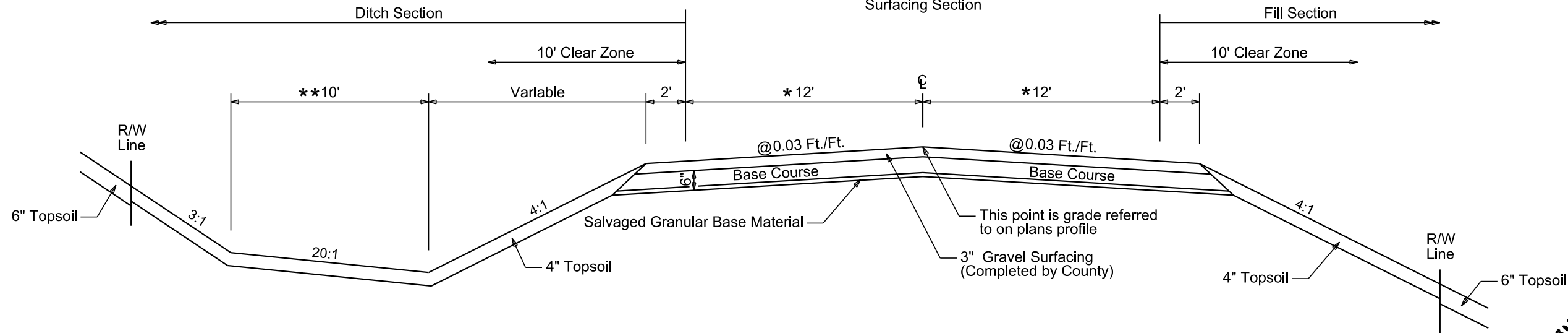
Sta. 101+40.00 to Sta. 108+28.00
 In-Place Section



Transition:

- Sta. 101+40 to Sta. 102+24
 @ 0.06 Ft./Ft. to 0.03 Ft./Ft. L
 @ 0.05 Ft./Ft. to 0.03 Ft./Ft. R
- Sta. 104+73 to Sta. 105+03
 @ 0.03 Ft./Ft. to 0.02 Ft./Ft. L & R
- Sta. 106+65 to Sta. 108+28
 @ 0.02 Ft./Ft. to 0.07 Ft./Ft. L
 @ 0.02 Ft./Ft. to 0.04 Ft./Ft. R
- Sta. 101+40 to Sta. 102+15
 * 13.3' to 12' R
- Sta. 107+65 to Sta. 108+28
 * 12' to 12.4' R
 * 12' to 10.9' L
- Sta. 101+55 to Sta. 101+80
 ** 0' to 10' L
 ** 0' to 10' R

Sta. 101+40.00 to Sta. 108+28.00
 Surfacing Section



Bridge Exception:

Sta. 105+03 to 106+65



Plot Scale - 1:6

Plotted From - nfirm

Plot Name - 2

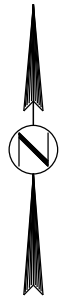
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TRAFFIC CONTROL MAP W/ SIGNS

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8051(16)	14	66

Plotting Date: 8/23/2023
 Revised: 8/23/2023 SMI



240 ST.

241 ST.

PROJECT
 Structure No. 51-195-220

242 ST.

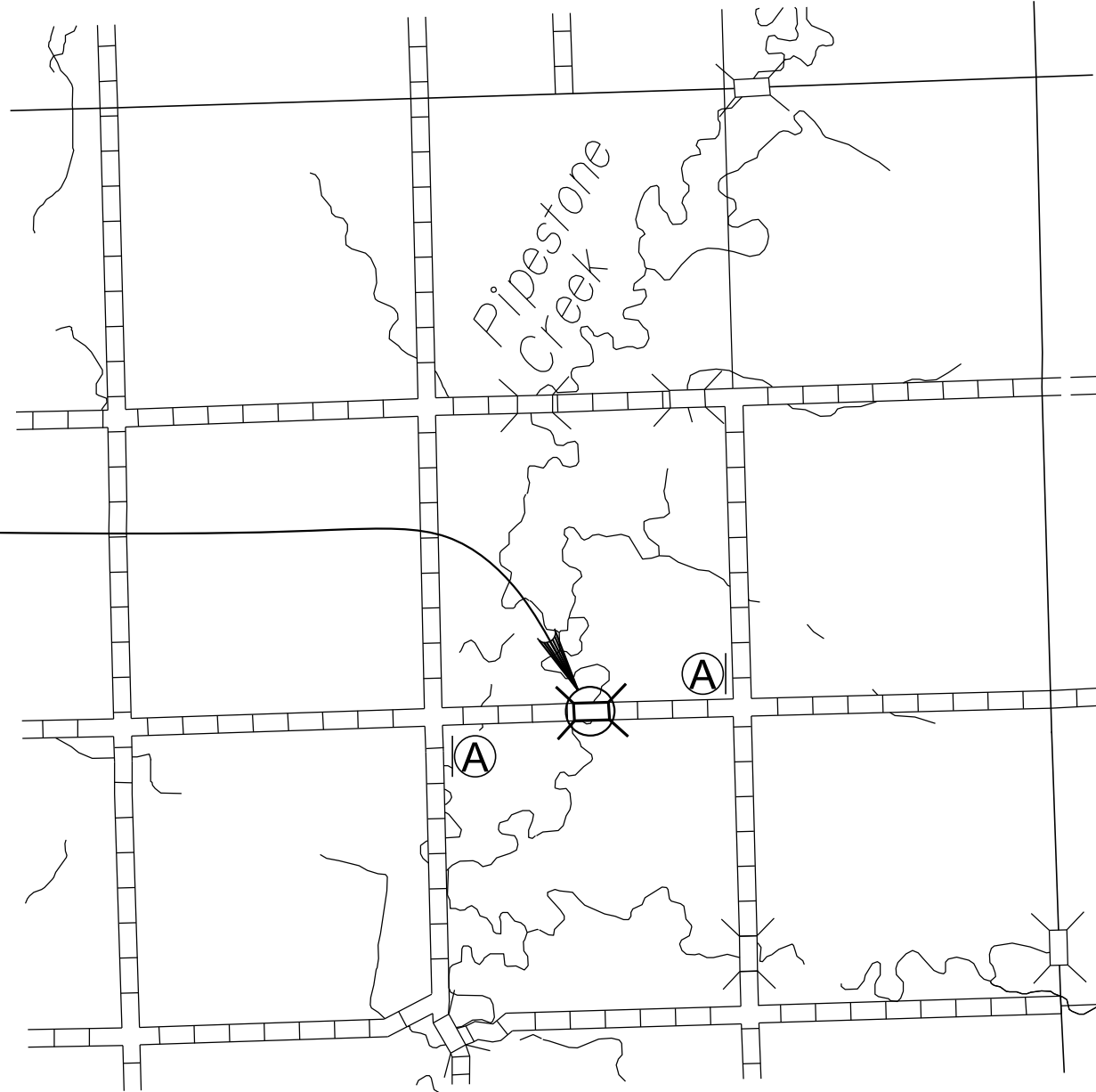
243 ST.

484 AVE.

485 AVE.

486 AVE.

487 AVE.

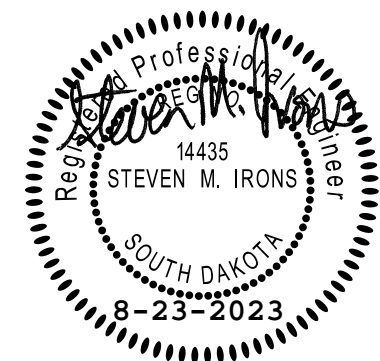


NOTES:

1. SEE SHEET 15 FOR ADDITIONAL DETAILS.
2. THE EXACT LOCATION AND SPACING OF SIGNS SHOWN WILL BE DETERMINED IN FIELD BY THE ENGINEER.

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNING

SIGN CODE	DESCRIPTION	NUMBER REQUIRED	SIGN SIZE	SQ. FT. PER SIGN	SQ. FT.
R11-2	ROAD CLOSED	2	48" X 30"	10.0	20.0
R11-3	ROAD CLOSED AHEAD LOCAL TRAFFIC ONLY	2	60" X 30"	12.5	25.0
W20-1A	ROAD WORK (AHEAD)	2	48" X 48"	16.0	32.0
W20-3B	ROAD CLOSED (500 FT)	2	48" X 48"	16.0	32.0
W20-3C	ROAD CLOSED (1000 FT)	2	48" X 48"	16.0	32.0
				TOTAL	141.0
DESCRIPTION		EACH			
TYPE 3 BARRICADE		8			



1:20000

SIGNING LEGEND

TRAFFIC CONTROL FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8051(16)	15	66

GROUPED SIGNING LEGEND:



W20-1A (48" X 48")



W20-3B (48" X 48")



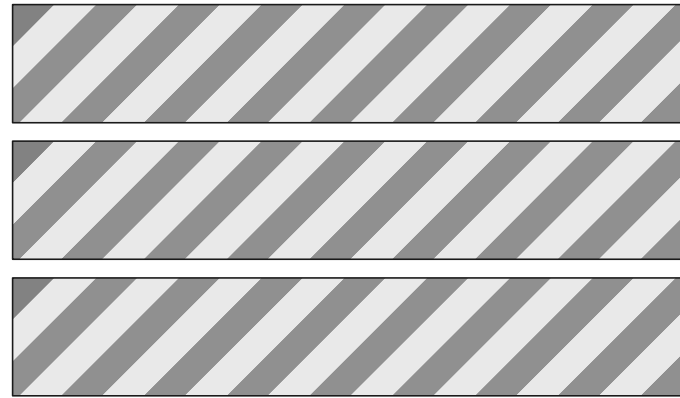
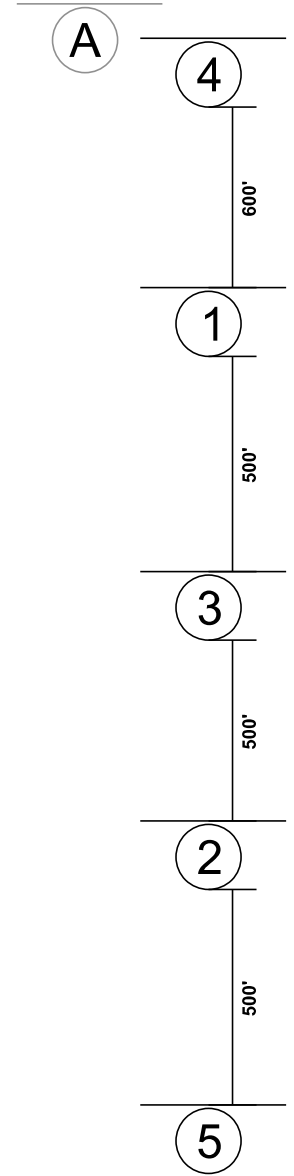
W20-3C (48" X 48")



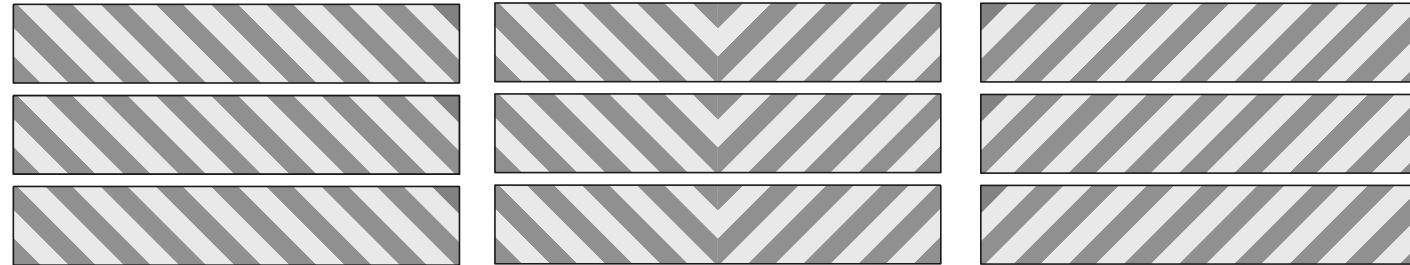
R11-3 (60" X 30")



R11-2 (48" X 30")



TYPE III BARRICADE (8' DOUBLE SIDED)



TYPE III BARRICADE (8' DOUBLE SIDED)

TRAFFIC CONTROL NOTES:

1. ANY SIGNS THAT CONFLICT WITH TEMPORARY TRAFFIC CONTROL WILL BE REMOVED OR COVERED.



Install (12") Diameter Erosion Control Wattles across ditch channel bottom at the following Locations:
 101+60 R 24 Ft
 101+60 L 24 Ft
 103+50 L 24 Ft
 103+90 R 24 Ft
 105+00 L 24 Ft
 106+66 L 24 Ft
 108+00 L 24 Ft

Install Low Flow Silt Fence at the following locations:
 102+30-48' R to 104+07-56' R 194Ft
 Install 12" Diameter Erosion Control Wattle at the following locations:
 104+85-54' R to 105+29-44' L 152 Ft
 106+80-53' L to 109+00-24' R 407 Ft

Install Type 3 Erosion Control Blanket at the following locations:
 101+54 R to 102+30 R Inslope/Ditch/Backslope 134 SqYd
 101+55 L to 105+27 L Inslope/Ditch/Backslope 667 SqYd
 103+71 R to 104+85 R Inslope/Ditch/Backslope 186 SqYd
 106+80 L to 109+01 L Inslope/Ditch/Backslope 393 SqYd

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8051(16)	16	66

Plotting Date: 7/6/2023

Plot Scale - 1:100

Plot Name - 5

File - ...Eng_Docs\Sheets\100ec.dgn

Plotted From - imiller

Sec 20 - T105N - R47W

Kristy Swenson
 E 1/2 of SW 1/4 of
 Sec 20 - T105N - R47W

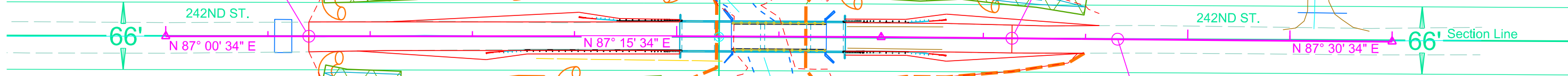
Kristy Swenson
 W 1/2 of SE 1/4 of
 Sec 20 - T105N - R47W



BEGIN BRO-B 8051(16)
BEGIN GRADING
 STA. 101+40.00

END BRO-B 8051(16)
END GRADING
 STA. 108+28.00

END CONSTRUCTION
 STA. 109+14.00



100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00

- Type 3 Erosion Control Blanket
- Low Flow Silt Fence
- Linear Erosion Control Wattle
- Ditch Check Erosion Control Wattle

Lloyd Welbig Trust
 NE 1/4 Except E-50 Rods
 Sec 29 - T105N - R47W

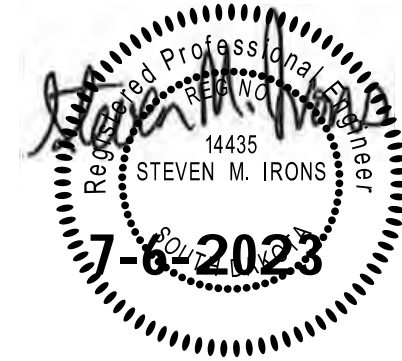
Lloyd Welbig Trust
 E 1/2 of NW 1/4 of
 Sec 29 - T105N - R47W

POB 100+00.00
 N 585809.013
 E 2979180.842

PI 105+00.00
 N 585835.099
 E 2979680.161
 Del 0°15'00.00" R

PI 107+00.00
 N 585844.662
 E 2979879.932
 Del 0°15'00.00" R

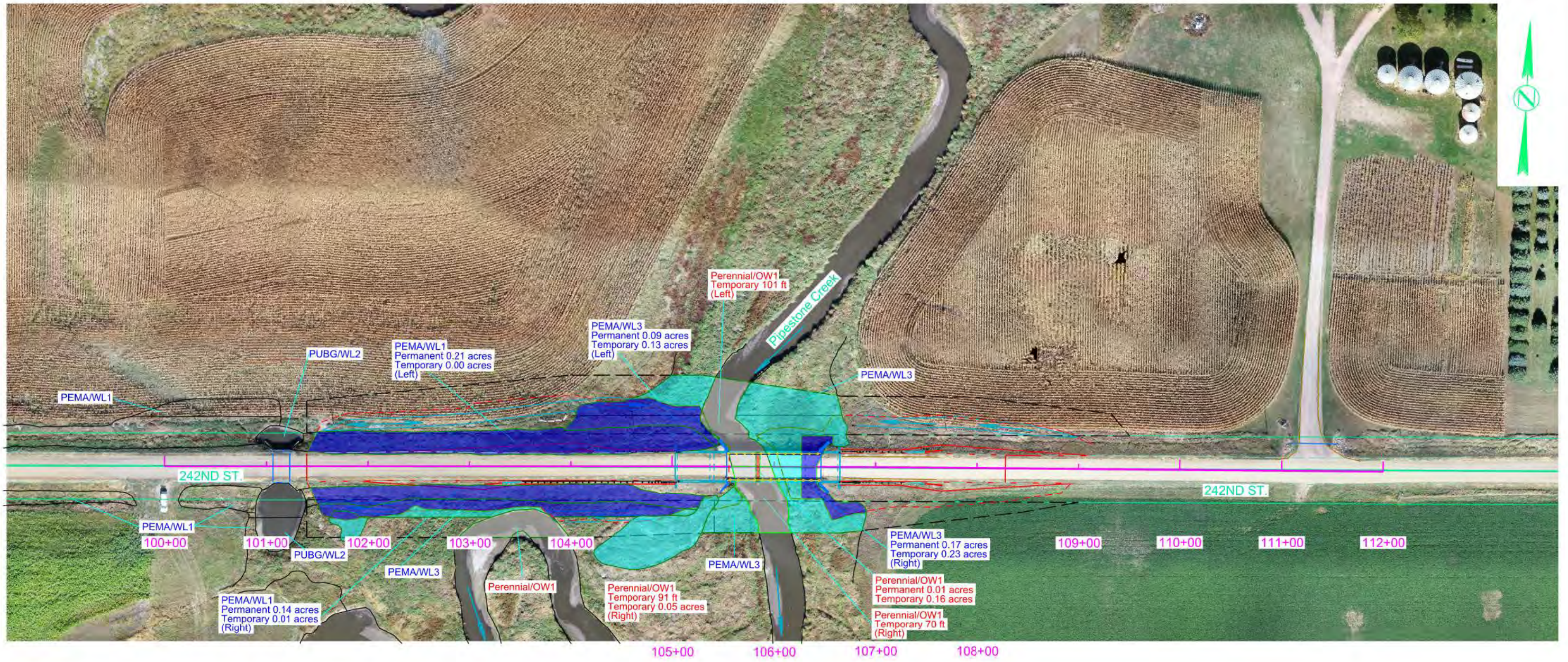
Sec 29 - T105N - R47W



POE 112+00.00
 N 585866.390
 E 2980379.460

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8051(16)	17	66
Plotting Date: 7/6/2023			



LEGEND:

Wetlands Impact

Permanent

Temporary

New ROW

Existing ROW

Temporary Boundary

Work Limits

OWUS Impact

Permanent

Temporary

Wetland Impact Figure
Project BRO-B-8051(16), PCN 085Q
242nd St. Over Pipestone Creek
Moody County, South Dakota



Plot Scale: 1:100

Plotted From: Final

Plot Name: 6

File: \\Eng_Docs\Sheets\100\Aerial.dgn

HORIZONTAL ALIGNMENT DATA AND CONTROL DATA

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT BRO-B 8051(16)	SHEET 18	TOTAL SHEETS 66
-----------------------	---------------------------	-------------	--------------------

Plotting Date: 7/6/2023

MAINLINE

Type	Station		Northing	Easting
POB	100+00.00		585809.013	2979180.842
		TL= 500.00	N 87°00'33.70" E	
PI	105+00.00		585835.099	2979680.161
		TL= 200.00	N 87°15'33.70" E	
PI	107+00.00		585844.662	2979879.932
		TL= 500.00	N 87°30'33.70" E	
POE	112+00.00		585866.390	2980379.460

HORIZONTAL AND VERTICAL CONTROL POINTS

POINT	STATION	OFFSET	DESCRIPTION	NORTHING	EASTING	ELEVATION
300	111+42.33	21.82'	CP 300 - 18 in. Rebar	585842.083	2980322.788	1556.26
305	Off Chain	Off Chain	CP 305 - 18 in. Rebar	585723.187	2978107.307	1545.86
310	107+95.99	15.83' R	BM1 - 5 ft. Rebar	585833.019	2979976.519	1550.85
311	103+95.15	13.20' L	BM2 - 5 ft. Rebar	585842.808	2979574.770	1548.30



The coordinates, bearings, distances and areas shown on this sheet are based on the South Dakota State Plane Coordinate System. South Zone (NAD83/2011) epoch 2010.00; Geoid 18; SF= 0.9998470999
The elevations shown on this sheet are based on NAVD 88.

Plot Scale - 1:200

Plotted From - tmller

Plot Name - 7

File - ...Sheets\Data\Horz_Control.dgn

LEGEND

FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8051(16)	19	66

Plotting Date: 7/6/2023

Plot Scale - 1:200

Plotted From - imiller

Plot Name - 8

File - ...Eng_Docs\Sheets\Legend.dgn

Anchor		Hedge		Septic Tank		State and National Line	
Antenna		Highway ROW Marker		Shrub Tree		County Line	
Approach		Interstate Close Gate		Sidewalk		Section Line	
Assumed Corner		Iron Pin		Sign Face		Quarter Line	
Azimuth Marker		Irrigation Ditch		Sign Post		Sixteenth Line	
BBQ Grill/ Fireplace		Lake Edge		Slough Or Marsh		Property Line	
Bearing Tree		Lawn Sprinkler		Spring		Construction Line	
Bench Mark		Mailbox		Stream Gauge		ROW Line	
Box Culvert		Manhole Electric		Street Marker		New ROW Line	
Bridge		Manhole Gas		Subsurface Utility Exploration Test Hole		Cut and Fill Limits	
Brush		Manhole Miscellaneous		Telephone Fiber Optics		Control of Access	
Buildings		Manhole Sanitary Sewer		Telephone Junction Box		New Control of Access	
Bulk Tank		Manhole Storm Sewer		Telephone Pole		Proposed ROW	
Cattle Guard		Manhole Telephone		Television Cable Jct Box		(After Property Disposal)	
Cemetery		Manhole Water		Television Tower			
Centerline		Merry-Go-Round		Test Wells/Bore Holes			
Cistern		Microwave Radio Tower		Traffic Signal		Drainage Arrow	
Clothes Line		Miscellaneous Line		Trash Barrel			
Commercial Sign Double Face		Miscellaneous Property Corner		Tree Belt			
Commercial Sign One Post		Miscellaneous Post		Tree Coniferous		Remove Concrete Pavement	
Commercial Sign Overhead		Overhang Or Encroachment		Tree Deciduous		Remove Concrete Driveway Pavement	
Commercial Sign Two Post		Overhead Utility Line		Tree Stumps		Remove Asphalt Concrete Pavement	
Concrete Symbol		Parking Meter		Triangulation Station		Remove Concrete Sidewalk	
Control Point		Pedestrian Push Button Pole		Underground Electric Line		Remove Concrete Median Pavement	
Creek Edge		Pipe With End Section		Underground Gas Line		Remove Concrete Curb and/or Gutter	
Curb/Gutter		Pipe With Headwall		Underground High Pressure Gas Line			
Curb		Pipe Without End Section		Underground Sanitary Sewer		Detectable Warning	
Dam Grade/Dike/Levee		Playground Slide		Underground Storm Sewer		Pedestrian Push Button Pole	
Deck Edge		Playground Swing		Underground Tank		and 30" x 48" Clear Space	
Ditch Block		Power And Light Pole		Underground Telephone Line		with 1.5% slope	
Doorway Threshold		Power And Telephone Pole		Underground Television Cable			
Drainage Profile		Power Meter		Underground Water Line			
Drop Inlet		Power Pole		Warning Sign One Post			
Edge Of Asphalt		Power Pole And Transformer		Warning Sign Two Post			
Edge Of Concrete		Power Tower Structure		Water Fountain			
Edge Of Gravel		Propane Tank		Water Hydrant			
Edge Of Other		Property Pipe		Water Meter			
Edge Of Shoulder		Property Pipe With Cap		Water Tower			
Electric Transformer/Power Junction Box		Property Stone		Water Valve			
Fence Barbwire		Public Telephone		Water Well			
Fence Chainlink		Railroad Crossing Signal		Weir Rock			
Fence Electric		Railroad Milepost Marker		Windmill			
Fence Miscellaneous		Railroad Profile		Wingwall			
Fence Rock		Railroad ROW Marker		Witness Corner			
Fence Snow		Railroad Signs					
Fence Wood		Railroad Switch					
Fence Woven		Railroad Track					
Fire Hydrant		Railroad Trestle					
Flag Pole		Rebar					
Flower Bed		Rebar With Cap					
Gas Valve Or Meter		Reference Mark					
Gas Pump Island		Regulatory Sign One Post					
Grain Bin		Regulatory Sign Two Post					
Guardrail		Retaining Wall					
Guide Sign One Post		Riprap					
Guide Sign Two Post		River Edge					
Gutter		Rock And Wire Baskets					
Guy Pole		Rockpiles					
Haystack		Satellite Dish					



103+62 - 105+45 R
Take out 183' Existing Fence
(Completed by County)

104+00 - 105+5 L/R
Remove 8 Delineators
106+50 - 108+00 L/R
Remove 8 Delineators

105+53 - 106+47 L
Take out 2 Object Markers and
1 Weight Limit Sign

105+53 - 106+47 R
Take out 2 Object Markers and
1 Weight Limit Sign

106+00
Take out 91'-0" Long - Triple
Span Concrete Beam Bridge
(Incidental Work, Structure)

105+84
Install 162'-0"
Continuous Concrete Bridge
(DA = 177.19 Sq. Mi.)

105+84 L/R
Install Guardrail:
4 - Type 1 Guardrail Transition
100'-0" Type 1 MGS
4 - MGS MASH Flared End Terminal
16 - Guardrail Delineator
4 - Guardrail End Terminal Object
Marker (Adhesive Object Marker)

106+67 - 106+76 L
Take out Existing Fence
(Completed by County)

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8051(16)	20	66

Plotting Date: 8/23/2023
Revised: 8/23/2023 SMI

BEGIN BRO-B 8051(16)
BEGIN GRADING
STA. 101+40.00

END BRO-B 8051(16)
END GRADING
STA. 108+28.00

END CONSTRUCTION
STA. 109+14.00

66'
N 87° 00' 34" E

66'
N 87° 30' 34" E

100+00
101+00
101+23 R
Begin Type 2 Fence
(Completed by County)
5-2PP
105+04 R
End Type 2 Fence (508 Ft)
(Completed by County)

POB 100+00.00
N 585809.013
E 2979180.842

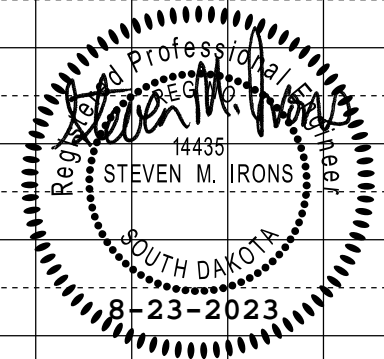
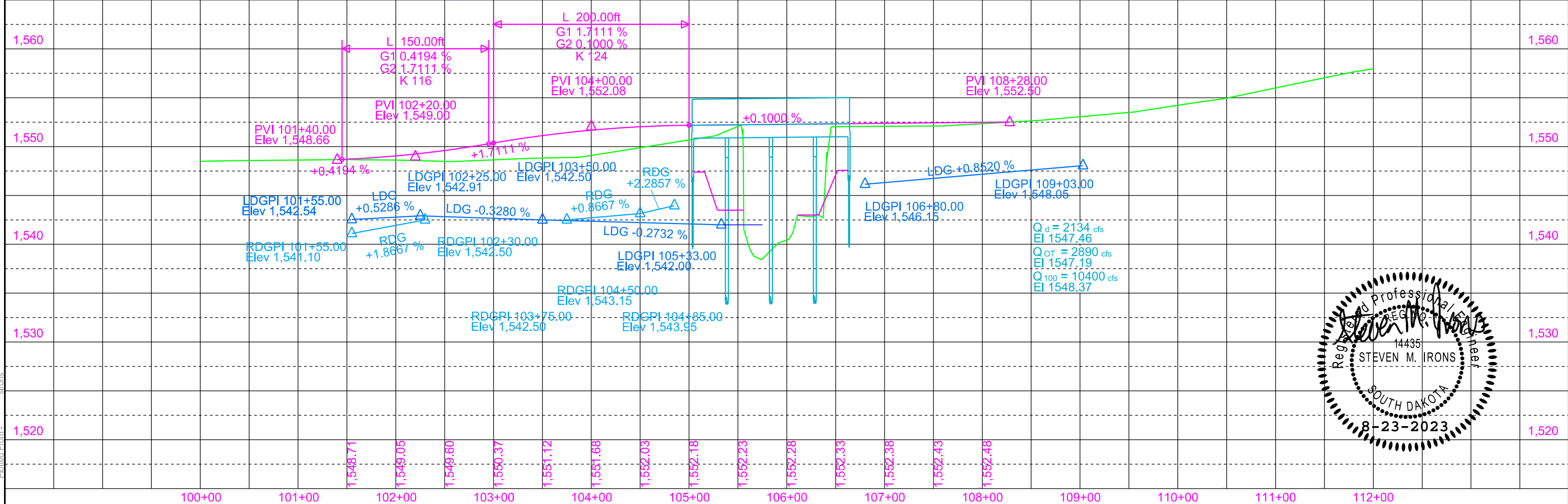
101+23 L
Begin Type 2 Fence
(Completed by County)
5-2PP
105+04 L
End Type 2 Fence (492 Ft)
(Completed by County)

PI 105+00.00
N 585835.099
E 2979680.161
Del 0°15'00.00" R

PI 107+00.00
N 585844.662
E 2979879.932
Del 0°15'00.00" R

108+00
109+00
106+64 R
Begin Type 2 Fence
(Completed by County)
2-2PP
1-3PP
109+00 R
End Type 2 Fence (283 Ft)
(Completed by County)

POE 112+00.00
N 585866.390
E 2980379.460



FOR BIDDING PURPOSES ONLY

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	BRO-B 8051(16)	21	66
Plotting Date:		7/6/2023	

Sec 20 - T105N - R47W

Kristy Swenson
E 1/2 of SW 1/4 of
Sec 20 - T105N - R47W

Kristy Swenson
W 1/2 of SE 1/4 of
Sec 20 - T105N - R47W

Sta. 101+40.00 LT. to Sta. 105+42.29 LT.
Permanent Easement
Containing 0.45 Acres, More or Less

Sta. 105+42.29 LT. to Sta. 109+50.00 LT.
Permanent Easement
Containing 0.34 Acres, More or Less

Sta. 105+41.45 RT. to Sta. 109+00.00 RT.
Permanent Easement
Containing 0.18 Acres, More or Less

Sta. 101+40.00 RT. to Sta. 103+90.00 RT.
Permanent Easement
Containing 0.33 Acres, More or Less

Lloyd Welbig Trust
E 1/2 of NW 1/4 of
Sec 29 - T105N - R47W

Lloyd Welbig Trust
NE 1/4 Except E-50 Rods
Sec 29 - T105N - R47W

BEGIN BRO-B 8051(16)
BEGIN GRADING
STA. 101+40.00

END BRO-B 8051(16)
END GRADING
STA. 108+28.00

END CONSTRUCTION
STA. 109+14.00

PERMANENT AND TEMPORARY EASEMENT				
	Sta.	Offset	Northing (y)	Easting (x)
1	101+40.00	33.10' LT	585849.37	2979318.93
2	101+40.00	65.00' LT	585881.23	2979317.26
3	104+00.00	90.00' LT	585919.76	2979575.60
4	105+30.00	90.00' LT	585926.43	2979705.82
5	105+42.29	88.19' LT	585925.21	2979718.19
6	106+66.00	70.00' LT	585912.96	2979842.62
7	108+00.00	70.00' LT	585918.94	2979976.80
8	109+31.50	55.00' LT	585909.67	2980108.82
9	109+50.00	33.27' LT	585888.77	2980128.25
10	101+40.00	32.90' RT	585783.46	2979322.37
11	101+40.00	70.00' RT	585746.41	2979324.30
12	105+41.41	65.00' RT	585772.15	2979724.63
13	106+65.00	65.00' RT	585778.06	2979848.08
14	108+45.00	43.00' RT	585808.00	2980026.66
15	109+00.00	32.91' RT	585820.47	2980081.17
16	105+41.80	32.48' LT	585869.54	2979720.36
17	102+35.00	33.09' RT	585788.22	2979417.25
18	103+90.00	33.40' RT	585796.00	2979572.05
19	105+41.46	33.52' RT	585803.60	2979723.17
20	106+65.00	33.61' RT	585809.42	2979846.58

LEGEND	
Temporary Easement	
Permanent Easement	

NOTE:
Coordinates shown on this sheet are based on the South Dakota Plane Coordinate System, South Zone (NAD83/2011)

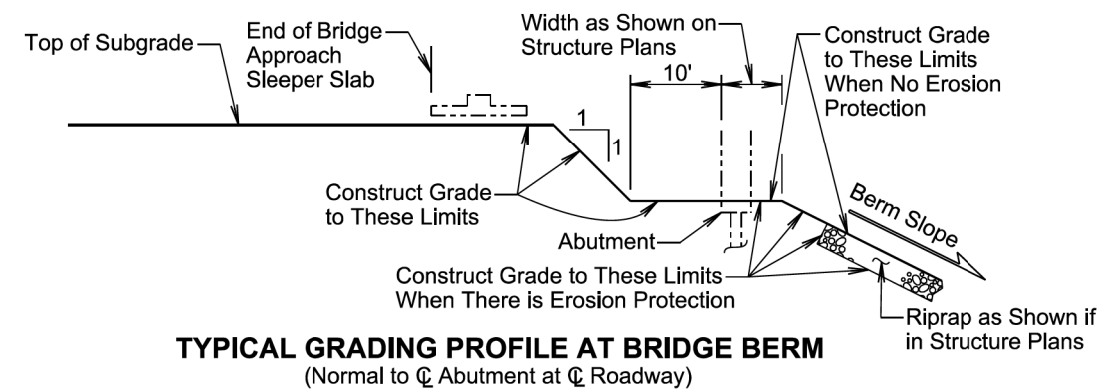
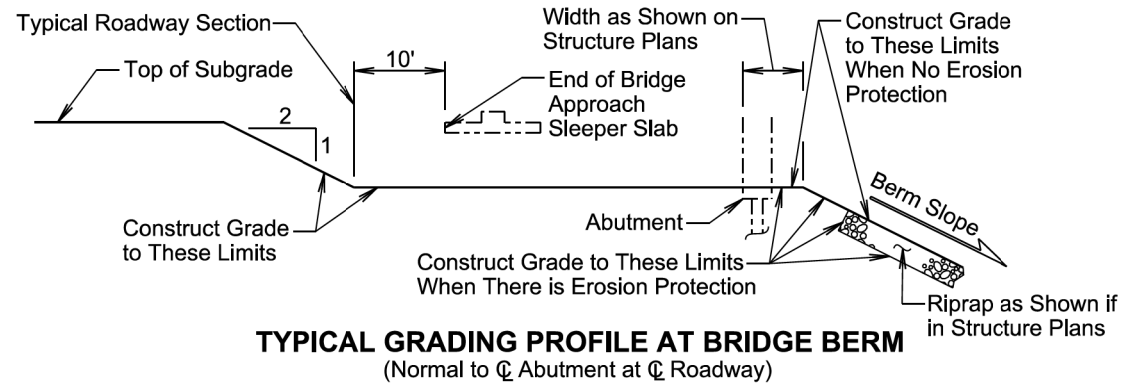
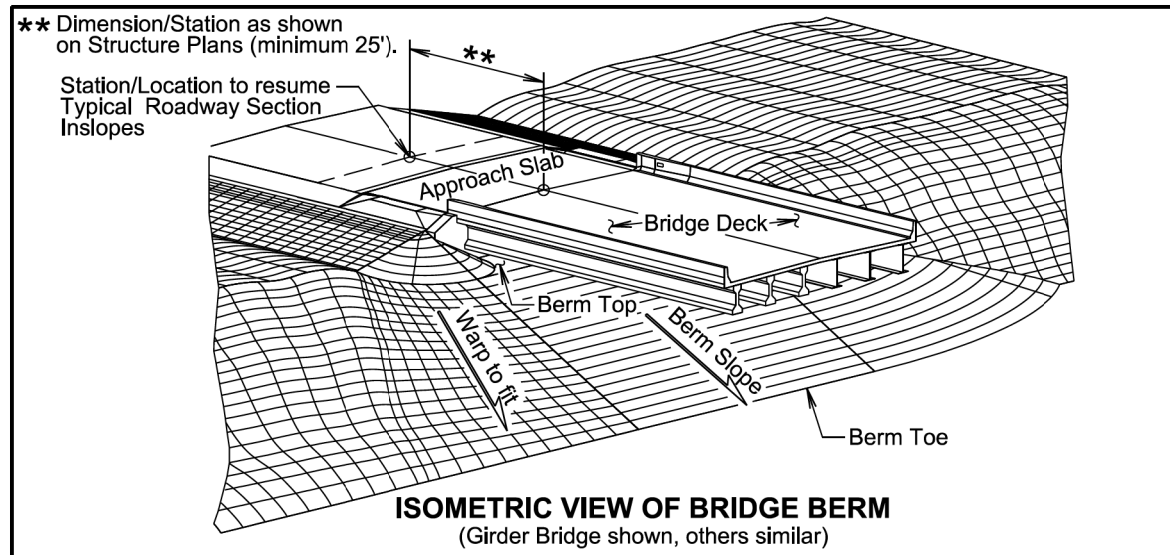


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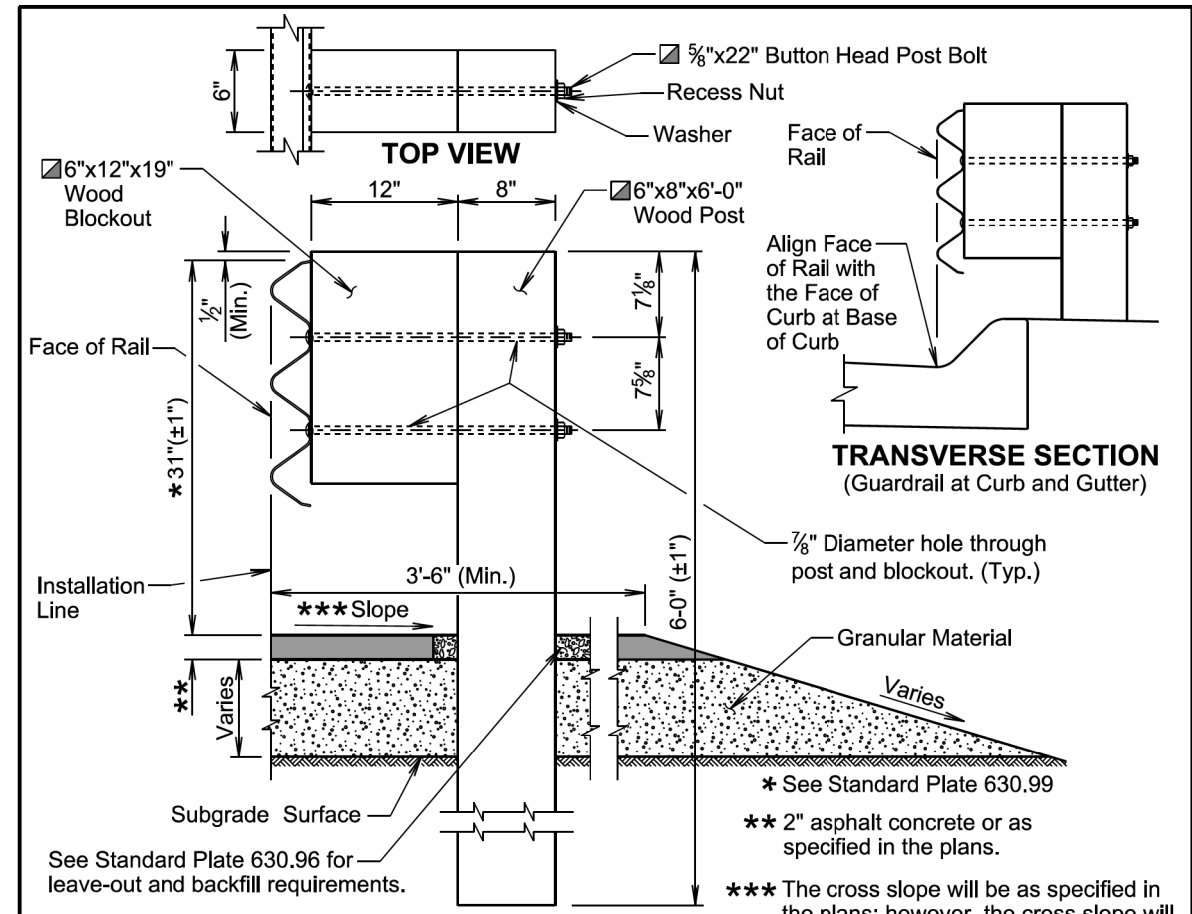


GENERAL NOTES:

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

January 22, 2021

Published Date: 2025	S D D O T	BRIDGE BERM (NONPROJECTING EMBANKMENT)	PLATE NUMBER 120.10
			Sheet 1 of 1



GENERAL NOTES: TRANSVERSE SECTION

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

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

Topsoil is not shown in the transverse section drawing.

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

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

The top of post and top of block will have a true square cut. The top of block will be a maximum of $\pm 1/2$ inch from the top of the post.

September 14, 2019

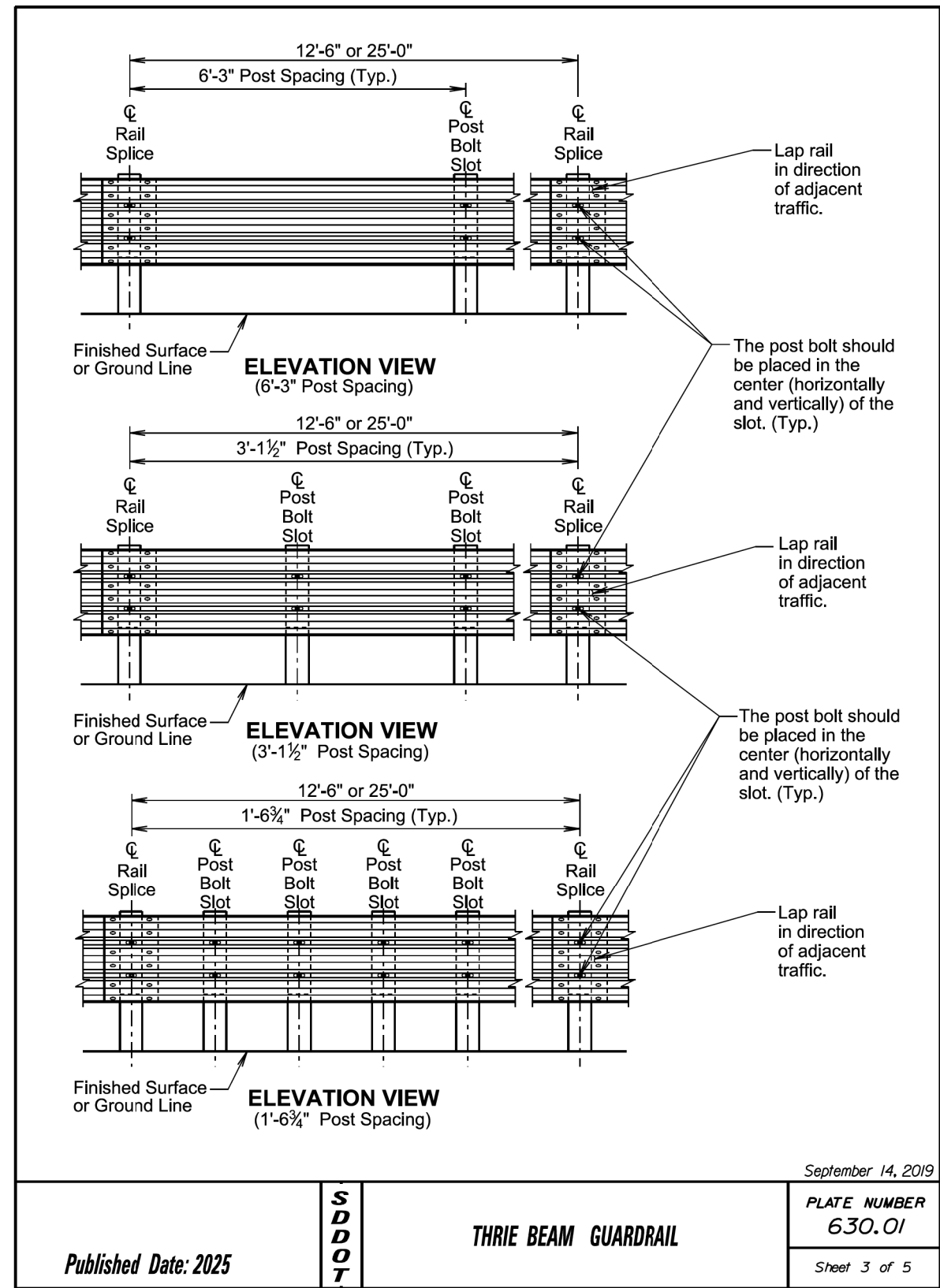
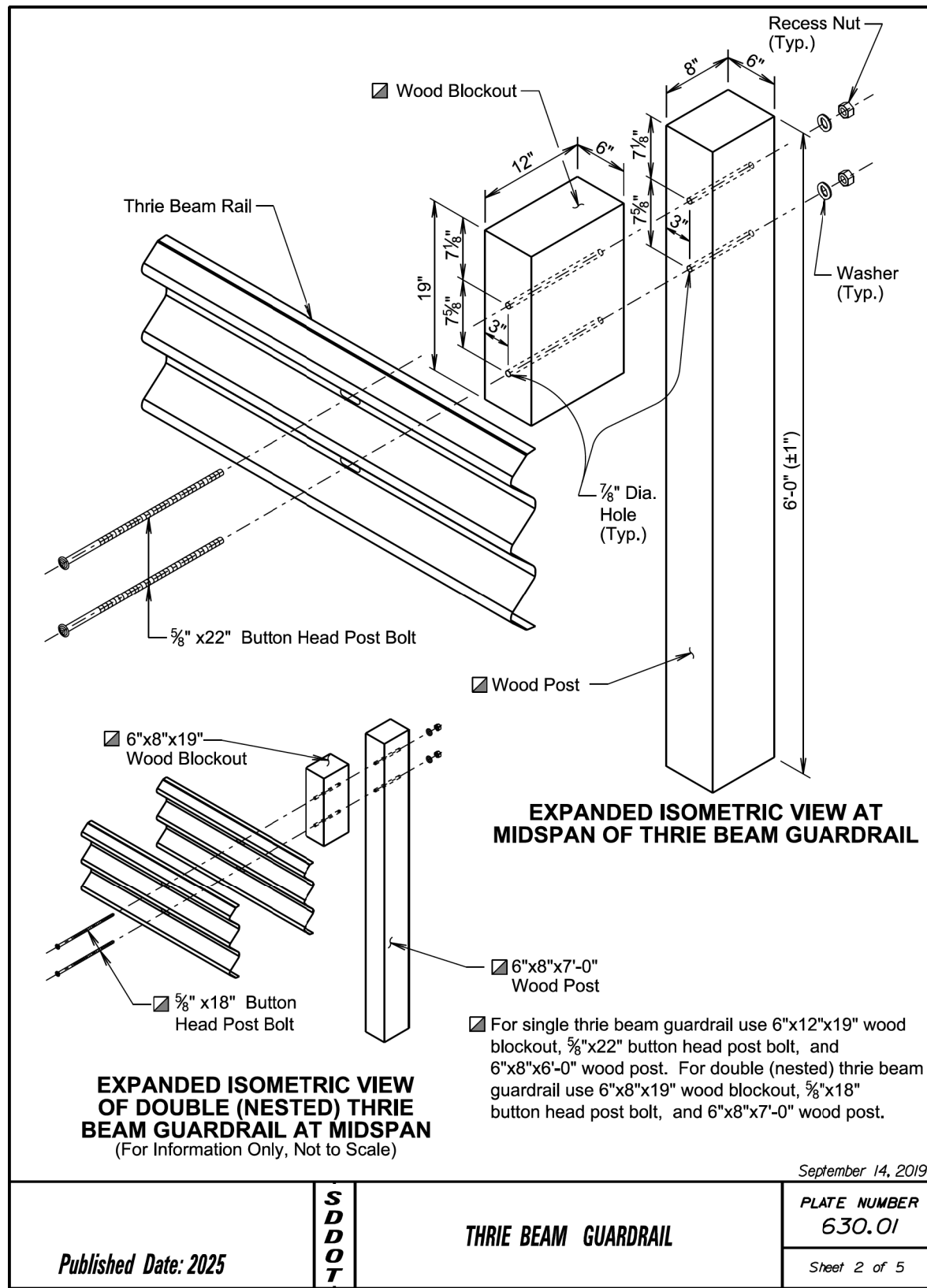
Published Date: 2025	S D D O T	THREE BEAM GUARDRAIL	PLATE NUMBER 630.01
			Sheet 1 of 5

Plot Scale - 1:200

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Plot Name -

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Plot Scale - 1:200

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Plot Name -

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

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

GENERAL NOTES:

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

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

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

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

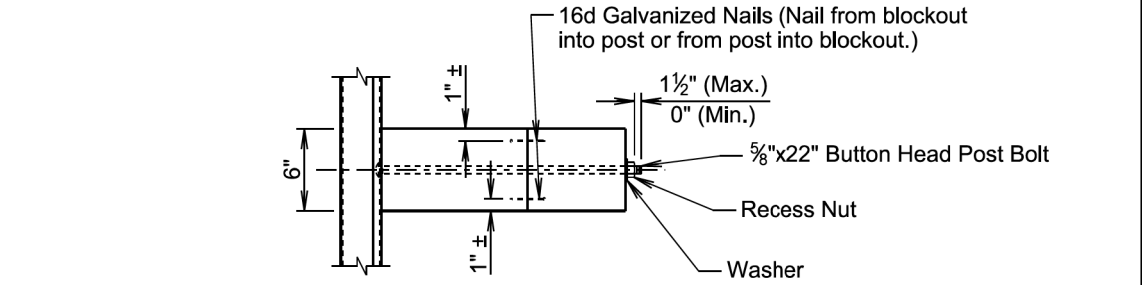
W beam rail section lengths may be 12'-6" and/or 25'-0". The combination of section lengths used will be compatible with the total length of rail per site as shown in the plans.

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

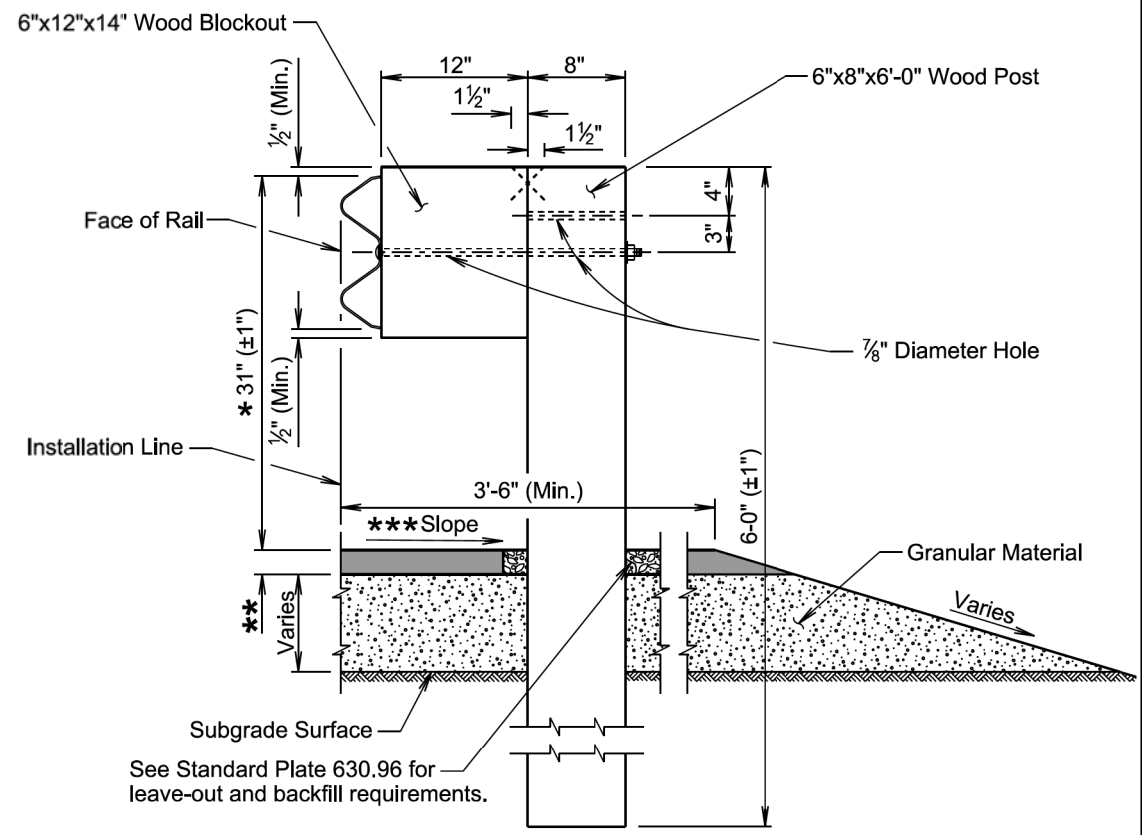
All costs for constructing the MGS including labor, equipment, and materials including all posts, blockouts, steel beam rail, and hardware will be incidental to the contract unit price per foot for the respective MGS contract item.

September 14, 2019

Published Date: 2025	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 1 of 6



TOP VIEW
(Type 1, 2, or 3 MGS Installation)



TRANSVERSE SECTION
(Type 1, 2, or 3 MGS Installation)

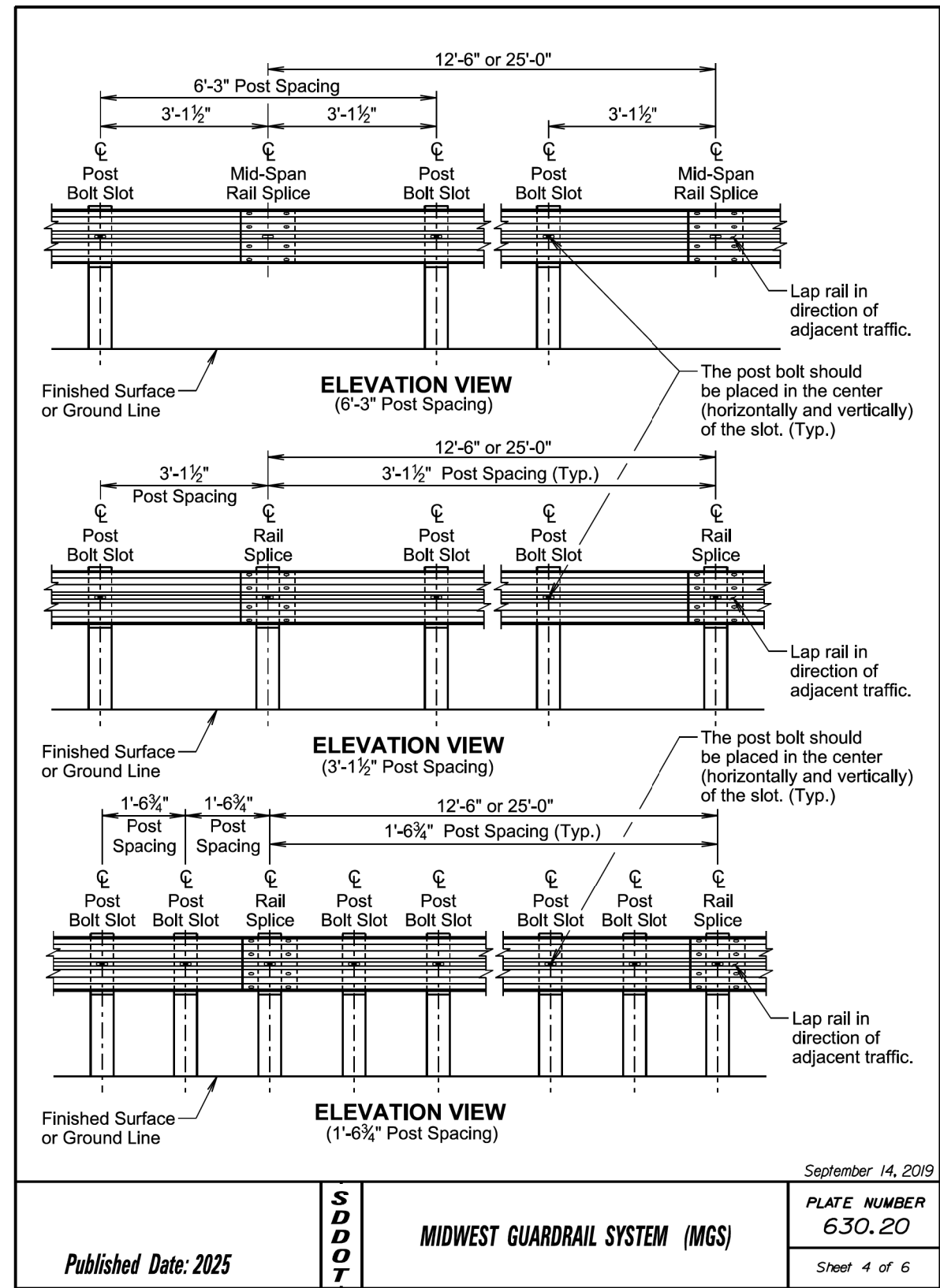
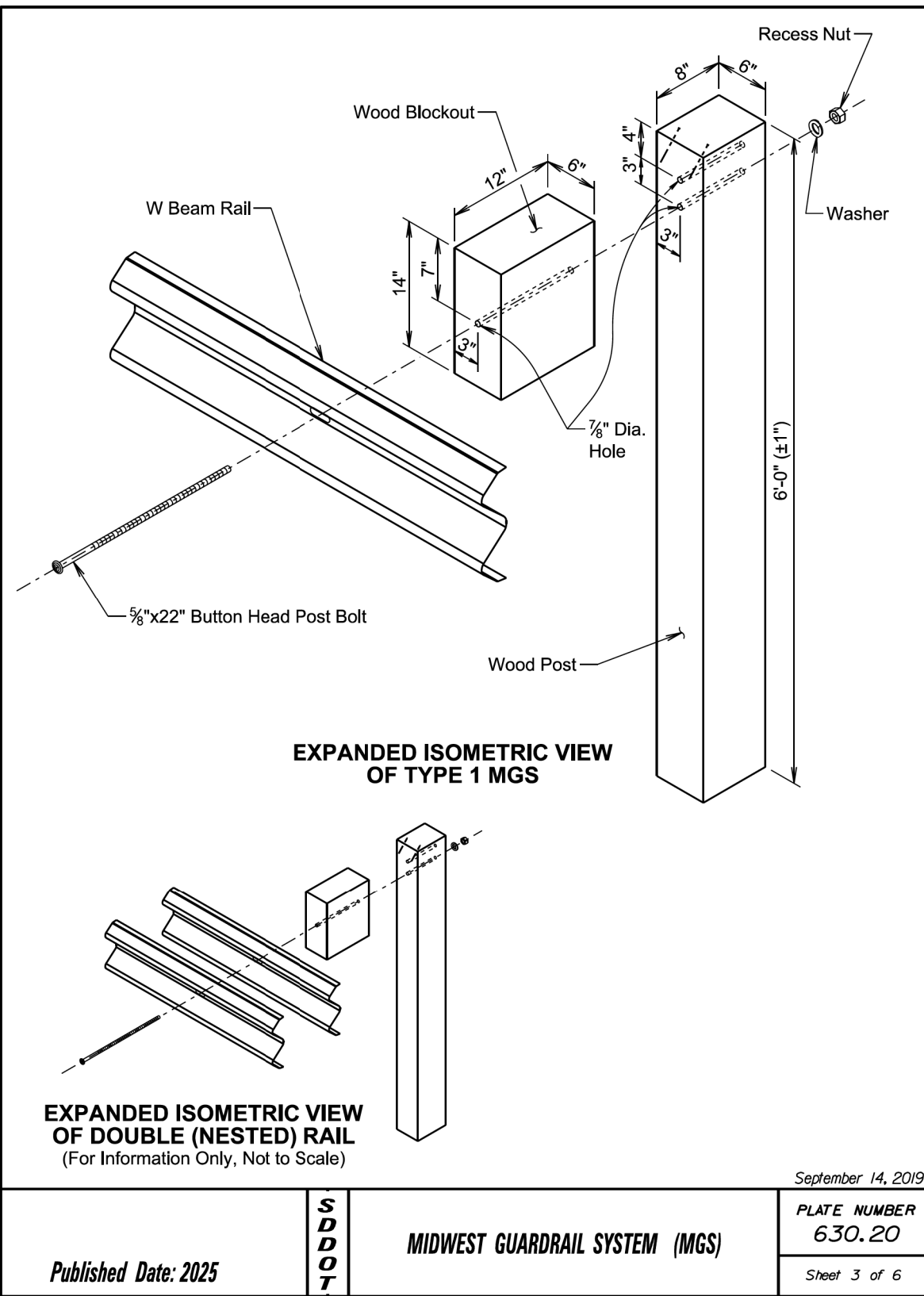
* See Standard Plate 630.99

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

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

September 14, 2019

Published Date: 2025	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 2 of 6

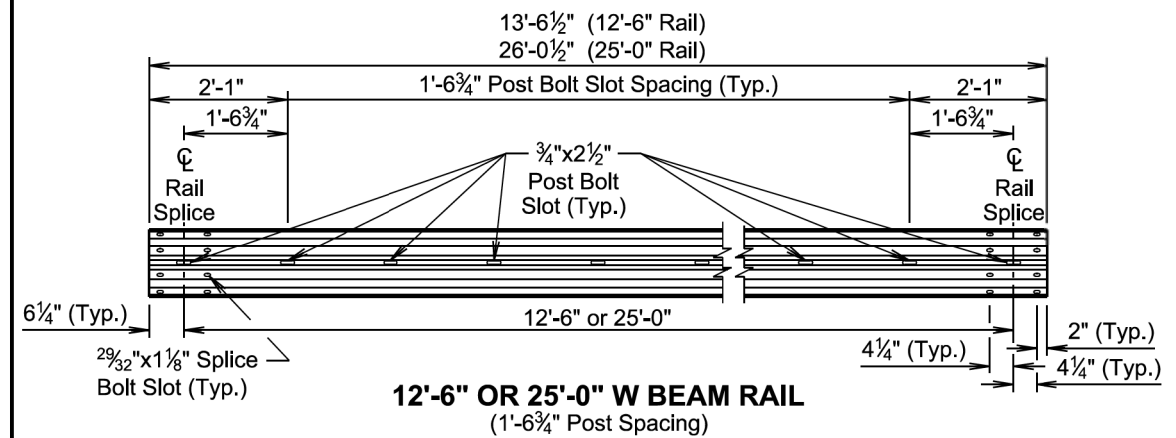
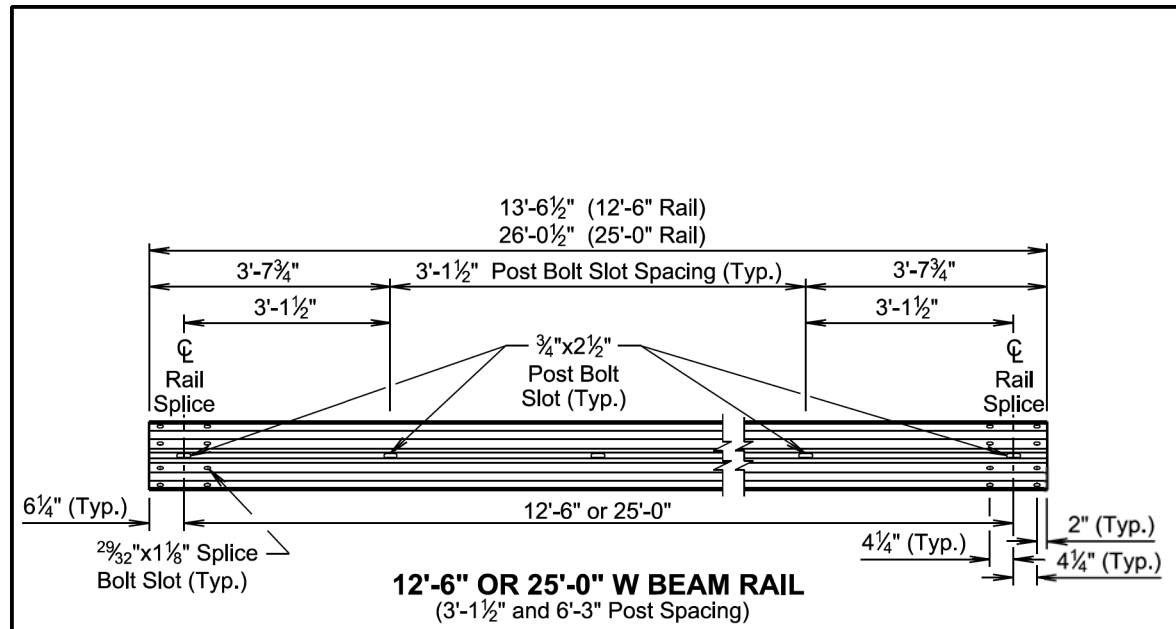


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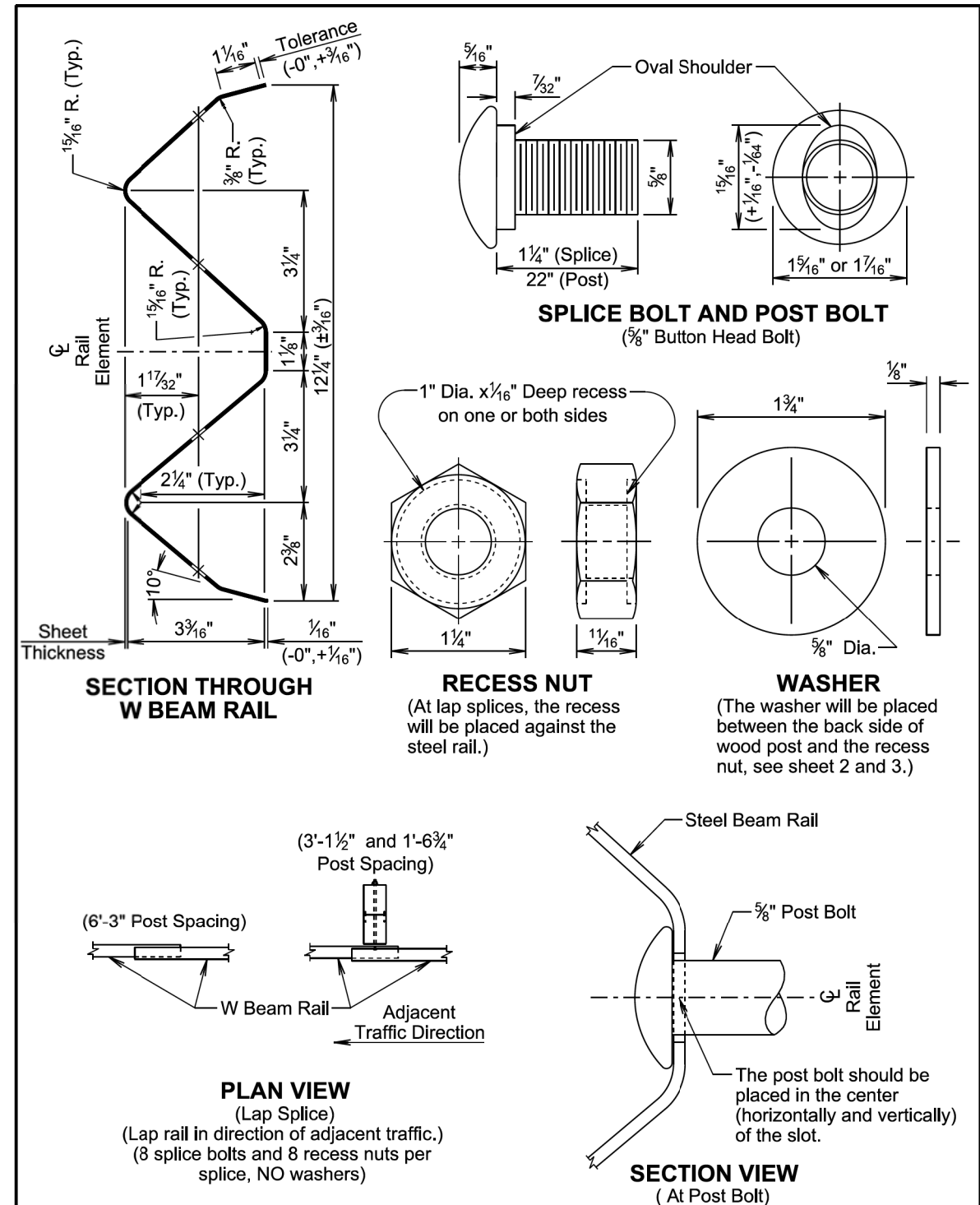
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September 14, 2019

Published Date: 2025	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 5 of 6



September 14, 2019

Published Date: 2025	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS)	PLATE NUMBER 630.20
			Sheet 6 of 6

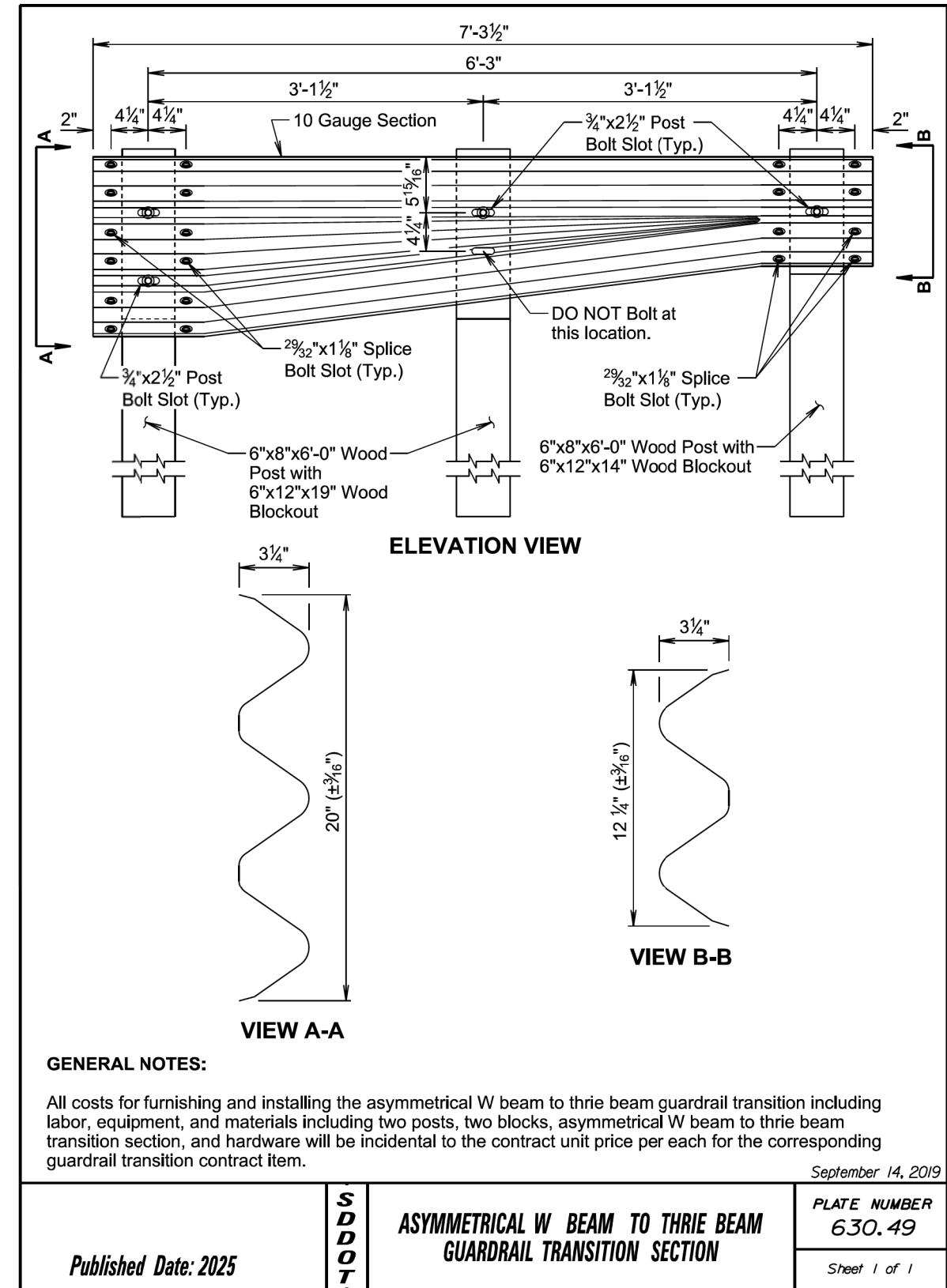
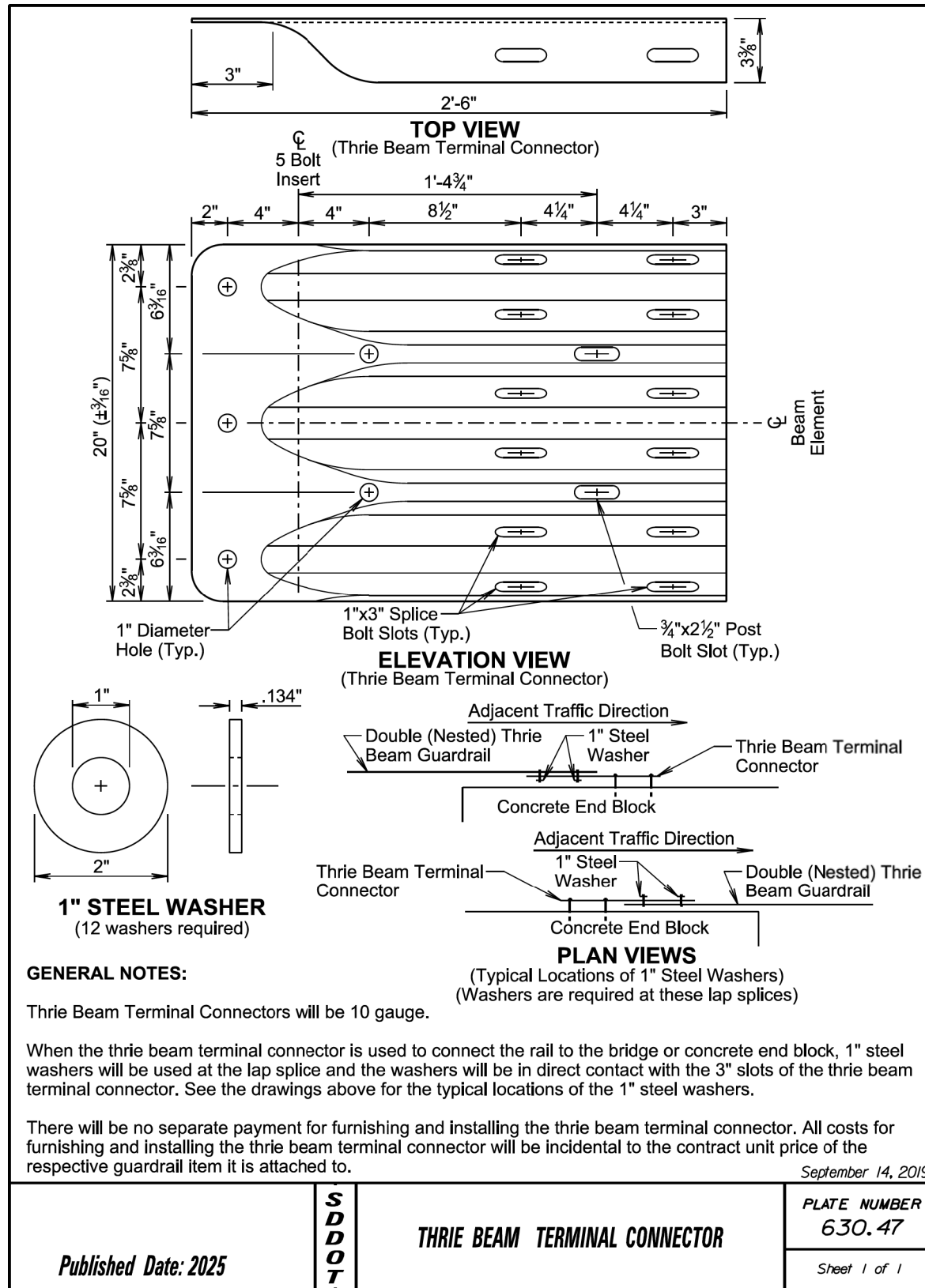
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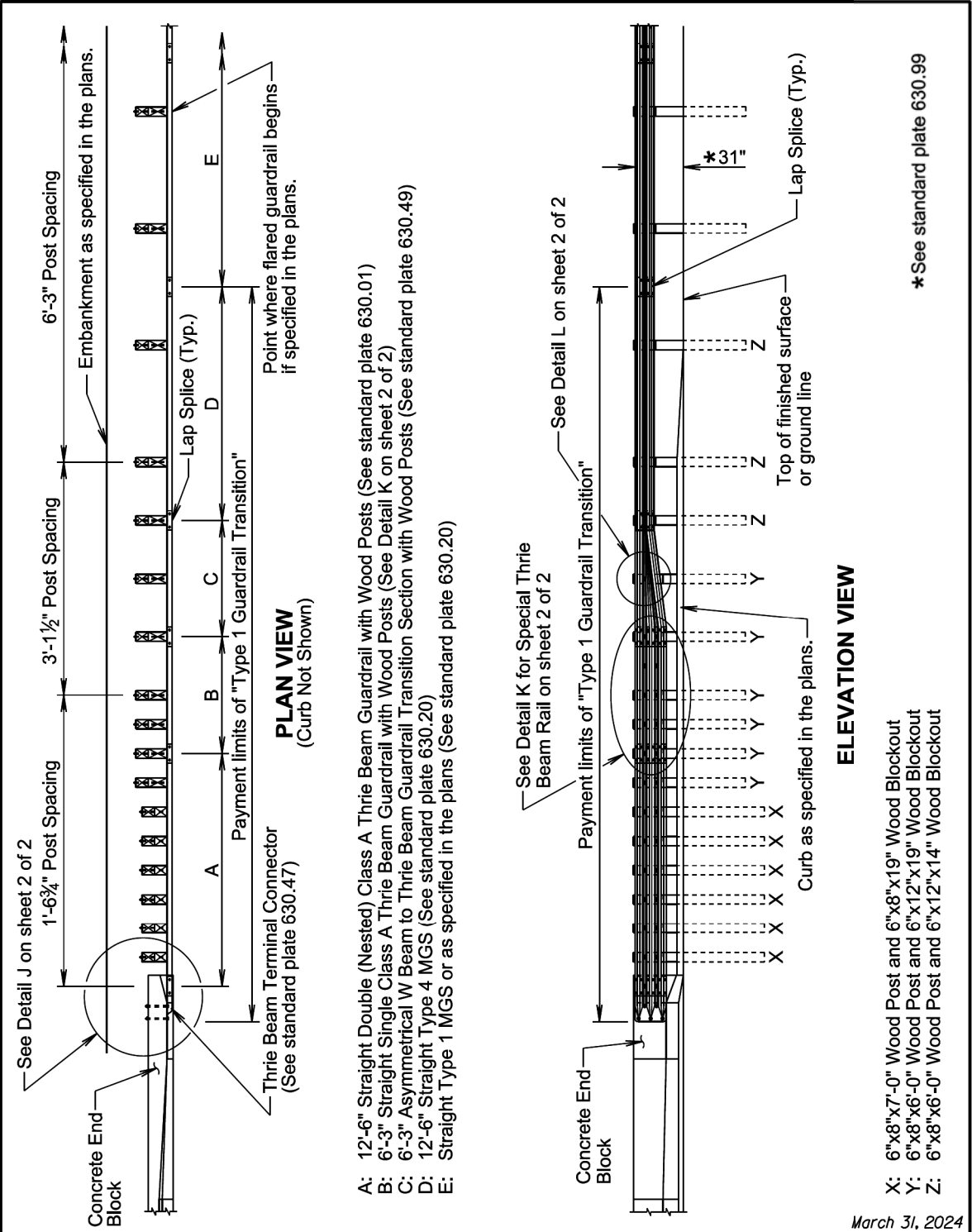
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16

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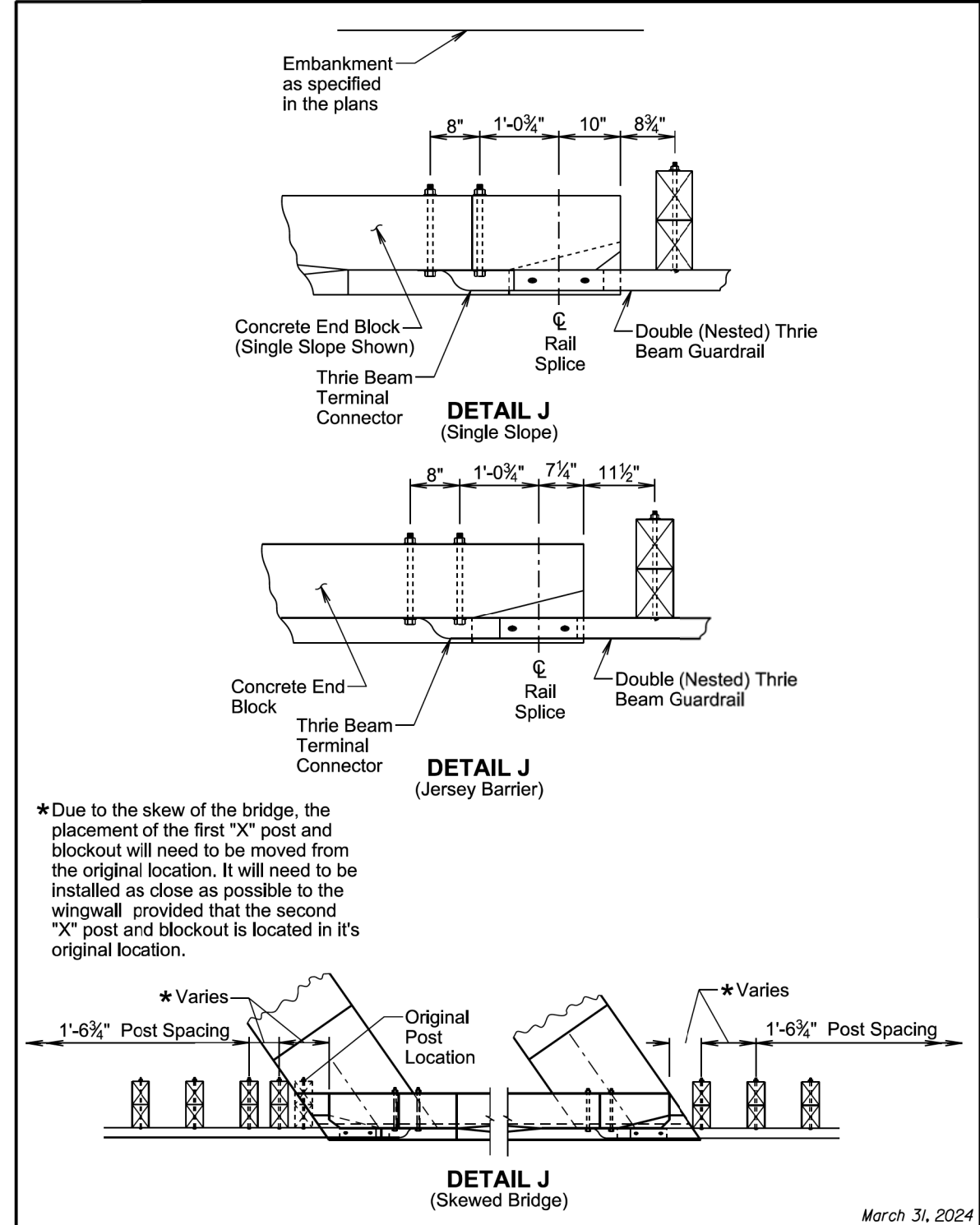


- A: 12'-6" Straight Double (Nested) Class A Thrrie Beam Guardrail with Wood Posts (See standard plate 630.01)
- B: 6'-3" Straight Single Class A Thrrie Beam Guardrail with Wood Posts (See Detail K on sheet 2 of 2)
- C: 6'-3" Asymmetrical W Beam to Thrrie Beam Guardrail Transition Section with Wood Posts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

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

March 31, 2024

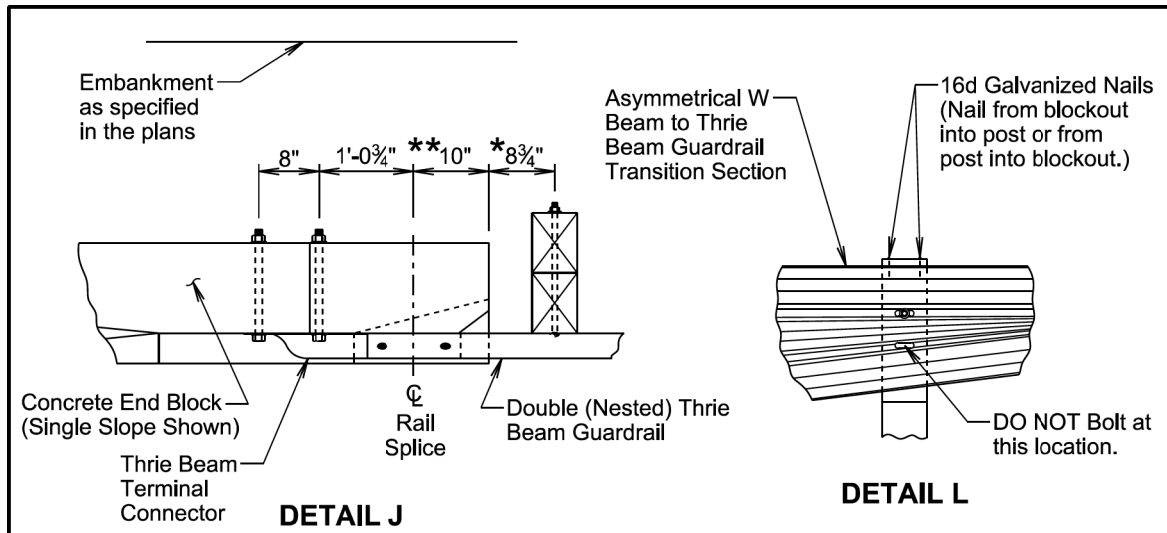
Published Date: 2025	S D D O T	TYPE 1 GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.50
			Sheet 1 of 3



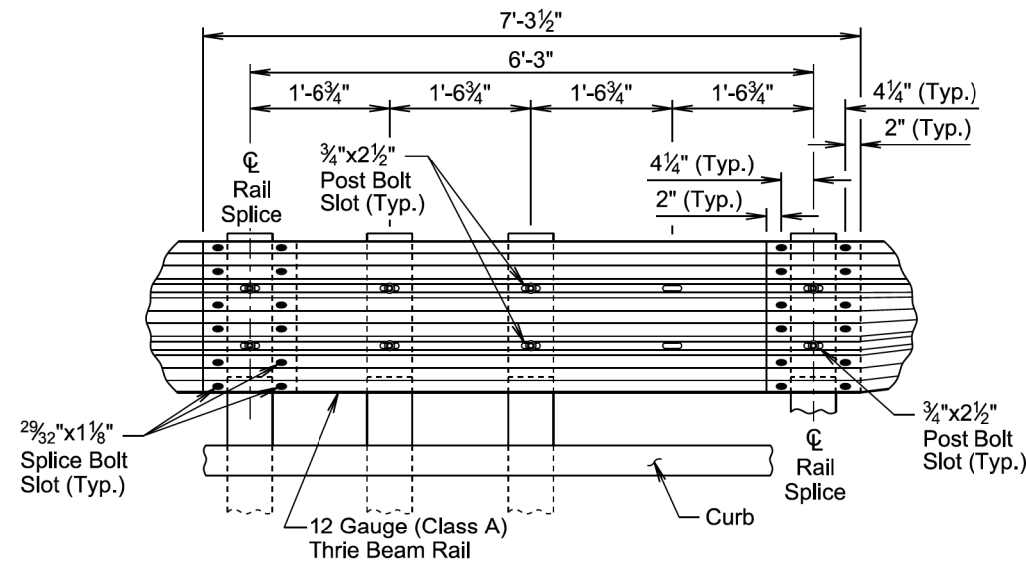
*Due to the skew of the bridge, the placement of the first "X" post and blockout will need to be moved from the original location. It will need to be installed as close as possible to the wingwall provided that the second "X" post and blockout is located in its original location.

March 31, 2024

Published Date: 2025	S D D O T	TYPE 1 GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.50
			Sheet 2 of 3



Jersey Barrier Dimensions are **7 1/4" and *11 1/2"



DETAIL K
(Special Thrie Beam Rail)

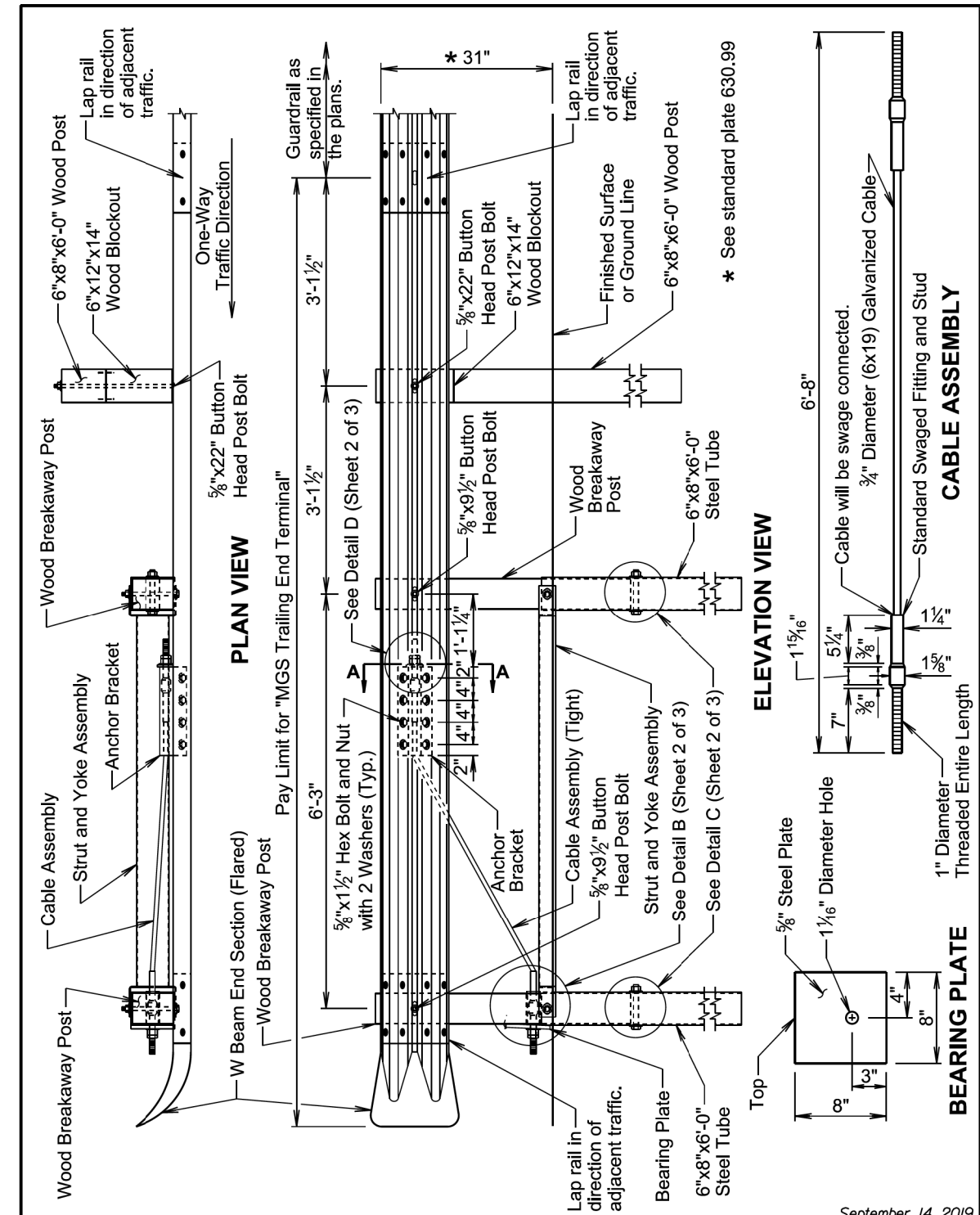
GENERAL NOTES:

Throughout the type 1 guardrail transition, slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.

All costs for furnishing and installing the type 1 guardrail transition including labor, equipment, and materials which includes all rail sections, posts and blockouts, hardware, and incidentals will be included in the contract unit price per each for "Type 1 Guardrail Transition".

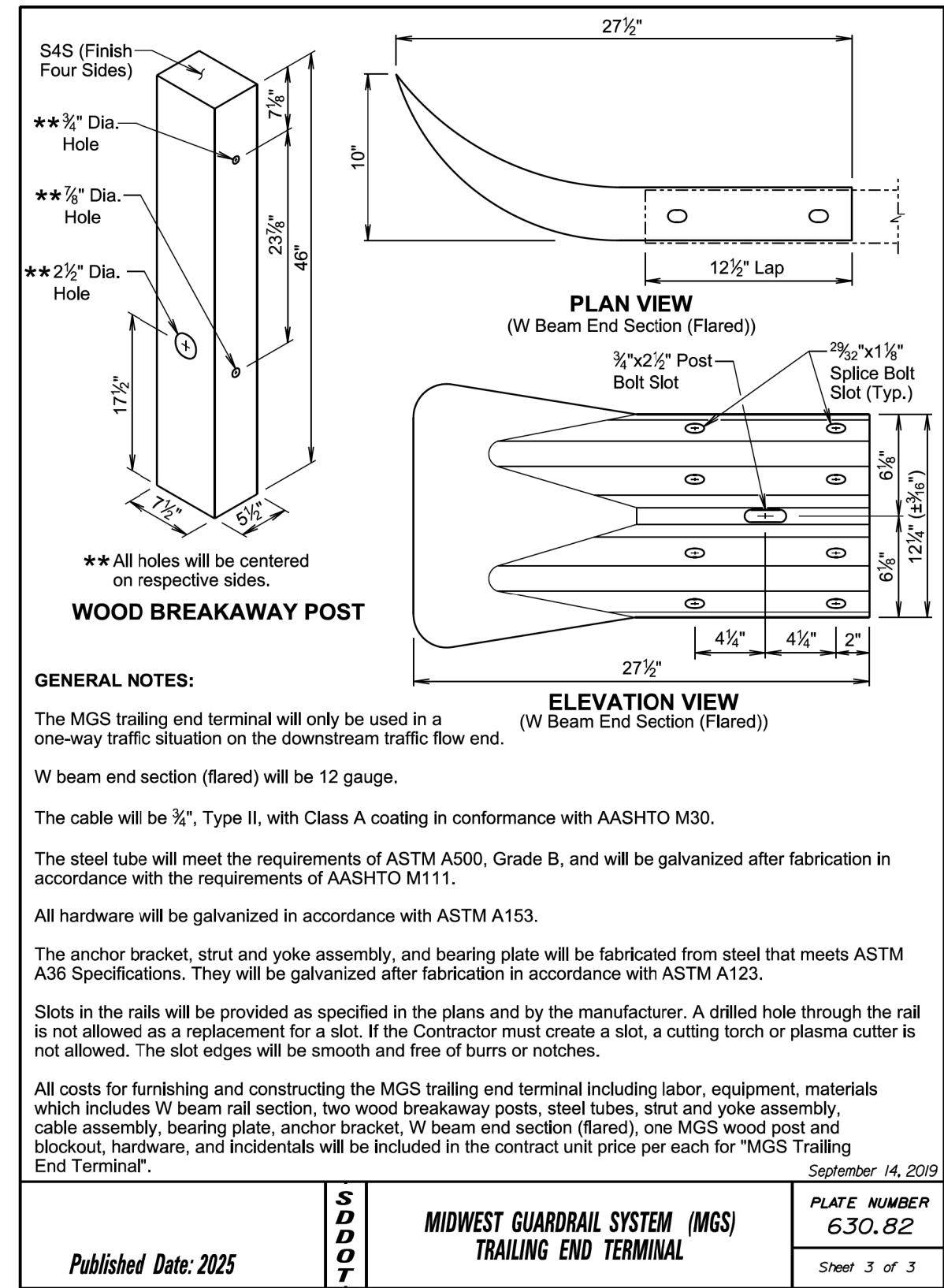
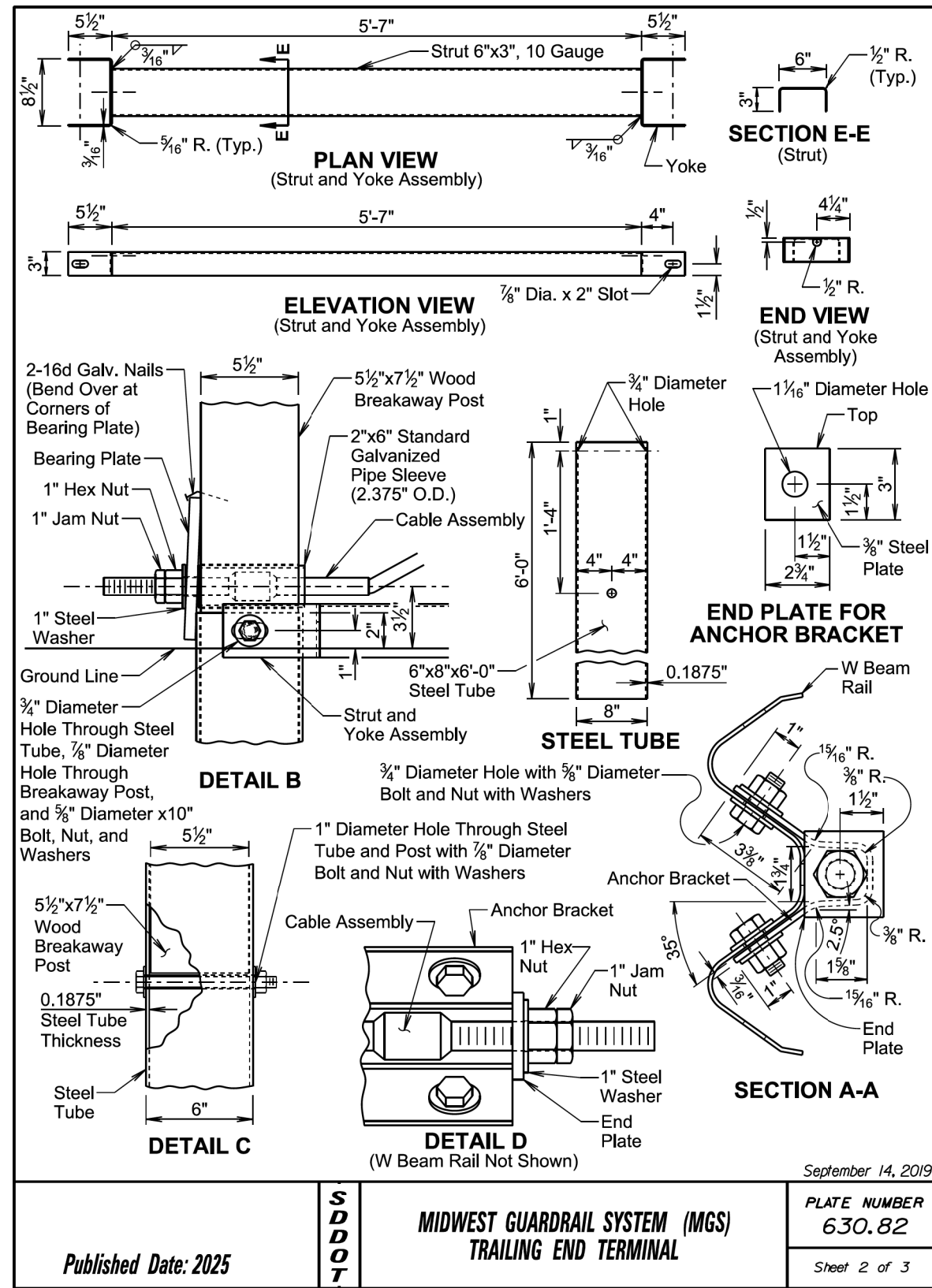
March 31, 2024

Published Date: 2025	S D D O T	TYPE 1 GUARDRAIL TRANSITION (CONCRETE END BLOCK TO MIDWEST GUARDRAIL SYSTEM (MGS))	PLATE NUMBER 630.50
			Sheet 3 of 3



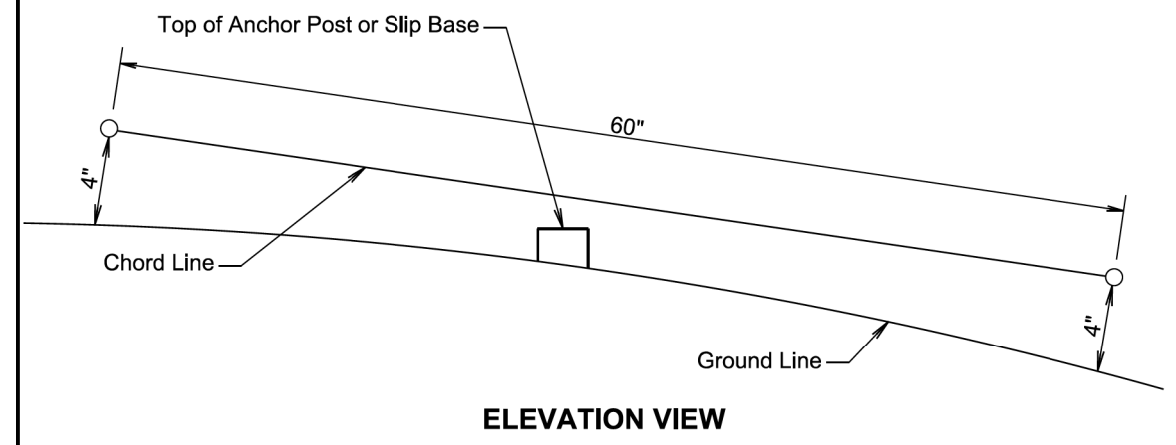
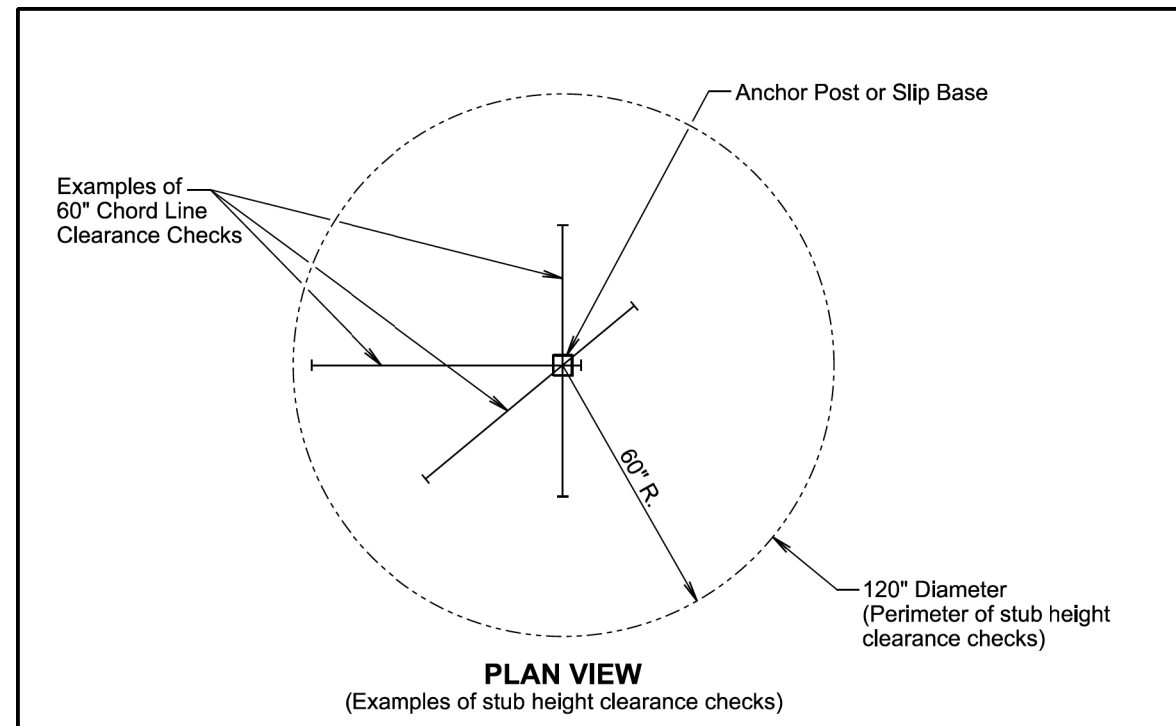
September 14, 2019

Published Date: 2025	S D D O T	MIDWEST GUARDRAIL SYSTEM (MGS) TRAILING END TERMINAL	PLATE NUMBER 630.82
			Sheet 1 of 3



GENERAL NOTES:

- The MGS trailing end terminal will only be used in a one-way traffic situation on the downstream traffic flow end.
- W beam end section (flared) will be 12 gauge.
- The cable will be 3/4", Type II, with Class A coating in conformance with AASHTO M30.
- The steel tube will meet the requirements of ASTM A500, Grade B, and will be galvanized after fabrication in accordance with the requirements of AASHTO M111.
- All hardware will be galvanized in accordance with ASTM A153.
- The anchor bracket, strut and yoke assembly, and bearing plate will be fabricated from steel that meets ASTM A36 Specifications. They will be galvanized after fabrication in accordance with ASTM A123.
- Slots in the rails will be provided as specified in the plans and by the manufacturer. A drilled hole through the rail is not allowed as a replacement for a slot. If the Contractor must create a slot, a cutting torch or plasma cutter is not allowed. The slot edges will be smooth and free of burrs or notches.
- All costs for furnishing and constructing the MGS trailing end terminal including labor, equipment, materials which includes W beam rail section, two wood breakaway posts, steel tubes, strut and yoke assembly, cable assembly, bearing plate, anchor bracket, W beam end section (flared), one MGS wood post and blockout, hardware, and incidentals will be included in the contract unit price per each for "MGS Trailing End Terminal".



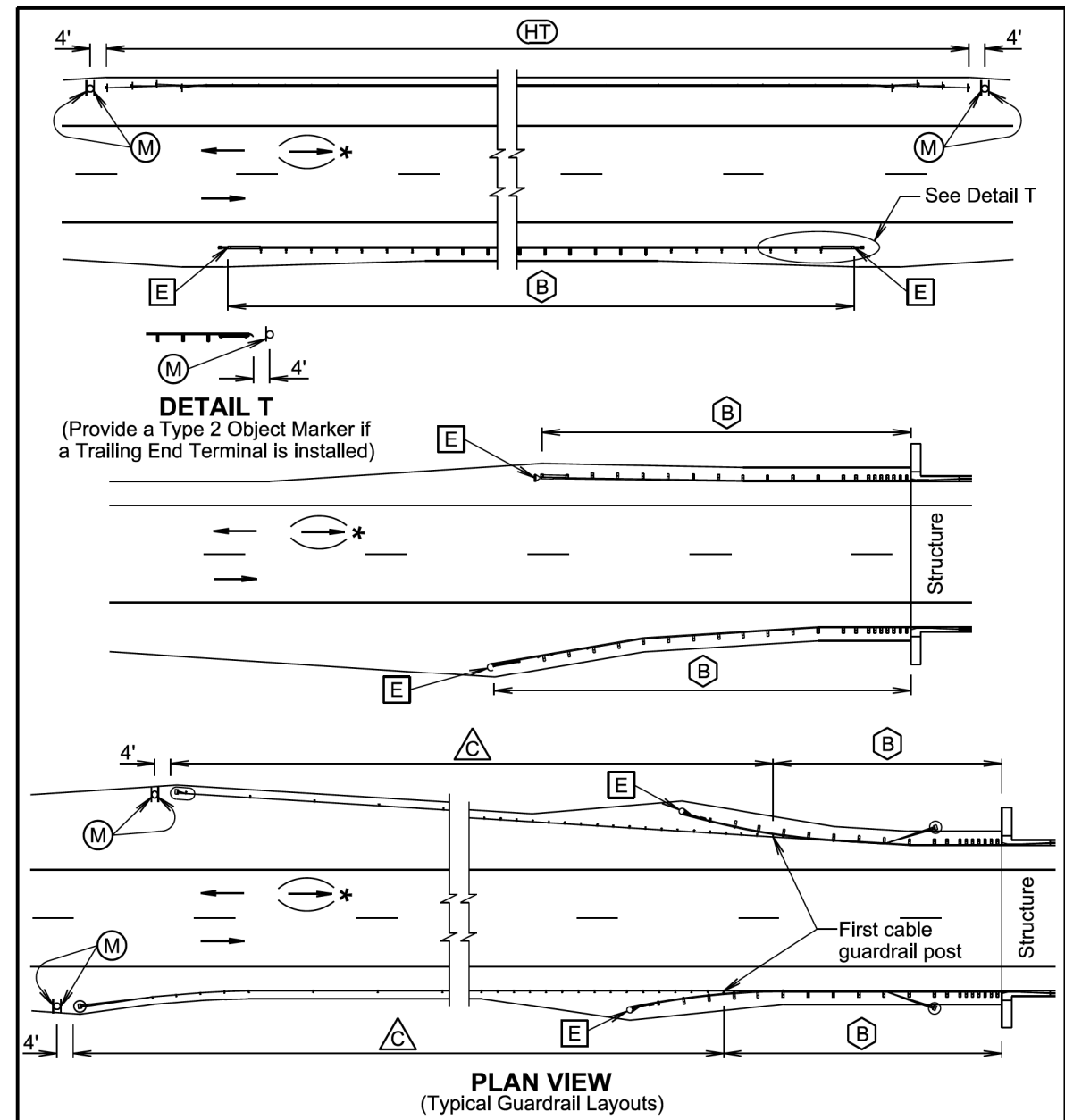
GENERAL NOTES:

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.

January 22, 2021

Published Date: 2025	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 632.18
			Sheet 1 of 1

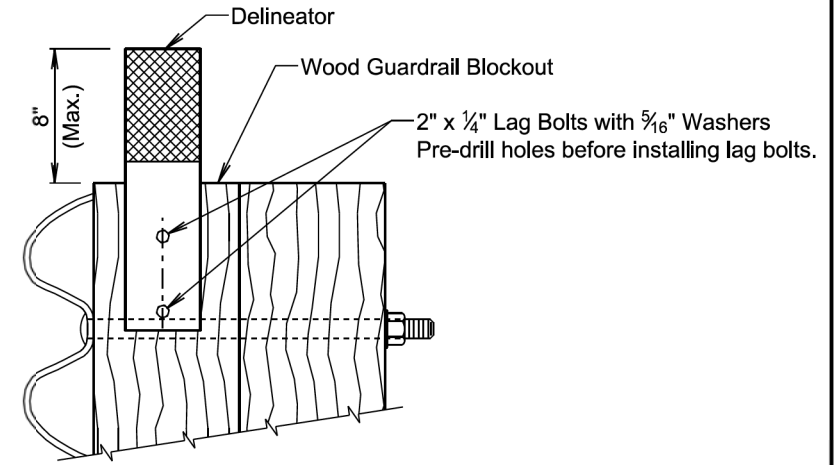


- (B) Steel Beam Guardrail Delineation
- (HT) High Tension Cable Guardrail Delineation
- (E) Guardrail End Terminal Object Marker
- (M) Type 2 Object Marker
- (C) 3 Cable Guardrail (Low Tension) Delineation

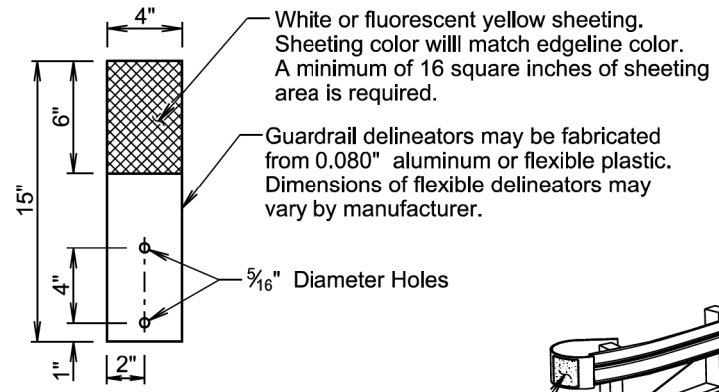
*For two-way traffic, install delineation at the opposite end of structure the same as shown. Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

March 31, 2024

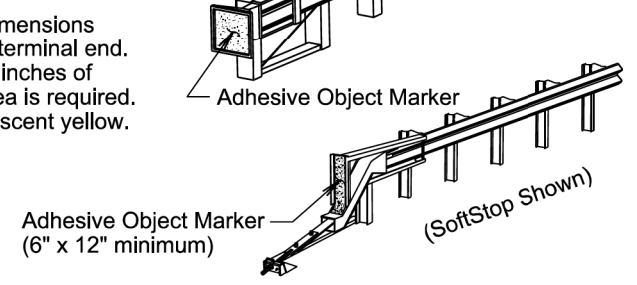
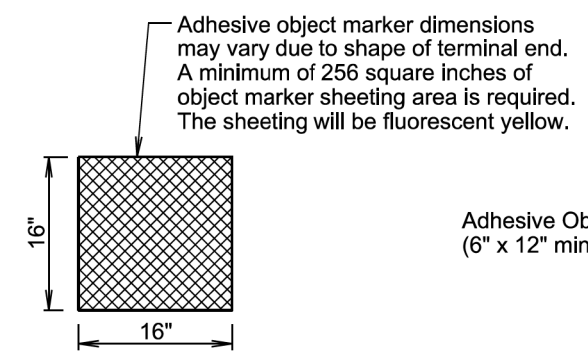
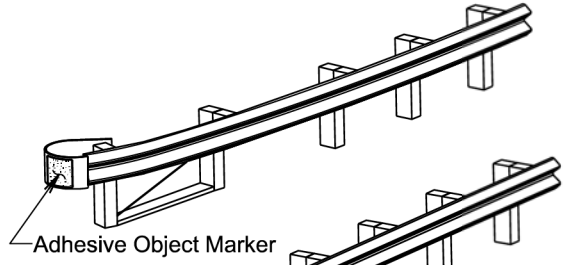
Published Date: 2025	S D D O T	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 1 of 4



(B) STEEL BEAM GUARDRAIL DELINEATION



DELINEATOR
(For Steel Beam Guardrail)

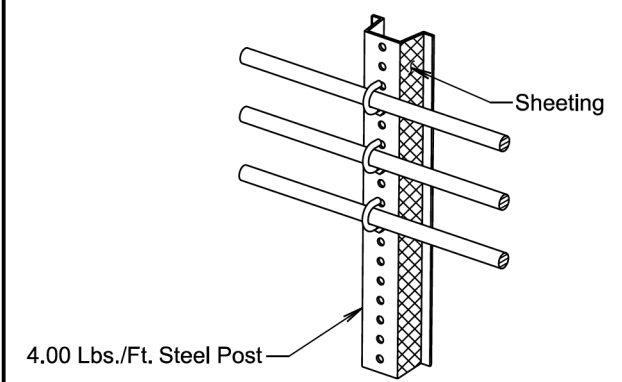


(E) GUARDRAIL END TERMINAL OBJECT MARKER

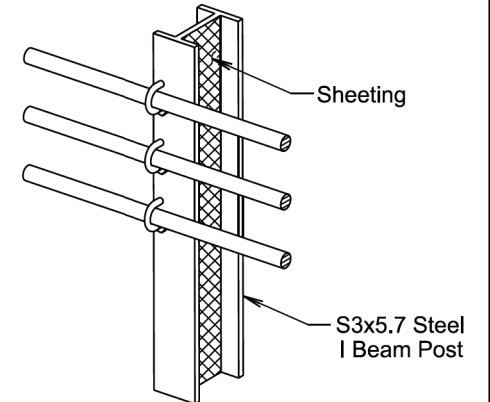
ADHESIVE OBJECT MARKER

March 31, 2024

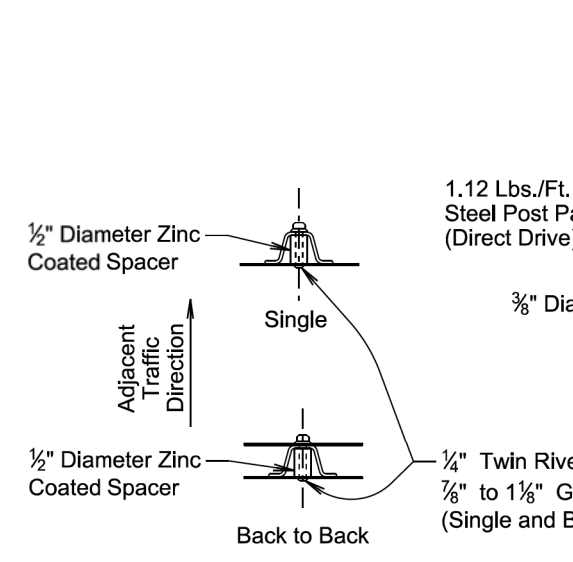
Published Date: 2025	S D D O T	DELINEATION GUARDRAIL	PLATE NUMBER 632.40
			Sheet 2 of 4



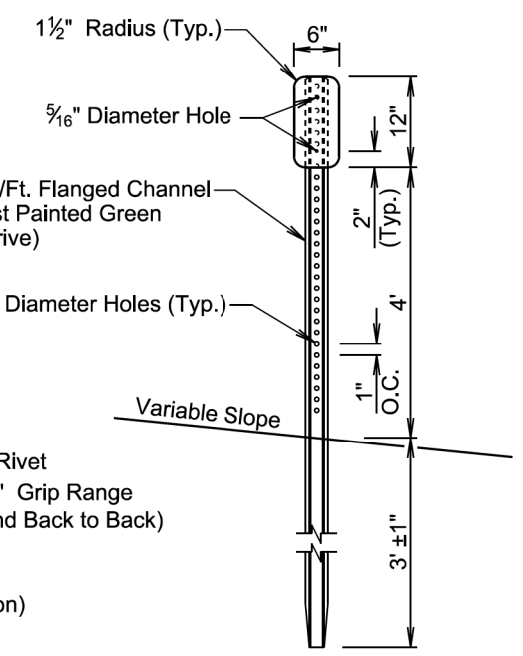
(C) 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



(C) 3 CABLE GUARDRAIL (LOW TENSION) DELINEATION



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



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

March 31, 2024

Published Date: 2025	S D D O T	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
			Sheet 3 of 4

GENERAL NOTES:

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

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

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

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

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

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

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

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

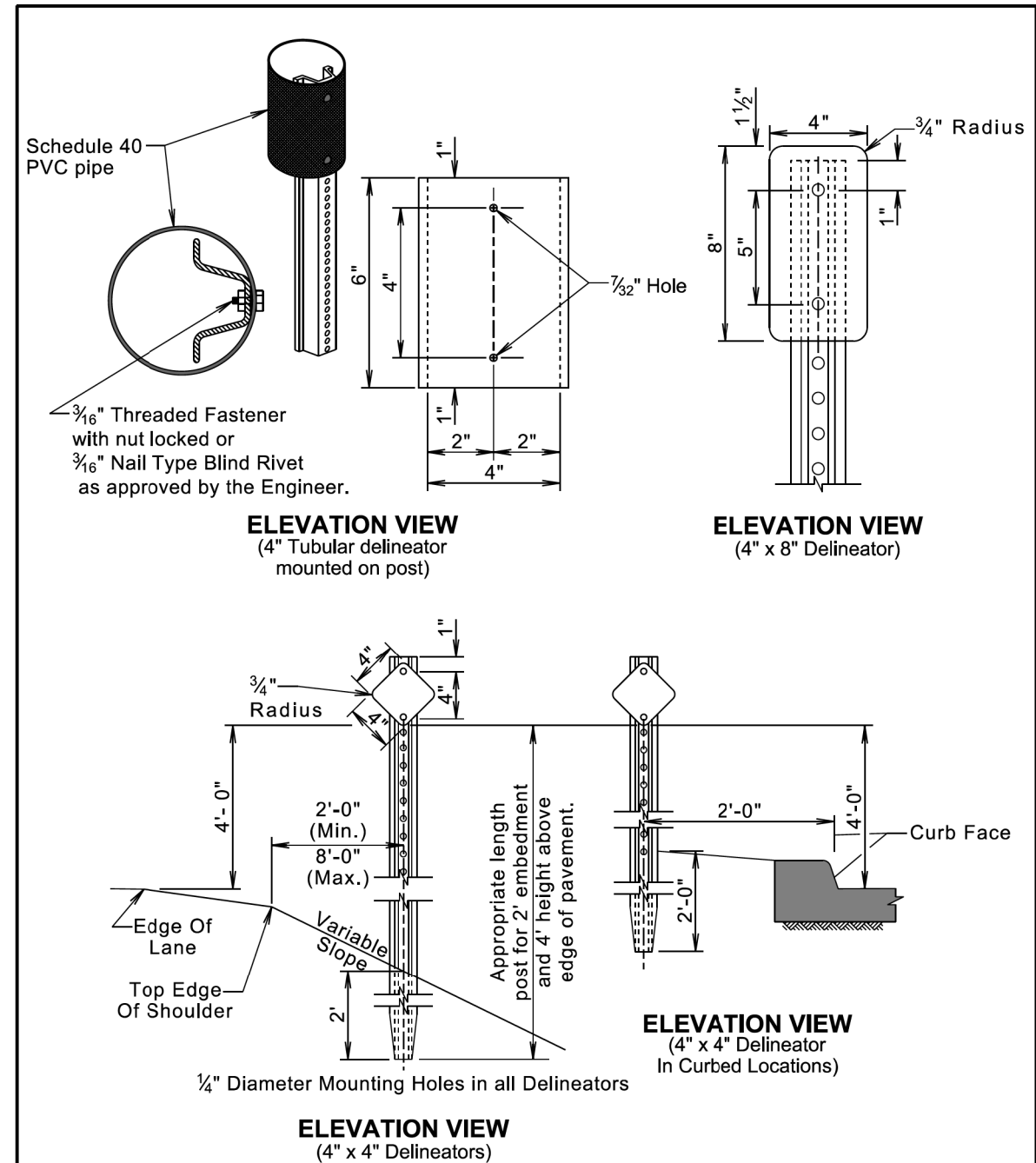
All costs for furnishing and installing the reflective sheeting on the cable spacers or post caps for the high tension cable guardrail will be incidental to the respective high tension cable guardrail contract item.

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

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

March 31, 2024

S D D O T	DELINEATION OF GUARDRAIL	PLATE NUMBER 632.40
		Sheet 4 of 4
Published Date: 2025		

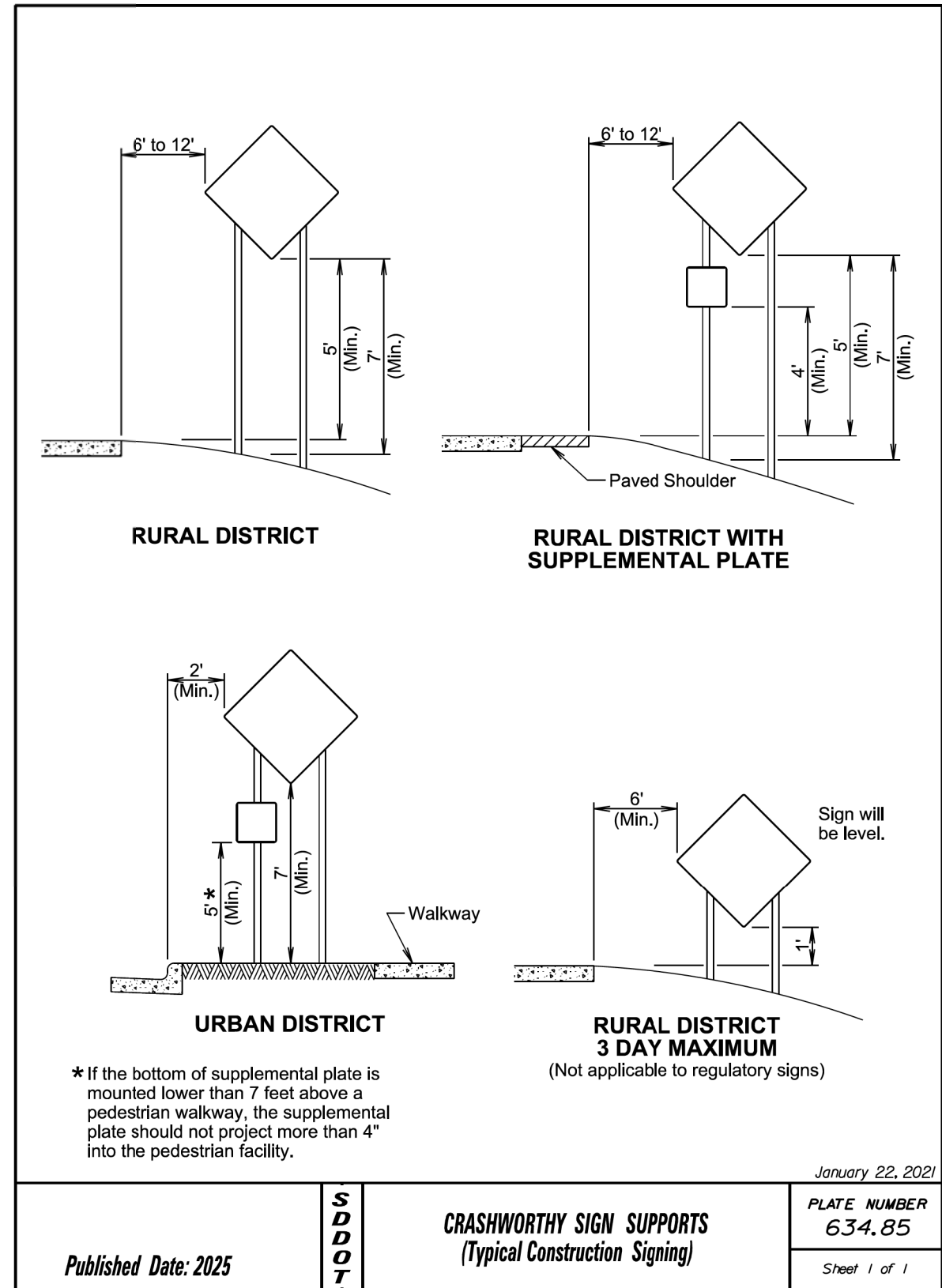
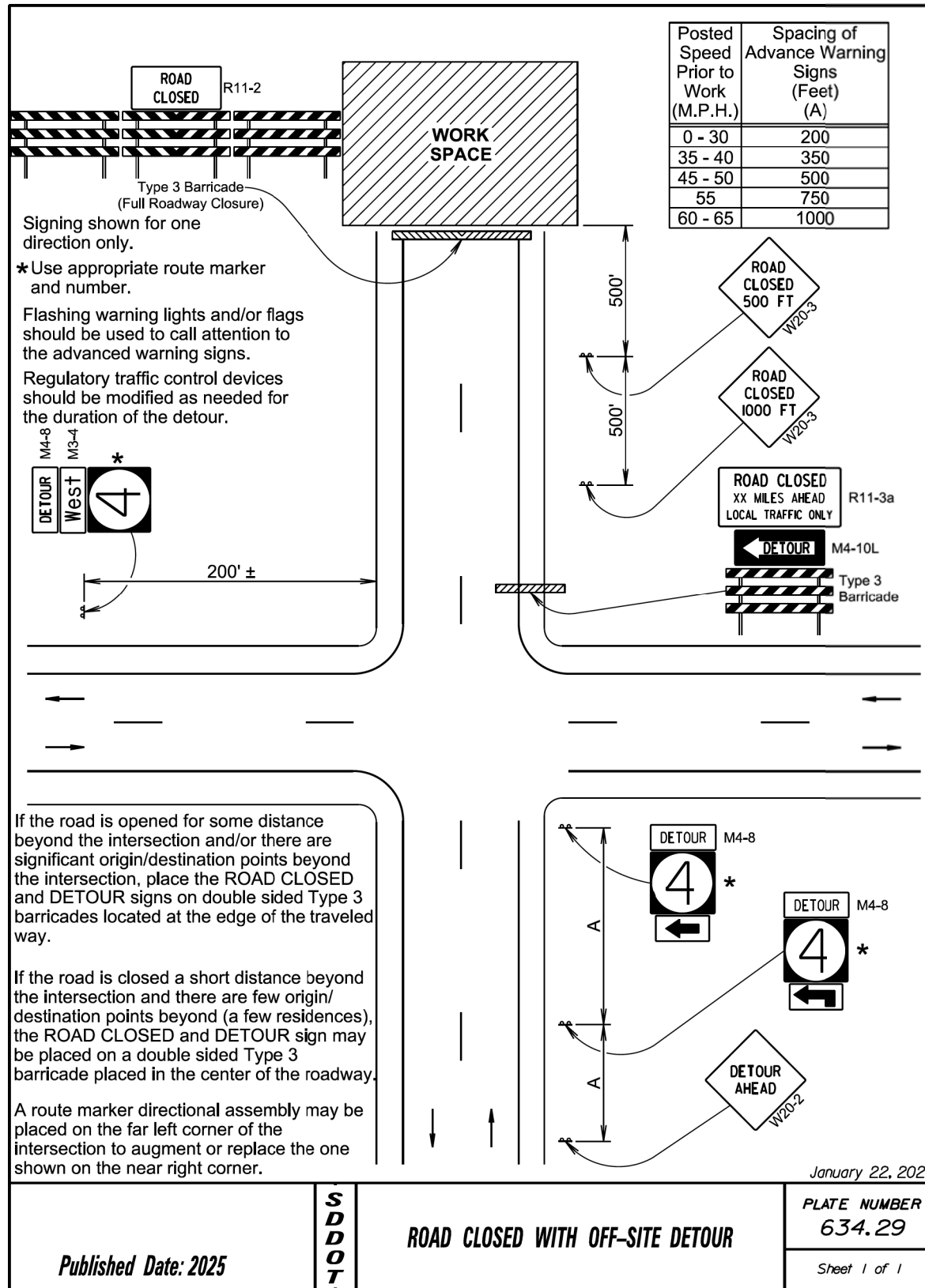


GENERAL NOTES:

Back-to-back delineation is required for two-way traffic, single-sided delineation for one-way traffic.

March 31, 2024

S D D O T	DELINEATOR INSTALLATION DETAIL	PLATE NUMBER 632.42
		Sheet 1 of 1
Published Date: 2025		

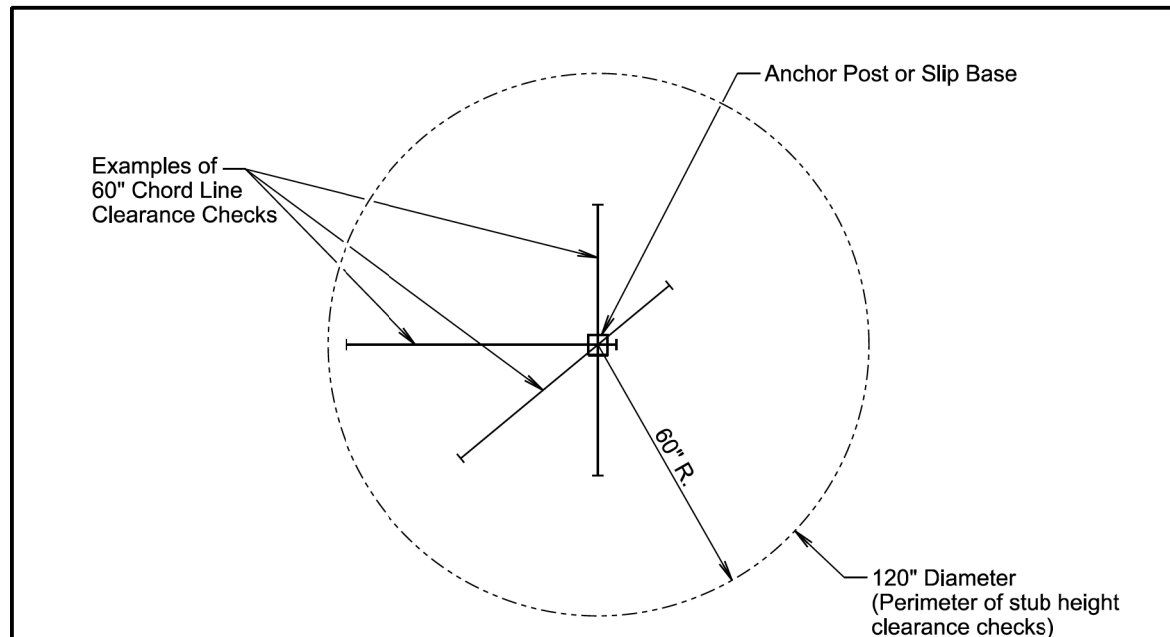


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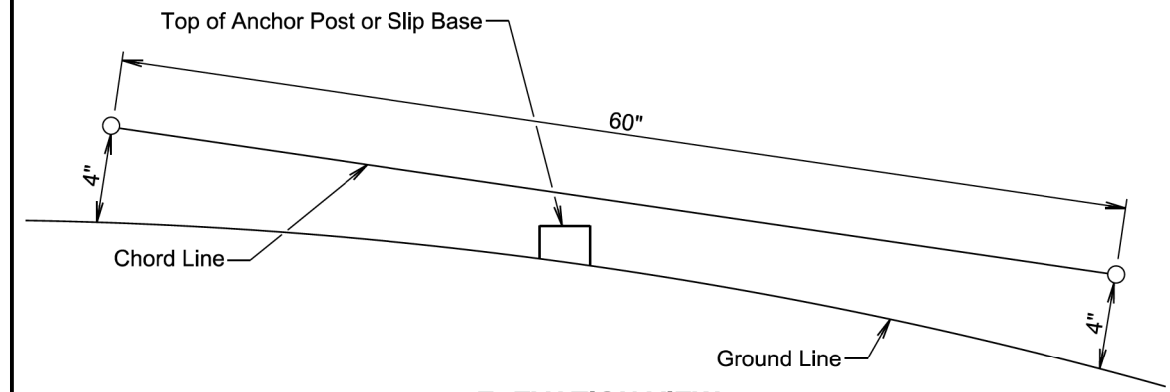
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PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

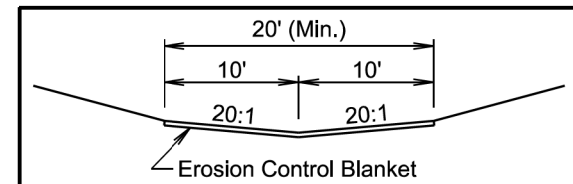
The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

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.

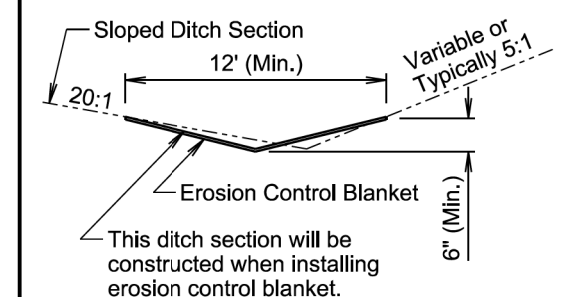
The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

January 22, 2021

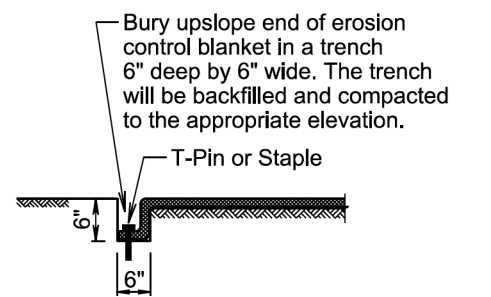
Published Date: 2025	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1



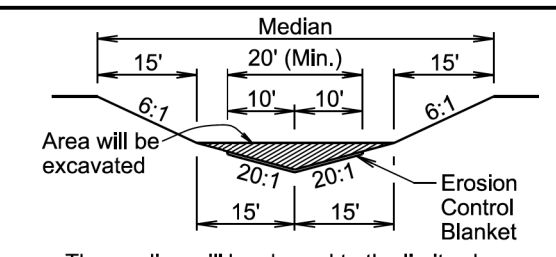
STANDARD DITCH SECTION



SLOPED DITCH SECTION

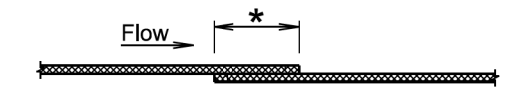


TRENCH DETAIL



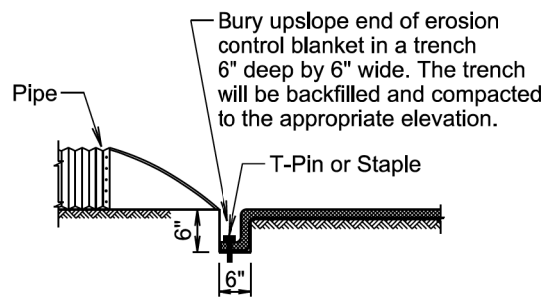
MEDIAN SECTION

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



- * Use a 4" (Min.) overlap wherever two widths of erosion control blanket are applied side by side.
- * Use a 6" (Min.) overlap wherever one roll of erosion control blanket ends and another begins.

OVERLAP DETAIL



PIPE END DETAIL

GENERAL NOTES:

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

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

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

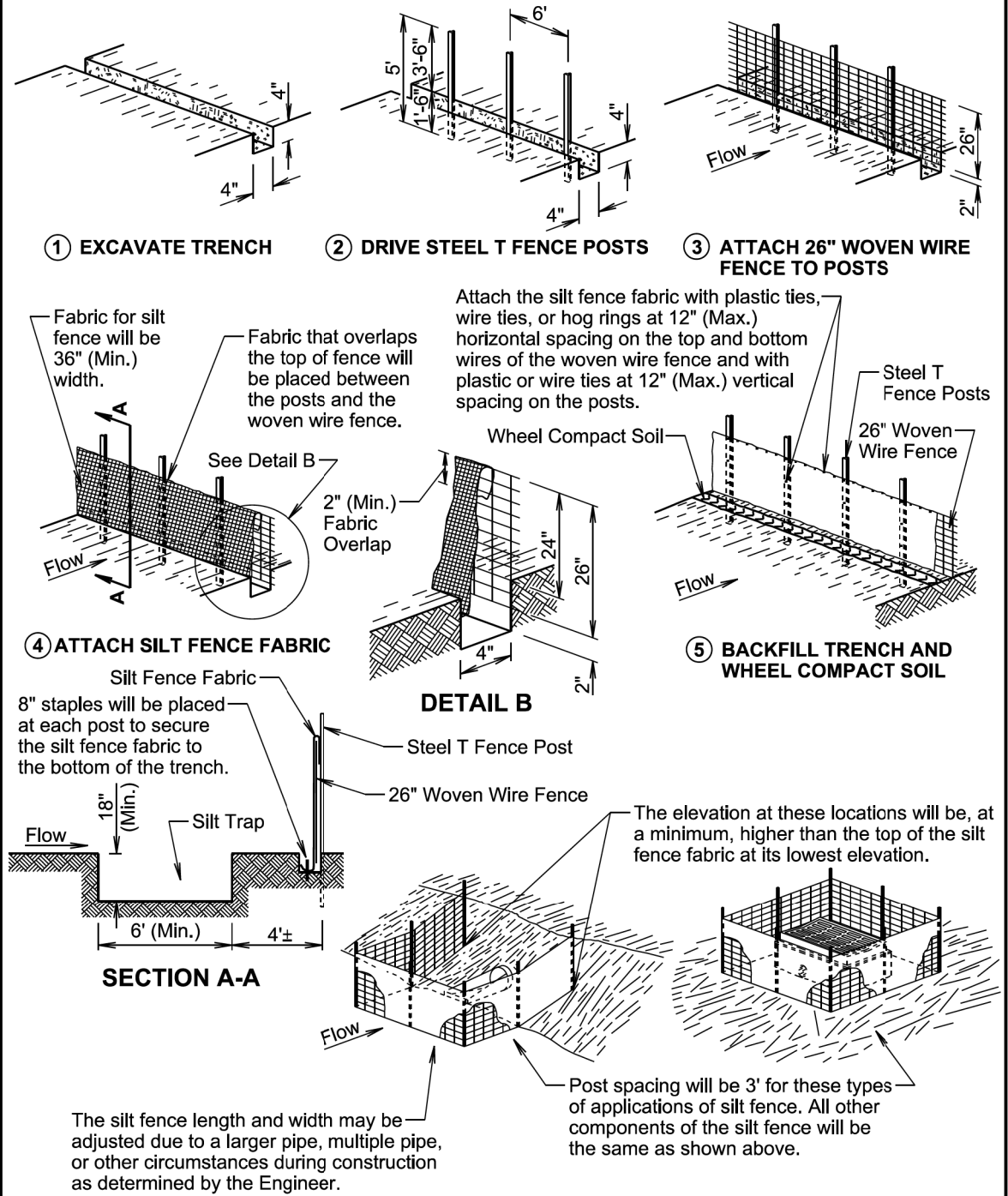
After the placement of the erosion control blanket, the Contractor will fine grade along all edges of the blanket to maintain a uniform slope adjacent to the blanket and level any low spots which might prevent uniform and unrestricted flow of side drainage directly onto the erosion control blanket.

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

February 14, 2020

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

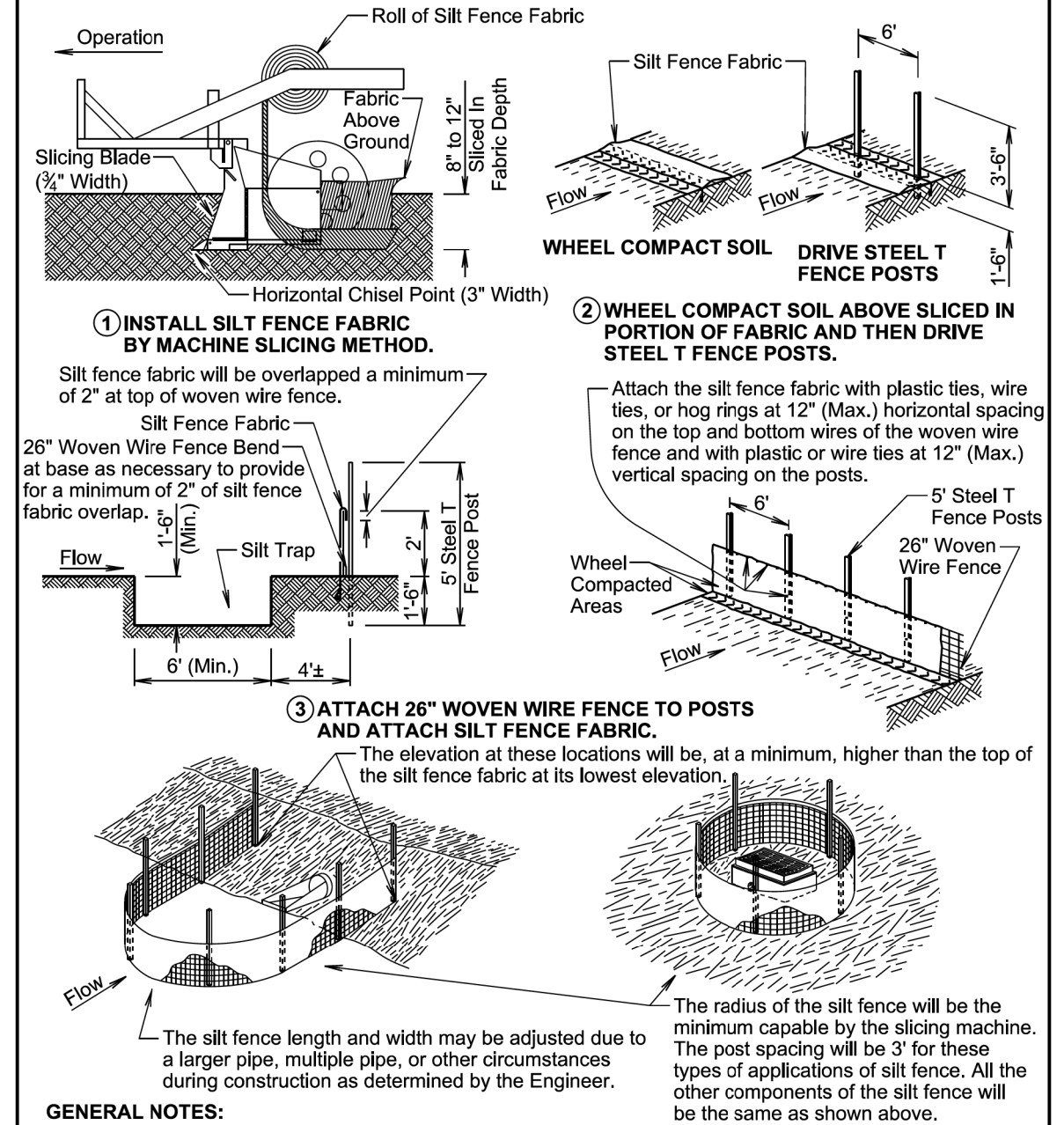
MANUAL LOW FLOW SILT FENCE INSTALLATION



February 14, 2020

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

MACHINE SLICED LOW FLOW SILT FENCE INSTALLATION



February 14, 2020

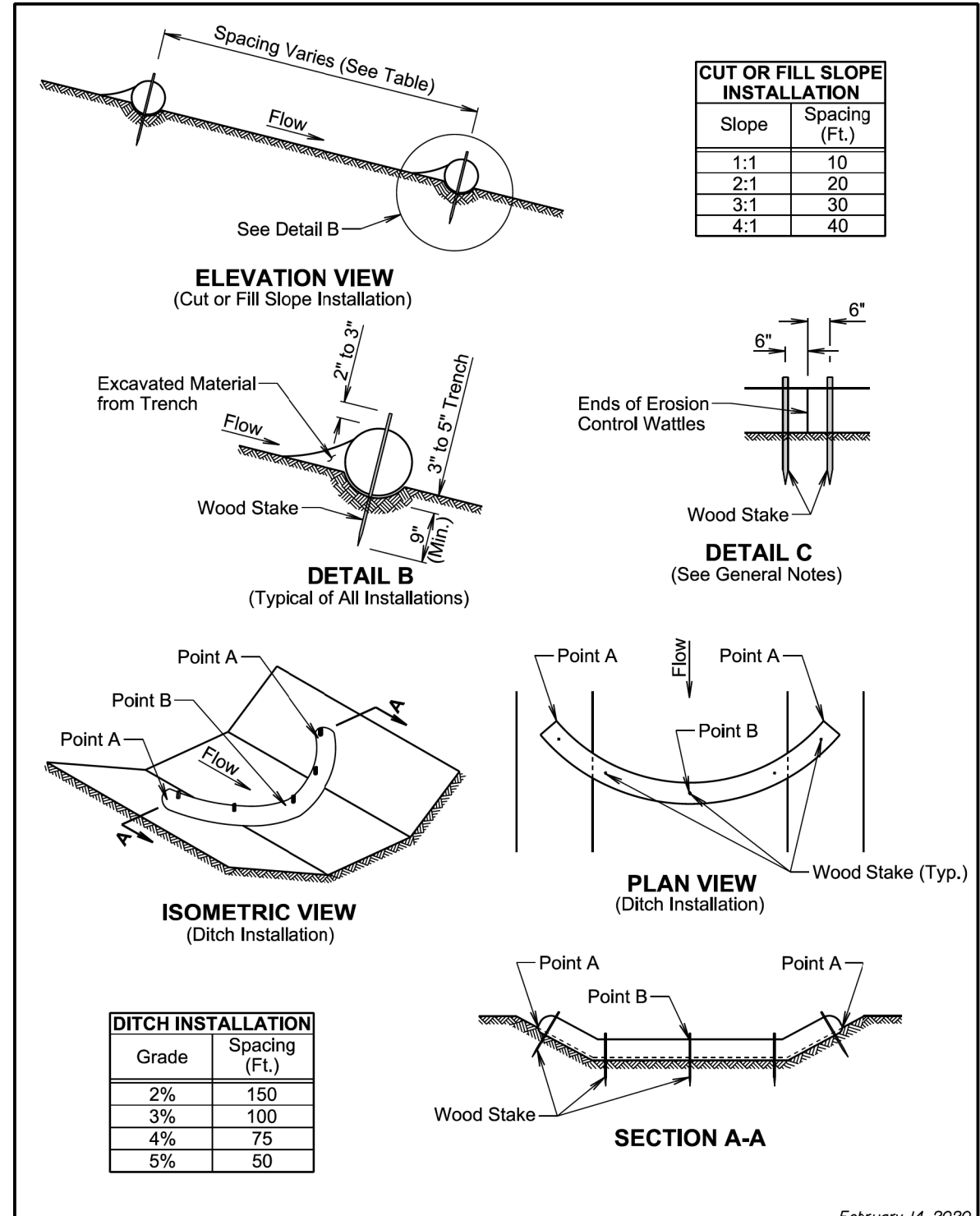
Published Date: 2025	S D D O T	LOW FLOW SILT FENCE AND SILT TRAP	PLATE NUMBER 734.04
			Sheet 2 of 2

Plot Scale - 1:200

Plotted From -

Plot Name -

File - ...Eng_Docs\Sheets\StdPlate.dgn



February 14, 2020

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

GENERAL NOTES:

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

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

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

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

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

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

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

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

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

February 14, 2020

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

Plot Scale - 1:200

Plotted From -

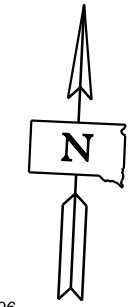
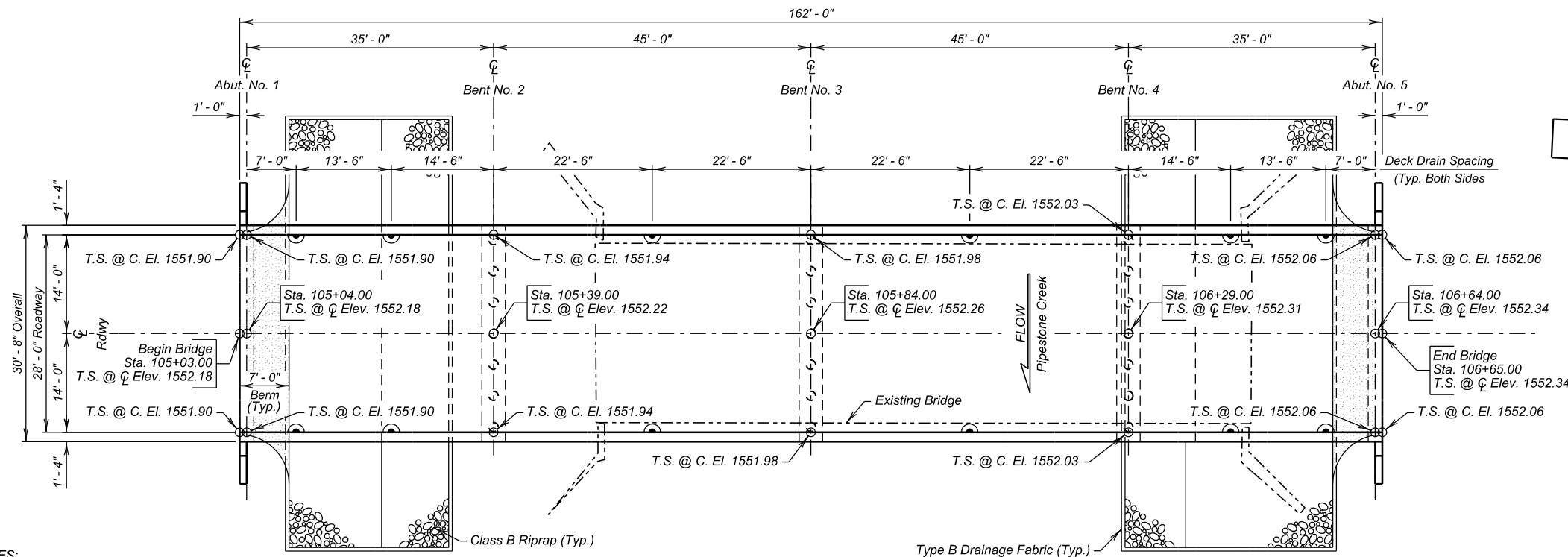
Plot Name -

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

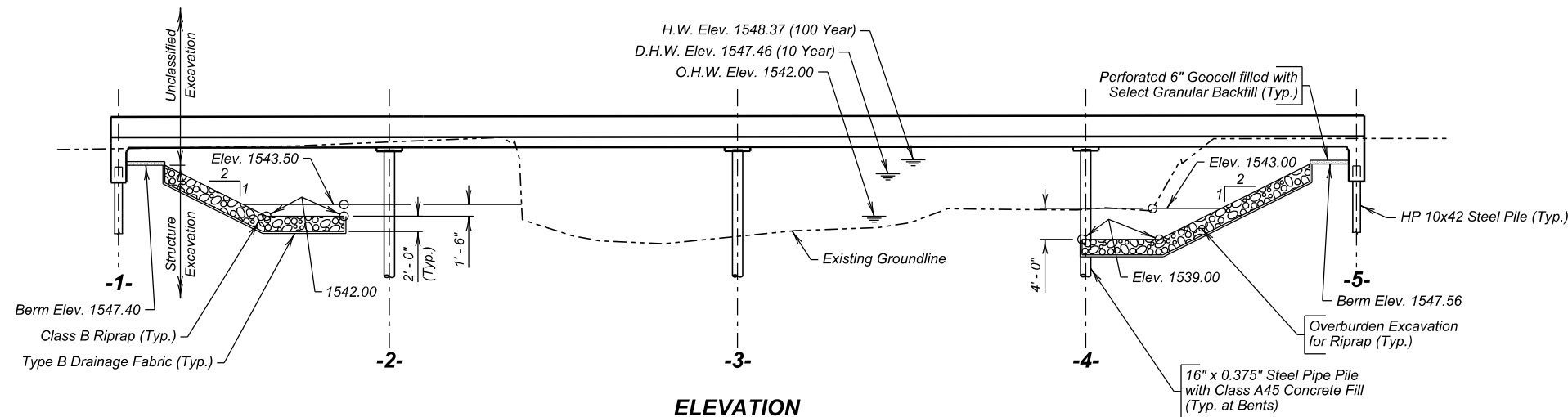
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8051(16)	40	66

FOR BIDDING PURPOSES ONLY



NOTES:
T. S. at ∇ El. = Top of Slab at Centerline Elevation
T. S. at C. El. = Top of Slab at Curb Elevation

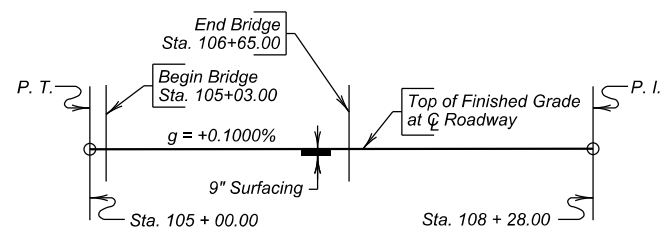
PLAN



ELEVATION

P. T. Sta. 105 + 00.00
Elev. = 1552.18 (Finished)

P. I. Sta. 108 + 28.00
Elev. = 1552.50 (Finished)



GRADELINE DATA

HYDRAULIC DATA

Q_d	2134 cfs
A_d	686 sq. ft.
V_d	3.1 fps
Q_F	4110 cfs
Q_{100}	10400 cfs
Q_{OT}	2890 cfs
V_{max}	4.3 fps

Q_d = Design discharge for the proposed bridge based on 10 year frequency, El. 1547.46.
 Q_{OT} = Overtopping discharge and frequency 6 year recurrence interval, El. 1547.19 @ Sta. 92+04.00.
 Q_F = Designated peak discharge for the basin approaching proposed project based on 10 year frequency.
 Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency, El. 1548.37.
 V_{max} = maximum computed outlet velocity for the proposed bridge, based on a 100 year frequency.

PLANS BY:
ALFRED BENESCH & CO.



◆Topeka Shiner Stream

GENERAL DRAWING

FOR

162' - 0" CONT. CONCRETE BRIDGE

28' - 0" ROADWAY 0° SKEW
OVER PIPESTONE CREEK SEC. 20/29-T105N-R47W
STA. 105+03.00 TO 106+65.00 BRO-B 8051(16)
STR. NO. 51-195-220 HL-93
PCN 085Q

MOODY COUNTY

S. D. DEPT. OF TRANSPORTATION

JULY 2023

1 OF 16

-X020-

DESIGNED BY MJK	CK. DES. BY ZZJ	DRAFTED BY NTF	BRIDGE ENGINEER
MOOD085Q	085QAB01		

Revised: 8/23/2023 AMB

ESTIMATE OF STRUCTURE QUANTITIES

DESCRIPTION	QUANTITY	UNIT	REMARKS
Bridge Elevation Survey	Lump Sum	LS	
Incidental Work, Structure	Lump Sum	LS	
Select Granular Backfill	11.5	Ton	
Structure Excavation, Bridge	16	Cu Yd	
Bridge End Embankment	175	CuYd	
Granular Bridge End Backfill	22.4	Cu Yd	
Class A45 Concrete, Bridge Deck	281.2	Cu Yd	
Class A45 Concrete, Bridge	85.8	Cu Yd	
Deck Drain, Slab Bridge	12	Each	
Reinforcing Steel	2156	Lb	
Epoxy Coated Reinforcing Steel	85143	Lb	
Preboring Pile	80	Ft	
HP 10x42 Steel Test Pile, Furnish and Drive	150	Ft	
HP 10x42 Steel Bearing Pile, Furnish and Drive	420	Ft	
16"x0.375" Steel Pipe Test Pile, Furnish and Drive	210	Ft	
16"x0.375" Steel Pipe Bearing Pile, Furnish and Drive	1170	Ft	
Class B Riprap	549	Ton	
Overburden Excavation for Riprap	306	Cu Yd	
Type B Drainage Fabric	551	Sq Yd	
Perforated Geocell	328	Sq Ft	

SPECIFICATIONS FOR BRIDGE

- 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

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

DESIGN MATERIAL STRENGTHS

Concrete	$f'c = 4,500$ psi
Reinforcing Steel	$f_y = 60,000$ psi
Pipe Piles (ASTM A252 Grade 3)	$f_y = 45,000$ psi
H-Piles (ASTM A572 Grade 50)	$f_y = 50,000$ psi

GENERAL CONSTRUCTION

- All reinforcing will conform to ASTM A615, Grade 60.
- 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.
- Contractor will imprint on the structure the date of new construction as specified and detailed on Standard Plate No. 460.02.
- Barrier curbs and end blocks will be built perpendicular to the roadway grade line.
- Request 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 9" above subgrade elevation.
- Bridge berms will be constructed to the plans template prior to any pile driving or construction of abutment footings. See Standard Plate 120.11. Berm slopes will not be disturbed after construction. Any alterations to the berm or slopes after berm construction will be submitted to the Bridge Construction Engineer for approval. Allow 30 days for review of proposals.

INCIDENTAL WORK, STRUCTURE

- In place centerline Sta. 105+53.50 to centerline Sta. 106+46.50 is a 91'-0" 3 span continuous-span concrete channel beam bridge with a 24.3' clear roadway, The superstructure consists of concrete precast panel deck and steel barrier rail. The substructure consists of reinforced concrete vertical abutments on unknown foundations.
- Break down and remove the existing bridges, and approach/sleeper slabs if applicable, to 1-foot below finished groundline, or as required to construct the new structure in accordance with Section 110 of the Construction Specifications. All portions of the existing bridges not salvaged for future highway related use will be removed and disposed of by the Contractor at an approved site. An appropriate site will be as described in the Environmental Commitments Notes in the plans.
- During demolition of the structures, efforts will be taken to prevent material from falling into the creek. Under no circumstances is asphalt allowed to fall into the creek.
- The foregoing is a general description of the in-place bridges and should not be construed to be complete in all details. Before preparing the bid it will be the responsibility of the Contractor to make a visual inspection of the structure to verify the extent of the work and materials involved. No original construction plans are available for this structure.

NOTICE - LEAD BASED PAINT

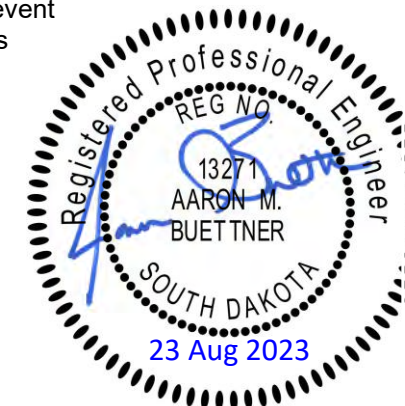
Be advised that the paint on the steel surfaces of the existing structures contain lead. The Contractor should plan his/her operations accordingly, and inform his/her employees of the hazards of lead exposure.

DESIGN MIX OF CONCRETE

- All structural concrete will be Class A45 unless otherwise indicated.
- Type II cement is required.

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 No. 510.40.
- Piles will not be driven out of position by more than three inches in the direction normal to the abutment centerline. A pile-driving template will be used to insure this accuracy.
- Each finished abutment will include a Bridge Survey Marker. See Standard Plate No. 460.05.



ESTIMATE OF STRUCTURE QUANTITIES AND NOTES FOR 162'-0" CONTINUOUS CONCRETE BRIDGE

Str. No. 51-195-220

JULY 2023

2 OF 16

DESIGNED BY MJK MOOD085Q	CH. DES. BY ZZJ 085QAB02	DRAFTED BY NTF	BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8051(16)	42	66

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
Pileco D25-32	Delmag D25-32	

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.

BENTS

1. Pipe pile can be driven to elevation 1515, but not below, prior to splicing. This will prevent setup before full bearing depth is reached, and will prevent the splice from being located in the bending zone of the pipe pile column.
2. Pipe piles will conform to ASTM A252, Grade 3. Pipe piles will be furnished, driven and spliced in accordance with Section 510 of the Construction Specifications.
3. A two component coal tar epoxy paint will be applied to the piles.
4. The 16x0.375 Pipe Piling were designed using a factored bearing resistance of 77 tons per pile. Piling will develop a field verified nominal bearing resistance of 194 tons per pile.
5. The Contractor will have sufficient pile splice material on hand before pile driving is started.
6. The maximum horizontal out of position tolerance at the cutoff elevation is 3 inches.
7. Piles will be driven closed end. The cost of the bottom end plate and welding of the same to the pile will be incidental to the contract unit price per foot for 16" x 0.375" Steel Pipe Bearing Pile, Furnish and Drive and 16" x 0.375" Steel Pipe Test Pile, Furnish and Drive.
8. The pipe piles will be filled with Class A45 Concrete. Placement of the concrete will conform to Section 460.3 of the Construction Specifications except that only the concrete in the top 4 feet of each pile need be vibrated. The concrete will be paid at the contract unit price per cubic yard for Class A45 Concrete, Bridge.

TWO COMPONENT COAL TAR EPOXY PAINT

1. A coating of Two Component (Self-Curing) Coal Tar Epoxy Paint conforming to Steel Structures Painting Council Specification SSPC-Paint 16. Coal Tar Epoxy Black (or Dark Red Paint) will be shop applied (as per the manufacturer's recommendations) to the entire outer surface of each pile and base plate prior to placement.

2. Steel surfaces which are to receive this coating will be prepared by blast cleaning to near white, grade SSPC 10. The Coal Tar Epoxy Paint will be applied before rusting occurs and in no case later than 24 hours after blast cleaning.
3. The coating may be applied by spray or brush. If the application is by brush, apply with a stiff brush heavily loaded with paint; apply quickly and smoothly and avoid excessive brushing.
4. The coating will be applied in two coats to a total dry film thickness of 16 mils at its thinnest spot.
5. Drying time between coats will be a minimum of 12 hours and a maximum of 72 hours under normal painting conditions. Long drying times between coats will cause poor intercoat adhesion and it is advisable in warm weather to reduce the maximum interval between coats. In very hot weather it may be necessary to limit the intercoat drying period to 24 hours.
6. At normal temperatures the coating dries dust free in about 4 hours and becomes thoroughly hardened after 3 to 5 days of curing. Pile placement will not begin sooner than 5 days after coating.
7. The coating will not be applied when the receiving surfaces or ambient temperatures are below 50°F unless it can reasonably be anticipated that the average ambient temperature will be 50°F or higher for the 5-day period following the application of any coat.
8. Steel members which are welded after coating will receive two coats of the coating applied to the weld heat affected areas.
9. After placement, the areas of the piles and base plates where the coating has been damaged will be touched up.
10. The cost of furnishing and applying the coating will be included in the contract unit price per foot for 16" x 0.375" Steel Pipe test Pile, Furnish and Drive and 16" x 0.375" Steel Pipe Bearing Pile, Furnish and Drive.

SUPERSTRUCTURE

1. Preplanned construction joints may be used in accordance with Section 460.3 of the Construction Specifications. Contact the Office of Bridge Design for joint configuration and allowable location. Emergency slab construction joints will be as shown with the superstructure details. If an emergency slab joint is used, contact the Office of Bridge Design before proceeding with deck pour.
2. The use of an approved deck finishing machine will be required during placement of bridge deck concrete. The deck finishing machine will be adjusted and operated in such a manner that the screed or screeds are parallel with the centerline of the bridge. The finish machine and concrete placement will be parallel to the skew of the bridge.

3. Barrier curbs will be poured after all the slab has been poured. Superstructure falsework will not be removed until bridge deck concrete, including barrier curbs, has attained a strength of 2400 psi.
4. The minimum pour rate will be in accordance with Section 460.3.J.2 of the Construction Specifications.
5. Snap ties, if used in the barrier curb formwork, will be corrosion resistant. The corrosion resistant ties will be inert in concrete and compatible with the reinforcing steel.

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.



NOTES (CONTINUED)
FOR
162'-0" CONTINUOUS CONCRETE BRIDGE

Str. No. 51-195-220

JULY 2023

3 OF 16

DESIGNED BY MJK MOOD085Q	CH. DES. BY ZZJ 085QAB03	DRAFTED BY NTF	BRIDGE ENGINEER
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STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8051(16)	43	66

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. See diagram below (overburden is in grey).



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

AS - BUILT ELEVATION SURVEY

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

ABUTMENT UNDERDRAIN SYSTEM

1. An underdrain system will be placed behind the abutments as shown in the plans in accordance with Section 435 of the Construction Specifications.
2. The 2" Dia. PVC Outlet Pipe will be Schedule 40 PVC Pipe conforming to ASTM D1785 designated as PVC 1120, PVC 1220, or PVC 2120. Pipe sections will be connected using a PVC Solvent Cement conforming to ASTM D2564.
3. Care will be taken to ensure that the 2-inch diameter PVC Outlet Pipe is not damaged during construction. Any damaged pipes will be replaced by the Contractor at no additional cost to the Department.
4. All labor, tools, equipment and any incidentals necessary for the installation of 2-inch diameter PVC Outlet Pipe, SDR Solvent Weld PVC Coupling and PVC Cement will be incidental to the contract unit price per cubic yard for Class A45 Concrete, Bridge.
5. All labor, tools, equipment and any incidentals necessary for the installation of Vertical Composite Drain will be incidental to the contract unit price per cubic yard for Granular Bridge End Backfill.

DECK DRAINS

1. Deck Drains will be 4-inch diameter x 1'-5" Fiberglass Pipe conforming to the requirements of ASTM D2996.
2. The Fiberglass Pipe Sleeves can be made from a 4-inch diameter Fiberglass Pipe Fitting. They will be attached to the 4-inch diameter Fiberglass Pipe, as shown in the plans, per the manufacturer's recommendation.
3. All fiberglass pipe and pipe fittings will be handled and installed according to the guidelines and procedures recommended by the manufacturer. Pipe and pipe fittings must be from the same manufacturer.

4. All fiberglass pipes and pipe fittings will use pigmented resin throughout the wall. The color will be an approved brown (AMS STD 595 Color 30045).
5. Payment for deck drains will be at the contract unit price per each for Deck Drain, Slab Bridge and will be full compensation for furnishing, fabricating, and installing the deck drains and all attaching hardware in accordance with the plans and Construction Specifications.
6. The location of the deck drains may be adjusted slightly to clear transverse slab steel.



NOTES (CONTINUED)
FOR
162'-0" CONTINUOUS CONCRETE BRIDGE

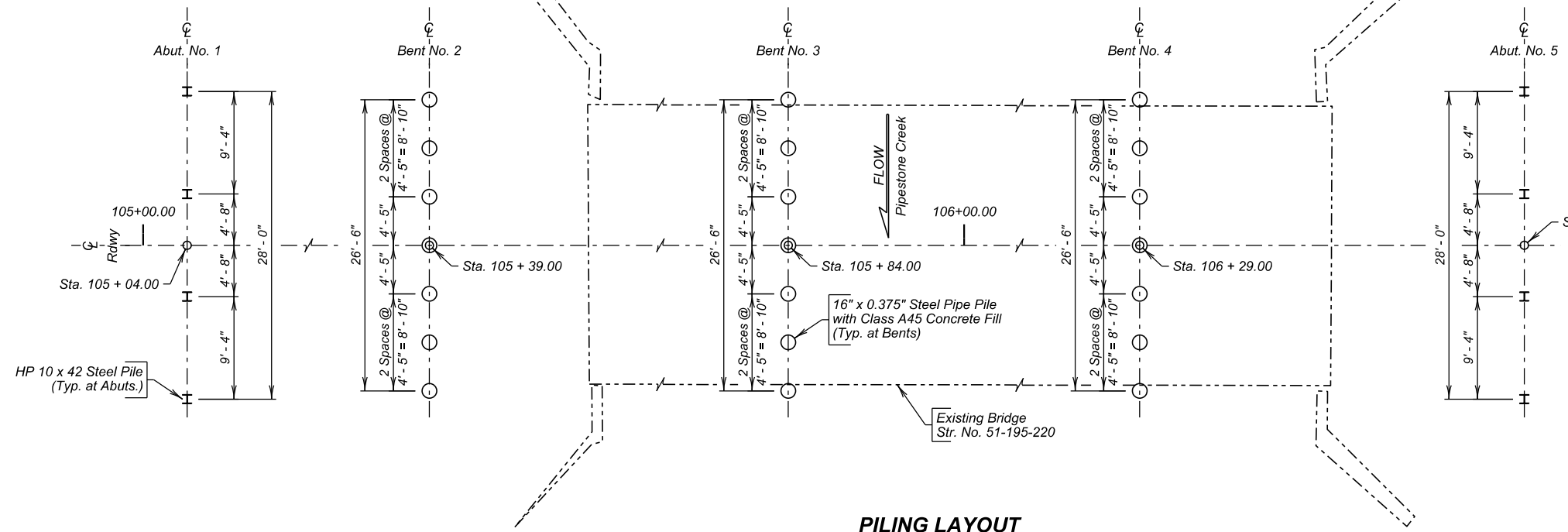
Str. No. 51-195-220

JULY 2023

4 OF 16

DESIGNED BY MJK MOOD085Q	CH. DES. BY ZZJ 085QAB04	DRAFTED BY NTF	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY



Hole Number	K4
Station	105+45
Depth	10.7 ft
Soil Color	Brown
Classification	Sand
Strength (Qu)	No Test psf
Dry Density	108.4 pcf
Wet Density	126.3 pcf
Moisture	16.5 %
Pass No. 10	96.3 %
Pass No. 40	59.1 %
Pass No. 200	17.6 %
Sand Content	78.8 %
Silt Content	10.4 %
Clay Content	7.1 %

Hole Number	K4
Station	105+45
Depth	41.0 ft
Soil Color	Brown
Classification	Silt Clay
Strength (Qu)	2,323 psf
Dry Density	97.1 pcf
Wet Density	119.7 pcf
Moisture	23.3 %
Pass No. 10	98.8 %
Pass No. 40	92.3 %
Pass No. 200	72.8 %
Sand Content	26.0 %
Silt Content	29.9 %
Clay Content	42.9 %

Hole Number	K5
Station	106+56
Depth	25.7 ft
Soil Color	Brown
Classification	Silt Clay
Strength (Qu)	1,713 psf
Dry Density	93.6 pcf
Wet Density	117.2 pcf
Moisture	25.2 %
Pass No. 10	98.0 %
Pass No. 40	91.5 %
Pass No. 200	72.1 %
Sand Content	25.9 %
Silt Content	29.9 %
Clay Content	44.1 %

Hole Number	K5
Station	106+56
Depth	71.0 ft
Soil Color	Dark Gray
Classification	Silt Clay
Strength (Qu)	2,998 psf
Dry Density	100.1 pcf
Wet Density	121.6 pcf
Moisture	21.5 %
Pass No. 10	99.3 %
Pass No. 40	92.3 %
Pass No. 200	74.8 %
Sand Content	24.6 %
Silt Content	30.7 %
Clay Content	44.1 %

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

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

LEGEND

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

Drive tests are conducted by dropping a 490 pound hammer 30 inches to drive a 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

JULY 2021		
K1		1539.8
K2		1539.6
K3		1541.1
JUNE 2022		
K4		1545.6
K5		1545.5

MEASURED SKIN FRICTION

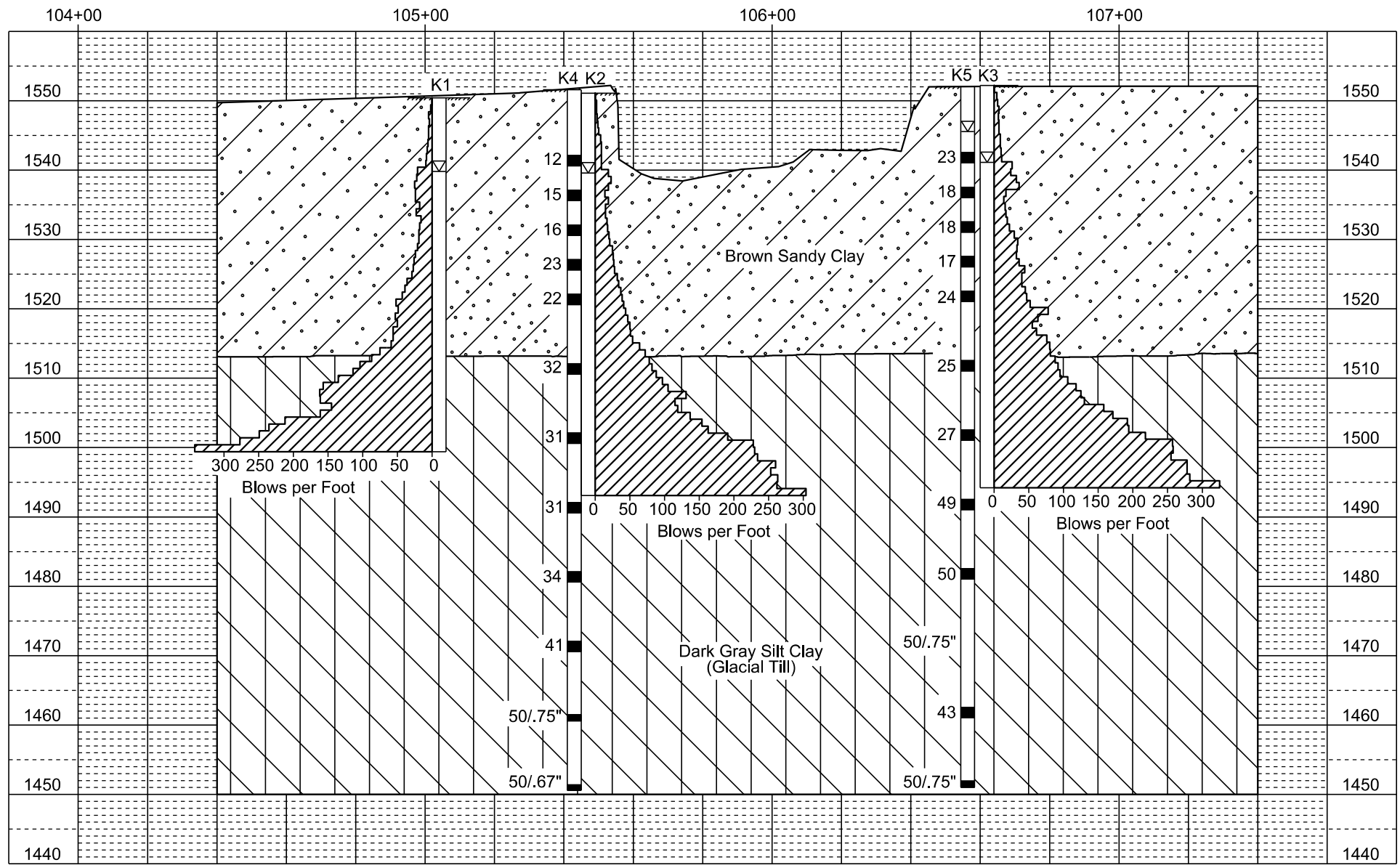
	ELEV.	PSF
K1	1499.4	1097
K2	1493.1	1598
K3	1494.2	822

SUBSURFACE INVESTIGATION LAYOUT & PILING LAYOUT

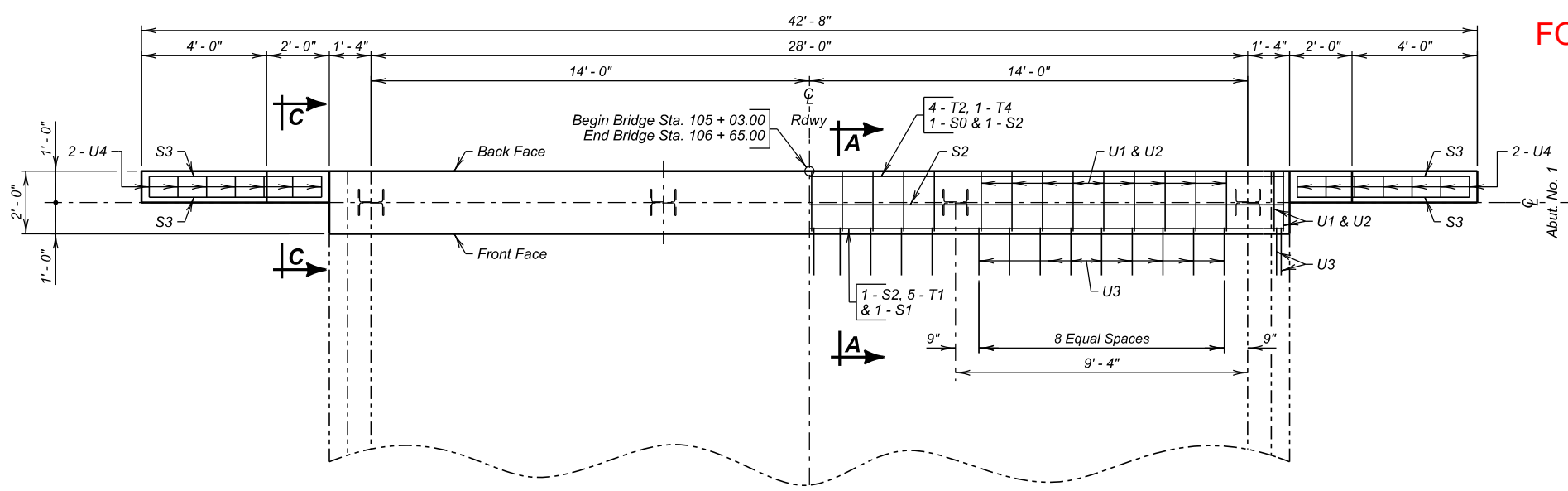
FOR
162' - 0" CONT. CONCRETE BRIDGE
 28' - 0" ROADWAY 0° SKEW
 OVER PIPESTONE CREEK SEC. 20/29-T105N-R47W
 STA. 105+03.00 TO 106+65.00 BRO-B 8051(16)
 STR. NO. 51-195-220 HL-93



MOODY COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JULY 2023



FOR BIDDING PURPOSES ONLY

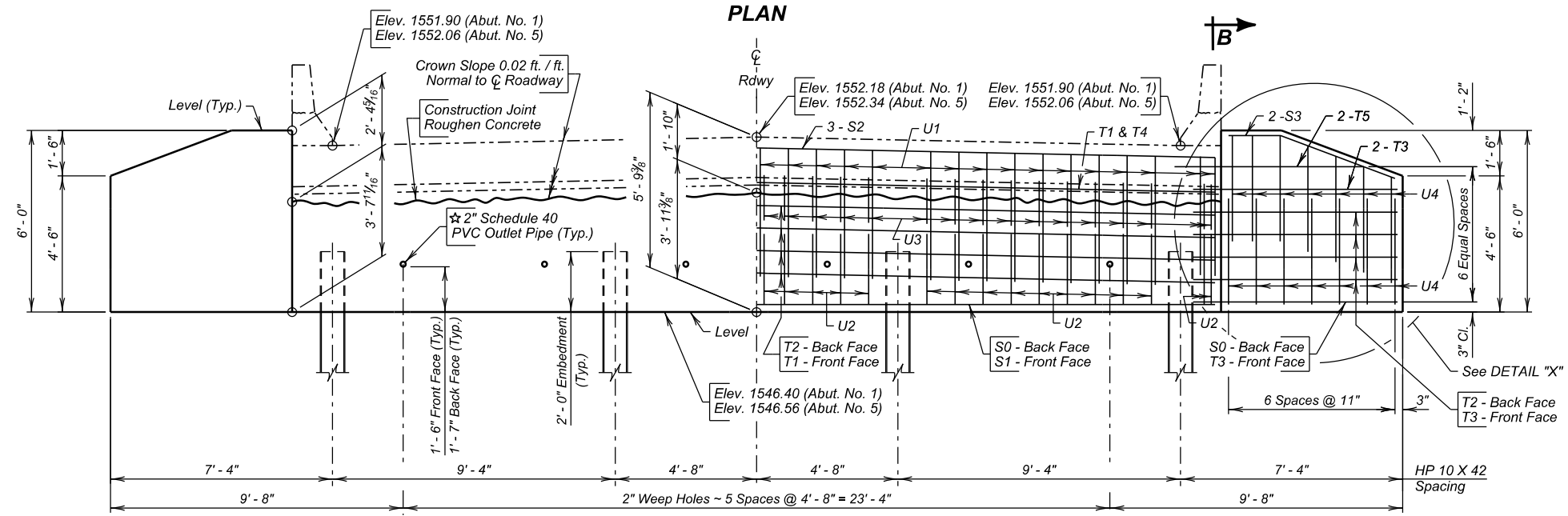


INCREASING STATIONS
ABUTMENT NO. 1

INCREASING STATIONS
ABUTMENT NO. 5

REINFORCING SCHEDULE					Bending Details	
Mk.	No.	Size	Length	Type		
S0	1	9	42'-4"	Str.	Type S12A	
S1	1	9	30'-4"	Str.	Type 19B	
S2	3	9	30'-4"	Str.		
S3	4	9	5'-9"	19B		
T1	5	5	34'-0"	2		
T2	4	5	42'-4"	Str.		
T3	14	5	6'-9"	Str.		
T4	1	5	30'-4"	Str.		
T5	4	5	6'-3"	Str.		
U1	31	6	10'-2"	17		
U2	31	4	6'-4"	17		
U3	31	4	2'-8"	S12A		
U4	28	4	7'-8"	17		

NOTES:
 All dimensions are out to out of bars.
 Δ All S2, T4, U1 and U3 bars are to be Epoxy Coated.
 ≠ Bend in field as necessary to fit.

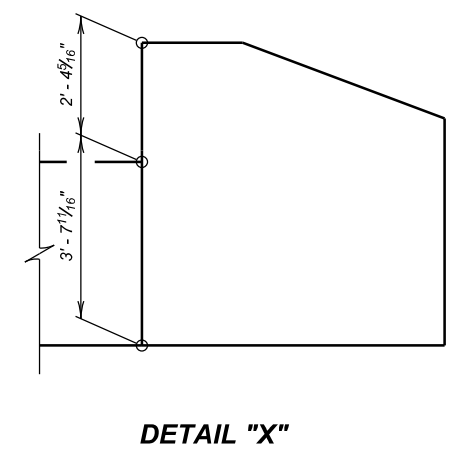
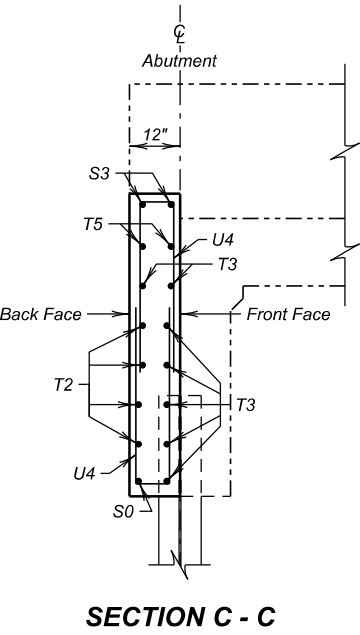
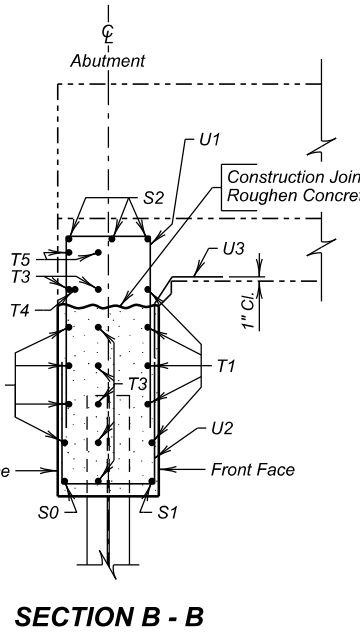
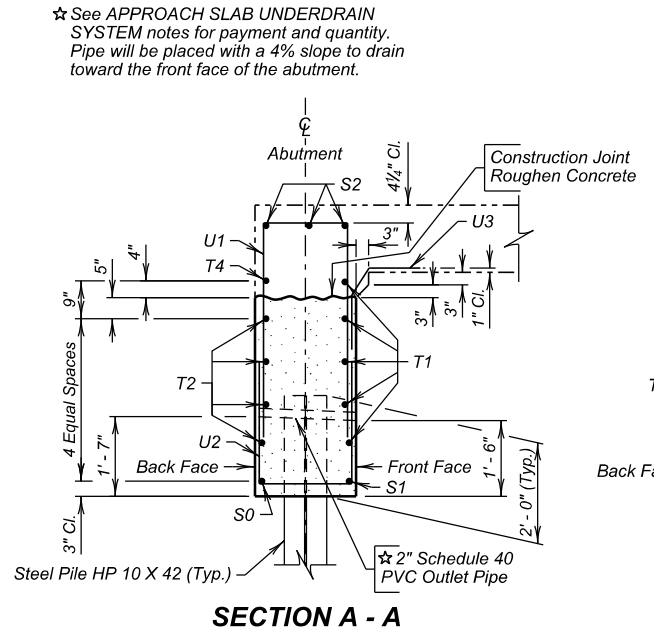


ELEVATION

☆ See APPROACH SLAB UNDERDRAIN SYSTEM notes for payment and quantity. Pipe will be placed with a 4% slope to drain toward the front face of the abutment.

☆ See APPROACH SLAB UNDERDRAIN SYSTEM notes for payment and quantity. Pipe will be placed with a 4% slope to drain toward the front face of the abutment.

ESTIMATED QUANTITIES				
ITEM	UNIT	QUANTITY		
		Abut. No. 1	Abut. No. 5	
Class A45 Concrete, Bridge	Cu. Yd.	11.1	11.1	
Reinforcing Steel	Lb.	1078	1078	
Epoxy Coated Reinforcing Steel	Lb.	870	870	
Structure Excavation, Bridge	Cu. Yd.	8.1	8.1	
HP 10 x 42 Steel Test Pile, Furnish and Drive	Ft.	1 @ 75' = 75'	1 @ 75' = 75'	
HP 10 x 42 Steel Bearing Pile, Furnish and Drive	Ft.	3 @ 70' = 210'	3 @ 70' = 210'	
Preboring Pile	Ft.	4 @ 10' = 40'	4 @ 10' = 40'	



DETAIL "X"

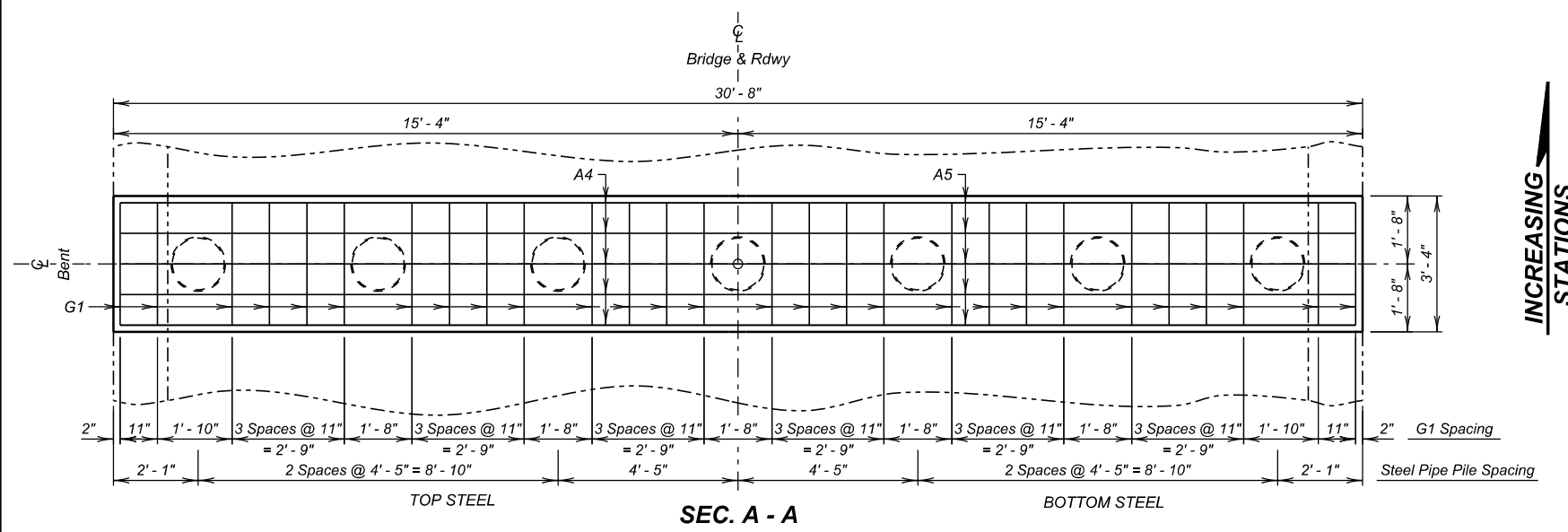


ABUTMENT DETAILS
 FOR
162' - 0" CONT. CONCRETE BRIDGE
 28' - 0" ROADWAY 0° SKEW
 OVER PIPESTONE CREEK SEC. 20/29-T105N-R47W
 STA. 105+03.00 TO 106+65.00 BRO-B 8051(16)
 STR. NO. 51-195-220 HL-93

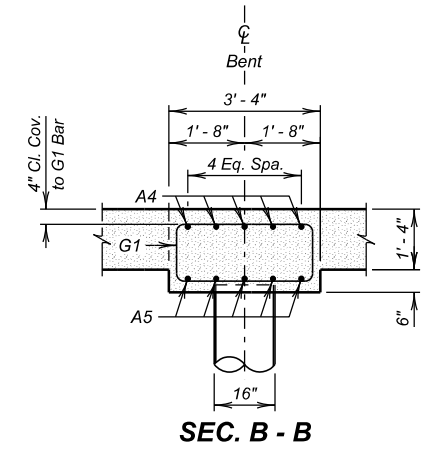
MOODY COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JULY 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	ZZJ	NTF	
MOOD085Q	085QAB06		BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

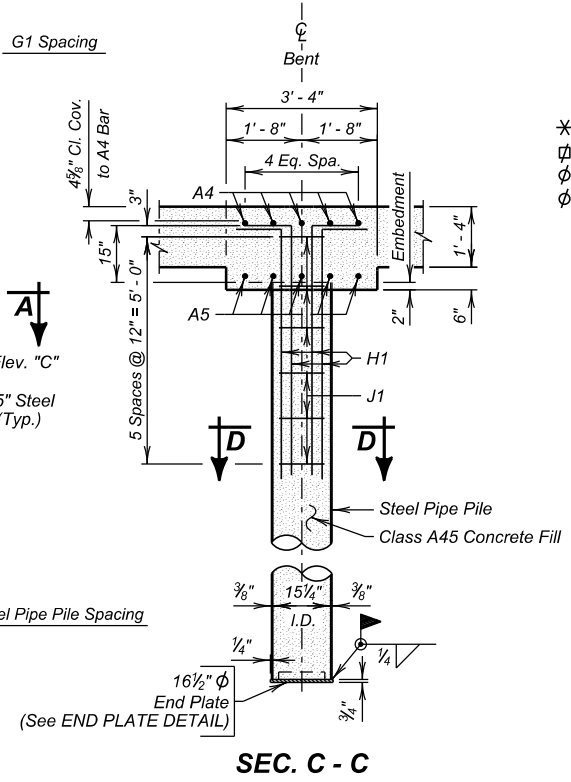
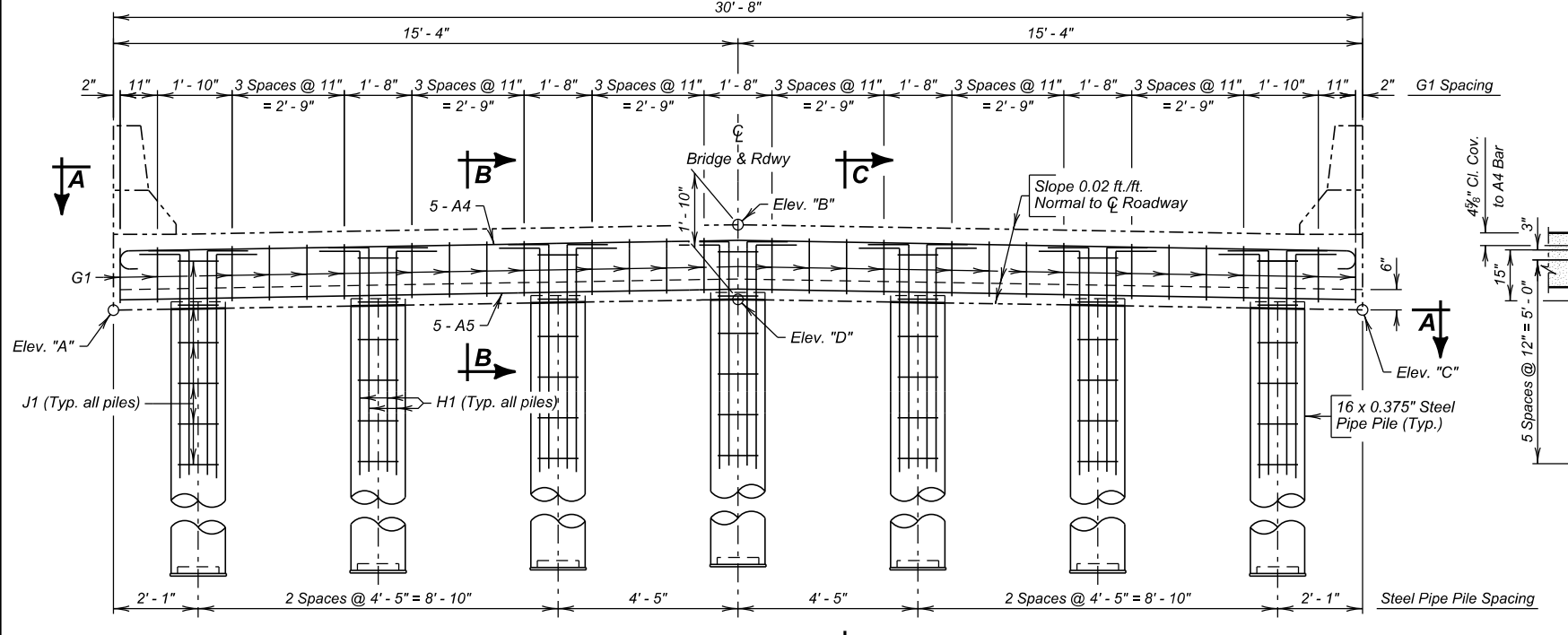


INCREASING STATIONS



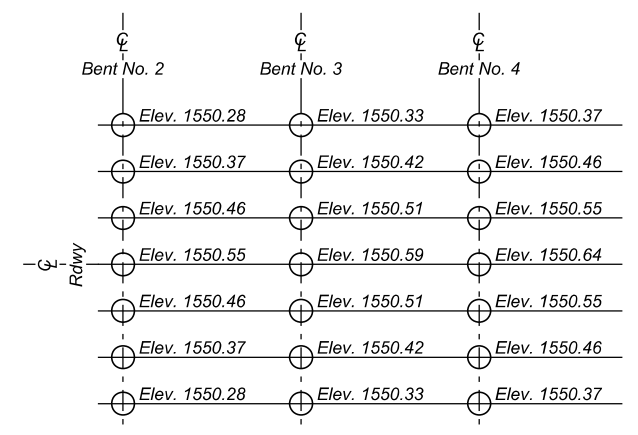
REINFORCING SCHEDULE					Bending Details	
Mk.	No.	Size	Length	Type		
A4	5	6	31'-8"	1	30'-4" Type 1	
A5	5	6	30'-4"	Str.		
G1	28	5	9'-5"	T1	Type T3	
H1	42	6	6'-6"	17A		
J1	42	4	4'-2"	T3	Type T1	

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



ESTIMATED QUANTITIES				
ITEM	UNIT	QUANTITY		
		Bent No. 2	Bent No. 3	Bent No. 4
* Class A45 Concrete, Bridge	Cu. Yd.	21.2	21.2	21.2
∅ Epoxy Coated Reinforcing Steel	Lb.	1268	1268	1268
∅ 16" x 0.375" Steel Pipe Test Pile, Furnish & Drive	Ft.	1 @ 70' = 70'	1 @ 70' = 70'	1 @ 70' = 70'
∅ 16" x 0.375" Steel Pipe Bearing Pile, Furnish & Drive	Ft.	6 @ 65' = 390'	6 @ 65' = 390'	6 @ 65' = 390'

∅ Includes re-steel embedded in steel piles.
∅ Each Pile weighs 62.64 lbs per linear foot.
* Concrete quantity is based on 0.046 cu. yds. of concrete per linear foot of pile.



PILE CUTOFF ELEVATIONS LAYOUT

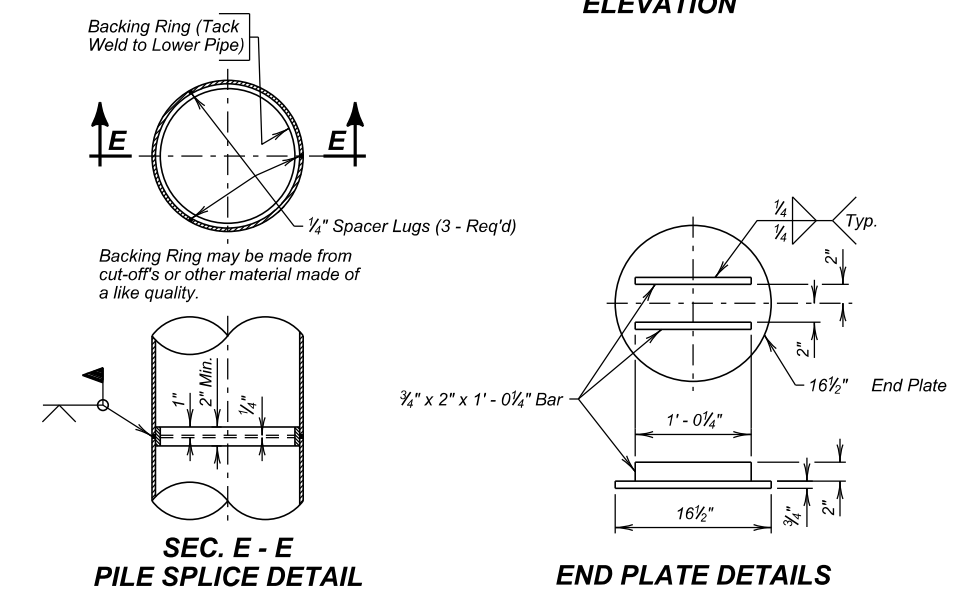
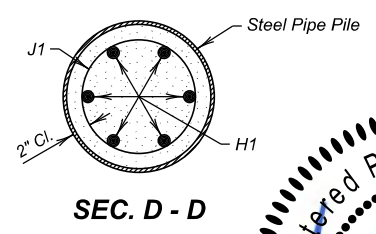


TABLE OF ELEVATIONS				
Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"
2	1550.10	1552.22	1550.10	1550.38
3	1550.15	1552.26	1550.15	1550.43
4	1550.19	1552.31	1550.19	1550.47



BENT DETAILS
FOR
162' - 0" CONT. CONCRETE BRIDGE
28' - 0" ROADWAY OVER PIPESTONE CREEK
STA. 105+03.00 TO 106+65.00
STR. NO. 51-195-220

0° SKEW
SEC. 20/29-T105N-R47W
BRO-B 8051(16)
HL-93

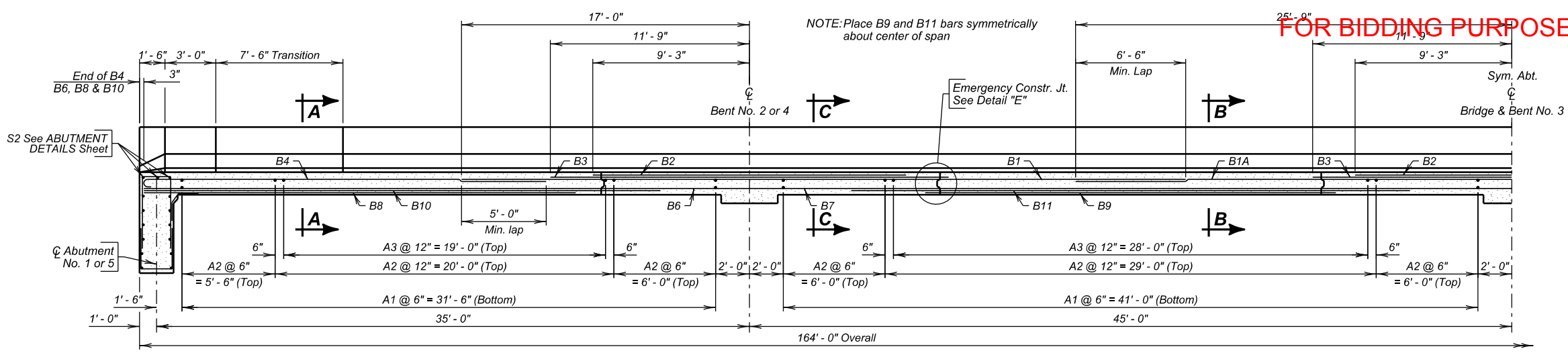
MOODY COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2023

DESIGNED BY ZZJ MOOD085Q
CK. DES. BY BEM 085QAB07
DRAFTED BY NTF

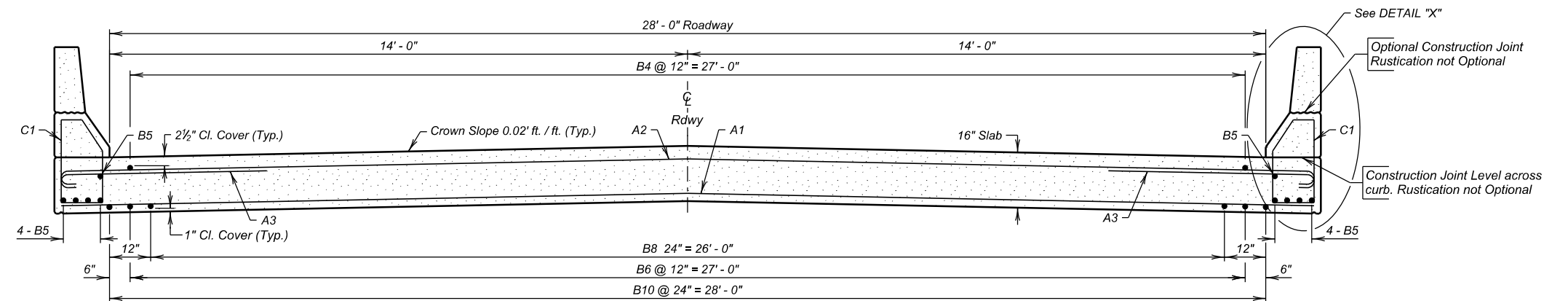
BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8051(16)	47	66

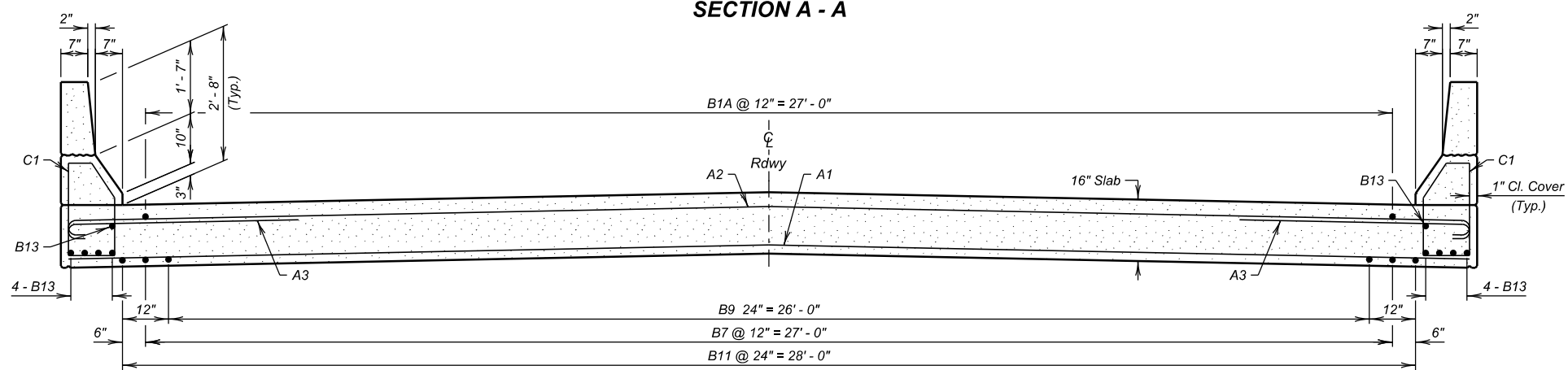
FOR BIDDING PURPOSES ONLY



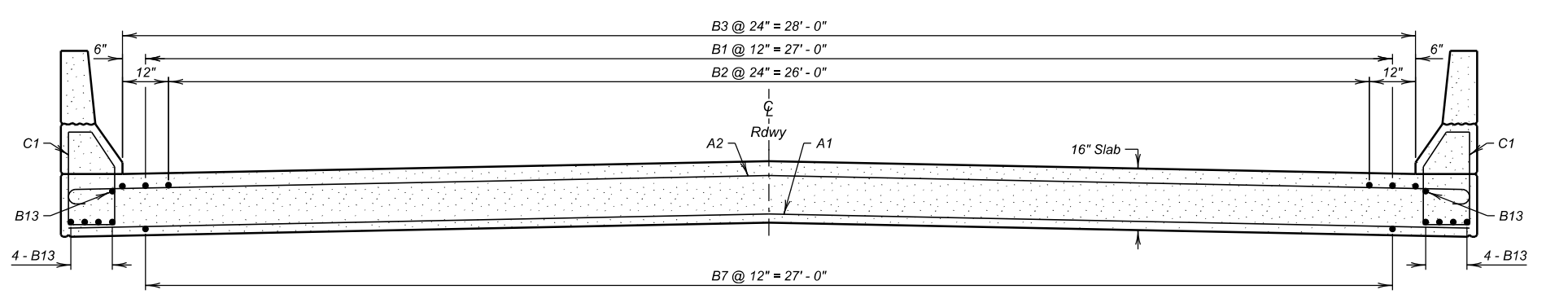
HALF LONGITUDINAL SECTIONAL VIEW



SECTION A - A



SECTION B - B



SECTION C - C

NOTE: All barrier curb details shown on END BLOCK & BARRIER CURB DETAILS sheet.



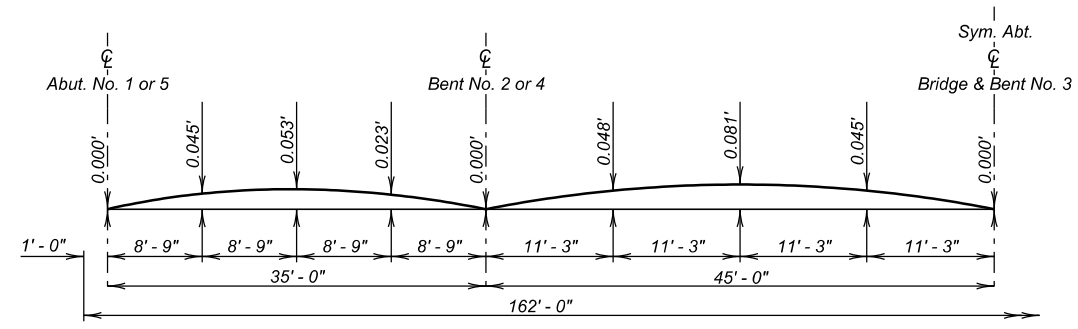
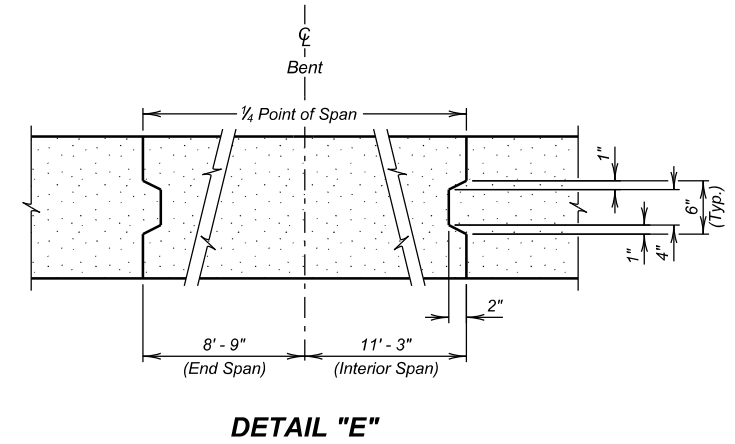
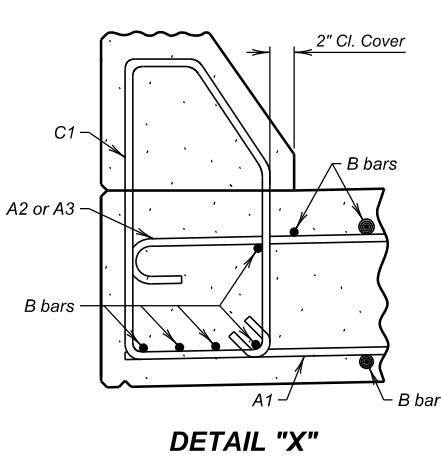
SUPERSTRUCTURE DETAILS (A)
 FOR
162' - 0" CONT. CONCRETE BRIDGE
 28' - 0" ROADWAY 0° SKEW
 OVER PIPESTONE CREEK SEC. 20/29-T105N-R47W
 STA. 105+03.00 TO 106+65.00 BRO-B 8051(16)
 STR. NO. 51-195-220 HL-93

MOODY COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JULY 2023

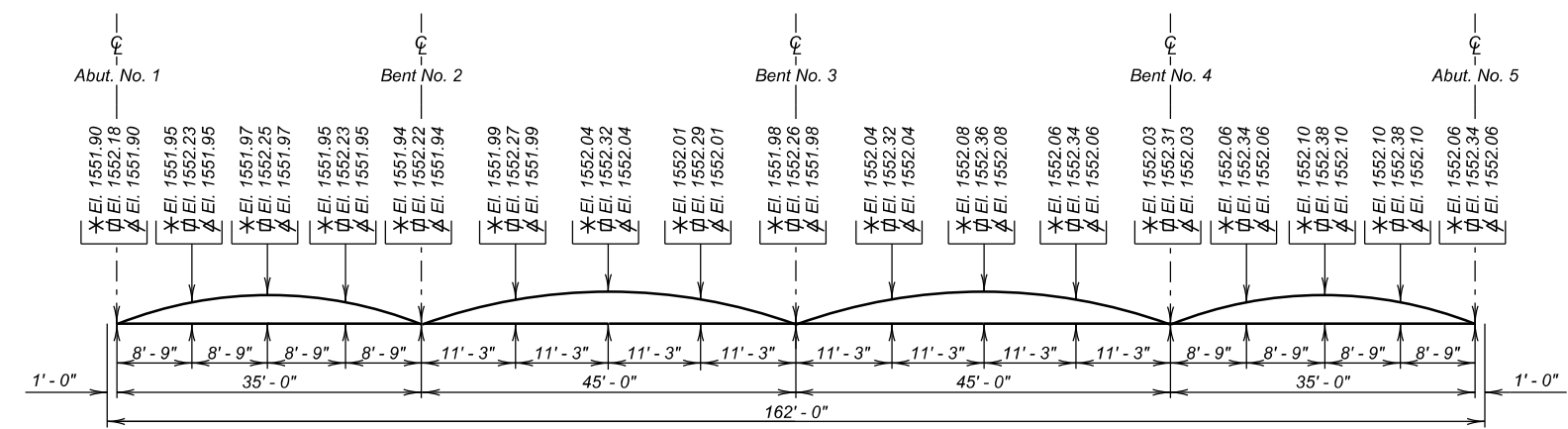
DESIGNED BY MJK MOOD085Q	CK. DES. BY ZZJ 085QAB08	DRAFTED BY NTF	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8051(16)	48	66



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



CURB AND CENTERLINE ELEVATION
 Elevations with a * are Top of Finished Slab at Left Curb.
 Elevations with a phi are Top of Finished Slab at Centerline Roadway.
 Elevations with a / are Top of Finished Slab at Right Curb.
 Camber for Dead Load Plus Plastic Flow have been included in the elevations shown above.

REINFORCING SCHEDULE				
Mk.	No.	Size	Length	Type
A1	294	5	30'-4"	Str.
A2	196	5	31'-6"	1
A3	196	5	6'-4"	1A
A4	(See BENT DETAILS)			
A5	(See BENT DETAILS)			
B1	56	10	42'-9"	Str.
B1A	28	10	51'-6"	Str.
B2	28	11	18'-6"	Str.
B3	30	10	23'-6"	Str.
B4	56	8	24'-8"	1A
B5	20	5	35'-9"	Str.
B6	56	9	35'-9"	Str.
B7	56	9	45'-0"	Str.
B8	28	10	26'-0"	Str.
B9	28	10	24'-3"	Str.
B10	30	9	30'-6"	Str.
B11	30	9	33'-0"	Str.
B12	36	5	47'-8"	Str.
B13	20	5	45'-0"	Str.
B14	12	4	54'-8"	Str.
B15	12	5	14'-6"	Str.
B16	6	4	53'-8"	Str.
B17	8	4	8'-6"	19B
B18	12	8	4'-3"	19B
B19	12	5	2'-4"	Str.
B20	12	6	4'-0"	17A
C1	306	5	6'-7"	T1A
C2	278	5	5'-1"	S11
C3	4	5	5'-0"	S11
C4	4	5	5'-0"	S11
C5	4	5	5'-0"	S11
C6	4	5	6'-8"	T1
C7	4	5	6'-9"	T1
C8	4	5	6'-11"	T1
C9	4	5	7'-0"	T1
C10	16	6	6'-5"	T1A
C11	16	5	7'-1"	T1
C12	4	6	6'-6"	17
C13	4	5	5'-4"	17
G1	(See BENT DETAILS)			

Bending Details

NOTES:
 All reinforcing steel will be epoxy coated.
 All dimensions are out to out of bars.
 ≠ Bend in field as necessary to fit.

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class A45 Concrete, Bridge Deck	Cu. Yd.	281.2
Epoxy Coated Reinforcing Steel	Lb.	79599
Deck Drains, Slab Bridge	Each	12

SUPERSTRUCTURE DETAILS (B)
 FOR
162'-0" CONT. CONCRETE BRIDGE
 28'-0" ROADWAY 0° SKEW
 OVER PIPESTONE CREEK SEC. 20/29-T105N-R47W
 STA. 105+03.00 TO 106+65.00 BRO-B 8051(16)
 STR. NO. 51-195-220 HL-93



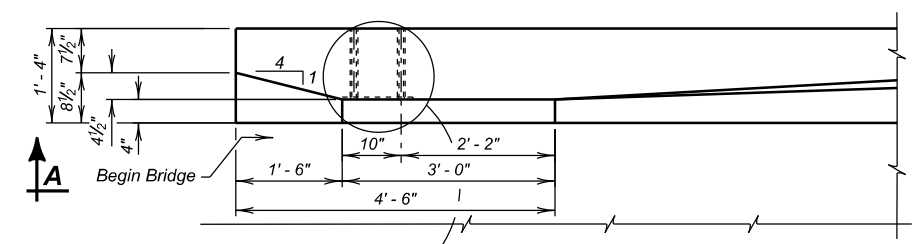
MOODY COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JULY 2023

DESIGNED BY: MJK
 CK. DES. BY: ZZJ
 DRAFTED BY: NTF

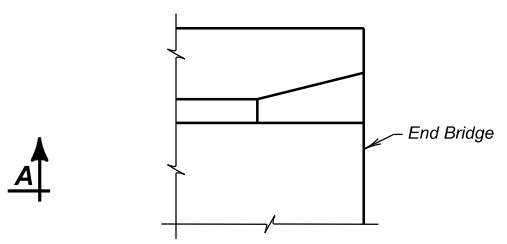
BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8051(16)	49	66

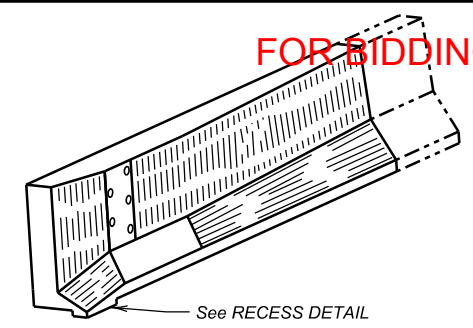
FOR BIDDING PURPOSES ONLY



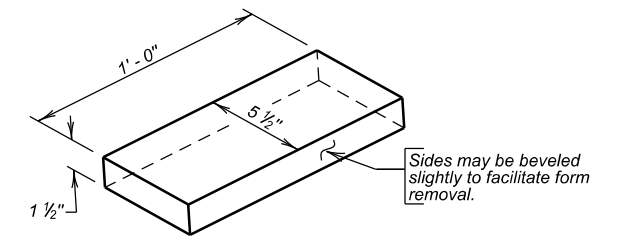
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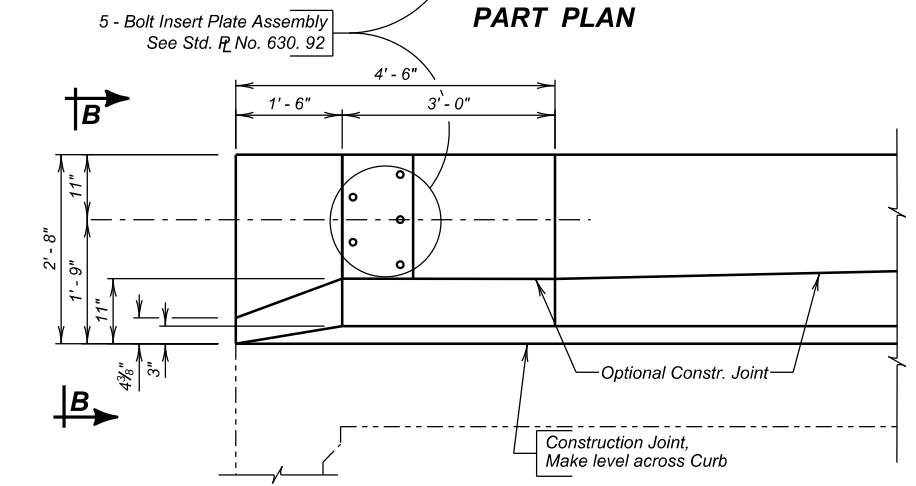
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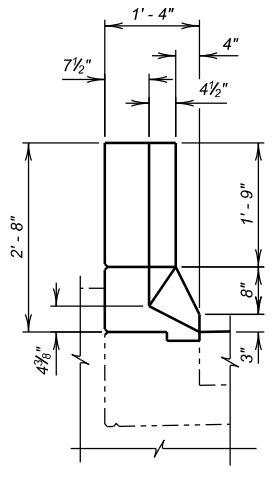
ISOMETRIC VIEW



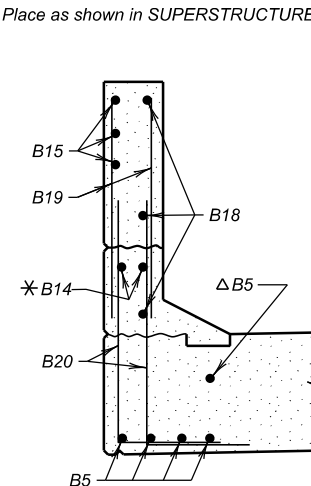
RECESS DETAIL



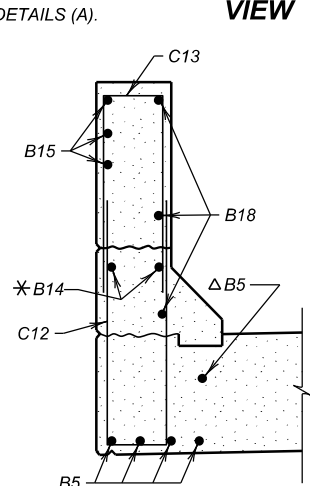
VIEW A - A



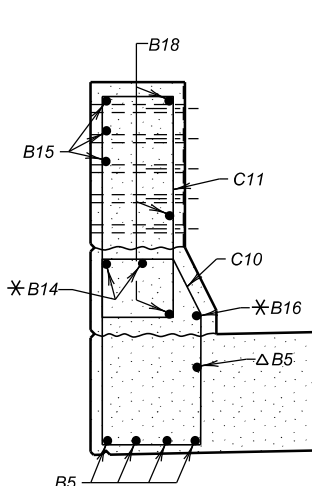
VIEW B - B



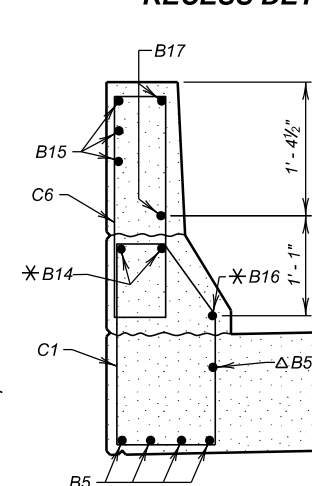
SEC. C - C



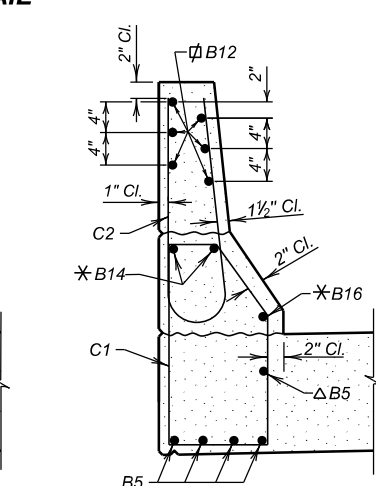
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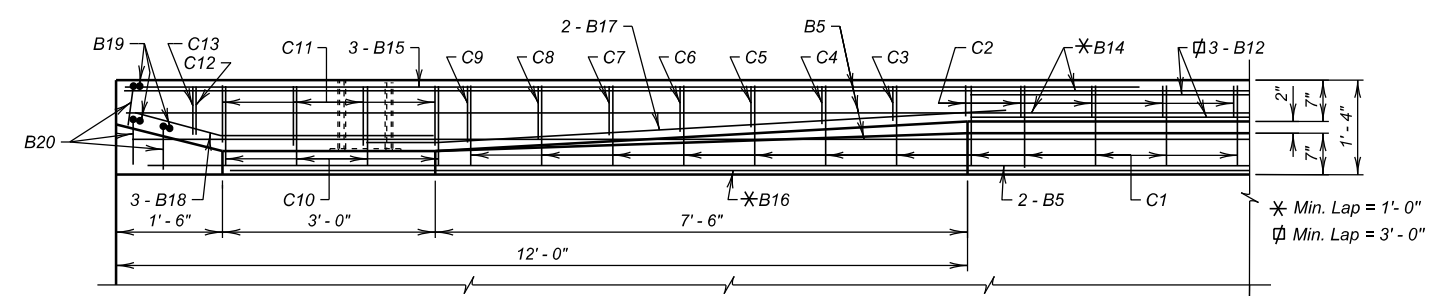
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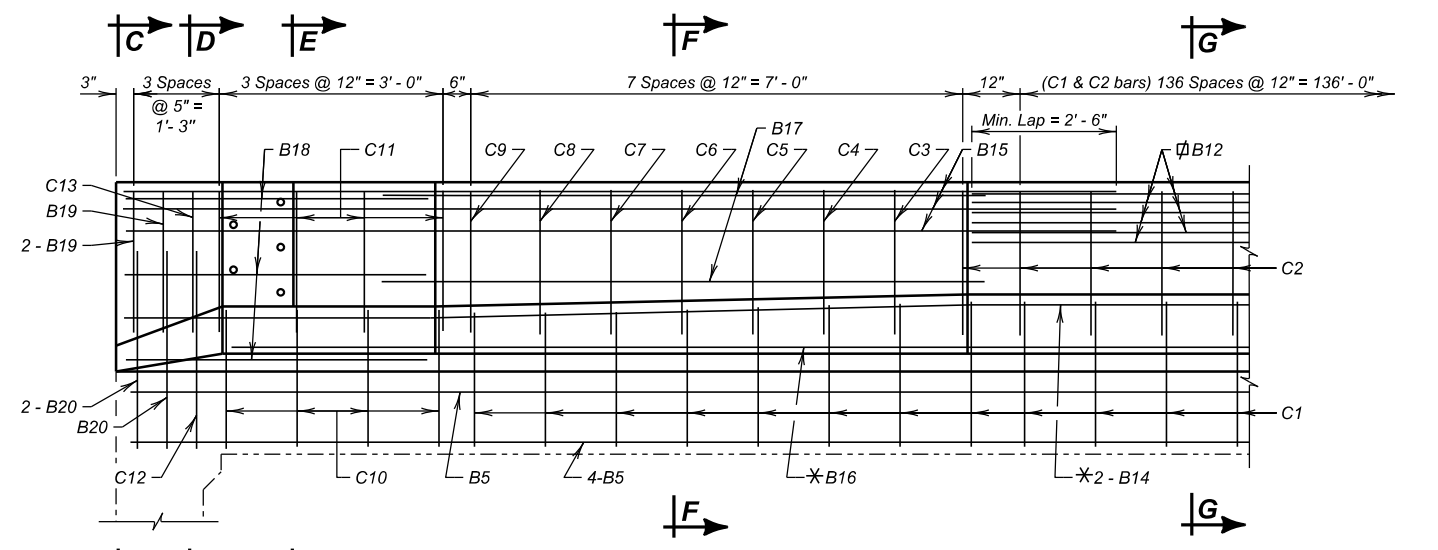
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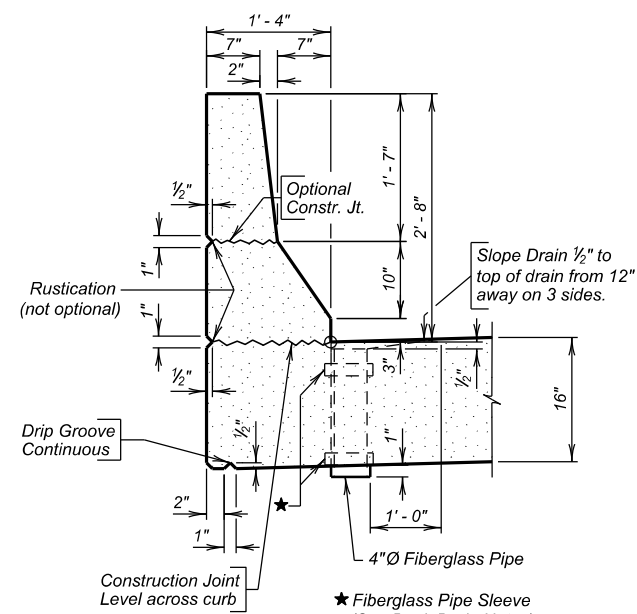
SEC. G - G



PLAN



ELEVATION



BARRIER DETAILS

NOTE:
See General Drawing for spacing of deck drains and note sheets for notes regarding deck drains.



END BLOCK, BARRIER CURB & DRAIN DETAILS

FOR
162' - 0" CONT. CONCRETE BRIDGE
28' - 0" ROADWAY 0° SKEW
OVER PIPESTONE CREEK SEC. 20/29-T105N-R47W
STA. 105+03.00 TO 106+65.00 BRO-B 8051(16)
STR. NO. 51-195-220 HL-93

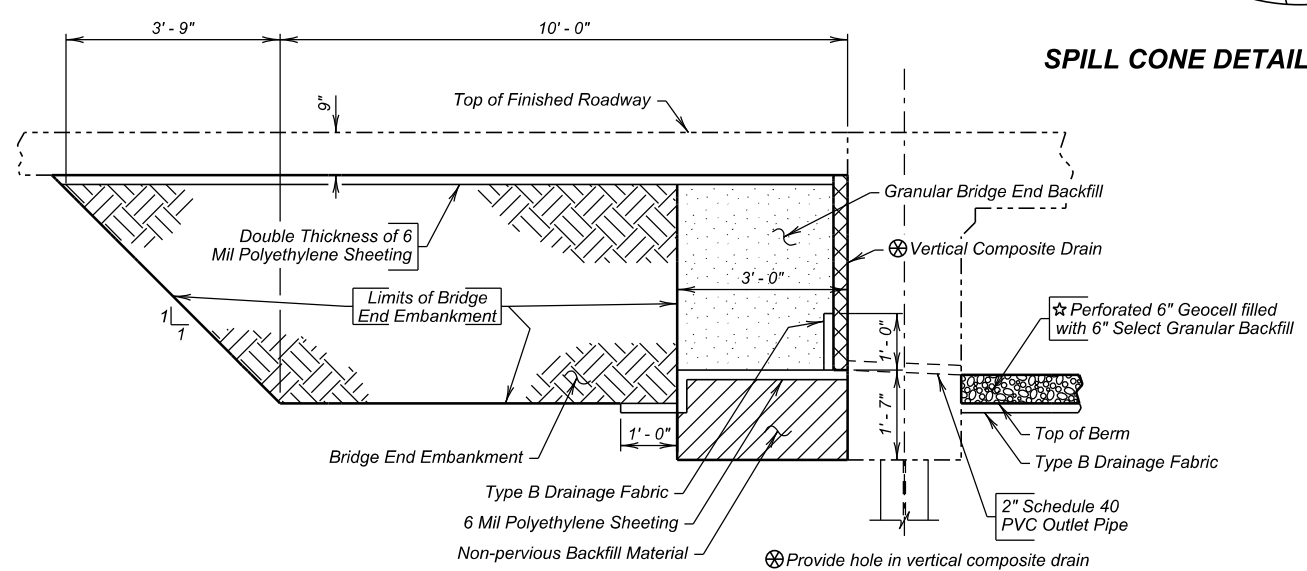
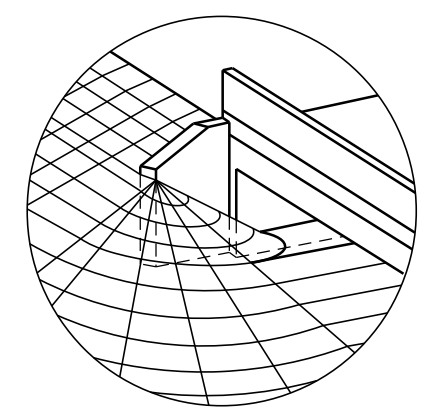
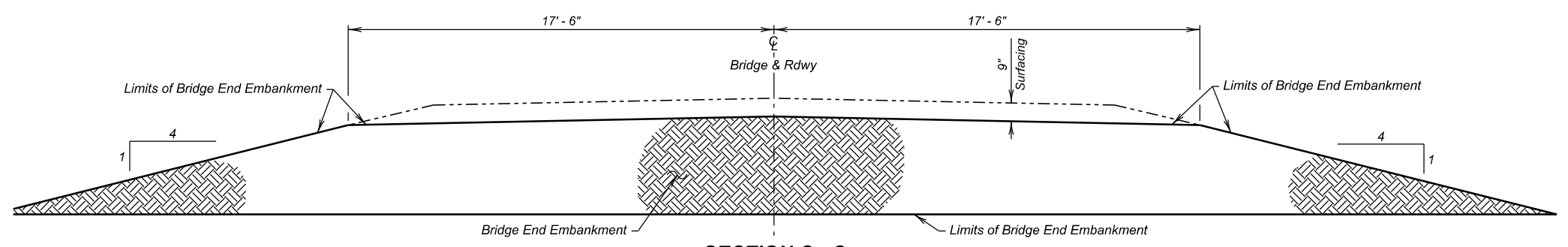
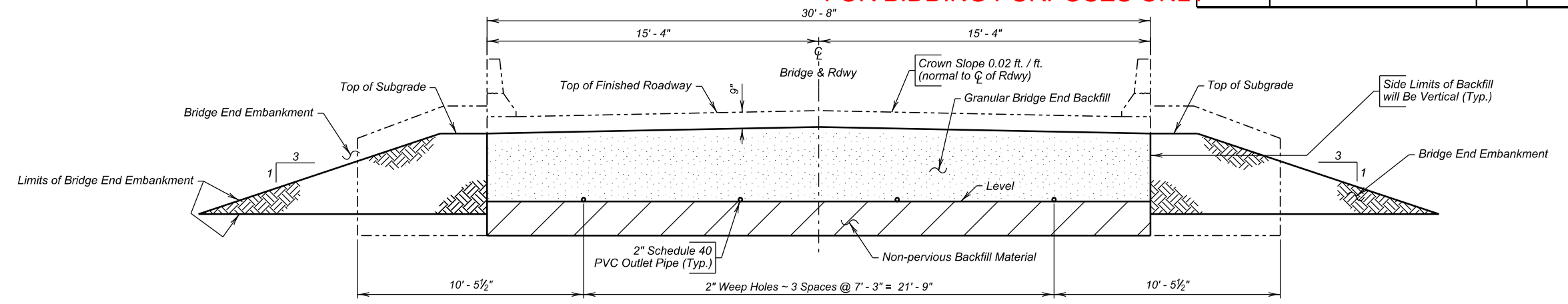
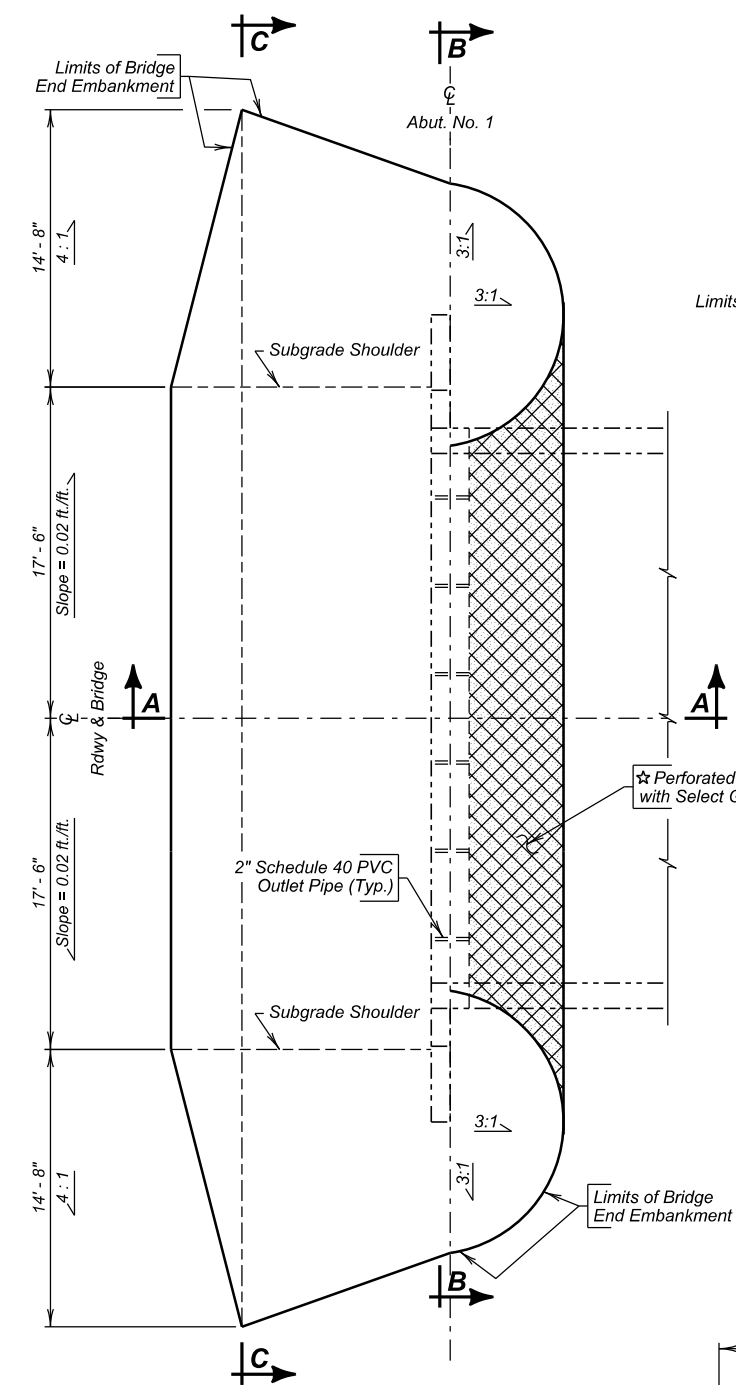
MOODY COUNTY
S. D. DEPT. OF TRANSPORTATION

JULY 2023 10 OF 16

DESIGNED BY MJK MOOD085Q	CK. DES. BY ZZJ 085QAB10	DRAFTED BY NTF	BRIDGE ENGINEER
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NOTE:
For listing of re-bars see SUPERSTRUCTURE DETAILS (A).

FOR BIDDING PURPOSES ONLY



ESTIMATED QUANTITIES		
(For Two Abutments)		
ITEM	UNIT	QUANTITY
Granular Bridge End Backfill	Cu. Yd.	22.4
Bridge End Embankment	Cu. Yd.	175
Select Granular Backfill	Ton	11.5
Perforated Geocell	Sq. Ft.	328

- 16 ft. 2" dia. PVC Outlet Pipe.
- 202 sq. ft. Vertical Composite Drain.
- Item 1 is incidental to the Class A45 Concrete, Bridge.
- Item 2 is incidental to the Granular Bridge End Backfill.
- 1508 sq. ft. 6 mil Polyethylene Sheeting, not including laps.
- 7 sq. yd. Type B Drainage Fabric.
- Items 3 and 4 are approximate quantities contained in the Granular Bridge End Backfill and are for information only.
- For estimating purposes only, a factor of 1.89 tons/cu. yd. was used to convert cu. yds. to tons.
- Shrinkage Factor of 1.25 used.

DETAILS OF BRIDGE END BACKFILL

FOR
162' - 0" CONT. CONCRETE BRIDGE
 28' - 0" ROADWAY 0° SKEW
 OVER PIPESTONE CREEK SEC. 20/29-T105N-R47W
 STA. 105+03.00 TO 106+65.00 BRO-B 8051(16)
 STR. NO. 51-195-220 HL-93



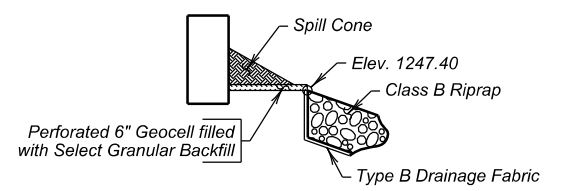
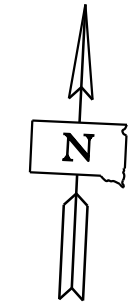
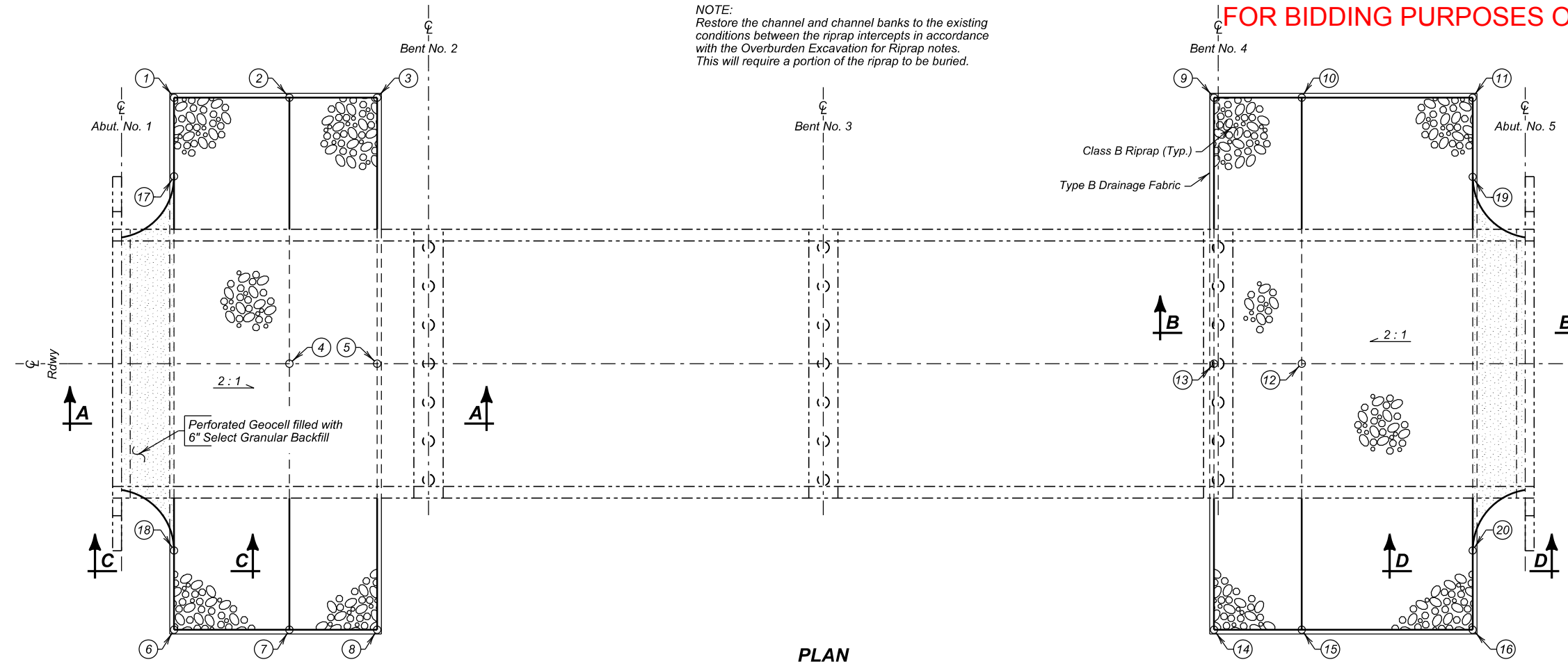
MOODY COUNTY
 S. D. DEPT. OF TRANSPORTATION
 JULY 2023

DESIGNED BY MJK MOOD085Q	CK. DES. BY ZZJ 085QAB11	DRAFTED BY NTF	BRIDGE ENGINEER
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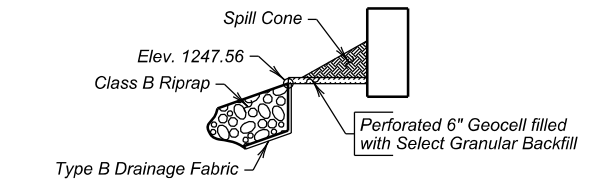
★ See PERFORATED GEOCELL notes for payment information.

FOR BIDDING PURPOSES ONLY

NOTE:
Restore the channel and channel banks to the existing conditions between the riprap intercepts in accordance with the Overburden Excavation for Riprap notes. This will require a portion of the riprap to be buried.



SECTION C - C



SECTION D - D

TABLE OF WORKING POINTS ~ RIPRAP			
Location	Station	Offset (Ft)	Elev.
①	105 + 10.00	30.33 Lt.	1547.40
②	105 + 23.14	30.33 Lt.	1542.00
③	105 + 32.64	30.33 Lt.	1542.00
④	105 + 23.14	0.00	1542.00
⑤	105 + 32.64	0.00	1542.00
⑥	105 + 10.00	30.33 Rt.	1547.40
⑦	105 + 23.14	30.33 Rt.	1542.00
⑧	105 + 32.64	30.33 Rt.	1542.00
⑨	106 + 28.52	30.33 Lt.	1539.00
⑩	106 + 38.52	30.33 Lt.	1539.00

TABLE OF WORKING POINTS CONT. ~ RIPRAP			
Location	Station	Offset (Ft)	Elev.
⑪	106 + 58.00	30.33 Lt.	1547.56
⑫	106 + 38.52	0.00	1539.00
⑬	106 + 28.52	0.00	1539.00
⑭	106 + 28.52	30.33 Rt.	1539.00
⑮	106 + 38.52	30.33 Rt.	1539.00
⑯	106 + 58.00	30.33 Rt.	1547.56
⑰	105 + 10.00	21.36 Lt.	1547.40
⑱	106 + 58.00	21.36 Lt.	1547.56
⑳	106 + 58.00	21.36 Rt.	1547.56

PLAN
(Riprap Layout)

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Class B Riprap	Ton	549
Type B Drainage Fabric	Sq. Yd.	551
Overburden Excavation for Riprap	Cu. Yd.	306

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

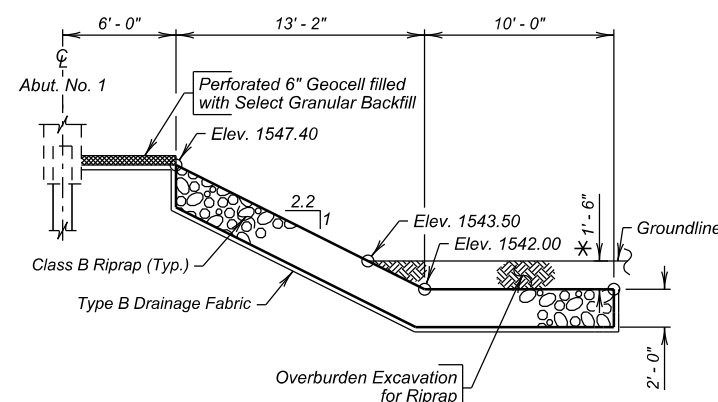
RIPRAP DETAILS

FOR
162' - 0" CONT. CONCRETE BRIDGE
28' - 0" ROADWAY 0° SKEW
OVER PIPESTONE CREEK SEC. 20/29-T105N-R47W
STA. 105+03.00 TO 106+65.00 BRO-B 8051(16)
STR. NO. 51-195-220 HL-93



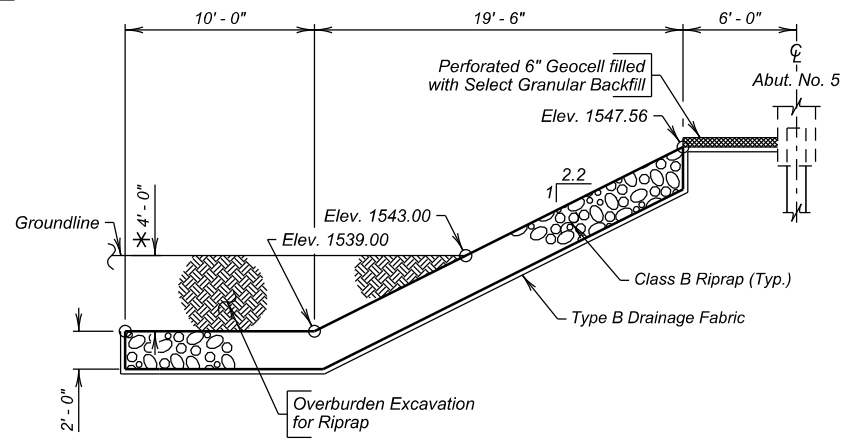
MOODY COUNTY
S. D. DEPT. OF TRANSPORTATION

JULY 2023 **12** OF **16**



SECTION A - A

* Measured to channel intercept. See GENERAL DRAWING Sheet for details.

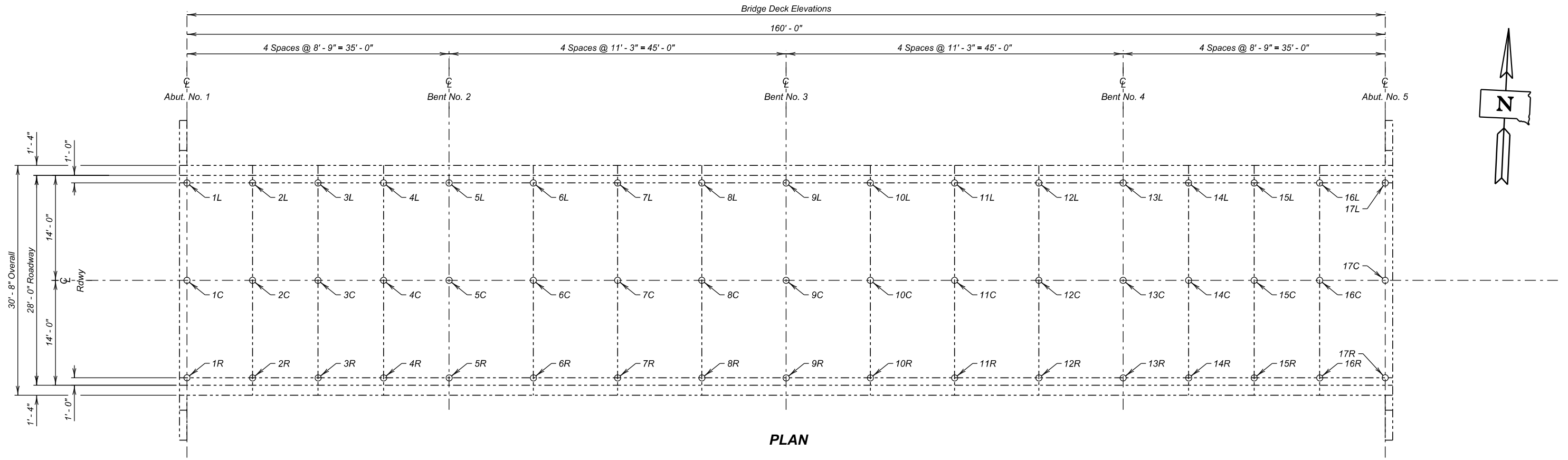


SECTION B - B

DESIGNED BY MJK MOOD085Q	CK. DES. BY ZZJ 085QAB12	DRAFTED BY NTF	BRIDGE ENGINEER
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FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8051(16)	52	66



PLAN

Table of As-Built Elevations - Bridge Deck

Location	Elevation	Location	Elevation	Location	Elevation
1L		1C		1R	
2L		2C		2R	
3L		3C		3R	
4L		4C		4R	
5L		5C		5R	
6L		6C		6R	
7L		7C		7R	
8L		8C		8R	
9L		9C		9R	
10L		10C		10R	
11L		11C		11R	
12L		12C		12R	
13L		13C		13R	
14L		14C		14R	
15L		15C		15R	
16L		16C		16R	
17L		17C		17R	

Table of Elevations - Bridge Survey Markers

Location	Station - Offset	Elevation
Begin Bridge		
End Bridge		

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Bridge Elevation Survey	LS	Lump Sum

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

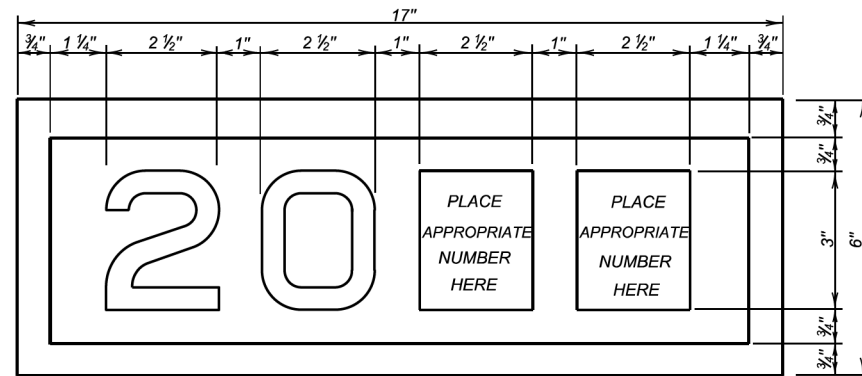


AS-BUILT ELEVATION SURVEY
FOR
162' - 0" CONT. CONCRETE BRIDGE
28' - 0" ROADWAY 0° SKEW
OVER PIPESTONE CREEK SEC. 20/29-T105N-R47W
STA. 105+03.00 TO 106+65.00 BRO-B 8051(16)
STR. NO. 51-195-220 HL-93

MOODY COUNTY
S. D. DEPT. OF TRANSPORTATION
JULY 2023

DESIGNED BY MJK MOOD085Q	CK. DES. BY ZZJ 085QAB13	DRAFTED BY NTF	BRIDGE ENGINEER
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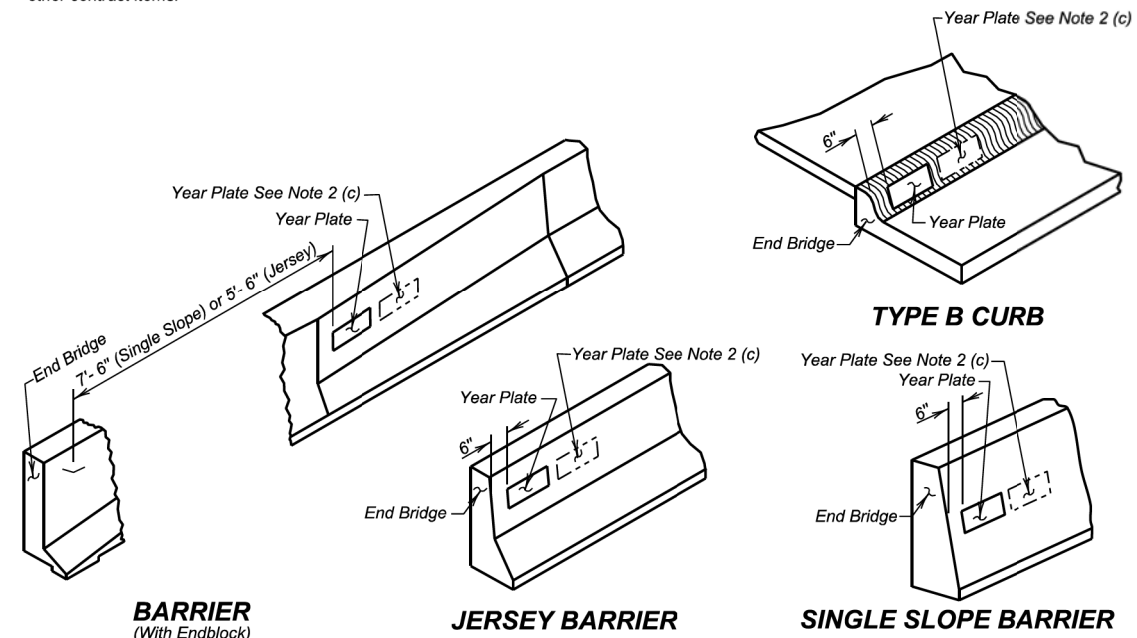
Revised: 7/15/2024 AMB



YEAR PLATE DETAILS

GENERAL NOTES:

- 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.
- Year plates will be located on structure(s) as follows:
 - 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.
 - 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.
 - 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.
- There will be no separate measurement or payment made for year plates on box culverts and bridges. All costs for this work will be incidental to other contract items.



BARRIER
(With Endblock)

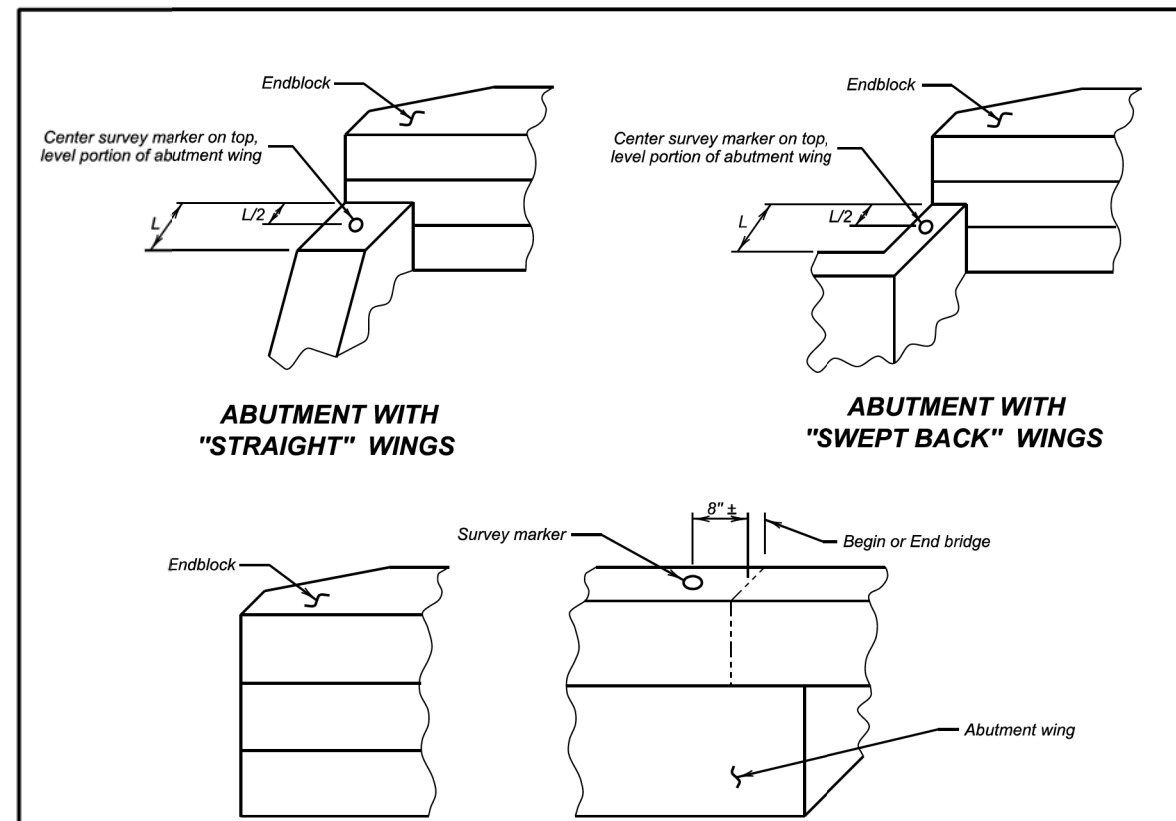
JERSEY BARRIER

SINGLE SLOPE BARRIER

TYPE B CURB

January 22, 2021

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



ABUTMENT WITH "STRAIGHT" WINGS

ABUTMENT WITH "SWEEP BACK" WINGS

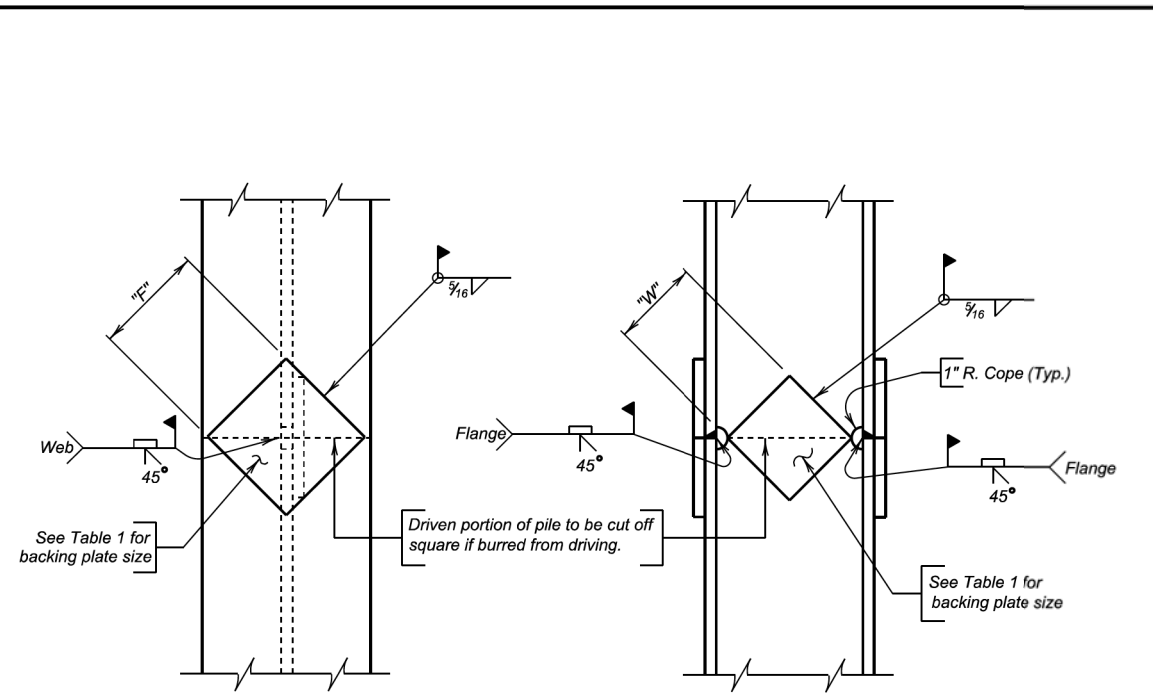
ABUTMENT WITH "SWEEP BACK" WINGS
(Endblock on top of wings)

GENERAL NOTES:

- Survey markers shall be located at each abutment on the same side of the bridge as the year plate. Place survey markers on abutment wings as shown. Two survey markers will be required at each bridge.
- Survey markers shall be of a type intended for installation in concrete, be made of solid brass or bronze, have a domed top and be either a 3" top diameter (with a 3/4" X 2" long ribbed shank), or a US Army Corps of Engineers Type C Disc with a 3 1/2" top diameter.
- There will be no separate measurement or payment made for survey markers. All costs for this work shall be incidental to the other contract items.

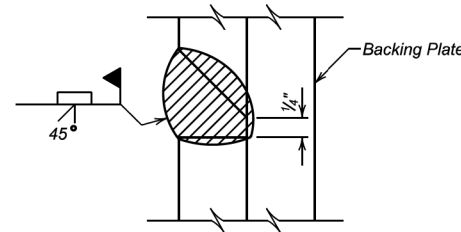
Published Date: 2025	S D D O T	BRIDGE SURVEY MARKER	PLATE NUMBER
			460.05
			Sheet 1 of 1

Revised: 7/15/2024 AMB



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:

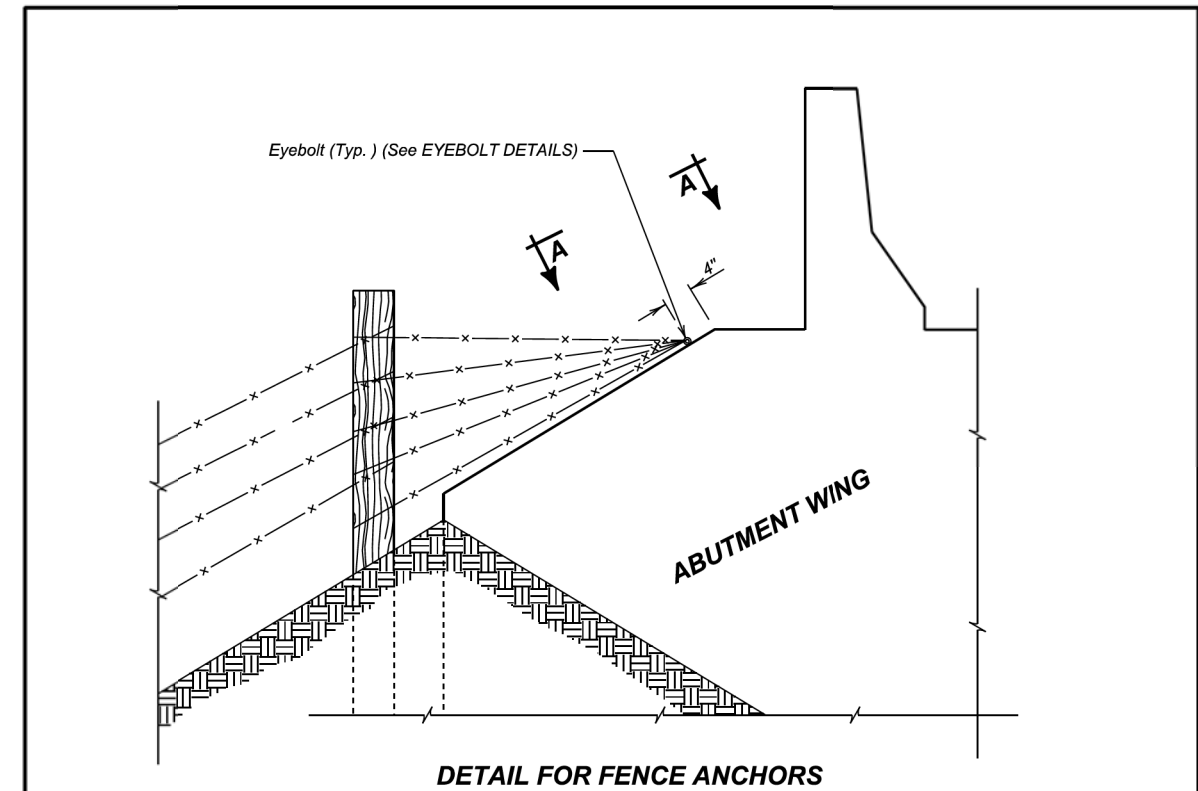
1. Steel for backing plates shall conform to ASTM A709 Grade 50.
2. Welding and weld inspection shall be in conformance with AWS D1.5 (Current Year) Bridge Welding Code - Steel.
3. Welder must be certified and registered with the SDDOT.
4. Backing plate shall at a minimum be as thick as the web of the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

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
		Sheet 1 of 1

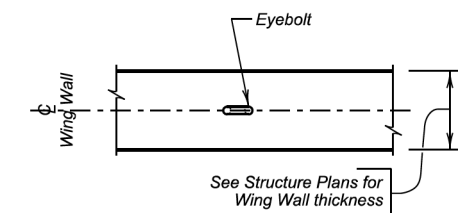
Published Date: 2025



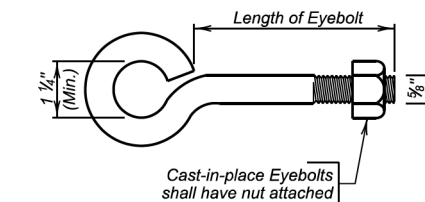
DETAIL FOR FENCE ANCHORS

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

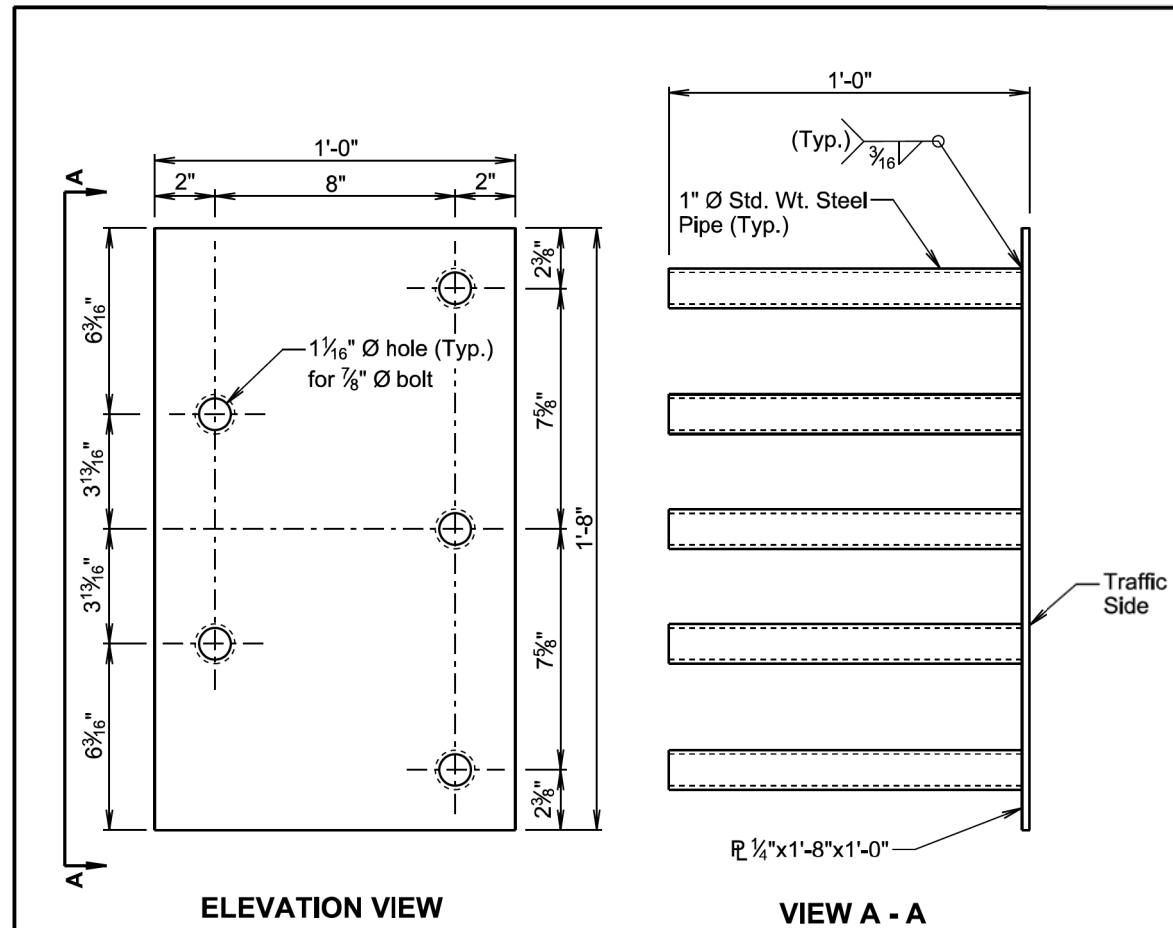
December 23, 2012

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

Published Date: 2025

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	BRO-B 8051(16)	55	66

Revised: 7/15/2024 AMB



GENERAL NOTES:

Steel plate for the insert assembly will conform to ASTM A709, Grade 36. The steel pipes will conform to ASTM A53 or ASTM A500, Grade B.

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

After fabrication, galvanize in accordance with AASHTO M111 (ASTM A123).

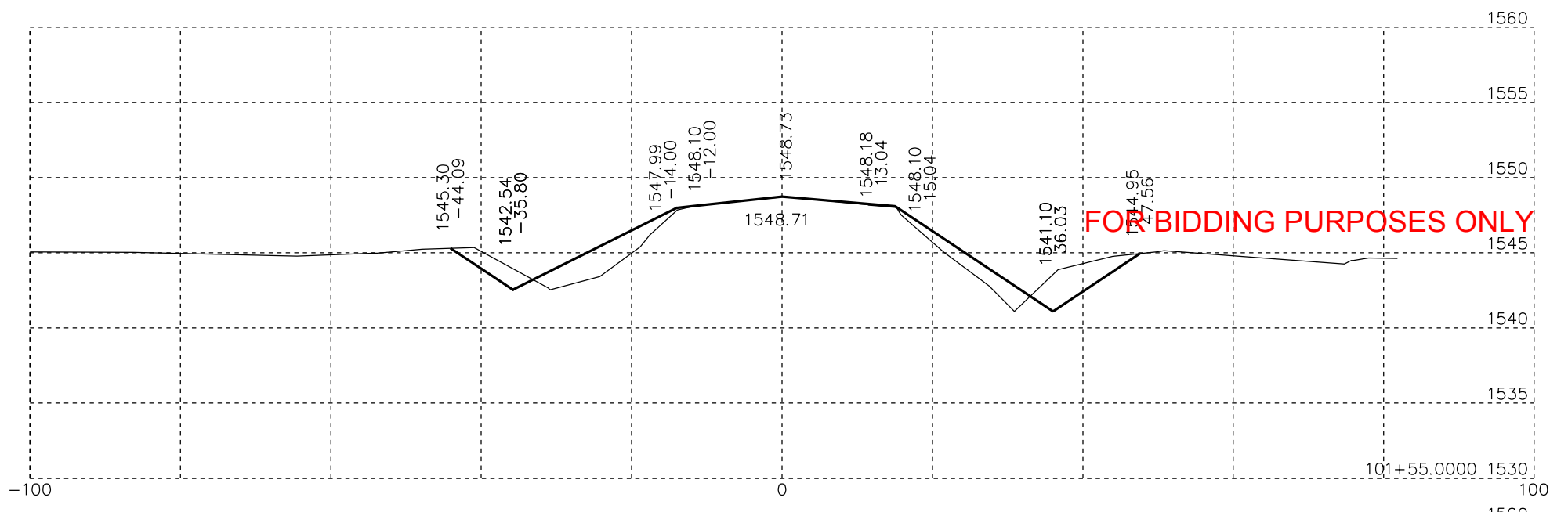
Bolts, nuts, and washers will be provided with each assembly. Bolts will be galvanized and conform to the requirements of ASTM A307, F-1554 Grade A325, or A449. Plain washers will be galvanized and conform to ASTM F844.

Bolt heads will be placed on the traffic side of the endblock. Bolt projection at the back side of the insert will not exceed 1 inch beyond the nut.

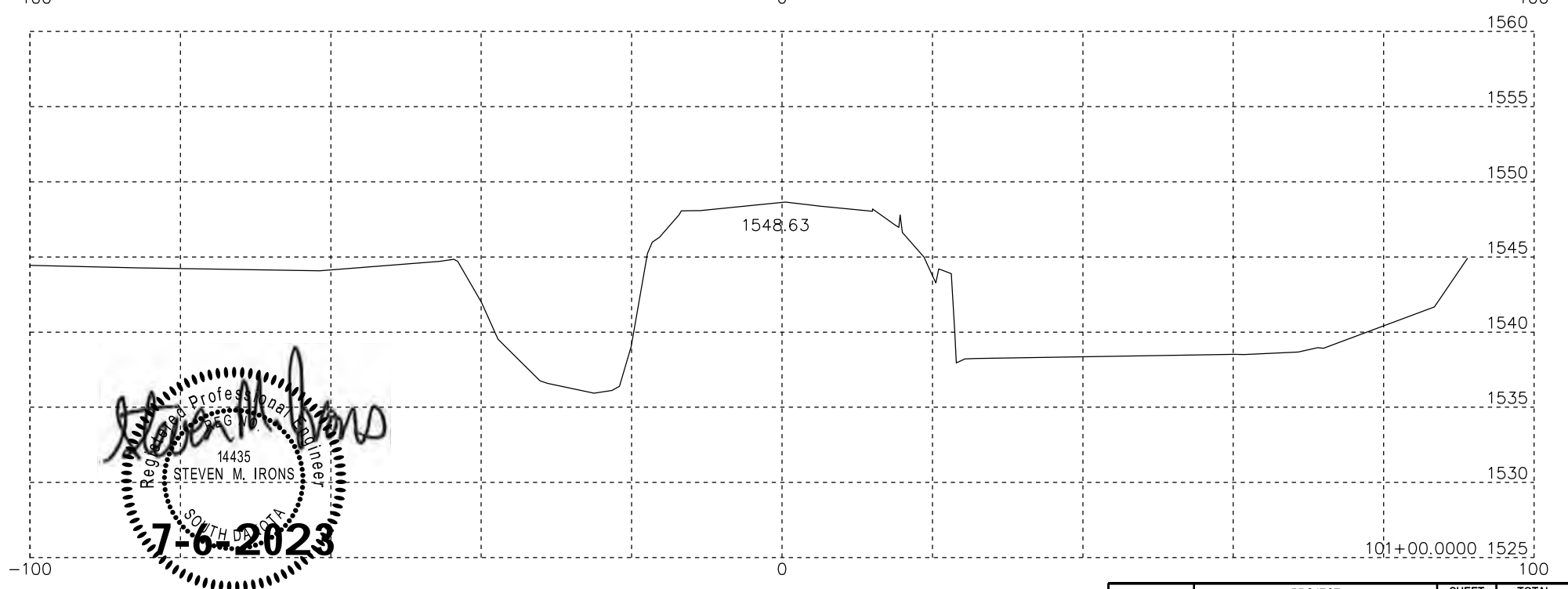
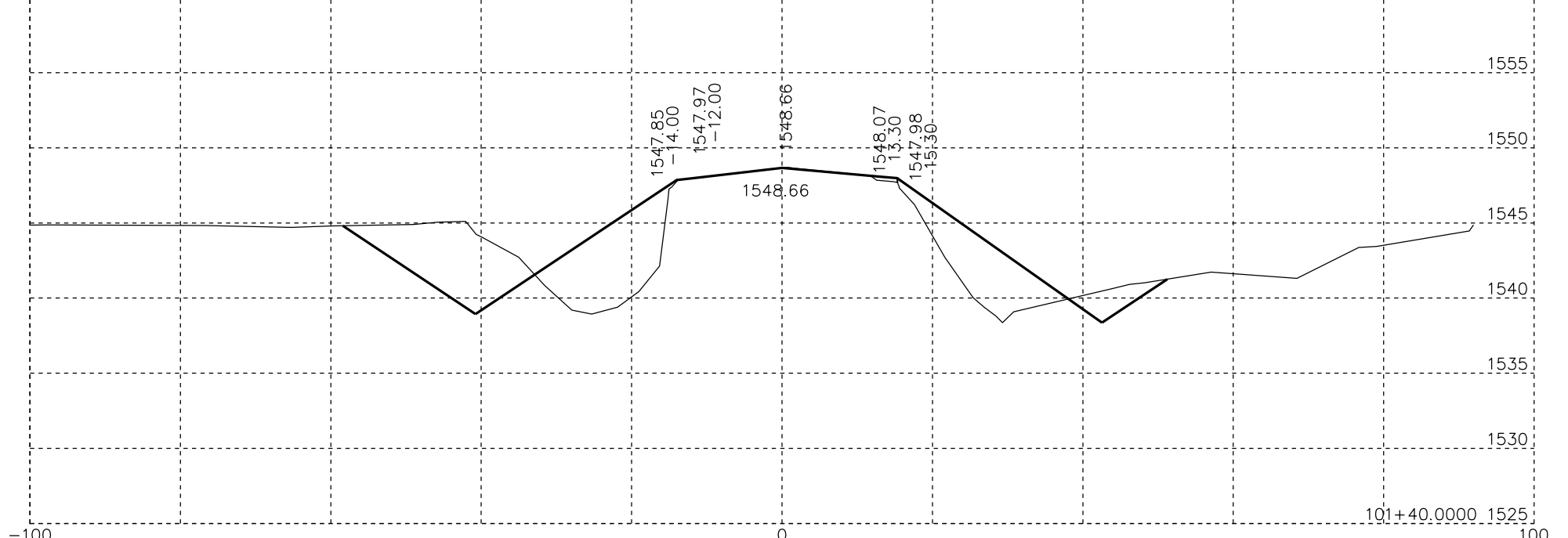
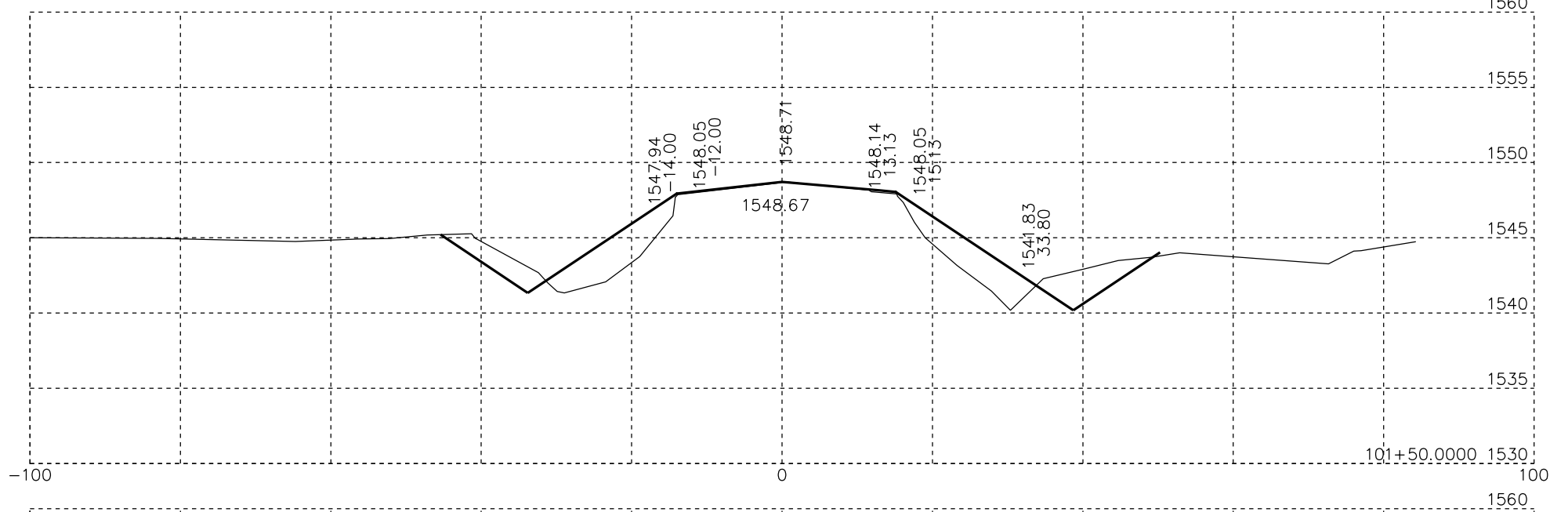
The cost of the 5 bolt insert plate assembly complete in place including welding and galvanizing will be incidental to the contract unit price per cubic yard for "Class A45 Concrete, Miscellaneous", "Class A45 Concrete, Bridge Deck", or "Class A45 Concrete, Bridge Repair", as applicable.

August 27, 2020

Published Date: 2025	S D D O T	5 BOLT INSERT PLATE ASSEMBLY	PLATE NUMBER 630.92
			Sheet 1 of 1



FOR BIDDING PURPOSES ONLY

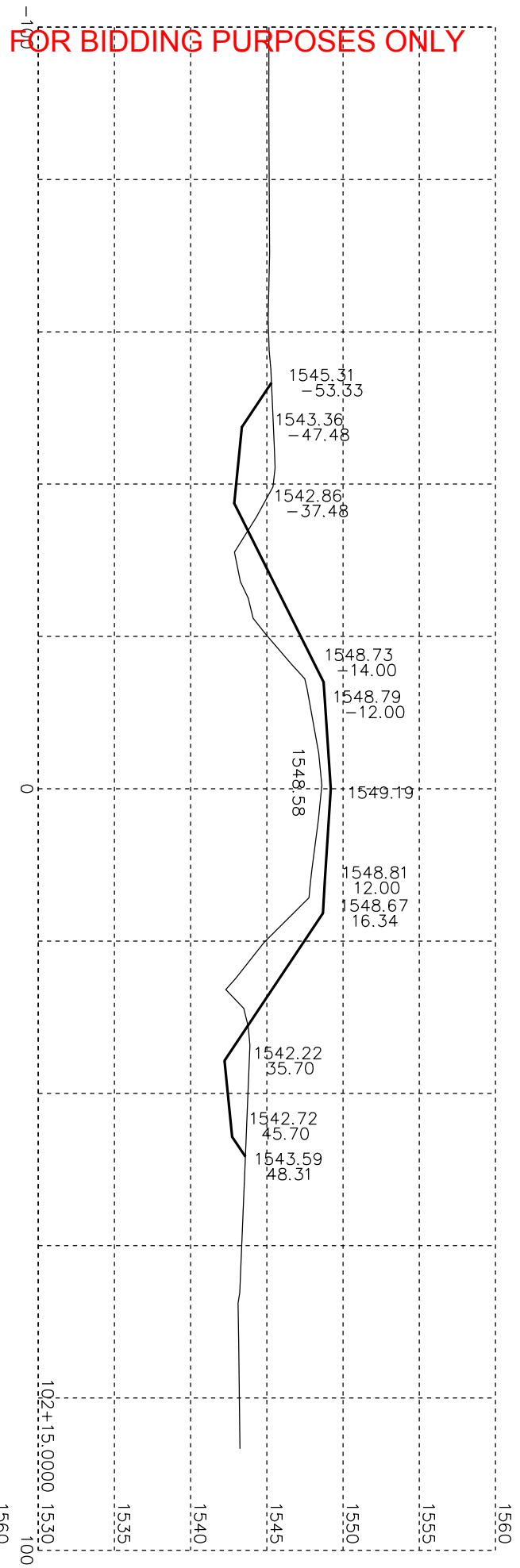
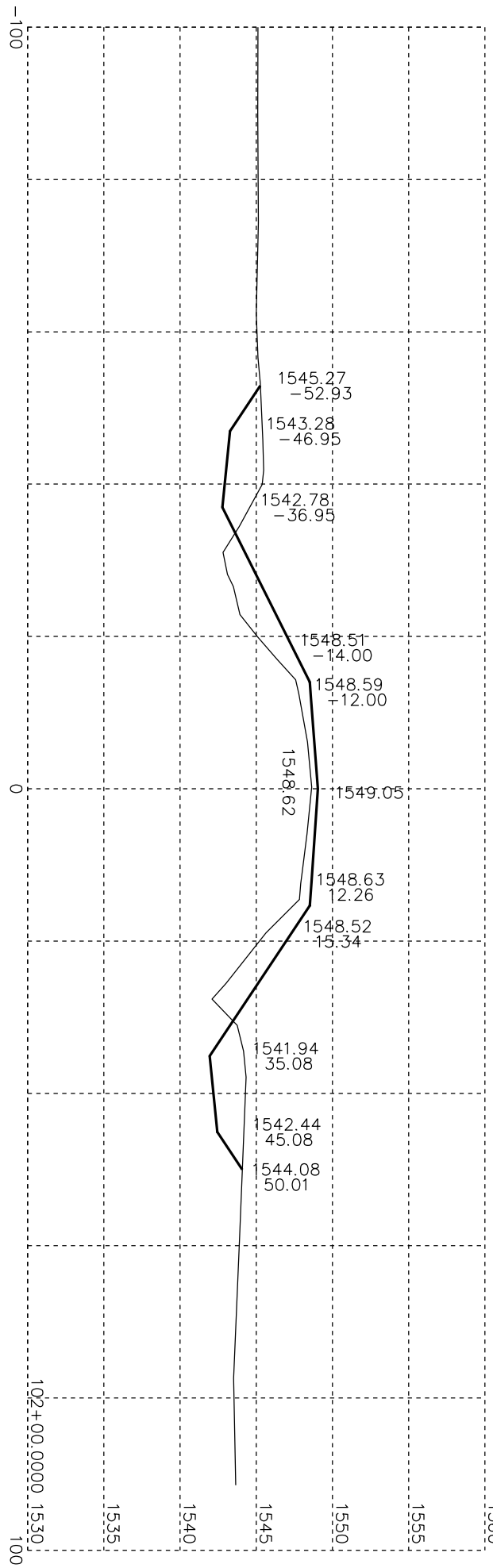
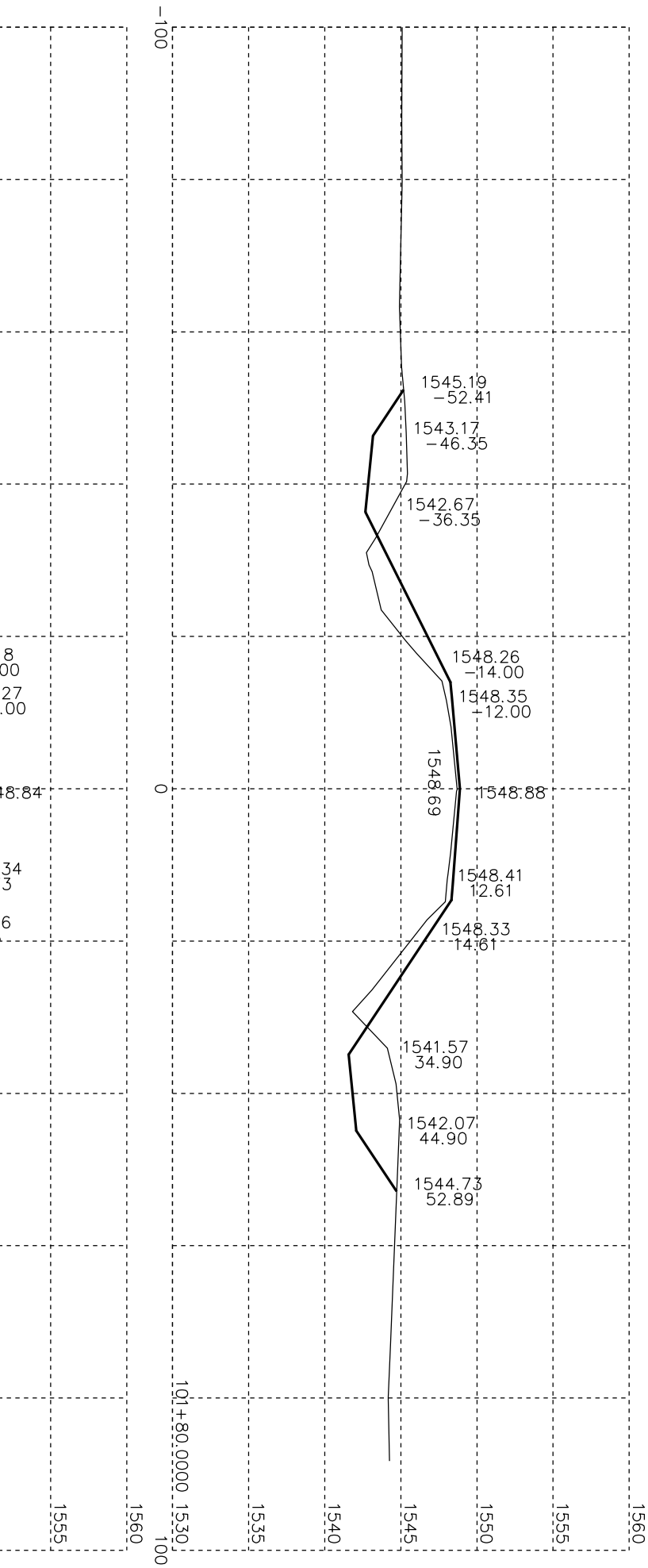
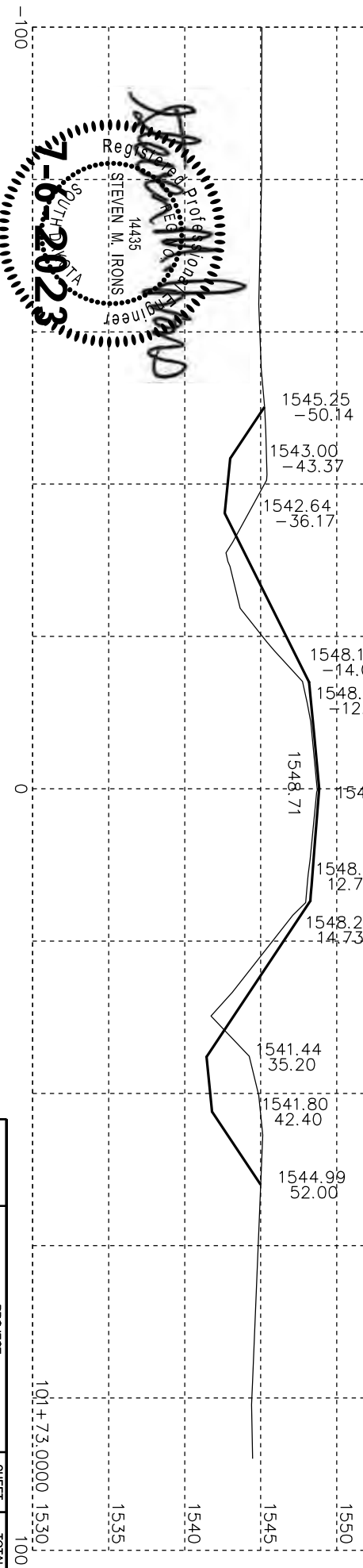


Registered Professional Engineer
 STEVEN M. IRONS
 14435
 SOUTH DAKOTA
 7-6-2023

Plotting Date: 7/6/2023

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8051(16)	56	66

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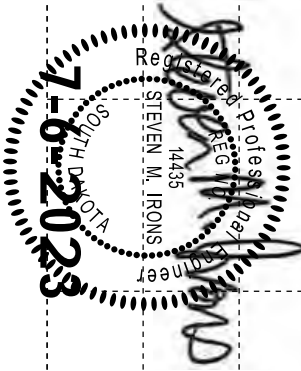
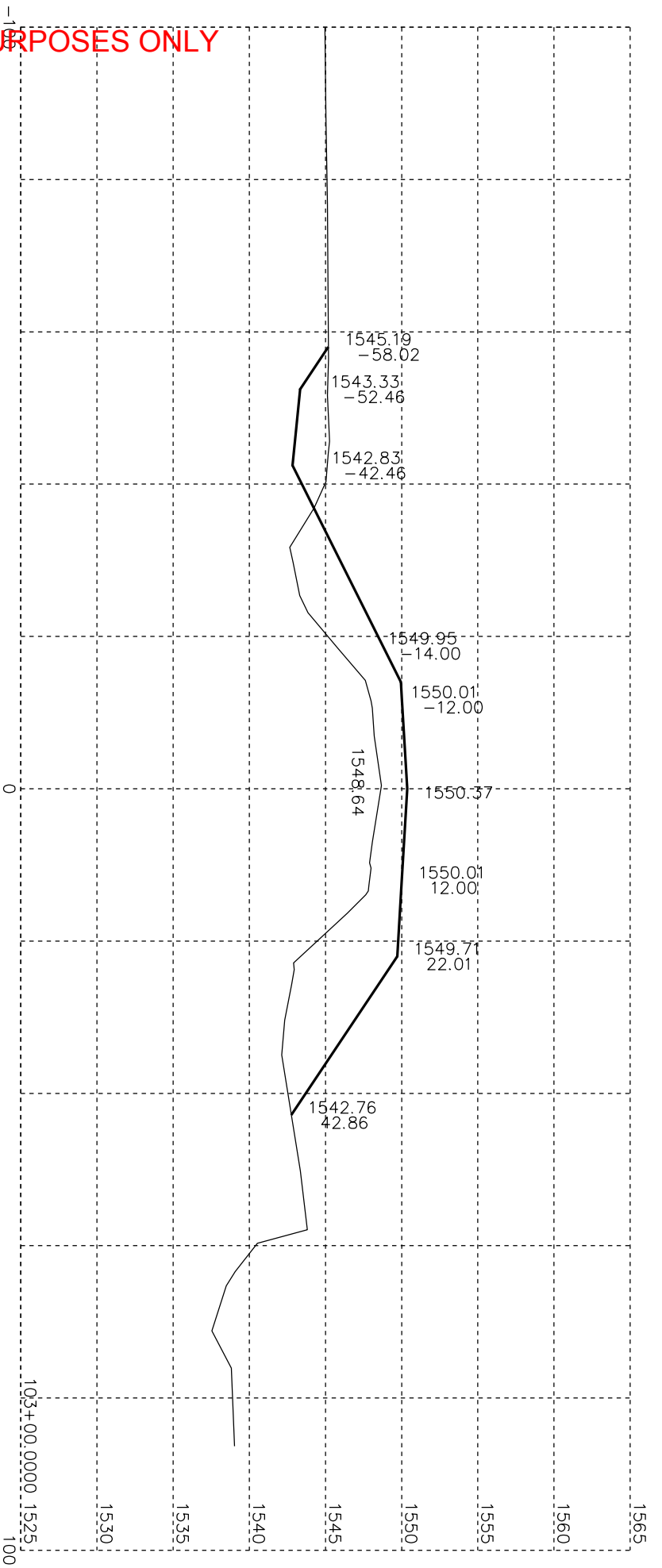
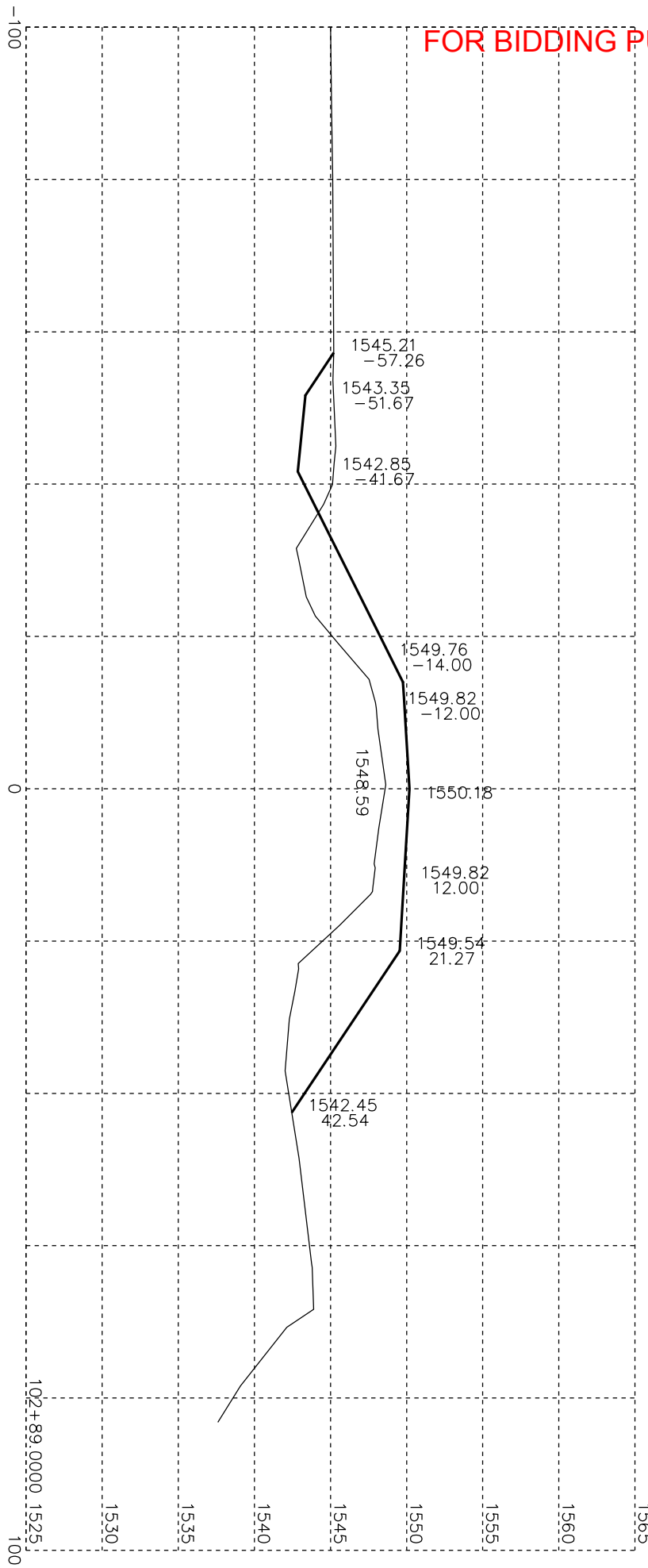
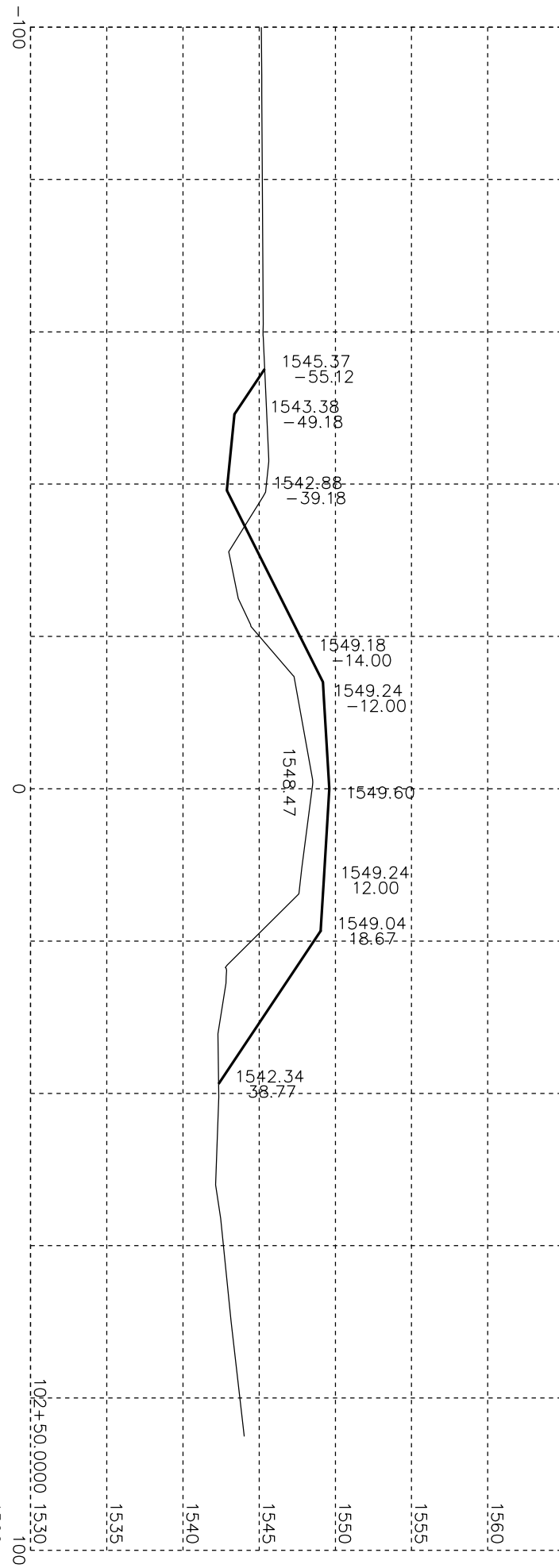
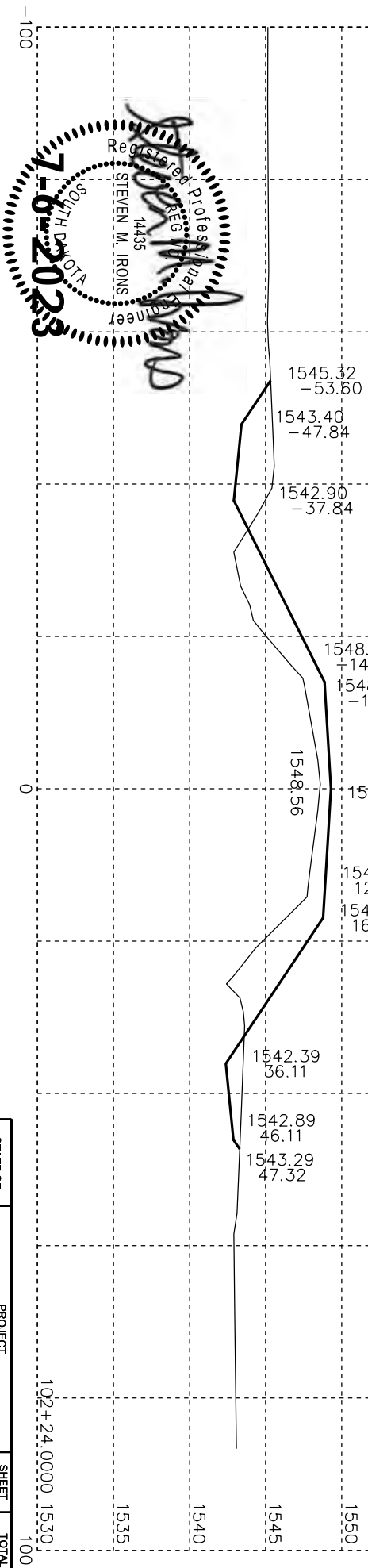


Steven M. Irons
 Professional Engineer
 State of South Dakota
 License No. 14435

Plotting Date: 7/6/2023

STATE OF SOUTH DAKOTA	PROJECT BRO 8051(16)	SHEET NO. 57	TOTAL SHEETS 66
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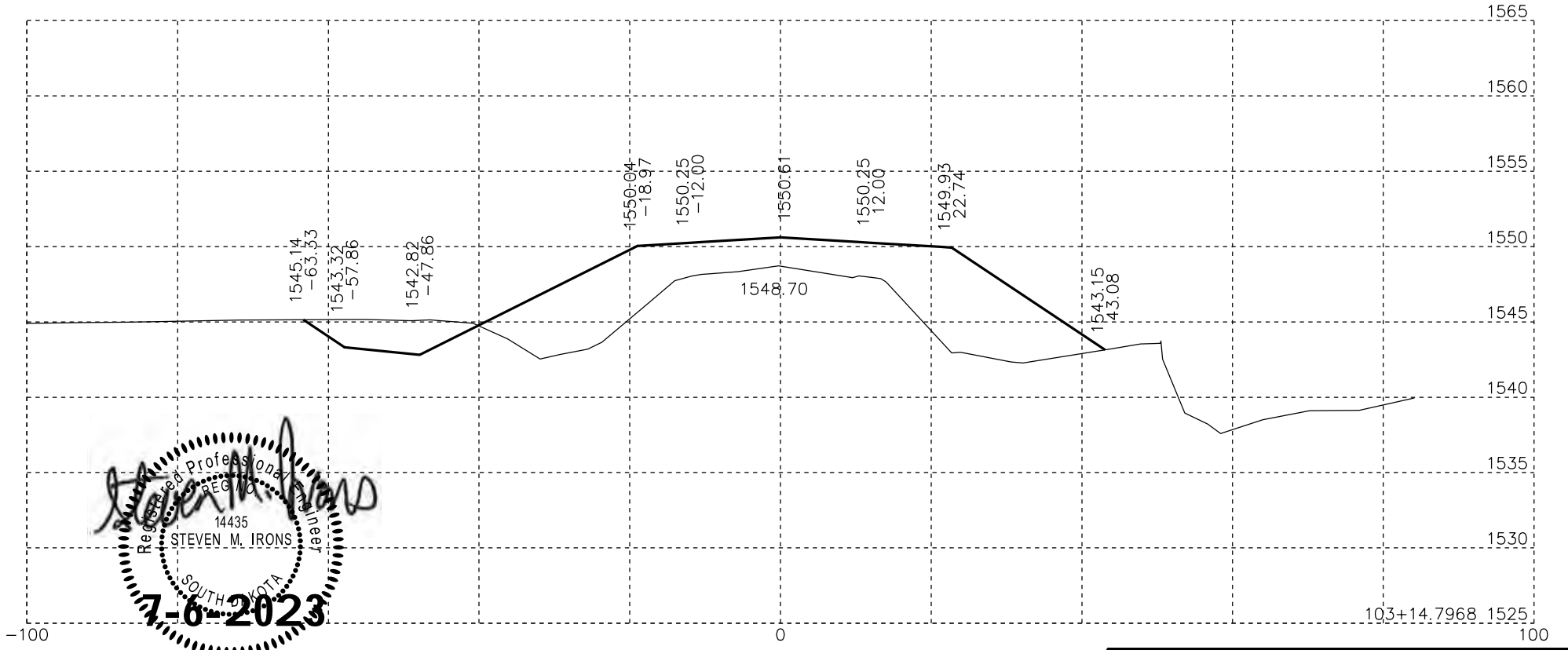
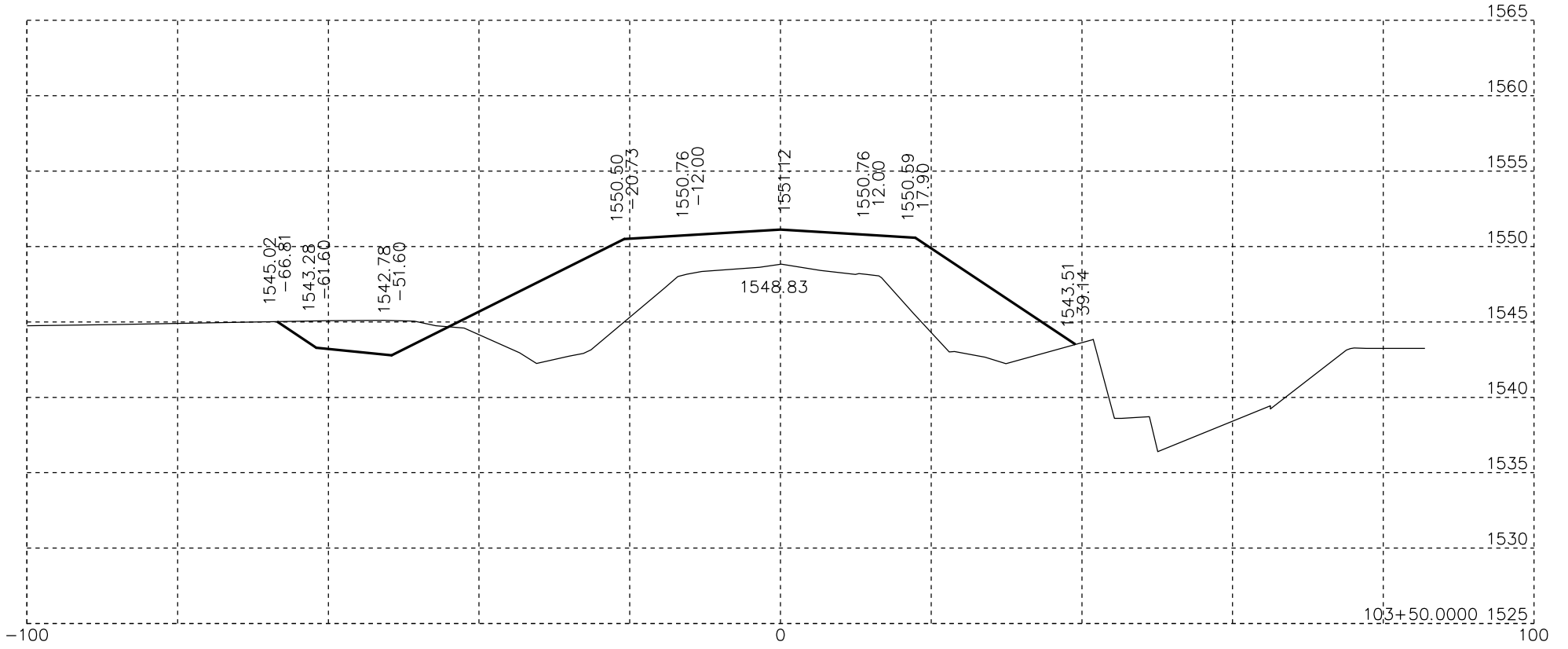
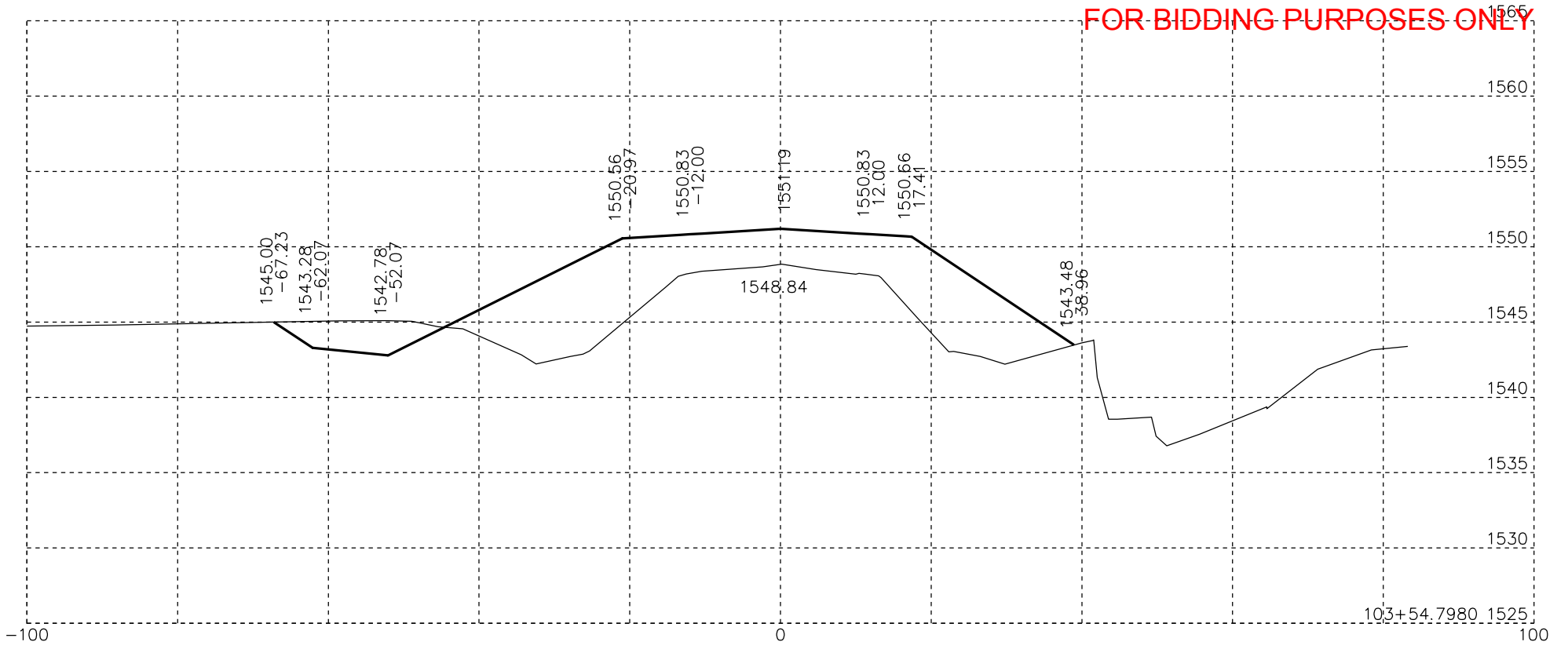
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Plotting Date: 7/6/2023

STATE OF SOUTH DAKOTA	PROJECT BRO 8051(16)	SHEET NO. 58	TOTAL SHEETS 66
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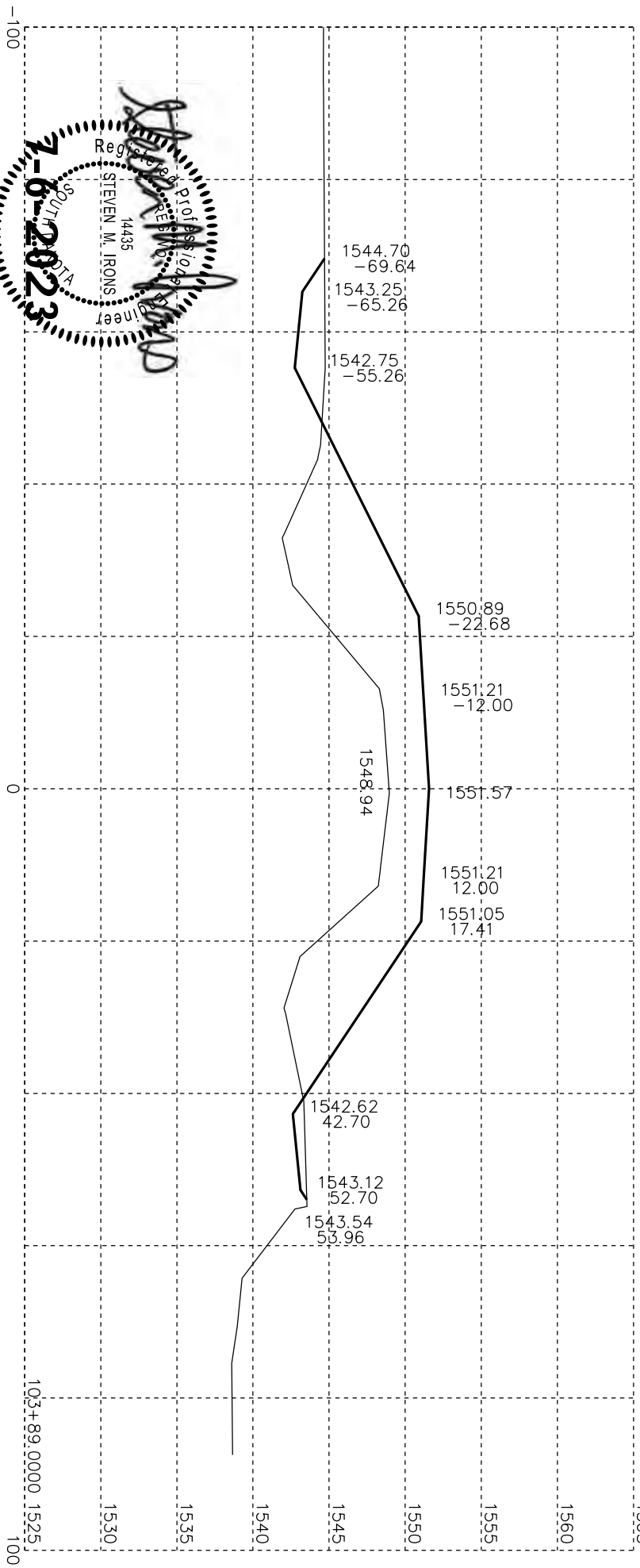
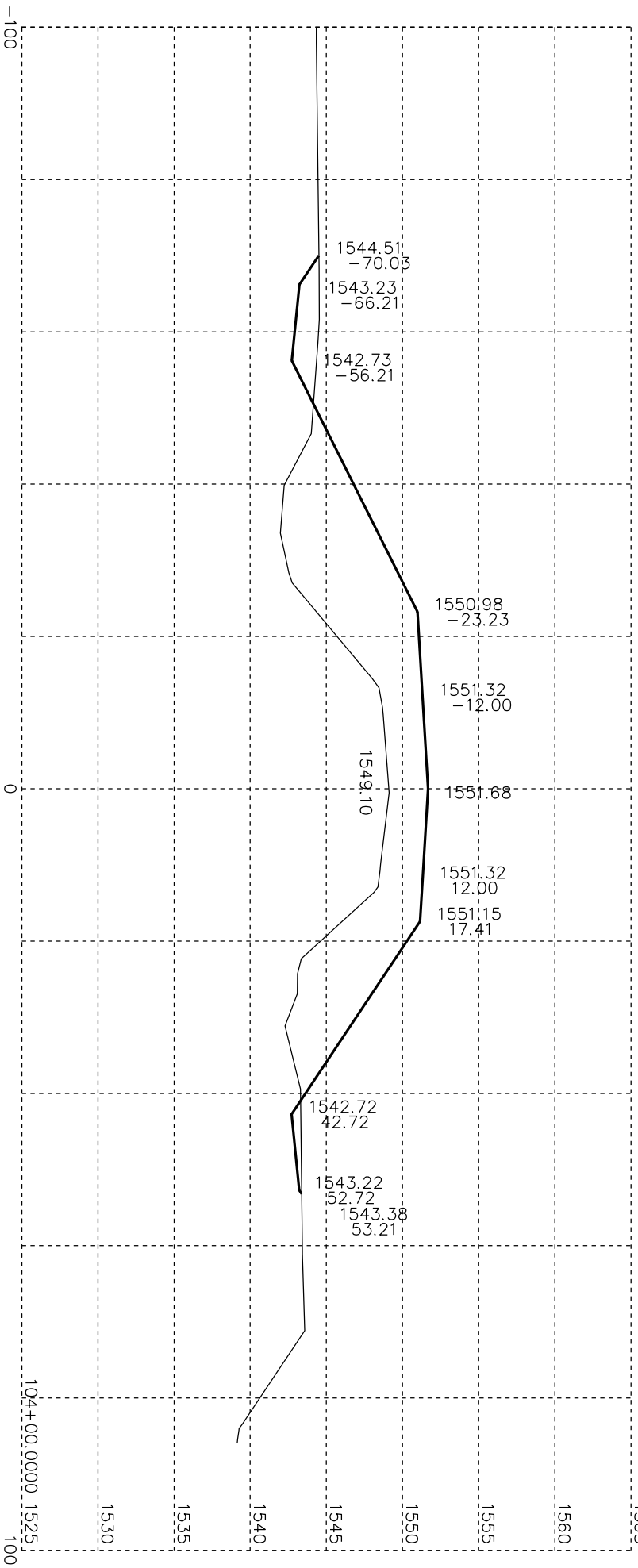
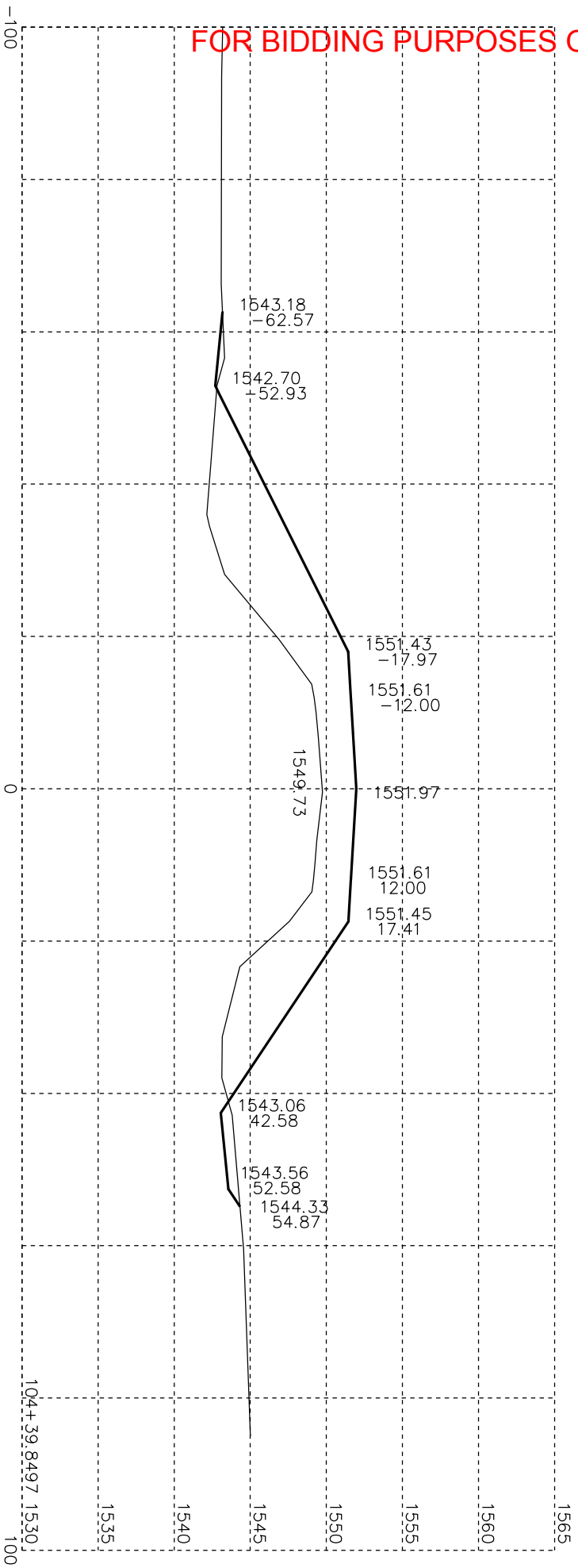


Professional Engineer
REG. NO. 14435
STEVEN M. IRONS
SOUTH DAKOTA
7-6-2023

Plotting Date: 7/6/2023

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8051(16)	59	66

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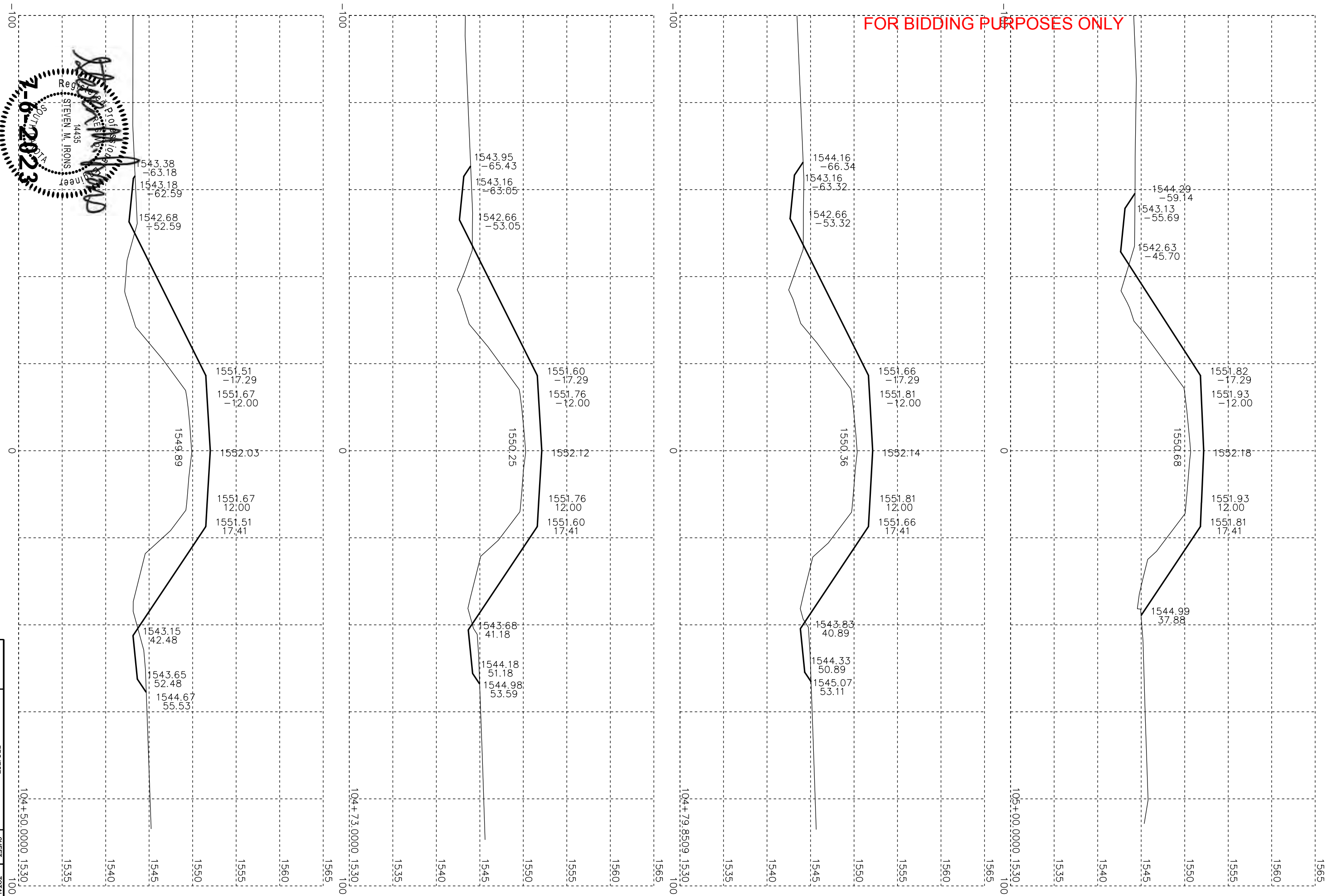


Steven M. Irons
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 State of South Dakota

Plotting Date: 7/6/2023

STATE OF SOUTH DAKOTA	PROJECT BRO 8051(16)	SHEET NO. 60	TOTAL SHEETS 66
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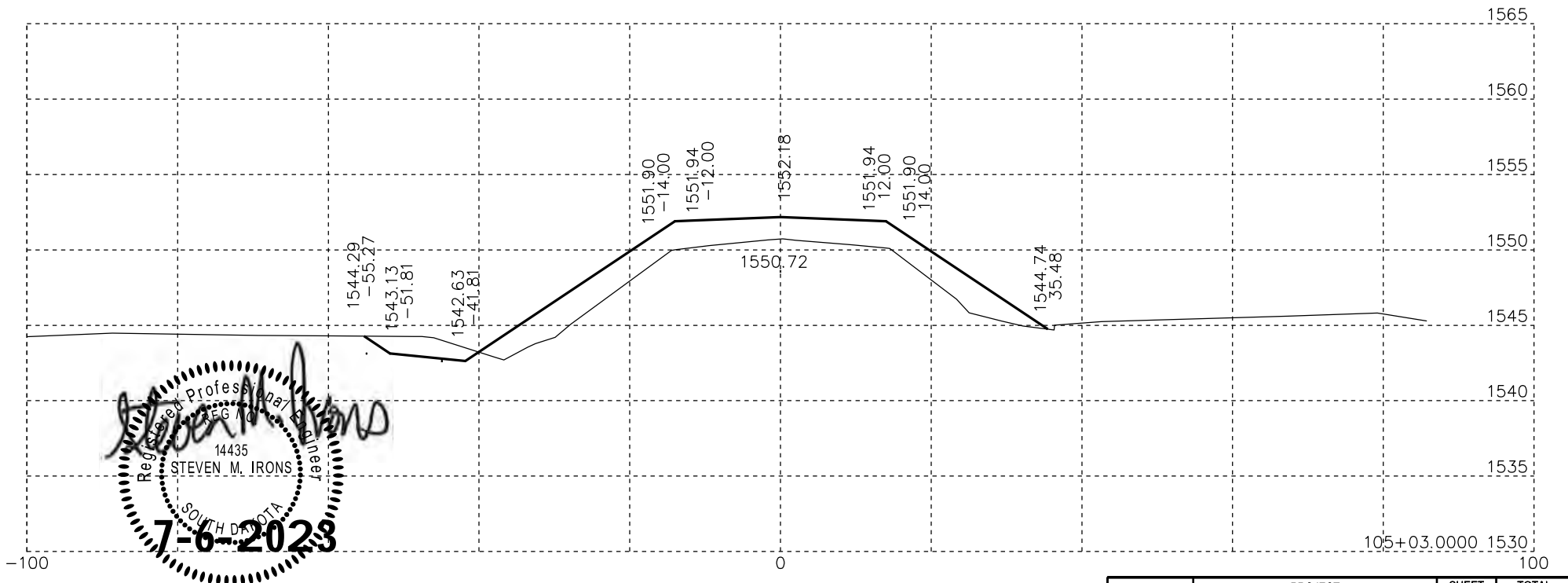
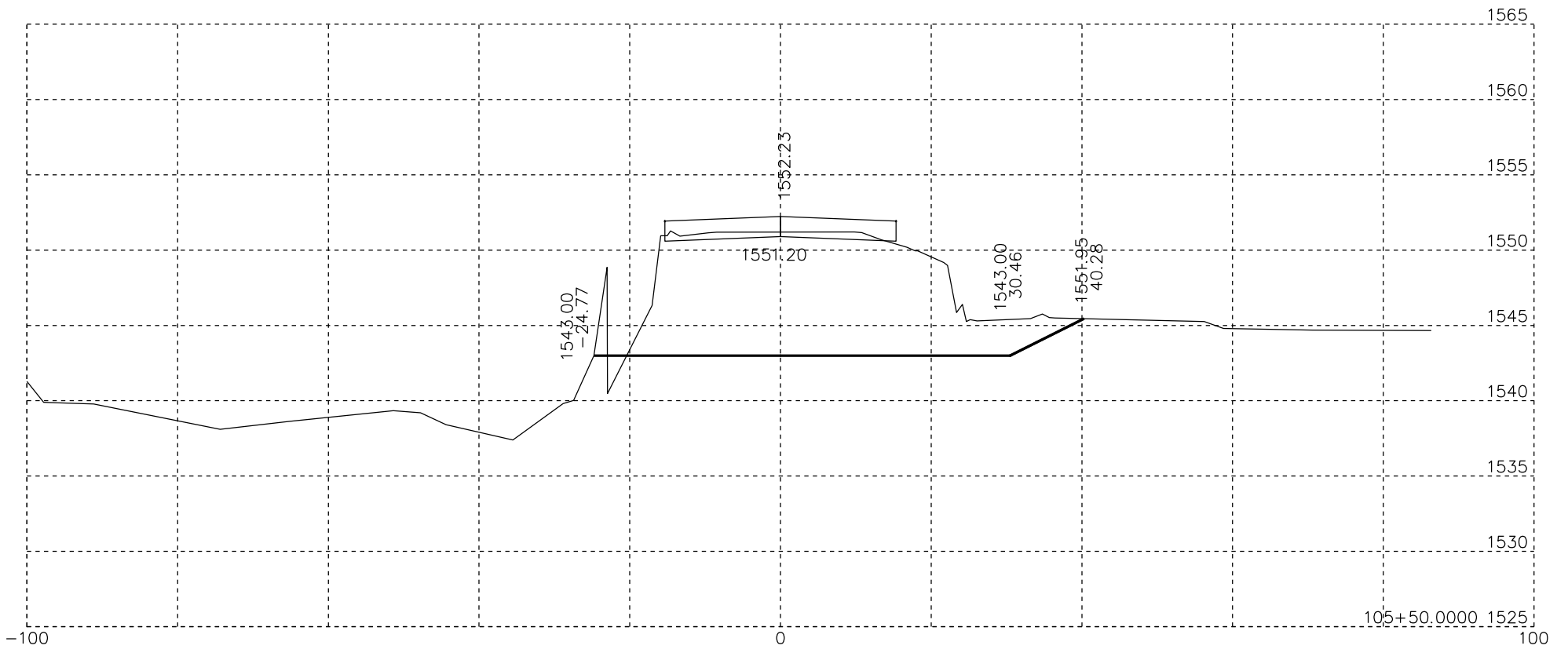
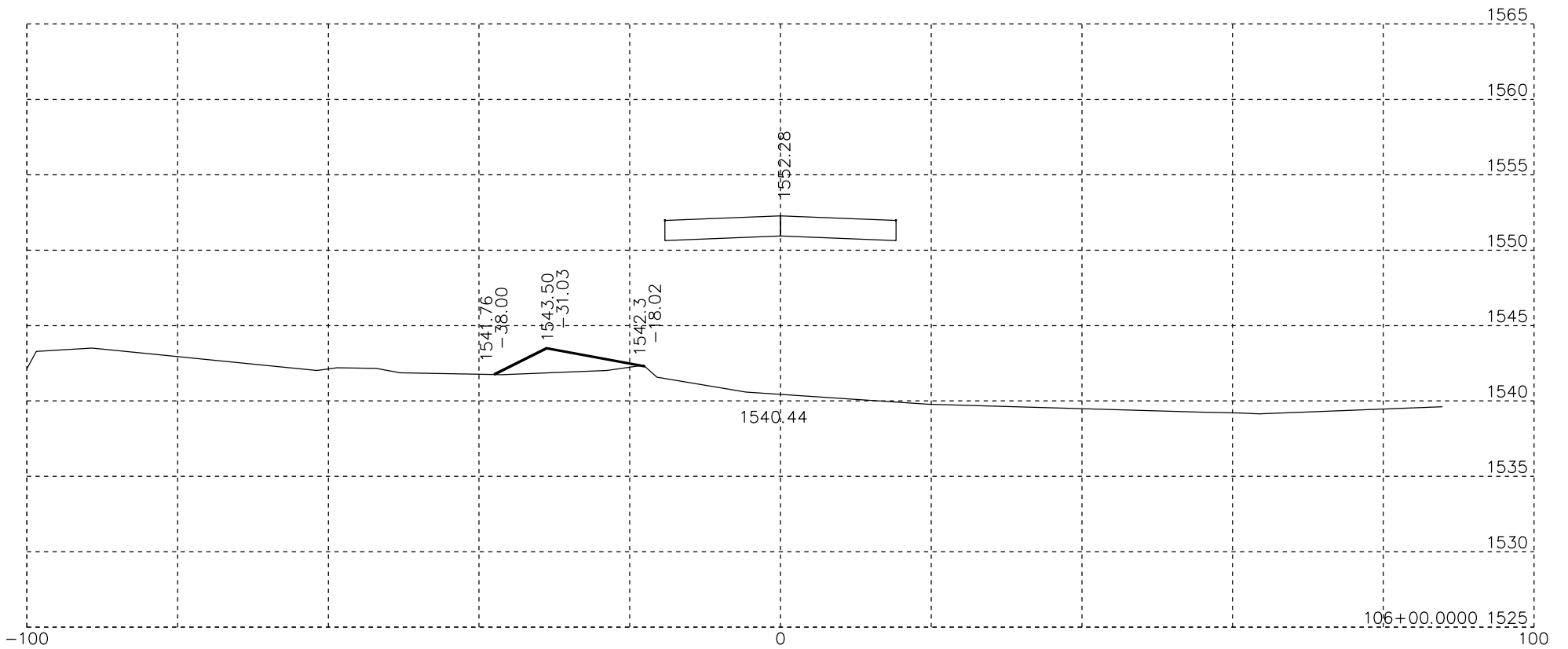


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 7-6-2023
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Plotting Date: 7/6/2023

STATE OF SOUTH DAKOTA	PROJECT BRO 8051(16)	SHEET NO. 61	TOTAL SHEETS 66
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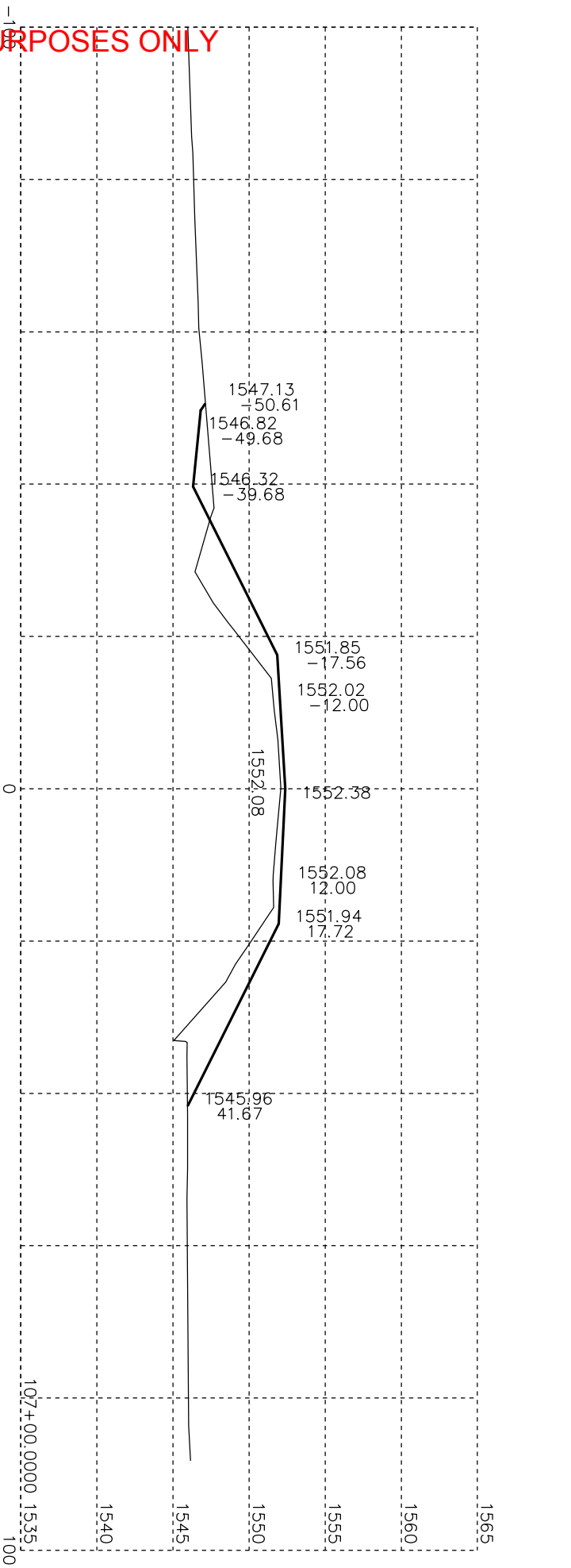
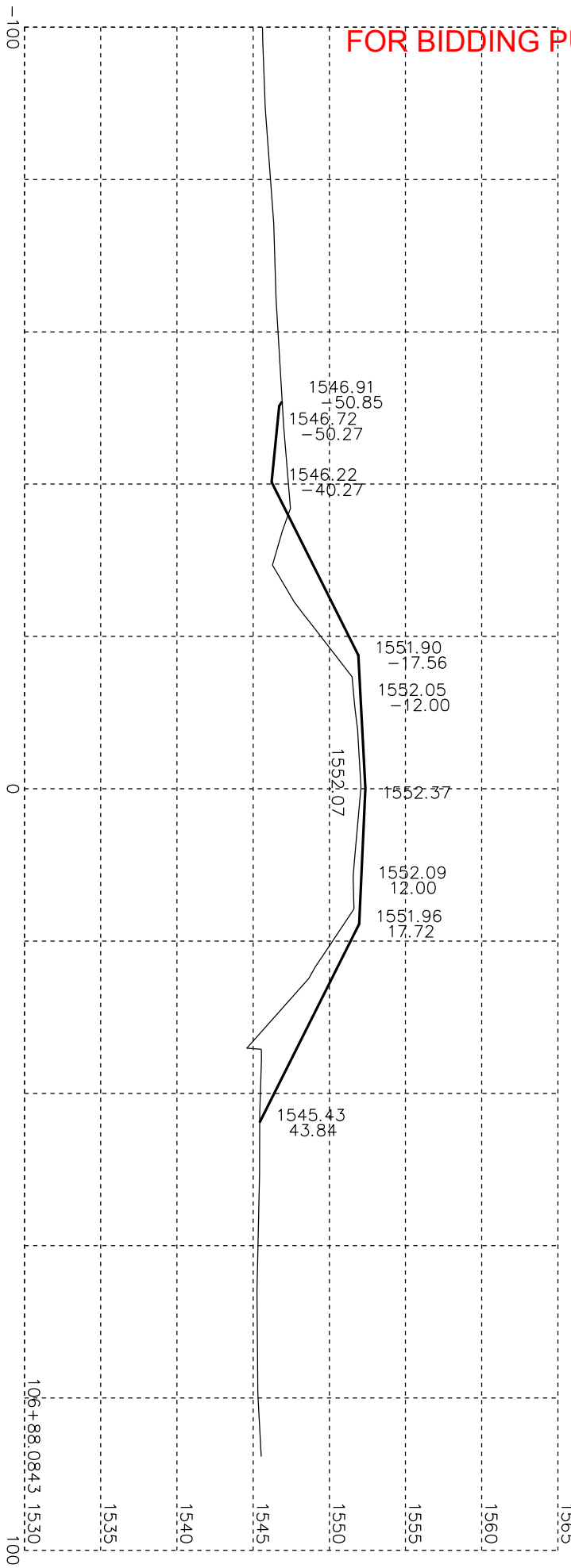
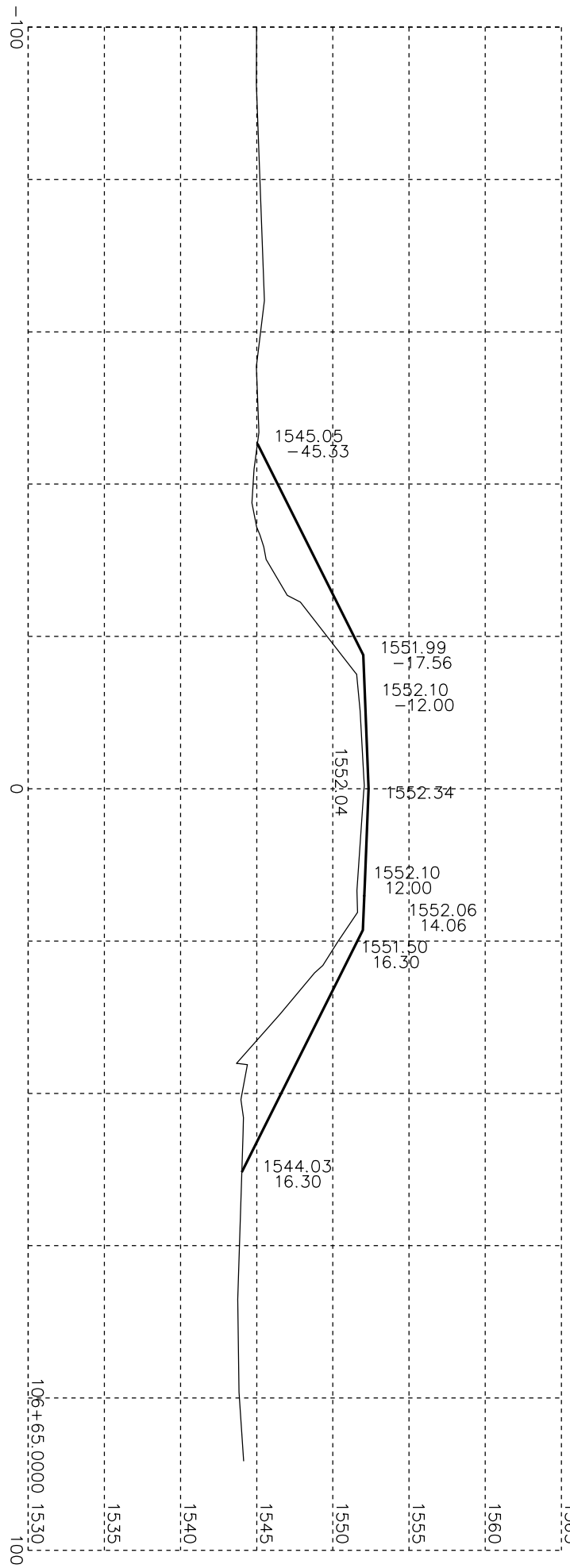
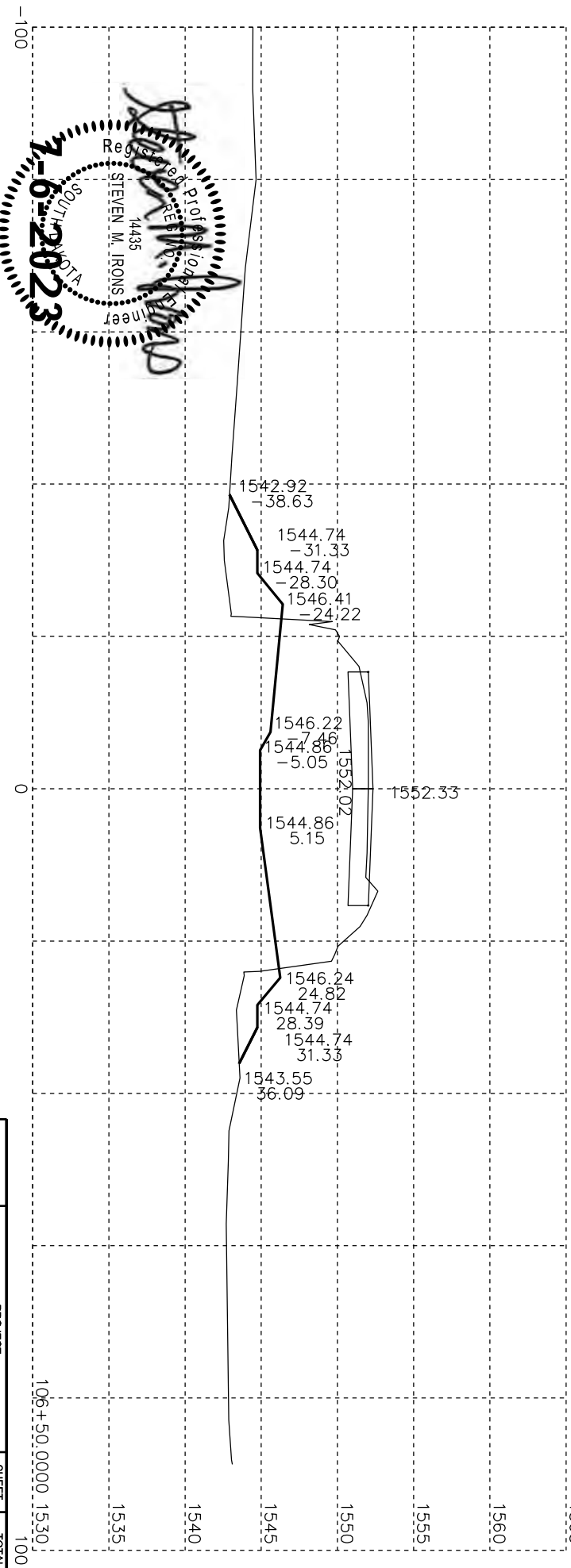
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Professional Engineer
 REG. NO. 14435
 STEVEN M. IRONS
 SOUTH DAKOTA
 7-6-2023

Plotting Date: 7/6/2023

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8051(16)	62	66



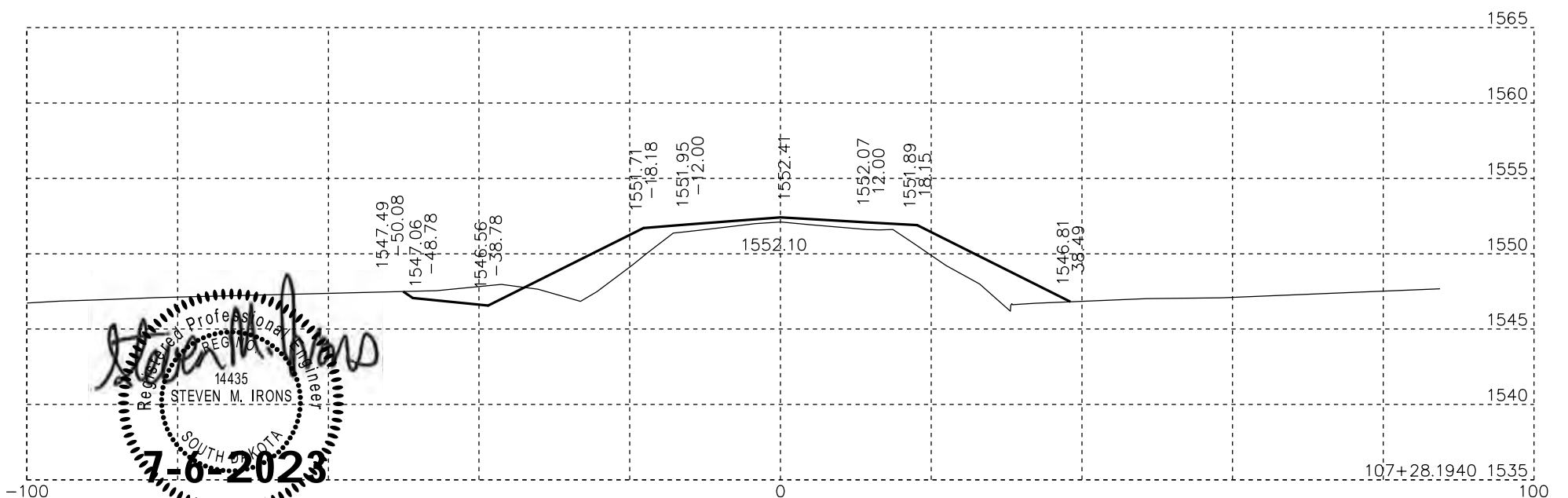
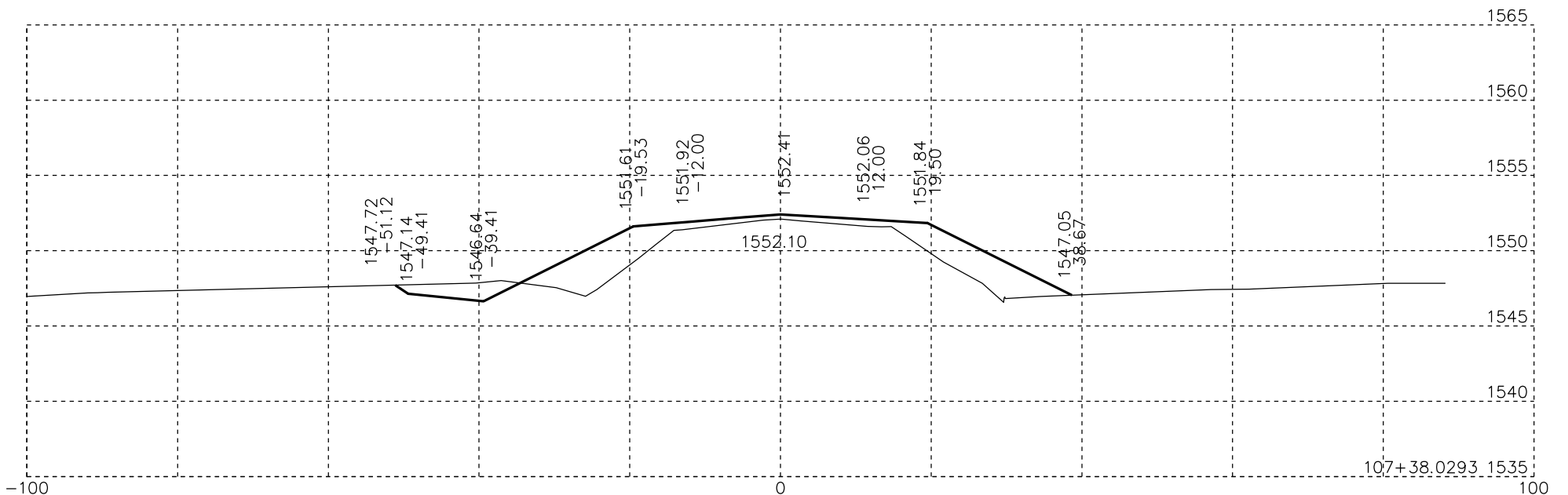
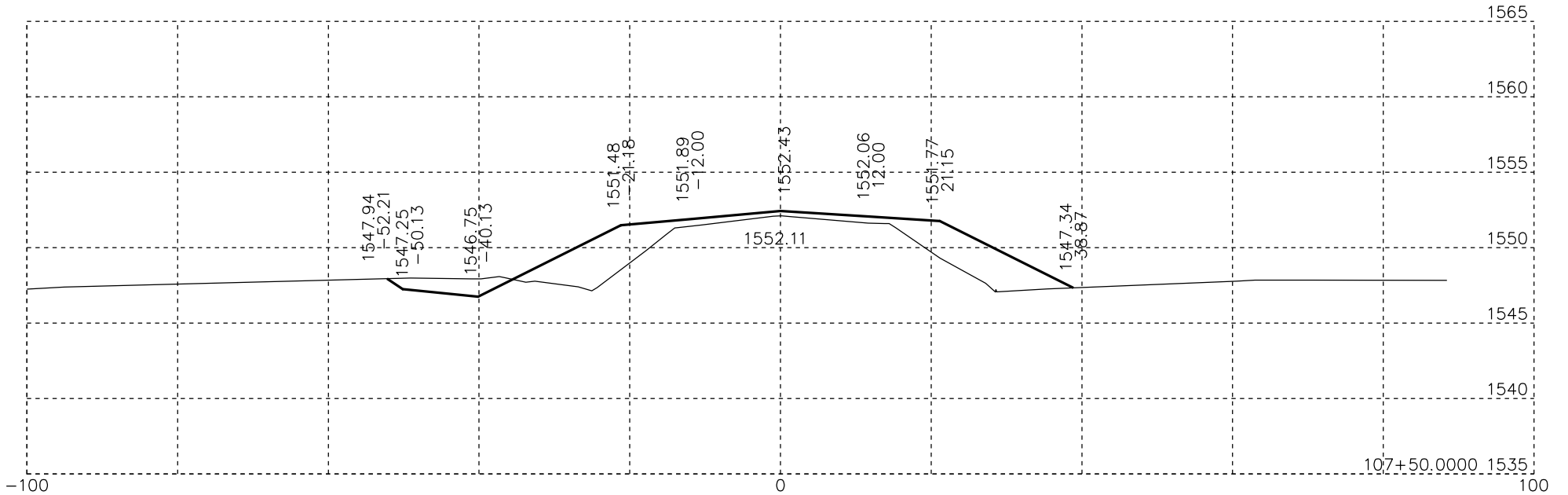
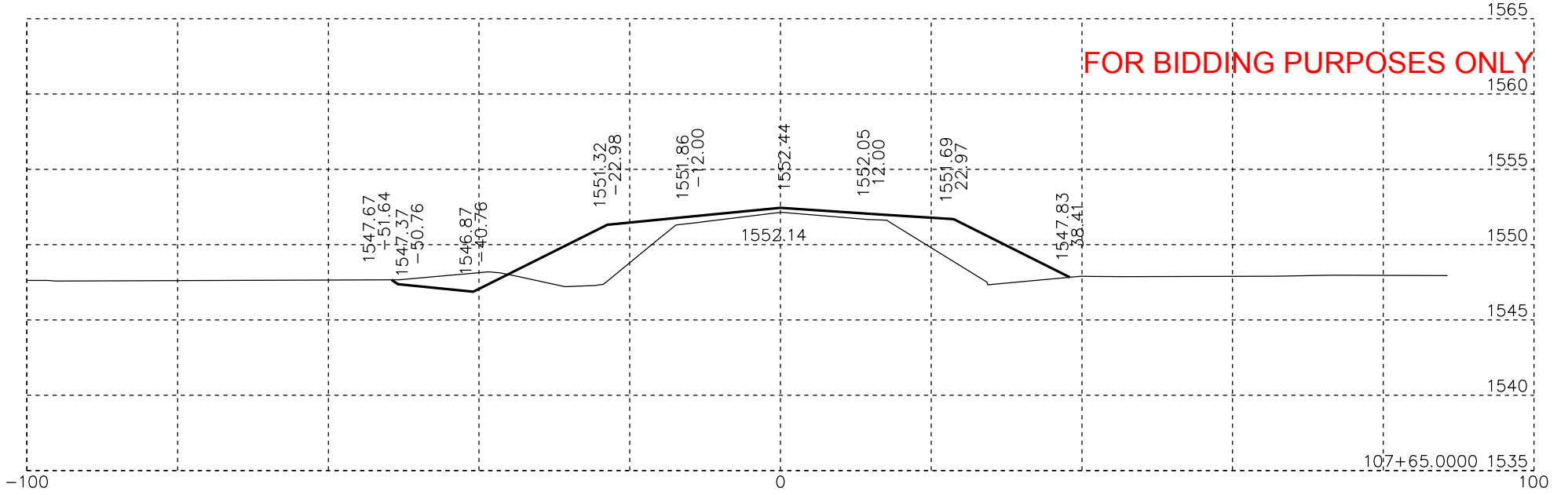
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REGISTERED PROFESSIONAL SURVEYOR
 STATE OF SOUTH DAKOTA
 No. 1493
 STEVEN M. IRONS
 7-6-2023

Plotting Date: 7/6/2023

STATE OF SOUTH DAKOTA	PROJECT BRO 8051(16)	SHEET NO. 63	TOTAL SHEETS 66
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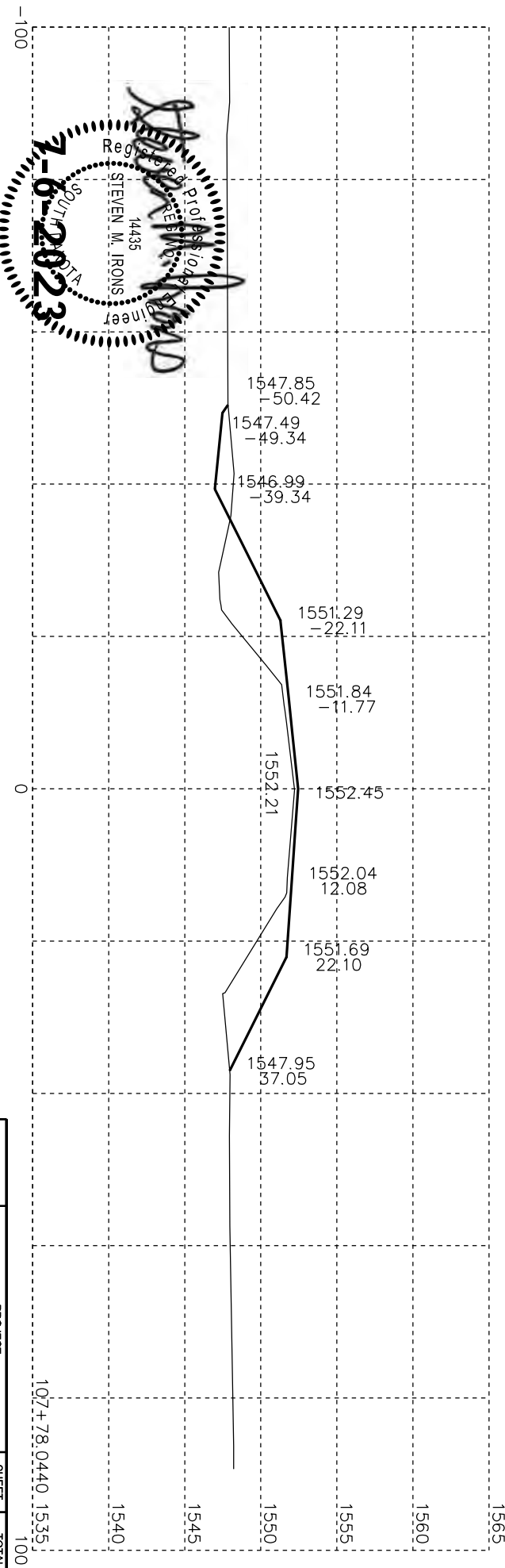
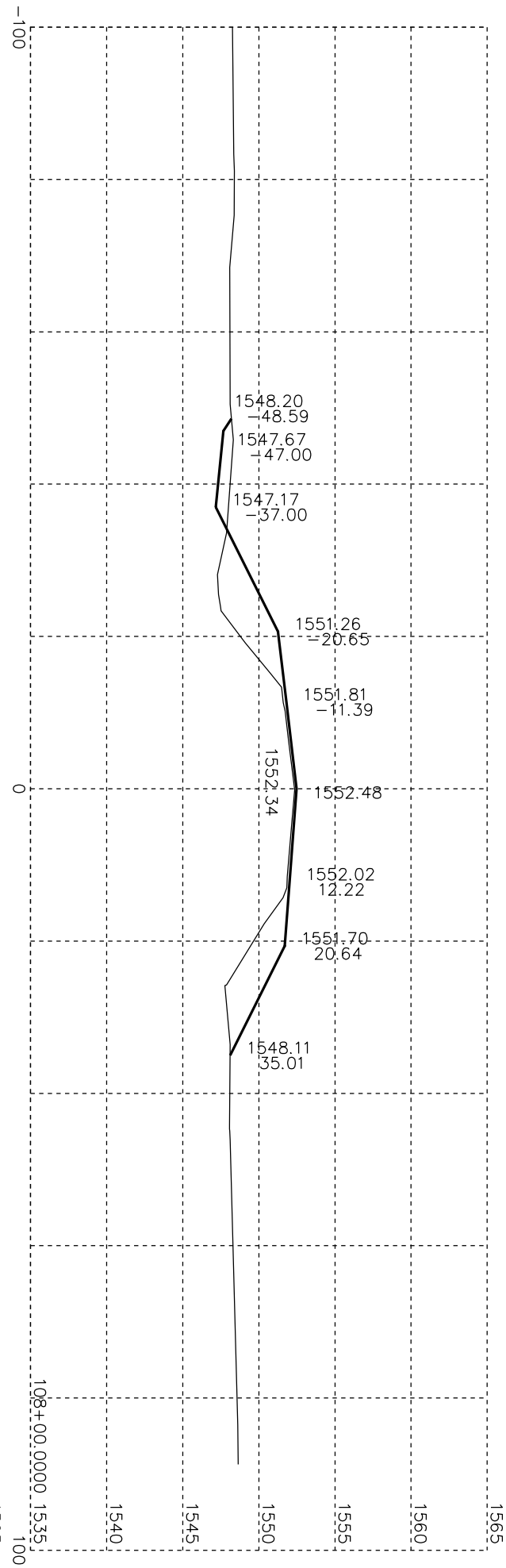
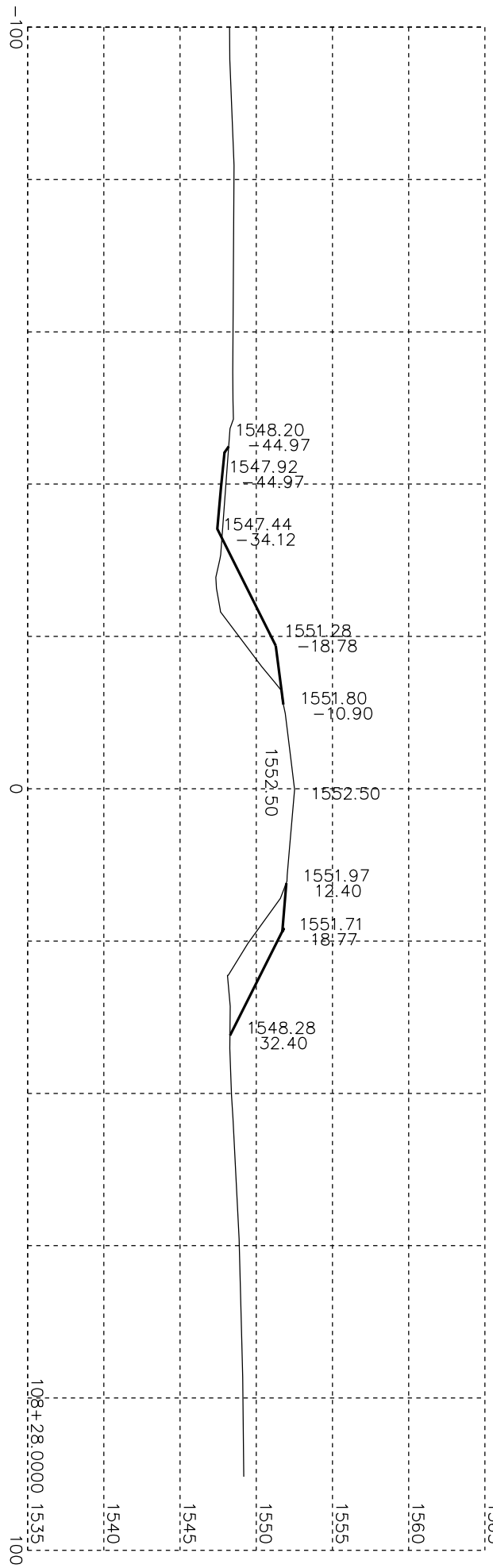
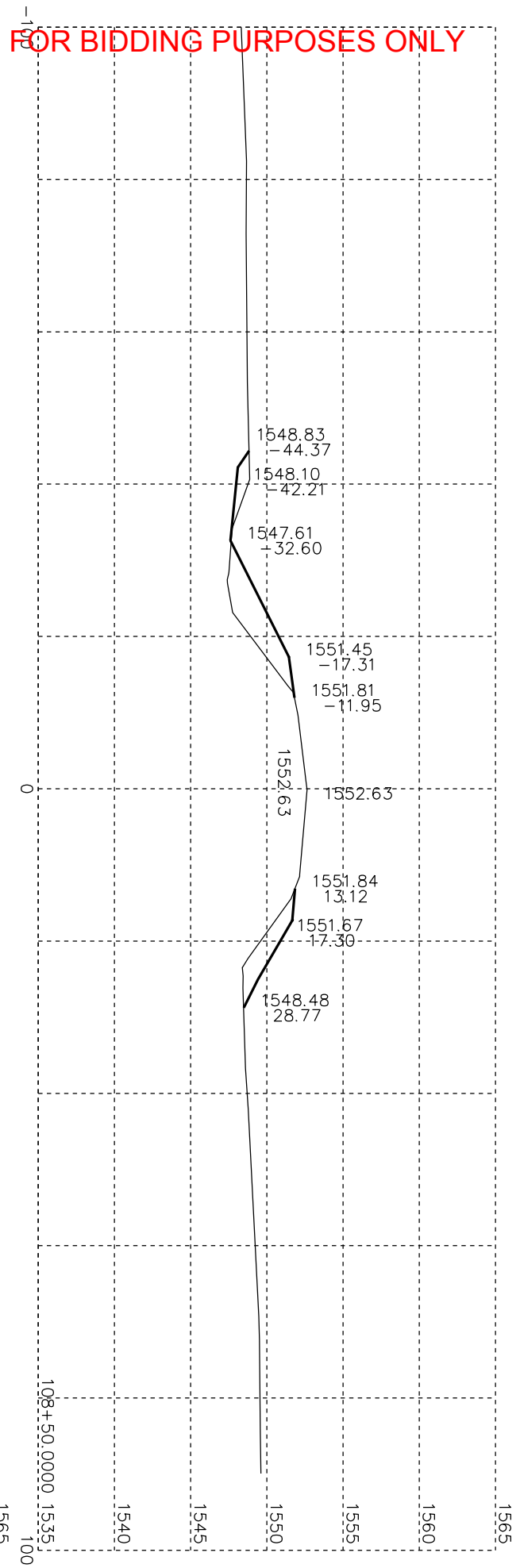


Steven M. Irons

Plotting Date: 7/6/2023

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8051(16)	64	66

FOR BIDDING PURPOSES ONLY

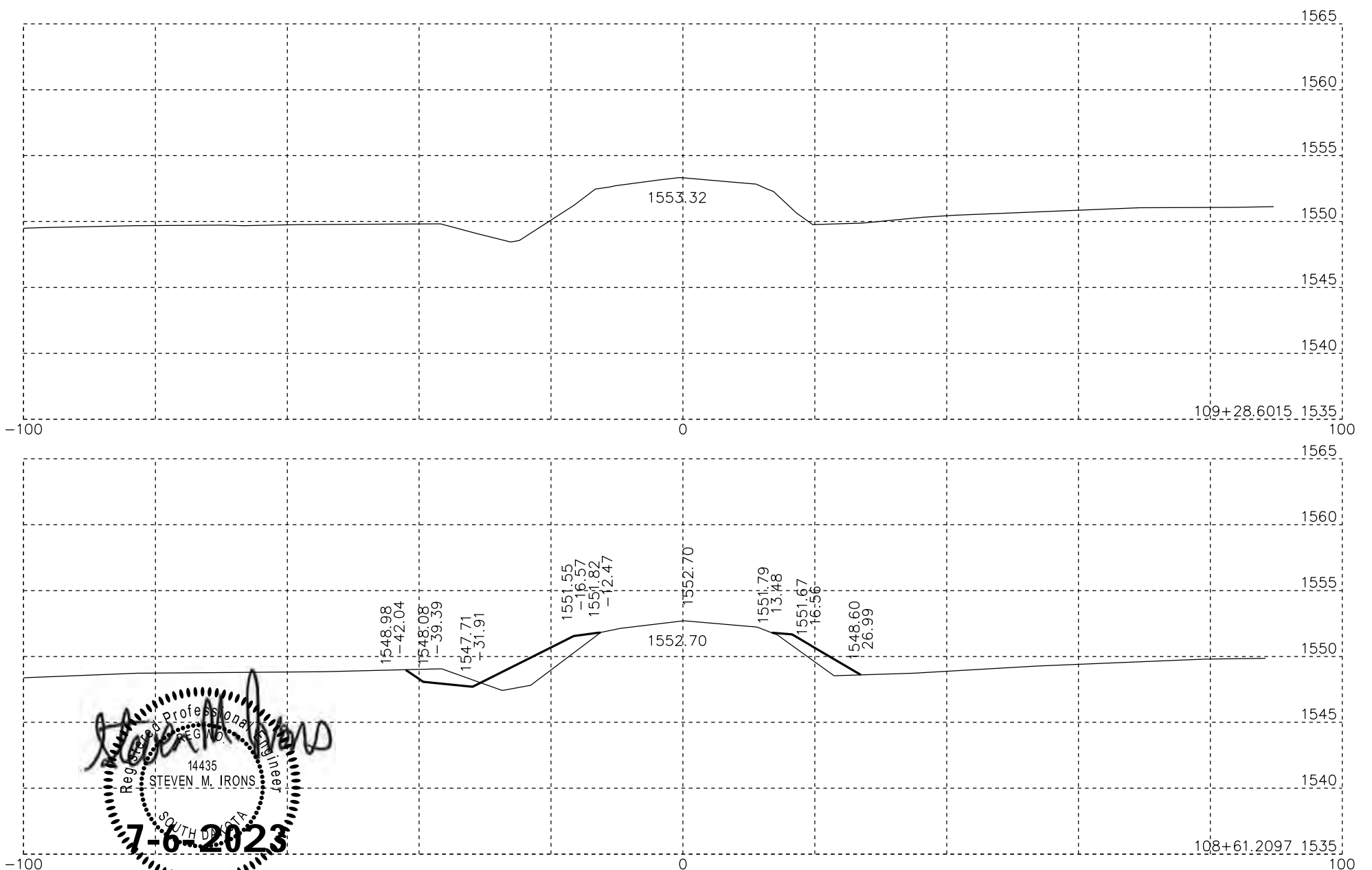


Steven M. Irons
 Professional Engineer
 License No. 14435
 State of South Dakota

Plotting Date: 7/6/2023

STATE OF SOUTH DAKOTA	PROJECT BRO 8051(16)	SHEET NO. 65	TOTAL SHEETS 66
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FOR BIDDING PURPOSES ONLY



Steven M. Irons
Professional Engineer
REG. NO. 14435
STEVEN M. IRONS
SOUTH DAKOTA
7-6-2023

Plotting Date: 7/6/2023

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	BRO 8051(16)	66	66