DEPARTMENT OF TRANSPORTATION

Planning & Engineering
Office of Project Development
700 E. Broadway Avenue
Pierre, SD 57501
O: 605.773.3275
dot.sd.gov

June 5, 2026

Re: **On-Site Visit Opportunities**; Project EM-P 0044(207)290 – PCN 05X0 – SD44 Missouri River Bridge (Platte/Winner)

To Whom It May Concern,

The South Dakota Department of Transportation (SDDOT) will offer two on-site visit opportunities for contractors interested in the Platte/Winner Bridge project. These visits are intended to provide prospective bidders with the chance to become familiar with the project site and meet with SDDOT. The preference is for subcontractors to coordinate on-site visits with prime contractors.

The SDDOT will be available to meet with contractors on Tuesday, June 23rd and Thursday, June 25th from 10:00 a.m. to 4:00 p.m. CST.

Meeting Location
Attendees should meet in the parking lot on the northeast side of the project site.

Attendance Request
Contractors must sign up for a time slot by filling out the form attached and emailing it to the SDDOT at **DOTBids@State.SD.US**. The SDDOT asks that all requests for on-site visits be made by Friday, June 19th.

We appreciate your interest in the Platte/Winner Bridge project and look forward to meeting with you on site.

Sincerely,
SD DOT

Contractor On-Site Visit Request Form

Project: SD44 Platte/Winner Bridge – PCN 05X0
Date of Request: _____

Company Information
- Company Name: _____
- Primary Contact Name: _____
- Phone Number: _____
- Email Address: _____

Attendees for On-Site Visit
(Please list all individuals who will attend.)

1. Name: _____ Phone: _____
2. Name: _____ Phone: _____
3. Name: _____ Phone: _____
4. Additional attendees (if any): _____

Type of Work Performed by Your Company

Requested On-Site Visit Time
Site visits are offered in 30-minute increments between **10:00 AM and 4:00 PM**. If your preferred time slot is not available, the SDDOT will contact you to pick a new time. The contractor will receive an email notification once their requested time slot has been reviewed and approved.
Preferred Time Slot: _____

Request for Additional Time (Optional)
If your team requires more than the standard 30-minute visit, please describe the reason and the amount of additional time requested. Additional time is not guaranteed but will be considered:

Signature
By submitting this form, the contractor acknowledges that site visit scheduling is subject to availability and confirmation.

Name: _____
Title: _____
Signature: _____ Date: _____

DEPARTMENT OF TRANSPORTATION

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June 5, 2026

Re: **Virtual Pre-Bid Meeting** Project EM-P 0044(207)290 – PCN 05X0 – SD44 Missouri River Bridge (Platte/Winner)

To Whom It May Concern,

A pre-bid meeting for the Platte/Winner Bridge Reconstruction Project is scheduled for Tuesday, July 7th at 1:30 PM CST and will be conducted via Microsoft Teams. All interested contracting parties are invited to participate using the meeting link provided below.

The meeting will include a presentation outlining the project's overall scope of work, key design elements, traffic control considerations, and contract time. Contractors will also have the opportunity to ask questions of Department staff, consultants, and project stakeholders.

Although attendance is not mandatory, all interested contracting parties are strongly encouraged to join.

Participants must join the meeting using the link provided. To minimize audio feedback, please ensure your computer microphone is muted. Because the meeting will be held virtually, we ask that you enter your company name followed by the names of all attendees from your organization into the Microsoft Teams chat upon joining. A recording of the pre-bid meeting will be made available on the SDDOT Contractor SharePoint site following the meeting.

Join Platte/Winner Bridge Pre-Bid Meeting

Date: July 7, 2026

Time: 1:30 – 3:30 PM (CST)

Meeting ID: 228 438 244 171 169

Additional instructions regarding the meeting format will be provided at the beginning of the meeting.

We look forward to seeing you there!

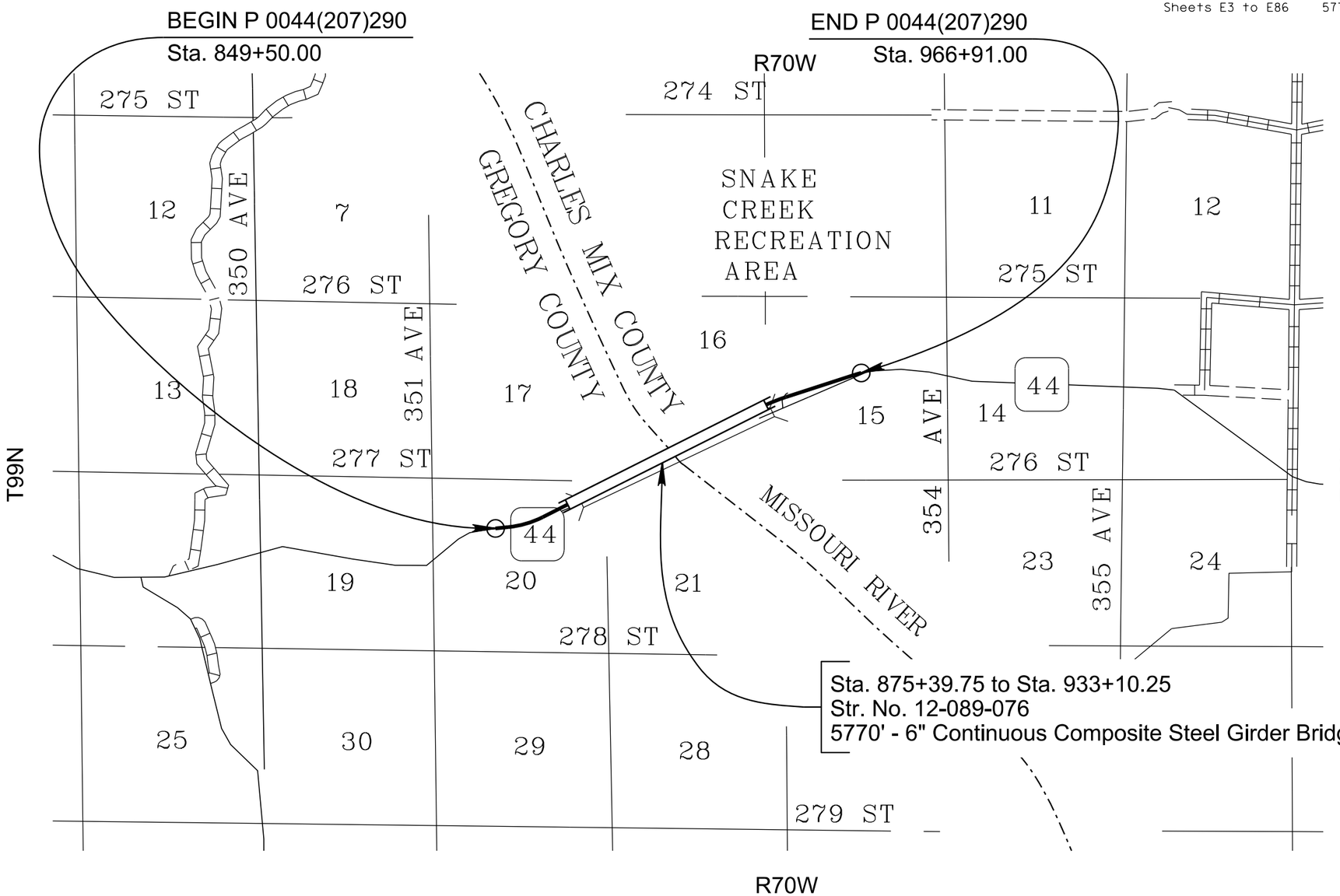
Sincerely,
SD DOT

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E1	E86

SECTION E: STRUCTURE PLANS

INDEX OF SHEETS -



REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

FOR BIDDING PURPOSES ONLY

SECTION E - ESTIMATE OF STRUCTURE QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
009E5000	Concrete Penetrating Sealer	23,555.3	SqYd
250E0030	Incidental Work, Structure	Lump Sum	LS
410E0020	Structural Steel	Lump Sum	LS
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
410E1150	Disc Bearing Assembly	96	Each
410E2150	Modular Expansion Joint Assembly	195.0	Ft
411E0100	Bridge Painting	Lump Sum	LS
420E0100	Structure Excavation, Bridge	427	CuYd
430E0200	Bridge End Embankment	1,666	CuYd
430E0300	Granular Bridge End Backfill	173.1	CuYd
430E0510	Approach Slab Underdrain Excavation	2.7	CuYd
430E0700	Precast Concrete Headwall for Drain	4	Each
460E0030	Class A45 Concrete, Bridge Deck	7,268.8	CuYd
460E0050	Class A45 Concrete, Bridge	10,426.2	CuYd
460E0150	Concrete Approach Slab for Bridge	163.4	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	39.9	SqYd
460E0500	Deck Drain, Girder Bridge	104	Each
465E0100	Class A45 Concrete, Drilled Shaft	25,274.3	CuYd
465E0200	Drilled Shaft Excavation	16,887.2	CuYd
465E0400	Crosshole Sonic Log (CSL) Test	38	Each
465E0406	Thermal Integrity Profiling (TIP) Test	38	Each
465E1144	144" Permanent Casing	5,299.0	Ft
480E0100	Reinforcing Steel	3,611,562	Lb
480E0200	Epoxy Coated Reinforcing Steel	3,600	Lb
480E0300	Stainless Reinforcing Steel	1,979,024	Lb
480E0511	No. 11 Rebar Splice	1,824	Each
480E0514	No. 14 Rebar Splice	6,768	Each
510E3521	HP 14x73 Steel Test Pile, Furnish and Drive	110	Ft
510E3525	HP 14x73 Steel Bearing Pile, Furnish and Drive	1,700	Ft
635E8020	2" Rigid Galvanized Steel Conduit	5,740	Ft
680E0040	4" Underdrain Pipe	363	Ft
680E2500	Porous Backfill	30.3	Ton
734E2022	Bridge Berm Slope Protection, Quarried Aggregate	2,764.4	SqYd
831E0100	Type A Drainage Fabric	2,832	SqYd

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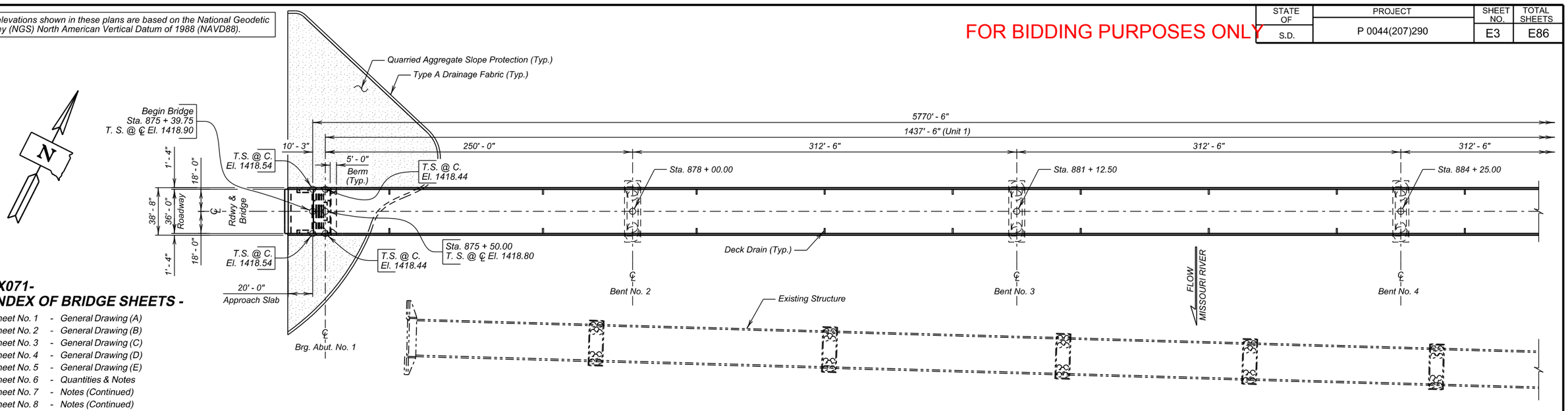
The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

FOR BIDDING PURPOSES ONLY

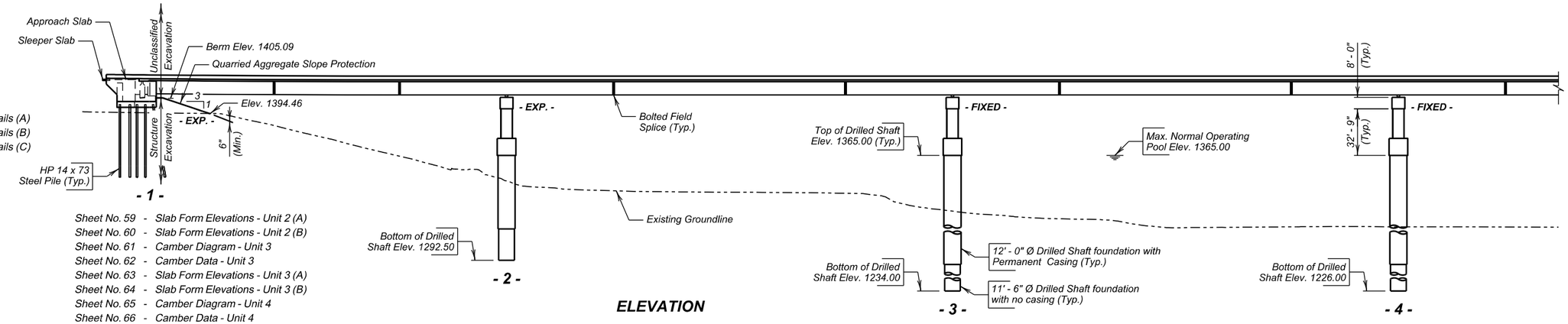
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E3	E86



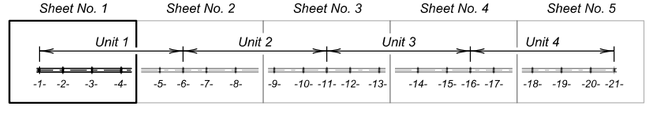
PLAN

NOTES: T.S. @ ℄ El. = Top of Slab at Centerline Elevation = 1418.00 (Typ. All Bents)
T.S. @ C. El. = Top of Slab at Curb Elevation = 1417.64 (Typ. All Bents)
See Superstructure Details for Deck Drain spacing.

-X071-
INDEX OF BRIDGE SHEETS -



ELEVATION



LAYOUT

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

PLANS BY: HRGreen

GENERAL DRAWING (A)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076
PCN 05X0

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

1 OF 84

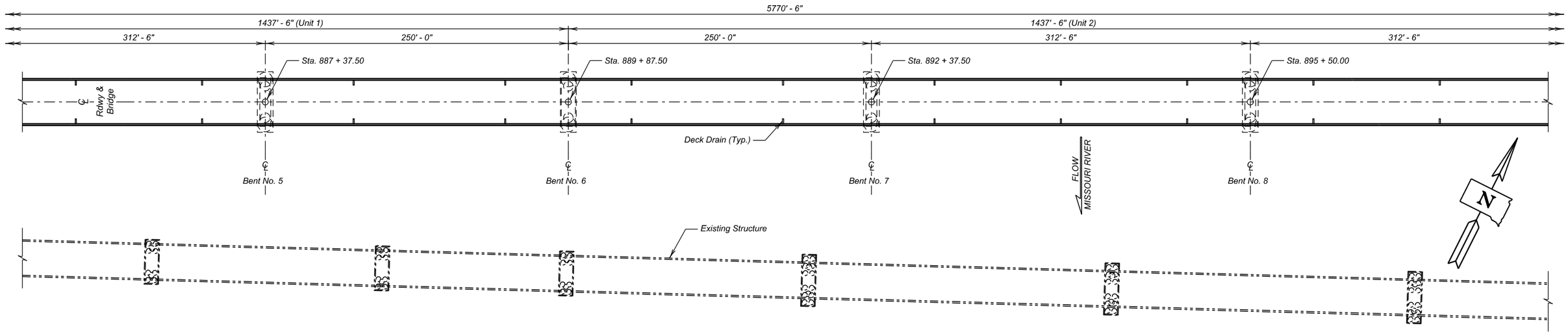
-X071-

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E4	E86



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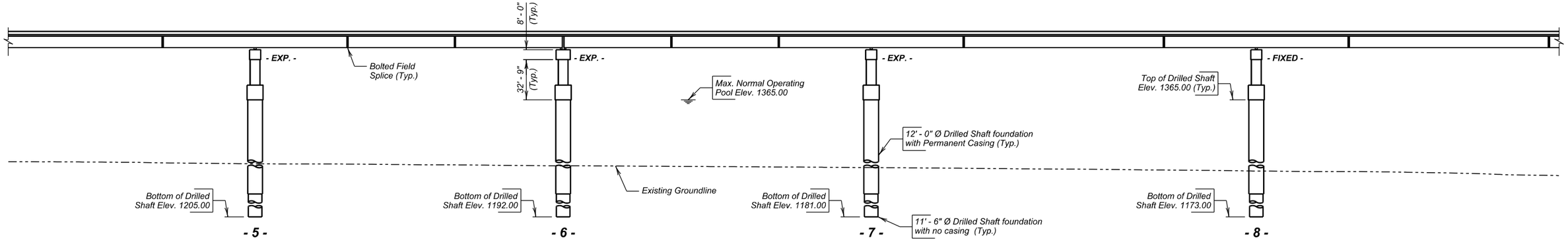
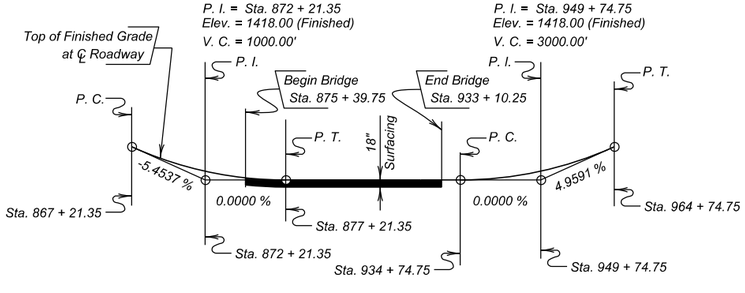
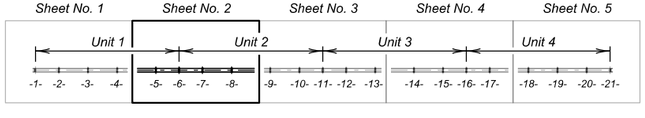


ELEVATION



VERTICAL CURVE DATA



LAYOUT

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

PLANS BY: HRGreen

GENERAL DRAWING (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076
PCN 05X0

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

-X071-

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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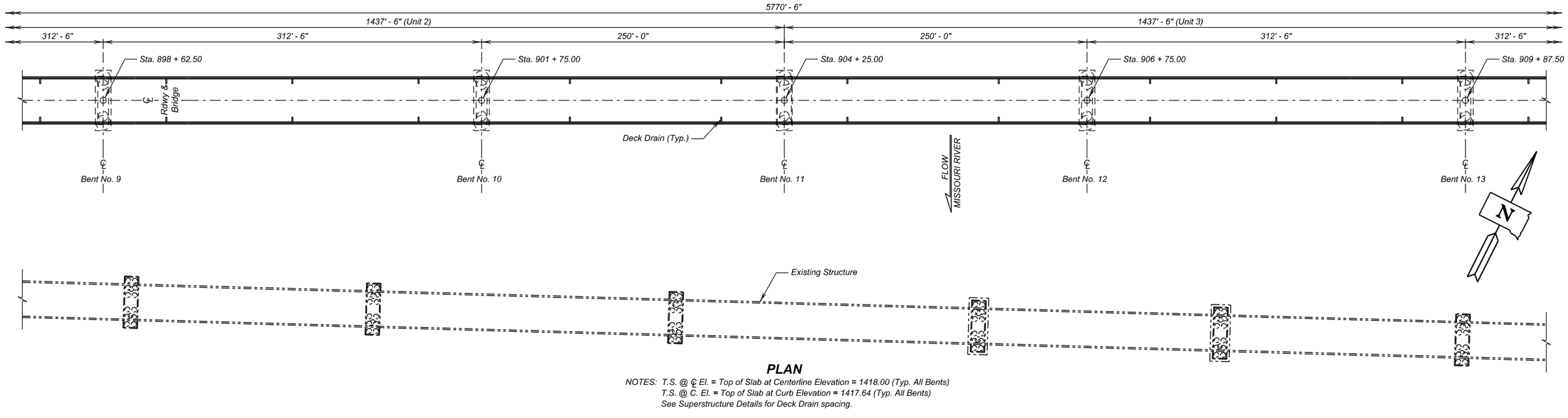
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E5	E86



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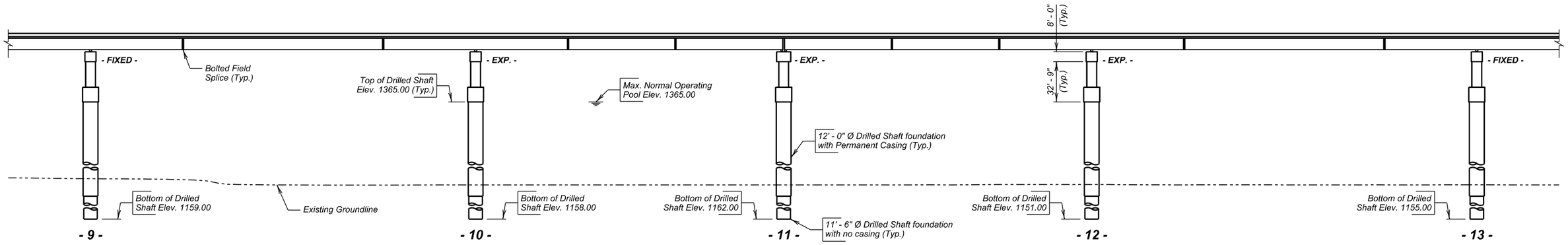


ELEVATION

HYDRAULIC DATA

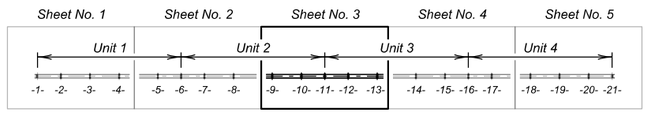
Q_d	145,700 cfs
A_d	343,166 sq. ft.
V_d	0.42 fps
Q_F	145,700 cfs
Q_{OT}	> Q_{500}
V_{max}	0.42 fps

Q_d = Design discharge for the proposed bridge based on 100 year frequency. El. 1375.06.

Q_{OT} = Overtopping discharge and frequency > Q500 year recurrence interval. El. 1418.0. Location: Sta. 933 + 07.08.

Q_F = Designated peak discharge for the basin approaching proposed project based on 100 year frequency.

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



LAYOUT

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 11555
KEVIN J. BREHM
SOUTH DAKOTA
01/04/2024

PLANS BY: HRGreen

GENERAL DRAWING (C)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
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SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

-X071-

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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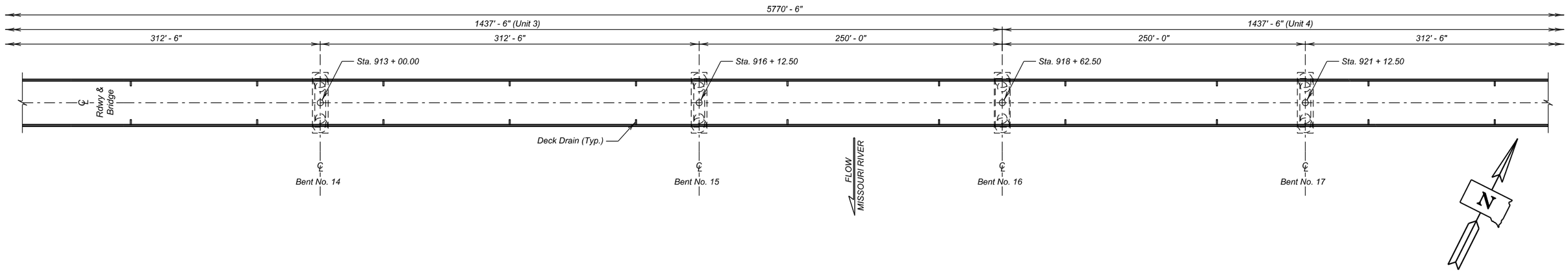
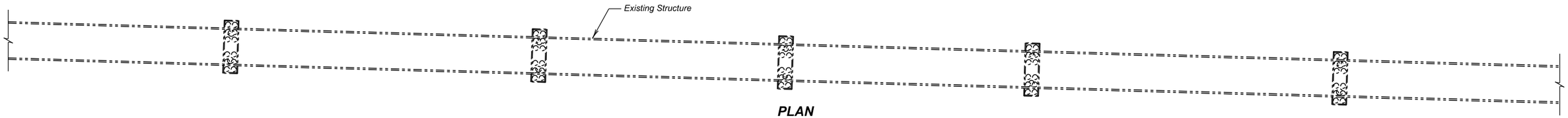
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E6	E86





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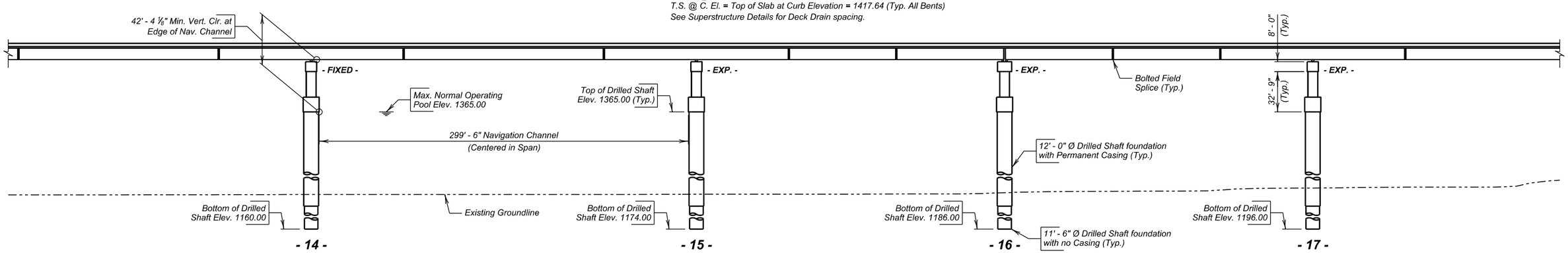
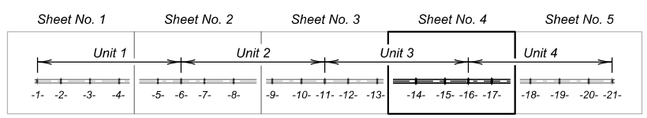


ELEVATION



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REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

PLANS BY: HRGreen

GENERAL DRAWING (D)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
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0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

-X071-

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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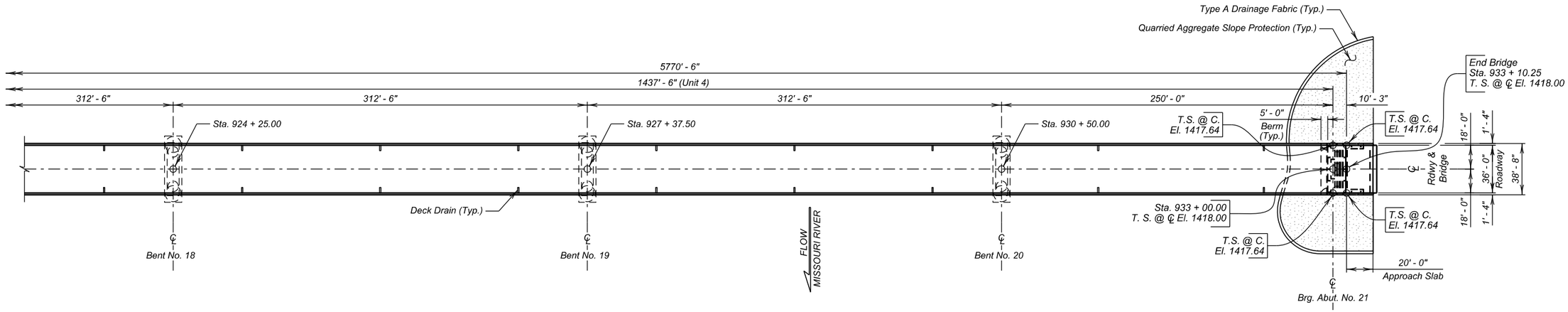

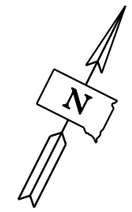

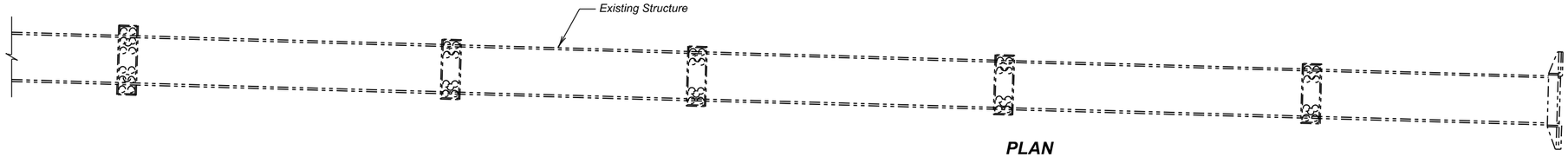

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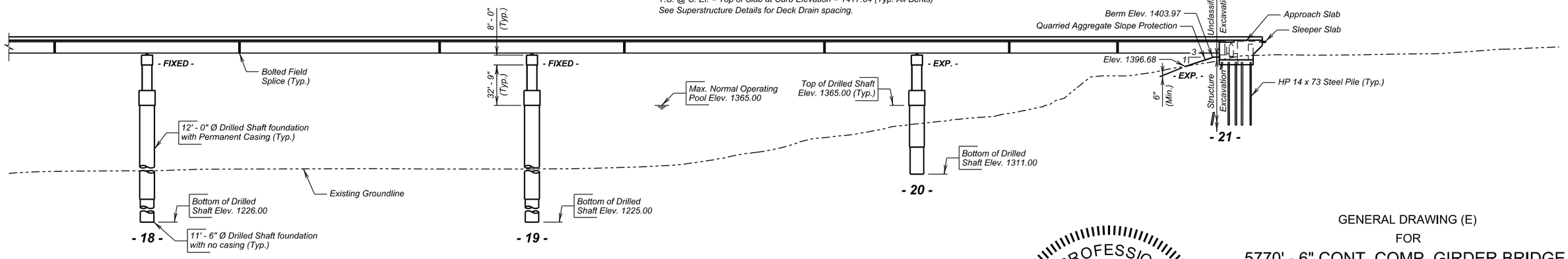
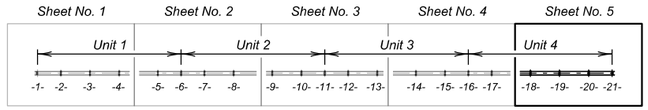


ELEVATION



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SOUTH DAKOTA
01/04/2024

PLANS BY: HRGreen

GENERAL DRAWING (E)

FOR

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PCN 05X0 GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

5 OF 84

-X071-

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E8	E86

Rev 05/02/2025 KJB
Rev 06/04/2026 KJB

ESTIMATE OF STRUCTURE QUANTITIES

DESCRIPTION	QUANTITY	UNIT	REMARKS
Bridge Elevation Survey	Lump Sum	LS	
Concrete Penetrating Sealer	23,555.3	SqYd	See Special Provision
Incidental Work, Structure	Lump Sum	LS	
Structural Steel	Lump Sum	LS	
Structural Steel, Miscellaneous	Lump Sum	LS	
Disc Bearing Assembly	96	Each	See Special Provision
Modular Expansion Joint Assembly	195.0	Ft	See Special Provision
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Granular Bridge End Backfill	173.1	CuYd	
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Drilled Shaft Excavation	16,887.2	CuYd	See Special Provision
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Thermal Integrity Profiling (TIP) Test	38	Each	See Special Provision
144" Permanent Casing	5,299.0	Ft	See Special Provision
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Epoxy Coated Reinforcing Steel	3,600	Lb	
Stainless Reinforcing Steel	1,979,024	Lb	See Special Provision
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2" Rigid Galvanized Steel Conduit	5,740	Ft	
4" Underdrain Pipe	363	Ft	
Porous Backfill	30.3	Ton	
Bridge Berm Slope Protection, Quarried Aggregate	2,764.4	SqYd	
Type A Drainage Fabric	2,832	SqYd	

BRIDGE SPECIFICATIONS

1. Design Specifications: AASHTO LRFD Bridge Design Specifications, 9th Edition.
2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 10-1-25 Version, Required Provisions, and Special Provisions as included in the proposal. The Standard Specifications for Roads and Bridges are available for download and viewing at: https://dot.sd.gov/doing-business/contractors/standard-specifications
3. All welding and welding inspections will be in conformance with the latest edition of AASHTO/AWS D1.5/D1.5M Bridge Welding Code unless noted otherwise in the plans.

BRIDGE DESIGN LOADING

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

DESIGN MATERIAL STRENGTHS

Class A45 Concrete	f'c = 4,500 psi
Reinforcing Steel (ASTM A615, Gr. 60)	fy = 60,000 psi
Stainless Steel (ASTM A955, Gr. 60)	fy = 60,000 psi
Piling (ASTM A572 Grade 50)	fy = 50,000 psi
Structural Steel (ASTM A709 Gr. 50WT2)	fy = 50,000 psi
Structural Steel (ASTM A709 Gr. HPS 70WT2)	fy = 70,000 psi
Structural Steel for Tie Rods (ASTM A709, Gr. 36)	fy = 36,000 psi

GENERAL CONSTRUCTION

1. All lap splices shown are contact lap splices unless noted otherwise.
2. All exposed concrete corners and edges will be chamfered 3/4-inch unless noted otherwise.
3. Use 2-inch clear cover on all reinforcing steel except as shown otherwise on plans.
4. The Contractor will imprint on the structure the date of new construction as specified and detailed on Standard Plate 460.02.
5. Barrier curbs and end blocks will be built perpendicular to the roadway grade line.
6. Requests for construction joints or reinforcing steel splices at points other than those shown, must be submitted to the Engineer for prior approval. If additional splices are approved, no payment will be allowed for the added quantity of reinforcing steel.
7. 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.
8. Berm slope and embankments will be compacted to the Specified Density Method in accordance with Section 120.3.a of the Construction Specifications.
9. The elevation of the bridge deck is 18 inches above subgrade elevation.
10. The Contractor will submit a safety plan to help ensure the safety of workers and the public throughout construction of the new bridge and demolition of the existing bridge. At a minimum, the plan will include details of construction signage, temporary lighting of any potential hazards such as barges and partially completed bridge construction, and temporary navigational lighting, all in accordance with US Coast Guard requirements and regulations.

INCIDENTAL WORK, STRUCTURE

1. In place centerline Sta. 876+16.57, 102.7' RT to centerline Sta. 932+69.81, 262.6' RT is a 5655.5-foot, 7-unit, 28 span continuous steel girder bridge with a 28'-0" clear roadway. The superstructure consists of a reinforced concrete slab with New Jersey style concrete railings across the bridge. The deck has been overlaid with 0.125 inches of epoxy. The substructure consists of 2 column reinforced concrete bents with a pile cap supported on a 4'-0" diameter prestressed concrete piling and reinforced concrete vertical abutments supported on steel H-piling.
2. Break down and remove the existing bridge, 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. One exception is the existing concrete piles supporting the bents will be removed to 2-feet below the existing stream bed elevation. All portions of the existing bridge will be removed and disposed of by the Contractor on a site obtained by the Contractor and approved by the Engineer. This includes any sand/fill material contained within the existing concrete piles that spills into the river during the removal operation. An appropriate site will be as described in the Environmental Commitments Notes in Section A.
3. The Contractor will submit a detailed bridge removal plan at least 6 months prior to the start of bridge demolition. The plan will include a description of the removal procedures and equipment to be used, complete sequencing details, pick point locations, temporary shoring details, temporary bracing details, supporting analysis, and restoration details for existing riprap slope protection and stream bed. The bridge removal plan will be stamped by a Professional Engineer registered in the State of South Dakota. The Engineer will submit documentation to the US Corps of Engineers and US Coast Guard for approval. Demolition of the existing bridge may not begin until bridge removal plan approvals are obtained by the Engineer.
4. During demolition of the structure, efforts will be taken to prevent material from falling into the river. Under no circumstances is asphalt allowed to fall into the river.

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ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE
STR. NO. 12-089-076
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

INCIDENTAL WORK, STRUCTURE (CONT.)

5. The foregoing is a general description of the in-place bridge and should not be construed to be complete in all details. Before preparing the bid, it will be the responsibility of the Contractor to make a visual inspection of the structure to verify the extent of the work and materials involved. If desired by the Contractor, a copy of the original construction plans may be obtained through the Office of Bridge Design.

NOTICE - LEAD BASED PAINT

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

DESIGN MIX OF CONCRETE

1. All structural concrete will be Class A45 unless otherwise indicated.
2. Type II cement conforming to Section 750 is required.
3. Grout design mix will be as specified in Section 460.2 K of the Construction Specifications. A compressive strength of 2000 psi will be attained by the grout prior to erection of any beams. Chamfer edges of pedestals 3/4-inch. The quantity of grout is included in and will be paid for at the contract unit price per cubic yard for Class A45 Concrete, Bridge.

ABUTMENTS

1. The HP 14x73 Piling were designed using a factored bearing resistance of 208 tons per pile. Piling will develop a field verified nominal bearing resistance of 320 tons per pile.
2. One test pile will be driven at each abutment and will become part of the pile group.
3. The Contractor will have sufficient pile splice material on hand before pile driving is started. See Standard Plate 510.40.
4. Piles will not be driven out of position by more than three inches in any direction. A pile-driving template will be used to ensure this accuracy.
5. Each finished abutment will include a Bridge Survey Marker. See Standard Plate 460.05.

ABUTMENT BACKWALL COATING

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

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

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

ABUTMENT WINGWALL FORMLINER

1. A custom formliner depicting "tall prairie grass" with 2" Max. relief will be used at the abutment wingwalls as shown in the plans. The Contractor will submit formliner shop drawings for approval.
2. Formliner will be fabricated from urethane rubber with optional backing material.
3. Manufacturer approved release agents will be applied according to the installation instructions.
4. The cost of furnishing and applying the form liner will be incidental to the contract unit price per cubic yard for class A45 Concrete, Bridge.

ABUTMENT WINGWALL ACCESS DOOR

1. The access door will be exterior rated with galvanized steel components.
2. The door frame may be cast in place or post installed with fasteners.
3. The Contractor will submit access door shop drawings for approval.
4. The operational handle must be removable or recessed in such a manner that is tamper-resistant.
5. The cost of furnishing and installing the access door and steel reinforced plastic steps will be incidental to the contract unit price per cubic yard for Class A45 Concrete, Bridge.

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 D25-32 Delmag D30-32 Delmag D46-32

   SPI D-30
2. Pile hammers not listed will require evaluation and approval prior to use from the Engineer. Request for evaluation of hammers not listed will be submitted a minimum of 5 business days prior to installation of piles.

BENTS

1. Spiral reinforcement may be fabricated from cold drawn wire conforming to ASTM A1064 or hot rolled plain or deformed bars conforming to the strength requirements of ASTM A615, Grade 60.
2. The design of the drilled shafts is based upon encountering competent Niobrara Chalk at the elevation shown in the BENT DETAILS sheets. If competent Niobrara Chalk is not encountered at or above this elevation, contact the Office of Bridge Design, through proper channels, before proceeding with the drilled shaft construction. Geotechnical Engineering Activity personnel will be present during the drilling operations to confirm these elevations and to observe placement of the drilled shafts. The Geotechnical Engineering Activity will be notified a minimum of two weeks prior to the start of excavation for the drilled shafts.
3. The quantities for Drilled Shaft Excavation; 144” Permanent Casing; Class A45 Concrete, Drilled Shaft; and Class A45 Concrete, Bridge are based upon the construction joint locations as shown in the plans. Payment for these items will be at the contract unit price for the plans shown quantities regardless of any approved changes requested by the Contractor due to construction means and methods.
4. The D1 bars are detailed full length of the Drilled Shaft and are provided in the reinforcing schedule. Mechanical splice details showing location will be submitted for approval to the Office of Bridge Design with the drilled shaft installation plan. Mechanical splices must be staggered and not placed side by side.
5. Drilled Shaft Qualification Requirements: See Special Provisions for requirements relating to drilled shaft qualifications.

CSL ACCESS TUBES

Access tubes will be furnished and installed in each of the drilled shafts in accordance with the Special Provision.

CONCRETE CYLINDER CURING BOX

1. A concrete cylinder curing box shall be provided at the concrete testing site as per test method SD405. The number of curing boxes required will be a function of the Contractor’s operation as determined by the Engineer.
2. The concrete curing box will be constructed of non-corroding materials. A moisture proof seal shall be provided between the lid and body of the box.
3. Provision for automatic control of water temperature to 72°F ±5°F shall be made when the box is located in an uncontrolled environment. A bimetallic thermometer shall be inserted with its sensing element in the storage water. The thermometer shall be capable of being read from the outside without opening the box. The thermometer shall have minimum gradations of 1°F and shall be protected from damage.
4. Electric utility connections shall be made in a lockable switch box securely attached to the outside of the curing box.
5. A rustproof wire or metal rack shall be set above the bottom of the box to support cylinders in an upright position. The rack and all temperature control elements shall be positioned to allow free circulation of water around the cylinders. A combination hose connection and drain shall be provided at the lower front edge of the box so that it may be drained or water may be circulated. A drain shall also be provided on the box in such a position that when open will drain water to within 1 inch over the top of the cylinders. All areas of the box shall be easily drained and accessible for cleaning.
6. The concrete cylinder curing box shall be capable of maintaining the required water temperature through an ambient air temperature range of -10°F to +100°F. The box shall be capable of holding a minimum of nineteen (19) 6 inch x 12 inch cylinders. When filled with water, the box shall not leak enough so that the cylinders are exposed.
7. The costs for providing a Concrete Cylinder Curing Box shall be incidental to various contract bid items.

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NOTES (CONTINUED)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

STR. NO. 12-089-076
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
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SUPERSTRUCTURE

1. Structural steel will conform to ASTM A709 Gr. 50WT2 or HPS 70WT2. Steel for diaphragms will conform to ASTM A709 Gr. 50W. Shear connectors will conform to Section 7.3 Type B of the Bridge Welding Code.
2. Bolts, nuts and washers will conform to ASTM F3125, Grade A325, Type 3.
3. All butt-welded girder splices will be ultrasonically inspected.
4. The cost of welding and weld inspection will be incidental to the contract lump sum price for Structural Steel.
5. All flame cut edges will be chamfered or rounded 1/16".
6. 15'-0" from each end of the girders and all diaphragms and stiffeners within that region will be painted in accordance with Section 411 of the Construction Specifications. The top coat will be an approved brown (AMS STD 595 Color 30045) to match the weathering color of the steel.
7. Structural steel used in all girder web plates, girder flanges, and girder splice plates will comply with the Charpy-V-Notch toughness requirements set forth in Section 970 of the Construction Specifications. Material greater than 1 1/2 inches in thickness will require frequency (P) testing in lieu of heat lot (H) testing. See Girder Layout for location of tension and stress reversal areas of girder flanges.
8. 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.
9. The concrete bridge deck will be placed and finished at a minimum rate of 82 feet of deck per hour measured along centerline roadway. If concrete cannot be placed and finished at this rate, the Engineer will order a header installed and operations stopped. If a header is required sometime during the pour operation, its location will be at or as near as possible to the three-quarter point of the span. Notify the Bridge Construction Engineer if deck pour operations are stopped. Operations may resume only when the Engineer is satisfied that a rate of 82 feet per hour can be maintained and the concrete has attained a minimum compressive strength of 2000 psi.
10. All latent grout, concrete, and other debris from bridge deck pouring operations shall be cleaned from finished surfaces of the structure.
11. Dead Load camber will be cut into the girder webs. Do not induce or correct camber in plate girders by local heating without prior approval from the Engineer.
12. All structural steel surfaces of the superstructure will be blast cleaned to a commercial finish, in accordance with SSPC SP6, at the fabricator. Abrasives used for blast cleaning will be clean dry sand, steel shot, mineral grit or manufactured grit. Fins, tears, slivers, and burred or sharp edges will be removed by grinding and then re-blasted to achieve the specified finish.
13. If the substructure units are not protected from precipitation running off of the girders during construction, the concrete surfaces may become stained. If staining of the substructure units does occur, it will be removed to the satisfaction of the Engineer. The Contractor will absorb all costs associated with removal of any stains.
14. 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.
15. The Contractor is required to submit a detailed plan showing the proposed girder erection. The girder erection plan will be designed and stamped by a Professional Engineer registered with the State of South Dakota. The plan must be submitted 30 days prior to the start of work for approval by the Office of Bridge Design. The plan will include, but not be limited to, complete sequencing details, splice bolt up procedures, girder pick point locations, temporary shoring details, and temporary bracing details.
16. All single girder segments will be adequately braced or held in position until the adjacent girder segment is placed and all diaphragms between the segments are fully installed and bolts fully tightened. Single girder segments will not be allowed to remain in place beyond the end of a work shift without connection to an adjacent girder segment with all diaphragms between the segments fully connected.
17. See Special Provision for Concrete Penetrating Sealer.

2" RIGID GALVANIZED STEEL CONDUIT

1. Conduit, with expansion fittings, junction boxes and pull tape shall be provided at the location detailed in the plans.
2. Expansion devices are required at each Abutment and at Bents No. 6, 11 and 16. Fittings will be waterproof with insulating bushings and bonding jumper. Expansion devices will accommodate the full range of bridge joint movement shown in the plans. Junction boxes shall be provided at spacing not to exceed 1000 ft.
3. Pull tape will be 1" tubular wave polyester pull tape with a minimum breaking strength of 6000 lbs.
4. Cast in place concrete inserts for conduit attachment will be Dayton Superior ¼" bolt diameter stainless steel F-42 Loop Ferrule Inserts with ¼" stainless steel bolts conforming to ASTM F593.
5. Conduit, fittings and attaching hardware will meet the requirements of NFPA 70 National Electrical Code (NEC). All steel components shall be hot dip galvanized in accordance with ASTM A123 or A153 as applicable. Isolate the galvanized conduit brackets from the stainless steel insert and bolt with fiber washers.
6. All costs to provide the 2" diameter conduit, including concrete inserts, conduit, attaching hardware, junction boxes, expansion devices, pull tape, labor, equipment and any incidentals necessary to install the conduit will be included in the contract unit price per foot for 2" Rigid Galvanized Steel Conduit.

FIELD BOLTED GIRDER SPLICES

1. Steel for splice and filler plates will conform to ASTM A709 Gr. 50WT2.
2. Bolts in flange splices will be placed with the heads down.
3. Bolts in web splices of exterior girders will be placed with the heads on the exterior face of girders.
4. All bolts will be fully tightened prior to removing temporary supports.

WELDING AND WELD INSPECTION

Main members referred to in Section 6.7 Nondestructive Testing of the Bridge Welding Code are identified as follows: girder webs, girder flanges, and bearing stiffeners. Ultrasonic testing of groove welds will be used in lieu of radiography. See girder layout for locations of tension and stress reversal areas of the girder flanges.

BEARINGS

See Special Provision for Disc Bearing Assembly.

FALL PROTECTION

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

BOLT TESTING

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

CLASS B COMMERCIAL TEXTURE FINISH

1. A Class B commercial texture finish will be applied to the folowing areas:

   a. Barrier: all exposed surfaces (Back*,top** and Front**).
   b. Slab: edge of slab*.

   * Color will be AMS - STD - 595 36622 Pearl Gray
   ** Color will be AMS - STD - 595 37875 Pearl White

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

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NOTES (CONTINUED)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

STR. NO. 12-089-076
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

Rev 05/02/2025 KJB

SHOP PLANS

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

The fabricator will submit shop plans in accordance with the Construction Specifications. Send shop plan submittals to HR Green, Inc., 431 N. Philips Avenue, Sioux Falls, SD 57104 (kbrehm@hrgreen.com). After review, corrections (if necessary), and approval by HR Green, Inc., the Office of Bridge Design will review the submittals, authorize fabrication, arrange for fabrication inspection, and distribute the shop drawings.

SHEAR STUD CONNECTOR

1. Prior to the welding of the studs to the girders, the top surface of the girders that are to have studs welded on will be clean of all dirt, rust, and any other foreign matter.

2. The shear connector that will be attached to the girder will be 7/8-inch diameter x 5 inches long and will conform to ASTM 108, Gr. 1015, 1018, or 1020. The connector will meet the following minimum mechanical property requirements for Type B studs,

Tensile	60 ksi
Yield Strength	60 ksi
Elongation	20%
Reduction of Area	50%

EXPANSION DEVICES

See Special Provision for Modular Expansion Joint Assembly.

APPROACH SLABS

1. The portion of the sleeper slab below the construction joint may be precast. If the bottom portion of the sleeper slab is precast, the Contractor will submit proposed lifting and setting plans to the Bridge Construction Engineer for approval. In addition, if reinforcing or other details differ from those shown in the plans, the Contractor will submit proposed alternate details for approval.

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

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

4. Concrete Approach Slab for Bridge will be paid for at the contract unit price per square yard. This payment will be full compensation for all excavation, furnishing, hauling, and placing all materials including concrete, asphalt paint or 6 mil polyethylene sheeting, elastic joint sealer, and reinforcing steel; for disposal of all excavated material and surplus materials and for labor, tools, equipment and any incidentals necessary to complete this item of work.

APPROACH SLAB UNDERDRAIN SYSTEM

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

2. Perforated PVC Drain Pipe will be PS 46 Solvent Weld PVC Pipe conforming to ASTM F758 or SDR 35 Solvent Weld PVC Pipe conforming to ASTM D3034 with perforations in accordance with ASTM F758. The PVC Outlet Pipe will be Schedule 40 PVC Pipe conforming to ASTM D1785 designated as PVC 1120, PVC 1220, or PVC 2120. Pipe sections will be connected using a PVC Solvent Cement conforming to ASTM D2564. The Drain Sleeve will conform to ASTM D6707.

3. Care will be taken to ensure that the 4-inch diameter Perforated PVC Drain Pipe and the 4-inch diameter PVC Outlet Pipe are not damaged during construction. Sufficient cover material will be placed over the pipes before compaction equipment is allowed over the underdrain system. Any damaged pipes will be replaced by the Contractor at no additional cost to the Department.

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

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 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.

QUARRIED AGGREGATE SLOPE PROTECTION

1. This work will consist of paving the bridge berm slopes with crushed aggregate slope protection for control and prevention of berm erosion.

2. The aggregate used in the crushed aggregate slope protection will be composed of durable fragments of quarried quartzite or an approved alternative. The material will be pink in color, free of dirt, debris, and other foreign material, and well graded with 90 to 100% passing a 6-inch sieve and 0 to 10% passing a 2-inch sieve.

3. The Type A Drainage Fabric will be non-woven.

4. The surface upon which the slope protection is to be placed will be smooth, uniform, and free from foreign material. The top surface of the slope protection will conform to the dimensions, elevations, and slopes shown in the plans.

5. The crushed aggregate will be shaped and compacted to provide a stable, smooth, and uniform surface.

6. Payment for crushed aggregate slope protection will be at the contract unit price per square yard for Bridge Berm Slope Protection, Crushed Aggregate and will include furnishing all materials, labor, and equipment necessary or incidental to the satisfactory completion of this work. Payment will be for plans quantity.

ENGINEERING INSPECTION BOAT

1. An engineering inspection boat will be provided for use by SDDOT engineering staff, exclusively.

2. The boat shall be a shallow draft, landing craft, maneuverable vessel designed for structural inspection. The inspection boat shall come with an enclosed cabin with seating for a minimum of 4 people. It is to be designed with precision navigation and robust safety systems, suitable for work in rivers, lakes, and near shore waters.

3. Engine Type: Outboard or inboard engine(s) with a minimum of 150 HP total.

4. Deck: Open deck space for equipment setup.

5. The boat provided shall comply with the following minimum requirements:

   a. All required capacity, maximum horsepower, and identification plates shall be affixed in the manner required by US Coast Guard regulations.

   b. The motor's horsepower shall meet the rated requirements of the boat and be equipped with a forward, neutral, and reverse. The power train shall be equipped with an interlock so that the engine may not be started in gear. U.S. Coast Guard-approved fuel tanks shall be provided.

   c. All equipment required by US Coast Guard regulations shall be provided for the boat.

   d. Ability for accessing work sites.

6. Registration, licenses, and other legal requirements for boat operation shall be obtained by the Contractor and kept current by the Contractor for the length of time the boat is in operation.

7. Dockage facilities shall be maintained by the Contractor and shall be constructed (if necessary) so that easy access to the boat is provided at all times under all river elevation changes.

8. The Contractor shall maintain the boat in good, clean condition at all times as required. Fuel tanks shall be maintained full at all times.

9. The costs for providing an Engineering Inspection Boat shall be incidental to various contract bid items.

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NOTES (CONTINUED)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

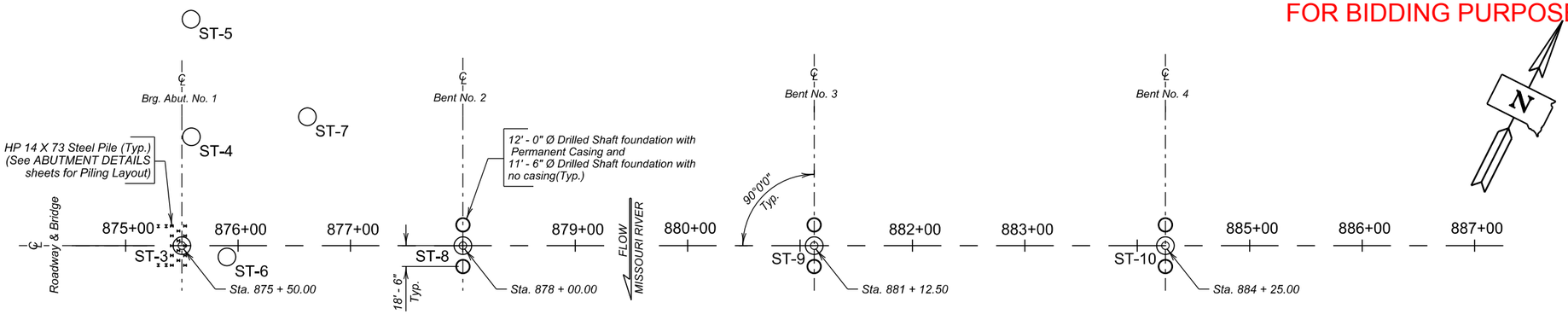
STR. NO. 12-089-076
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

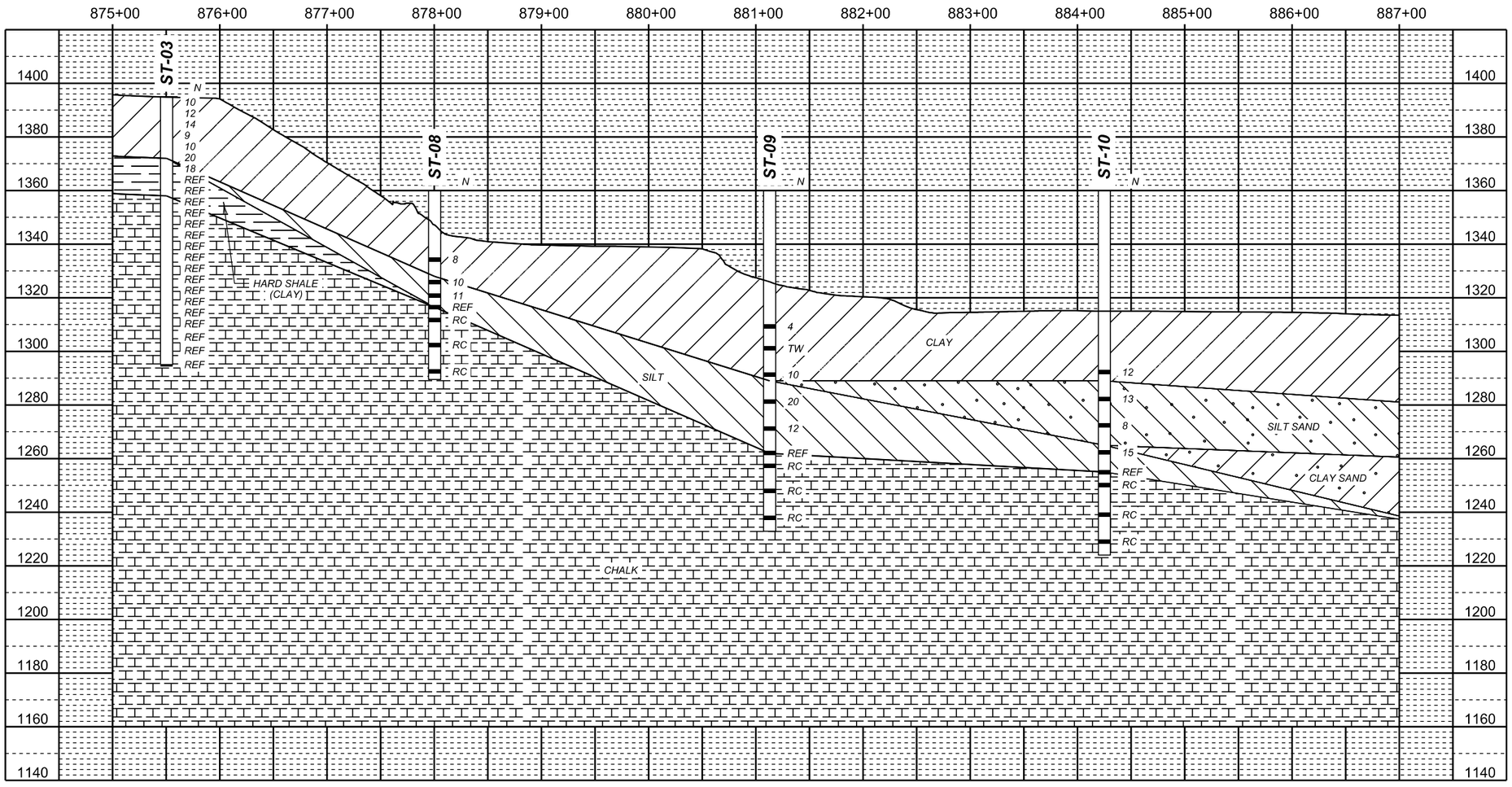
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E12	E86

Rev 06/26/2024 KJB



PILING AND DRILLED SHAFT LAYOUT



Niobrara Chalk is white to dark-gray argillaceous chalk, marl, and shale. The formation weathers yellow to orange. It also contains thin, laterally continuous bentonite beds, chalky carbonaceous shale, minor sand, and small concretions.

LEGEND

- Clay
- Clay Sand
- Silt
- Silt Sand
- Chalk
- Gravel
- Hard Shale (Clay)
- Sample Zone

Standard Penetration Tests were performed in accordance with ASTM D1586. Blows indicate the driving resistance recorder for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with ASTM D1586. If the sampler could not be driven through a full 6-inch interval, the number of blows for the partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.

NOTE:
Cobbles and boulders may be encountered during drilled shaft excavation. See the Geotechnical Evaluation Report for more information.

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06/26/2024

SUBSURFACE & FOUNDATION LAYOUT (A)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

10 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
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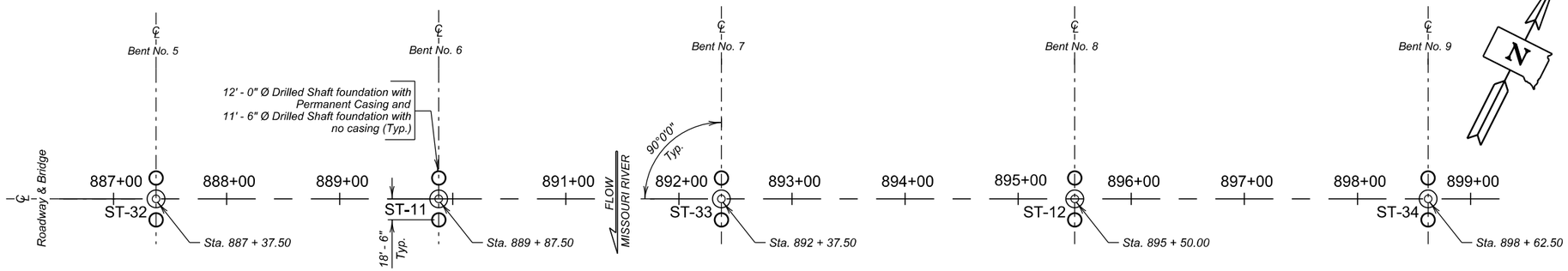
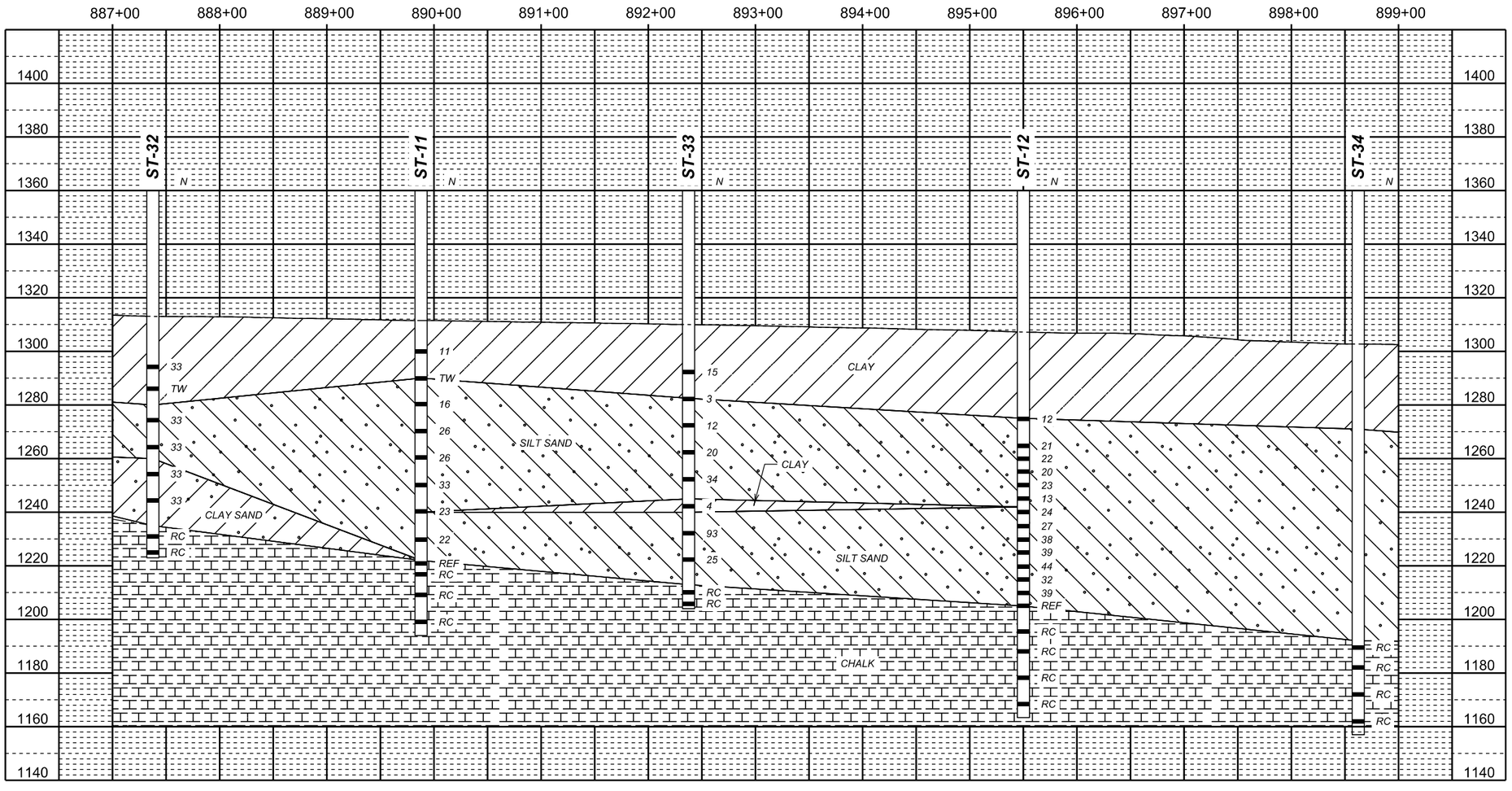
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E13	E86

Rev 06/26/2024 KJB



PILING AND DRILLED SHAFT LAYOUT



Niobrara Chalk is white to dark-gray argillaceous chalk, marl, and shale. The formation weathers yellow to orange. It also contains thin, laterally continuous bentonite beds, chalky carbonaceous shale, minor sand, and small concretions.

LEGEND

- Clay
- Clay Sand
- Silt
- Silt Sand
- Chalk
- Gravel
- Hard Shale (Clay)
- Sample Zone

Standard Penetration Tests were performed in accordance with ASTM D1586. Blows indicate the driving resistance recorder for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with ASTM D1586. If the sampler could not be driven through a full 6-inch interval, the number of blows for the partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.

NOTE:
Cobbles and boulders may be encountered during drilled shaft excavation. See the Geotechnical Evaluation Report for more information.

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
06/26/2024

SUBSURFACE & FOUNDATION LAYOUT (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

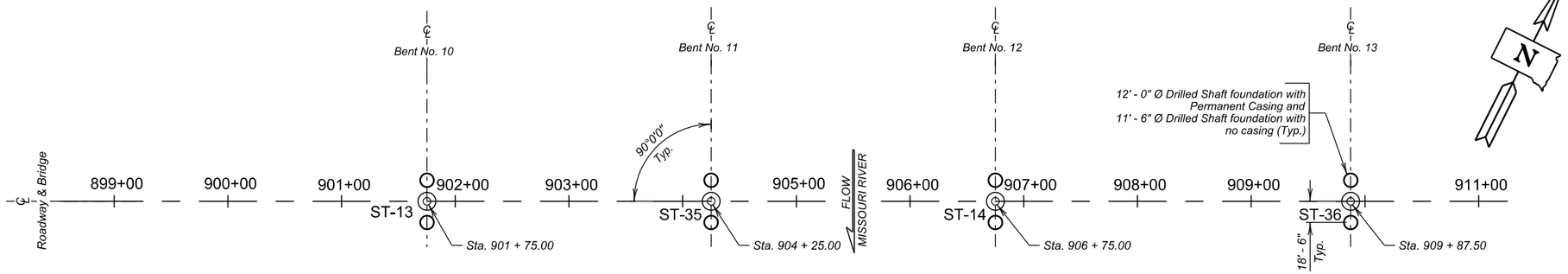
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

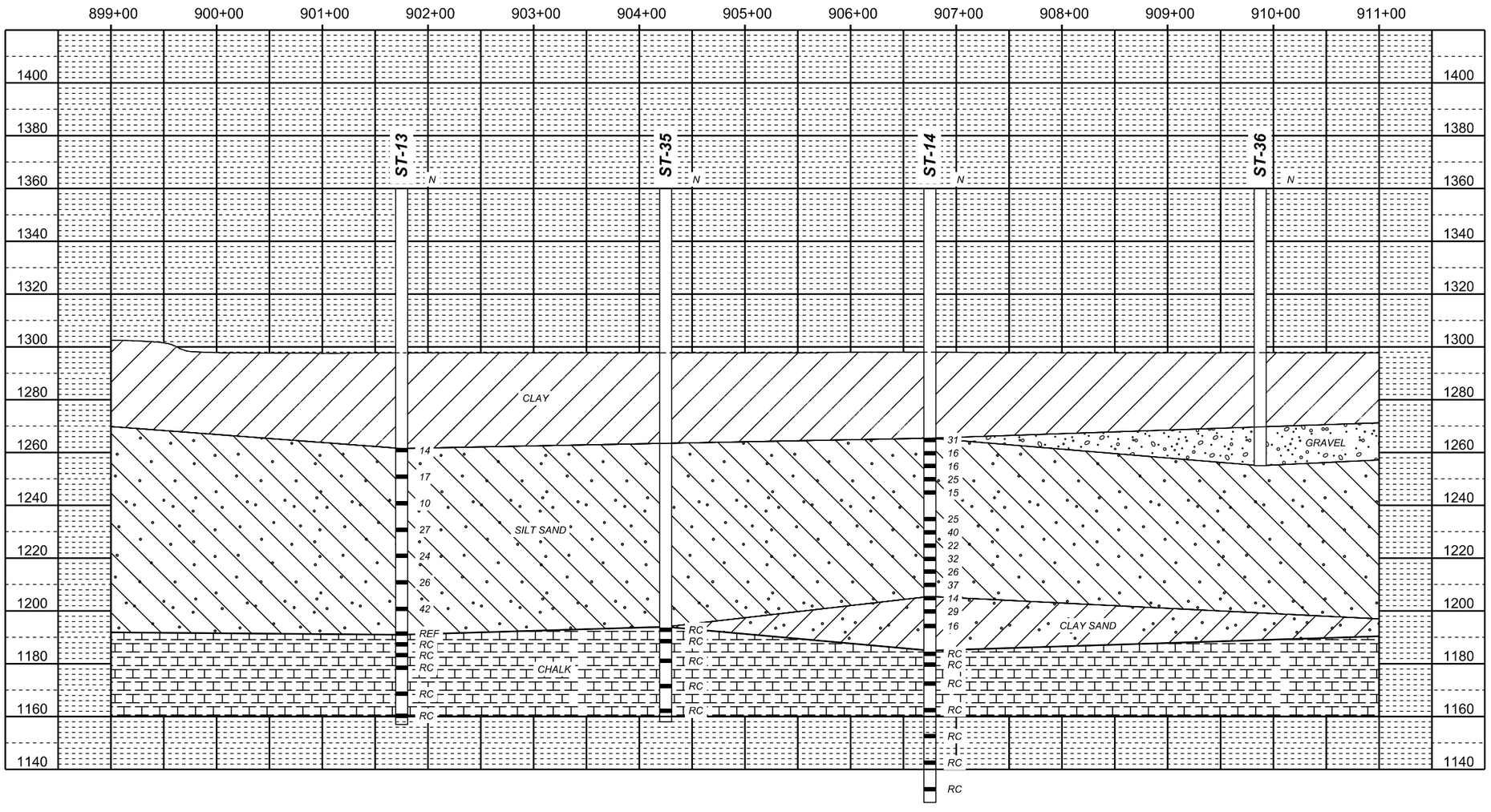
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E14	E86

Rev 06/26/2024 KJB



PILING AND DRILLED SHAFT LAYOUT



Niobrara Chalk is white to dark-gray argillaceous chalk, marl, and shale. The formation weathers yellow to orange. It also contains thin, laterally continuous bentonite beds, chalky carbonaceous shale, minor sand, and small concretions.

LEGEND

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- Clay Sand
- Silt
- Silt Sand
- Chalk
- Gravel
- Hard Shale (Clay)
- Sample Zone

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NOTE:
Cobbles and boulders may be encountered during drilled shaft excavation. See the Geotechnical Evaluation Report for more information.

REGISTERED PROFESSIONAL ENGINEER
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KEVIN J.
BREHM
SOUTH DAKOTA
06/26/2024

SUBSURFACE & FOUNDATION LAYOUT (C)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290
STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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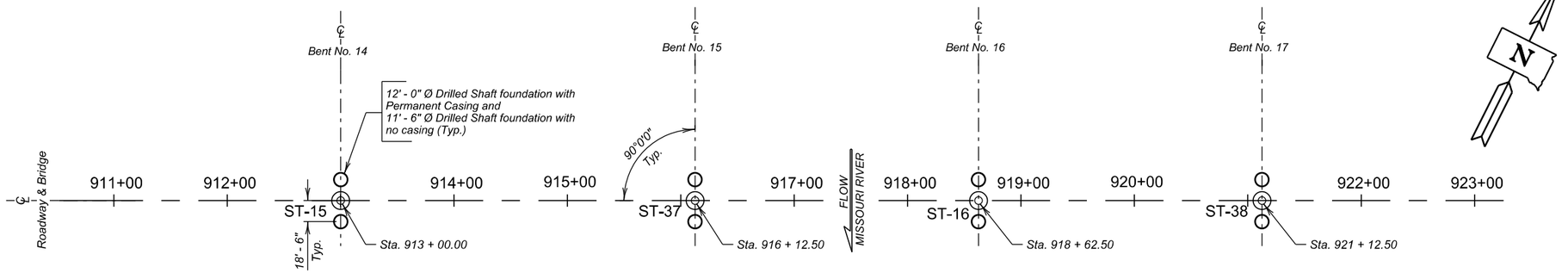
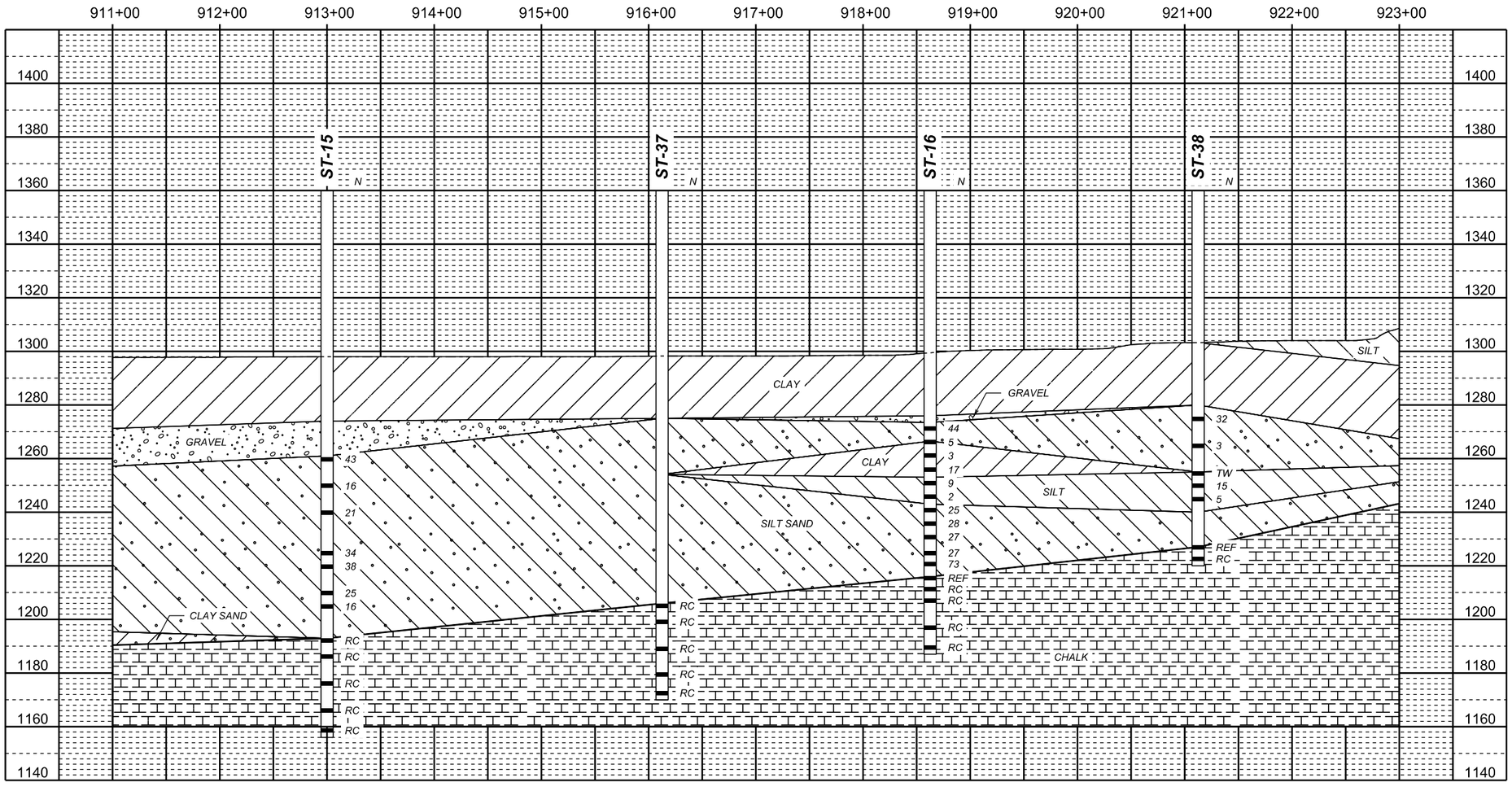
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E15	E86

Rev 06/26/2024 KJB



PILING AND DRILLED SHAFT LAYOUT



Niobrara Chalk is white to dark-gray argillaceous chalk, marl, and shale. The formation weathers yellow to orange. It also contains thin, laterally continuous bentonite beds, chalky carbonaceous shale, minor sand, and small concretions.

LEGEND

- Clay
- Clay Sand
- Silt
- Silt Sand
- Chalk
- Gravel
- Hard Shale (Clay)
- Sample Zone

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NOTE:
Cobbles and boulders may be encountered during drilled shaft excavation. See the Geotechnical Evaluation Report for more information.

REGISTERED PROFESSIONAL ENGINEER
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KEVIN J.
BREHM
SOUTH DAKOTA
06/26/2024

SUBSURFACE & FOUNDATION LAYOUT (D)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

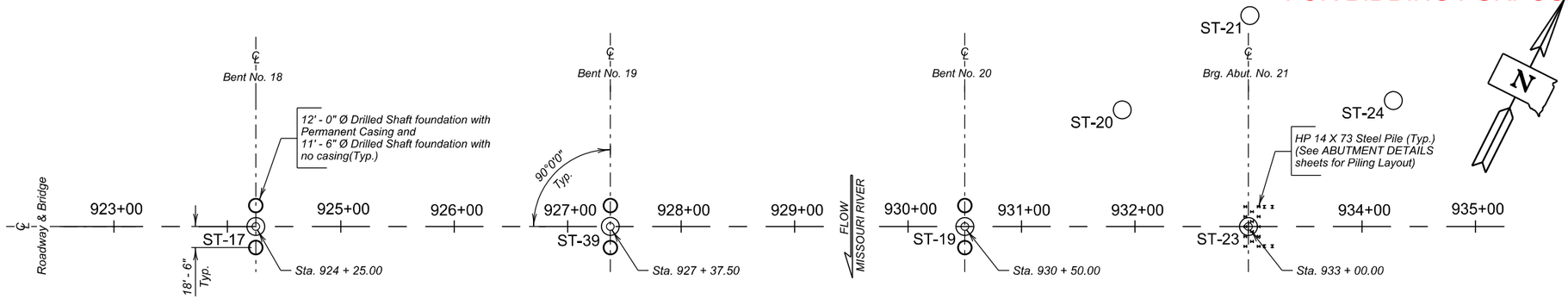
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

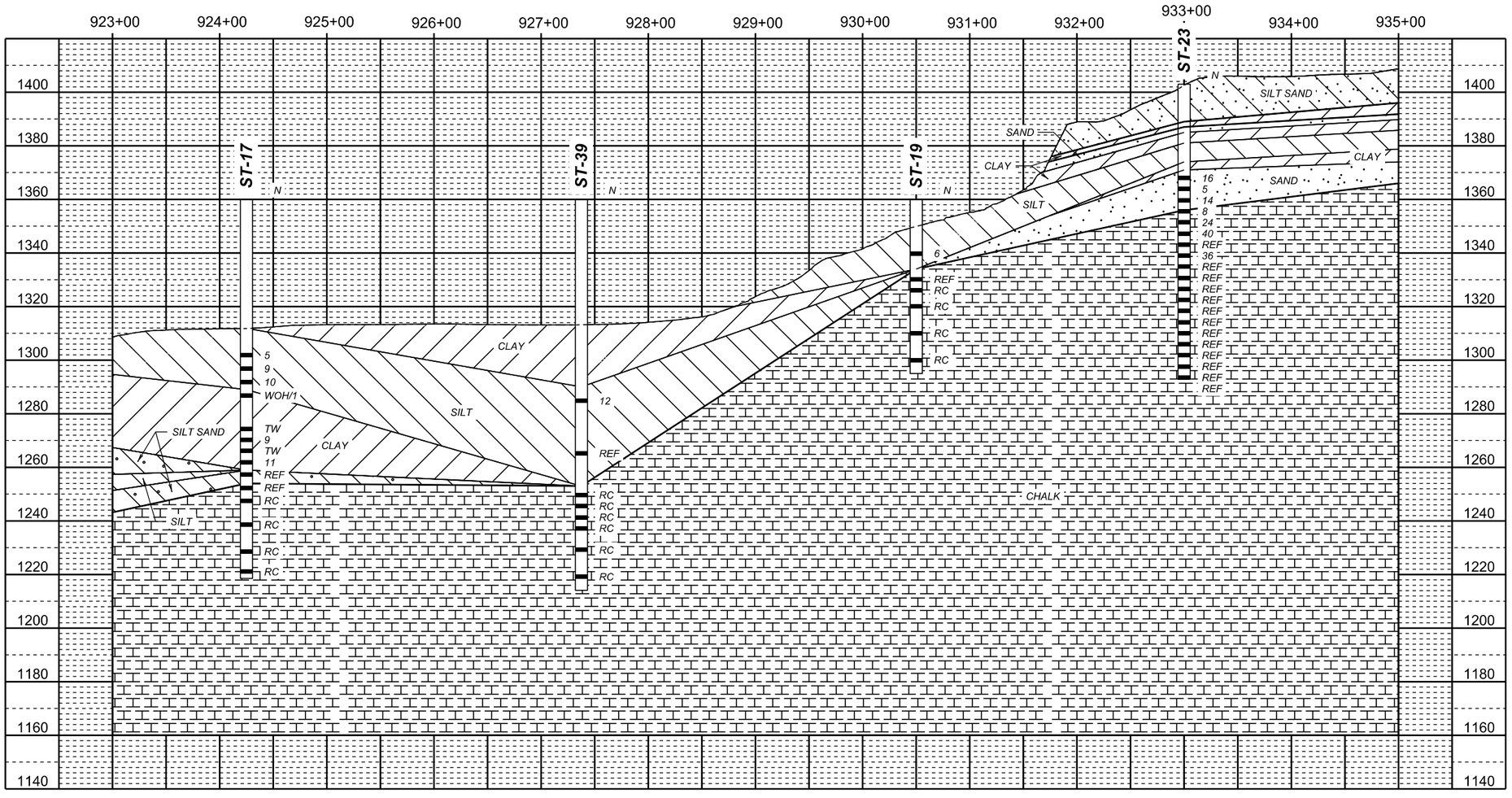
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E16	E86

Rev 06/26/2024 KJB



PILING AND DRILLED SHAFT LAYOUT



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- Silt Sand
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NOTE:
Cobbles and boulders may be encountered during drilled shaft excavation. See the Geotechnical Evaluation Report for more information.

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
06/26/2024

SUBSURFACE & FOUNDATION LAYOUT (E)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

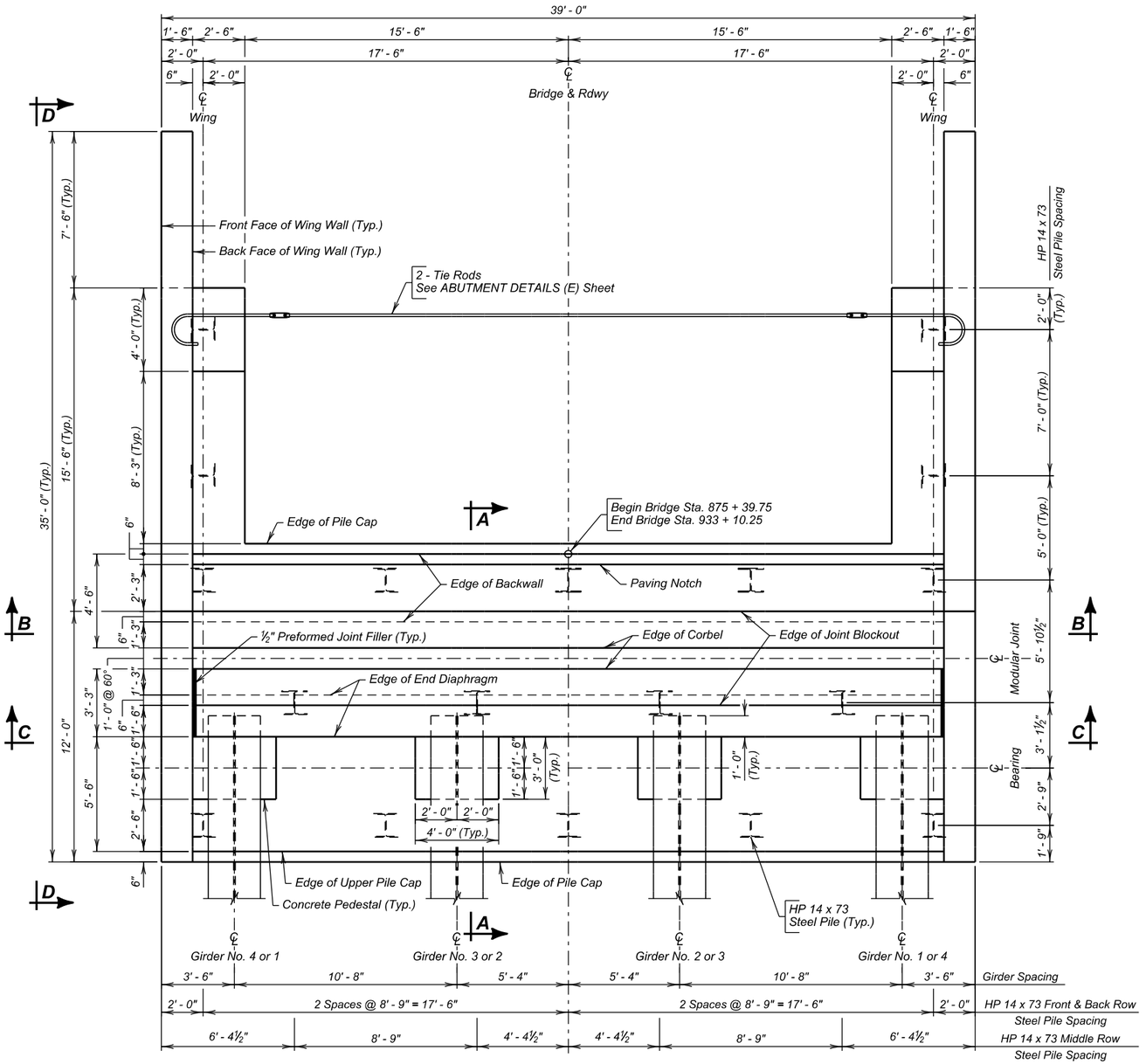
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

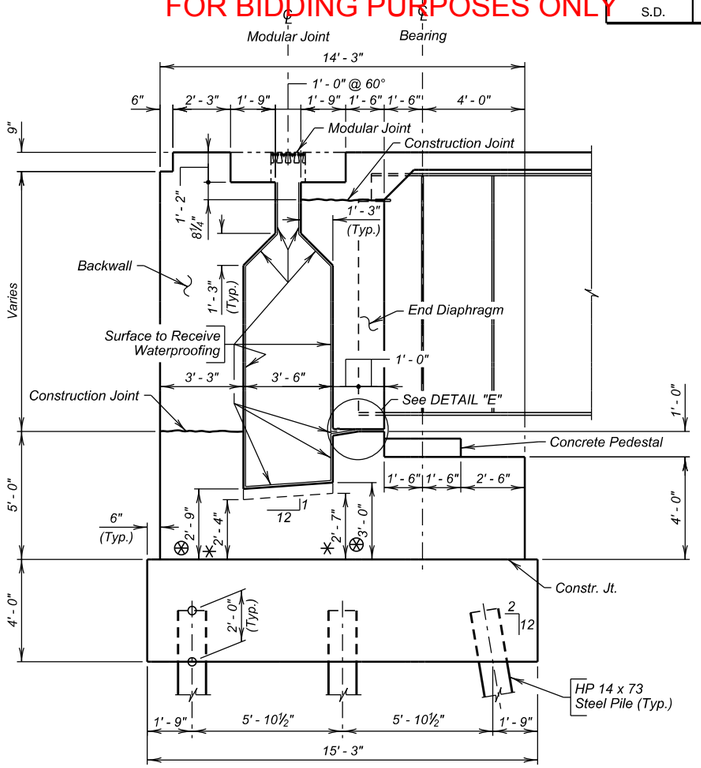
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E17	E86



PLAN

INCREASING STATIONS Abut. No. 1

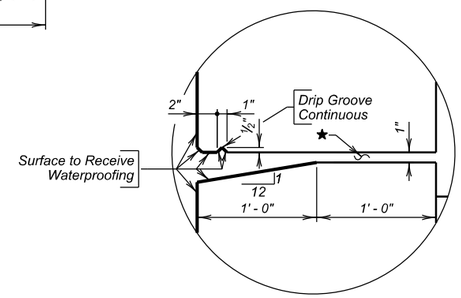
INCREASING STATIONS Abut. No. 21



⊛ *Measured at ℄ Roadway*

✳ *Measured at Back Face of Wing*

SECTION A - A



★ *Formwork between the Abutment Cap and End Diaphragm will not be allowed to remain in place.*

DETAIL "E"

Registered Professional Engineer
REG NO. 13271
AARON M. BUETTNER
SOUTH DAKOTA
18 Dec 2023

ABUTMENT GEOMETRY DETAILS (A)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

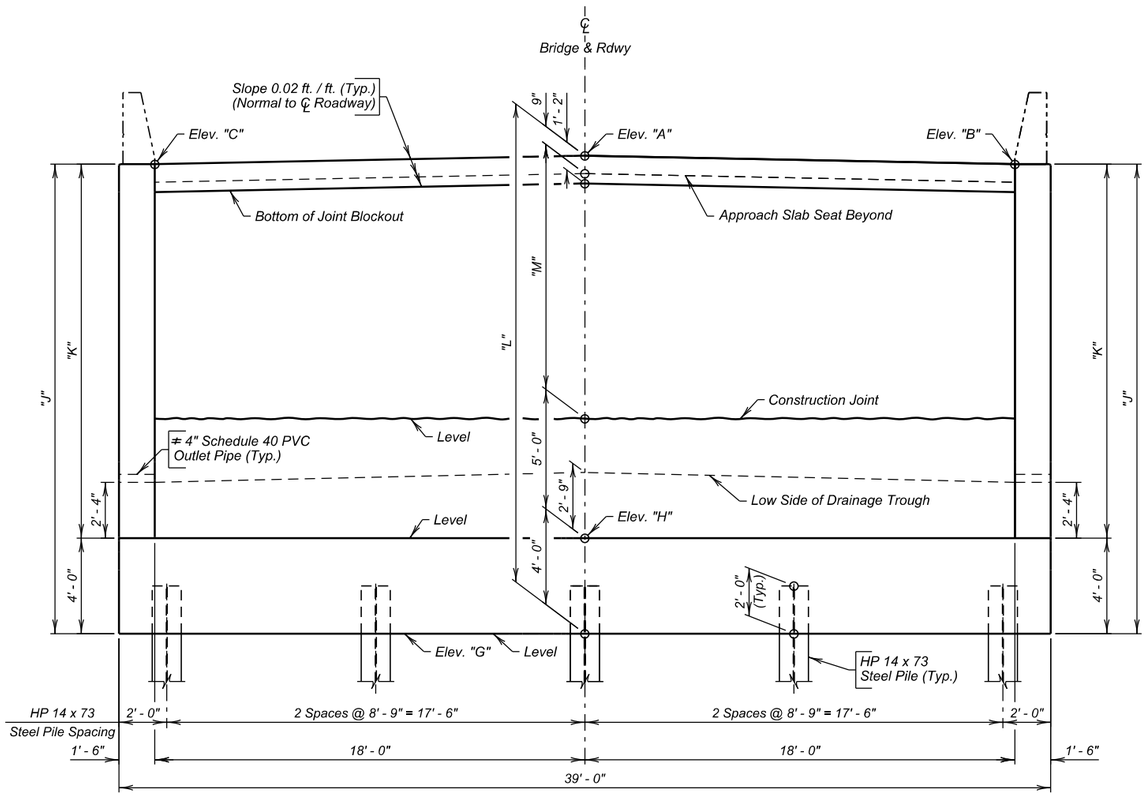
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

15 OF 84

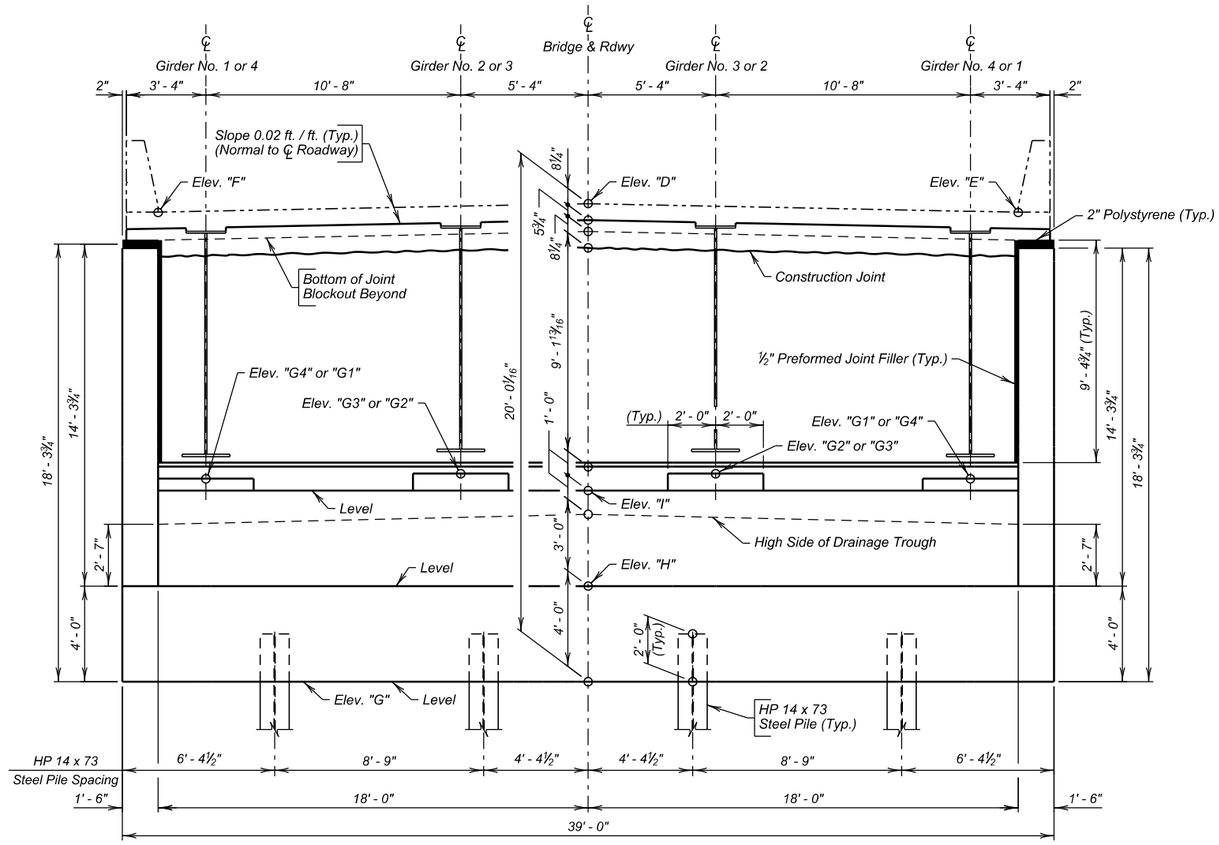
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY



NOTE: Elevations and dimensions are at Begin Bridge or End Bridge

SECTION B - B



NOTE: Elevations and dimensions are at ℄ Bearing

≠ Provide 6" stub-out for connection to outlet pipe system at bridge end embankment

SECTION C - C

TABLE OF ELEVATIONS AND DIMENSIONS

Abut. No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	Elev. "F"	Elev. "G"	Elev. "H"	Elev. "I"	Elev. "G1"	Elev. "G2"	Elev. "G3"	Elev. "G4"	"J"	"K"	"L"	"M"
1	1418.90	1418.54	1418.54	1418.80	1418.44	1418.44	1398.79	1402.79	1406.79	1407.25	1407.46	1407.46	1407.25	19' - 8 15/16"	15' - 8 15/16"	20' - 1¼"	10' - 4¼"
21	1418.00	1417.64	1417.64	1418.00	1417.64	1417.64	1397.99	1401.99	1405.99	1406.45	1406.66	1406.66	1406.45	19' - 7¾"	15' - 7¾"	20' - 0 1/16"	10' - 3 1/16"

Registered Professional Engineer
REG NO. 13271
AARON M. BUETTNER
SOUTH DAKOTA
18 Dec 2023

ABUTMENT GEOMETRY DETAILS (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

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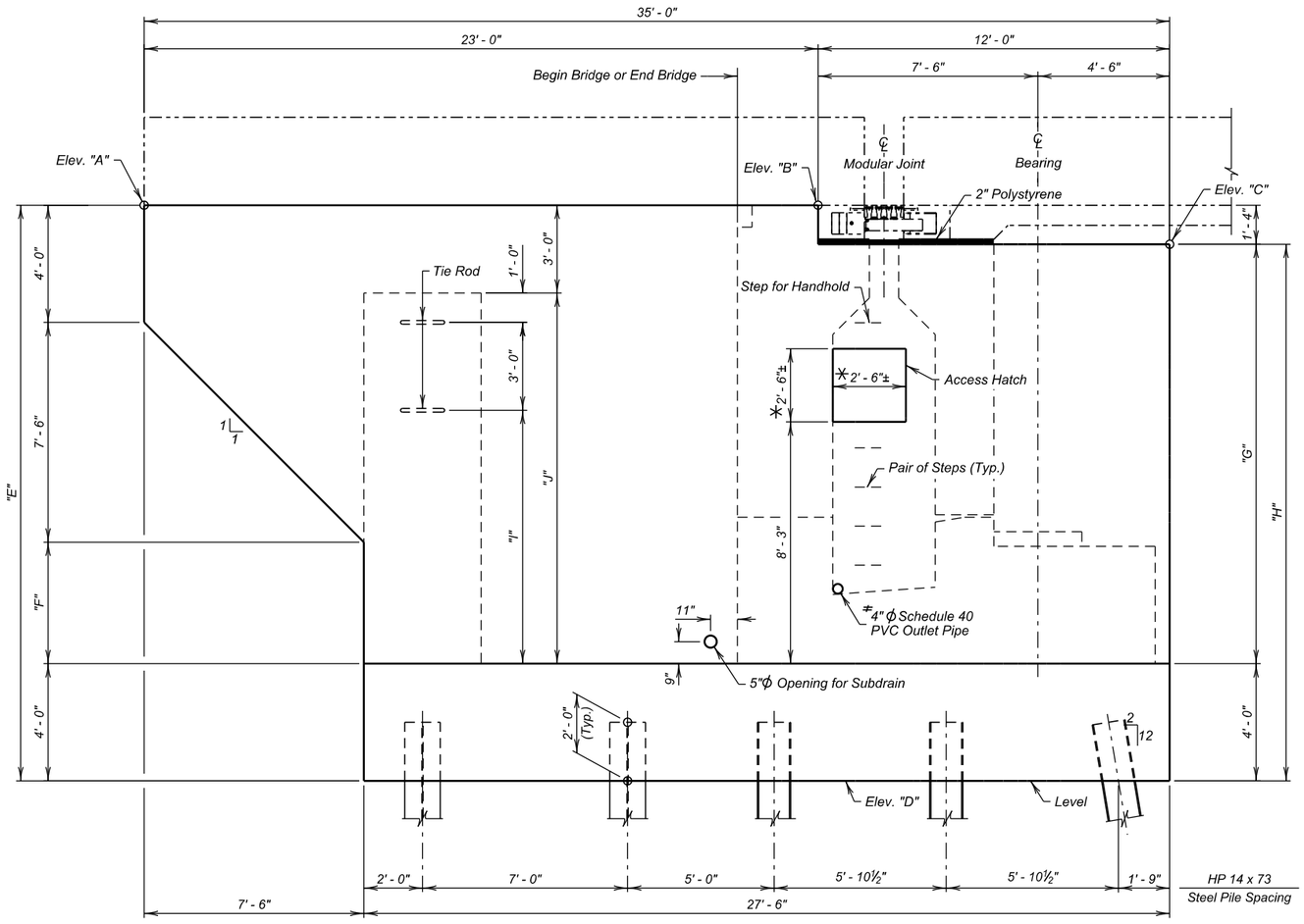
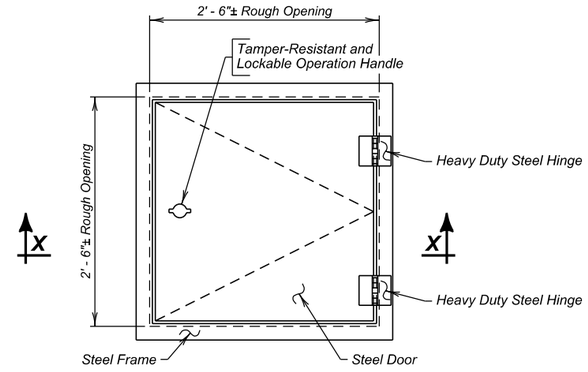


VIEW D - D

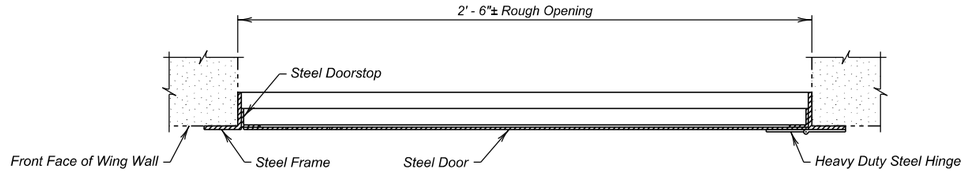
NOTE: Access hatch at south wings only.

≠ Directly embed in wing wall and provide 6" stub-out for connection to outlet pipe system at bridge end embankment

⁎ Adjust rough opening as required to conform to the selected acess door.



ELEVATION OF ACCESS DOOR



SECTION X - X

TABLE OF ELEVATIONS AND DIMENSIONS

Abut. No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	"E"	"F"	"G"	"H"	"I"	"J"
1	1418.75	1418.51	1417.07	1398.79	19' - 11½"	4' - 5½"	14' - 3¼"	18' - 3¼"	8' - 10¼"	12' - 10¼"
21	1417.64	1417.64	1416.31	1397.99	19' - 7¾"	4' - 1¾"	14' - 3¾"	18' - 3¾"	8' - 7¾"	12' - 7¾"

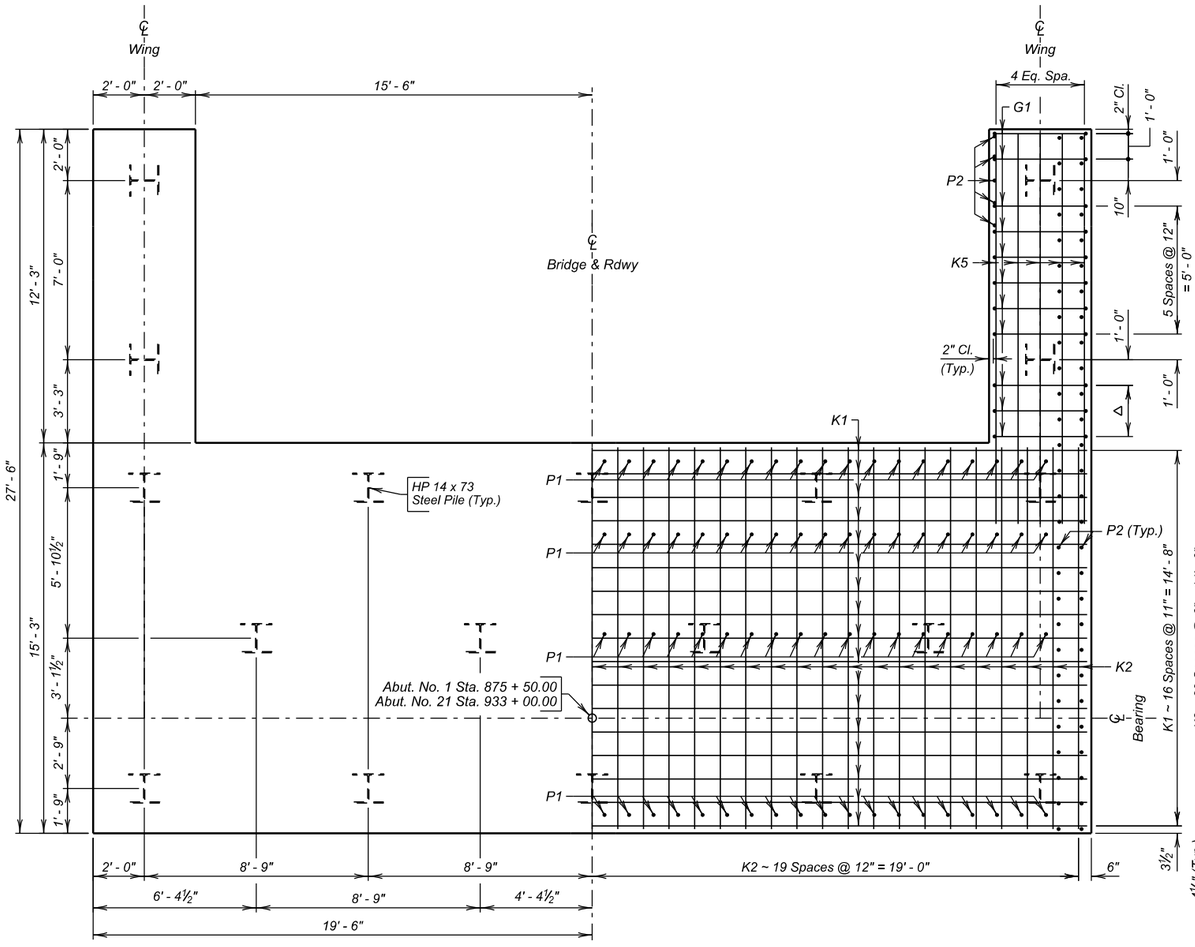
Registered Professional Engineer
REG. NO. 13271
AARON M. BUETTNER
SOUTH DAKOTA
18 Dec 2023

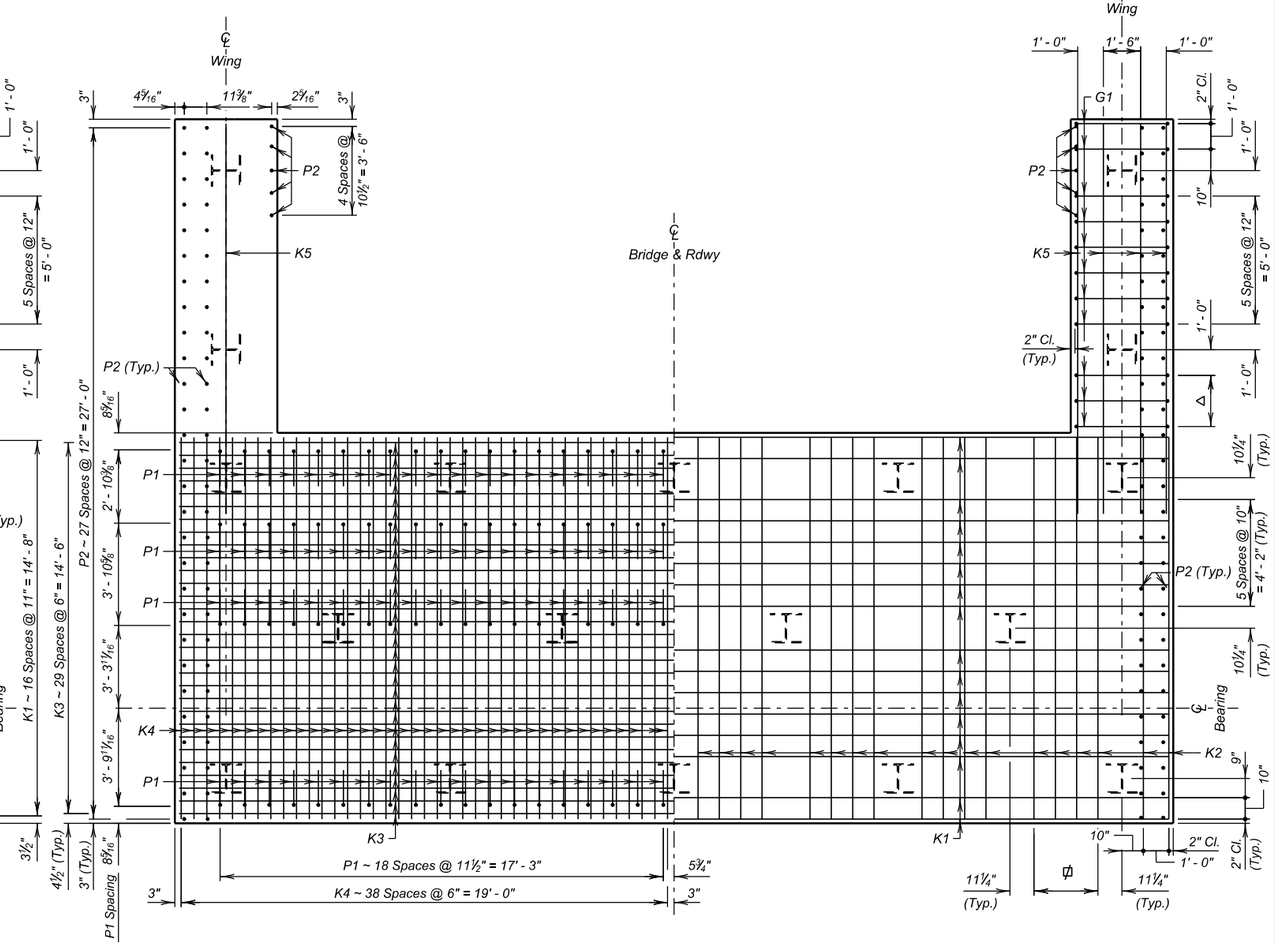
ABUTMENT GEOMETRY DETAILS (C)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE
36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076
0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E20	E86

FOR BIDDING PURPOSES ONLY





Δ 2 Spaces @ 12" = 2' - 0"

⫫ 3 Spaces @ 10" = 2' - 6" (Typ.)

PILING LAYOUT ***TOP MAT REINFORCING***

PLAN OF ABUTMENT FOOTING

REINFORCING ABOVE PILES ***BOTTOM MAT REINFORCING***

PLAN OF ABUTMENT FOOTING

Registered Professional Engineer
REG NO. 13271
AARON M. BUETTNER
SOUTH DAKOTA
18 Dec 2023

ABUTMENT DETAILS (A)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

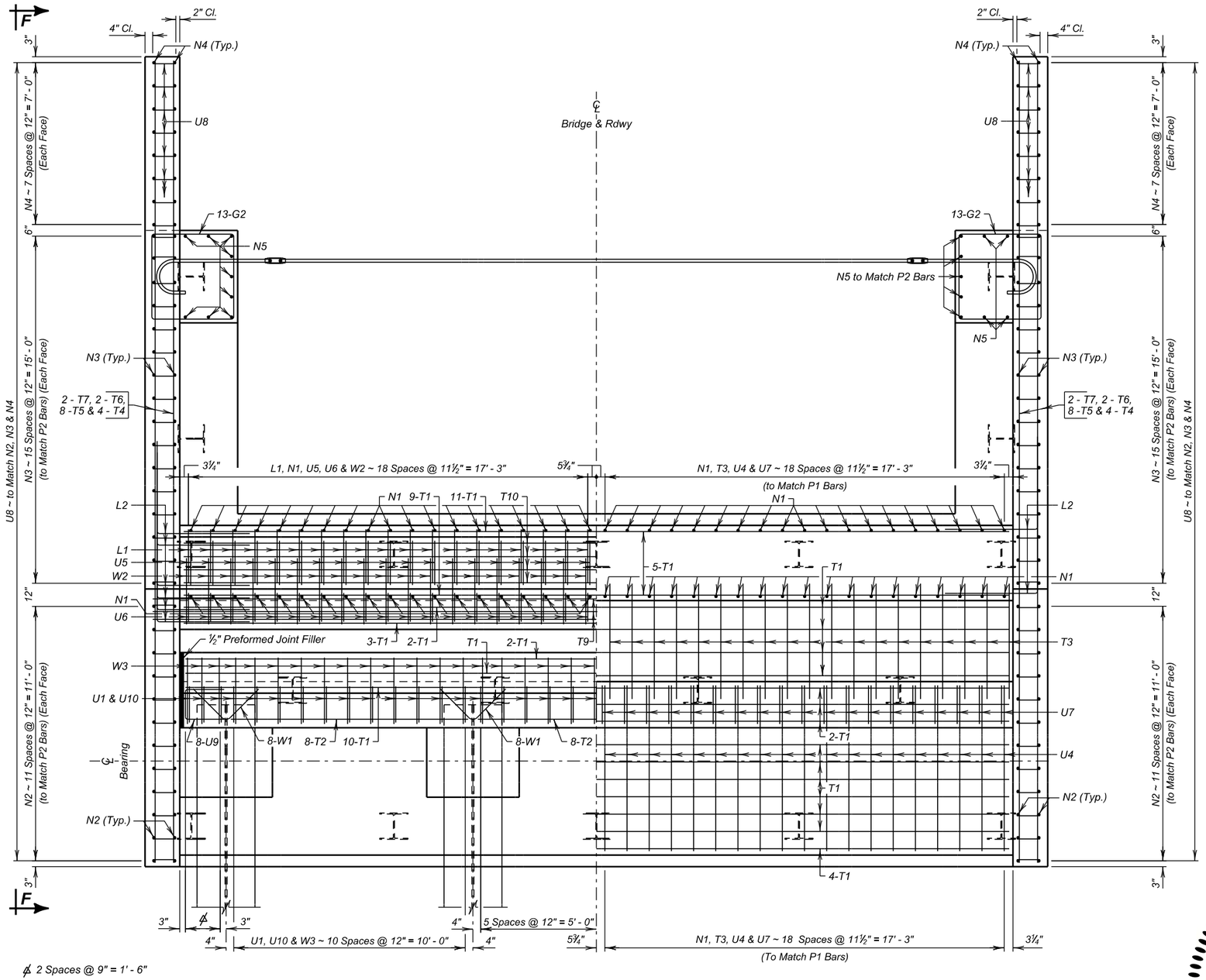
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

18 OF 84

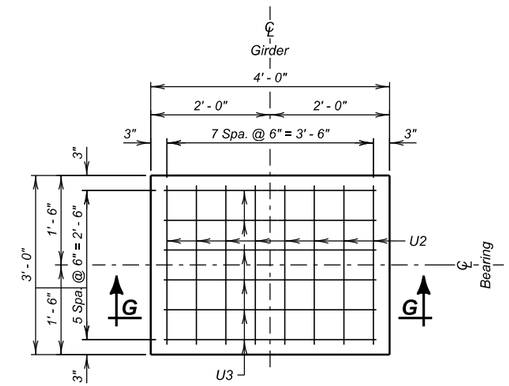
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

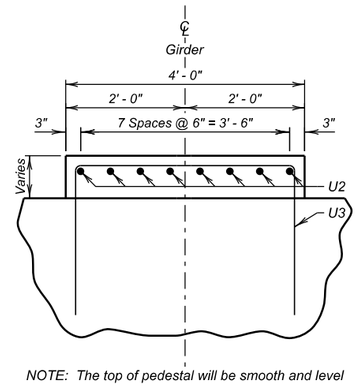


END DIAPHRAGM & BACKWALL ***BELOW CONSTRUCTION JOINT***

PLAN



PLAN OF PEDESTAL



NOTE: The top of pedestal will be smooth and level

SECTION G - G

ABUTMENT DETAILS (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

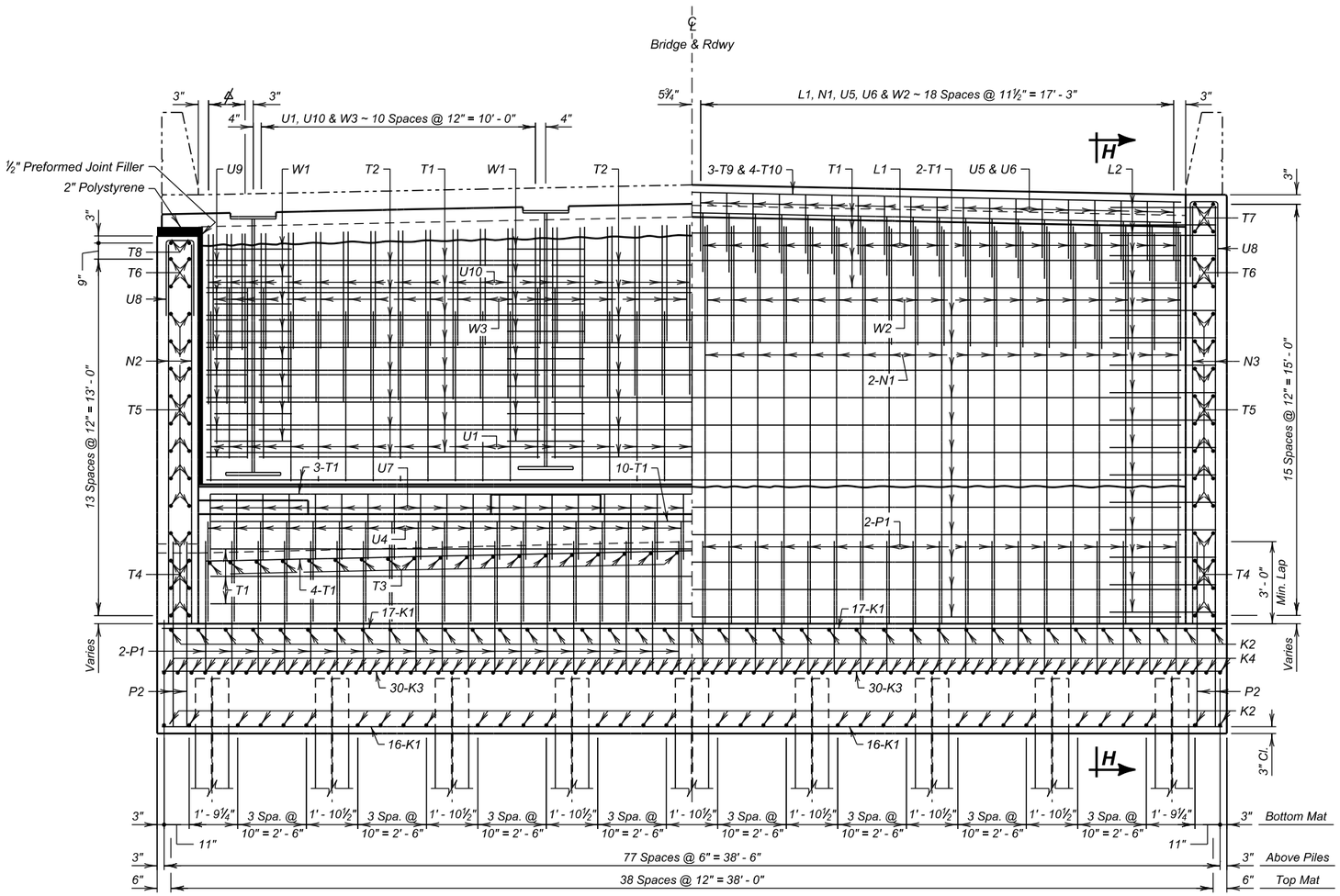
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E22	E86

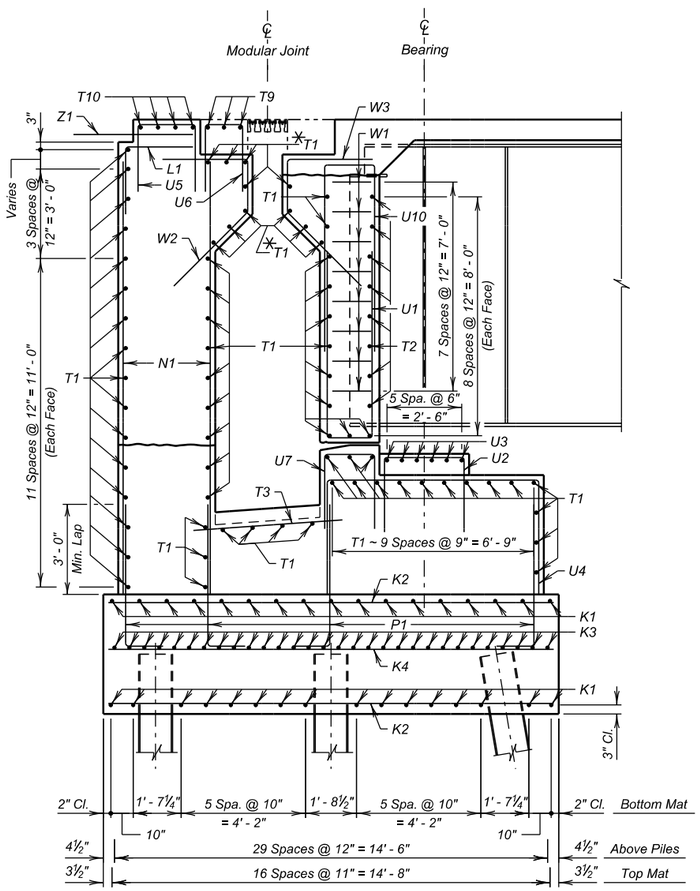


∅ 2 Spaces @ 9" = 1' - 6"

END DIAPHRAGM **BACKWALL**

ELEVATION

(Abut. No. 21 shown, Abut. No. 1 similar opposite hand)



Bar not shown in elevation for clarity

NOTE: For additional reinforcing above construction joint in the end diaphragm see Superstructure Details (E).

SECTION H - H

Registered Professional Engineer
REG NO. 13271
AARON M. BUETTNER
SOUTH DAKOTA
18 Dec 2023

ABUTMENT DETAILS (C)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

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DESIGNED BY	CK. DES. BY	DRAFTED BY	
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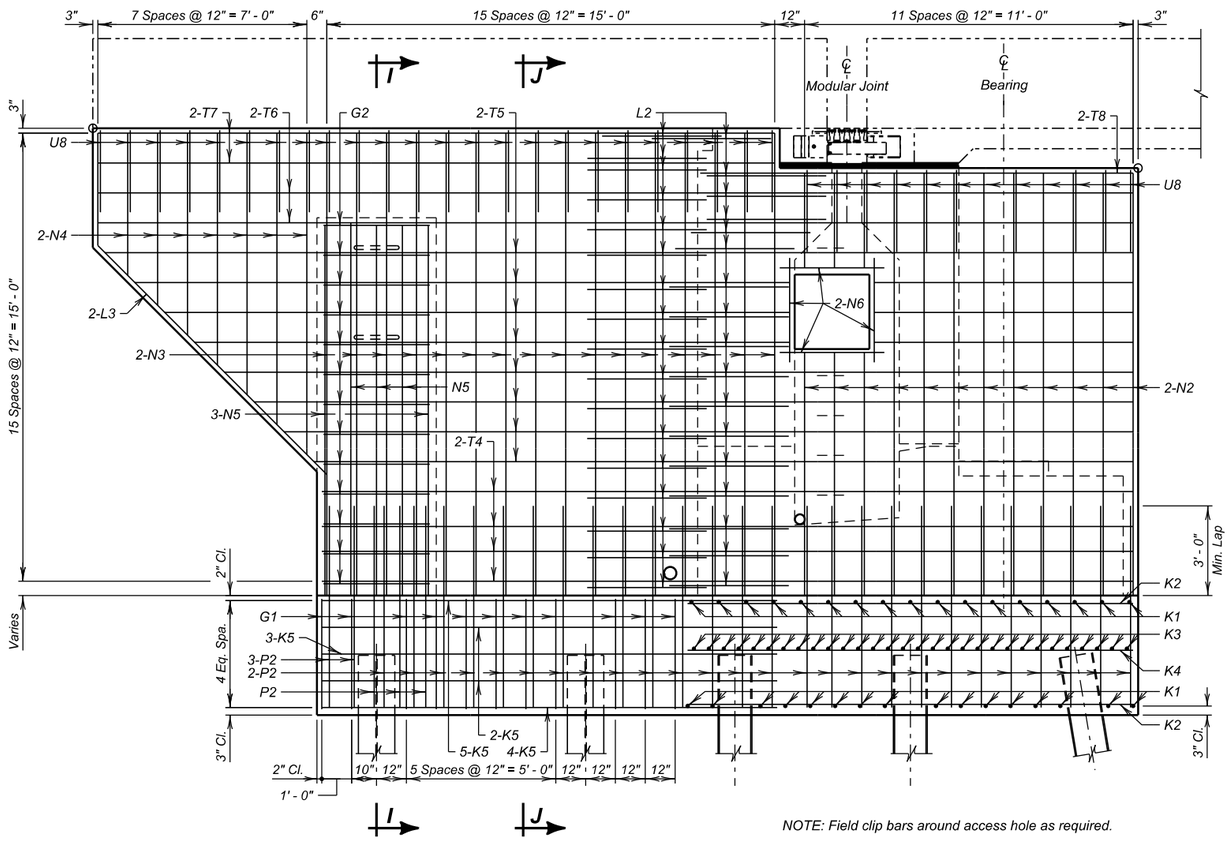
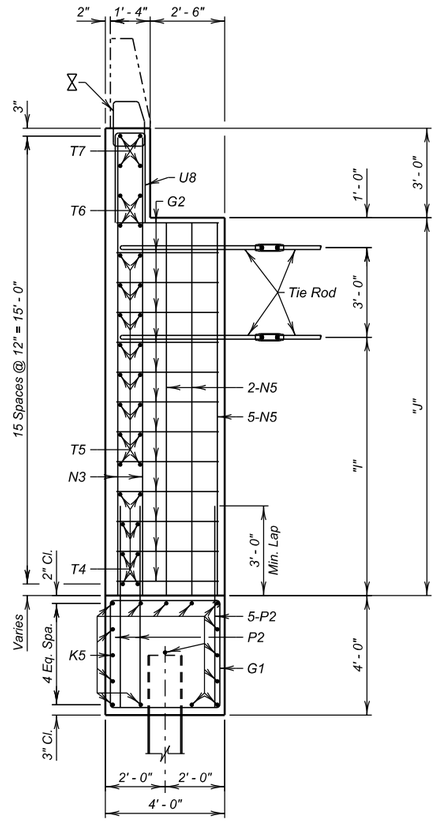
⧖ *Barrier bars are listed and included on Superstructure Quantities. See SUPERSTRUCTURE DETAILS (F) Sheet.*

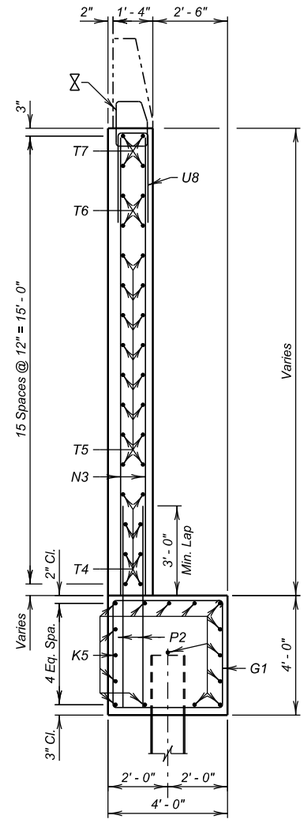


NOTE: Field clip bars around access hole as required.

VIEW F - F



SECTION I - I



SECTION J- J

Registered Professional Engineer
REG. NO. 13271
AARON M. BUETTNER
SOUTH DAKOTA
18 Dec 2023

ABUTMENT DETAILS (D)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

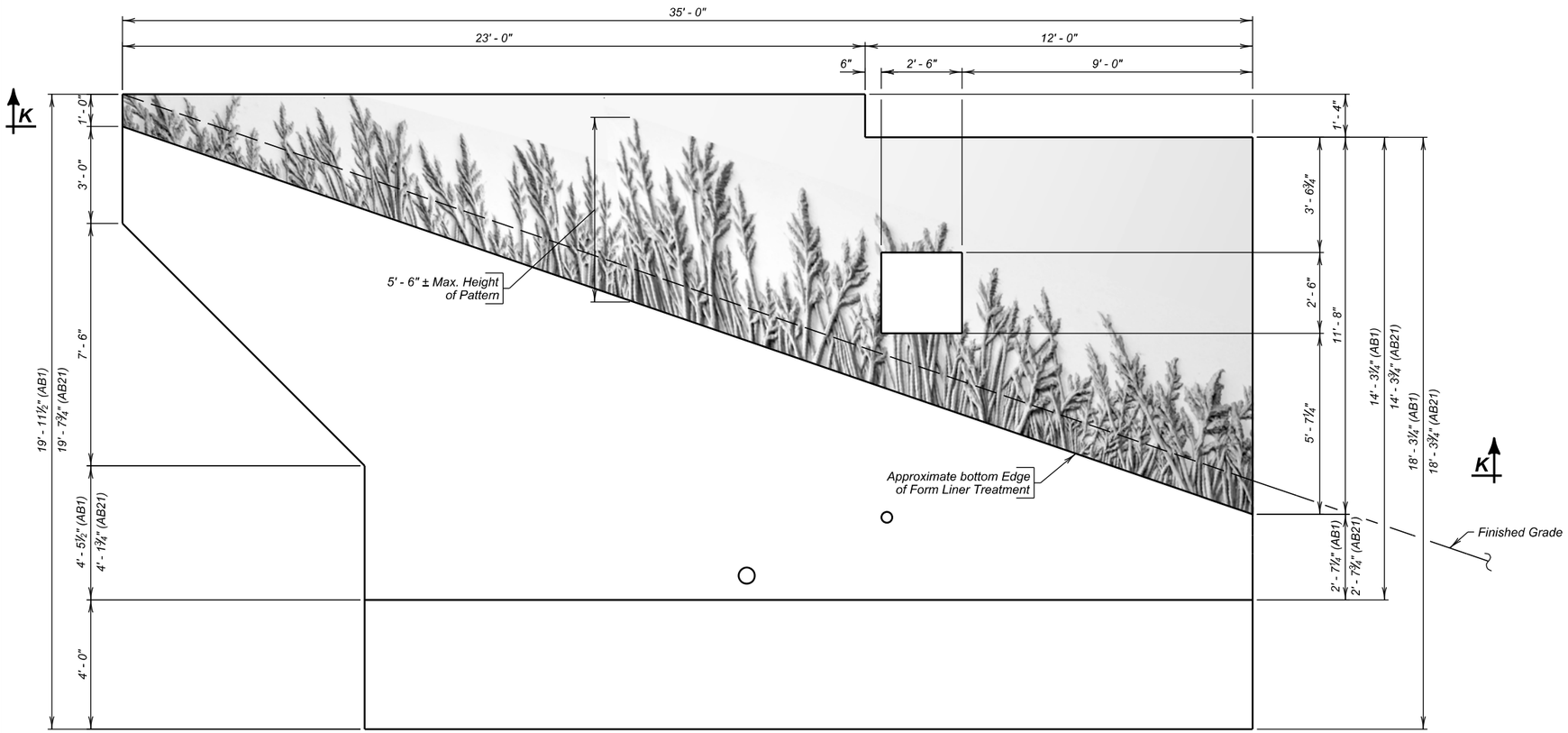
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

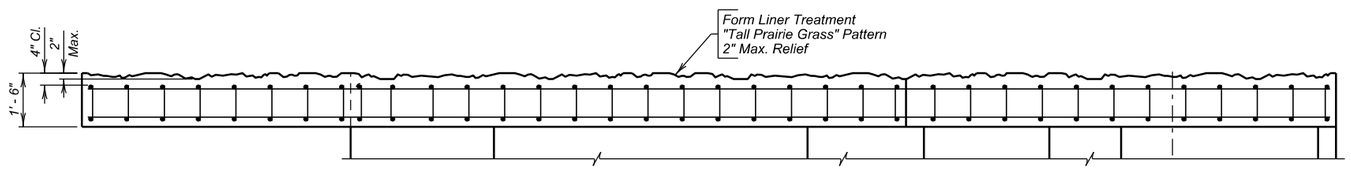
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E24	E86



ELEVATION OF WING PATTERNING



SECTION K - K

Registered Professional Engineer
REG NO. 13271
AARON M. BUETTNER
SOUTH DAKOTA
18 Dec 2023

ABUTMENT WING PATTERNING
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE
36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290
STR. NO. 12-089-076 — HL-93
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

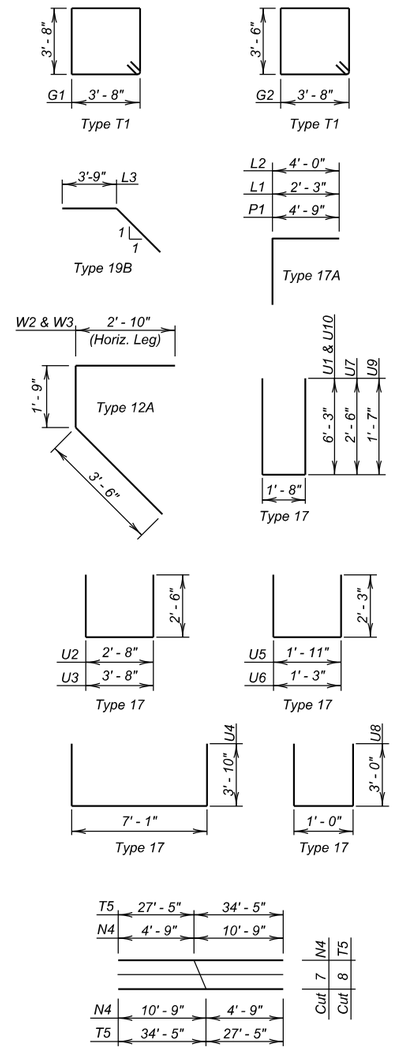
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E25	E86

FOR BIDDING PURPOSES ONLY

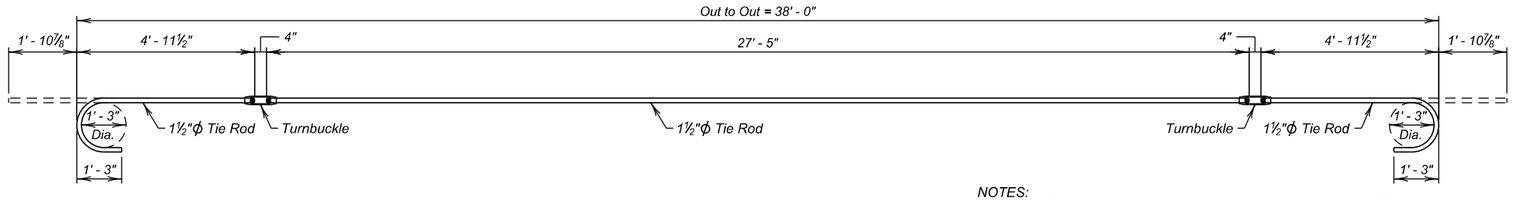
REINFORCING SCHEDULE
(for One Abutment ~ 2 Required)

	Mk.	No.	Size	Length	Type
	G1	22	5	15' - 7"	T1
	G2	26	5	15' - 3"	T1
	K1	33	5	38' - 8"	Str.
	K2	75	5	14' - 11"	Str.
	K3	30	6	38' - 8"	Str.
	K4	78	8	14' - 11"	Str.
	K5	32	5	15' - 3"	Str.
	L1	38	5	4' - 6"	17A
	L2	68	5	8' - 0"	17A
	L3	4	5	14' - 7"	19B
	N1	76	5	14' - 6"	Str.
	N2	48	5	14' - 1"	Str.
	N3	64	5	15' - 5"	Str.
	N4	14	5	15' - 6"	Str.
	N5	18	5	12' - 5"	Str.
	N6	8	5	3' - 6"	Str.
	P1	152	5	6' - 0"	17A
	P2	122	5	6' - 9"	Str.
	T1	70	5	35' - 8"	Str.
	T2	24	5	10' - 3"	Str.
	T3	38	5	5' - 0"	Str.
	T4	16	5	27' - 2"	Str.
	T5	16	5	61' - 10"	Str.
	T6	8	5	34' - 8"	Str.
	T7	8	5	22' - 8"	Str.
	T8	4	5	14' - 6"	Str.
△	T9	3	5	38' - 2"	Str.
△	T10	4	5	35' - 8"	Str.
	U1	39	5	14' - 2"	17
	U2	32	4	7' - 8"	17
	U3	24	4	8' - 8"	17
	U4	38	5	14' - 9"	17
△	U5	38	5	6' - 5"	17
△	U6	38	5	5' - 9"	17
	U7	38	5	6' - 8"	17
	U8	72	5	7' - 0"	17
	U9	16	5	4' - 10"	17
△	U10	39	5	14' - 2"	17
	W1	32	8	4' - 0"	13A
	W2	38	6	8' - 1"	12A
△	W3	39	6	8' - 1"	12A

Bending Details

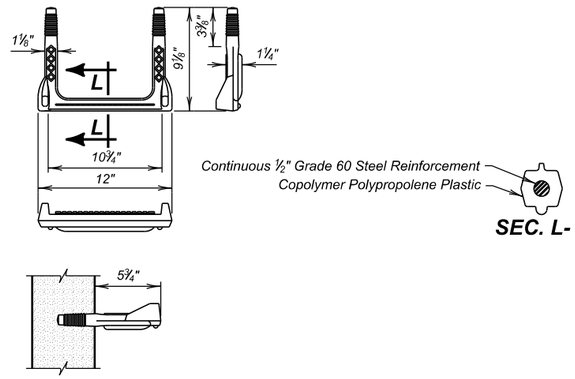


NOTES:
All dimensions are out to out of bars.
△ Bars to be Epoxy Coated.



TIE ROD DETAIL

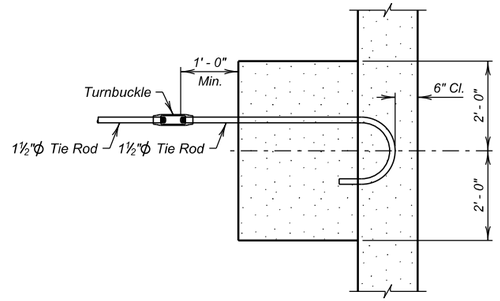
NOTES:
1. Hot-dip Galvanize tie rods and hardware in accordance with ASTM A123.
2. Tie rods will be installed prior to placing abutment backfill.
3. Tie rods will be tightened to remove the sag, taking care to avoid over-tightening.
4. The backfill behind the abutment within the limits of the wings will be placed in 8 inch layers and compacted by a single pass of a walk-behind, lightweight (approximately 100 lbs) mechanical tamper, roller or vibratory compactor. Heavy compaction equipment will not be used in this area.



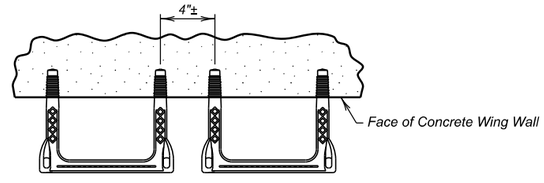
SEC. L- L

NOTES:
1. Install two steps side-by-side at each step level.
2. Step construction and spacing will meet the requirements of ASTM C-478, AASHTO M-199 and OSHA Instruction STD 1-1.9
3. Polypropolene Plastic will conform to ASTM D-4101.

REINFORCED PLASTIC STEPS



TIE ROD DETAIL



SIDE-BY-SIDE STEP INSTALLATION GUIDE

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY	
			Abut. No. 1	Abut. No. 21
	Class A45 Concrete, Bridge	Cu. Yd.	320.7	320.1
	Reinforcing Steel	Lb.	22836	22836
	Epoxy Coated Reinforcing Steel	Lb.	1800	1800
⏀	Structural Steel, Miscellaneous	LS	Lump Sum	Lump Sum
	Structure Excavation, Bridge	Cu. Yd.	218.9	207.8
	HP 14 X 73 Steel Test Pile, Furnish and Drive	Ft.	1 @ 55' = 55'	1 @ 55' = 55'
	HP 14 X 73 Steel Bearing Pile, Furnish and Drive	Ft.	17 @ 50' = 850'	17 @ 50' = 850'

⏀ For informational purposes only, the estimated weight of the structural steel is 1102 pounds

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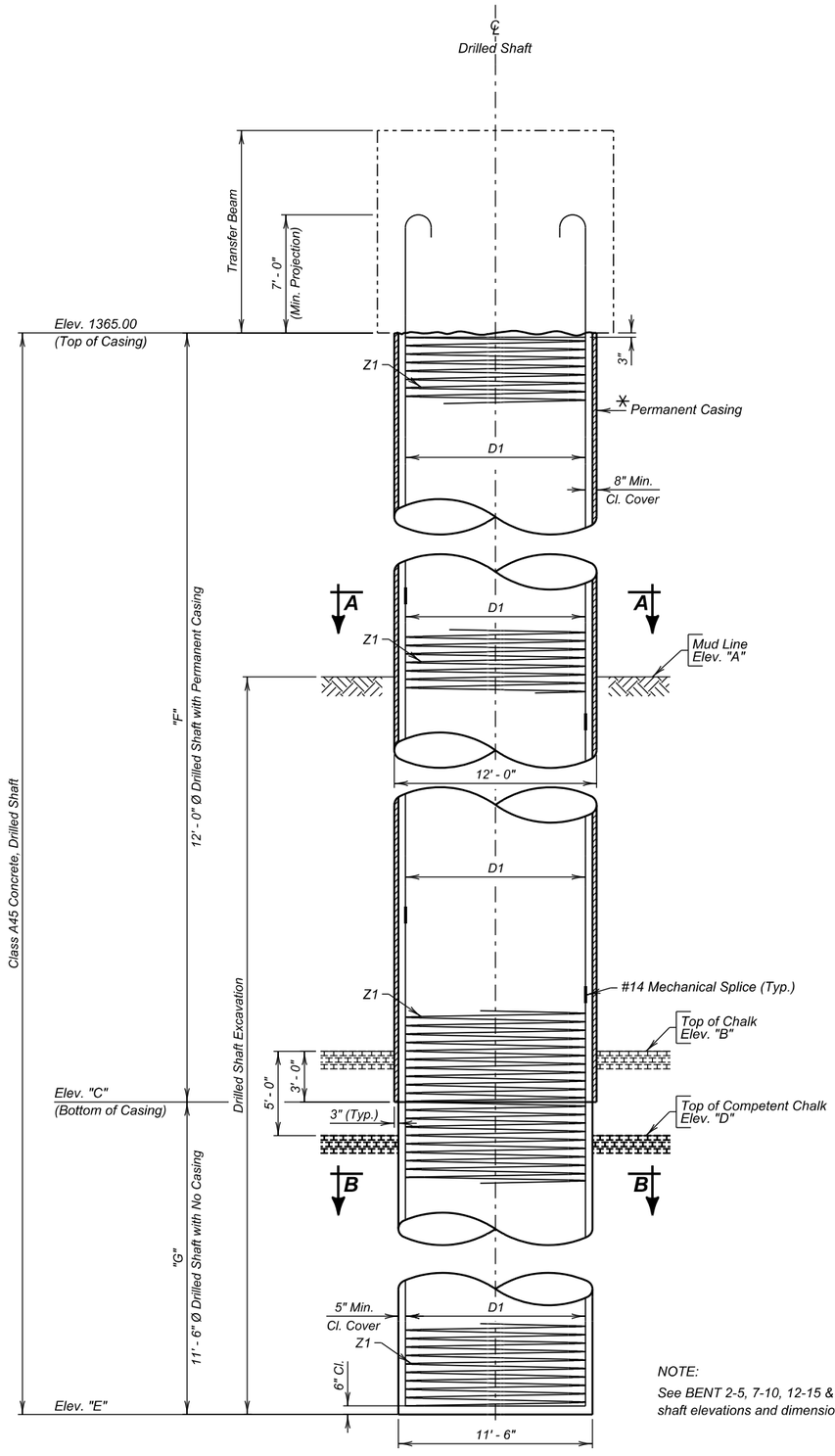
SOUTH DAKOTA
18 Dec 2023

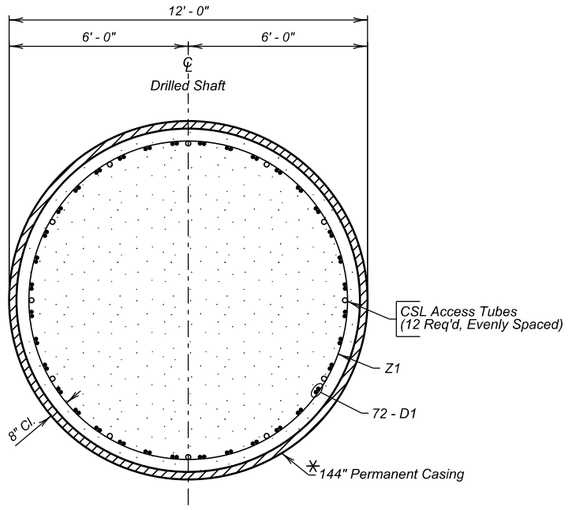
ABUTMENT DETAILS (E)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE
36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076
0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023
23 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E26	E86

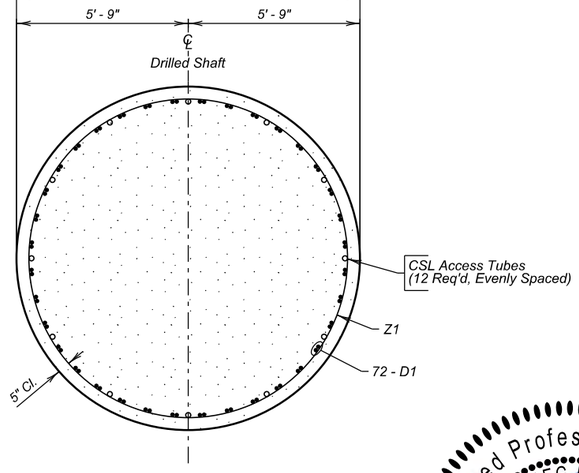


DRILLED SHAFT



SEC. A - A

⚹ 1½" Minimum Wall Thickness



SEC. B - B

NOTE:
See BENT 2-5, 7-10, 12-15 & 17-20 DETAILS (A) and BENT 6, 11 & 16 DETAILS (A) for drilled shaft elevations and dimensions.

Registered Professional Engineer
REG NO.
13271
AARON M.
BUETTNER
SOUTH DAKOTA
18 Dec 2023

DRILLED SHAFT DETAILS (A)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290
STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

Revised 05/02/2025 AMB

FOR BIDDING PURPOSES ONLY

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY						
		Bent No. 2	Bent No. 3	Bent No. 4	Bent No. 5	Bent No. 6	Bent No. 7	Bent No. 8
Class A45 Concrete, Drilled Shaft	Cu. Yd.	575.2	1043.8	1107.7	1276.0	1380.4	1468.1	1532.4
Reinforcing Steel	Lb.	54994	95396	100921	115424	124402	131999	137524
Drilled Shaft Excavation	Cu. Yd.	400.3	762.0	652.4	877.9	978.5	1044.1	1090.2
Crosshole Sonic Log (CSL) Test	Each	2	2	2	2	2	2	2
Thermal Integrity Profiling (TIP) Test	Each	2	2	2	2	2	2	2
144" Permanent Casing	Ft.	103	212	226	266	292	310	326
No. 14 Rebar Splice	Each	144	288	288	288	432	432	432

ESTIMATED QUANTITIES CONT.

ITEM	UNIT	QUANTITY					
		Bent No. 9	Bent No. 10	Bent No. 11	Bent No. 12	Bent No. 13	Bent No. 14
Class A45 Concrete, Drilled Shaft	Cu. Yd.	1644.5	1652.5	1620.7	1708.4	1676.3	1636.4
Reinforcing Steel	Lb.	147192	147883	145120	152717	149955	146502
Drilled Shaft Excavation	Cu. Yd.	1118.8	1110.5	1094.4	1104.8	1155.9	1102.1
Crosshole Sonic Log (CSL) Test	Each	2	2	2	2	2	2
Thermal Integrity Profiling (TIP) Test	Each	2	2	2	2	2	2
144" Permanent Casing	Ft.	352	354	348	366	358	350
No. 14 Rebar Splice	Each	432	432	432	432	432	432

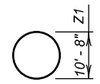
ESTIMATED QUANTITIES CONT.

ITEM	UNIT	QUANTITY					
		Bent No. 15	Bent No. 16	Bent No. 17	Bent No. 18	Bent No. 19	Bent No. 20
Class A45 Concrete, Drilled Shaft	Cu. Yd.	1524.3	1428.6	1348.0	1108.0	1116.0	427.0
Reinforcing Steel	Lb.	136833	128546	121639	100921	101611	42218
Drilled Shaft Excavation	Cu. Yd.	998.1	903.1	864.7	623.8	711.8	293.8
Crosshole Sonic Log (CSL) Test	Each	2	2	2	2	2	2
Thermal Integrity Profiling (TIP) Test	Each	2	2	2	2	2	2
144" Permanent Casing	Ft.	324	304	282	228	230	68
No. 14 Rebar Splice	Each	432	432	288	288	288	144

REINFORCING SCHEDULE

	Mk.	No.	Size	Length	Type
Bent 2	D1	72	14	81' - 3"	1A
	Z1	2	5	4909' - 10"	Spiral
Bent 3	D1	72	14	139' - 9"	1A
	Z1	2	5	8831' - 0"	Spiral
Bent 4	D1	72	14	147' - 9"	1A
	Z1	2	5	9367' - 3"	Spiral
Bent 5	D1	72	14	168' - 9"	1A
	Z1	2	5	10774' - 10"	Spiral
Bent 6	D1	72	14	181' - 9"	1A
	Z1	2	5	11646' - 2"	Spiral
Bent 7	D1	72	14	192' - 9"	1A
	Z1	2	5	12383' - 6"	Spiral
Bent 8	D1	72	14	200' - 9"	1A
	Z1	2	5	12919' - 9"	Spiral
Bent 9	D1	72	14	214' - 9"	1A
	Z1	2	5	13858' - 1"	Spiral
Bent 10	D1	72	14	215' - 9"	1A
	Z1	2	5	13925' - 2"	Spiral
Bent 11	D1	72	14	211' - 9"	1A
	Z1	2	5	13657' - 0"	Spiral
Bent 12	D1	72	14	222' - 9"	1A
	Z1	2	5	14394' - 4"	Spiral
Bent 13	D1	72	14	218' - 9"	1A
	Z1	2	5	14126' - 3"	Spiral
Bent 14	D1	72	14	213' - 9"	1A
	Z1	2	5	13791' - 1"	Spiral
Bent 15	D1	72	14	199' - 9"	1A
	Z1	2	5	12852' - 8"	Spiral
Bent 16	D1	72	14	187' - 9"	1A
	Z1	2	5	12048' - 4"	Spiral
Bent 17	D1	72	14	177' - 9"	1A
	Z1	2	5	11378' - 1"	Spiral
Bent 18	D1	72	14	147' - 9"	1A
	Z1	2	5	9367' - 3"	Spiral
Bent 19	D1	72	14	148' - 9"	1A
	Z1	2	5	9434' - 3"	Spiral
Bent 20	D1	72	14	62' - 9"	1A
	Z1	2	5	3669' - 10"	Spiral

Bending Details



Spiral

60'-6"	D1, Bent 20
146'-6"	D1, Bent 19
145'-6"	D1, Bent 18
175'-6"	D1, Bent 17
185'-6"	D1, Bent 16
197'-6"	D1, Bent 15
211'-6"	D1, Bent 14
216'-6"	D1, Bent 13
220'-6"	D1, Bent 12
209'-6"	D1, Bent 11
213'-6"	D1, Bent 10
212'-6"	D1, Bent 9
198'-6"	D1, Bent 8
190'-6"	D1, Bent 7
179'-6"	D1, Bent 6
166'-6"	D1, Bent 5
145'-6"	D1, Bent 4
137'-6"	D1, Bent 3
79'-0"	D1, Bent 2

Type 1A

NOTES:

1. All dimensions are out to out of bars.
2. Spirals - Use 6" pitch and 1½ extra turns at each end. Use 1½ turns for lap at splice as required, or weld as approved by the Engineer of Record. Use 6 vertical spacer bars per column.
3. Bar Length does not include Splices.
4. The length shown for the D1 bar is the full length required. The Contractor must submit a splice plan for approval. Mechanical splices must be staggered (a minimum of 5' - 0") and not placed side by side.
5. Shift D1 bar bundles as required to maintain 3" minimum clearance between bars and CSL tubes.

DRILLED SHAFT DETAILS (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

25 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

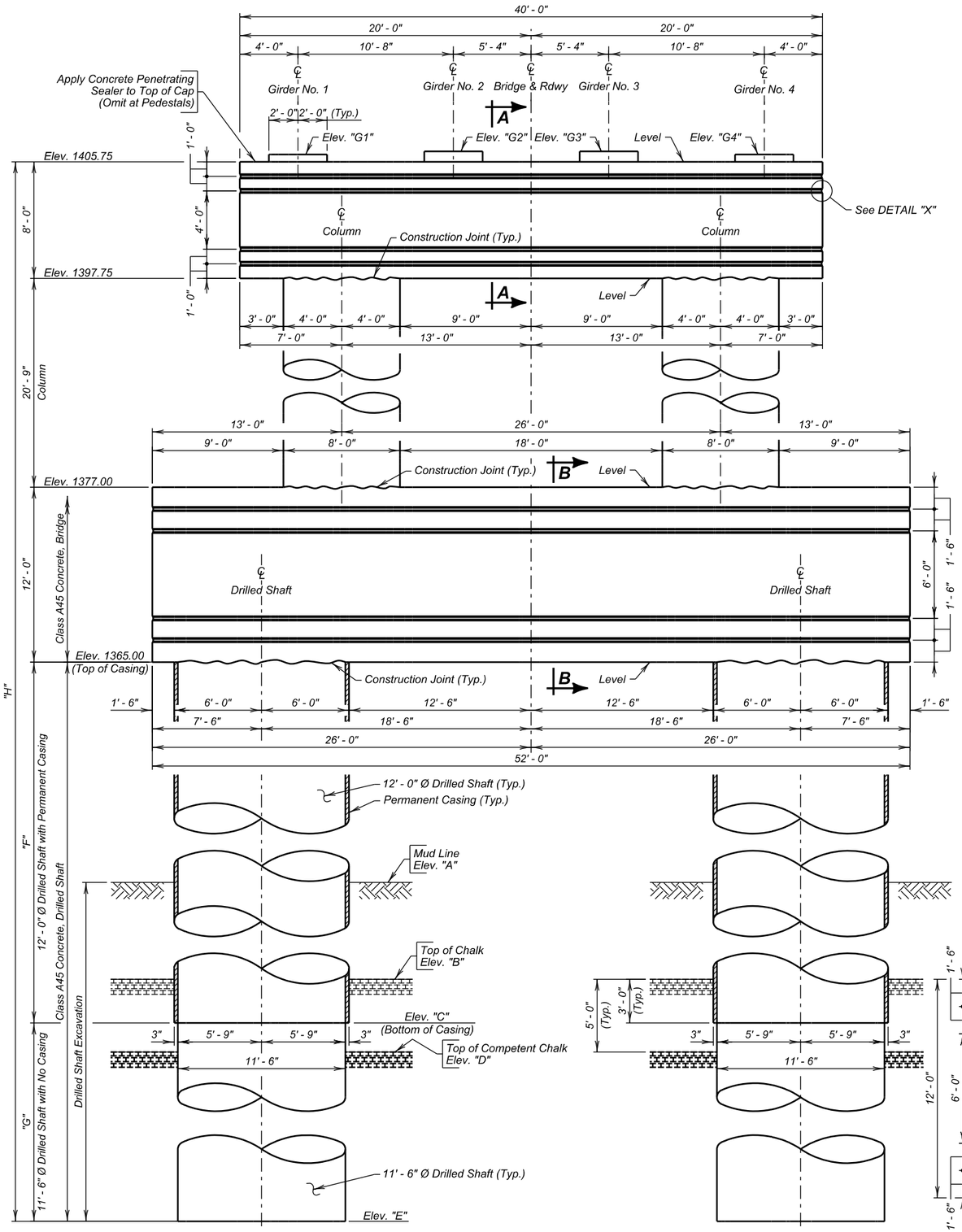
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E28	E86

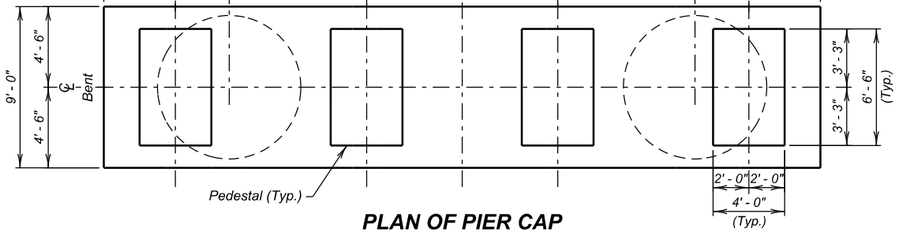
TABLE OF ELEVATIONS & DIMENSIONS

Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	"F"	"G"	"H"	Elev. "G1"	Elev. "G2"	Elev. "G3"	Elev. "G4"
2	1342.00	1316.50	1313.50	1311.50	1292.50	51' - 6"	21' - 0"	113' - 3"	1406.18	1406.39	1406.39	1406.18
3	1327.00	1262.00	1259.00	1257.00	1234.00	106' - 0"	25' - 0"	171' - 9"	1406.34	1406.55	1406.55	1406.34
4	1306.00	1255.00	1252.00	1250.00	1226.00	113' - 0"	26' - 0"	179' - 9"	1406.34	1406.55	1406.55	1406.34
5	1312.00	1235.00	1232.00	1230.00	1205.00	133' - 0"	27' - 0"	200' - 9"	1406.18	1406.39	1406.39	1406.18
7	1308.00	1213.00	1210.00	1208.00	1181.00	155' - 0"	29' - 0"	224' - 9"	1406.18	1406.39	1406.39	1406.18
8	1305.50	1205.00	1202.00	1200.00	1173.00	163' - 0"	29' - 0"	232' - 9"	1406.34	1406.55	1406.55	1406.34
9	1295.00	1192.00	1189.00	1187.00	1159.00	176' - 0"	30' - 0"	246' - 9"	1406.34	1406.55	1406.55	1406.34
10	1293.00	1191.00	1188.00	1186.00	1158.00	177' - 0"	30' - 0"	247' - 9"	1406.18	1406.39	1406.39	1406.18
12	1285.40	1185.00	1182.00	1180.00	1151.00	183' - 0"	31' - 0"	254' - 9"	1406.18	1406.39	1406.39	1406.18
13	1295.50	1189.00	1186.00	1184.00	1155.00	179' - 0"	31' - 0"	250' - 9"	1406.34	1406.55	1406.55	1406.34
14	1294.00	1193.00	1190.00	1188.00	1160.00	175' - 0"	30' - 0"	245' - 9"	1406.34	1406.55	1406.55	1406.34
15	1295.50	1206.00	1203.00	1201.00	1174.00	162' - 0"	29' - 0"	231' - 9"	1406.18	1406.39	1406.39	1406.18
17	1301.50	1227.00	1224.00	1222.00	1196.00	141' - 0"	28' - 0"	209' - 9"	1406.18	1406.39	1406.39	1406.18
18	1302.50	1254.00	1251.00	1249.00	1226.00	114' - 0"	25' - 0"	179' - 9"	1406.34	1406.55	1406.55	1406.34
19	1312.00	1253.00	1250.00	1248.00	1225.00	115' - 0"	25' - 0"	180' - 9"	1406.34	1406.55	1406.55	1406.34
20	1347.70	1334.00	1331.00	1329.00	1311.00	34' - 0"	20' - 0"	94' - 9"	1406.18	1406.39	1406.39	1406.18

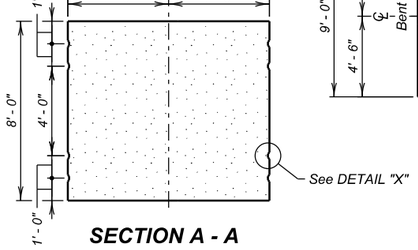
NOTE - Elev. G1, G2, G3 and G4 are top of pedestal elevations at ℄ Bent.



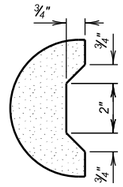
ELEVATION



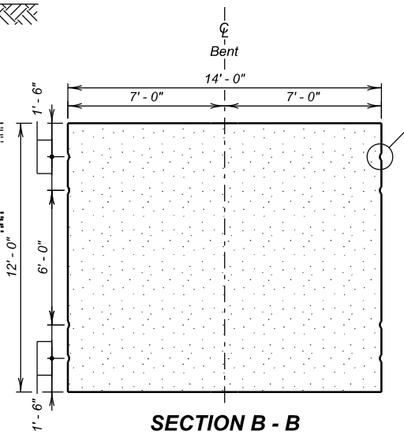
PLAN OF PIER CAP



SECTION A - A



DETAIL "X"



SECTION B - B

BENT 2-5, 7-10, 12-15 & 17-20 DETAILS (A)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

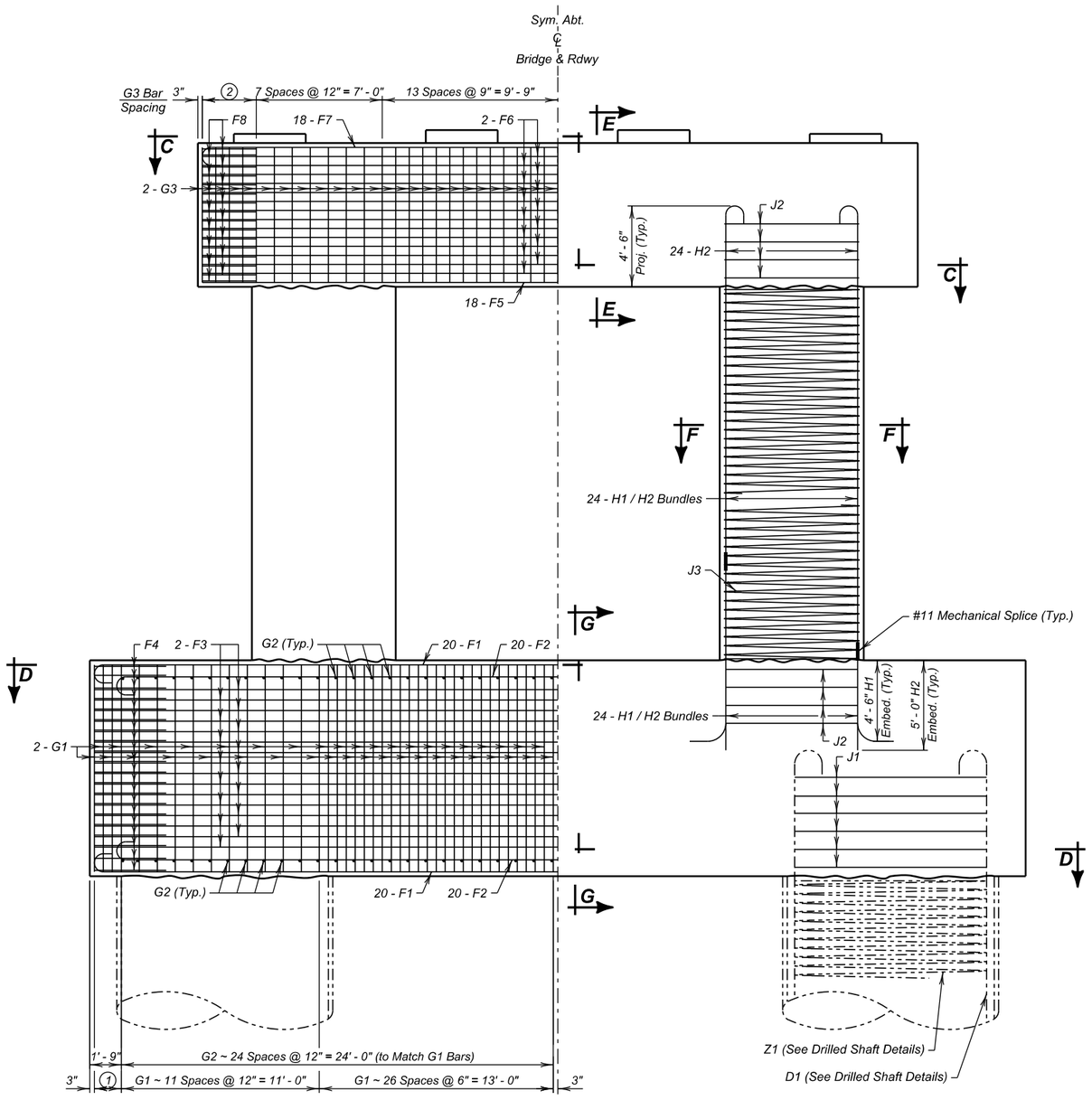
GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E29	E86

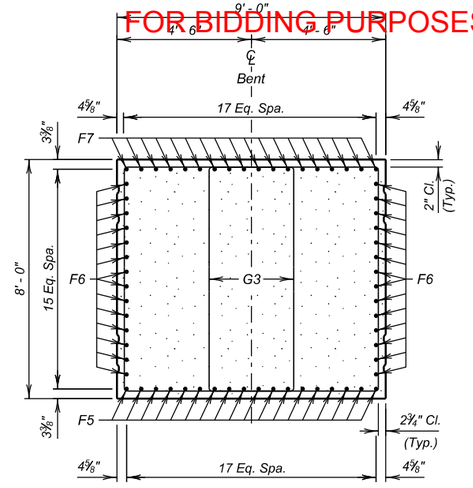


NOTE:
The Contractor may propose additional Mechanical Rebar Splices at the Shaft/Transfer Beam and Column/Cap interface to be approved by the Engineer and at no cost to SDDOT.

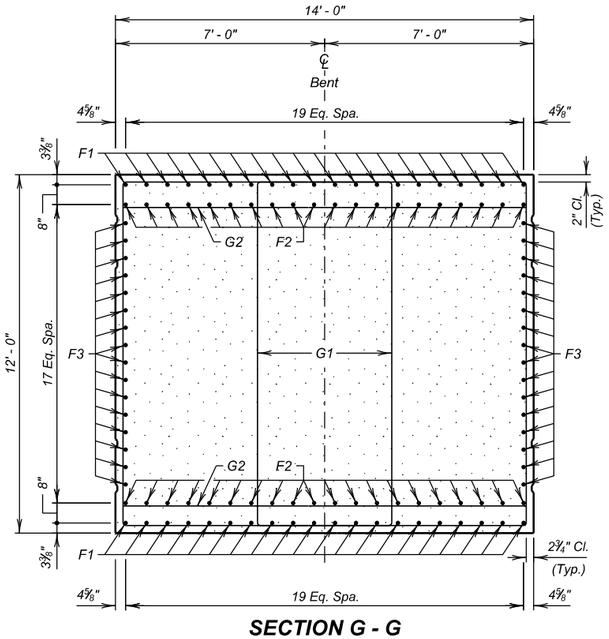
1 G1 ~ 3 Spaces @ 6" = 1' - 6"

2 4 Spaces @ 9" = 3' - 0"

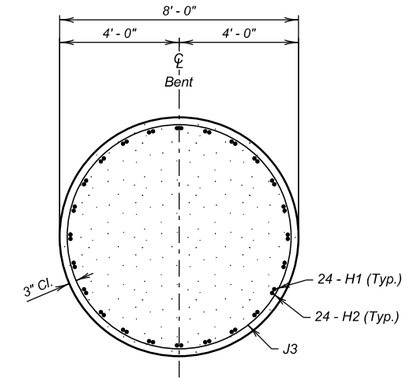
ELEVATION



SECTION E - E



SECTION G - G



SECTION F - F

Registered Professional Engineer
REG NO. 13271
AARON M. BUETTNER
SOUTH DAKOTA
18 Dec 2023

BENT 2-5, 7-10, 12-15 & 17-20 DETAILS (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

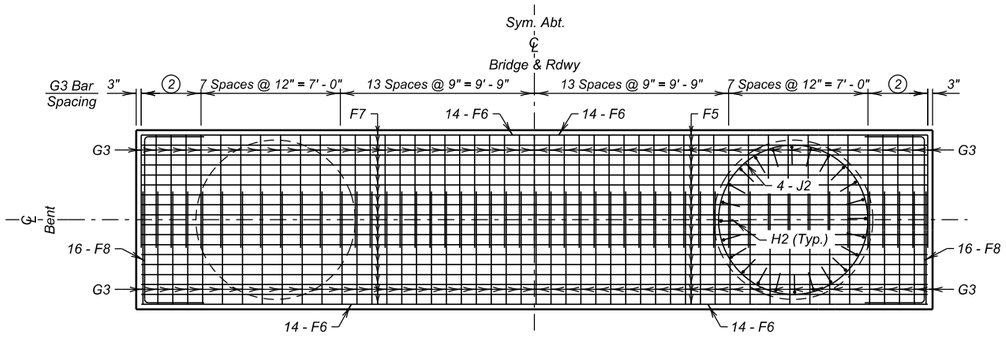
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

27 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

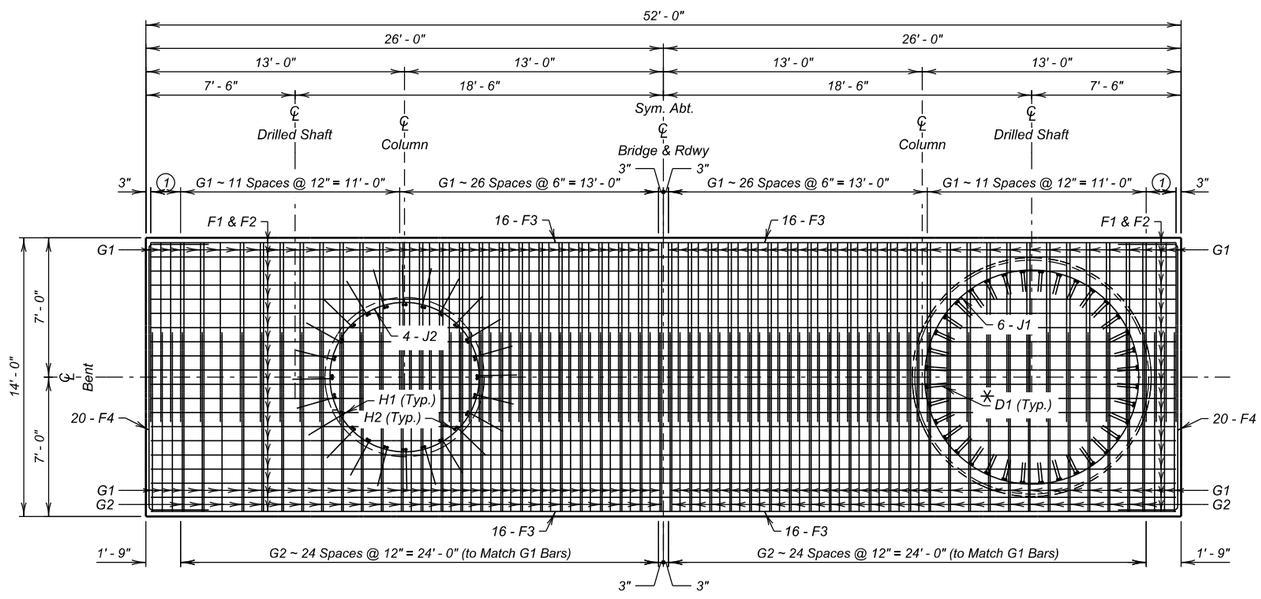
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E30	E86



TOP STEEL (2) 4 Spaces @ 9" = 3' - 0" **BOTTOM STEEL**

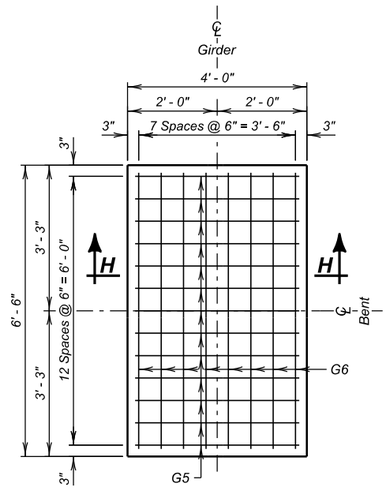
SECTION C - C



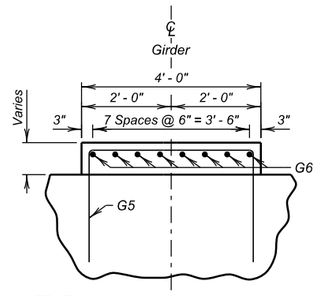
TOP STEEL (1) G1 ~ 3 Spaces @ 6" = 1' - 6" **BOTTOM STEEL**

⚹ Included in Drilled Shaft Reinforcing Schedule

SECTION D - D



PLAN OF PEDESTAL



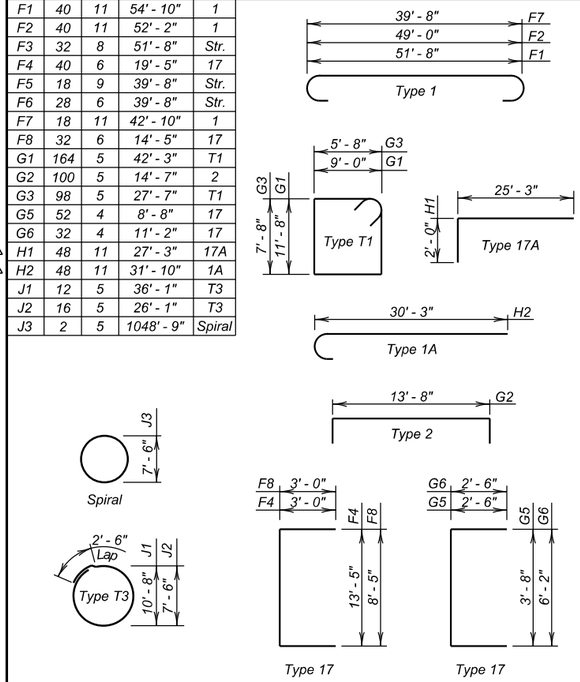
NOTE: The top of pedestal will be smooth and level

SECTION H - H

REINFORCING SCHEDULE
(For One Bent)

Mk.	No.	Size	Length	Type
F1	40	11	54' - 10"	1
F2	40	11	52' - 2"	1
F3	32	8	51' - 8"	Str.
F4	40	6	19' - 5"	17
F5	18	9	39' - 8"	Str.
F6	28	6	39' - 8"	Str.
F7	18	11	42' - 10"	1
F8	32	6	14' - 5"	17
G1	164	5	42' - 3"	T1
G2	100	5	14' - 7"	2
G3	98	5	27' - 7"	T1
G5	52	4	8' - 8"	17
G6	32	4	11' - 2"	17
△ H1	48	11	27' - 3"	17A
△ H2	48	11	31' - 10"	1A
J1	12	5	36' - 1"	T3
J2	16	5	26' - 1"	T3
J3	2	5	1048' - 9"	Spiral

Bending Diagram



NOTES:

1. All dimensions are out to out of bars.
2. Spirals - Use 6" pitch and 1½ extra turns at each end. Use 1½ turns for lap at splice as required, or weld as approved by the Engineer of Record. Use 6 vertical spacer bars per column.
3. Bar Length does not include Splices.

△ Length shown is full length required. The Contractor must submit a splice plan for approval. Mechanical splices must be staggered (a minimum of 5' - 0") and not placed side by side.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY															
		Bent No. 2	Bent No. 3	Bent No. 4	Bent No. 5	Bent No. 7	Bent No. 8	Bent No. 9	Bent No. 10	Bent No. 12	Bent No. 13	Bent No. 14	Bent No. 15	Bent No. 17	Bent No. 18	Bent No. 19	Bent No. 20
Class A45 Concrete, Bridge	Cu. Yd.	509.5	510.2	510.2	509.5	509.5	510.2	510.2	509.5	509.5	510.2	510.2	509.5	509.5	510.2	510.2	509.5
Reinforcing Steel	Lb.	67455	67455	67455	67455	67455	67455	67455	67455	67455	67455	67455	67455	67455	67455	67455	67455
No. 11 Rebar Splice	Each	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96	96
Concrete Penetrating Sealer	SY	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4

Registered Professional Engineer
REG NO. 13271
AARON M. BUETTNER
SOUTH DAKOTA
18 Dec 2023

BENT 2-5, 7-10, 12-15 & 17-20 DETAILS (C)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

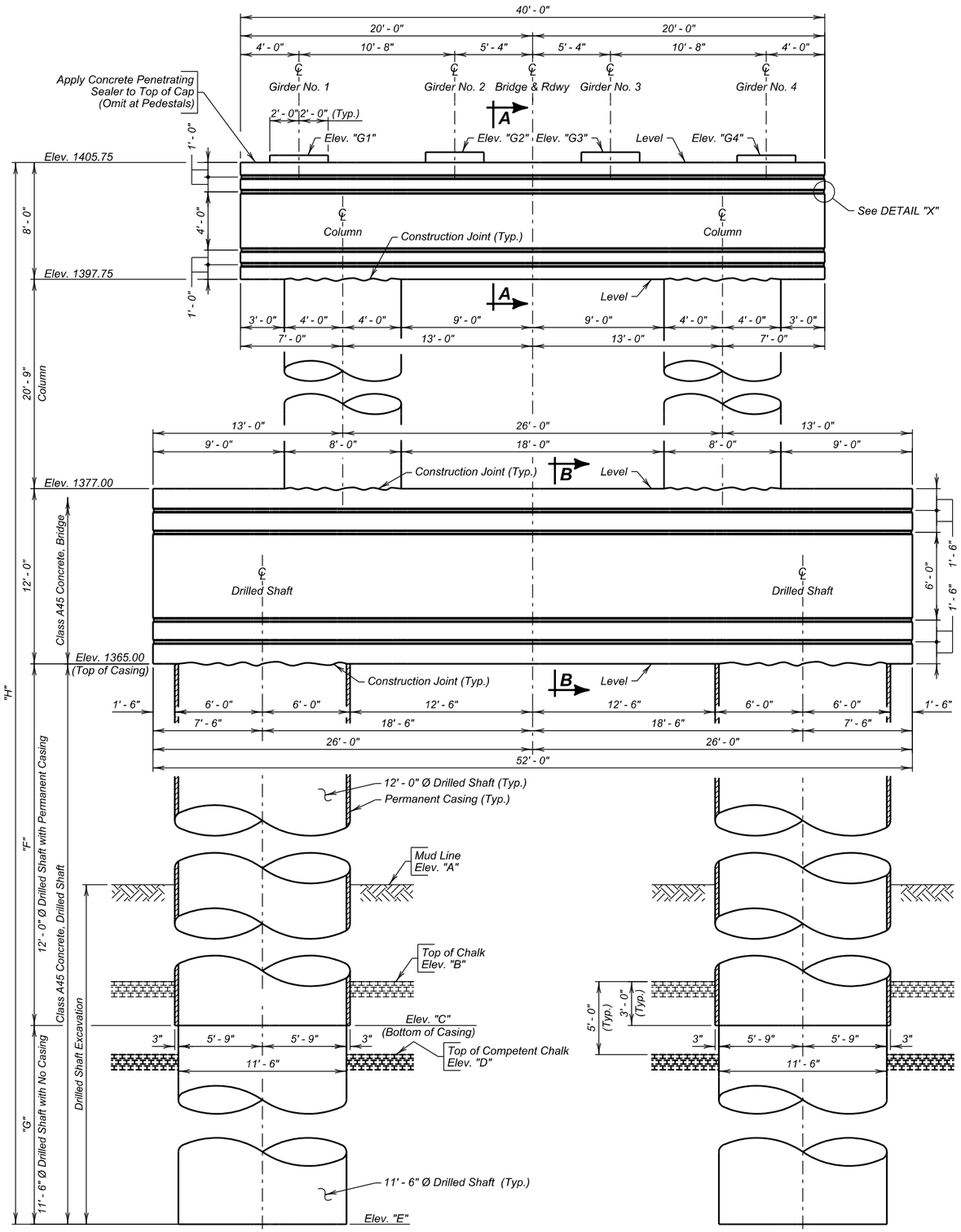
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

28 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

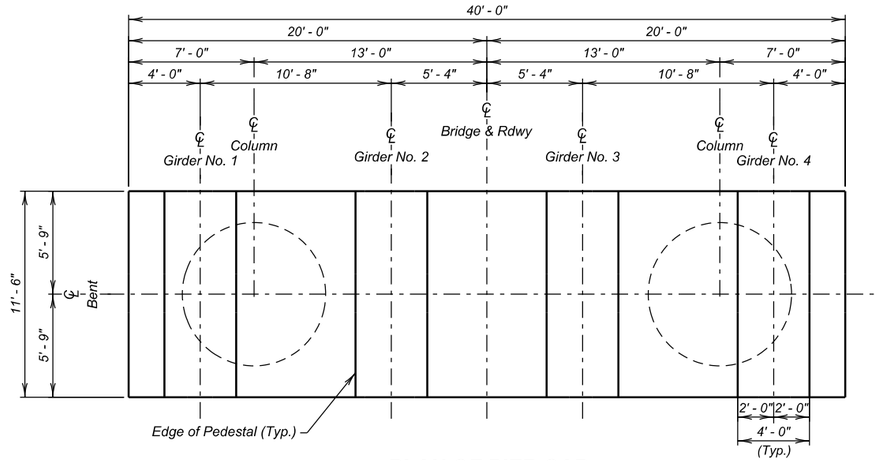


ELEVATION

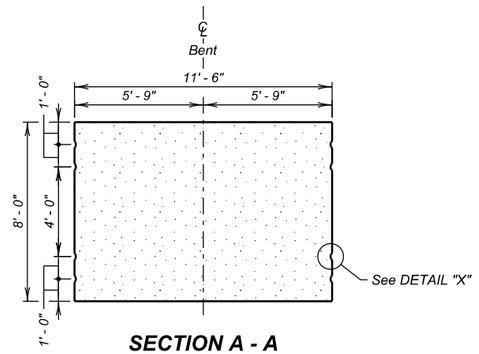
TABLE OF ELEVATIONS & DIMENSIONS

Bent No.	Elev. "A"	Elev. "B"	Elev. "C"	Elev. "D"	Elev. "E"	"F"	"G"	"H"	Elev. "G1"	Elev. "G2"	Elev. "G3"	Elev. "G4"
6	1311.00	1222.00	1219.00	1217.00	1192.00	146' - 0"	27' - 0"	213 - 9"	1406.45	1406.66	1406.66	1406.45
11	1295.00	1194.00	1191.00	1189.00	1162.00	174' - 0"	29' - 0"	243' - 9"	1406.45	1406.66	1406.66	1406.45
16	1296.00	1216.00	1213.00	1211.00	1186.00	152' - 0"	27' - 0"	219' - 9"	1406.45	1406.66	1406.66	1406.45

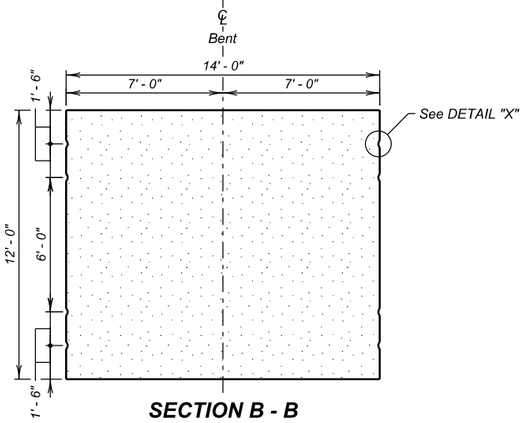
NOTE - Elev. G1, G2, G3 and G4 are top of Pedestal elevations at ℄ Bent.



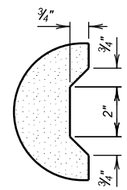
PLAN OF PIER CAP



SECTION A - A



SECTION B - B



DETAIL "X"

Registered Professional Engineer
REG NO.
13271
AARON M.
BUETTNER
SOUTH DAKOTA
18 Dec 2023

BENT 6, 11 & 16 DETAILS (A)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

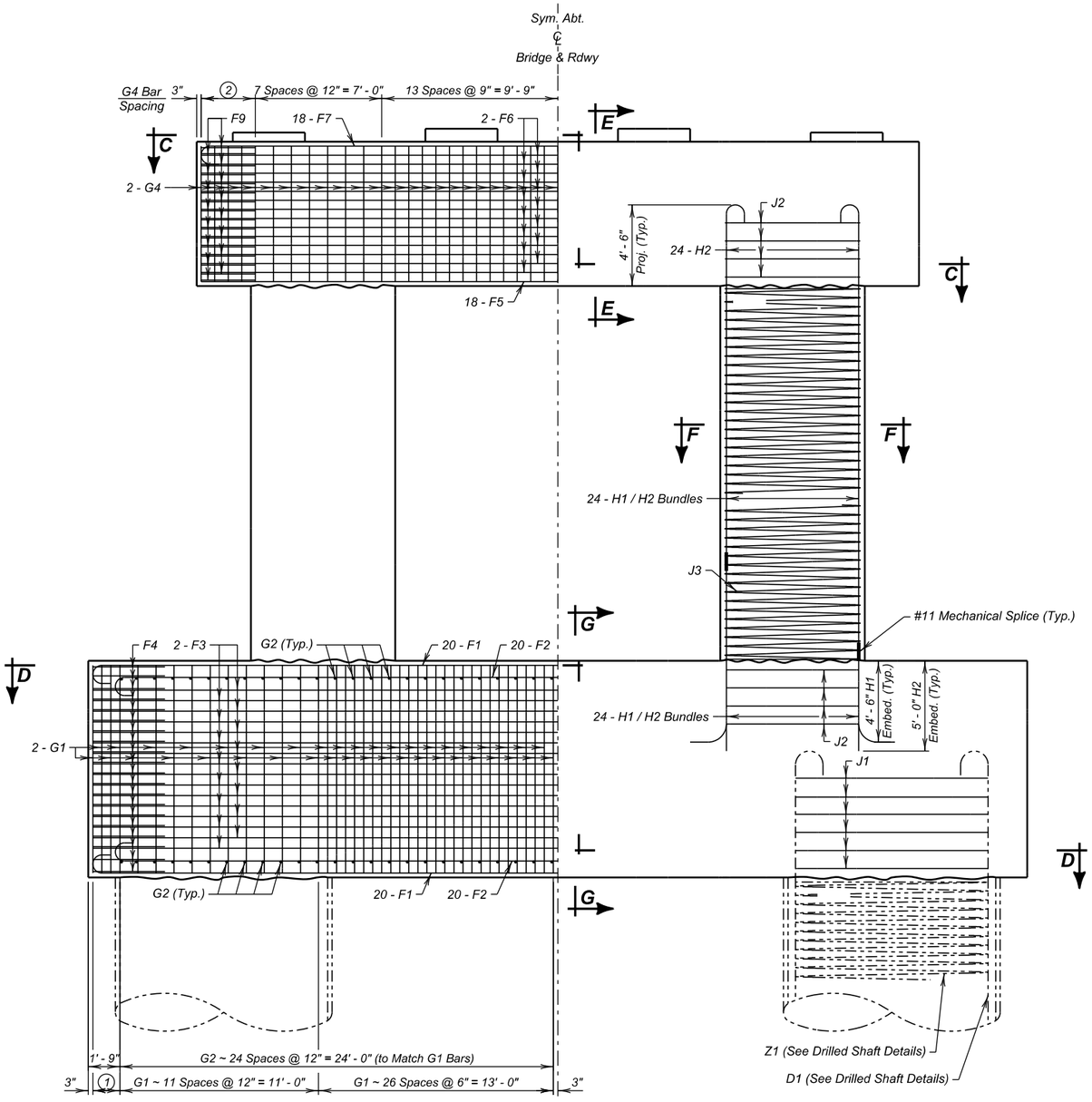
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

29 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E32	E86

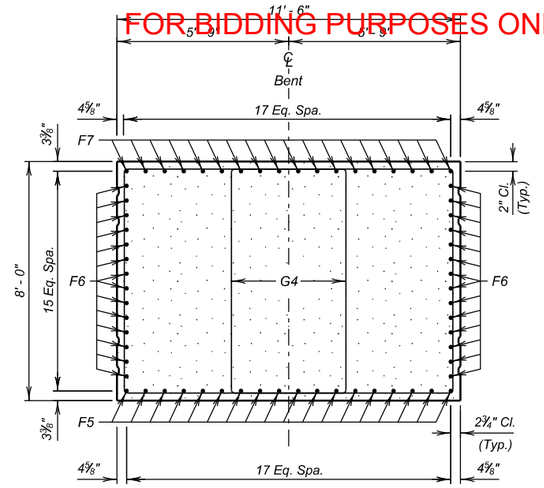


NOTE:
The Contractor may propose additional Mechanical Rebar Splices at the Shaft/Transfer Beam and Column/Cap interface to be approved by the Engineer and at no cost to SDDOT.

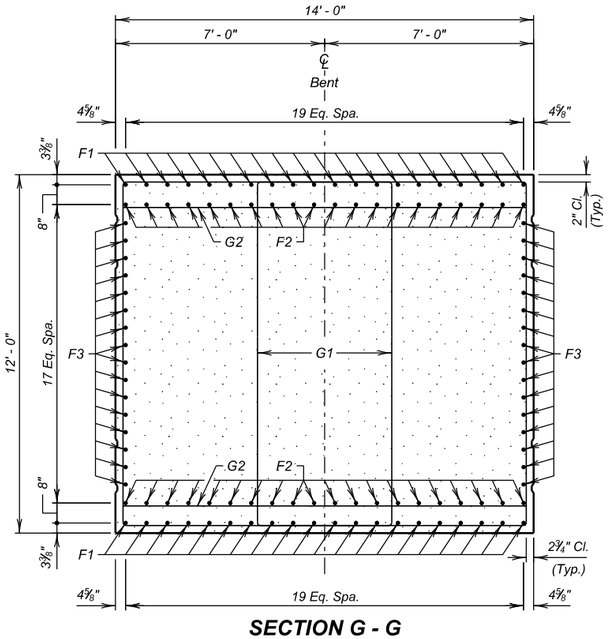
(1) *G1 ~ 3 Spaces @ 6" = 1' - 6"*

(2) *4 Spaces @ 9" = 3' - 0"*

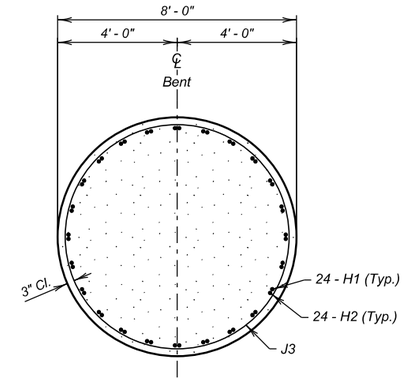
ELEVATION



SECTION E - E



SECTION G - G



SECTION F - F

BENT 6, 11 & 16 DETAILS (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

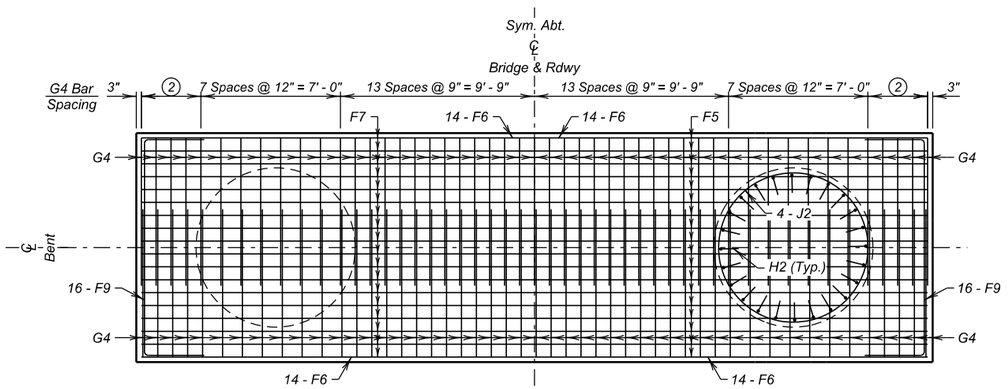
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

30 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

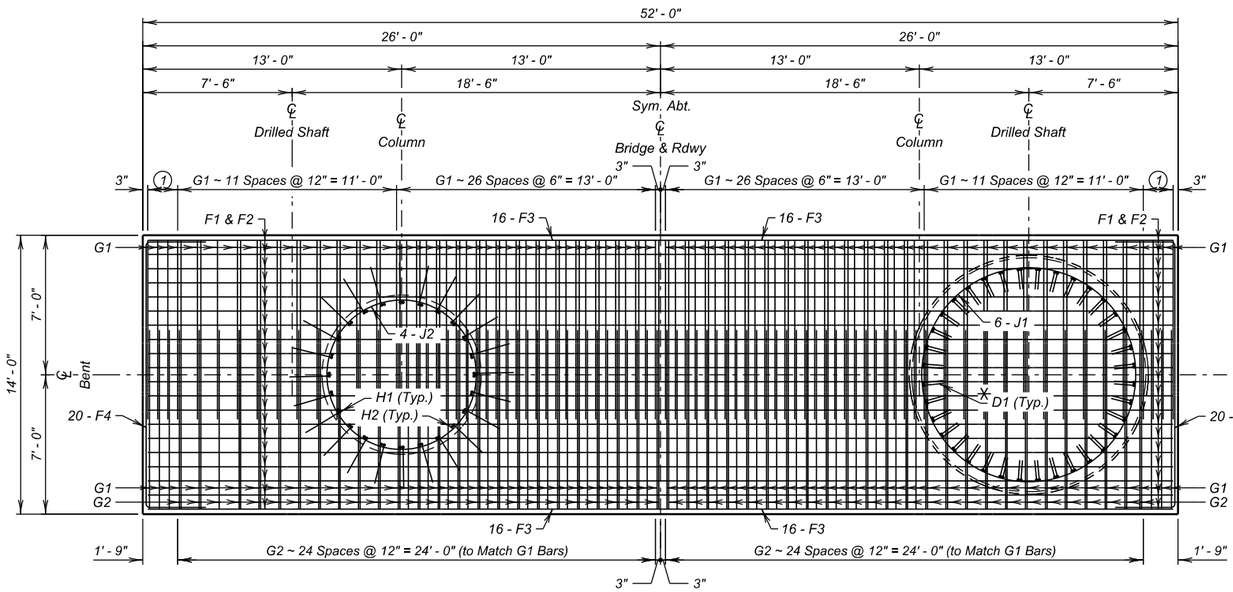
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E33	E86



TOP STEEL (2) 4 Spaces @ 9" = 3' - 0" **BOTTOM STEEL**

SECTION C - C

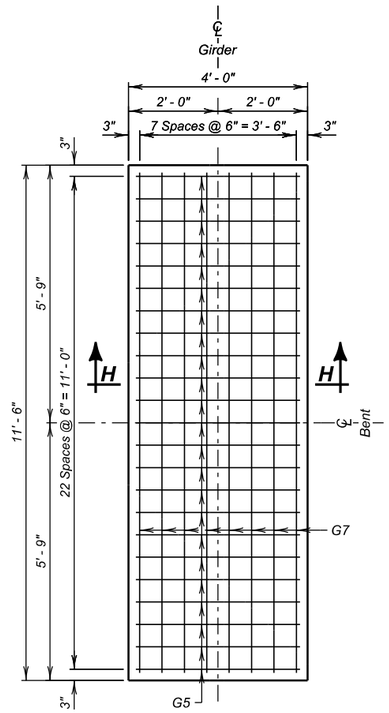


TOP STEEL **BOTTOM STEEL**

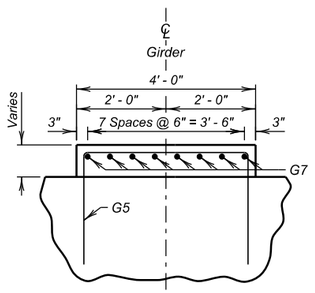
(1) G1 ~ 3 Spaces @ 6" = 1' - 6"

✳ Included in Drilled Shaft Reinforcing Schedule

SECTION D - D



PLAN OF PEDESTAL



NOTE: The top of pedestal will be smooth and level

SECTION H - H

REINFORCING SCHEDULE
(For One Bent)

Mk.	No.	Size	Length	Type
F1	40	11	54' - 10"	1
F2	40	11	52' - 2"	1
F3	32	8	51' - 8"	Str.
F4	40	6	19' - 5"	17
F5	18	9	39' - 8"	Str.
F6	28	6	39' - 8"	Str.
F7	18	11	42' - 10"	1
F9	32	6	16' - 11"	17
G1	164	5	42' - 3"	T1
G2	100	5	14' - 7"	2
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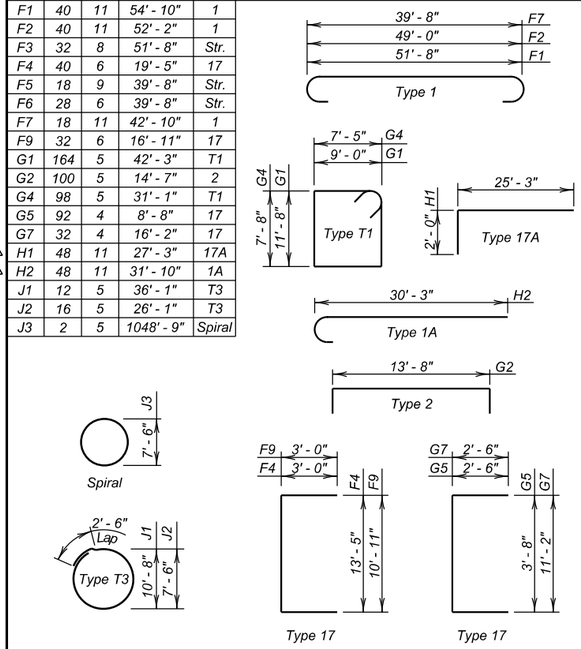
G5	92	4	8' - 8"	17
G7	32	4	16' - 2"	17
△ H1	48	11	27' - 3"	17A
△ H2	48	11	31' - 10"	1A
J1	12	5	36' - 1"	T3
J2	16	5	26' - 1"	T3
J3	2	5	1048' - 9"	Spiral

Bending Diagram



NOTES:

1. All dimensions are out to out of bars.
2. Spirals - Use 6" pitch and 1½ extra turns at each end. Use 1½ turns for lap at splice as required, or weld as approved by the Engineer of Record. Use 6 vertical spacer bars per column.
3. Bar Length does not include Splices.

△ Length shown is full length required. The Contractor must submit a splice plan for approval. Mechanical splices must be staggered (a minimum of 5' - 0") and not placed side by side.

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY		
		Bent No. 6	Bent No. 11	Bent No. 16
Class A45 Concrete, Bridge	Cu. Yd.	542.6	542.6	542.6
Reinforcing Steel	Lb.	68271	68271	68271
No. 11 Rebar Splice	Each	96	96	96
Concrete Penetrating Sealer	SY	30.7	30.7	30.7

Registered Professional Engineer
REG NO. 13271
AARON M. BUETTNER
SOUTH DAKOTA
18 Dec 2023

BENT 6, 11 & 16 DETAILS (C)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290
STR. NO. 12-089-076 — HL-93

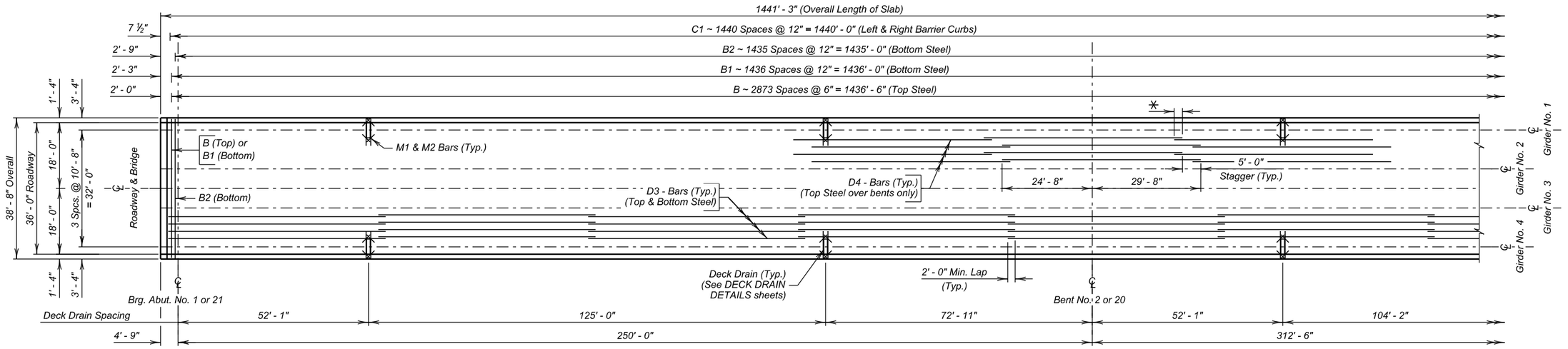
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

31 OF 84

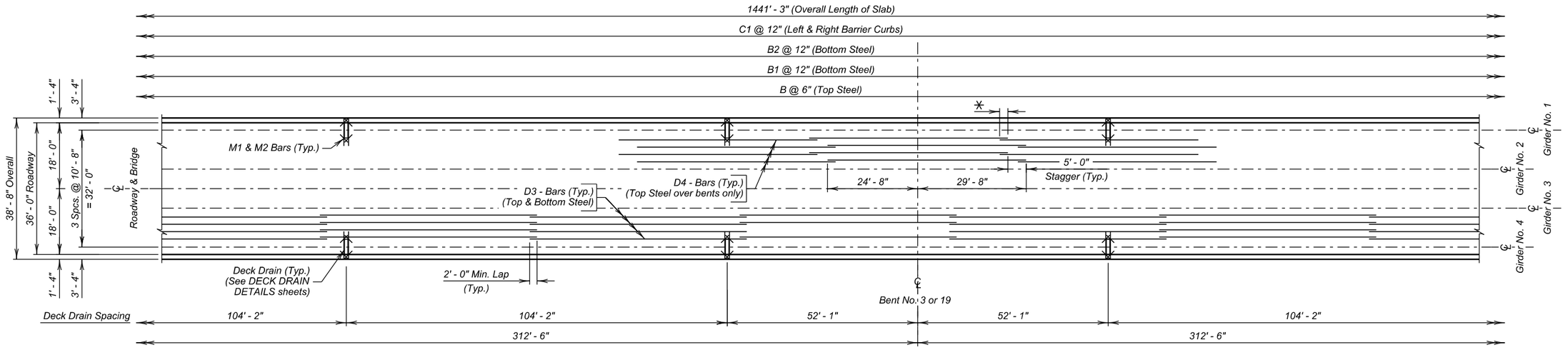
DESIGNED BY	CK. DES. BY	DRAFTED BY	
MJK	CJC	NTF	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E34	E86

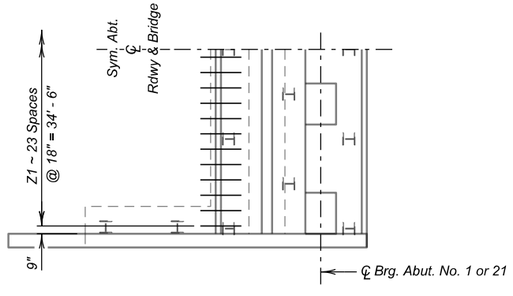
FOR BIDDING PURPOSES ONLY



PARTIAL SUPERSTRUCTURE PLAN (UNITS 1 & 4)



PARTIAL SUPERSTRUCTURE PLAN (UNITS 1 & 4)



PARTIAL ABUTMENT PLAN (UNITS 1 & 4)

✳ 2' - 3" Min. Lap (Typ.) for D4 bars

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J. BREHM
SOUTH DAKOTA
01/04/2024

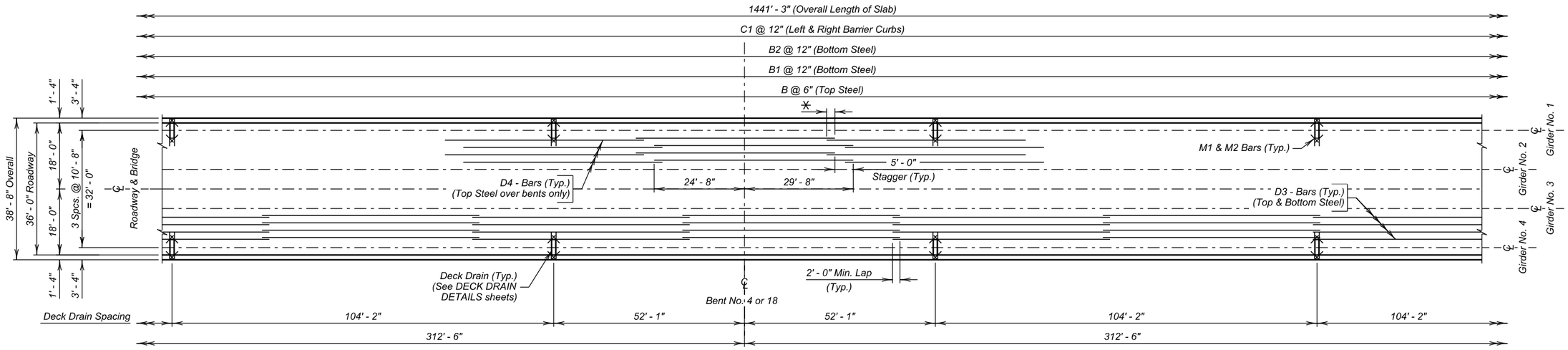
SUPERSTRUCTURE DETAILS (A)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290
STR. NO. 12-089-076 — HL-93

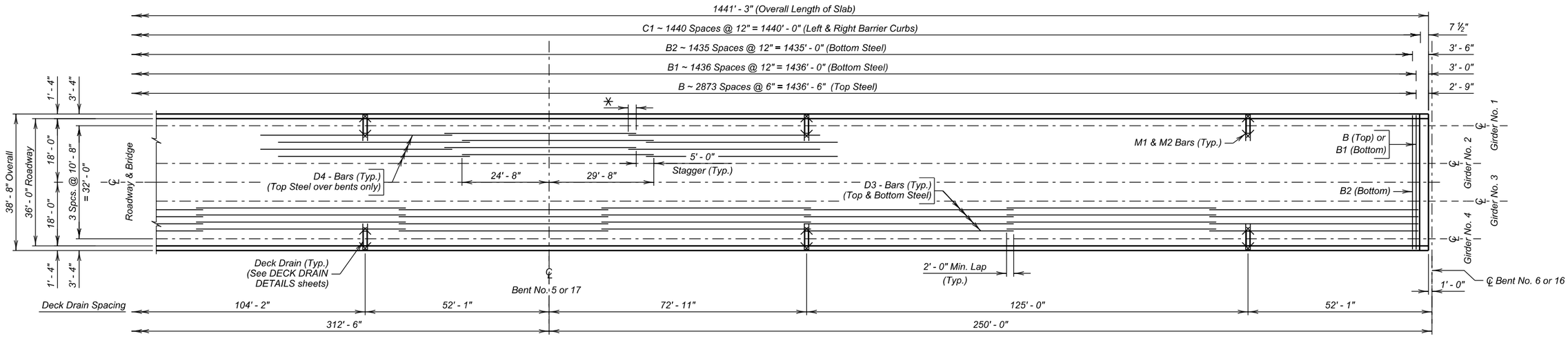
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY



PARTIAL SUPERSTRUCTURE PLAN (UNITS 1 & 4)



PARTIAL SUPERSTRUCTURE PLAN (UNITS 1 & 4)

✳ 2' - 3" Min. Lap (Typ.) for D4 bars

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

SUPERSTRUCTURE DETAILS (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

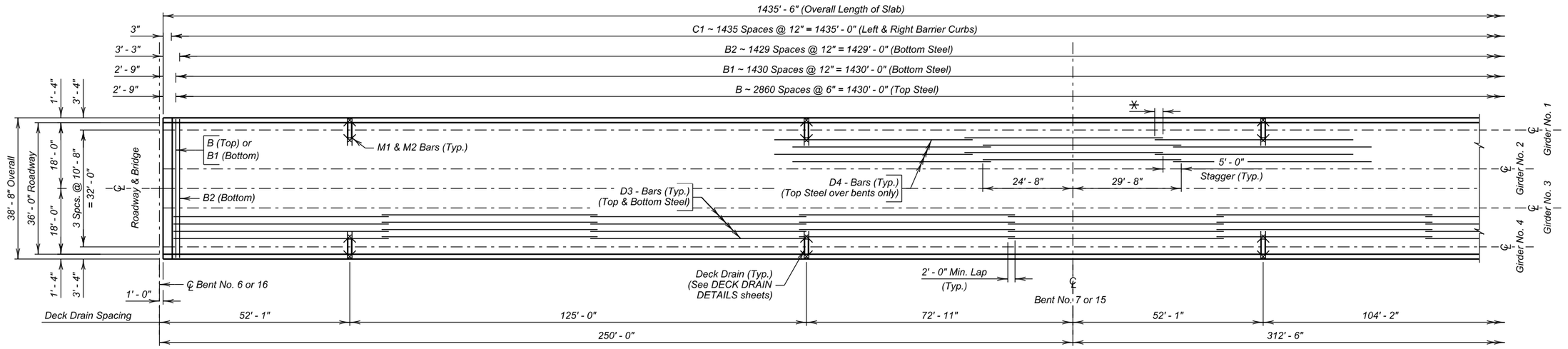
0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

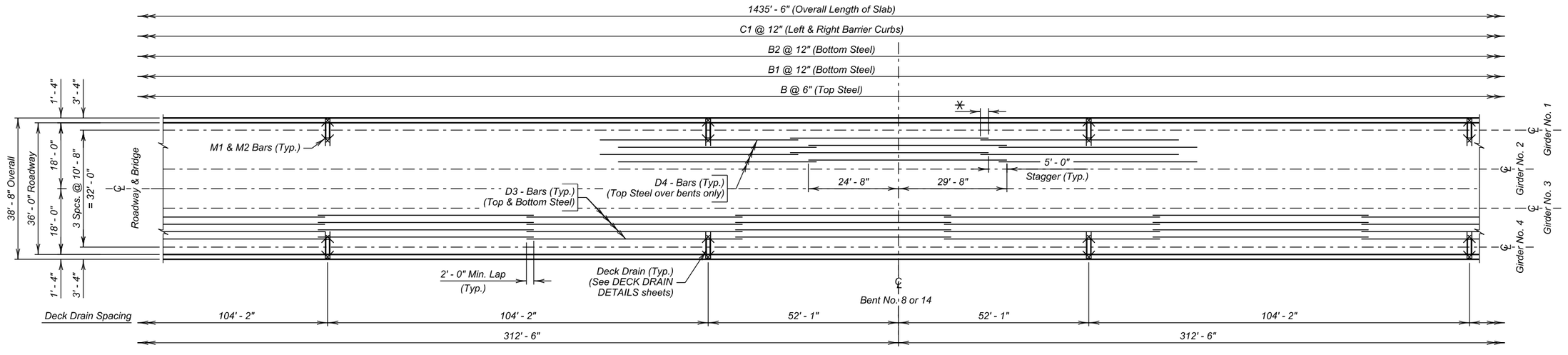
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E36	E86

FOR BIDDING PURPOSES ONLY



PARTIAL SUPERSTRUCTURE PLAN (UNITS 2 & 3)



PARTIAL SUPERSTRUCTURE PLAN (UNITS 2 & 3)

✳ 2' - 3" Min. Lap (Typ.) for D4 bars

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

SUPERSTRUCTURE DETAILS (C)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290
STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

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KJB	JL	EM	BRIDGE ENGINEER

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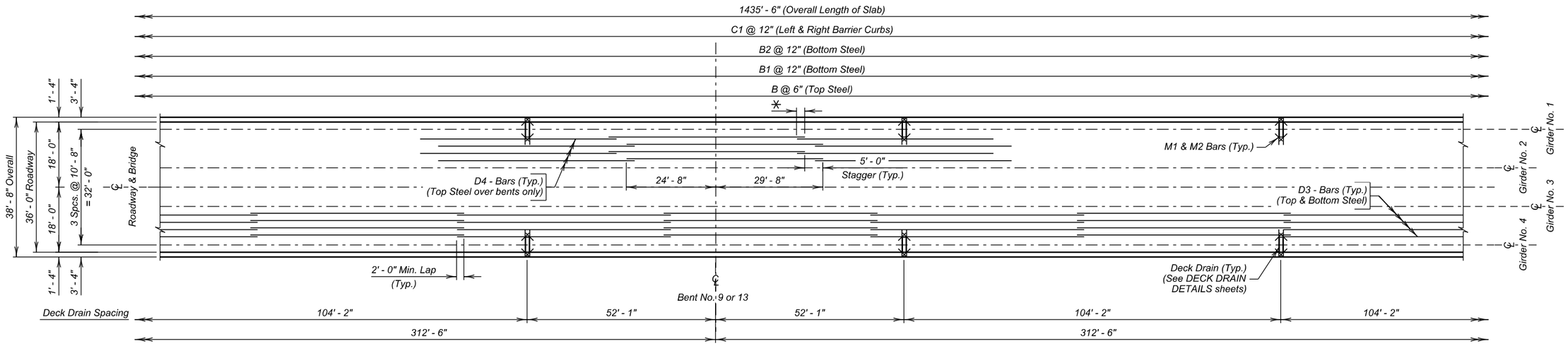
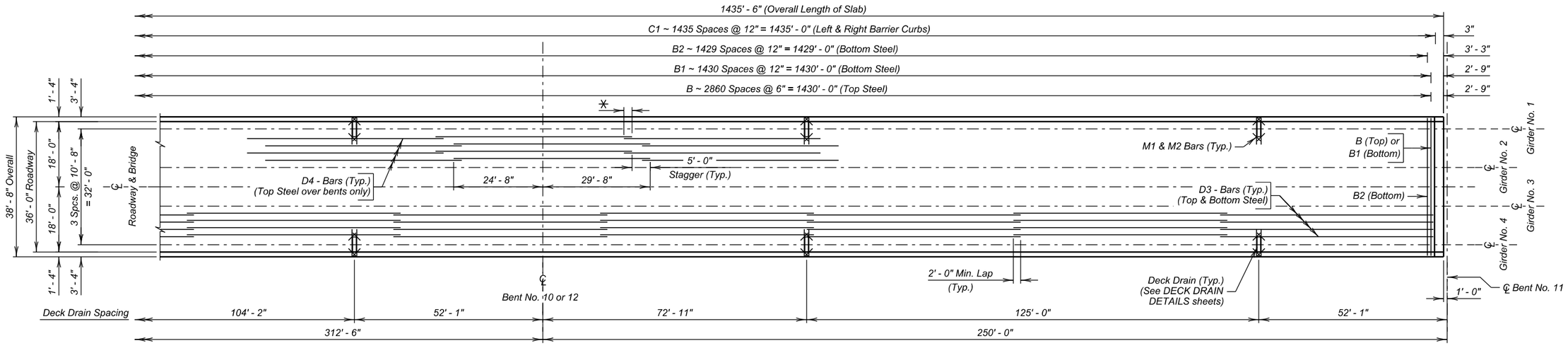


PARTIAL SUPERSTRUCTURE PLAN (UNITS 2 & 3)



PARTIAL SUPERSTRUCTURE PLAN (UNITS 2 & 3)

✳ 2' - 3" Min. Lap (Typ.) for D4 bars

REGISTERED PROFESSIONAL ENGINEER
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01/04/2024

SUPERSTRUCTURE DETAILS (D)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
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GREGORY & CHARLES MIX COUNTIES
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KJB	JL	EM	BRIDGE ENGINEER

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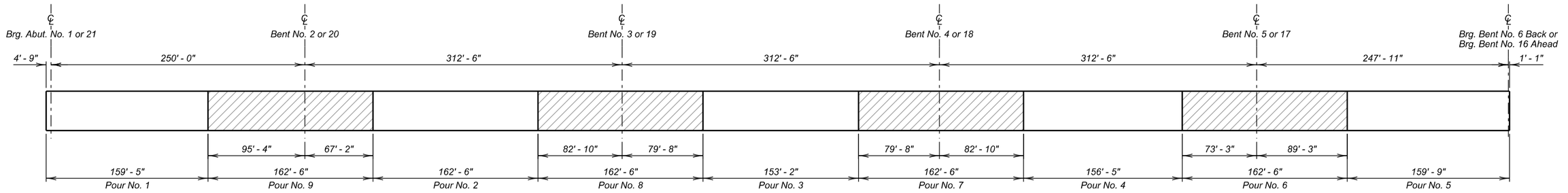
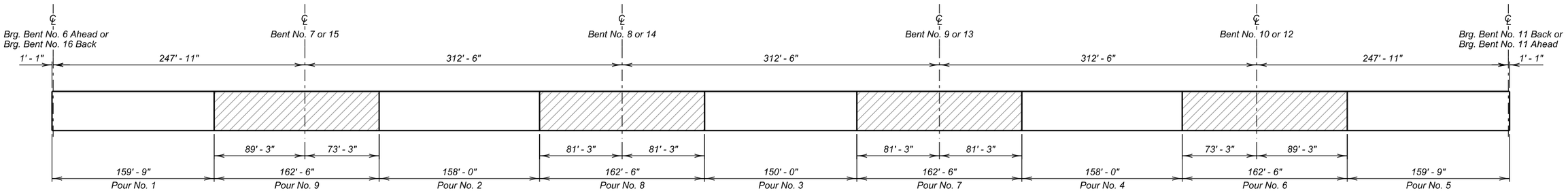
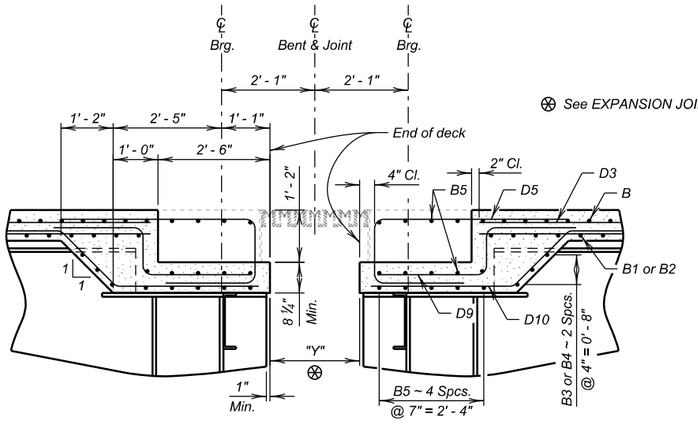


DECK POURING SEQUENCE (UNITS 1 & 4)

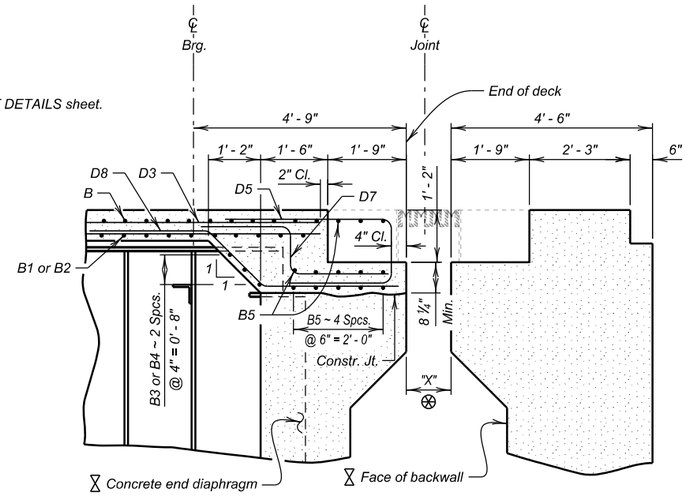


DECK POURING SEQUENCE (UNITS 2 & 3)



⊛ See EXPANSION JOINT DETAILS sheet.

MODULAR JOINT BLOCKOUT DETAIL AT BENTS WITH EXP. JOINTS



MODULAR JOINT BLOCKOUT DETAIL AT ABUTMENTS

⧖ See ABUTMENT DETAILS sheets for reinforcing details.

NOTE:

1. *Concrete deck will be placed in sections and sequences indicated.*
2. *Positive moment regions (Pours No. 1 thru 5) can be placed simultaneously and Negative moment regions (Pours No. 6 thru 9) can be placed simultaneously.*
3. *Negative moment regions (Pours No. 6 thru 9) may not be placed until Positive moment regions (Pours No. 1 thru 5) have cured. Deck concrete sections will cure for a minimum of 48 hours and will achieve a minimum strength of 75% of the 28-day deck concrete strength prior to removing deck headers and beginning the next pour.*
4. *Alternate procedures for placing deck concrete may be submitted for approval together with a statement of the proposed method and evidence that the contractor possesses the necessary equipment and facilities to accomplish the required results. The Bridge Construction Engineer will review any alternate procedures. The cost of any additional analysis and plan modifications will be paid for by the contractor. The Engineer will determine if a retarding admixture is required to maintain plasticity of the concrete deck during placement.*
5. *Placing the concrete deck in one continuous pour is prohibited and will not be considered for approval as an alternate procedure.*

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SUPERSTRUCTURE DETAILS (E)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

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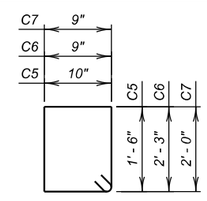
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E39	E86

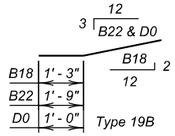
REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
B	11470	6	39' - 8"	1
B1	5736	5	34' - 0"	Str.
B2	5732	4	38' - 4"	Str.
B3	72	5	10' - 3"	Str.
B4	48	5	3' - 0"	Str.
B5	110	6	34' - 0"	Str.
B15	12	5	9' - 6"	19B
B16	4	4	17' - 5"	Str.
B17	8	4	5' - 8"	Str.
B18	12	8	3' - 0"	19B
B19	12	5	2' - 0"	Str.
B20	12	6	4' - 10"	Str.
B21	4	4	5' - 9"	19
B22	4	4	3' - 3"	19B
C1	11584	5	5' - 10"	T1A
C2	11588	5	5' - 3"	S11
C3	4	5	5' - 8"	T1A
C4	8	5	5' - 3"	S11
C5	8	5	5' - 7"	T1
C6	12	6	7' - 4"	T1
C7	12	5	6' - 5"	T1
C8	4	6	7' - 3"	17
C9	4	5	3' - 5"	17
C10	60	5	3' - 6"	T8A
D	1800	4	59' - 7"	Str.
D0	4	4	2' - 6"	19B
D1	8	4	23' - 2"	Str.
D2	24	4	22' - 3"	Str.
D3	8800	5	59' - 5"	Str.
D4	2160	6	54' - 4"	Str.
D5	336	5	7' - 10"	17
D6	16	5	4' - 0"	14
D7	78	5	5' - 2"	20
D8	78	5	6' - 3"	19
D9	234	5	5' - 8"	20
D10	234	5	6' - 9"	19
M1	416	5	3' - 0"	Str.
M2	104	5	16' - 1"	17
Z1	48	7	4' - 0"	Str.

Bending Details



Type T1



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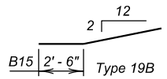

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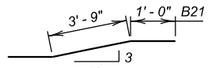

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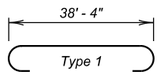
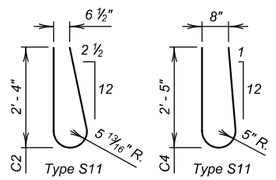
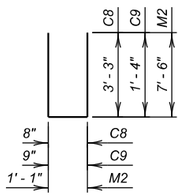


Type 1



Type S11 Type S11



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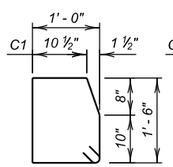

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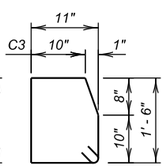

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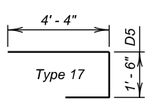

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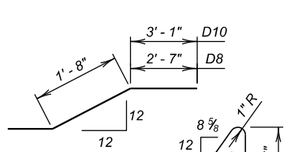

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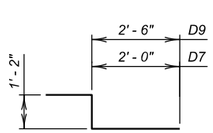
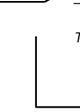
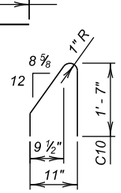


Type 20



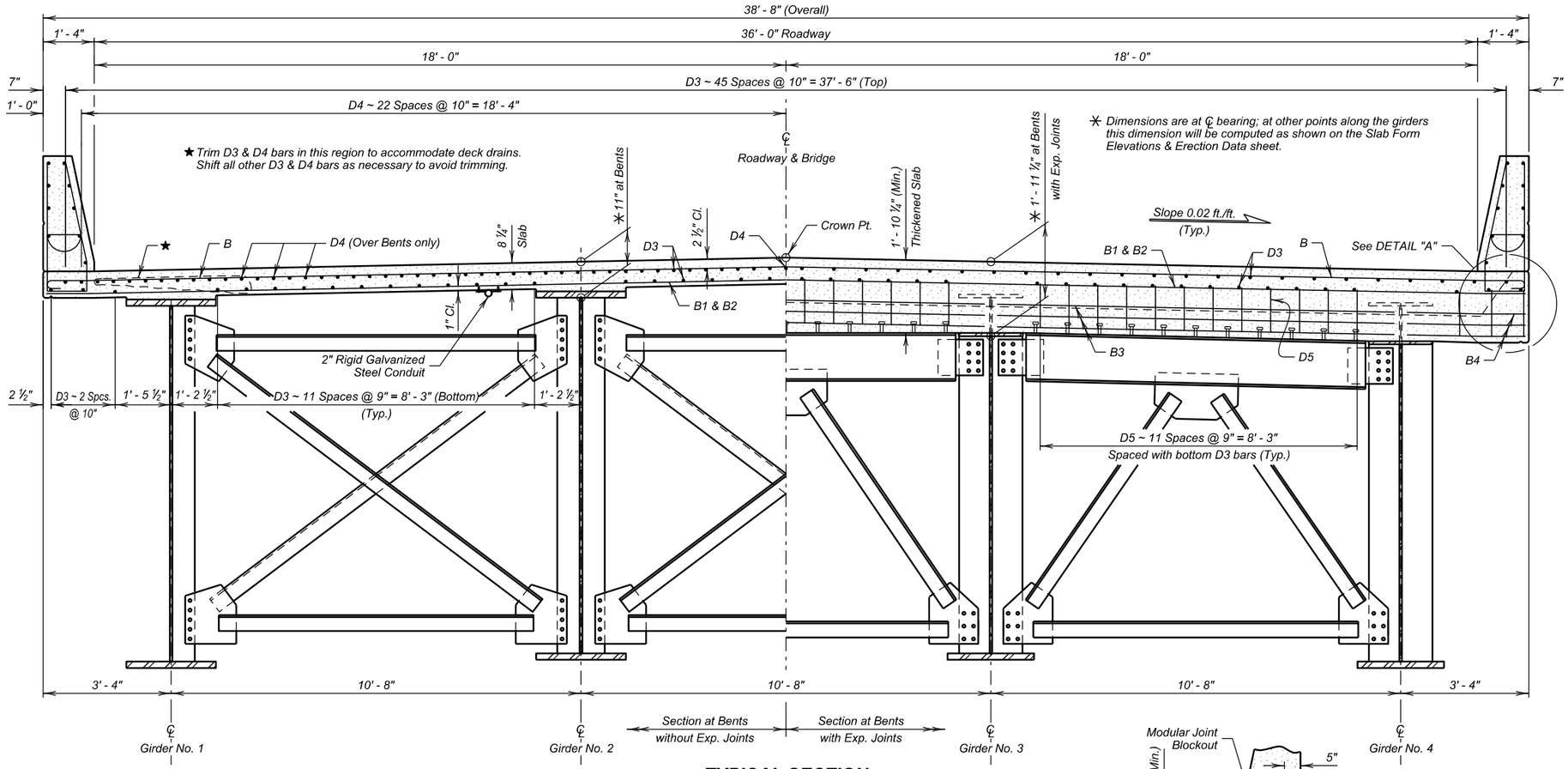
Type 17A



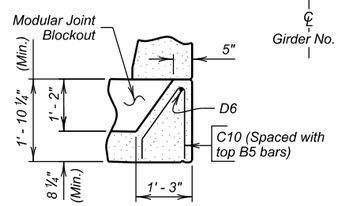
Type T8A

NOTES-

All reinforcing steel will be stainless steel unless otherwise noted.
≠ Bend in field as necessary to fit.
☐ Tip bars as required to maintain top and bottom clear cover.
All dimensions are out to out of bars.



TYPICAL SECTION
(Looking Ahead Station)



DETAIL "A"

NOTE:

1. Barrier curb details are shown on END BLOCK DETAILS..
2. Modular Joint anchorage system and spacing to be determined by the manufacturer.

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY			
			UNIT 1	UNIT 2	UNIT 3	UNIT 4
	Concrete Penetrating Sealer	Sq. Yd.	5,763.7	5,740.7	5,740.7	5,763.7
★	Structural Steel	Lump Sum	Lump Sum	Lump Sum	Lump Sum	Lump Sum
	Disc Bearing	Each	24	24	24	24
	Modular Expansion Joint Assembly	Ft.	5 @ 39 = 195			
△	Class A45 Concrete, Bridge Deck	Cu. Yd.	1,823.1	1,811.3	1,811.3	1,823.1
	Deck Drain, Girder Bridge	Each	26	26	26	26
	Stainless Reinforcing Steel	Lb.	495,983	493,529	493,529	495,983

★ For information purpose only, the estimated weight of the structural steel is 14,033,298 pounds (3,511,980 pounds each for Unit 1 and Unit 4 and 3,504,669 pounds each for Unit 2 and Unit 3) including steel members, plates, studs, bolts, nuts, washers, and direct tension indicators.

△ Includes quanities for Barrier Curbs, Slab and Haunch. Average depth of 1 ½" used for Haunch quantity. Concrete quantity for Barrier Curb is 0.1184 Cu. Yd. per foot and for End Block is 0.7184 Cu. Yd. each. End Blocks are to be placed with abutments.

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SUPERSTRUCTURE DETAILS (F)
FOR
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36' - 0" ROADWAY
OVER MISSOURI RIVER (LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
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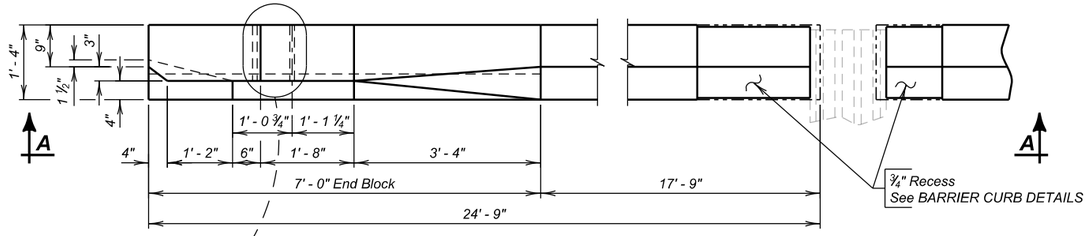
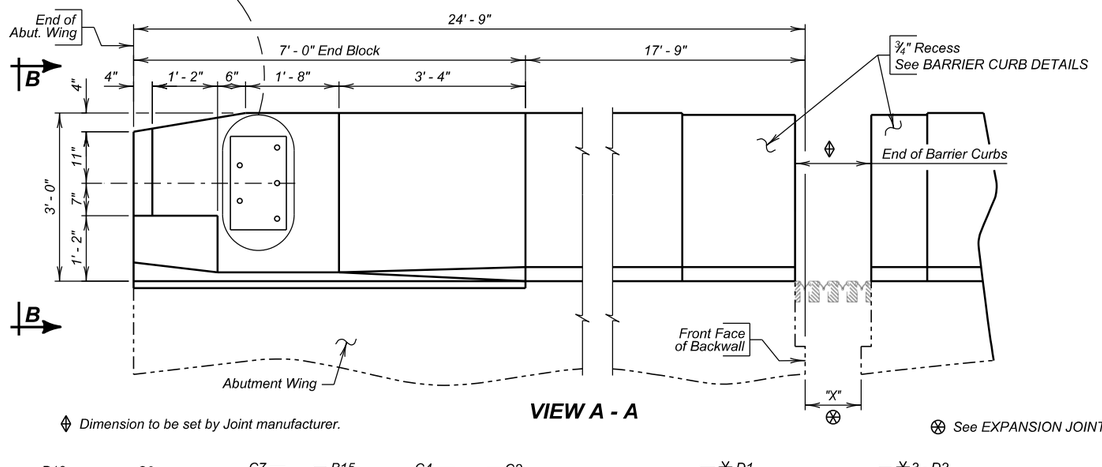


PART PLAN

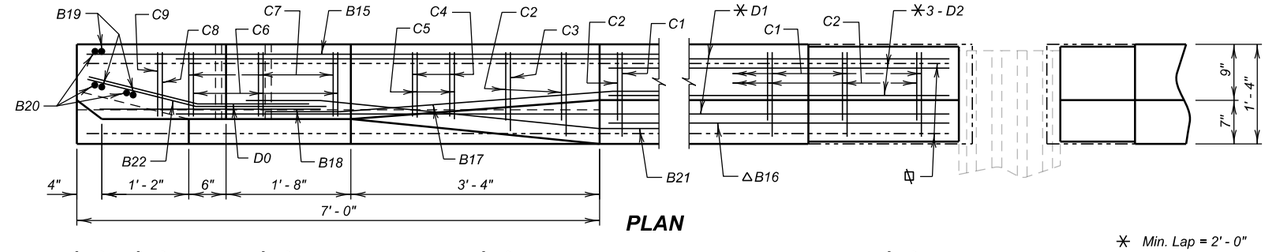
See Std. ℄ No. 630. 92



VIEW A - A

◈ Dimension to be set by Joint manufacturer.

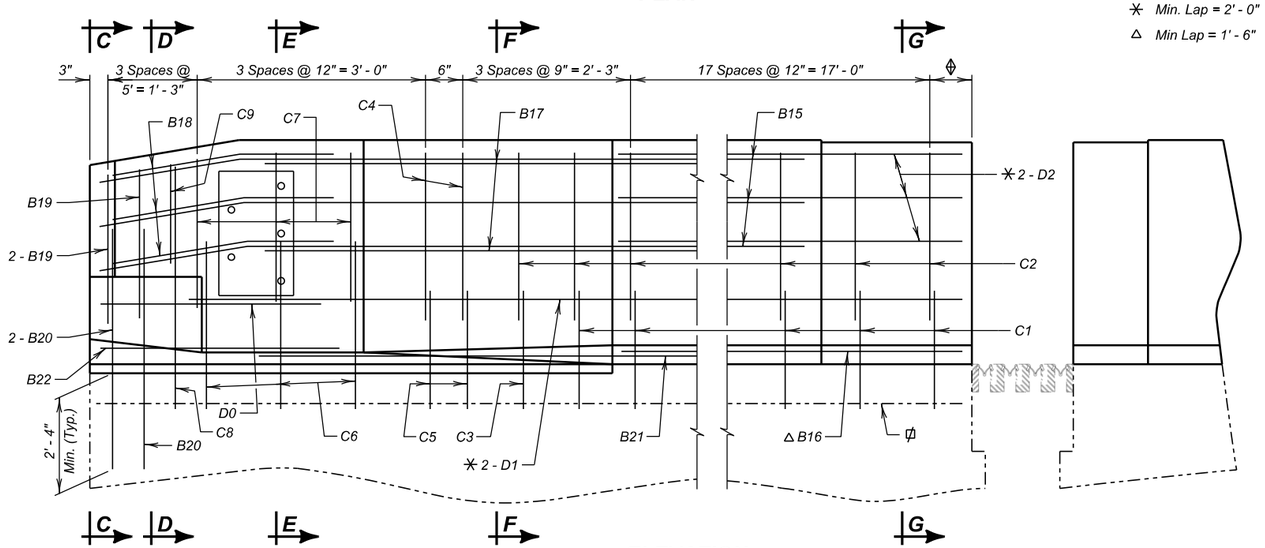
⊛ See EXPANSION JOINT DETAILS sheet.



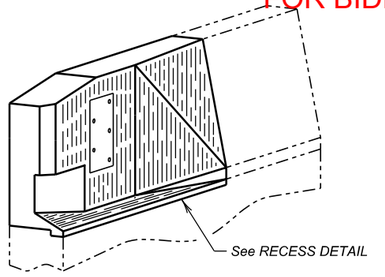
PLAN

✳ Min. Lap = 2' - 0"

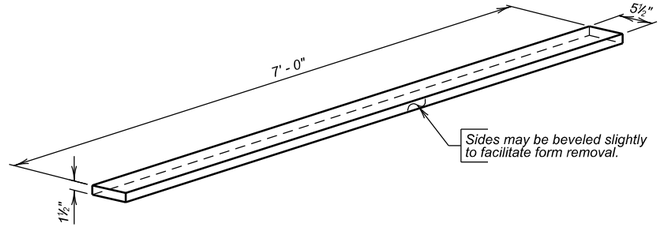
△ Min Lap = 1' - 6"



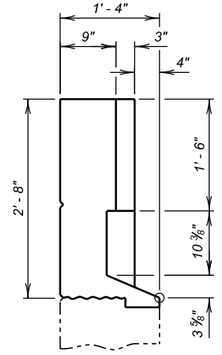
ELEVATION



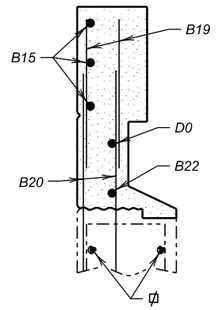
ISOMETRIC VIEW



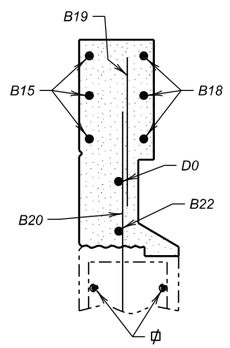
RECESS DETAIL



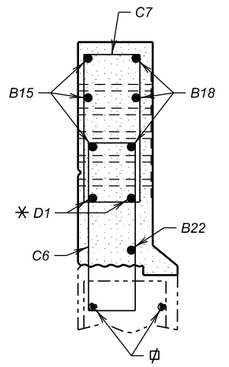
VIEW B - B



SECTION C - C

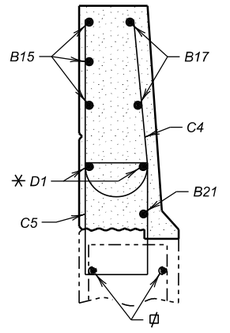


SECTION D - D

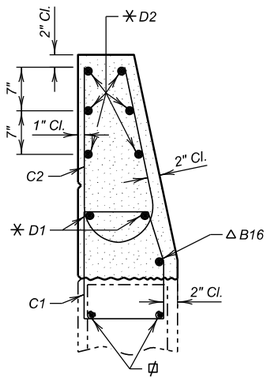


SECTION E - E

℄ Wingwall re-bars are listed and included on Abutment Quantities. See ABUTMENT DETAILS (E).



SECTION F - F



SECTION G - G

NOTE:
For listing of re-bars see SUPERSTRUCTURE DETAILS (F).

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END BLOCK DETAILS
FOR
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36' - 0" ROADWAY
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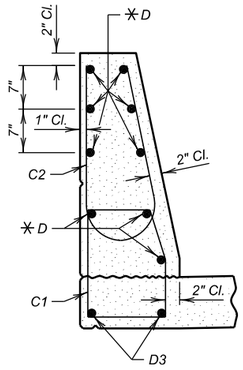
DECEMBER 2023

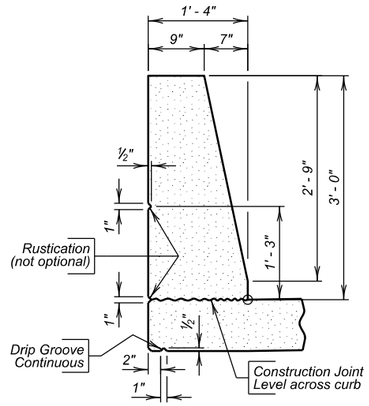
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

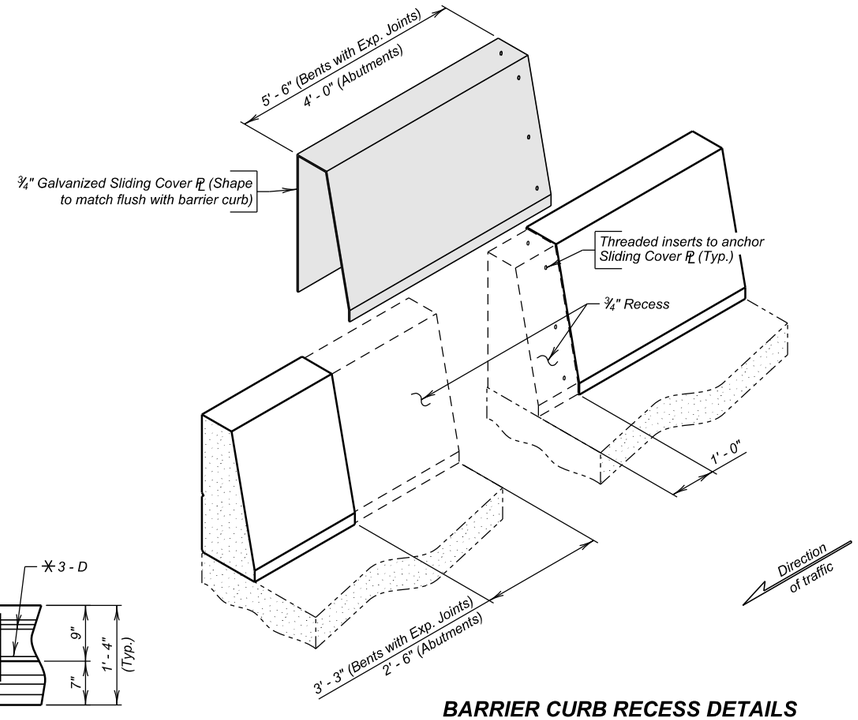
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E41	E86



TYPICAL BARRIER CURB SECTION

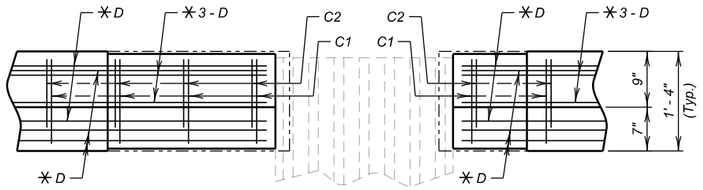


BARRIER DETAILS

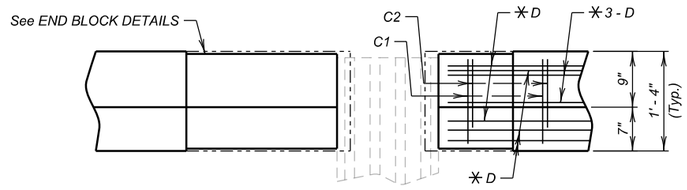


BARRIER CURB RECESS DETAILS

✳ Min. Lap = 2' - 0"

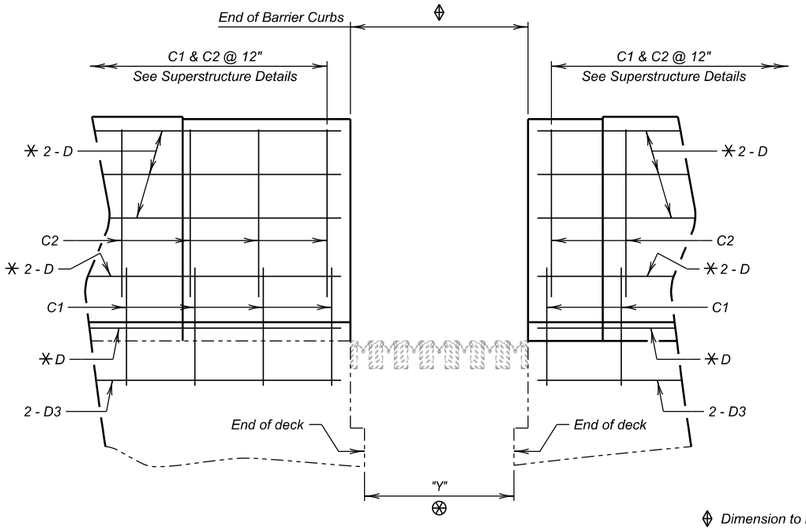


PLAN AT BENTS WITH EXP. JOINTS

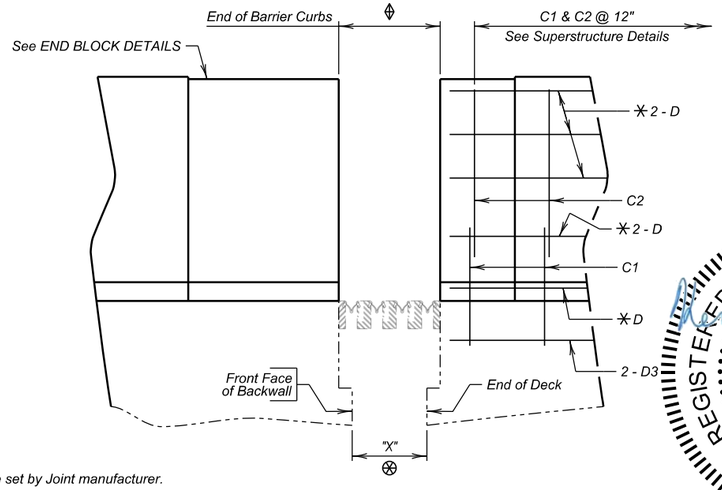


PLAN AT ABUTMENTS

Direction of traffic



ELEVATION AT BENTS WITH EXP. JOINTS



ELEVATION AT ABUTMENTS

✳ Dimension to be set by Joint manufacturer.

✳ See EXPANSION JOINT DETAILS sheet.

BARRIER CURB COVER PLATE NOTES:

1. Steel used for the barrier cover plates will be ASTM A709, Grade 50. The bolts will meet the requirements of ASTM A307.
2. All plates, bolts, nuts, and cap screws will be galvanized in accordance with the Standard Specifications.
3. Stainless steel reinforcement will not be allowed to be in contact with any part of the galvanized barrier cover plates or their anchorage.
4. Portions of the 3/4" galvanized cover plates to be in contact with the surface of the concrete barrier will be painted with a colorless oil, or some other satisfactory means to prevent concrete from adhering to the plate.

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01/04/2024

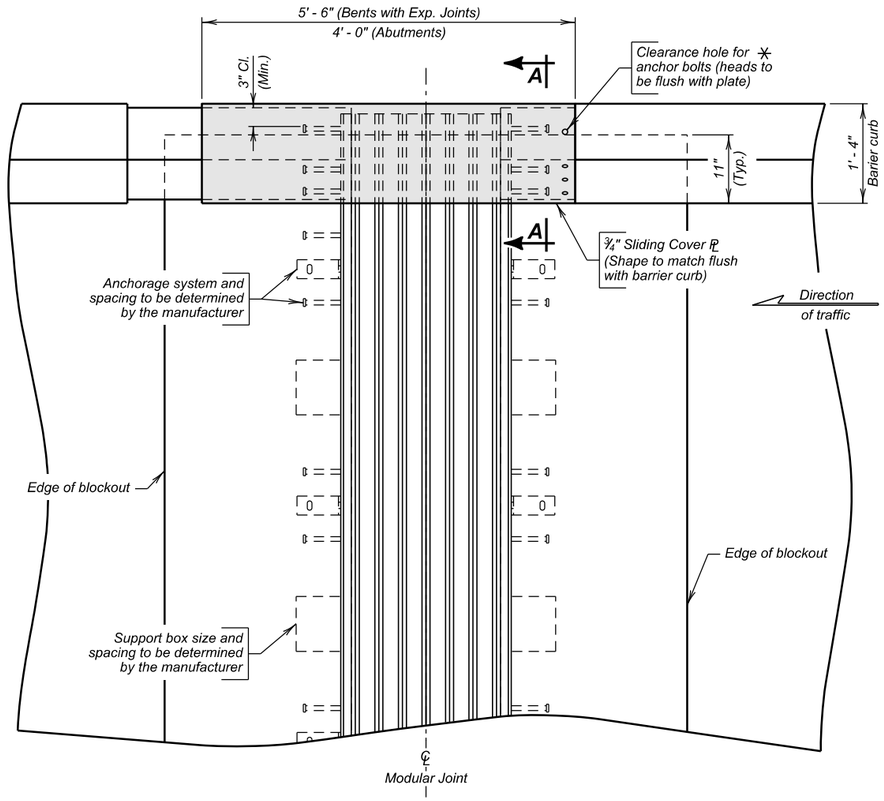
BARRIER CURB DETAILS
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290
STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

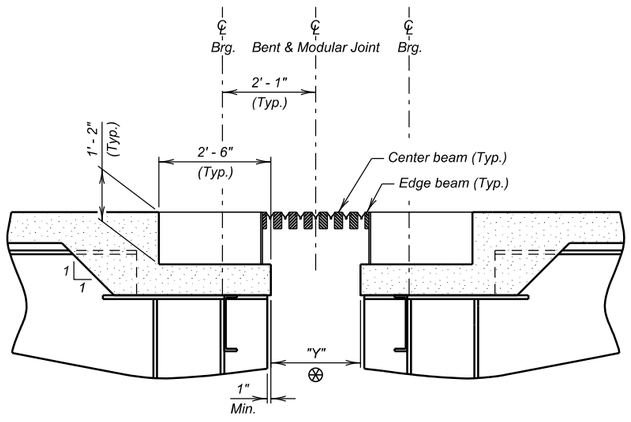
39 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

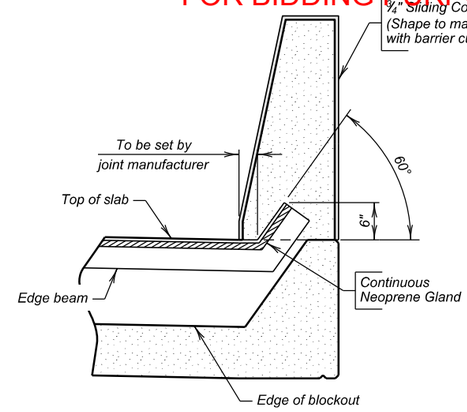


PARTIAL PLAN MODULAR JOINT SYSTEM

✳ *The size of the threaded inserts and anchor bolts to be determined by the manufacturer of the joint system. Apply anti-seize lubricant to threads during installation.*

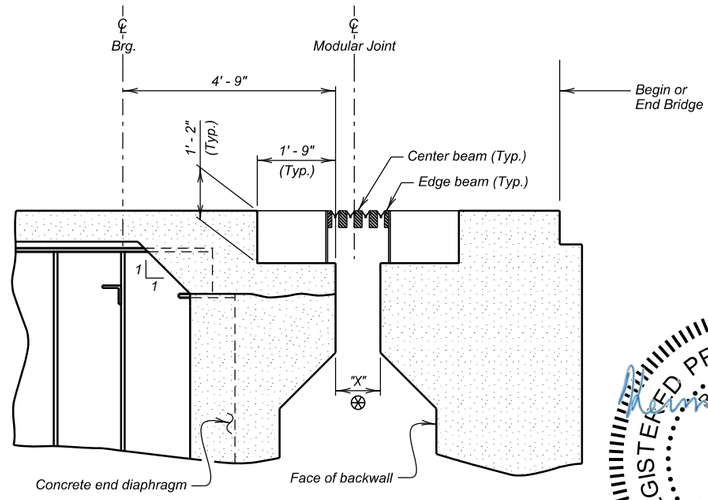


MODULAR JOINT BLOCKOUT DETAIL AT BENTS WITH EXP. JOINTS



SECTION A - A

TEMPERATURE - DIMENSION TABLE (inches)		
Temp.	**Dimension "X"**	**Dimension "Y"**
-30°	17.046	34.091
-20°	16.485	32.970
-10°	15.924	31.849
0°	15.364	30.728
10°	14.803	29.606
20°	14.243	28.485
30°	13.682	27.364
40°	13.121	26.243
50°	12.561	25.121
60°	12.000	24.000
70°	11.439	22.879
80°	10.879	21.758
90°	10.318	20.636
100°	9.758	19.515
110°	9.197	18.394
120°	8.636	17.273



MODULAR JOINT BLOCKOUT DETAIL AT ABUTMENTS

⊛ *See TEMPERATURE - DIMENSION TABLE.*

MODULAR JOINT NOTES:

1. *The Contractor will submit shop plans in accordance with the Special Provision for Modular Expansion Joint Assembly and Construction Specifications.*
2. *The modular expansion device is to be parallel to grade.*
3. *Blockout details may be altered from those shown provided the gland may be installed and removed if necessary and the curb area remains watertight.*
4. *Shop and/or field splices of the modular expansion device rails will be permitted. Field welds on galvanized items will be coated with a zinc rich material approved by the engineer. Pieces of modular expansion device rails in the 15 ft. to 22 ft. range will be used to form the required gutter to gutter length. The individual length of pieces will be chosen so that a minimum number of splices is required. All pieces will be joined with a prequalified partial penetration single groove weld, and all surfaces not in contact with concrete are to be ground flush. No weld will be permitted in the internal section of the extrusion where the neoprene gland is to be located.*
5. *The modular expansion device installed will be paid for at the contract price per foot based on plan quantities. The unit contract price per foot for "Modular Expansion Joint Assembly" will be full compensation for furnishing and installing the modular expansion device rails, neoprene glands, support beams, barrier curb cover plates and all associated hardware. This work will consist of furnishing all required materials, (including the ¾" plates at the barrier curbs and their anchorage systems), and the installation and adjustment of the modular expansion joints in accordance with the details shown on the plans and as directed by the Engineer. The furnishing and installation of all necessary hardware and accessories as supplied by the modular expansion joint manufacturer are to be included in this work, including the anchorage system and any temporary erection material. All work and materials for the installation of the modular expansion joints are to comply with the written recommendations of the modular expansion joint manufacturer.*
6. *Total thermal movements shown in the movement table are based on a temperature range of 150 degrees and occur along a line from the assumed point of zero movement to the adjacent expansion joint.*
7. *Manufacturer will design the expansion device to accommodate the total thermal movements and eliminate racking.*
8. *Modular Expansion Joint Assemblies will be installed after the girder erection and deck concrete placement is completed for the entire bridge.*

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01/04/2024

EXPANSION JOINT DETAILS
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290
STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E43	E86

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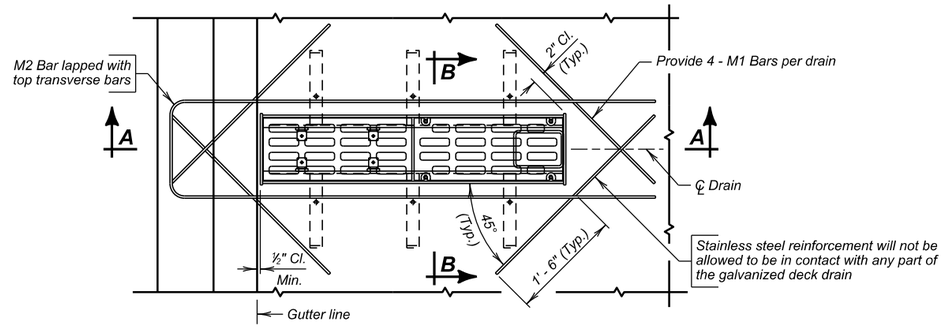
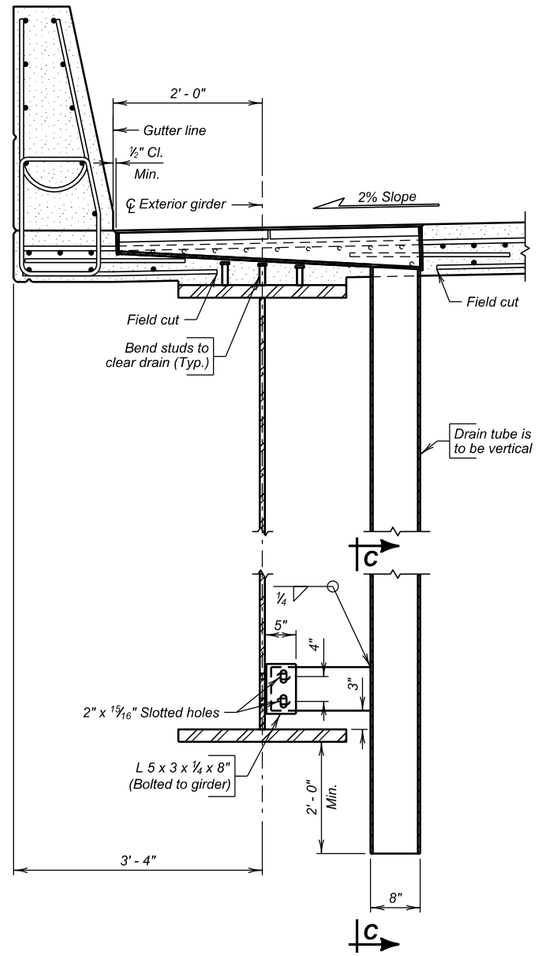
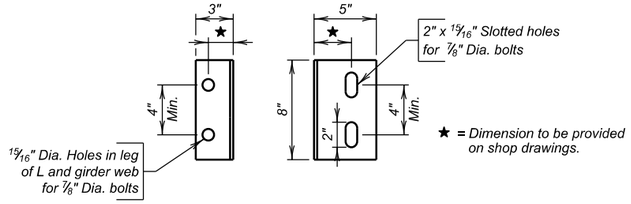


PART PLAN AT DRAIN

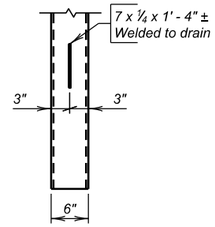


PART SECTION A - A

(Deck drain adjacent to Lt. Barrier shown, Deck drain adjacent to Rt. Barrier similar)



L 5 X 3 X ¼ X 8" DETAIL



SECTION C - C

DRAIN NOTES:

1. The Contractor will submit shop plans in accordance with the Construction Specifications.
2. The drains will be ⅜" thick steel. The drain assemblies will be galvanized after fabrication. Drain tubes and steel for angle and plate that connect drain tube to girder will then be painted in accordance with Section 411 of the Construction Specifications. The top coat will be an approved brown (AMS STD 595 Color 30045).
3. The drain trench grates will be ferrous castings. Metal used in the manufacturing of castings will conform to ASTM A48-83 Class 35B or better gray iron castings. Finish of castings will be smooth and free of defects. Trench grates will be capable of carrying AASHTO HL-93 loading. Galvanizing of the trench grates is not required.
4. Drains will be centered over the nearest top transverse reinforcing bar. The single top transverse bar in conflict with the drain will be cut off and the adjacent top bars will be shifted as necessary to provide 1 inch of clearance from the drain. Bottom transverse bars in conflict with the drain will be cut off to provide 1 inch of clearance and longitudinal bars will be cut off to provide 2 inches of clearance. Longitudinal bars will be shifted as necessary to accommodate anchor bars.
5. Plates, bars, threaded rods and angles will meet the requirements ASTM A709 Grade 36. The tube steel will meet the requirements ASTM A500 Grade B.
6. ⅜" Dia. Mechanically galvanized steel flat head screw will meet the requirements of ASTM B695-04 (2009) and ASTM F835-12.
7. ⅜" Dia. Mechanically galvanized steel hex head bolt and hex nut will meet the requirements of ASTM B695-04 (2009) and ASTM A307-12 Grade A.
8. ⅞" Dia. Bolts thru the exterior girder web and 7 x ¼ x 1' - 4" plate will conform to ASTM F3125, Grade A325, Type 3, with washers, nuts, and direct tension indicators. These bolts, washers, and nuts will be galvanized in accordance with ASTM F2329 then be painted in accordance with Section 411 of the Construction Specifications. The top coat will be an approved brown (AMS STD 595 Color 30045). See BOLTED FIELD SPLICE DETAILS for Direct Tension Indicator detail.
9. The connection between the drain tube and girder web will be made prior to the placing of the deck slab.
10. For deck drain quantities, see SUPERSTRUCTURE DETAILS (F).
11. Payment for deck drains will be at the contract unit price per each for Deck Drains, Girder 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.

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DECK DRAIN DETAILS (A)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
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GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

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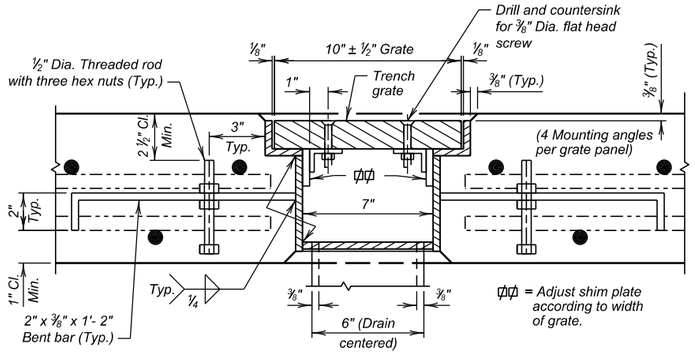
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

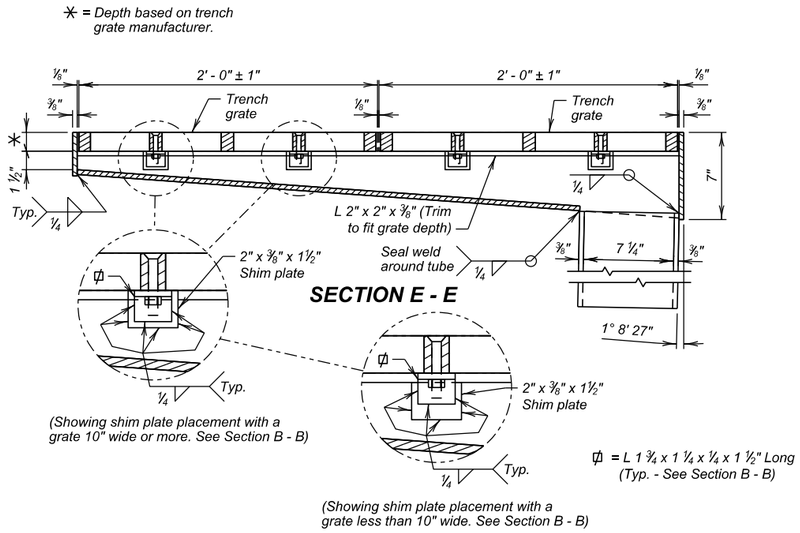
FOR BIDDING PURPOSES ONLY

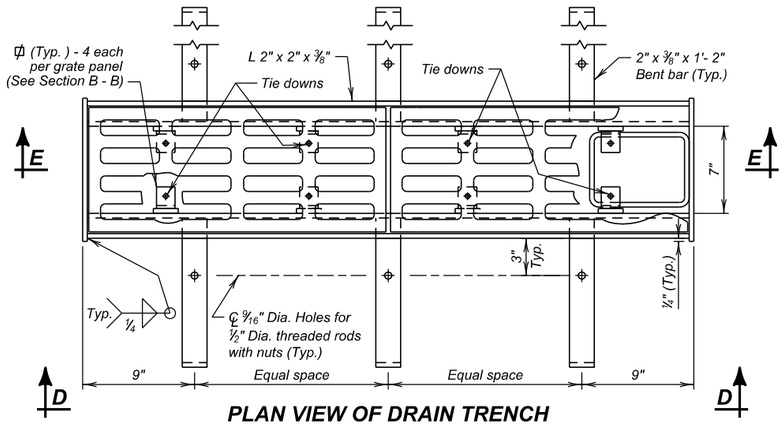
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E44	E86



SECTION B - B

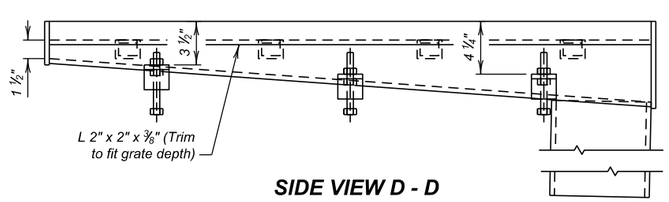
(Detail is shown using 10" wide grate)



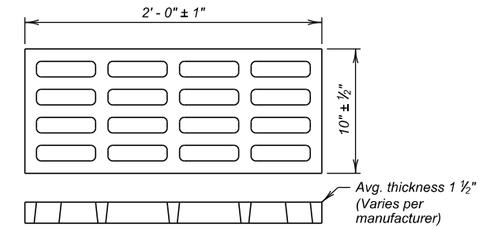


PLAN VIEW OF DRAIN TRENCH

FLAT HEAD SCREW DETAIL



SIDE VIEW D - D



DRAIN TRENCH GRATE DETAILS

(2 Grates required per drain)

Note: Pattern and direction of grate openings shall be similar to the pattern shown.

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DECK DRAIN DETAILS (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

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STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

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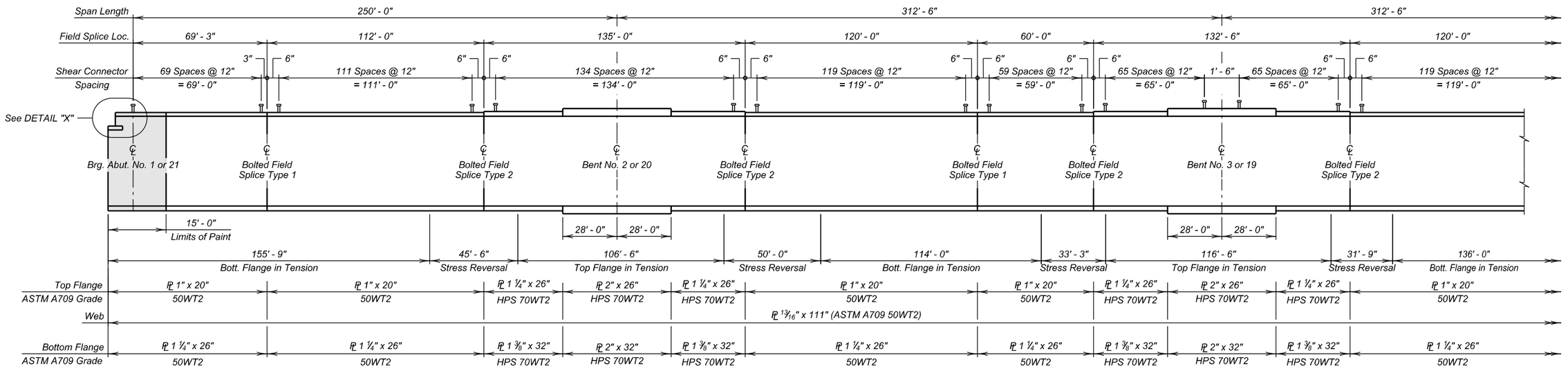
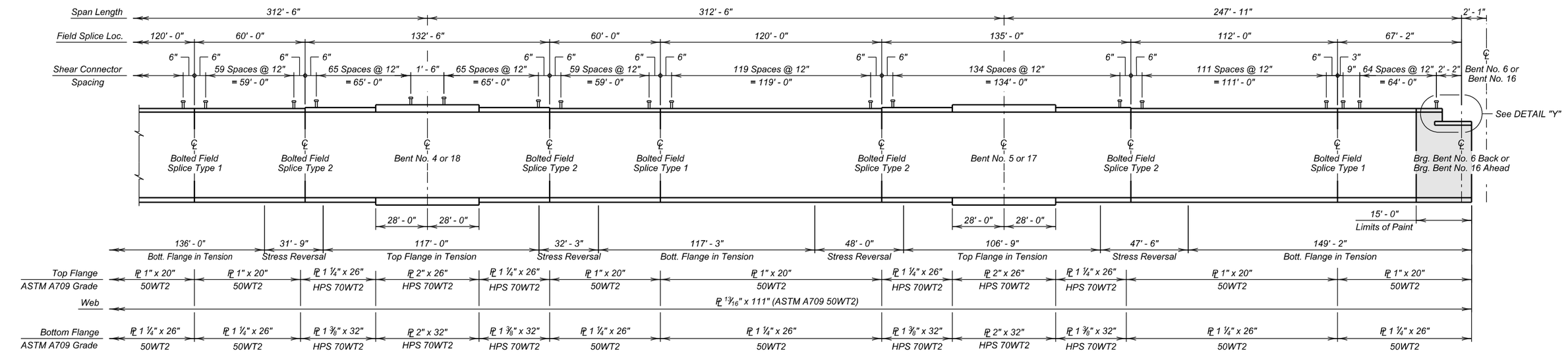
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E45	E86

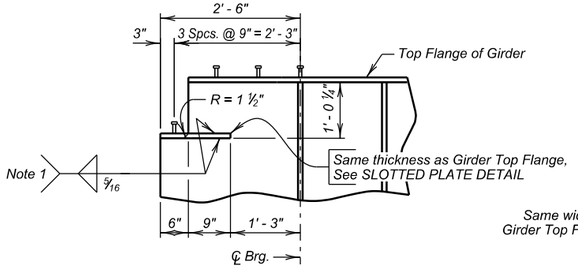
FOR BIDDING PURPOSES ONLY



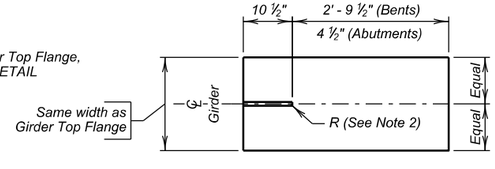
GIRDER LAYOUT (UNITS 1 & 4)



GIRDER LAYOUT (UNITS 1 & 4)



DETAIL "X"



SLOTTED PLATE DETAIL

NOTES:

1. *Terminate weld on top face ¼" from edge of web. Fill void with molten zinc after welding.*
2. *Generate radius by drilling ⅞" hole. Grind as required to fit onto web.*
3. *The ends of girders will be painted on all surfaces in accordance with Section 411 of the Construction Specifications. The top coat will be an approved brown (AMS STD 595, Color 30045) to match the weathering color of the steel.*

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GIRDER LAYOUT & DETAILS (A)
FOR
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36' - 0" ROADWAY
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GREGORY & CHARLES MIX COUNTIES
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DECEMBER 2023

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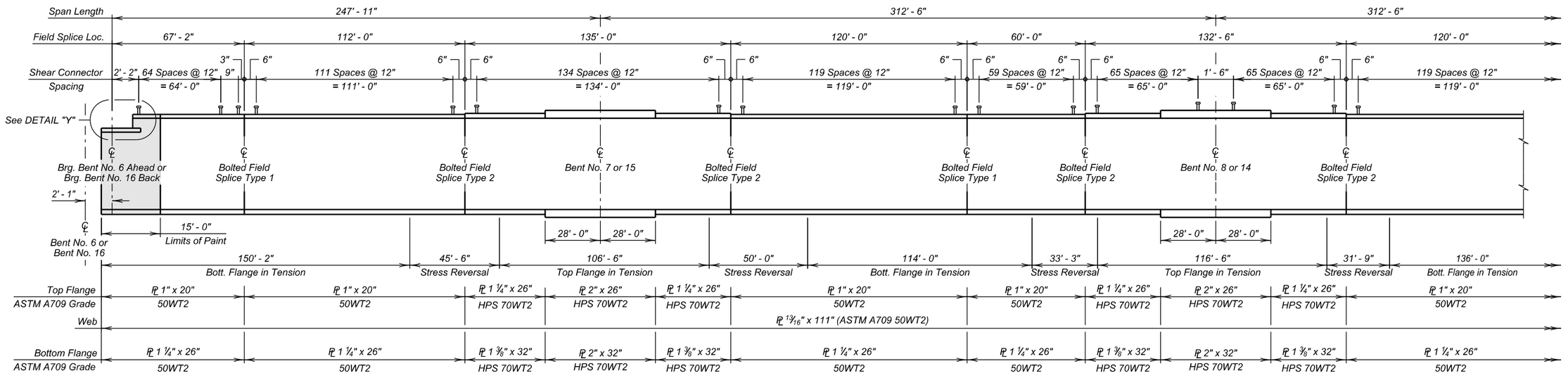
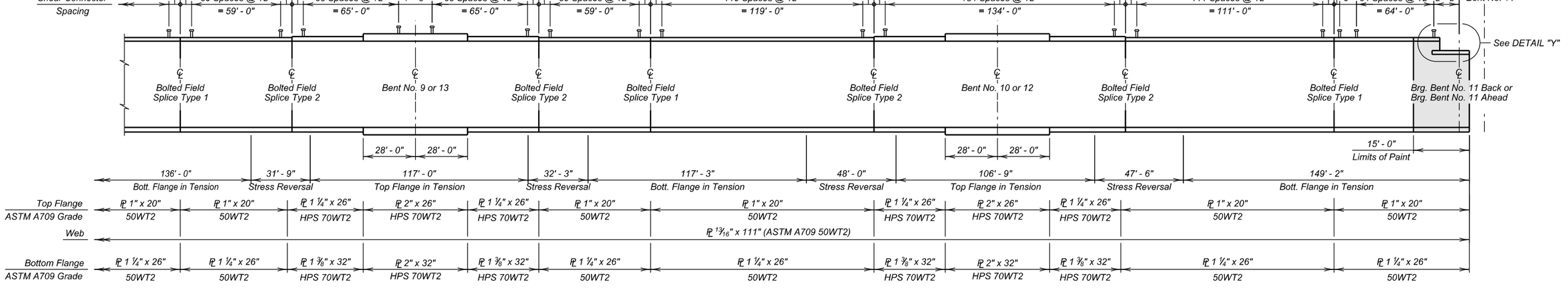
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E46	E86

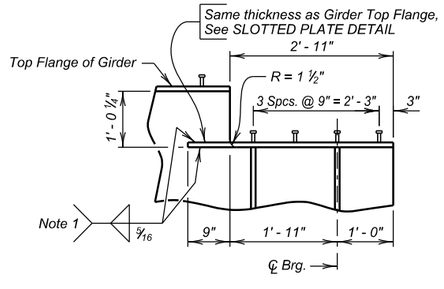
FOR BIDDING PURPOSES ONLY



GIRDER LAYOUT (UNITS 2 & 3)



GIRDER LAYOUT (UNITS 2 & 3)



DETAIL "Y"

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01/04/2024

GIRDER LAYOUT & DETAILS (B)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER (LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
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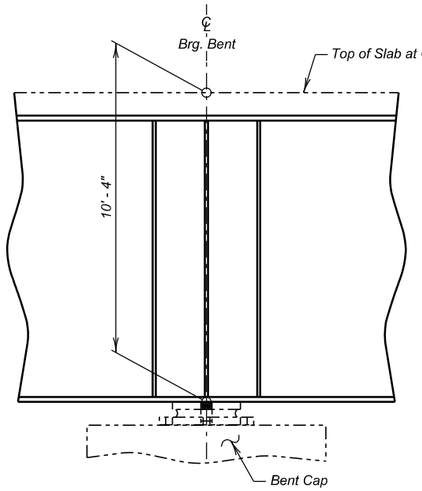
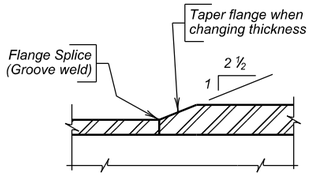
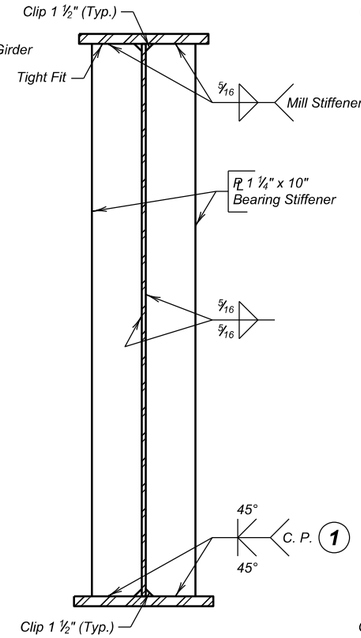
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E47	E86



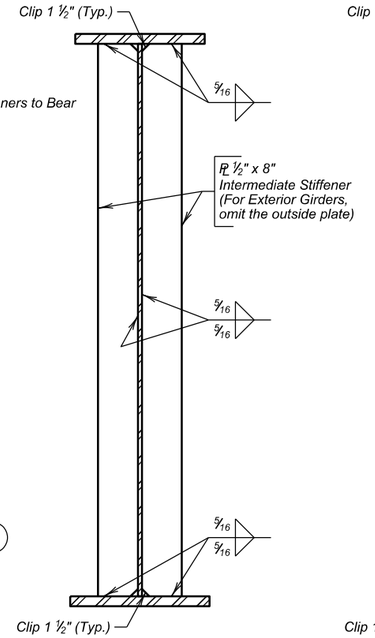
SECTION AT BENTS WITHOUT EXP. JOINTS



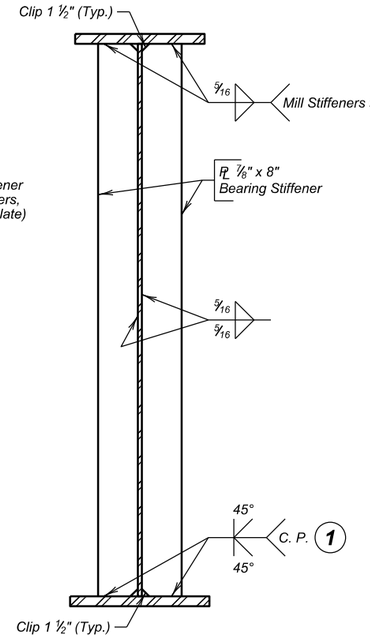
ELEVATION AT SHOP SPLICE



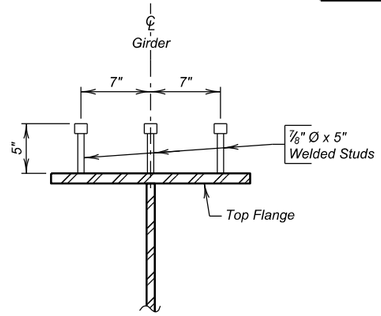
DETAILS OF BEARING & JACKING STIFFENERS AT BENTS WITHOUT EXP. JOINTS



DETAILS OF INTERMEDIATE STIFFENERS AT INT. DIAPHRAGMS

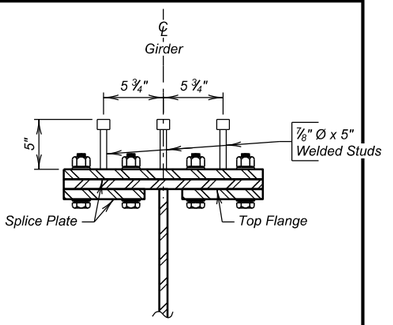


DETAILS OF BEARING & JACKING STIFFENERS AT BENTS WITH EXP. JOINTS & ABUTMENTS

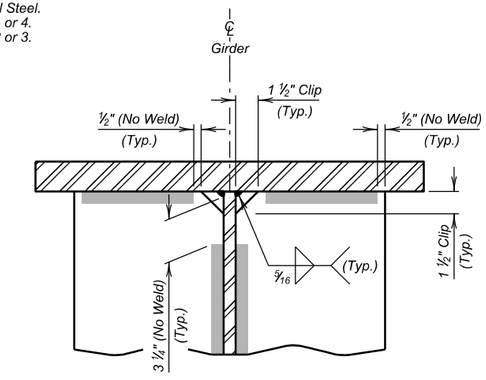


SHEAR CONNECTOR DETAILS

Welded Stud Shear Connectors are spaced as shown on Girder Layout. Payment for Shear Connectors will be included in the Lump Sum bid for Structural Steel. 4,026 Shear Connectors per Girder for Units 1 or 4. 4,017 Shear Connectors per Girder for Units 2 or 3.



SHEAR CONNECTOR DETAILS AT BOLTED FIELD SPLICE



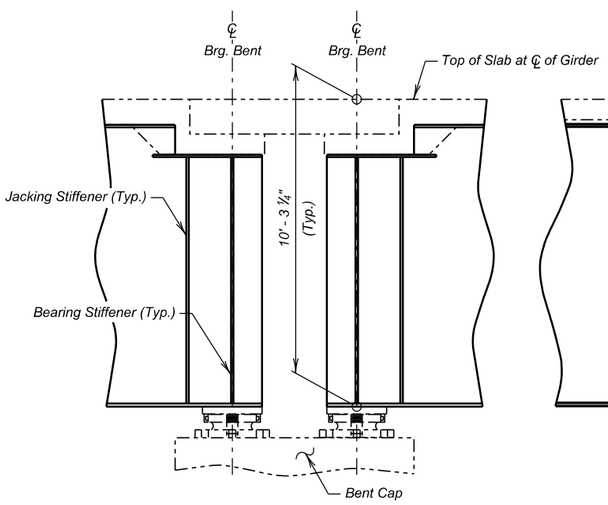
STIFFENER WELD TERMINATION DETAIL

(Bottom Flange similar)

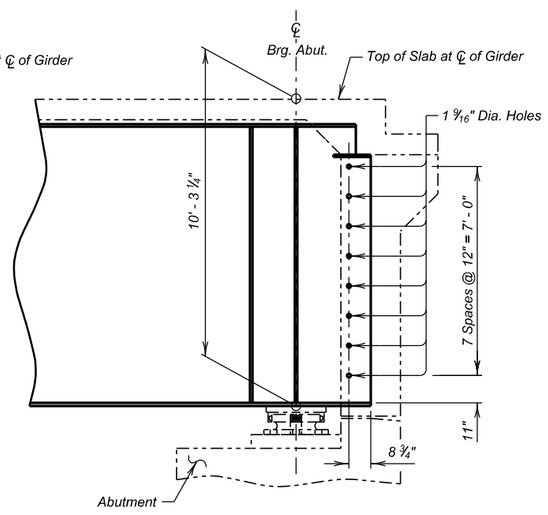
NOTE:

1. *See DIAPHRAGM DETAILS Sheet for Diaphragm Details.*
2. *See FRAMING DIAGRAM and CAMBER DATA Sheets for spacing of Diaphragms, Stiffeners, and Girder Camber.*
3. *All dimensions shown are horizontal or vertical.*
4. *All stiffeners and girder ends will be made normal to flanges, except bearing stiffeners at bents & abutments will be vertical.*
5. *Stiffeners to have tight fit top and bottom.*
6. *Dimensions shown are for steel temperature of 45° F.*

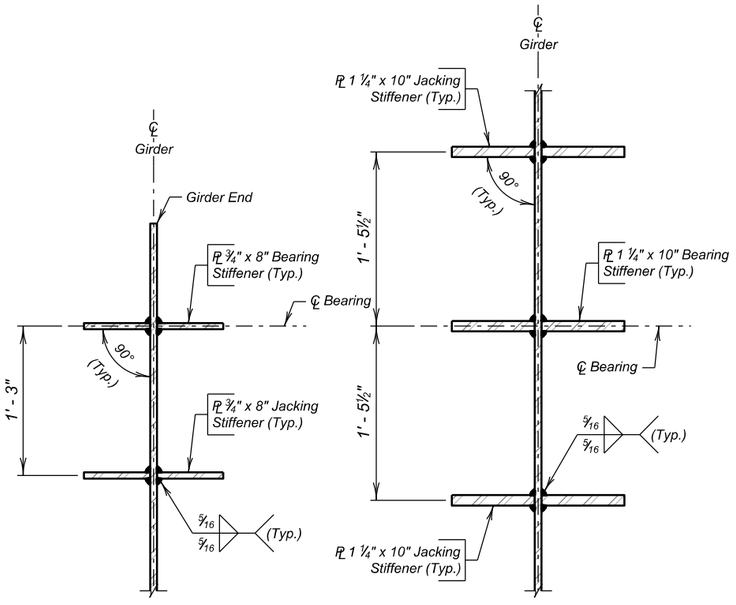
1 *Alternately, Mill Stiffeners to Bear & use 5/16" Fillet Weld, same as at Top Flange.*



SECTION AT BENTS WITH EXP. JOINTS



TYPICAL SECTION AT ABUTMENTS



(Bents with Exp. Joints & Abutments) (Bents without Exp. Joints)

BEARING & JACKING STIFFENER DETAILS

GIRDER LAYOUT & DETAILS (C)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

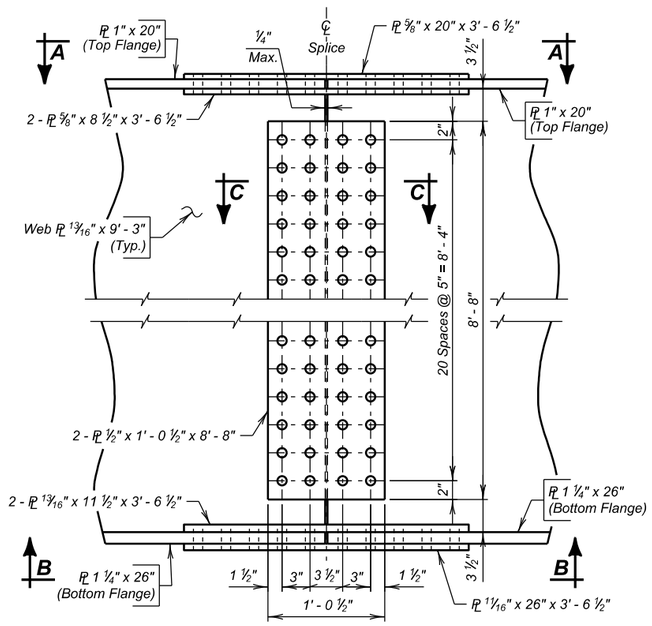
DECEMBER 2023

45 OF 84

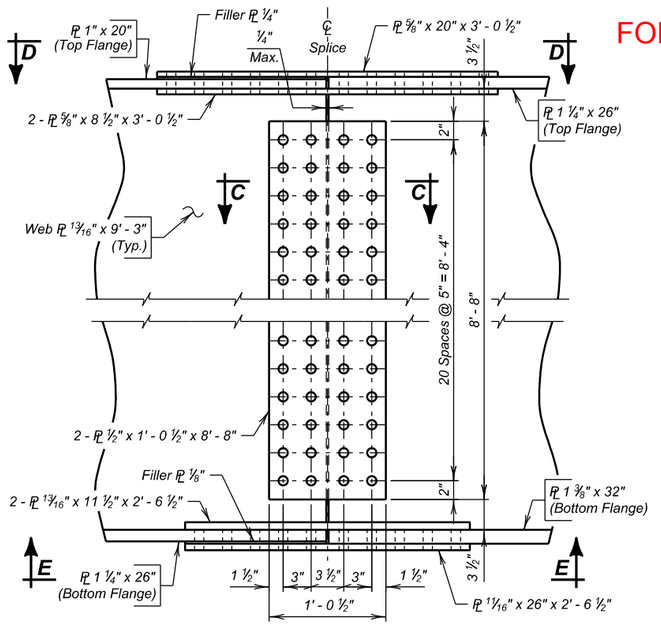
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

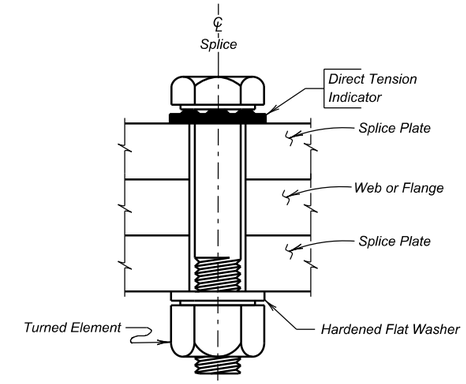
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E48	E86



FIELD BOLTED SPLICE TYPE 1 DETAIL

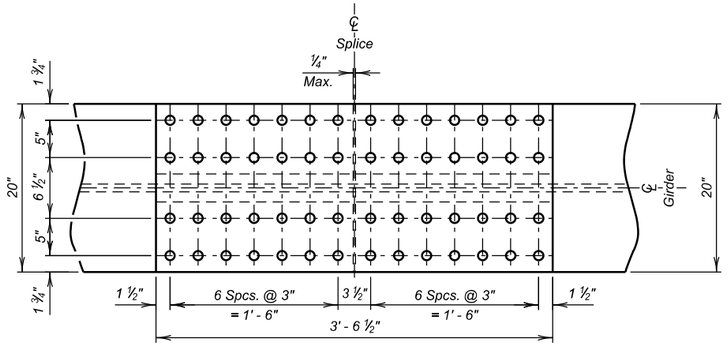


FIELD BOLTED SPLICE TYPE 2 DETAIL

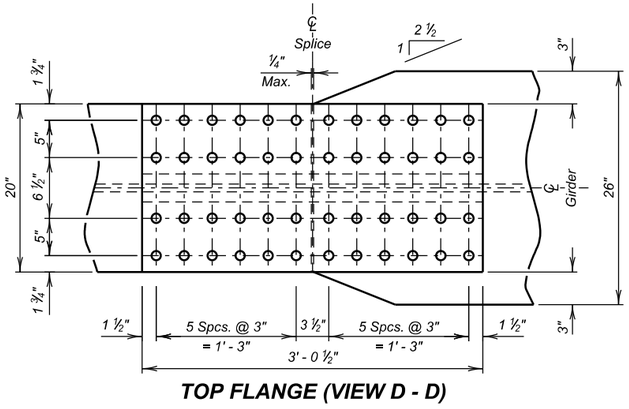


DIRECT TENSION INDICATOR DETAIL

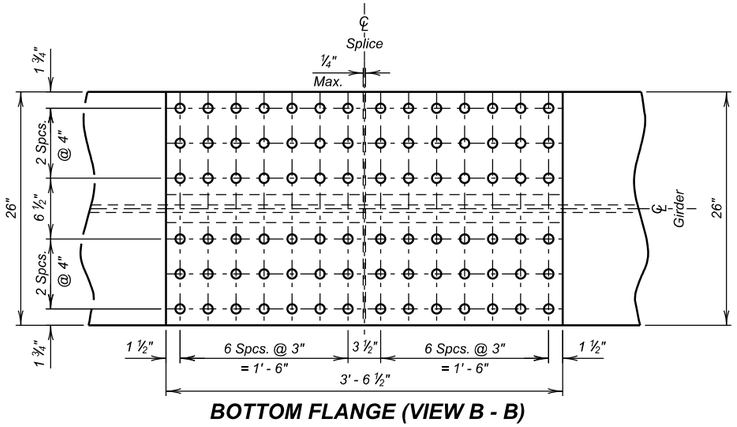
(Filler Plates Not Shown)



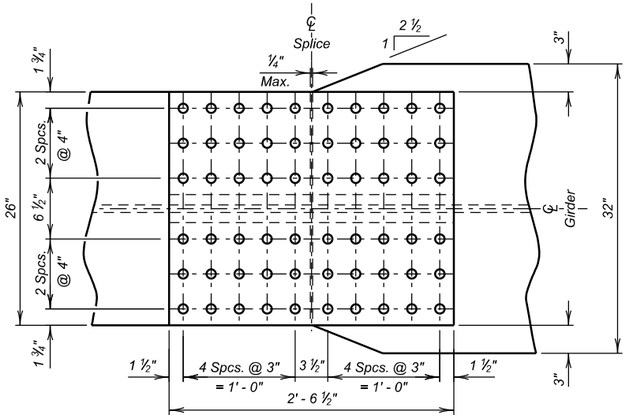
TOP FLANGE (VIEW A - A)



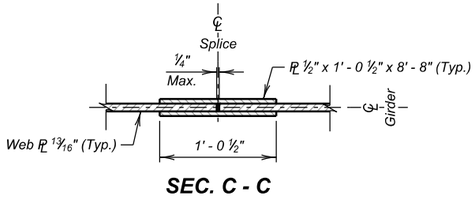
TOP FLANGE (VIEW D - D)



BOTTOM FLANGE (VIEW B - B)



BOTTOM FLANGE (VIEW E - E)



SEC. C - C

NOTE:

All bolts in splices will be ⅞" Ø High Strength Bolts conforming to ASTM Specifications F3125 Grade A325, Type 3. The bolts will be heavy hexagon head structural type with heavy semi-finished hexagon nut, hardened washer, and direct tension indicator.

BOLTED FIELD SPLICE DETAILS

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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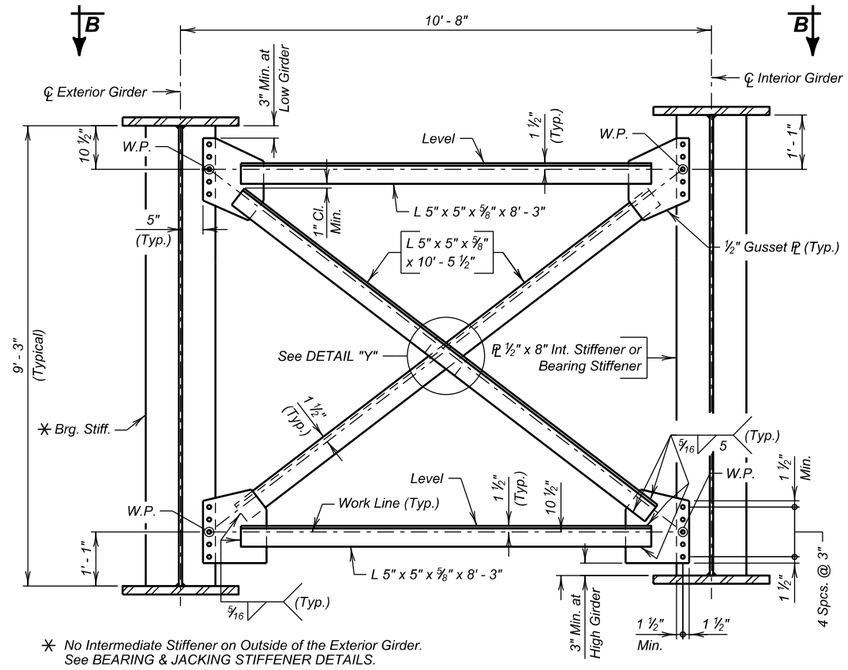
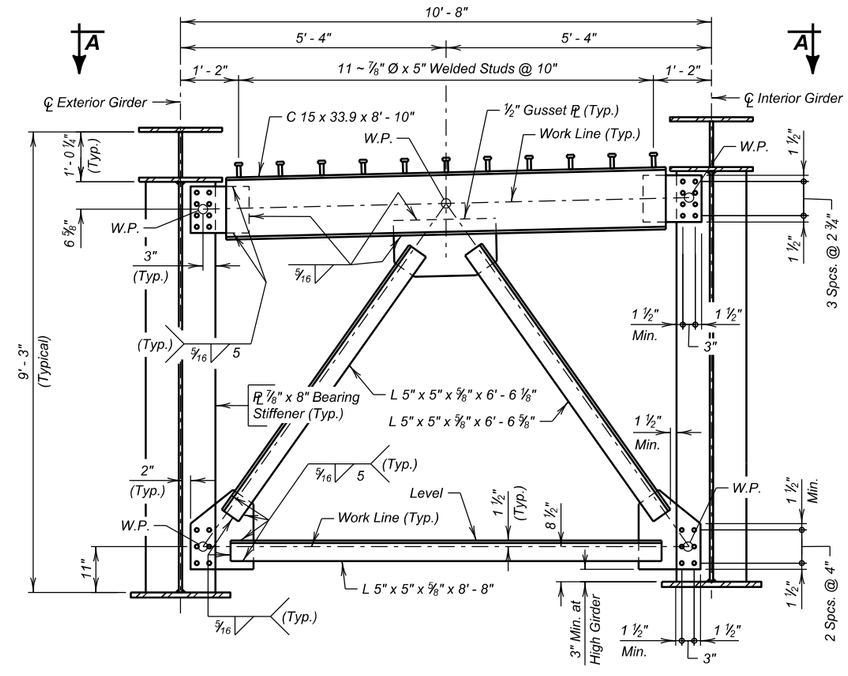


✳ No Intermediate Stiffener on Outside of the Exterior Girder.
See BEARING & JACKING STIFFENER DETAILS.

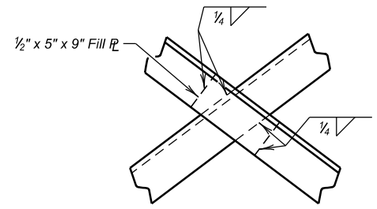
INTERMEDIATE DIAPHRAGM - ICF2

Weight of one Unit = 888 lbs

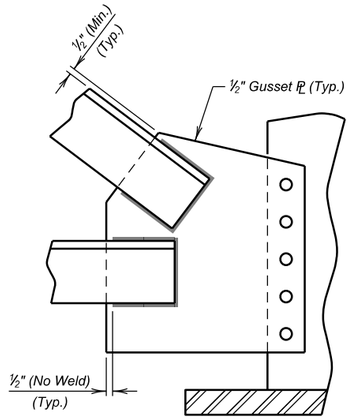


END DIAPHRAGM - ECF1 (Painted)

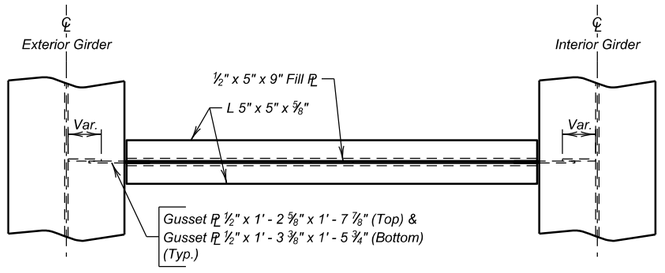
Weight of one Unit = 903 lbs



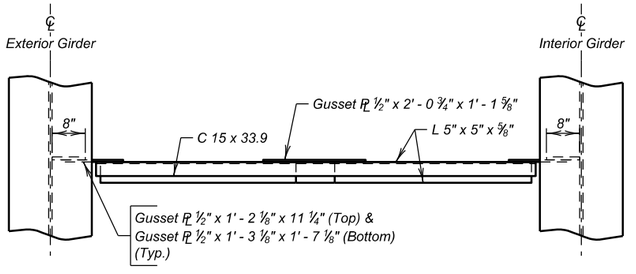
DETAIL "Y"



WELD TERMINATION DETAILS



VIEW B - B



VIEW A - A

NOTE:

1. The Steel Diaphragms are included in the quantity for Structural Steel.
2. Use 1 1/16" Ø bolt holes in the gusset plates. Use 15/16" Ø bolt holes in the stiffener plates.
3. Install bolt heads on the side of the connection with the 15/16" Ø bolt holes. Install direct tension indicators under the bolt heads.
4. All bolts in diaphragms will be ⅞" Ø High Strength Bolts conforming to ASTM Specifications F3125 Grade A325, Type 3. The bolts will be heavy hexagon head structural type with heavy semi-finished hexagon nut, hardened washer, and direct tension indicator.
5. Terminate all welds ½" from edges of the gusset plates.

REGISTERED PROFESSIONAL ENGINEER
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KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

DIAPHRAGM DETAILS
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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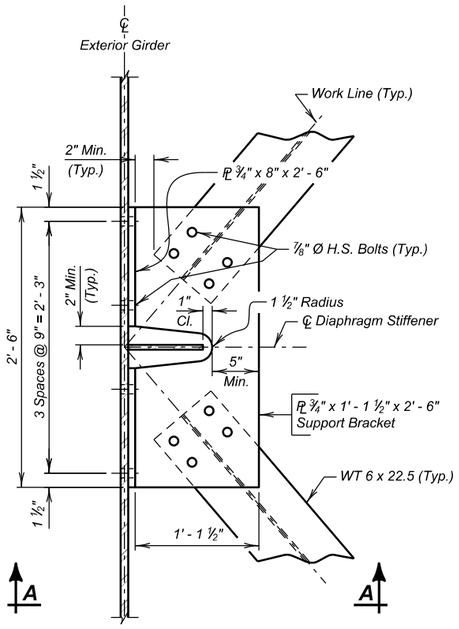
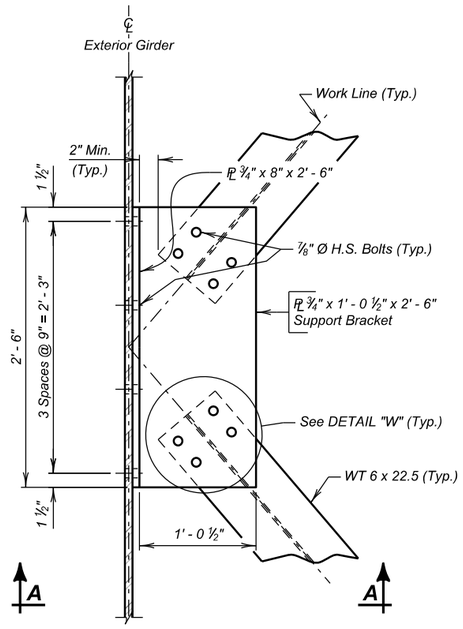
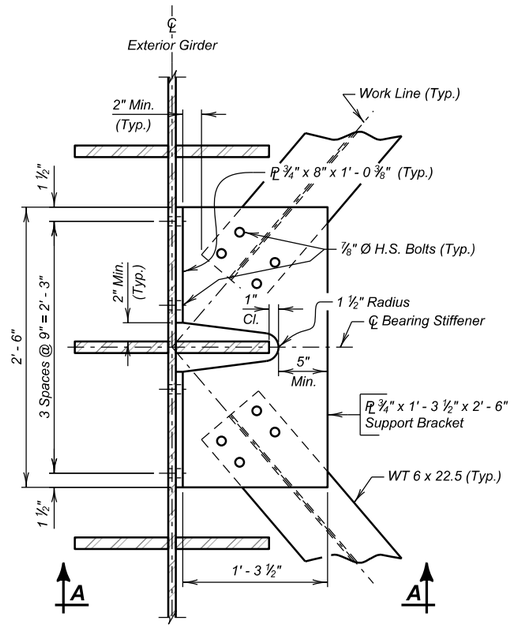


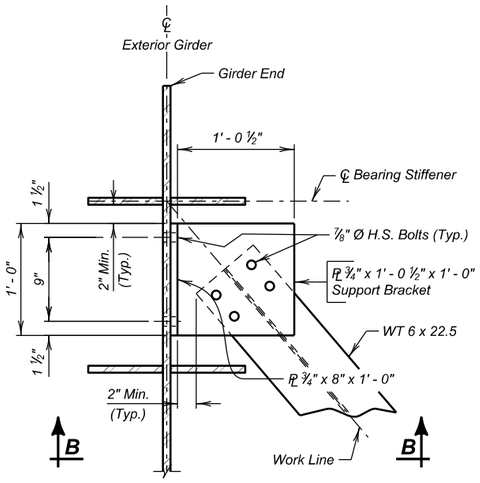
LATERAL BRACING CONNECTION AT INT. DIAPHRAGM STIFFENER



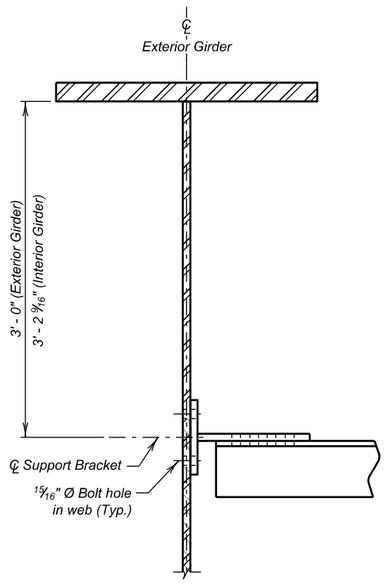
LATERAL BRACING CONNECTION BETWEEN DIAPHRAGMS



LATERAL BRACING CONNECTION AT BENTS WITHOUT EXP. JOINTS

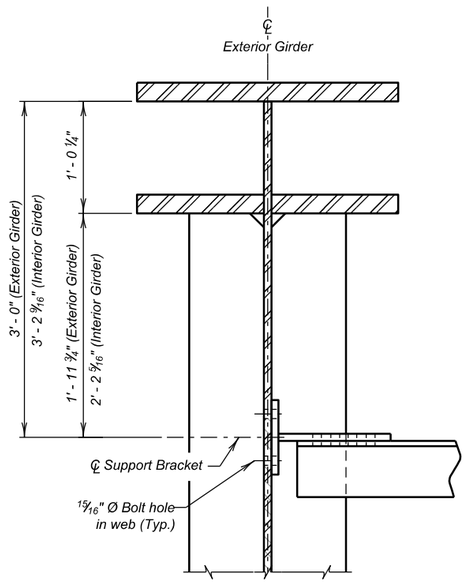


LATERAL BRACING CONNECTION AT BENTS WITH EXP. JOINTS & ABUTMENTS



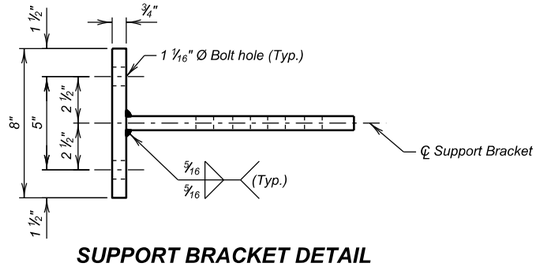
SECTION A - A

(Diaphragm and Stiffener not shown)

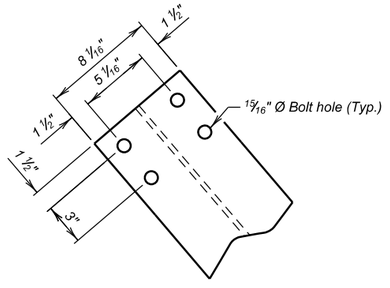


SECTION B - B

(Diaphragm not shown)



SUPPORT BRACKET DETAIL



DETAIL "W"

GENERAL NOTE:

1. *The Steel for Lateral Bracings is included in the quantity for Structural Steel.*
2. *Use 1 1⁄16" Ø bolt holes in the support brackets. Use 15⁄16" Ø bolt holes in the girder web and lateral bracing.*
3. *Install bolt heads on the side of the connection with the 15⁄16" Ø bolt holes. Install direct tension indicators under the bolt heads.*
4. *All bolts in splices will be ⅞" Ø High Strength Bolts conforming to ASTM Specification F3125 Grade A325, Type 3. The bolts will be heavy hexagon head structural type with heavy semi-finished hexagon nut, hardened washer, and direct tension indicator.*

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
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KEVIN J. BREHM
SOUTH DAKOTA
01/04/2024

LATERAL BRACING DETAILS
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

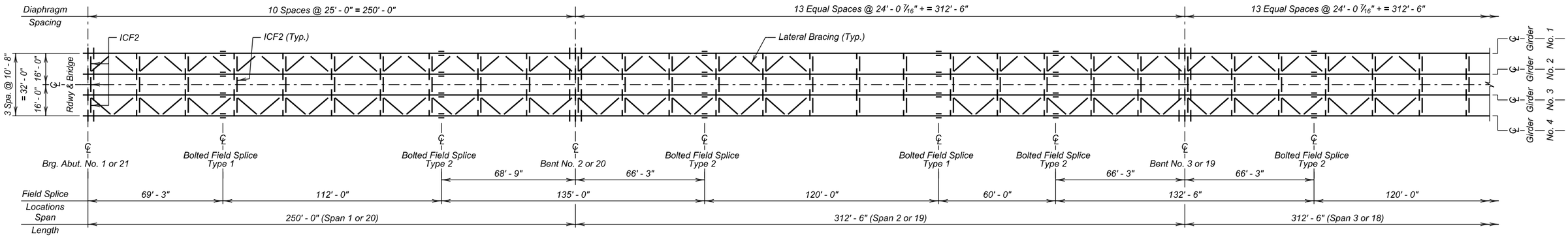
0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

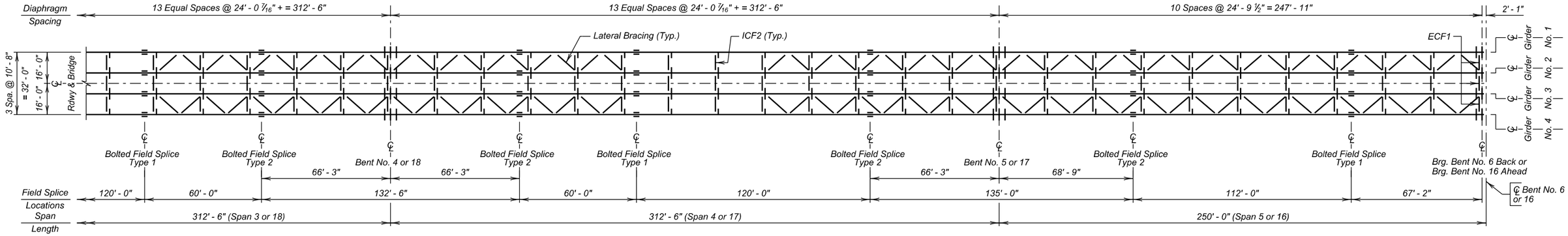
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E51	E86



PLAN - FRAMING DIAGRAM (UNITS 1 & 4)



PLAN - FRAMING DIAGRAM (UNITS 1 & 4)

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

FRAMING DIAGRAM (A)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
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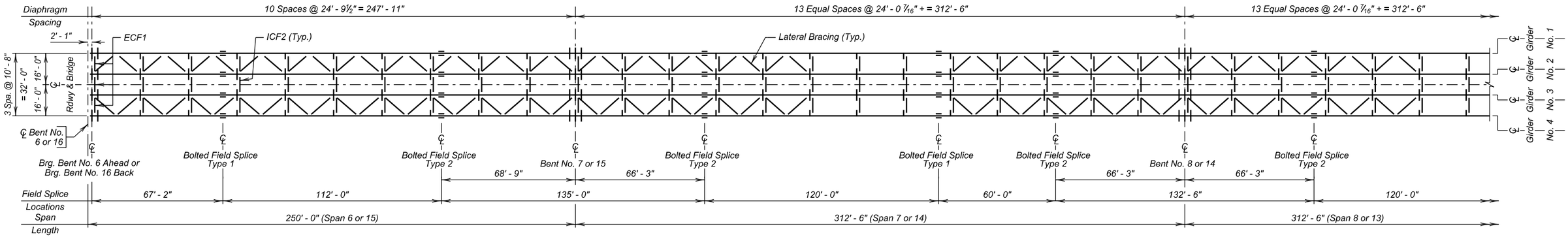
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

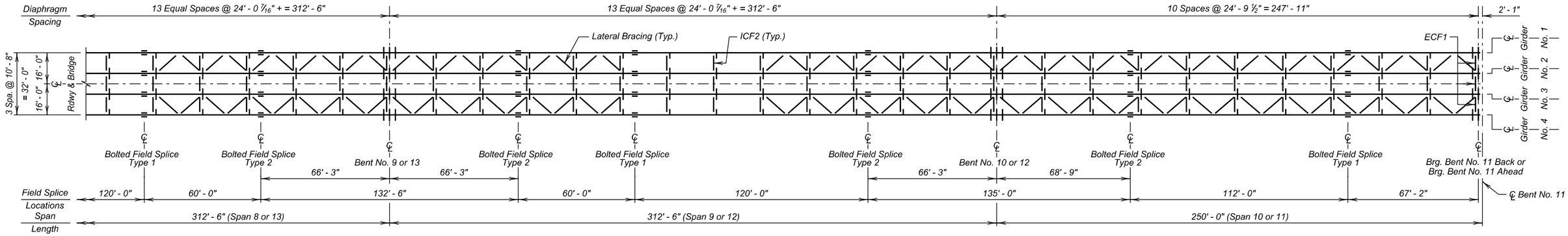
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E52	E86

FOR BIDDING PURPOSES ONLY



PLAN - FRAMING DIAGRAM (UNITS 2 & 3)



PLAN - FRAMING DIAGRAM (UNITS 2 & 3)

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

FRAMING DIAGRAM (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
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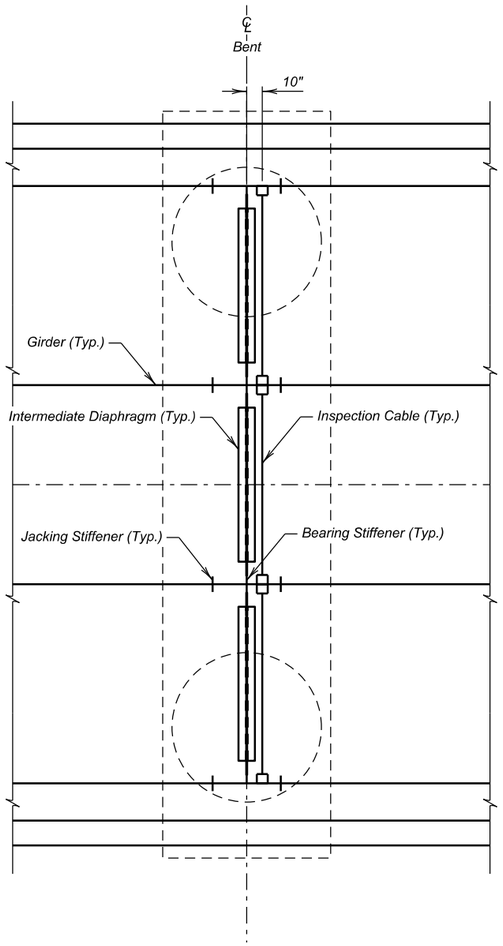
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

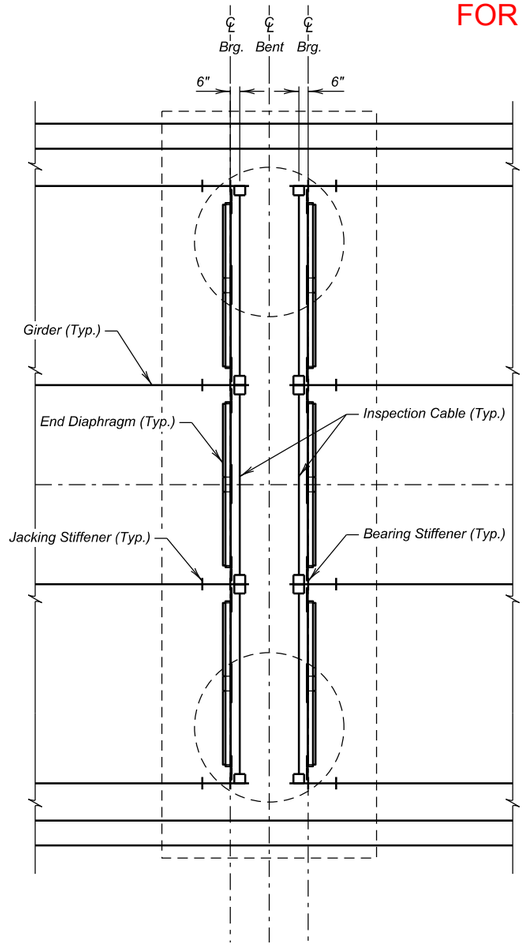
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

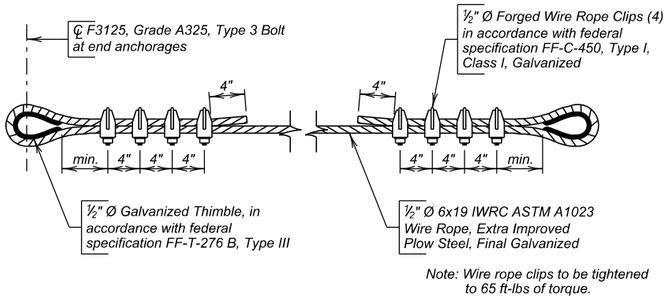
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E53	E86



TYPICAL PLAN VIEW AT BENTS WITHOUT EXP. JOINTS

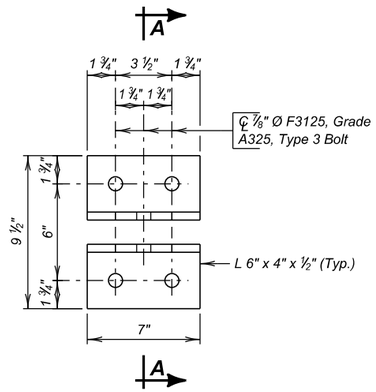


TYPICAL PLAN VIEW AT BENTS WITH EXP. JOINTS

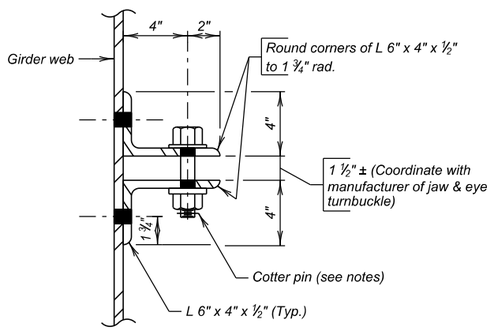


Note: Wire rope clips to be tightened to 65 ft-lbs of torque.

TYPICAL CABLE ASSEMBLY



TYPICAL END ANCHORAGE



SECTION A-A

NOTE:

1. *Inspection cable is to be installed between the girders at all bents, as shown on INSPECTION CABLE DETAILS (B) sheet.*
2. *Angles will be weathering steel, conforming to ASTM A709 Grade 50W.*
3. *Provide one turnbuckle for each length of cable. Cables will be tightened to remove slack. Tolerance will be ½ inch maximum sag at midpoint between supports with no vertical load other than the self-weight of the cable system. Bolts connecting cables or turnbuckles to anchorages will be snug-tight so as not to damage thimbles, turnbuckles or cable. Cotter pin may be substituted with a lock nut or double nut.*
4. *The inspection cable system is designed to be used to provide fall protection for a maximum of two workers between anchorages. Weight of one worker, including tools and equipment, will not exceed 310 lbs. Workers will be connected to the inspection cable by personal fall protection equipment that limits the maximum arresting force to 900 lbs. The total allowable arresting force is 1800 lbs.*
5. *The cost of furnishing and installing the inspection cable system will be included in the contract unit price for Structural Steel. Method of measurment and basis of payment will be in accordance with Section 410 of the Construction Specifications.*
6. *Inspection cable system will be constructed in accordance with Section 410 of the Construction Specifications.*
7. *All holes for ⅞" Ø bolts will be $^{15}/_{16}$" Ø unless otherwise noted.*
8. *For girder geometry and cross frame locations, see FRAMING DIAGRAM sheets.*

INSPECTION CABLE DETAILS (A)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

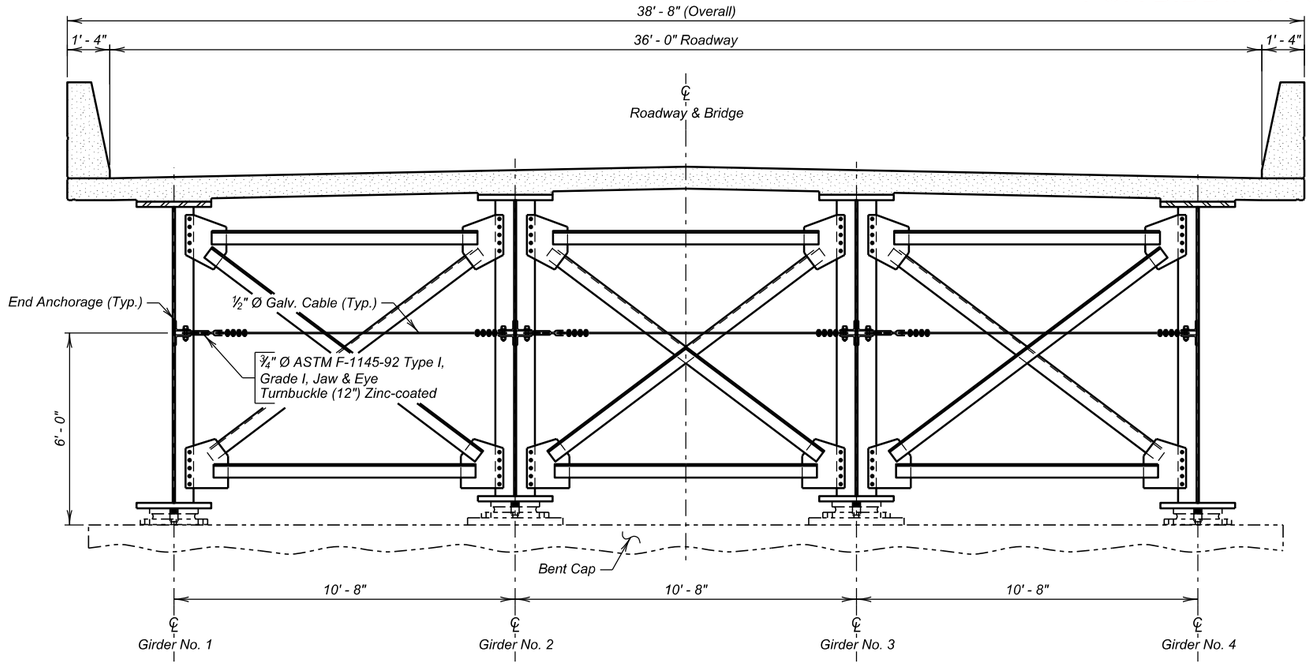
DECEMBER 2023

51 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

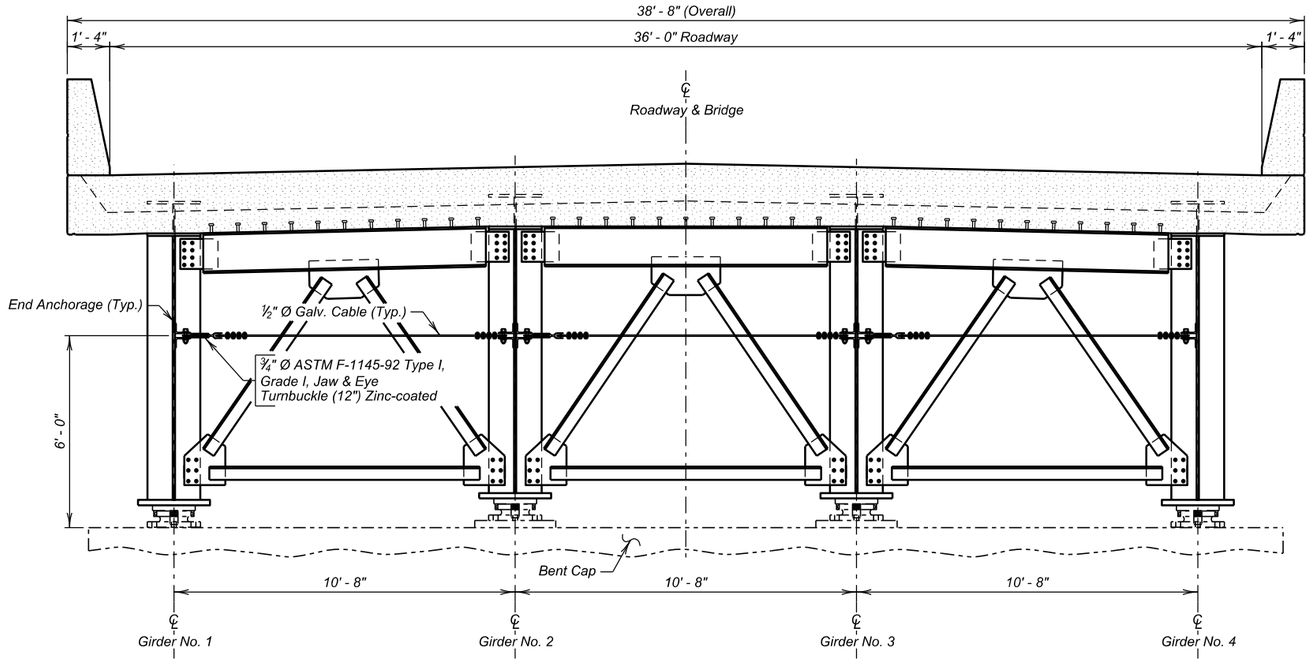
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E54	E86

FOR BIDDING PURPOSES ONLY



TYPICAL INSPECTION CABLE ELEVATION AT BENTS WITHOUT EXP. JOINTS

(Looking Ahead Station)



TYPICAL INSPECTION CABLE ELEVATION AT BENTS WITH EXP. JOINTS

(Looking Ahead Station)

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

NOTE:

1. *For girder details, see GIRDER LAYOUT & DETAILS sheets.*
2. *For inspection cable anchorage details and notes, see INSPECTION CABLE DETAILS (A) sheet.*

INSPECTION CABLE DETAILS (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

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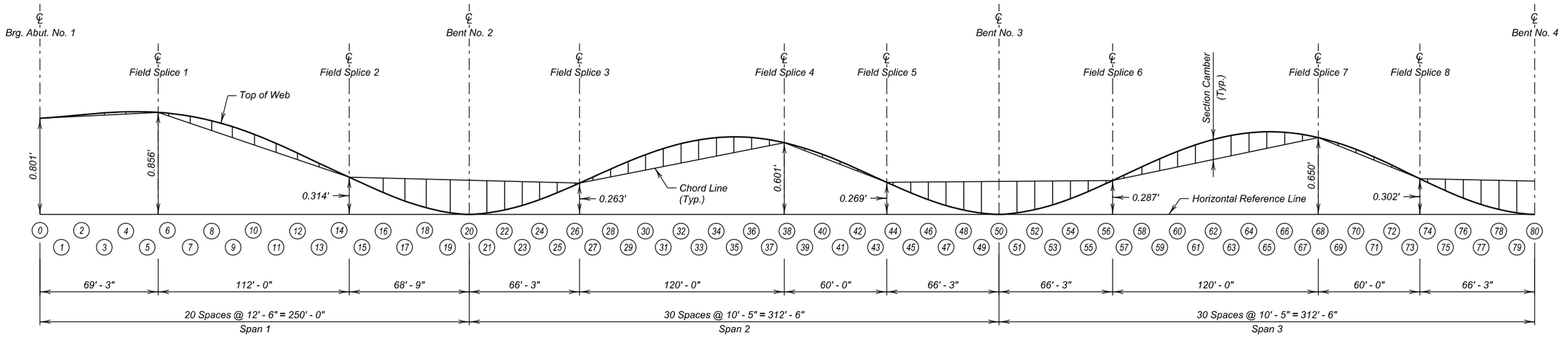
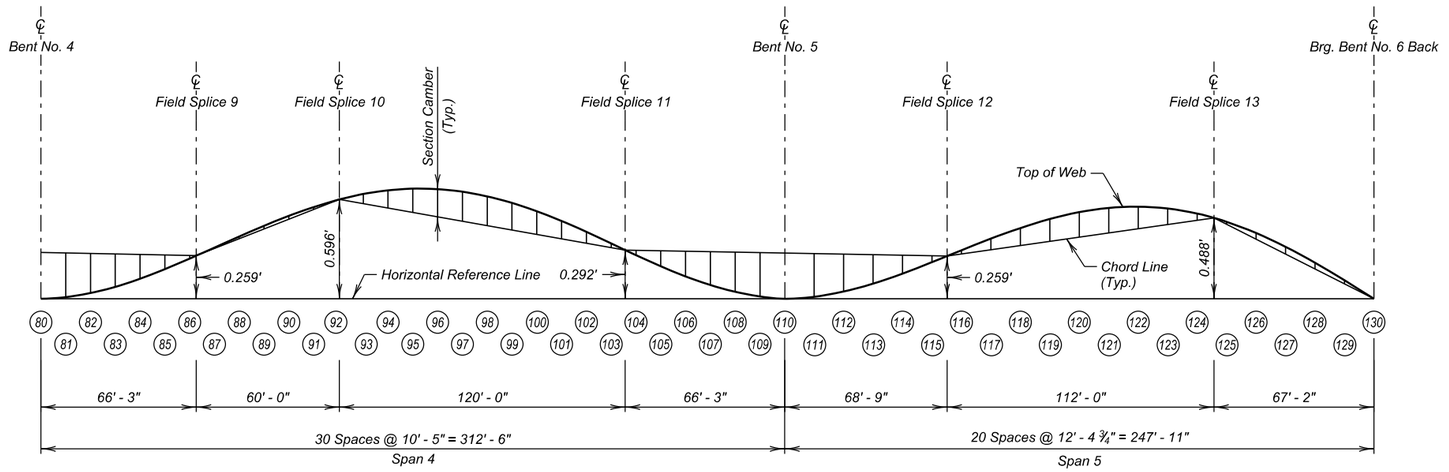
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E55	E86

FOR BIDDING PURPOSES ONLY



CAMBER DIAGRAM - UNIT 1



CAMBER DIAGRAM - UNIT 1

NOTES:

1. Camber Diagram shown is for girders in unloaded position and provides for all dead load deflections.
2. Chord lines are straight lines between centerline of splices at the top of the web. All camber values are measured relative to these lines.
3. Girders will be cambered to compensate for the total dead deflection and vertical curve.
4. "Steel Deflection" is deflection due to the steel plate girders, cross frames, lateral bracings and other miscellaneous steel items.
5. "Deck Deflection" is deflection due to concrete slab and haunches.
6. "Barrier Deflection" is deflection due to superimposed dead load of the barrier curbs and other miscellanious concrete items.
7. "Total Deflection" includes steel, deck and barrier deflection.
8. "Section Camber" accounts for deflection due to total deflection and vertical curve camber.
9. Camber values shown are based on a grid analysis considering the deck placement sequence shown in the plans.
10. Downward deflection is negative. Upward camber is positive.
11. Cambered girder lengths will be adjusted and bearing plates are to be placed under the cambered girder and will align with the anchors after the dead load deflection has occurred. Shop drawings will be prepared accordingly.
12. For field splice locations, refer to FRAMING DIAGRAM sheets.

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SOUTH DAKOTA
01/04/2024

CAMBER DIAGRAM - UNIT 1
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E56	E86

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	0	1	2	3	4	5	℄ Field Splice 1	6	7	8	9	10	11	12	13	14	℄ Field Splice 2	15	16	17	18	19	20	21	22	23	24	25	26	℄ Field Splice 3	27
Girders No.1 thru 4	Steel Deflection	0.000	-0.456	-0.892	-1.290	-1.635	-1.917	-2.040	-2.128	-2.262	-2.318	-2.296	-2.200	-2.038	-1.819	-1.557	-1.267	-1.118	-0.969	-0.681	-0.423	-0.216	-0.071	0.000	-0.033	-0.121	-0.253	-0.428	-0.636	-0.865	-0.950	-1.104
	Deck Deflection	0.000	-0.938	-1.834	-2.653	-3.367	-3.953	-4.209	-4.392	-4.676	-4.798	-4.758	-4.565	-4.230	-3.771	-3.218	-2.621	-2.318	-2.018	-1.430	-0.897	-0.465	-0.156	0.000	-0.053	-0.220	-0.478	-0.826	-1.242	-1.704	-1.876	-2.188
	Barrier Deflection	0.000	-0.136	-0.265	-0.383	-0.485	-0.569	-0.606	-0.632	-0.672	-0.689	-0.684	-0.656	-0.608	-0.544	-0.466	-0.380	-0.335	-0.291	-0.204	-0.126	-0.063	-0.019	0.000	-0.015	-0.048	-0.095	-0.155	-0.224	-0.299	-0.327	-0.377
	Total Deflection	0.000	-1.530	-2.991	-4.326	-5.488	-6.439	-6.855	-7.153	-7.611	-7.805	-7.738	-7.421	-6.876	-6.134	-5.241	-4.268	-3.771	-3.277	-2.315	-1.445	-0.744	-0.246	0.000	-0.101	-0.389	-0.826	-1.408	-2.102	-2.867	-3.153	-3.669
	Section Camber	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.257	0.703	0.988	1.113	1.091	0.943	0.700	0.408	0.134	0.000	-0.466	-1.371	-2.183	-2.827	-3.268	-3.456	-3.307	-2.972	-2.487	-1.857	-1.116	-0.303	0.000	0.290

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	28	29	30	31	32	33	34	35	36	37	℄ Field Splice 4	38	39	40	41	42	43	℄ Field Splice 5	44	45	46	47	48	49	50	51	52	53	54	55	56
Girders No.1 thru 4	Steel Deflection	-1.344	-1.574	-1.785	-1.968	-2.118	-2.230	-2.299	-2.323	-2.303	-2.238	-2.145	-2.130	-1.983	-1.802	-1.593	-1.364	-1.125	-0.971	-0.886	-0.656	-0.446	-0.268	-0.132	-0.039	0.000	-0.046	-0.146	-0.289	-0.474	-0.690	-0.926
	Deck Deflection	-2.677	-3.148	-3.582	-3.962	-4.274	-4.509	-4.657	-4.715	-4.679	-4.550	-4.364	-4.333	-4.033	-3.659	-3.224	-2.742	-2.240	-1.922	-1.747	-1.278	-0.855	-0.501	-0.238	-0.064	0.000	-0.100	-0.308	-0.604	-0.989	-1.442	-1.939
	Barrier Deflection	-0.454	-0.527	-0.594	-0.652	-0.699	-0.733	-0.755	-0.762	-0.756	-0.735	-0.706	-0.701	-0.655	-0.597	-0.531	-0.458	-0.381	-0.332	-0.304	-0.228	-0.159	-0.098	-0.050	-0.016	0.000	-0.013	-0.043	-0.088	-0.145	-0.212	-0.285
	Total Deflection	-4.474	-5.249	-5.960	-6.582	-7.091	-7.472	-7.711	-7.800	-7.737	-7.523	-7.214	-7.164	-6.670	-6.058	-5.348	-4.565	-3.746	-3.225	-2.936	-2.163	-1.459	-0.868	-0.420	-0.120	0.000	-0.159	-0.497	-0.981	-1.607	-2.344	-3.149
	Section Camber	0.743	1.165	1.524	1.793	1.950	1.978	1.865	1.602	1.186	0.619	0.000	0.033	0.232	0.313	0.295	0.204	0.078	0.000	-0.295	-1.086	-1.807	-2.416	-2.881	-3.200	-3.337	-3.196	-2.875	-2.409	-1.800	-1.081	-0.293

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	℄ Field Splice 6	57	58	59	60	61	62	63	64	65	66	67	℄ Field Splice 7	68	69	70	71	72	73	℄ Field Splice 8	74	75	76	77	78	79	80	81	82	83	84
Girders No.1 thru 4	Steel Deflection	-1.014	-1.171	-1.416	-1.650	-1.864	-2.049	-2.200	-2.311	-2.379	-2.402	-2.378	-2.310	-2.213	-2.198	-2.046	-1.860	-1.646	-1.412	-1.167	-1.009	-0.921	-0.686	-0.470	-0.286	-0.143	-0.045	0.000	-0.040	-0.135	-0.273	-0.453
	Deck Deflection	-2.124	-2.457	-2.977	-3.481	-3.949	-4.362	-4.707	-4.973	-5.149	-5.229	-5.211	-5.094	-4.911	-4.881	-4.576	-4.187	-3.726	-3.207	-2.652	-2.299	-2.103	-1.577	-1.094	-0.681	-0.358	-0.125	0.000	-0.042	-0.194	-0.437	-0.771
	Barrier Deflection	-0.312	-0.360	-0.435	-0.507	-0.572	-0.628	-0.674	-0.707	-0.728	-0.735	-0.728	-0.707	-0.678	-0.673	-0.627	-0.571	-0.506	-0.434	-0.359	-0.311	-0.284	-0.211	-0.144	-0.087	-0.043	-0.012	0.000	-0.017	-0.051	-0.099	-0.160
	Total Deflection	-3.449	-3.989	-4.829	-5.638	-6.384	-7.040	-7.581	-7.991	-8.256	-8.366	-8.317	-8.111	-7.802	-7.752	-7.249	-6.618	-5.878	-5.053	-4.178	-3.618	-3.308	-2.473	-1.708	-1.054	-0.544	-0.182	0.000	-0.099	-0.380	-0.809	-1.383
	Section Camber	0.000	0.298	0.760	1.192	1.560	1.837	2.001	2.033	1.919	1.652	1.225	0.641	0.000	0.036	0.260	0.356	0.342	0.244	0.095	0.000	-0.296	-1.091	-1.816	-2.429	-2.899	-3.221	-3.363	-3.224	-2.902	-2.433	-1.818

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	85	86	℄ Field Splice 9	87	88	89	90	91	92	℄ Field Splice 10	93	94	95	96	97	98	99	100	101	102	103	℄ Field Splice 11	104	105	106	107	108	109	110	111	112
Girders No.1 thru 4	Steel Deflection	-0.665	-0.897	-0.983	-1.139	-1.380	-1.611	-1.823	-2.006	-2.155	-2.170	-2.265	-2.332	-2.354	-2.331	-2.263	-2.152	-2.002	-1.818	-1.607	-1.375	-1.133	-0.978	-0.892	-0.660	-0.449	-0.269	-0.132	-0.039	0.000	-0.062	-0.197
	Deck Deflection	-1.174	-1.622	-1.790	-2.094	-2.574	-3.046	-3.492	-3.895	-4.239	-4.275	-4.510	-4.700	-4.802	-4.811	-4.726	-4.548	-4.283	-3.937	-3.520	-3.047	-2.532	-2.195	-2.009	-1.508	-1.050	-0.657	-0.346	-0.121	0.000	-0.058	-0.256
	Barrier Deflection	-0.230	-0.306	-0.334	-0.384	-0.461	-0.535	-0.601	-0.659	-0.706	-0.711	-0.741	-0.762	-0.769	-0.762	-0.741	-0.706	-0.659	-0.601	-0.535	-0.461	-0.384	-0.334	-0.306	-0.230	-0.160	-0.099	-0.051	-0.017	0.000	-0.017	-0.057
	Total Deflection	-2.069	-2.825	-3.107	-3.616	-4.416	-5.192	-5.916	-6.560	-7.100	-7.156	-7.516	-7.794	-7.925	-7.904	-7.729	-7.407	-6.944	-6.357	-5.662	-4.883	-4.049	-3.507	-3.206	-2.398	-1.659	-1.025	-0.530	-0.177	0.000	-0.136	-0.510
	Section Camber	-1.093	-0.297	0.000	0.060	0.156	0.229	0.250	0.191	0.028	0.000	0.638	1.233	1.681	1.977	2.119	2.113	1.968	1.697	1.319	0.857	0.339	0.000	-0.290	-1.067	-1.776	-2.379	-2.844	-3.167	-3.313	-3.141	-2.730

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	113	114	115	℄ Field Splice 12	116	117	118	119	120	121	122	123	124	℄ Field Splice 13	125	126	127	128	129	130
Girders No.1 thru 4	Steel Deflection	-0.392	-0.637	-0.912	-1.068	-1.198	-1.477	-1.730	-1.941	-2.099	-2.193	-2.216	-2.164	-2.037	-1.929	-1.836	-1.567	-1.236	-0.855	-0.438	0.000
	Deck Deflection	-0.569	-0.982	-1.454	-1.724	-1.950	-2.434	-2.876	-3.257	-3.552	-3.740	-3.806	-3.740	-3.539	-3.360	-3.204	-2.744	-2.172	-1.506	-0.772	0.000
	Barrier Deflection	-0.116	-0.190	-0.273	-0.320	-0.359	-0.441	-0.516	-0.579	-0.625	-0.652	-0.658	-0.642	-0.604	-0.572	-0.544	-0.464	-0.366	-0.253	-0.130	0.000
	Total Deflection	-1.077	-1.809	-2.640	-3.112	-3.507	-4.352	-5.122	-5.777	-6.276	-6.585	-6.680	-6.547	-6.180	-5.861	-5.585	-4.775	-3.774	-2.614	-1.339	0.000
	Section Camber	-2.128	-1.359	-0.492	0.000	0.257	0.797	1.263	1.614	1.809	1.813	1.604	1.167	0.496	0.000	0.176	0.448	0.529	0.451	0.257	0.000

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

CAMBER DATA - UNIT 1

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E57	E86

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		0	1	2	3	4	5	℄ Field Splice 1	6	7	8	9	10	11	12	13	14	℄ Field Splice 2	15	16	17	18	19	20	21	22	23	24	25	26	℄ Field Splice 3	27
Girder No. 1	Elev. "M"	1418.481	1418.458	1418.439	1418.422	1418.403	1418.380	1418.365	1418.352	1418.317	1418.276	1418.228	1418.174	1418.114	1418.052	1417.989	1417.930	1417.901	1417.872	1417.816	1417.765	1417.724	1417.695	1417.680	1417.686	1417.702	1417.728	1417.762	1417.802	1417.847	1417.864	1417.894
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 2	Elev. "M"	1418.694	1418.671	1418.652	1418.635	1418.616	1418.593	1418.579	1418.565	1418.531	1418.489	1418.441	1418.387	1418.328	1418.265	1418.203	1418.143	1418.114	1418.086	1418.029	1417.979	1417.937	1417.908	1417.893	1417.899	1417.916	1417.941	1417.975	1418.016	1418.060	1418.077	1418.107
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1418.694	1418.671	1418.652	1418.635	1418.616	1418.593	1418.579	1418.565	1418.531	1418.489	1418.441	1418.387	1418.328	1418.265	1418.203	1418.143	1418.114	1418.086	1418.029	1417.979	1417.937	1417.908	1417.893	1417.899	1417.916	1417.941	1417.975	1418.016	1418.060	1418.077	1418.107
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 4	Elev. "M"	1418.481	1418.458	1418.439	1418.422	1418.403	1418.380	1418.365	1418.352	1418.317	1418.276	1418.228	1418.174	1418.114	1418.052	1417.989	1417.930	1417.901	1417.872	1417.816	1417.765	1417.724	1417.695	1417.680	1417.686	1417.702	1417.728	1417.762	1417.802	1417.847	1417.864	1417.894
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		28	29	30	31	32	33	34	35	36	37	℄ Field Splice 4	38	39	40	41	42	43	℄ Field Splice 5	44	45	46	47	48	49	50	51	52	53	54	55	56
Girder No. 1	Elev. "M"	1417.941	1417.986	1418.028	1418.064	1418.094	1418.117	1418.131	1418.136	1418.133	1418.120	1418.102	1418.099	1418.071	1418.035	1417.993	1417.947	1417.898	1417.868	1417.851	1417.806	1417.764	1417.730	1417.704	1417.687	1417.680	1417.689	1417.709	1417.738	1417.774	1417.818	1417.865
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 2	Elev. "M"	1418.154	1418.200	1418.241	1418.278	1418.308	1418.330	1418.344	1418.350	1418.346	1418.334	1418.316	1418.313	1418.284	1418.248	1418.206	1418.160	1418.112	1418.081	1418.064	1418.019	1417.978	1417.943	1417.917	1417.900	1417.893	1417.903	1417.923	1417.951	1417.988	1418.031	1418.079
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1418.154	1418.200	1418.241	1418.278	1418.308	1418.330	1418.344	1418.350	1418.346	1418.334	1418.316	1418.313	1418.284	1418.248	1418.206	1418.160	1418.112	1418.081	1418.064	1418.019	1417.978	1417.943	1417.917	1417.900	1417.893	1417.903	1417.923	1417.951	1417.988	1418.031	1418.079
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 4	Elev. "M"	1417.941	1417.986	1418.028	1418.064	1418.094	1418.117	1418.131	1418.136	1418.133	1418.120	1418.102	1418.099	1418.071	1418.035	1417.993	1417.947	1417.898	1417.868	1417.851	1417.806	1417.764	1417.730	1417.704	1417.687	1417.680	1417.689	1417.709	1417.738	1417.774	1417.818	1417.865
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		℄ Field Splice 6	57	58	59	60	61	62	63	64	65	66	67	℄ Field Splice 7	68	69	70	71	72	73	℄ Field Splice 8	74	75	76
Girder No. 1	Elev. "M"	1417.883	1417.915	1417.964	1418.012	1418.057	1418.096	1418.128	1418.153	1418.170	1418.177	1418.175	1418.163	1418.146	1418.143	1418.114	1418.076	1418.033	1417.983	1417.931	1417.897	1417.879	1417.829	1417.783
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 2	Elev. "M"	1418.096	1418.128	1418.178	1418.226	1418.270	1418.309	1418.342	1418.367	1418.383	1418.390	1418.388	1418.377	1418.359	1418.356	1418.327	1418.290	1418.246	1418.197	1418.144	1418.111	1418.092	1418.042	1417.997
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 3	Elev. "M"	1418.096	1418.128	1418.178	1418.226	1418.270	1418.309	1418.342	1418.367	1418.383	1418.390	1418.388	1418.377	1418.359	1418.356	1418.327	1418.290	1418.246	1418.197	1418.144	1418.111	1418.092	1418.042	1417.997
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 4	Elev. "M"	1417.883	1417.915	1417.964	1418.012	1418.057	1418.096	1418.128	1418.153	1418.170	1418.177	1418.175	1418.163	1418.146	1418.143	1418.114	1418.076	1418.033	1417.983	1417.931	1417.897	1417.879	1417.829	1417.783
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

SLAB FORM ELEVATIONS - UNIT 1 (A)
FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

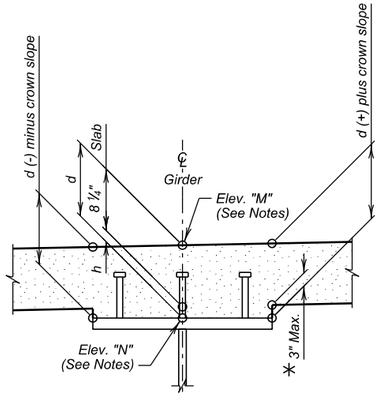
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E58	E86

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		77	78	79	80	81	82	83	84	85	86	℄ Field Splice 9	87	88	89	90	91	92	℄ Field Splice 10	93	94	95	96	97	98	99	100	101	102	103	℄ Field Splice 11	104
Girder No. 1	Elev. "M"	1417.744	1417.713	1417.691	1417.680	1417.685	1417.700	1417.725	1417.758	1417.797	1417.841	1417.857	1417.886	1417.933	1417.978	1418.021	1418.060	1418.092	1418.096	1418.118	1418.135	1418.144	1418.144	1418.136	1418.118	1418.092	1418.058	1418.018	1417.972	1417.923	1417.891	1417.873
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 2	Elev. "M"	1417.957	1417.927	1417.905	1417.893	1417.898	1417.914	1417.938	1417.971	1418.010	1418.054	1418.070	1418.100	1418.146	1418.192	1418.234	1418.273	1418.305	1418.309	1418.331	1418.349	1418.358	1418.358	1418.349	1418.331	1418.305	1418.272	1418.231	1418.186	1418.136	1418.104	1418.086
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1417.957	1417.927	1417.905	1417.893	1417.898	1417.914	1417.938	1417.971	1418.010	1418.054	1418.070	1418.100	1418.146	1418.192	1418.234	1418.273	1418.305	1418.309	1418.331	1418.349	1418.358	1418.358	1418.349	1418.331	1418.305	1418.272	1418.231	1418.186	1418.136	1418.104	1418.086
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 4	Elev. "M"	1417.744	1417.713	1417.691	1417.680	1417.685	1417.700	1417.725	1417.758	1417.797	1417.841	1417.857	1417.886	1417.933	1417.978	1418.021	1418.060	1418.092	1418.096	1418.118	1418.135	1418.144	1418.144	1418.136	1418.118	1418.092	1418.058	1418.018	1417.972	1417.923	1417.891	1417.873
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		105	106	107	108	109	110	111	112	113	114	115	℄ Field Splice 12	116	117	118	119	120	121	122	123	124	℄ Field Splice 13	125	126	127	128	129	130
Girder No. 1	Elev. "M"	1417.825	1417.781	1417.743	1417.713	1417.691	1417.680	1417.686	1417.706	1417.737	1417.778	1417.824	1417.850	1417.872	1417.920	1417.963	1418.000	1418.028	1418.046	1418.052	1418.045	1418.025	1418.008	1417.992	1417.947	1417.891	1417.827	1417.755	1417.680
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 2	Elev. "M"	1418.038	1417.994	1417.956	1417.926	1417.905	1417.893	1417.900	1417.919	1417.950	1417.991	1418.037	1418.064	1418.086	1418.133	1418.176	1418.213	1418.241	1418.259	1418.265	1418.259	1418.239	1418.221	1418.206	1418.161	1418.105	1418.040	1417.968	1417.893
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 3	Elev. "M"	1418.038	1417.994	1417.956	1417.926	1417.905	1417.893	1417.900	1417.919	1417.950	1417.991	1418.037	1418.064	1418.086	1418.133	1418.176	1418.213	1418.241	1418.259	1418.265	1418.259	1418.239	1418.221	1418.206	1418.161	1418.105	1418.040	1417.968	1417.893
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 4	Elev. "M"	1417.825	1417.781	1417.743	1417.713	1417.691	1417.680	1417.686	1417.706	1417.737	1417.778	1417.824	1417.850	1417.872	1417.920	1417.963	1418.000	1418.028	1418.046	1418.052	1418.045	1418.025	1418.008	1417.992	1417.947	1417.891	1417.827	1417.755	1417.680
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												



* If during construction, it is found that this dimension will be exceeded or is less than zero, corrective measures must be taken as approved by the Engineer.

NOTES:

1. Refer to GIRDER LAYOUT & DETAILS sheet and CAMBER DATA sheets for additional information.

2. This table contains the necessary information to determine the depth of concrete in feet, over the girder at points shown. All calculations can be carried out in the space provided.

3. Elevation "M" is theoretical top of slab elevation before any concrete has been poured. This elevation includes correction for deflection due to Dead Load above Girders (Deck and Barriers).

4. Elevation "N" is field measured elevation taken on top of the girders at points shown. This elevation must be taken after girder erection is complete, but prior to placing any of the slab concrete. Girders will not be supported by construction shoring while elevations are taken.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J. BREHM
SOUTH DAKOTA
01/04/2024

SLAB FORM ELEVATIONS - UNIT 1 (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

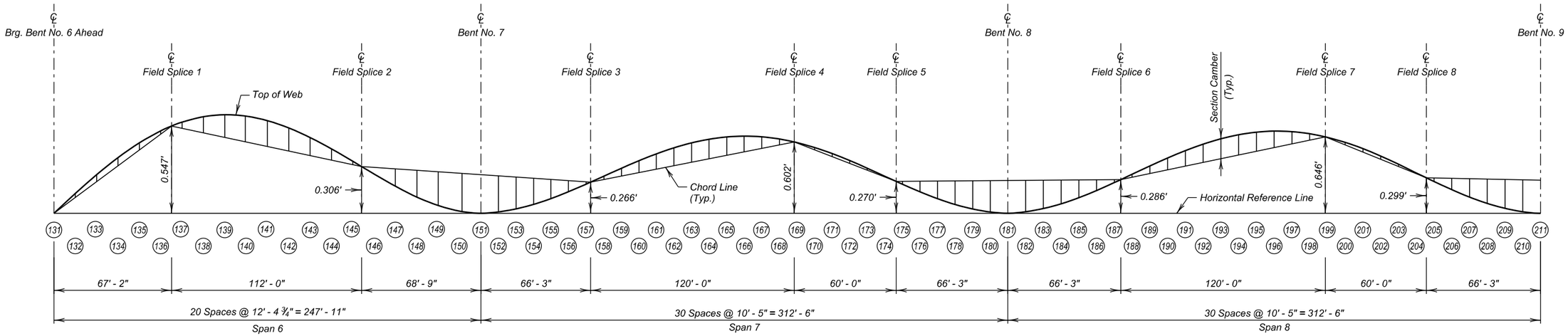
36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

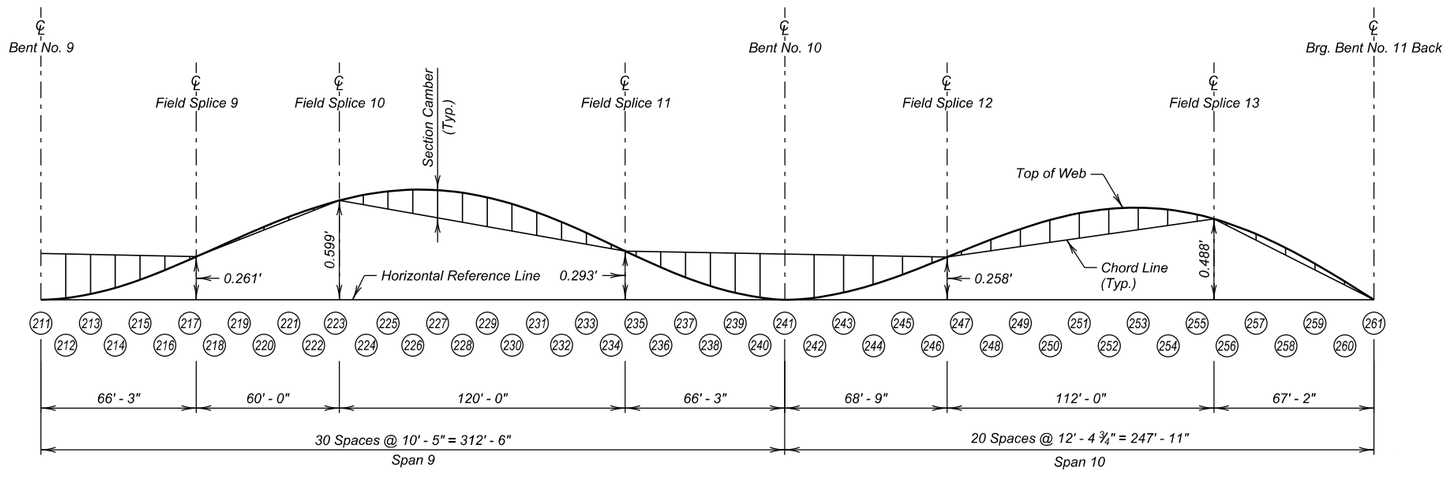
FOR BIDDING PURPOSES ONLY



CAMBER DIAGRAM - UNIT 2

NOTES:

See CAMBER DIAGRAM - UNIT 1 sheet for camber and deflection notes.



CAMBER DIAGRAM - UNIT 2

CAMBER DIAGRAM - UNIT 2

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E60	E86

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	131	132	133	134	135	136	℄ Field Splice 1	137	138	139	140	141	142	143	144	145	℄ Field Splice 2	146	147	148	149	150	151	152	153	154	155	156	157	℄ Field Splice 3	158
Girders No.1thru 4	Steel Deflection	0.000	-0.438	-0.855	-1.236	-1.567	-1.836	-1.929	-2.037	-2.164	-2.215	-2.192	-2.099	-1.941	-1.730	-1.477	-1.198	-1.068	-0.912	-0.637	-0.392	-0.197	-0.062	0.000	-0.039	-0.132	-0.269	-0.449	-0.660	-0.892	-0.978	-1.133
	Deck Deflection	0.000	-0.917	-1.792	-2.593	-3.291	-3.865	-4.063	-4.296	-4.575	-4.696	-4.659	-4.471	-4.144	-3.696	-3.150	-2.557	-2.287	-1.963	-1.387	-0.866	-0.447	-0.148	0.000	-0.057	-0.226	-0.486	-0.833	-1.247	-1.703	-1.874	-2.180
	Barrier Deflection	0.000	-0.130	-0.254	-0.367	-0.465	-0.545	-0.572	-0.605	-0.643	-0.659	-0.652	-0.625	-0.579	-0.517	-0.442	-0.359	-0.320	-0.273	-0.190	-0.116	-0.057	-0.017	0.000	-0.017	-0.051	-0.100	-0.161	-0.231	-0.307	-0.335	-0.385
	Total Deflection	0.000	-1.484	-2.901	-4.196	-5.323	-6.245	-6.564	-6.937	-7.381	-7.570	-7.504	-7.195	-6.664	-5.942	-5.069	-4.114	-3.675	-3.149	-2.214	-1.374	-0.701	-0.227	0.000	-0.113	-0.410	-0.855	-1.442	-2.138	-2.902	-3.187	-3.699
	Section Camber	0.000	0.273	0.478	0.561	0.477	0.188	0.000	0.559	1.323	1.831	2.085	2.096	1.885	1.483	0.929	0.294	0.000	-0.502	-1.391	-2.187	-2.815	-3.244	-3.426	-3.276	-2.941	-2.458	-1.833	-1.100	-0.298	0.000	0.288

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	159	160	161	162	163	164	165	166	167	168	℄ Field Splice 4	169	170	171	172	173	174	℄ Field Splice 5	175	176	177	178	179	180	181	182	183	184	185	186	187
Girders No.1thru 4	Steel Deflection	-1.375	-1.607	-1.819	-2.003	-2.153	-2.263	-2.331	-2.355	-2.333	-2.265	-2.171	-2.155	-2.006	-1.823	-1.612	-1.381	-1.139	-0.984	-0.897	-0.665	-0.453	-0.273	-0.135	-0.040	0.000	-0.044	-0.143	-0.285	-0.469	-0.684	-0.920
	Deck Deflection	-2.661	-3.126	-3.555	-3.932	-4.244	-4.478	-4.628	-4.687	-4.654	-4.529	-4.345	-4.315	-4.019	-3.650	-3.218	-2.740	-2.238	-1.921	-1.746	-1.278	-0.854	-0.501	-0.238	-0.064	0.000	-0.100	-0.307	-0.602	-0.986	-1.437	-1.931
	Barrier Deflection	-0.463	-0.536	-0.603	-0.661	-0.708	-0.743	-0.764	-0.771	-0.764	-0.743	-0.713	-0.708	-0.661	-0.603	-0.536	-0.463	-0.385	-0.335	-0.307	-0.231	-0.160	-0.099	-0.051	-0.017	0.000	-0.012	-0.043	-0.087	-0.144	-0.211	-0.284
	Total Deflection	-4.499	-5.269	-5.977	-6.596	-7.105	-7.484	-7.723	-7.813	-7.751	-7.537	-7.229	-7.179	-6.687	-6.076	-5.366	-4.583	-3.762	-3.239	-2.950	-2.174	-1.468	-0.874	-0.424	-0.122	0.000	-0.157	-0.493	-0.974	-1.599	-2.332	-3.134
	Section Camber	0.737	1.156	1.513	1.782	1.939	1.968	1.856	1.594	1.181	0.617	0.000	0.033	0.233	0.315	0.298	0.208	0.080	0.000	-0.295	-1.086	-1.807	-2.416	-2.881	-3.199	-3.336	-3.194	-2.873	-2.407	-1.798	-1.079	-0.293

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	℄ Field Splice 6	188	189	190	191	192	193	194	195	196	197	198	℄ Field Splice 7	199	200	201	202	203	204	℄ Field Splice 8	205	206	207	208	209	210	211	212	213	214	215
Girders No.1thru 4	Steel Deflection	-1.007	-1.164	-1.409	-1.643	-1.856	-2.042	-2.193	-2.304	-2.372	-2.395	-2.372	-2.304	-2.208	-2.193	-2.042	-1.856	-1.643	-1.409	-1.164	-1.007	-0.920	-0.684	-0.469	-0.285	-0.143	-0.044	0.000	-0.040	-0.135	-0.273	-0.453
	Deck Deflection	-2.114	-2.445	-2.960	-3.458	-3.921	-4.330	-4.671	-4.932	-5.106	-5.184	-5.164	-5.046	-4.863	-4.832	-4.528	-4.140	-3.681	-3.164	-2.615	-2.266	-2.073	-1.553	-1.076	-0.668	-0.350	-0.121	0.000	-0.045	-0.201	-0.447	-0.784
	Barrier Deflection	-0.311	-0.359	-0.434	-0.506	-0.571	-0.627	-0.673	-0.707	-0.728	-0.734	-0.728	-0.707	-0.678	-0.673	-0.627	-0.571	-0.506	-0.434	-0.359	-0.311	-0.284	-0.211	-0.144	-0.087	-0.043	-0.012	0.000	-0.017	-0.051	-0.099	-0.160
	Total Deflection	-3.432	-3.969	-4.804	-5.607	-6.348	-6.999	-7.537	-7.943	-8.205	-8.314	-8.264	-8.057	-7.749	-7.698	-7.197	-6.568	-5.830	-5.008	-4.139	-3.584	-3.276	-2.448	-1.689	-1.040	-0.536	-0.178	0.000	-0.102	-0.387	-0.820	-1.397
	Section Camber	0.000	0.297	0.757	1.186	1.552	1.828	1.991	2.023	1.910	1.644	1.220	0.638	0.000	0.036	0.258	0.351	0.337	0.238	0.092	0.000	-0.295	-1.088	-1.811	-2.424	-2.892	-3.215	-3.356	-3.218	-2.898	-2.429	-1.816

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	216	217	℄ Field Splice 9	218	219	220	221	222	223	℄ Field Splice 10	224	225	226	227	228	229	230	231	232	233	234	℄ Field Splice 11	235	236	237	238	239	240	241	242	243
Girders No.1thru 4	Steel Deflection	-0.665	-0.897	-0.984	-1.139	-1.381	-1.612	-1.823	-2.006	-2.155	-2.171	-2.265	-2.333	-2.355	-2.331	-2.263	-2.153	-2.003	-1.819	-1.607	-1.375	-1.133	-0.978	-0.892	-0.660	-0.449	-0.269	-0.132	-0.039	0.000	-0.062	-0.197
	Deck Deflection	-1.191	-1.642	-1.810	-2.116	-2.600	-3.075	-3.524	-3.928	-4.272	-4.309	-4.544	-4.734	-4.834	-4.842	-4.755	-4.575	-4.307	-3.959	-3.540	-3.063	-2.546	-2.207	-2.020	-1.517	-1.057	-0.662	-0.350	-0.123	0.000	-0.055	-0.251
	Barrier Deflection	-0.231	-0.307	-0.335	-0.385	-0.463	-0.536	-0.603	-0.661	-0.708	-0.713	-0.743	-0.764	-0.771	-0.764	-0.743	-0.708	-0.661	-0.603	-0.536	-0.463	-0.385	-0.335	-0.307	-0.231	-0.161	-0.100	-0.051	-0.017	0.000	-0.017	-0.057
	Total Deflection	-2.087	-2.846	-3.129	-3.640	-4.443	-5.223	-5.950	-6.595	-7.136	-7.193	-7.552	-7.830	-7.960	-7.937	-7.761	-7.436	-6.971	-6.381	-5.683	-4.901	-4.064	-3.520	-3.219	-2.408	-1.666	-1.031	-0.533	-0.179	0.000	-0.134	-0.506
	Section Camber	-1.091	-0.296	0.000	0.060	0.157	0.231	0.253	0.193	0.028	0.000	0.640	1.237	1.686	1.981	2.124	2.118	1.972	1.700	1.321	0.858	0.340	0.000	-0.290	-1.068	-1.778	-2.381	-2.846	-3.168	-3.314	-3.142	-2.732

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	244	245	246	℄ Field Splice 12	247	248	249	250	251	252	253	254	255	℄ Field Splice 13	256	257	258	259	260	261
Girders No.1thru 4	Steel Deflection	-0.392	-0.637	-0.912	-1.068	-1.198	-1.477	-1.730	-1.941	-2.099	-2.192	-2.215	-2.164	-2.037	-1.929	-1.836	-1.567	-1.236	-0.855	-0.438	0.000
	Deck Deflection	-0.562	-0.973	-1.443	-1.712	-1.937	-2.420	-2.860	-3.242	-3.537	-3.725	-3.792	-3.727	-3.527	-3.349	-3.194	-2.736	-2.165	-1.501	-0.770	0.000
	Barrier Deflection	-0.116	-0.190	-0.273	-0.320	-0.359	-0.442	-0.517	-0.579	-0.625	-0.652	-0.659	-0.643	-0.605	-0.572	-0.545	-0.465	-0.367	-0.254	-0.130	0.000
	Total Deflection	-1.070	-1.800	-2.629	-3.101	-3.495	-4.338	-5.107	-5.762	-6.261	-6.570	-6.666	-6.534	-6.168	-5.850	-5.575	-4.767	-3.767	-2.610	-1.337	0.000
	Section Camber	-2.129	-1.360	-0.493	0.000	0.256	0.795	1.260	1.610	1.805	1.810	1.601	1.165	0.495	0.000	0.176	0.448	0.528	0.451	0.257	0.000

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

CAMBER DATA - UNIT 2

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E61	E86

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		131	132	133	134	135	136	℄ Field Splice 1	137	138	139	140	141	142	143	144	145	℄ Field Splice 2	146	147	148	149	150	151	152	153	154	155	156	157	℄ Field Splice 3	158
Girder No. 1	Elev. "M"	1417.680	1417.767	1417.850	1417.927	1417.993	1418.047	1418.066	1418.088	1418.115	1418.126	1418.123	1418.105	1418.074	1418.031	1417.979	1417.923	1417.897	1417.866	1417.811	1417.762	1417.722	1417.694	1417.680	1417.686	1417.703	1417.729	1417.763	1417.803	1417.848	1417.864	1417.894
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 2	Elev. "M"	1417.893	1417.981	1418.064	1418.140	1418.206	1418.261	1418.280	1418.302	1418.328	1418.340	1418.336	1418.318	1418.287	1418.244	1418.193	1418.136	1418.111	1418.080	1418.025	1417.975	1417.935	1417.907	1417.893	1417.899	1417.916	1417.942	1417.976	1418.017	1418.061	1418.077	1418.107
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1417.893	1417.981	1418.064	1418.140	1418.206	1418.261	1418.280	1418.302	1418.328	1418.340	1418.336	1418.318	1418.287	1418.244	1418.193	1418.136	1418.111	1418.080	1418.025	1417.975	1417.935	1417.907	1417.893	1417.899	1417.916	1417.942	1417.976	1418.017	1418.061	1418.077	1418.107
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 4	Elev. "M"	1417.680	1417.767	1417.850	1417.927	1417.993	1418.047	1418.066	1418.088	1418.115	1418.126	1418.123	1418.105	1418.074	1418.031	1417.979	1417.923	1417.897	1417.866	1417.811	1417.762	1417.722	1417.694	1417.680	1417.686	1417.703	1417.729	1417.763	1417.803	1417.848	1417.864	1417.894
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		159	160	161	162	163	164	165	166	167	168	℄ Field Splice 4	169	170	171	172	173	174	℄ Field Splice 5	175	176	177	178	179	180	181	182	183	184	185	186	187
Girder No. 1	Elev. "M"	1417.940	1417.985	1418.027	1418.063	1418.093	1418.115	1418.129	1418.135	1418.132	1418.119	1418.102	1418.099	1418.070	1418.034	1417.993	1417.947	1417.899	1417.868	1417.851	1417.806	1417.765	1417.730	1417.704	1417.687	1417.680	1417.689	1417.709	1417.737	1417.774	1417.817	1417.865
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 2	Elev. "M"	1418.154	1418.199	1418.240	1418.276	1418.306	1418.328	1418.343	1418.348	1418.345	1418.333	1418.315	1418.312	1418.283	1418.248	1418.206	1418.160	1418.112	1418.081	1418.064	1418.019	1417.978	1417.943	1417.917	1417.900	1417.893	1417.903	1417.922	1417.951	1417.987	1418.031	1418.078
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1418.154	1418.199	1418.240	1418.276	1418.306	1418.328	1418.343	1418.348	1418.345	1418.333	1418.315	1418.312	1418.283	1418.248	1418.206	1418.160	1418.112	1418.081	1418.064	1418.019	1417.978	1417.943	1417.917	1417.900	1417.893	1417.903	1417.922	1417.951	1417.987	1418.031	1418.078
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 4	Elev. "M"	1417.940	1417.985	1418.027	1418.063	1418.093	1418.115	1418.129	1418.135	1418.132	1418.119	1418.102	1418.099	1418.070	1418.034	1417.993	1417.947	1417.899	1417.868	1417.851	1417.806	1417.765	1417.730	1417.704	1417.687	1417.680	1417.689	1417.709	1417.737	1417.774	1417.817	1417.865
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		℄ Field Splice 6	188	189	190	191	192	193	194	195	196	197	198	℄ Field Splice 7	199	200	201	202	203	204	℄ Field Splice 8	205	206	207
Girder No. 1	Elev. "M"	1417.882	1417.914	1417.963	1418.010	1418.054	1418.093	1418.125	1418.150	1418.166	1418.173	1418.171	1418.159	1418.142	1418.139	1418.110	1418.073	1418.029	1417.980	1417.928	1417.895	1417.876	1417.827	1417.782
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 2	Elev. "M"	1418.095	1418.127	1418.176	1418.224	1418.268	1418.306	1418.339	1418.363	1418.379	1418.387	1418.384	1418.373	1418.355	1418.352	1418.323	1418.286	1418.242	1418.193	1418.141	1418.108	1418.090	1418.040	1417.995
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 3	Elev. "M"	1418.095	1418.127	1418.176	1418.224	1418.268	1418.306	1418.339	1418.363	1418.379	1418.387	1418.384	1418.373	1418.355	1418.352	1418.323	1418.286	1418.242	1418.193	1418.141	1418.108	1418.090	1418.040	1417.995
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 4	Elev. "M"	1417.882	1417.914	1417.963	1418.010	1418.054	1418.093	1418.125	1418.150	1418.166	1418.173	1418.171	1418.159	1418.142	1418.139	1418.110	1418.073	1418.029	1417.980	1417.928	1417.895	1417.876	1417.827	1417.782
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

SLAB FORM ELEVATIONS - UNIT 2 (A)
FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

59 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

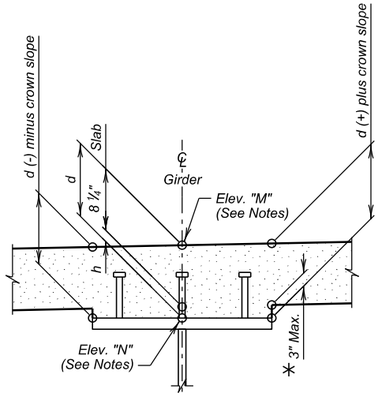
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E62	E86

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		208	209	210	211	212	213	214	215	216	217	℄ Field Splice 9	218	219	220	221	222	223	℄ Field Splice 10	224	225	226	227	228	229	230	231	232	233	234	℄ Field Splice 11	235
Girder No. 1	Elev. "M"	1417.743	1417.713	1417.691	1417.680	1417.685	1417.701	1417.726	1417.759	1417.798	1417.842	1417.859	1417.888	1417.935	1417.981	1418.024	1418.062	1418.095	1418.098	1418.121	1418.138	1418.147	1418.147	1418.138	1418.120	1418.094	1418.060	1418.020	1417.974	1417.924	1417.892	1417.874
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 2	Elev. "M"	1417.956	1417.926	1417.904	1417.893	1417.899	1417.914	1417.939	1417.972	1418.012	1418.056	1418.072	1418.102	1418.149	1418.194	1418.237	1418.276	1418.308	1418.312	1418.334	1418.351	1418.360	1418.360	1418.351	1418.334	1418.307	1418.274	1418.233	1418.187	1418.138	1418.105	1418.087
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1417.956	1417.926	1417.904	1417.893	1417.899	1417.914	1417.939	1417.972	1418.012	1418.056	1418.072	1418.102	1418.149	1418.194	1418.237	1418.276	1418.308	1418.312	1418.334	1418.351	1418.360	1418.360	1418.351	1418.334	1418.307	1418.274	1418.233	1418.187	1418.138	1418.105	1418.087
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 4	Elev. "M"	1417.743	1417.713	1417.691	1417.680	1417.685	1417.701	1417.726	1417.759	1417.798	1417.842	1417.859	1417.888	1417.935	1417.981	1418.024	1418.062	1418.095	1418.098	1418.121	1418.138	1418.147	1418.147	1418.138	1418.120	1418.094	1418.060	1418.020	1417.974	1417.924	1417.892	1417.874
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		236	237	238	239	240	241	242	243	244	245	246	℄ Field Splice 12	247	248	249	250	251	252	253	254	255	℄ Field Splice 13	256	257	258	259	260	261
Girder No. 1	Elev. "M"	1417.826	1417.781	1417.743	1417.713	1417.692	1417.680	1417.686	1417.706	1417.737	1417.777	1417.823	1417.849	1417.871	1417.918	1417.961	1417.998	1418.027	1418.045	1418.051	1418.044	1418.024	1418.007	1417.992	1417.947	1417.891	1417.826	1417.755	1417.680
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 2	Elev. "M"	1418.039	1417.995	1417.957	1417.927	1417.905	1417.893	1417.899	1417.919	1417.950	1417.990	1418.036	1418.063	1418.085	1418.132	1418.175	1418.212	1418.240	1418.258	1418.264	1418.257	1418.238	1418.220	1418.205	1418.160	1418.104	1418.040	1417.968	1417.893
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 3	Elev. "M"	1418.039	1417.995	1417.957	1417.927	1417.905	1417.893	1417.899	1417.919	1417.950	1417.990	1418.036	1418.063	1418.085	1418.132	1418.175	1418.212	1418.240	1418.258	1418.264	1418.257	1418.238	1418.220	1418.205	1418.160	1418.104	1418.040	1417.968	1417.893
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 4	Elev. "M"	1417.826	1417.781	1417.743	1417.713	1417.692	1417.680	1417.686	1417.706	1417.737	1417.777	1417.823	1417.849	1417.871	1417.918	1417.961	1417.998	1418.027	1418.045	1418.051	1418.044	1418.024	1418.007	1417.992	1417.947	1417.891	1417.826	1417.755	1417.680
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												



* *If during construction, it is found that this dimension will be exceeded or is less than zero, corrective measures must be taken as approved by the Engineer.*

NOTES:

1. *Refer to GIRDER LAYOUT & DETAILS sheet and CAMBER DATA sheets for additional information.*
2. *This table contains the necessary information to determine the depth of concrete in feet, over the girder at points shown. All calculations can be carried out in the space provided.*
3. *Elevation "M" is theoretical top of slab elevation before any concrete has been poured. This elevation includes correction for deflection due to Dead Load above Girders (Deck and Barriers).*
4. *Elevation "N" is field measured elevation taken on top of the girders at points shown. This elevation must be taken after girder erection is complete, but prior to placing any of the slab concrete. Girders will not be supported by construction shoring while elevations are taken.*

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J. BREHM
SOUTH DAKOTA
01/04/2024

SLAB FORM ELEVATIONS - UNIT 2 (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

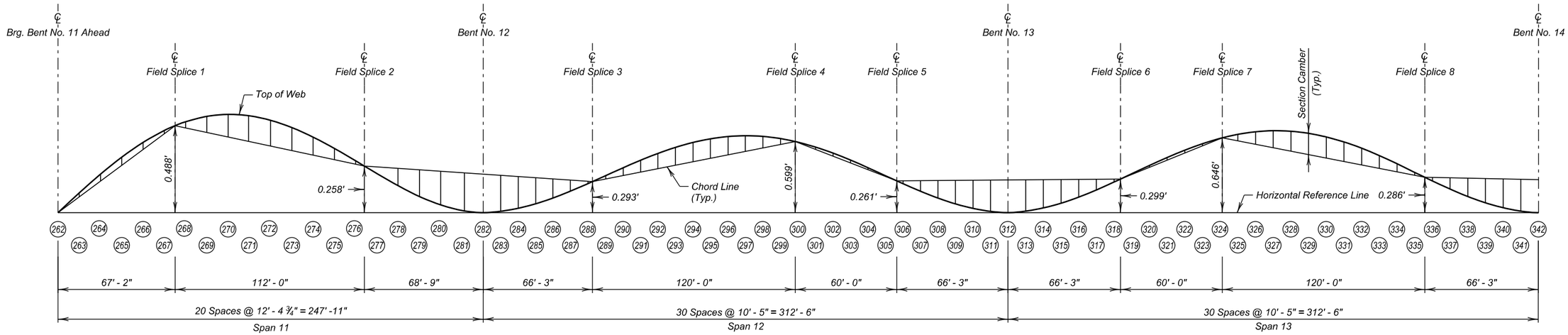
36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

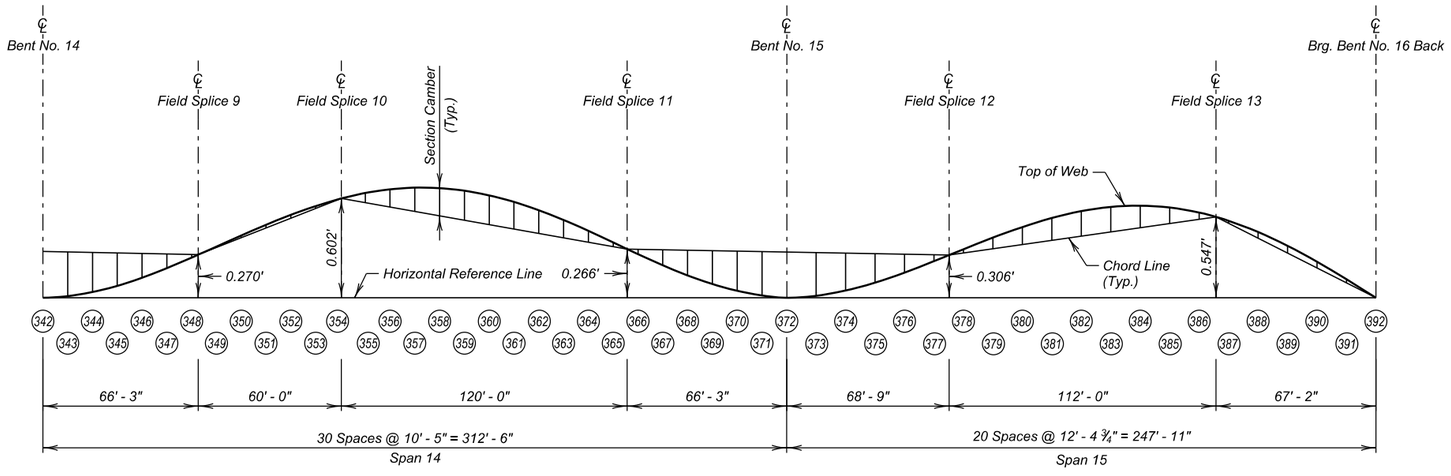
FOR BIDDING PURPOSES ONLY



CAMBER DIAGRAM - UNIT 3

NOTES:

See CAMBER DIAGRAM - UNIT 1 sheet for camber and deflection notes.



CAMBER DIAGRAM - UNIT 3

CAMBER DIAGRAM - UNIT 3

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E64	E86

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	262	263	264	265	266	267	℄ Field Splice 1	268	269	270	271	272	273	274	275	276	℄ Field Splice 2	277	278	279	280	281	282	283	284	285	286	287	288	℄ Field Splice 3	289
Girders No.1thru 4	Steel Deflection	0.000	-0.438	-0.855	-1.236	-1.567	-1.836	-1.929	-2.037	-2.164	-2.215	-2.192	-2.099	-1.941	-1.730	-1.477	-1.198	-1.068	-0.912	-0.637	-0.392	-0.197	-0.062	0.000	-0.039	-0.132	-0.269	-0.449	-0.660	-0.892	-0.978	-1.133
	Deck Deflection	0.000	-0.770	-1.501	-2.165	-2.736	-3.194	-3.349	-3.527	-3.727	-3.792	-3.725	-3.537	-3.242	-2.860	-2.420	-1.937	-1.712	-1.443	-0.973	-0.562	-0.251	-0.055	0.000	-0.123	-0.350	-0.662	-1.057	-1.517	-2.020	-2.207	-2.546
	Barrier Deflection	0.000	-0.130	-0.254	-0.367	-0.465	-0.545	-0.572	-0.605	-0.643	-0.659	-0.652	-0.625	-0.579	-0.517	-0.442	-0.359	-0.320	-0.273	-0.190	-0.116	-0.057	-0.017	0.000	-0.017	-0.051	-0.100	-0.161	-0.231	-0.307	-0.335	-0.385
	Total Deflection	0.000	-1.337	-2.610	-3.767	-4.767	-5.575	-5.850	-6.168	-6.534	-6.666	-6.570	-6.261	-5.762	-5.107	-4.338	-3.495	-3.101	-2.629	-1.800	-1.070	-0.506	-0.134	0.000	-0.179	-0.533	-1.031	-1.666	-2.408	-3.219	-3.520	-4.064
	Section Camber	0.000	0.257	0.451	0.528	0.448	0.176	0.000	0.495	1.165	1.601	1.810	1.805	1.610	1.260	0.795	0.256	0.000	-0.493	-1.360	-2.129	-2.732	-3.142	-3.314	-3.168	-2.846	-2.381	-1.778	-1.068	-0.290	0.000	0.340

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	290	291	292	293	294	295	296	297	298	299	℄ Field Splice 4	300	301	302	303	304	305	℄ Field Splice 5	306	307	308	309	310	311	312	313	314	315	316	317	318
Girders No.1thru 4	Steel Deflection	-1.375	-1.607	-1.819	-2.003	-2.153	-2.263	-2.331	-2.355	-2.333	-2.265	-2.171	-2.155	-2.006	-1.823	-1.612	-1.381	-1.139	-0.984	-0.897	-0.665	-0.453	-0.273	-0.135	-0.040	0.000	-0.044	-0.143	-0.285	-0.469	-0.684	-0.920
	Deck Deflection	-3.063	-3.540	-3.959	-4.307	-4.575	-4.755	-4.842	-4.834	-4.734	-4.544	-4.309	-4.272	-3.928	-3.524	-3.075	-2.600	-2.116	-1.810	-1.642	-1.191	-0.784	-0.447	-0.201	-0.045	0.000	-0.121	-0.350	-0.668	-1.076	-1.553	-2.073
	Barrier Deflection	-0.463	-0.536	-0.603	-0.661	-0.708	-0.743	-0.764	-0.771	-0.764	-0.743	-0.713	-0.708	-0.661	-0.603	-0.536	-0.463	-0.385	-0.335	-0.307	-0.231	-0.160	-0.099	-0.051	-0.017	0.000	-0.012	-0.043	-0.087	-0.144	-0.211	-0.284
	Total Deflection	-4.901	-5.683	-6.381	-6.971	-7.436	-7.761	-7.937	-7.960	-7.830	-7.552	-7.193	-7.136	-6.595	-5.950	-5.223	-4.443	-3.640	-3.129	-2.846	-2.087	-1.397	-0.820	-0.387	-0.102	0.000	-0.178	-0.536	-1.040	-1.689	-2.448	-3.276
	Section Camber	0.858	1.321	1.700	1.972	2.118	2.124	1.981	1.686	1.237	0.640	0.000	0.028	0.193	0.253	0.231	0.157	0.060	0.000	-0.296	-1.091	-1.816	-2.429	-2.898	-3.218	-3.356	-3.215	-2.892	-2.424	-1.811	-1.088	-0.295

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	℄ Field Splice 6	319	320	321	322	323	324	℄ Field Splice 7	325	326	327	328	329	330	331	332	333	334	335	℄ Field Splice 8	336	337	338	339	340	341	342	343	344	345	346
Girders No.1thru 4	Steel Deflection	-1.007	-1.164	-1.409	-1.643	-1.856	-2.042	-2.193	-2.208	-2.304	-2.372	-2.395	-2.372	-2.304	-2.193	-2.042	-1.856	-1.643	-1.409	-1.164	-1.007	-0.920	-0.684	-0.469	-0.285	-0.143	-0.044	0.000	-0.040	-0.135	-0.273	-0.453
	Deck Deflection	-2.266	-2.615	-3.164	-3.681	-4.140	-4.528	-4.832	-4.863	-5.046	-5.164	-5.184	-5.106	-4.932	-4.671	-4.330	-3.921	-3.458	-2.960	-2.445	-2.114	-1.931	-1.437	-0.986	-0.602	-0.307	-0.100	0.000	-0.064	-0.238	-0.501	-0.854
	Barrier Deflection	-0.311	-0.359	-0.434	-0.506	-0.571	-0.627	-0.673	-0.678	-0.707	-0.728	-0.734	-0.728	-0.707	-0.673	-0.627	-0.571	-0.506	-0.434	-0.359	-0.311	-0.284	-0.211	-0.144	-0.087	-0.043	-0.012	0.000	-0.017	-0.051	-0.099	-0.160
	Total Deflection	-3.584	-4.139	-5.008	-5.830	-6.568	-7.197	-7.698	-7.749	-8.057	-8.264	-8.314	-8.205	-7.943	-7.537	-6.999	-6.348	-5.607	-4.804	-3.969	-3.432	-3.134	-2.332	-1.599	-0.974	-0.493	-0.157	0.000	-0.122	-0.424	-0.874	-1.468
	Section Camber	0.000	0.092	0.238	0.337	0.351	0.258	0.036	0.000	0.638	1.220	1.644	1.910	2.023	1.991	1.828	1.552	1.186	0.757	0.297	0.000	-0.293	-1.079	-1.798	-2.407	-2.873	-3.194	-3.336	-3.199	-2.881	-2.416	-1.807

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	347	348	℄ Field Splice 9	349	350	351	352	353	354	℄ Field Splice 10	355	356	357	358	359	360	361	362	363	364	365	℄ Field Splice 11	366	367	368	369	370	371	372	373	374
Girders No.1thru 4	Steel Deflection	-0.665	-0.897	-0.984	-1.139	-1.381	-1.612	-1.823	-2.006	-2.155	-2.171	-2.265	-2.333	-2.355	-2.331	-2.263	-2.153	-2.003	-1.819	-1.607	-1.375	-1.133	-0.978	-0.892	-0.660	-0.449	-0.269	-0.132	-0.039	0.000	-0.062	-0.197
	Deck Deflection	-1.278	-1.746	-1.921	-2.238	-2.740	-3.218	-3.650	-4.019	-4.315	-4.345	-4.529	-4.654	-4.687	-4.628	-4.478	-4.244	-3.932	-3.555	-3.126	-2.661	-2.180	-1.874	-1.703	-1.247	-0.833	-0.486	-0.226	-0.057	0.000	-0.148	-0.447
	Barrier Deflection	-0.231	-0.307	-0.335	-0.385	-0.463	-0.536	-0.603	-0.661	-0.708	-0.713	-0.743	-0.764	-0.771	-0.764	-0.743	-0.708	-0.661	-0.603	-0.536	-0.463	-0.385	-0.335	-0.307	-0.231	-0.161	-0.100	-0.051	-0.017	0.000	-0.017	-0.057
	Total Deflection	-2.174	-2.950	-3.239	-3.762	-4.583	-5.366	-6.076	-6.687	-7.179	-7.229	-7.537	-7.751	-7.813	-7.723	-7.484	-7.105	-6.596	-5.977	-5.269	-4.499	-3.699	-3.187	-2.902	-2.138	-1.442	-0.855	-0.410	-0.113	0.000	-0.227	-0.701
	Section Camber	-1.086	-0.295	0.000	0.080	0.208	0.298	0.315	0.233	0.033	0.000	0.617	1.181	1.594	1.856	1.968	1.939	1.782	1.513	1.156	0.737	0.288	0.000	-0.298	-1.100	-1.833	-2.458	-2.941	-3.276	-3.426	-3.244	-2.815

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	375	376	377	℄ Field Splice 12	378	379	380	381	382	383	384	385	386	℄ Field Splice 13	387	388	389	390	391	392
Girders No.1thru 4	Steel Deflection	-0.392	-0.637	-0.912	-1.068	-1.198	-1.477	-1.730	-1.941	-2.099	-2.192	-2.215	-2.164	-2.037	-1.929	-1.836	-1.567	-1.236	-0.855	-0.438	0.000
	Deck Deflection	-0.866	-1.387	-1.963	-2.287	-2.557	-3.150	-3.696	-4.144	-4.471	-4.659	-4.696	-4.575	-4.296	-4.063	-3.865	-3.291	-2.593	-1.792	-0.917	0.000
	Barrier Deflection	-0.116	-0.190	-0.273	-0.320	-0.359	-0.442	-0.517	-0.579	-0.625	-0.652	-0.659	-0.643	-0.605	-0.572	-0.545	-0.465	-0.367	-0.254	-0.130	0.000
	Total Deflection	-1.374	-2.214	-3.149	-3.675	-4.114	-5.069	-5.942	-6.664	-7.195	-7.504	-7.570	-7.381	-6.937	-6.564	-6.245	-5.323	-4.196	-2.901	-1.484	0.000
	Section Camber	-2.187	-1.391	-0.502	0.000	0.294	0.929	1.483	1.885	2.096	2.085	1.831	1.323	0.559	0.000	0.188	0.477	0.561	0.478	0.273	0.000

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

CAMBER DATA - UNIT 3

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E65	E86

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		262	263	264	265	266	267	℄ Field Splice 1	268	269	270	271	272	273	274	275	276	℄ Field Splice 2	277	278	279	280	281	282	283	284	285	286	287	288	℄ Field Splice 3	289
Girder No. 1	Elev. "M"	1417.680	1417.755	1417.826	1417.891	1417.947	1417.992	1418.007	1418.024	1418.044	1418.051	1418.045	1418.027	1417.998	1417.961	1417.918	1417.871	1417.849	1417.823	1417.777	1417.737	1417.706	1417.686	1417.680	1417.692	1417.713	1417.743	1417.781	1417.826	1417.874	1417.892	1417.924
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
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Girder No. 2	Elev. "M"	1417.893	1417.968	1418.040	1418.104	1418.160	1418.205	1418.220	1418.238	1418.257	1418.264	1418.258	1418.240	1418.212	1418.175	1418.132	1418.085	1418.063	1418.036	1417.990	1417.950	1417.919	1417.899	1417.893	1417.905	1417.927	1417.957	1417.995	1418.039	1418.087	1418.105	1418.138
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1417.893	1417.968	1418.040	1418.104	1418.160	1418.205	1418.220	1418.238	1418.257	1418.264	1418.258	1418.240	1418.212	1418.175	1418.132	1418.085	1418.063	1418.036	1417.990	1417.950	1417.919	1417.899	1417.893	1417.905	1417.927	1417.957	1417.995	1418.039	1418.087	1418.105	1418.138
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 4	Elev. "M"	1417.680	1417.755	1417.826	1417.891	1417.947	1417.992	1418.007	1418.024	1418.044	1418.051	1418.045	1418.027	1417.998	1417.961	1417.918	1417.871	1417.849	1417.823	1417.777	1417.737	1417.706	1417.686	1417.680	1417.692	1417.713	1417.743	1417.781	1417.826	1417.874	1417.892	1417.924
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		290	291	292	293	294	295	296	297	298	299	℄ Field Splice 4	300	301	302	303	304	305	℄ Field Splice 5	306	307	308	309	310	311	312	313	314	315	316	317	318
Girder No. 1	Elev. "M"	1417.974	1418.020	1418.060	1418.094	1418.120	1418.138	1418.147	1418.147	1418.138	1418.121	1418.098	1418.095	1418.062	1418.024	1417.981	1417.935	1417.888	1417.859	1417.842	1417.798	1417.759	1417.726	1417.701	1417.685	1417.680	1417.691	1417.713	1417.743	1417.782	1417.827	1417.876
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 2	Elev. "M"	1418.187	1418.233	1418.274	1418.307	1418.334	1418.351	1418.360	1418.360	1418.351	1418.334	1418.312	1418.308	1418.276	1418.237	1418.194	1418.149	1418.102	1418.072	1418.056	1418.012	1417.972	1417.939	1417.914	1417.899	1417.893	1417.904	1417.926	1417.956	1417.995	1418.040	1418.090
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1418.187	1418.233	1418.274	1418.307	1418.334	1418.351	1418.360	1418.360	1418.351	1418.334	1418.312	1418.308	1418.276	1418.237	1418.194	1418.149	1418.102	1418.072	1418.056	1418.012	1417.972	1417.939	1417.914	1417.899	1417.893	1417.904	1417.926	1417.956	1417.995	1418.040	1418.090
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 4	Elev. "M"	1417.974	1418.020	1418.060	1418.094	1418.120	1418.138	1418.147	1418.147	1418.138	1418.121	1418.098	1418.095	1418.062	1418.024	1417.981	1417.935	1417.888	1417.859	1417.842	1417.798	1417.759	1417.726	1417.701	1417.685	1417.680	1417.691	1417.713	1417.743	1417.782	1417.827	1417.876
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		℄ Field Splice 6	319	320	321	322	323	324	℄ Field Splice 7	325	326	327	328	329	330	331	332	333	334	335	℄ Field Splice 8	336	337	338
Girder No. 1	Elev. "M"	1417.895	1417.928	1417.980	1418.029	1418.073	1418.110	1418.139	1418.142	1418.159	1418.171	1418.173	1418.166	1418.150	1418.125	1418.093	1418.054	1418.010	1417.963	1417.914	1417.882	1417.865	1417.817	1417.774
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 2	Elev. "M"	1418.108	1418.141	1418.193	1418.242	1418.286	1418.323	1418.352	1418.355	1418.373	1418.384	1418.387	1418.379	1418.363	1418.339	1418.306	1418.268	1418.224	1418.176	1418.127	1418.095	1418.078	1418.031	1417.987
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 3	Elev. "M"	1418.108	1418.141	1418.193	1418.242	1418.286	1418.323	1418.352	1418.355	1418.373	1418.384	1418.387	1418.379	1418.363	1418.339	1418.306	1418.268	1418.224	1418.176	1418.127	1418.095	1418.078	1418.031	1417.987
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 4	Elev. "M"	1417.895	1417.928	1417.980	1418.029	1418.073	1418.110	1418.139	1418.142	1418.159	1418.171	1418.173	1418.166	1418.150	1418.125	1418.093	1418.054	1418.010	1417.963	1417.914	1417.882	1417.865	1417.817	1417.774
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

SLAB FORM ELEVATIONS - UNIT 3 (A)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

63 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E66	E86

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		339	340	341	342	343	344	345	346	347	348	℄ Field Splice 9	349	350	351	352	353	354	℄ Field Splice 10	355	356	357	358	359	360	361	362	363	364	365	℄ Field Splice 11	366
Girder No. 1	Elev. "M"	1417.737	1417.709	1417.689	1417.680	1417.687	1417.704	1417.730	1417.765	1417.806	1417.851	1417.868	1417.899	1417.947	1417.993	1418.034	1418.070	1418.099	1418.102	1418.119	1418.132	1418.135	1418.129	1418.115	1418.093	1418.063	1418.027	1417.985	1417.940	1417.894	1417.864	1417.848
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 2	Elev. "M"	1417.951	1417.922	1417.903	1417.893	1417.900	1417.917	1417.943	1417.978	1418.019	1418.064	1418.081	1418.112	1418.160	1418.206	1418.248	1418.283	1418.312	1418.315	1418.333	1418.345	1418.348	1418.343	1418.328	1418.306	1418.276	1418.240	1418.199	1418.154	1418.107	1418.077	1418.061
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1417.951	1417.922	1417.903	1417.893	1417.900	1417.917	1417.943	1417.978	1418.019	1418.064	1418.081	1418.112	1418.160	1418.206	1418.248	1418.283	1418.312	1418.315	1418.333	1418.345	1418.348	1418.343	1418.328	1418.306	1418.276	1418.240	1418.199	1418.154	1418.107	1418.077	1418.061
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
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Girder No. 4	Elev. "M"	1417.737	1417.709	1417.689	1417.680	1417.687	1417.704	1417.730	1417.765	1417.806	1417.851	1417.868	1417.899	1417.947	1417.993	1418.034	1418.070	1418.099	1418.102	1418.119	1418.132	1418.135	1418.129	1418.115	1418.093	1418.063	1418.027	1417.985	1417.940	1417.894	1417.864	1417.848
	(-) Elev. "N"																															
	(=) d																															
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TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		367	368	369	370	371	372	373	374	375	376	377	℄ Field Splice 12	378	379	380	381	382	383	384	385	386	℄ Field Splice 13	387	388	389	390	391	392
Girder No. 1	Elev. "M"	1417.803	1417.763	1417.729	1417.703	1417.686	1417.680	1417.694	1417.722	1417.762	1417.811	1417.866	1417.897	1417.923	1417.979	1418.031	1418.074	1418.105	1418.123	1418.126	1418.115	1418.088	1418.066	1418.047	1417.993	1417.927	1417.850	1417.767	1417.680
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 2	Elev. "M"	1418.017	1417.976	1417.942	1417.916	1417.899	1417.893	1417.907	1417.935	1417.975	1418.025	1418.080	1418.111	1418.136	1418.193	1418.244	1418.287	1418.318	1418.336	1418.340	1418.328	1418.302	1418.280	1418.261	1418.206	1418.140	1418.064	1417.981	1417.893
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 3	Elev. "M"	1418.017	1417.976	1417.942	1417.916	1417.899	1417.893	1417.907	1417.935	1417.975	1418.025	1418.080	1418.111	1418.136	1418.193	1418.244	1418.287	1418.318	1418.336	1418.340	1418.328	1418.302	1418.280	1418.261	1418.206	1418.140	1418.064	1417.981	1417.893
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 4	Elev. "M"	1417.803	1417.763	1417.729	1417.703	1417.686	1417.680	1417.694	1417.722	1417.762	1417.811	1417.866	1417.897	1417.923	1417.979	1418.031	1418.074	1418.105	1418.123	1418.126	1418.115	1418.088	1418.066	1418.047	1417.993	1417.927	1417.850	1417.767	1417.680
	(-) Elev. "N"																												
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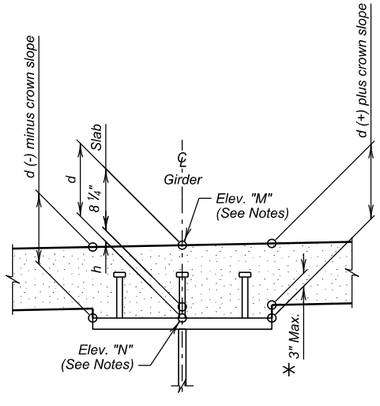


* If during construction, it is found that this dimension will be exceeded or is less than zero, corrective measures must be taken as approved by the Engineer.

NOTES:

1. Refer to GIRDER LAYOUT & DETAILS sheet and CAMBER DATA sheets for additional information.

2. This table contains the necessary information to determine the depth of concrete in feet, over the girder at points shown. All calculations can be carried out in the space provided.

3. Elevation "M" is theoretical top of slab elevation before any concrete has been poured. This elevation includes correction for deflection due to Dead Load above Girders (Deck and Barriers).

4. Elevation "N" is field measured elevation taken on top of the girders at points shown. This elevation must be taken after girder erection is complete, but prior to placing any of the slab concrete. Girders will not be supported by construction shoring while elevations are taken.

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J. BREHM
SOUTH DAKOTA
01/04/2024

SLAB FORM ELEVATIONS - UNIT 3 (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

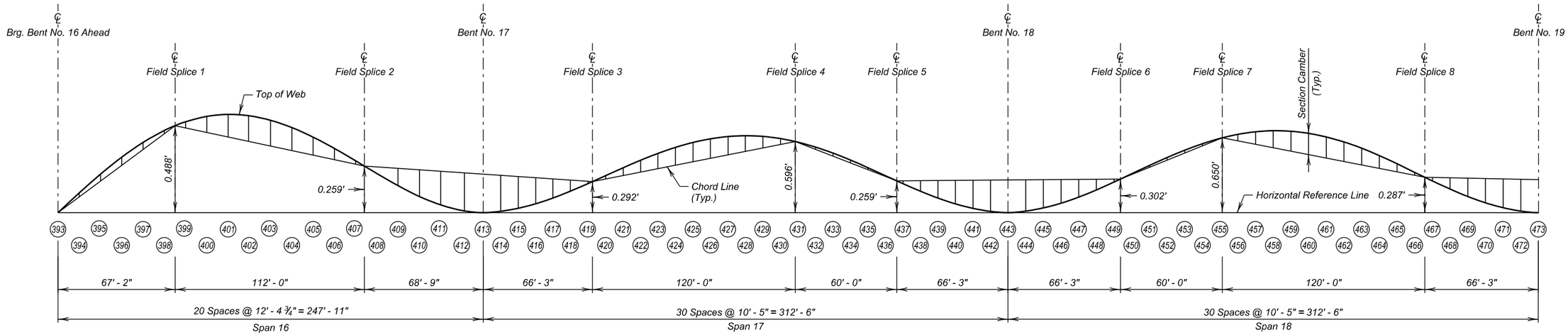
36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

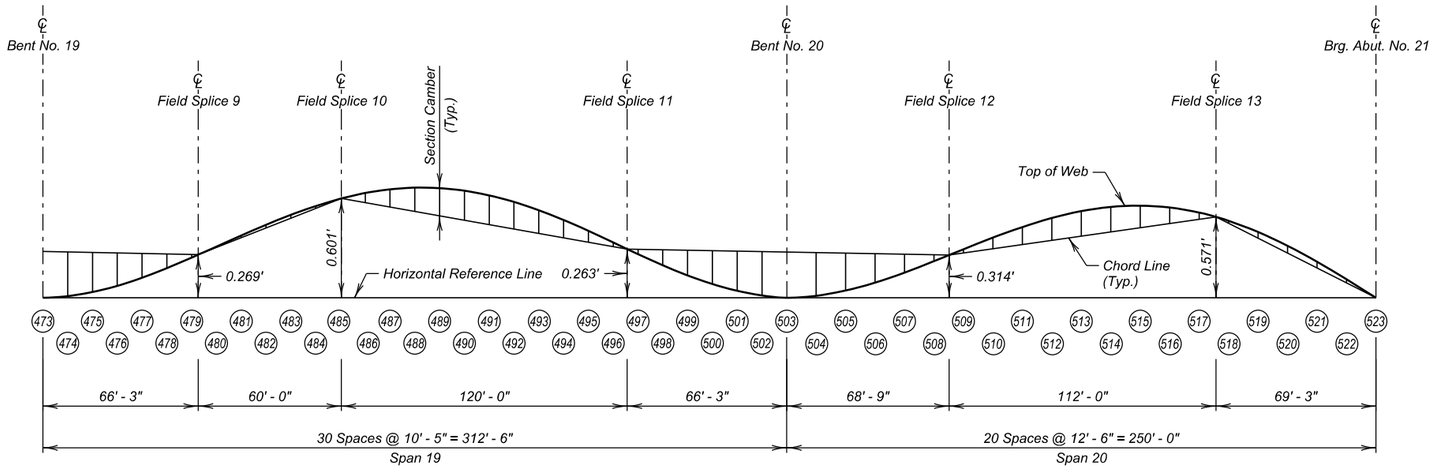
FOR BIDDING PURPOSES ONLY



CAMBER DIAGRAM - UNIT 4

NOTES:

See CAMBER DIAGRAM - UNIT 1 sheet for camber and deflection notes.



CAMBER DIAGRAM - UNIT 4

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

CAMBER DIAGRAM - UNIT 4
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
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DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E68	E86

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	393	394	395	396	397	398	℄ Field Splice 1	399	400	401	402	403	404	405	406	407	℄ Field Splice 2	408	409	410	411	412	413	414	415	416	417	418	419	℄ Field Splice 3	420
Girders No.1thru 4	Steel Deflection	0.000	-0.438	-0.855	-1.236	-1.567	-1.836	-1.929	-2.037	-2.164	-2.216	-2.193	-2.099	-1.941	-1.730	-1.477	-1.198	-1.068	-0.912	-0.637	-0.392	-0.197	-0.062	0.000	-0.039	-0.132	-0.269	-0.449	-0.660	-0.892	-0.978	-1.133
	Deck Deflection	0.000	-0.772	-1.506	-2.172	-2.744	-3.204	-3.360	-3.539	-3.740	-3.806	-3.740	-3.552	-3.257	-2.876	-2.434	-1.950	-1.724	-1.454	-0.982	-0.569	-0.256	-0.058	0.000	-0.121	-0.346	-0.657	-1.050	-1.508	-2.009	-2.195	-2.532
	Barrier Deflection	0.000	-0.130	-0.253	-0.366	-0.464	-0.544	-0.572	-0.604	-0.642	-0.658	-0.652	-0.625	-0.579	-0.516	-0.441	-0.359	-0.320	-0.273	-0.190	-0.116	-0.057	-0.017	0.000	-0.017	-0.051	-0.099	-0.160	-0.230	-0.306	-0.334	-0.384
	Total Deflection	0.000	-1.339	-2.614	-3.774	-4.775	-5.585	-5.861	-6.180	-6.547	-6.680	-6.585	-6.276	-5.777	-5.122	-4.352	-3.507	-3.112	-2.640	-1.809	-1.077	-0.510	-0.136	0.000	-0.177	-0.530	-1.025	-1.659	-2.398	-3.206	-3.507	-4.049
	Section Camber	0.000	0.257	0.451	0.529	0.448	0.176	0.000	0.496	1.167	1.604	1.813	1.809	1.614	1.263	0.797	0.257	0.000	-0.492	-1.359	-2.128	-2.730	-3.141	-3.313	-3.167	-2.844	-2.379	-1.776	-1.067	-0.290	0.000	0.339

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	421	422	423	424	425	426	427	428	429	430	℄ Field Splice 4	431	432	433	434	435	436	℄ Field Splice 5	437	438	439	440	441	442	443	444	445	446	447	448	449
Girders No.1thru 4	Steel Deflection	-1.375	-1.607	-1.818	-2.002	-2.152	-2.263	-2.331	-2.354	-2.332	-2.265	-2.170	-2.155	-2.006	-1.823	-1.611	-1.380	-1.139	-0.983	-0.897	-0.665	-0.453	-0.273	-0.135	-0.040	0.000	-0.045	-0.143	-0.286	-0.470	-0.686	-0.921
	Deck Deflection	-3.047	-3.520	-3.937	-4.283	-4.548	-4.726	-4.811	-4.802	-4.700	-4.510	-4.275	-4.239	-3.895	-3.492	-3.046	-2.574	-2.094	-1.790	-1.622	-1.174	-0.771	-0.437	-0.194	-0.042	0.000	-0.125	-0.358	-0.681	-1.094	-1.577	-2.103
	Barrier Deflection	-0.461	-0.535	-0.601	-0.659	-0.706	-0.741	-0.762	-0.769	-0.762	-0.741	-0.711	-0.706	-0.659	-0.601	-0.535	-0.461	-0.384	-0.334	-0.306	-0.230	-0.160	-0.099	-0.051	-0.017	0.000	-0.012	-0.043	-0.087	-0.144	-0.211	-0.284
	Total Deflection	-4.883	-5.662	-6.357	-6.944	-7.407	-7.729	-7.904	-7.925	-7.794	-7.516	-7.156	-7.100	-6.560	-5.916	-5.192	-4.416	-3.616	-3.107	-2.825	-2.069	-1.383	-0.809	-0.380	-0.099	0.000	-0.182	-0.544	-1.054	-1.708	-2.473	-3.308
	Section Camber	0.857	1.319	1.697	1.968	2.113	2.119	1.977	1.681	1.233	0.638	0.000	0.028	0.191	0.250	0.229	0.156	0.060	0.000	-0.297	-1.093	-1.818	-2.433	-2.902	-3.224	-3.363	-3.221	-2.899	-2.429	-1.816	-1.091	-0.296

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	℄ Field Splice 6	450	451	452	453	454	455	℄ Field Splice 7	456	457	458	459	460	461	462	463	464	465	466	℄ Field Splice 8	467	468	469	470	471	472	473	474	475	476	477
Girders No.1thru 4	Steel Deflection	-1.009	-1.167	-1.412	-1.646	-1.860	-2.046	-2.198	-2.213	-2.310	-2.378	-2.402	-2.379	-2.311	-2.200	-2.049	-1.864	-1.650	-1.416	-1.171	-1.014	-0.926	-0.690	-0.474	-0.289	-0.146	-0.046	0.000	-0.039	-0.132	-0.268	-0.446
	Deck Deflection	-2.299	-2.652	-3.207	-3.726	-4.187	-4.576	-4.881	-4.911	-5.094	-5.211	-5.229	-5.149	-4.973	-4.707	-4.362	-3.949	-3.481	-2.977	-2.457	-2.124	-1.939	-1.442	-0.989	-0.604	-0.308	-0.100	0.000	-0.064	-0.238	-0.501	-0.855
	Barrier Deflection	-0.311	-0.359	-0.434	-0.506	-0.571	-0.627	-0.673	-0.678	-0.707	-0.728	-0.735	-0.728	-0.707	-0.674	-0.628	-0.572	-0.507	-0.435	-0.360	-0.312	-0.285	-0.212	-0.145	-0.088	-0.043	-0.013	0.000	-0.016	-0.050	-0.098	-0.159
	Total Deflection	-3.618	-4.178	-5.053	-5.878	-6.618	-7.249	-7.752	-7.802	-8.111	-8.317	-8.366	-8.256	-7.991	-7.581	-7.040	-6.384	-5.638	-4.829	-3.989	-3.449	-3.149	-2.344	-1.607	-0.981	-0.497	-0.159	0.000	-0.120	-0.420	-0.868	-1.459
	Section Camber	0.000	0.095	0.244	0.342	0.356	0.260	0.036	0.000	0.641	1.225	1.652	1.919	2.033	2.001	1.837	1.560	1.192	0.760	0.298	0.000	-0.293	-1.081	-1.800	-2.409	-2.875	-3.196	-3.337	-3.200	-2.881	-2.416	-1.807

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	478	479	℄ Field Splice 9	480	481	482	483	484	485	℄ Field Splice 10	486	487	488	489	490	491	492	493	494	495	496	℄ Field Splice 11	497	498	499	500	501	502	503	504	505
Girders No.1thru 4	Steel Deflection	-0.656	-0.886	-0.971	-1.125	-1.364	-1.593	-1.802	-1.983	-2.130	-2.145	-2.238	-2.303	-2.323	-2.299	-2.230	-2.118	-1.968	-1.785	-1.574	-1.344	-1.104	-0.950	-0.865	-0.636	-0.428	-0.253	-0.121	-0.033	0.000	-0.071	-0.216
	Deck Deflection	-1.278	-1.747	-1.922	-2.240	-2.742	-3.224	-3.659	-4.033	-4.333	-4.364	-4.550	-4.679	-4.715	-4.657	-4.509	-4.274	-3.962	-3.582	-3.148	-2.677	-2.188	-1.876	-1.704	-1.242	-0.826	-0.478	-0.220	-0.053	0.000	-0.156	-0.465
	Barrier Deflection	-0.228	-0.304	-0.332	-0.381	-0.458	-0.531	-0.597	-0.655	-0.701	-0.706	-0.735	-0.756	-0.762	-0.755	-0.733	-0.699	-0.652	-0.594	-0.527	-0.454	-0.377	-0.327	-0.299	-0.224	-0.155	-0.095	-0.048	-0.015	0.000	-0.019	-0.063
	Total Deflection	-2.163	-2.936	-3.225	-3.746	-4.565	-5.348	-6.058	-6.670	-7.164	-7.214	-7.523	-7.737	-7.800	-7.711	-7.472	-7.091	-6.582	-5.960	-5.249	-4.474	-3.669	-3.153	-2.867	-2.102	-1.408	-0.826	-0.389	-0.101	0.000	-0.246	-0.744
	Section Camber	-1.086	-0.295	0.000	0.078	0.204	0.295	0.313	0.232	0.033	0.000	0.619	1.186	1.602	1.865	1.978	1.950	1.793	1.524	1.165	0.743	0.290	0.000	-0.303	-1.116	-1.857	-2.487	-2.972	-3.307	-3.456	-3.268	-2.827

GIRDER DEFLECTION AND CAMBER TABLE (inches)

	Camber Data / Points	506	507	508	℄ Field Splice 12	509	510	511	512	513	514	515	516	517	℄ Field Splice 13	518	519	520	521	522	523
Girders No.1thru 4	Steel Deflection	-0.423	-0.681	-0.969	-1.118	-1.267	-1.557	-1.819	-2.038	-2.200	-2.296	-2.318	-2.262	-2.128	-2.040	-1.917	-1.635	-1.290	-0.892	-0.456	0.000
	Deck Deflection	-0.897	-1.430	-2.018	-2.318	-2.621	-3.218	-3.771	-4.230	-4.565	-4.758	-4.798	-4.676	-4.392	-4.209	-3.953	-3.367	-2.653	-1.834	-0.938	0.000
	Barrier Deflection	-0.126	-0.204	-0.291	-0.335	-0.380	-0.466	-0.544	-0.608	-0.656	-0.684	-0.689	-0.672	-0.632	-0.606	-0.569	-0.485	-0.383	-0.265	-0.136	0.000
	Total Deflection	-1.445	-2.315	-3.277	-3.771	-4.268	-5.241	-6.134	-6.876	-7.421	-7.738	-7.805	-7.611	-7.153	-6.855	-6.439	-5.488	-4.326	-2.991	-1.530	0.000
	Section Camber	-2.183	-1.371	-0.466	0.000	0.324	0.954	1.503	1.900	2.101	2.074	1.796	1.258	0.456	0.000	0.252	0.538	0.614	0.516	0.293	0.000

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

CAMBER DATA - UNIT 4

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

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GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

66 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E69	E86

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		393	394	395	396	397	398	℄ Field Splice 1	399	400	401	402	403	404	405	406	407	℄ Field Splice 2	408	409	410	411	412	413	414	415	416	417	418	419	℄ Field Splice 3	420
Girder No. 1	Elev. "M"	1417.680	1417.755	1417.827	1417.891	1417.947	1417.992	1418.008	1418.025	1418.045	1418.052	1418.046	1418.028	1418.000	1417.963	1417.920	1417.872	1417.850	1417.824	1417.778	1417.737	1417.706	1417.686	1417.680	1417.691	1417.713	1417.743	1417.781	1417.825	1417.873	1417.891	1417.923
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 2	Elev. "M"	1417.893	1417.968	1418.040	1418.105	1418.161	1418.206	1418.221	1418.239	1418.259	1418.265	1418.259	1418.241	1418.213	1418.176	1418.133	1418.086	1418.064	1418.037	1417.991	1417.950	1417.919	1417.900	1417.893	1417.905	1417.926	1417.956	1417.994	1418.038	1418.086	1418.104	1418.136
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1417.893	1417.968	1418.040	1418.105	1418.161	1418.206	1418.221	1418.239	1418.259	1418.265	1418.259	1418.241	1418.213	1418.176	1418.133	1418.086	1418.064	1418.037	1417.991	1417.950	1417.919	1417.900	1417.893	1417.905	1417.926	1417.956	1417.994	1418.038	1418.086	1418.104	1418.136
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 4	Elev. "M"	1417.680	1417.755	1417.827	1417.891	1417.947	1417.992	1418.008	1418.025	1418.045	1418.052	1418.046	1418.028	1418.000	1417.963	1417.920	1417.872	1417.850	1417.824	1417.778	1417.737	1417.706	1417.686	1417.680	1417.691	1417.713	1417.743	1417.781	1417.825	1417.873	1417.891	1417.923
	(-) Elev. "N"																															
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TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		421	422	423	424	425	426	427	428	429	430	℄ Field Splice 4	431	432	433	434	435	436	℄ Field Splice 5	437	438	439	440	441	442	443	444	445	446	447	448	449
Girder No. 1	Elev. "M"	1417.972	1418.018	1418.058	1418.092	1418.118	1418.136	1418.144	1418.144	1418.135	1418.118	1418.096	1418.092	1418.060	1418.021	1417.978	1417.933	1417.886	1417.857	1417.841	1417.797	1417.758	1417.725	1417.700	1417.685	1417.680	1417.691	1417.713	1417.744	1417.783	1417.829	1417.879
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 2	Elev. "M"	1418.186	1418.231	1418.272	1418.305	1418.331	1418.349	1418.358	1418.358	1418.349	1418.331	1418.309	1418.305	1418.273	1418.234	1418.192	1418.146	1418.100	1418.070	1418.054	1418.010	1417.971	1417.938	1417.914	1417.898	1417.893	1417.905	1417.927	1417.957	1417.997	1418.042	1418.092
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1418.186	1418.231	1418.272	1418.305	1418.331	1418.349	1418.358	1418.358	1418.349	1418.331	1418.309	1418.305	1418.273	1418.234	1418.192	1418.146	1418.100	1418.070	1418.054	1418.010	1417.971	1417.938	1417.914	1417.898	1417.893	1417.905	1417.927	1417.957	1417.997	1418.042	1418.092
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 4	Elev. "M"	1417.972	1418.018	1418.058	1418.092	1418.118	1418.136	1418.144	1418.144	1418.135	1418.118	1418.096	1418.092	1418.060	1418.021	1417.978	1417.933	1417.886	1417.857	1417.841	1417.797	1417.758	1417.725	1417.700	1417.685	1417.680	1417.691	1417.713	1417.744	1417.783	1417.829	1417.879
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		℄ Field Splice 6	450	451	452	453	454	455	℄ Field Splice 7	456	457	458	459	460	461	462	463	464	465	466	℄ Field Splice 8	467	468	469
Girder No. 1	Elev. "M"	1417.897	1417.931	1417.983	1418.033	1418.076	1418.114	1418.143	1418.146	1418.163	1418.175	1418.177	1418.170	1418.153	1418.128	1418.096	1418.057	1418.012	1417.964	1417.915	1417.883	1417.865	1417.818	1417.774
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 2	Elev. "M"	1418.111	1418.144	1418.197	1418.246	1418.290	1418.327	1418.356	1418.359	1418.377	1418.388	1418.390	1418.383	1418.367	1418.342	1418.309	1418.270	1418.226	1418.178	1418.128	1418.096	1418.079	1418.031	1417.988
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 3	Elev. "M"	1418.111	1418.144	1418.197	1418.246	1418.290	1418.327	1418.356	1418.359	1418.377	1418.388	1418.390	1418.383	1418.367	1418.342	1418.309	1418.270	1418.226	1418.178	1418.128	1418.096	1418.079	1418.031	1417.988
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							
Girder No. 4	Elev. "M"	1417.897	1417.931	1417.983	1418.033	1418.076	1418.114	1418.143	1418.146	1418.163	1418.175	1418.177	1418.170	1418.153	1418.128	1418.096	1418.057	1418.012	1417.964	1417.915	1417.883	1417.865	1417.818	1417.774
	(-) Elev. "N"																							
	(=) d																							
	(-) 0.688																							
	(=) h																							

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

SLAB FORM ELEVATIONS - UNIT 4 (A)
FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

67 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

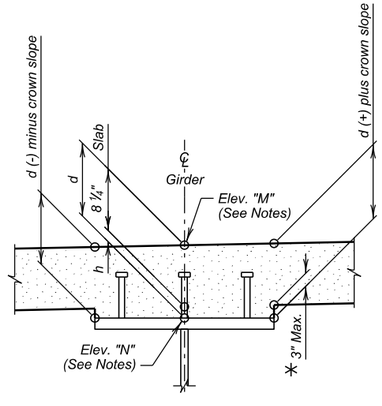
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E70	E86

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		470	471	472	473	474	475	476	477	478	479	℄ Field Splice 9	480	481	482	483	484	485	℄ Field Splice 10	486	487	488	489	490	491	492	493	494	495	496	℄ Field Splice 11	497
Girder No. 1	Elev. "M"	1417.738	1417.709	1417.689	1417.680	1417.687	1417.704	1417.730	1417.764	1417.806	1417.851	1417.868	1417.898	1417.947	1417.993	1418.035	1418.071	1418.099	1418.102	1418.120	1418.133	1418.136	1418.131	1418.117	1418.094	1418.064	1418.028	1417.986	1417.941	1417.894	1417.864	1417.847
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 2	Elev. "M"	1417.951	1417.923	1417.903	1417.893	1417.900	1417.917	1417.943	1417.978	1418.019	1418.064	1418.081	1418.112	1418.160	1418.206	1418.248	1418.284	1418.313	1418.316	1418.334	1418.346	1418.350	1418.344	1418.330	1418.308	1418.278	1418.241	1418.200	1418.154	1418.107	1418.077	1418.060
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 3	Elev. "M"	1417.951	1417.923	1417.903	1417.893	1417.900	1417.917	1417.943	1417.978	1418.019	1418.064	1418.081	1418.112	1418.160	1418.206	1418.248	1418.284	1418.313	1418.316	1418.334	1418.346	1418.350	1418.344	1418.330	1418.308	1418.278	1418.241	1418.200	1418.154	1418.107	1418.077	1418.060
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															
Girder No. 4	Elev. "M"	1417.738	1417.709	1417.689	1417.680	1417.687	1417.704	1417.730	1417.764	1417.806	1417.851	1417.868	1417.898	1417.947	1417.993	1418.035	1418.071	1418.099	1418.102	1418.120	1418.133	1418.136	1418.131	1418.117	1418.094	1418.064	1418.028	1417.986	1417.941	1417.894	1417.864	1417.847
	(-) Elev. "N"																															
	(=) d																															
	(-) 0.688																															
	(=) h																															

TABLE OF SLAB FORM ELEVATIONS & COMPUTATIONS

		498	499	500	501	502	503	504	505	506	507	508	℄ Field Splice 12	509	510	511	512	513	514	515	516	517	℄ Field Splice 13	518	519	520	521	522	523
Girder No. 1	Elev. "M"	1417.802	1417.762	1417.728	1417.702	1417.686	1417.680	1417.695	1417.724	1417.765	1417.816	1417.872	1417.901	1417.930	1417.987	1418.040	1418.083	1418.115	1418.134	1418.137	1418.126	1418.099	1418.081	1418.057	1418.001	1417.933	1417.855	1417.769	1417.680
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 2	Elev. "M"	1418.016	1417.975	1417.941	1417.916	1417.899	1417.893	1417.908	1417.937	1417.979	1418.029	1418.086	1418.114	1418.143	1418.200	1418.253	1418.297	1418.328	1418.347	1418.351	1418.339	1418.312	1418.295	1418.270	1418.214	1418.146	1418.068	1417.983	1417.893
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 3	Elev. "M"	1418.016	1417.975	1417.941	1417.916	1417.899	1417.893	1417.908	1417.937	1417.979	1418.029	1418.086	1418.114	1418.143	1418.200	1418.253	1418.297	1418.328	1418.347	1418.351	1418.339	1418.312	1418.295	1418.270	1418.214	1418.146	1418.068	1417.983	1417.893
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												
Girder No. 4	Elev. "M"	1417.802	1417.762	1417.728	1417.702	1417.686	1417.680	1417.695	1417.724	1417.765	1417.816	1417.872	1417.901	1417.930	1417.987	1418.040	1418.083	1418.115	1418.134	1418.137	1418.126	1418.099	1418.081	1418.057	1418.001	1417.933	1417.855	1417.769	1417.680
	(-) Elev. "N"																												
	(=) d																												
	(-) 0.688																												
	(=) h																												



* *If during construction, it is found that this dimension will be exceeded or is less than zero, corrective measures must be taken as approved by the Engineer.*

NOTES:

1. *Refer to GIRDER LAYOUT & DETAILS sheet and CAMBER DATA sheets for additional information.*
2. *This table contains the necessary information to determine the depth of concrete in feet, over the girder at points shown. All calculations can be carried out in the space provided.*
3. *Elevation "M" is theoretical top of slab elevation before any concrete has been poured. This elevation includes correction for deflection due to Dead Load above Girders (Deck and Barriers).*
4. *Elevation "N" is field measured elevation taken on top of the girders at points shown. This elevation must be taken after girder erection is complete, but prior to placing any of the slab concrete. Girders will not be supported by construction shoring while elevations are taken.*

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J. BREHM
SOUTH DAKOTA
01/04/2024

SLAB FORM ELEVATIONS - UNIT 4 (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

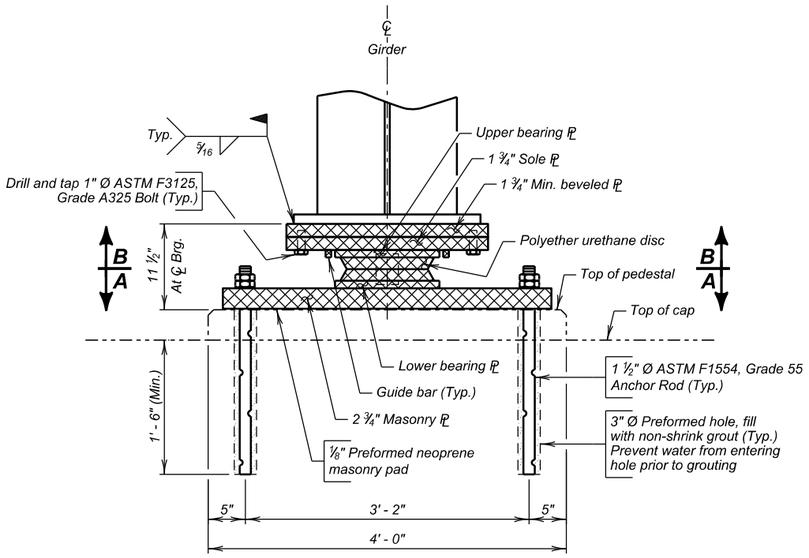
36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

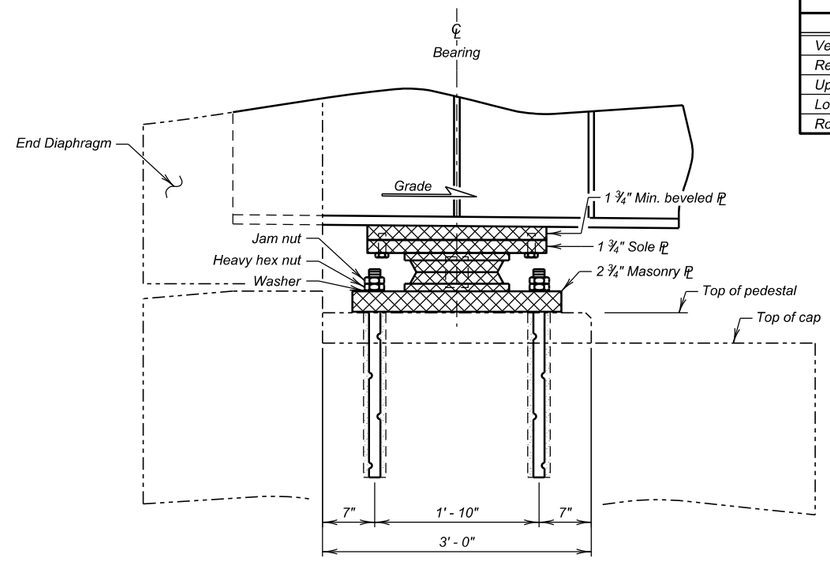
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY



ELEVATION - ABUTMENTS



SIDE ELEVATION - ABUTMENTS

LEGEND:

Indicates the parts of the bearing assembly to be designed and supplied by the bearing manufacturer within the parameters shown on these plans. Associated dimensions are estimates and subject to change per manufacturer's design.

BEARING CAPACITY REQUREMENTS

BEARING CAPACITY	SERVICE	STRENGTH	EXTREME EVENT
Vertical Load (kip)	395	575	315
Resultant Horizontal Load (kip)	25	35	80
Uplift Load (kip)	-	-	-
Longitudinal Displacement (in)	± 6.05		
Rotation (rad)	± 0.02		

ESTIMATED QUANTITES

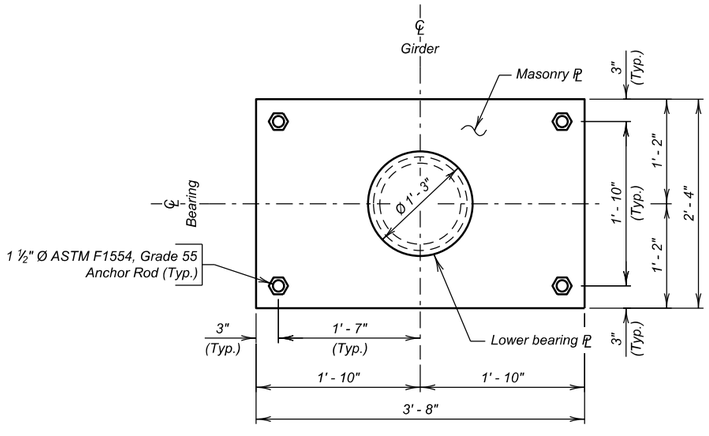
ITEM	UNIT	QUANTITY
Disc Bearing	Each	8

BEVELED PLATE SLOPE

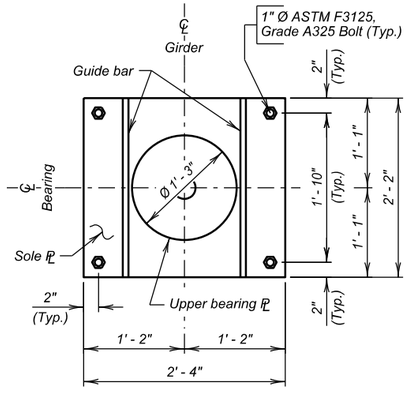
LOCATION	GRADE
Abut. No. 1	-0.9345%
Abut. No. 21	0.0000%

BEARING NOTES:

1. The bearing devices supplied will be capable of transmitting the loads and movements shown on these plans.
2. Bearings will be disc type, expansion bearings.
3. Bearing arrangement shown on these plans are for information only based on a preliminary design. Contractor is responsible for the final design of the bearing assembly, beveled plate, sole plate, masonry plate, and connection of the bearing assembly.
4. Contractor will submit detailed shop drawings of the bearing assembly to the engineer for review and approval. Design calculations, stamped by a Professional Engineer licensed in South Dakota, will be provided.
5. Unfilled PTFE will be recessed in upper bearing plate. Design coefficient of friction will not exceed 0.067, using a service dead load reaction of 240 kips.
6. The beveled load plate will be bolted to the sole plate to accommodate a future replacement.
7. Bearings must be designed to be replaced at any time after the bridge is completed. Masonry Plate should be detailed on the Shop Drawings to allow Bearing to pass between Anchor Bolts to allow replacement.
8. Bearings can be replaced under Live Load. Jacks are to be placed under the Jacking Stiffeners on each side of the Bearings. Beveled Plates will be used to ensure that the Jack is plumb duing lifting operations. Temporary shoring will be required to support jacks at the abutments.
9. For additional requirements, see Special Provision for Disc Bearings.



SEC. A - A



SEC. B - B

BEARING DETAILS (A)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

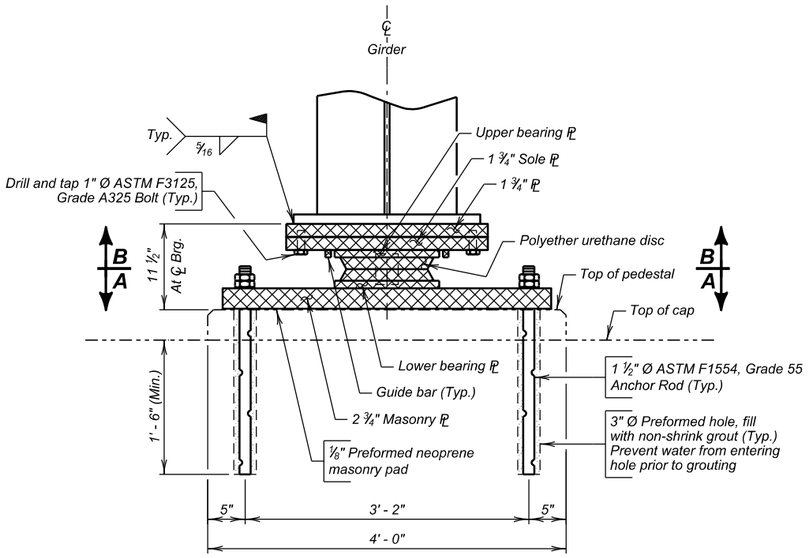
36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

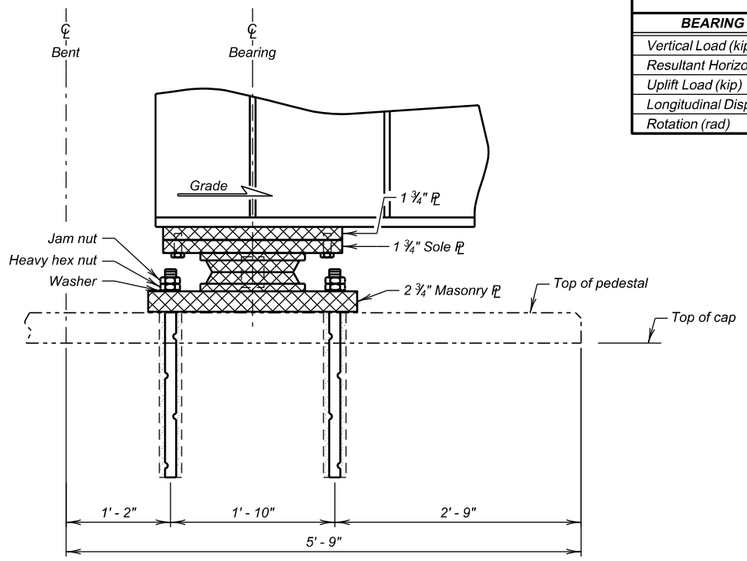
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY



ELEVATION - BENTS WITH EXPANSION JOINTS



SIDE ELEVATION - BENTS WITH EXPANSION JOINTS

LEGEND:

Indicates the parts of the bearing assembly to be designed and supplied by the bearing manufacturer within the parameters shown on these plans. Associated dimensions are estimates and subject to change per manufacturer's design.

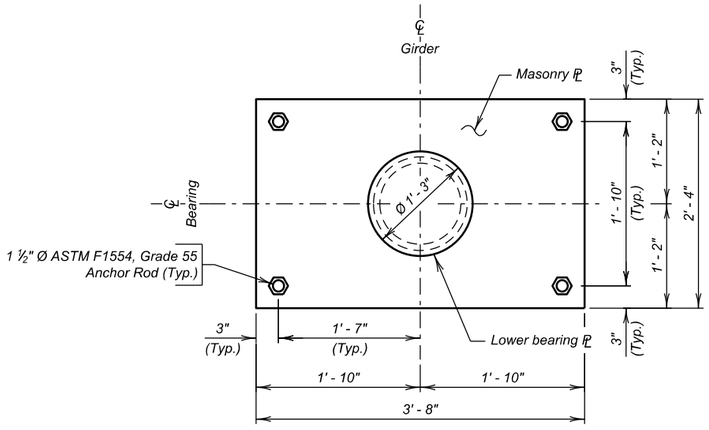
BEARING CAPACITY REQUREMENTS			
BEARING CAPACITY	SERVICE	STRENGTH	EXTREME EVENT
Vertical Load (kip)	355	520	275
Resultant Horizontal Load (kip)	25	35	70
Uplift Load (kip)	-	-	-
Longitudinal Displacement (in)	± 6.03		
Rotation (rad)	± 0.02		

ESTIMATED QUANTITES		
ITEM	UNIT	QUANTITY
Disc Bearing	Each	24

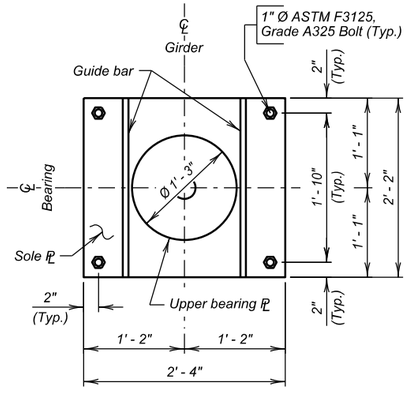
BEVELED PLATE SLOPE	
LOCATION	GRADE
Bent No. 6	0.0000%
Bent No. 11	0.0000%
Bent No. 16	0.0000%

BEARING NOTES:

1. The bearing devices supplied will be capable of transmitting the loads and movements shown on these plans.
2. Bearings will be disc type, expansion bearings.
3. Unfilled PTFE will be recessed in upper bearing plate. Design coefficient of friction will not exceed 0.071, using a service dead load reaction of 200 kips.
4. See Sheet 69 for additional bearing notes.



SEC. A - A



SEC. B - B

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J. BREHM
SOUTH DAKOTA
01/04/2024

BEARING DETAILS (B)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER (LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
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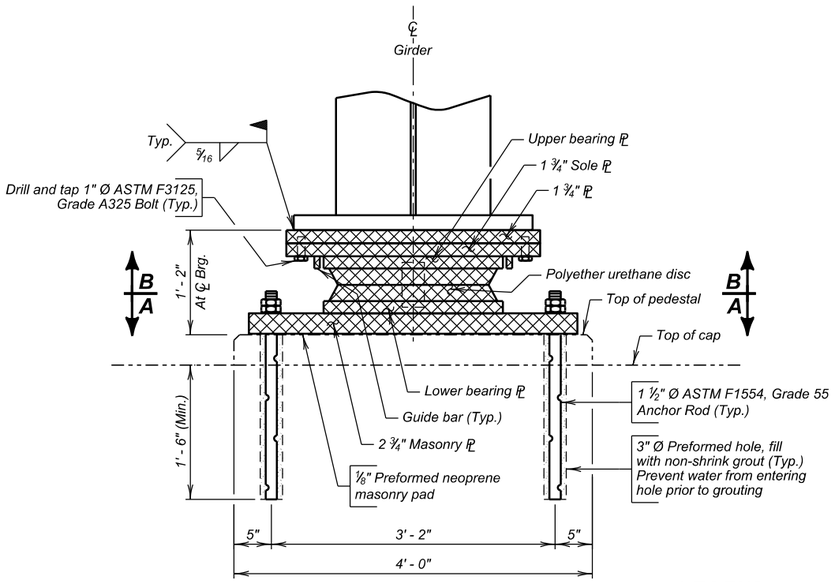
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

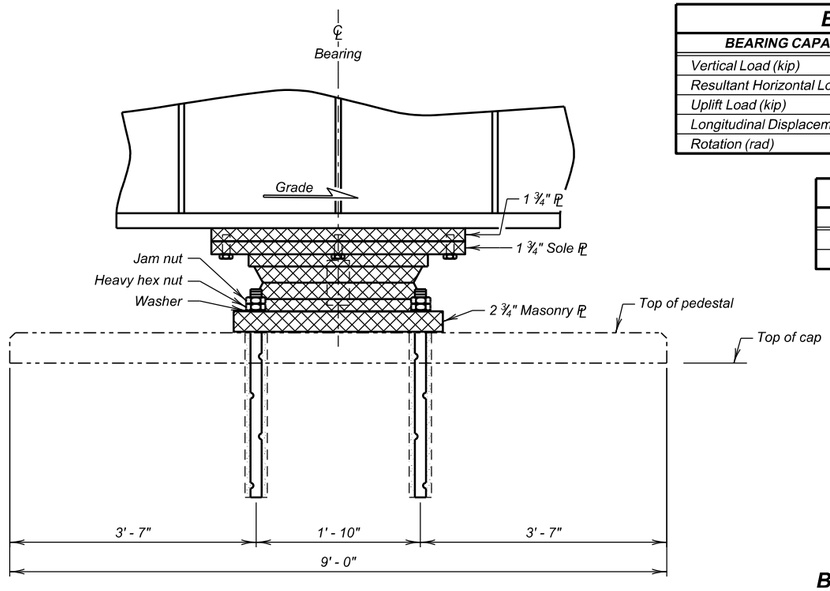
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E73	E86

FOR BIDDING PURPOSES ONLY



ELEVATION - EXP. BENTS WITHOUT EXP. JOINTS



SIDE ELEVATION - EXP. BENTS WITHOUT EXP. JOINTS

LEGEND:

Indicates the parts of the bearing assembly to be designed and supplied by the bearing manufacturer within the parameters shown on these plans. Associated dimensions are estimates and subject to change per manufacturer's design.

BEARING CAPACITY REQUREMENTS

BEARING CAPACITY	SERVICE	STRENGTH	EXTREME EVENT
Vertical Load (kip)	1025	1465	855
Resultant Horizontal Load (kip)	70	90	215
Uplift Load (kip)	-	-	-
Longitudinal Displacement (in)	± 4.29		
Rotation (rad)	± 0.02		

ESTIMATED QUANTITES

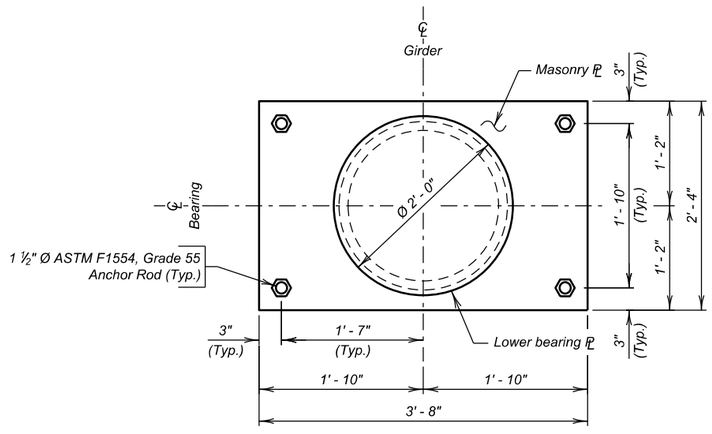
ITEM	UNIT	QUANTITY
Disc Bearing	Each	32

BEVELED PLATE SLOPE

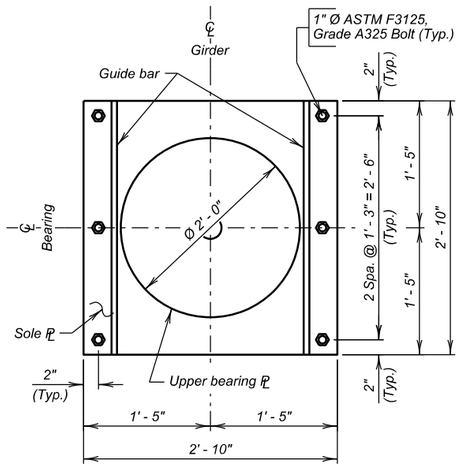
LOCATION	GRADE
Bent No. 2	0.0000%
Bent No. 5	0.0000%
Bent No. 7	0.0000%
Bent No. 10	0.0000%
Bent No. 12	0.0000%
Bent No. 15	0.0000%
Bent No. 17	0.0000%
Bent No. 20	0.0000%

BEARING NOTES:

1. The bearing devices supplied will be capable of transmitting the loads and movements shown on these plans.
2. Bearings will be disc type, expansion bearings.
3. Unfilled PTFE will be recessed in upper bearing plate. Design coefficient of friction will not exceed 0.064, using a service dead load reaction of 685 kips.
4. See Sheet 69 for additional bearing notes.



SEC. A - A



SEC. B - B

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

BEARING DETAILS (C)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

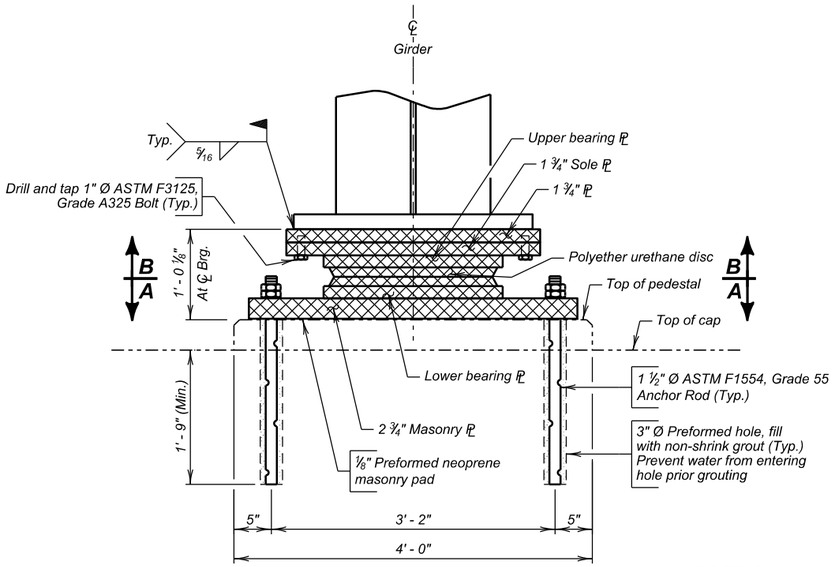
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

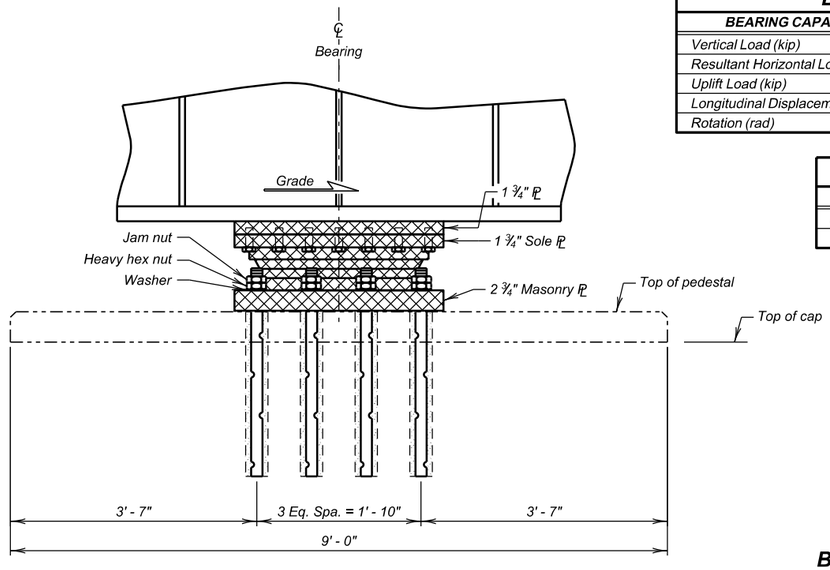
71 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY



ELEVATION - FIXED BENTS



SIDE ELEVATION - FIXED BENTS

LEGEND:

Indicates the parts of the bearing assembly to be designed and supplied by the bearing manufacturer within the parameters shown on these plans. Associated dimensions are estimates and subject to change per manufacturer's design.

BEARING CAPACITY REQUREMENTS

BEARING CAPACITY	SERVICE	STRENGTH	EXTREME EVENT
Vertical Load (kip)	1035	1485	860
Resultant Horizontal Load (kip)	70	100	505
Uplift Load (kip)	-	-	-
Longitudinal Displacement (in)	± 0.00		
Rotation (rad)	± 0.02		

ESTIMATED QUANTITES

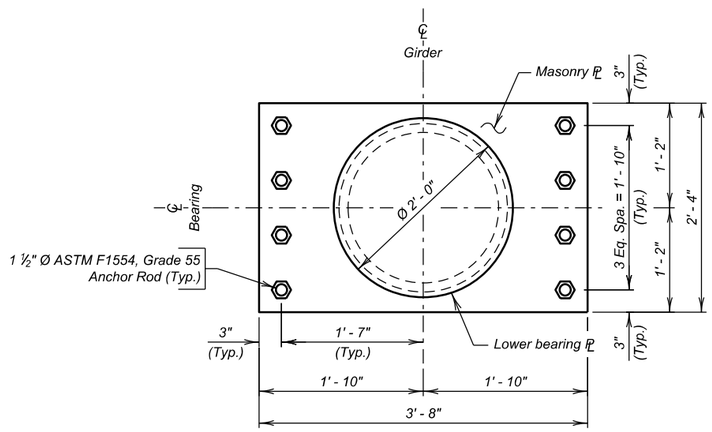
ITEM	UNIT	QUANTITY
Disc Bearing	Each	32

BEVELED PLATE SLOPE

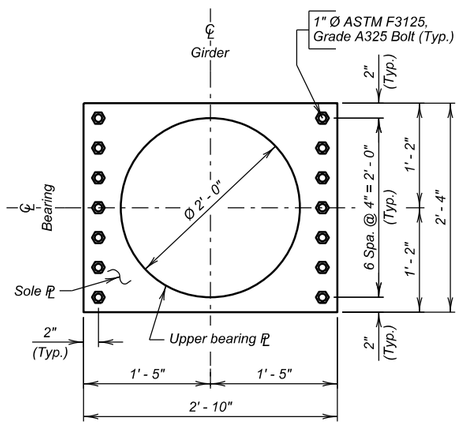
LOCATION	GRADE
Bent No. 3	0.0000%
Bent No. 4	0.0000%
Bent No. 8	0.0000%
Bent No. 9	0.0000%
Bent No. 13	0.0000%
Bent No. 14	0.0000%
Bent No. 18	0.0000%
Bent No. 19	0.0000%

BEARING NOTES:

1. The bearing devices supplied will be capable of transmitting the loads and movements shown on these plans.
2. Bearings will be disc type, fixed bearings.
3. See sheet 69 for additional bearing notes.



SEC. A - A



SEC. B - B

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J. BREHM
SOUTH DAKOTA
01/04/2024

BEARING DETAILS (D)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

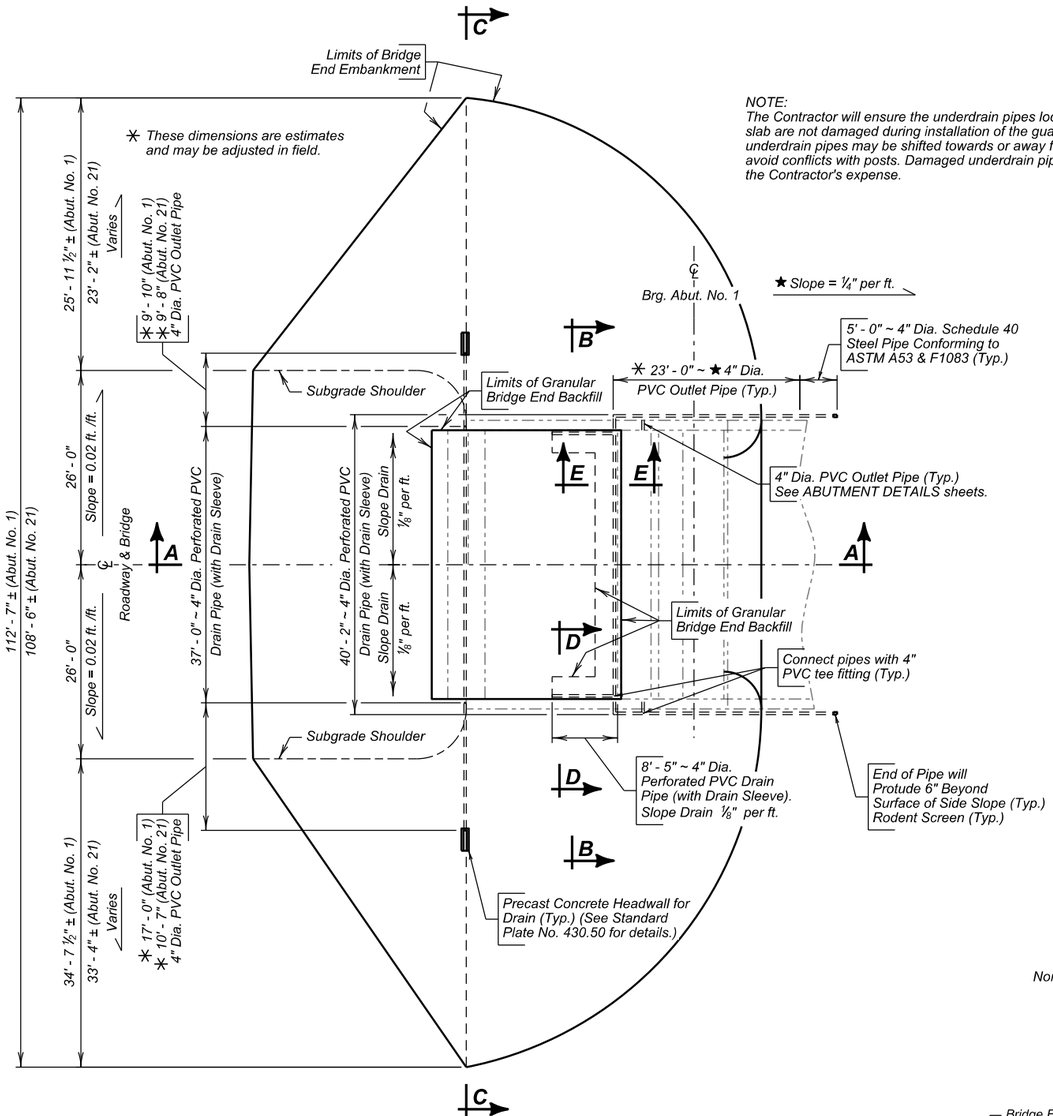
S. D. DEPT. OF TRANSPORTATION

DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY

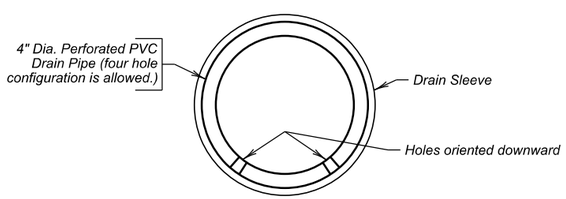
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E75	E86



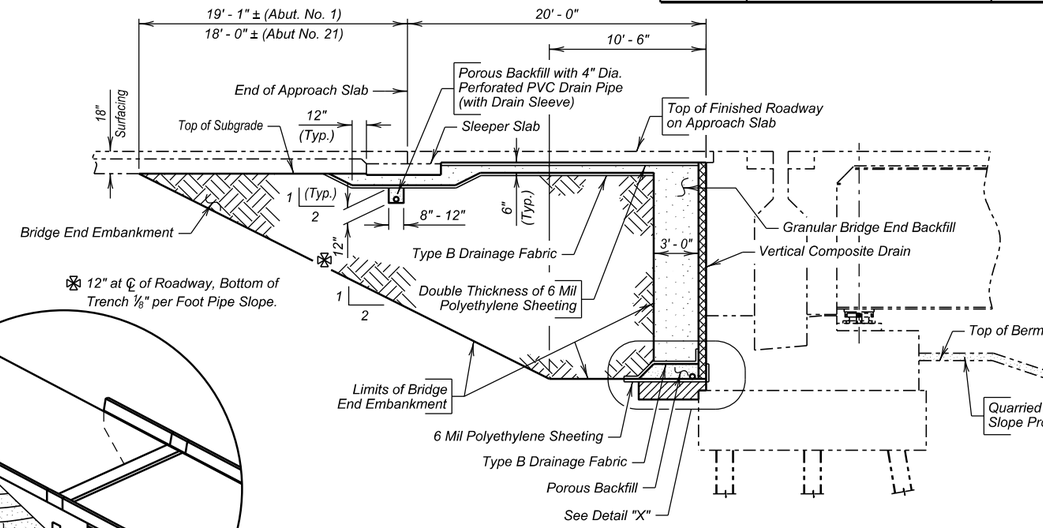
NOTE:
The Contractor will ensure the underdrain pipes located at the sleeper slab are not damaged during installation of the guardrail posts. These underdrain pipes may be shifted towards or away from abutments to avoid conflicts with posts. Damaged underdrain pipes will be replaced at the Contractor's expense.

PLAN

(Bridge End Backfill shown adjacent to Abut. No. 1 Abut. No. 21 similar opposite hand except as shown.)

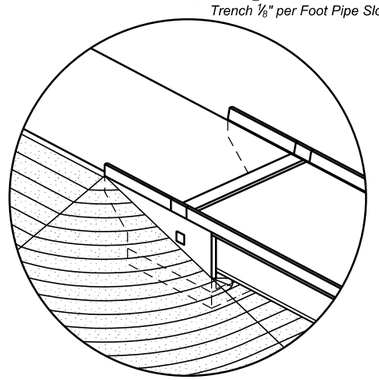


DRAIN DETAIL

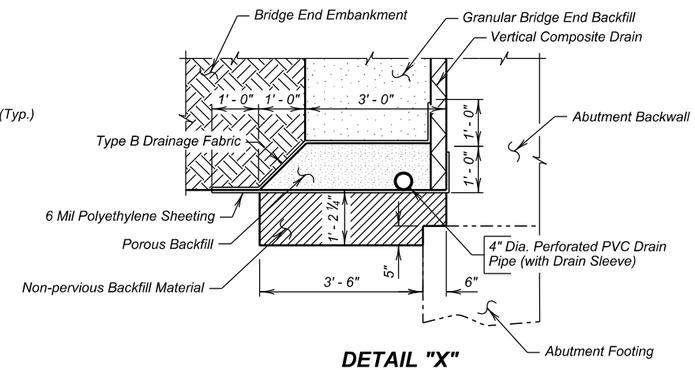


SEC. A - A

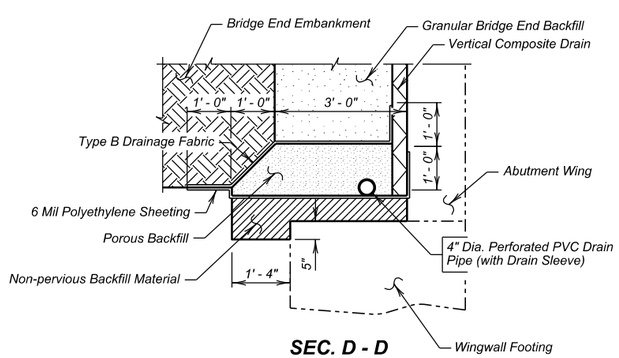
(at ℄ Roadway)



SPILL CONE DETAIL AT EMBANKMENT



DETAIL "X"



SEC. D - D

ESTIMATED QUANTITIES

(For Two Abutments)

ITEM	UNIT	QUANTITY
Granular Bridge End Backfill	Cu. Yd.	173.1
Bridge End Embankment	Cu. Yd.	1,665.7
Porous Backfill	Ton	30.3
4" Underdrain Pipe	Ft.	363
Approach Slab Underdrain Excavation	Cu. Yd.	2.7
Precast Concrete Headwall for Drain	Each	4

1. 188 Ft. 4" dia. Perforated PVC Drain Pipe (with Drain Sleeve).
2. 139 Ft. 4" dia. PVC Outlet Pipe with Rodent Screens.
3. 20 Ft. 4" dia. Schedule 40 Steel Pipe with Rodent Screens.
4. 16 Ft. 5" dia. Schedule 40 Steel Pipe.
5. 1,359 Sq. Ft. Vertical Composite Drain

Items 1 thru 5 are approximate quantities contained in the 4" Underdrain Pipe and are for information only.

6. 3,126 Sq. Ft. 6 mil Polyethylene Sheeting, not including laps.
7. 246 Sq. Yd. Type B Drainage Fabric.

Items 6 thru 7 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.*

⁑ *Quantity based on a 12" wide trench.*

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

DETAILS OF BRIDGE END BACKFILL (A)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

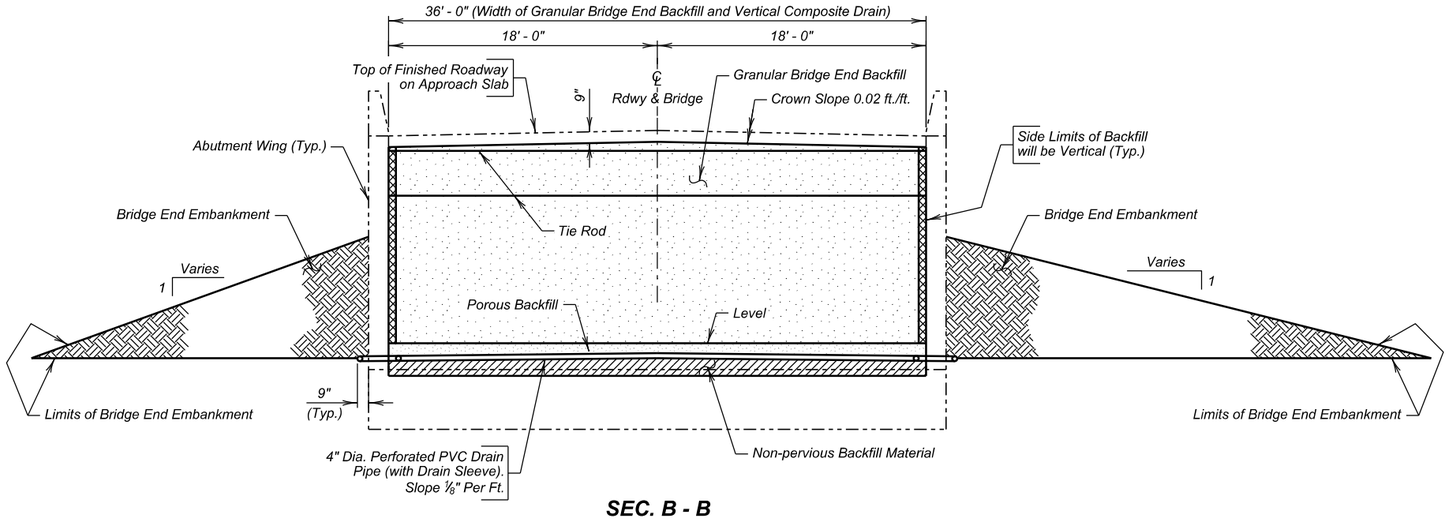
36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290
STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

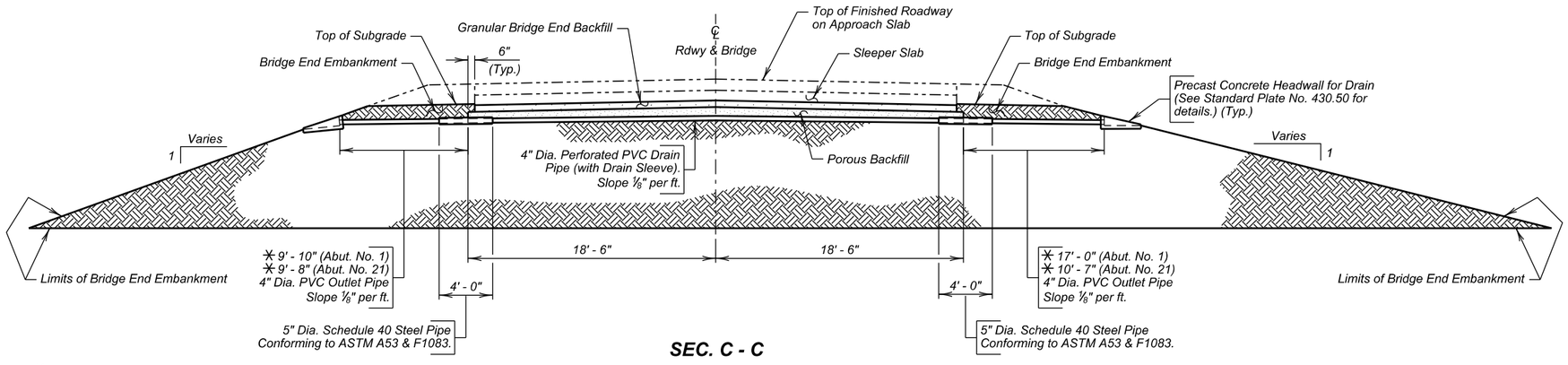
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E76	E86

FOR BIDDING PURPOSES ONLY



SEC. B - B



SEC. C - C

✳ These dimensions are estimates and may be adjusted in field.

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
REG. NO.
01/04/2024

DETAILS OF BRIDGE END BACKFILL (B)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076

0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93

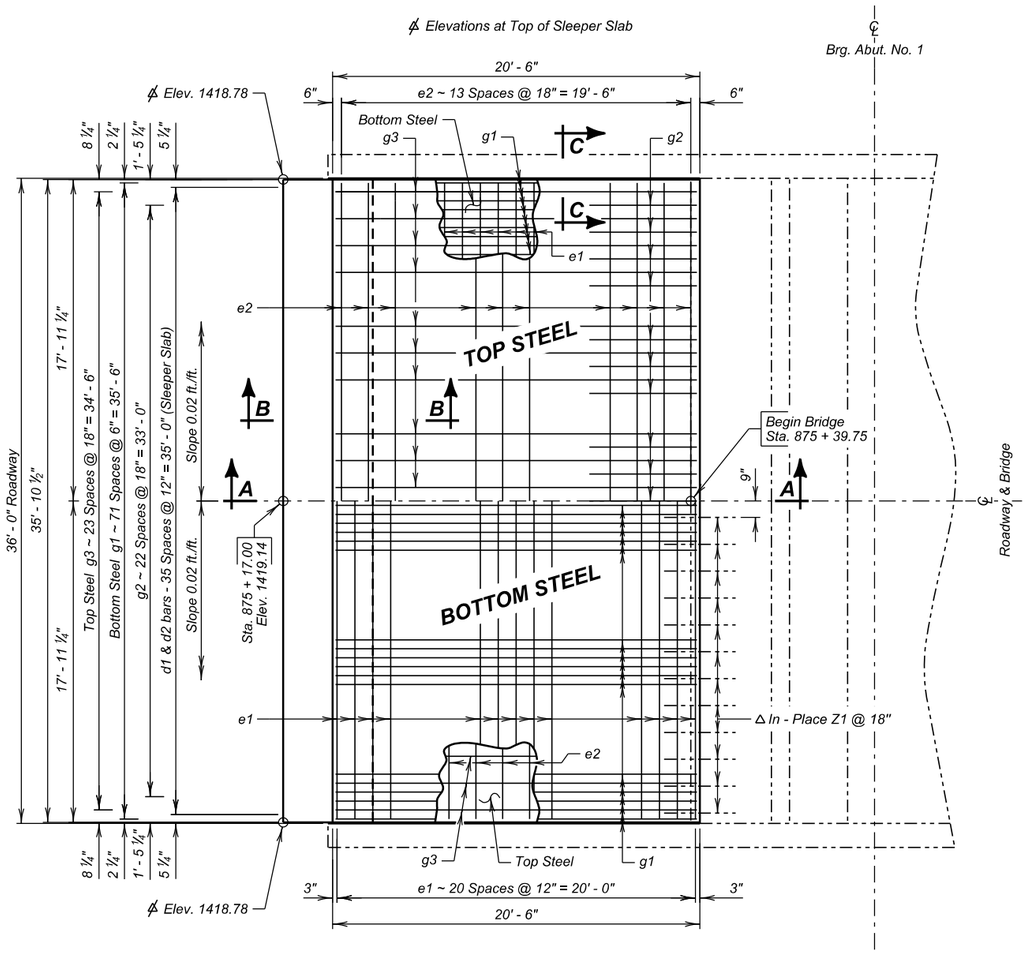
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

74 OF 84

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

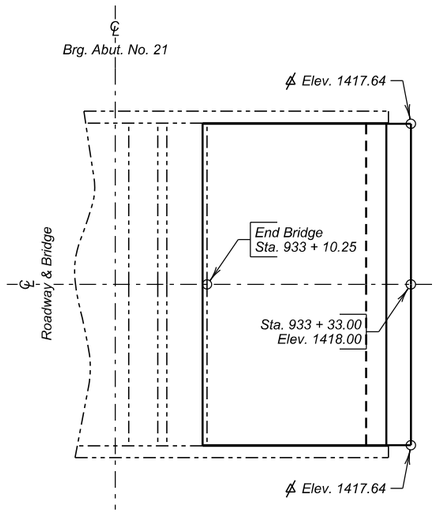
FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E77	E86



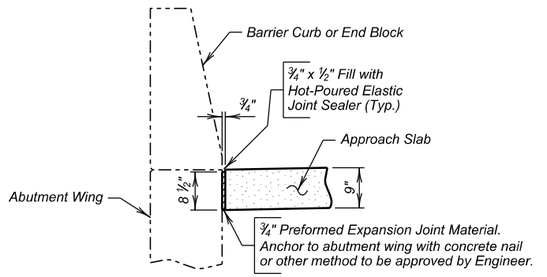
PLAN

(Shown adj. to Abut. No. 1, Abut. No. 21 similar by rotation except as shown.)

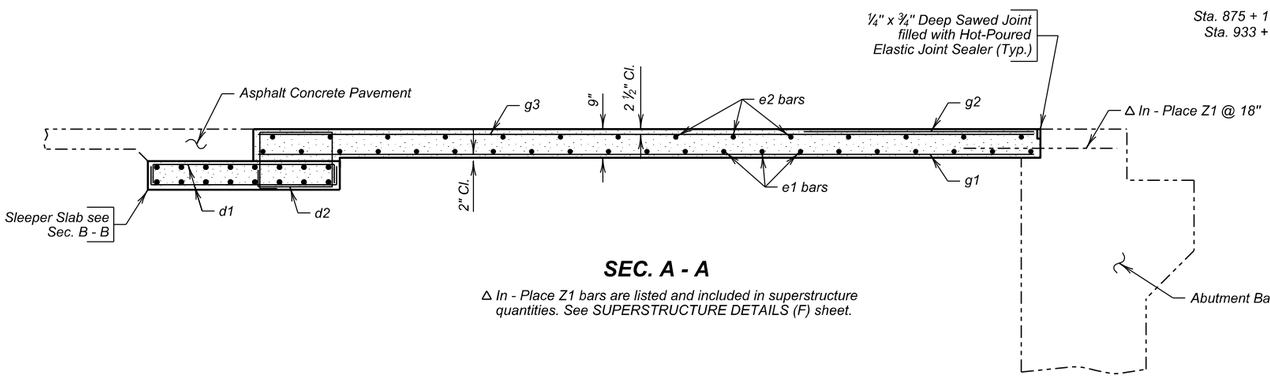


PLAN

(Shown adj. to Abut. No. 21)

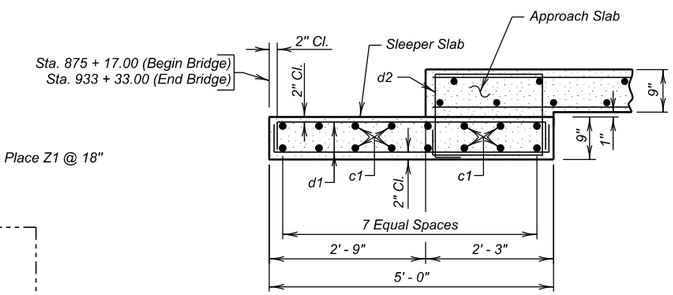


SEC. C - C



SEC. A - A

Δ In - Place Z1 bars are listed and included in superstructure quantities. See SUPERSTRUCTURE DETAILS (F) sheet.



SEC. B - B

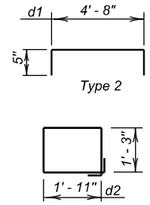
(Sleeper Slab)

REINFORCING SCHEDULE

(For Two Approach Slabs and Two Sleeper Slabs)

Mk.	No.	Size	Length	Type
Sleeper Slabs				
c1	32	5	35' - 6"	Str.
d1	144	4	5' - 6"	2
d2	72	4	7' - 1"	T2
Approach Slabs				
e1	42	6	35' - 6"	Str.
e2	28	4	35' - 6"	Str.
g1	144	8	20' - 2"	Str.
g2	46	4	6' - 0"	Str.
g3	48	4	20' - 2"	Str.

Bending Details



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

ESTIMATED QUANTITIES

(For Two Approach Slabs and Two Sleeper Slabs)

ITEM	UNIT	QUANTITY
Concrete Approach Slab for Bridge	Sq. Yd.	163.4
Concrete Approach Sleeper Slab for Bridge	Sq. Yd.	39.9

1. 41.4 Cu. Yds. Concrete in Approach Slab.
2. 11488 Lbs. Epoxy Coated Re-Steel in Approach Slab.
3. 10.0 Cu. Yds. Concrete in Sleeper Slab.
4. 2055 Lbs. Epoxy Coated Re-Steel in Sleeper Slab.

Items 1 thru 4 are approximate quantities contained in the above bid items and are for information only.

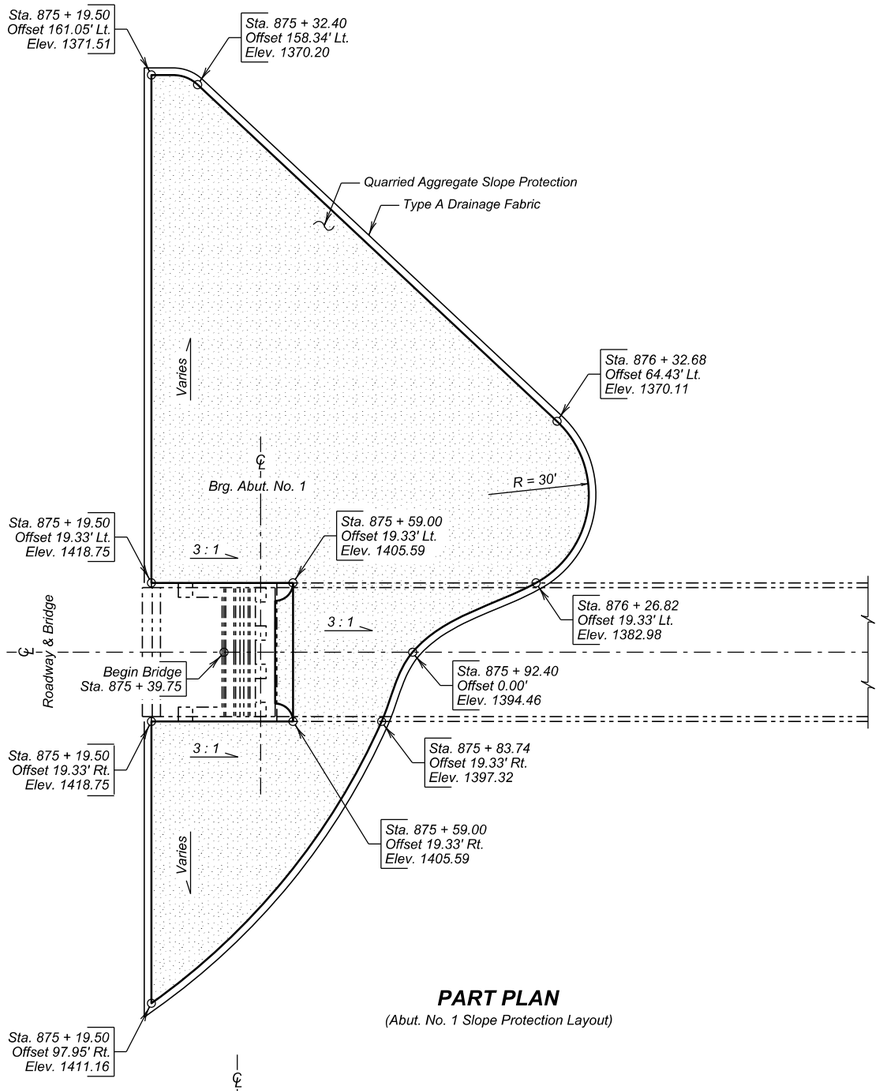
REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE
36' - 0" ROADWAY
OVER MISSOURI RIVER
(LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076
0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

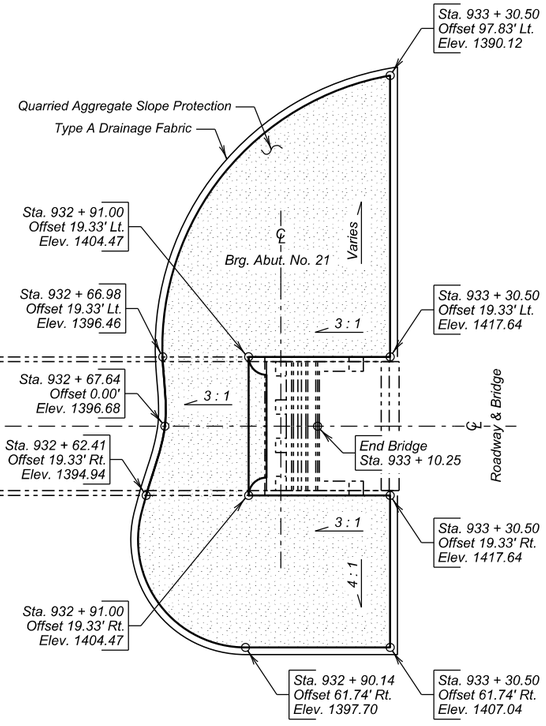
STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E78	E86

FOR BIDDING PURPOSES ONLY



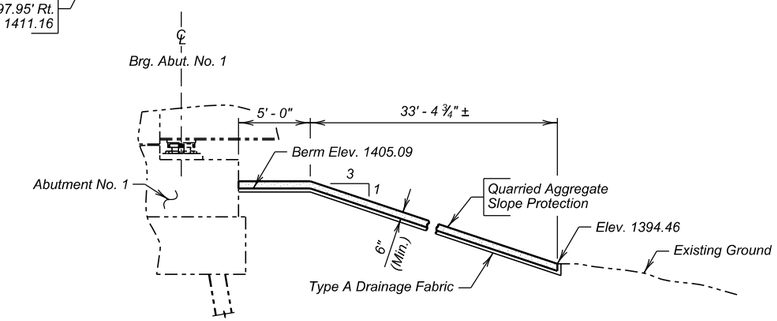
PART PLAN

(Abut. No. 1 Slope Protection Layout)



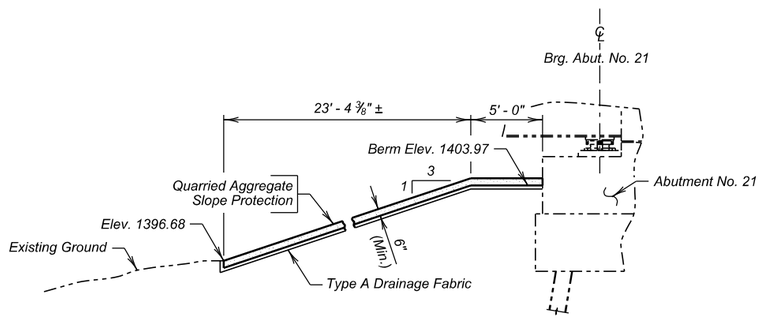
PART PLAN

(Abut. No. 21 Slope Protection Layout)



PART ELEVATION

(Along ℄ Rdwy at Abut. No. 1)



PART ELEVATION

(Along ℄ Rdwy at Abut. No. 21)

ESTIMATED QUANTITIES

(For Two Abutments)

ITEM	UNIT	QUANTITY
Bridge Berm Slope Protection, Quarried Aggregate	Sq. Yd.	2,764.4
Type A Drainage Fabric	Sq. Yd.	2,831.6

SLOPE PROTECTION DETAILS

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290

STR. NO. 12-089-076 — HL-93

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

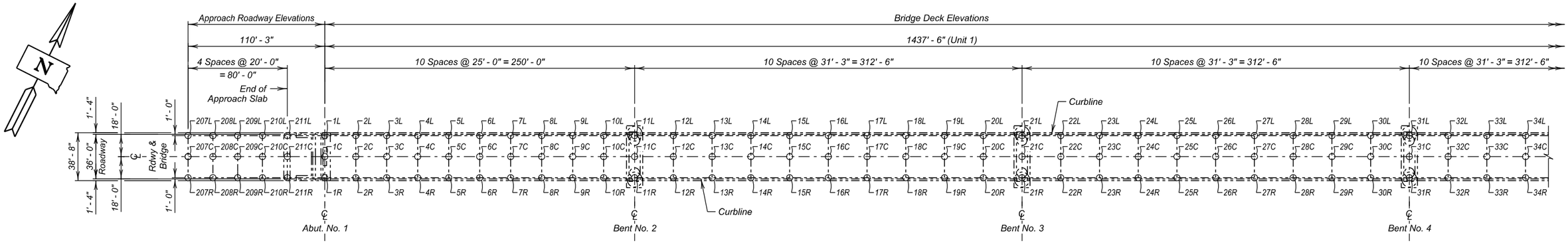
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E79	E86



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	
18L		18C		18R	
19L		19C		19R	
20L		20C		20R	
21L		21C		21R	
22L		22C		22R	
23L		23C		23R	
24L		24C		24R	
25L		25C		25R	
26L		26C		26R	
27L		27C		27R	
28L		28C		28R	
29L		29C		29R	
30L		30C		30R	
31L		31C		31R	
32L		32C		32R	
33L		33C		33R	
34L		34C		34R	

Table of As-Built Elevations - Approach Roadway

Location	Elevation	Location	Elevation	Location	Elevation
207L		207C		207R	
208L		208C		208R	
209L		209C		209R	
210L		210C		210R	
211L		211C		211R	

Table of Elevations - Bridge Survey Markers

Location	Station - Offset	Location
Begin Bridge		

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
Bridge Elevation Survey	L.S.	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 table on this sheet. The completed table will be given to the Engineer who will forward a copy to the Office of Bridge Design and the Region Office.

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

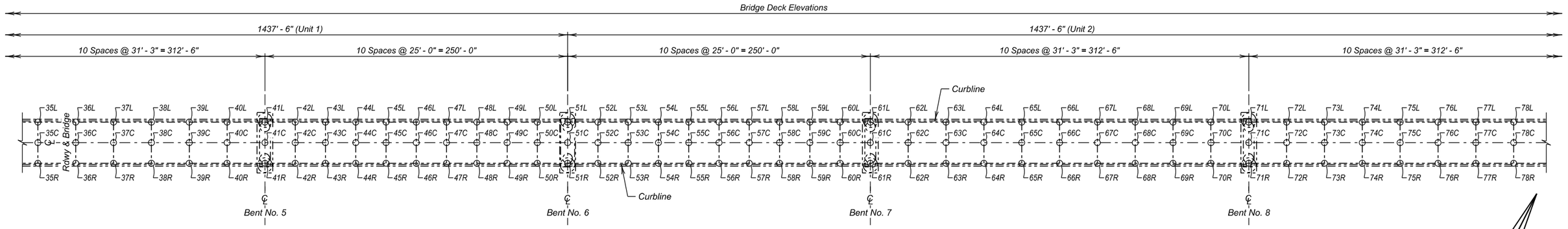
AS-BUILT ELEVATION SURVEY (A)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE
36' - 0" ROADWAY
OVER MISSOURI RIVER (LAKE FRANCIS CASE)
STA. 875 + 39.75 TO STA. 933 + 10.25
STR. NO. 12-089-076
0° SKEW
SEC. 16/20/21-T99N-R70W
P 0044(207)290
HL-93
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E80	E86



PLAN

Table of As-Built Elevations - Bridge Deck

Location	Elevation	Location	Elevation	Location	Elevation
35L		35C		35R	
36L		36C		36R	
37L		37C		37R	
38L		38C		38R	
39L		39C		39R	
40L		40C		40R	
41L		41C		41R	
42L		42C		42R	
43L		43C		43R	
44L		44C		44R	
45L		45C		45R	
46L		46C		46R	
47L		47C		47R	
48L		48C		48R	
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56L		56C		56R	
57L		57C		57R	
58L		58C		58R	
59L		59C		59R	
60L		60C		60R	
61L		61C		61R	
62L		62C		62R	
63L		63C		63R	
64L		64C		64R	
65L		65C		65R	
66L		66C		66R	
67L		67C		67R	
68L		68C		68R	

Table of As-Built Elevations - Bridge Deck

Location	Elevation	Location	Elevation	Location	Elevation
69L		69C		69R	
70L		70C		70R	
71L		71C		71R	
72L		72C		72R	
73L		73C		73R	
74L		74C		74R	
75L		75C		75R	
76L		76C		76R	
77L		77C		77R	
78L		78C		78R	

REGISTERED PROFESSIONAL ENGINEER
11555
KEVIN J.
BREHM
SOUTH DAKOTA
01/04/2024

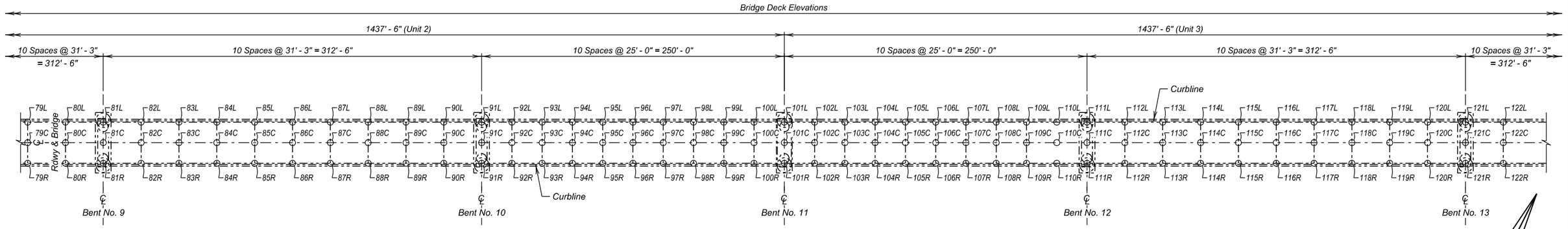
AS-BUILT ELEVATION SURVEY (B)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE
36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290
STR. NO. 12-089-076 — HL-93
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E81	E86



PLAN

Table of As-Built Elevations - Bridge Deck

Location	Elevation	Location	Elevation	Location	Elevation
79L		79C		79R	
80L		80C		80R	
81L		81C		81R	
82L		82C		82R	
83L		83C		83R	
84L		84C		84R	
85L		85C		85R	
86L		86C		86R	
87L		87C		87R	
88L		88C		88R	
89L		89C		89R	
90L		90C		90R	
91L		91C		91R	
92L		92C		92R	
93L		93C		93R	
94L		94C		94R	
95L		95C		95R	
96L		96C		96R	
97L		97C		97R	
98L		98C		98R	
99L		99C		99R	
100L		100C		100R	
101L		101C		101R	
102L		102C		102R	
103L		103C		103R	
104L		104C		104R	
105L		105C		105R	
106L		106C		106R	
107L		107C		107R	
108L		108C		108R	
109L		109C		109R	
110L		110C		110R	
111L		111C		111R	
112L		112C		112R	

Table of As-Built Elevations - Bridge Deck

Location	Elevation	Location	Elevation	Location	Elevation
113L		113C		113R	
114L		114C		114R	
115L		115C		115R	
116L		116C		116R	
117L		117C		117R	
118L		118C		118R	
119L		119C		119R	
120L		120C		120R	
121L		121C		121R	
122L		122C		122R	

REGISTERED PROFESSIONAL ENGINEER
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01/04/2024

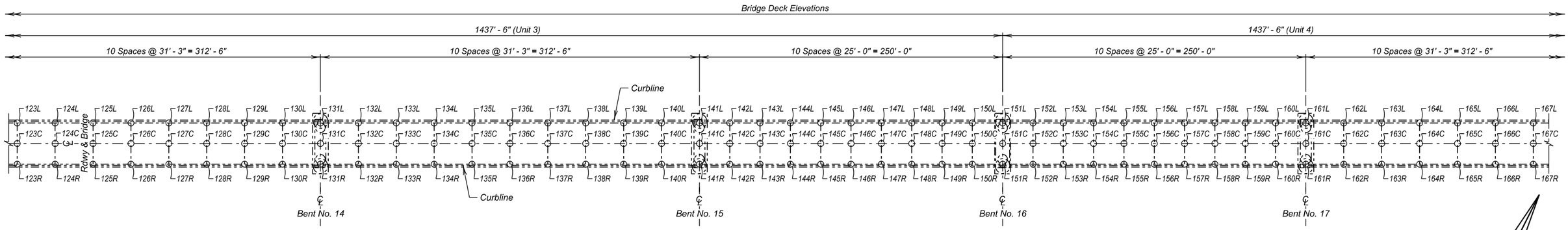
AS-BUILT ELEVATION SURVEY (C)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE
36' - 0" ROADWAY — 0° SKEW
OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W
STA. 875 + 39.75 TO STA. 933 + 10.25 — P 0044(207)290
STR. NO. 12-089-076 — HL-93
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E82	E86



PLAN

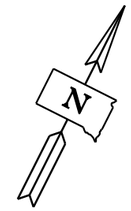


Table of As-Built Elevations - Bridge Deck

Location	Elevation	Location	Elevation	Location	Elevation
123L		123C		123R	
124L		124C		124R	
125L		125C		125R	
126L		126C		126R	
127L		127C		127R	
128L		128C		128R	
129L		129C		129R	
130L		130C		130R	
131L		131C		131R	
132L		132C		132R	
133L		133C		133R	
134L		134C		134R	
135L		135C		135R	
136L		136C		136R	
137L		137C		137R	
138L		138C		138R	
139L		139C		139R	
140L		140C		140R	
141L		141C		141R	
142L		142C		142R	
143L		143C		143R	
144L		144C		144R	
145L		145C		145R	
146L		146C		146R	
147L		147C		147R	
148L		148C		148R	
149L		149C		149R	
150L		150C		150R	
151L		151C		151R	
152L		152C		152R	
153L		153C		153R	
154L		154C		154R	
155L		155C		155R	
156L		156C		156R	

Table of As-Built Elevations - Bridge Deck

Location	Elevation	Location	Elevation	Location	Elevation
157L		157C		157R	
158L		158C		158R	
159L		159C		159R	
160L		160C		160R	
161L		161C		161R	
162L		162C		162R	
163L		163C		163R	
164L		164C		164R	
165L		165C		165R	
166L		166C		166R	
167L		167C		167R	

REGISTERED PROFESSIONAL ENGINEER
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01/04/2024

AS-BUILT ELEVATION SURVEY (D)

FOR

5770' - 6" CONT. COMP. GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER MISSOURI RIVER (LAKE FRANCIS CASE) — SEC. 16/20/21-T99N-R70W

P 0044(207)290

STA. 875 + 39.75 TO STA. 933 + 10.25 — HL-93

STR. NO. 12-089-076

GREGORY & CHARLES MIX COUNTIES

S. D. DEPT. OF TRANSPORTATION

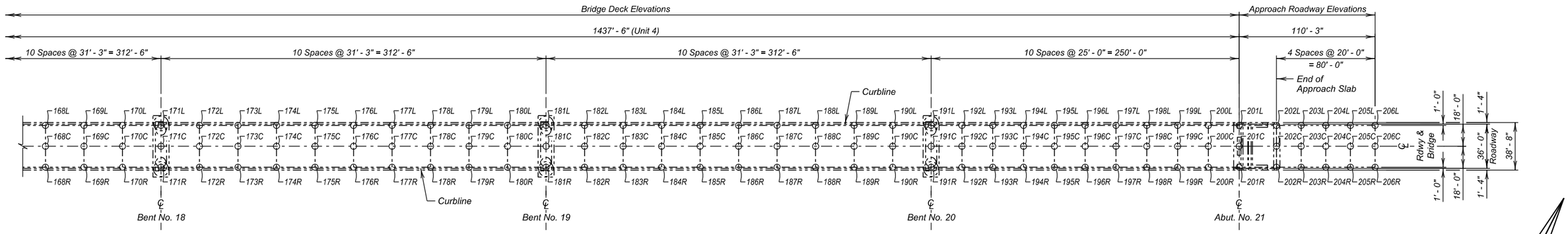
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

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

FOR BIDDING PURPOSES ONLY

STATE OF	PROJECT	SHEET NO.	TOTAL SHEETS
S.D.	P 0044(207)290	E83	E86



PLAN

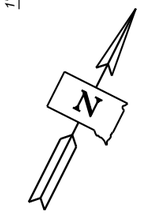


Table of As-Built Elevations - Bridge Deck

Location	Elevation	Location	Elevation	Location	Elevation
168L		168C		168R	
169L		169C		169R	
170L		170C		170R	
171L		171C		171R	
172L		172C		172R	
173L		173C		173R	
174L		174C		174R	
175L		175C		175R	
176L		176C		176R	
177L		177C		177R	
178L		178C		178R	
179L		179C		179R	
180L		180C		180R	
181L		181C		181R	
182L		182C		182R	
183L		183C		183R	
184L		184C		184R	
185L		185C		185R	
186L		186C		186R	
187L		187C		187R	
188L		188C		188R	
189L		189C		189R	
190L		190C		190R	
191L		191C		191R	
192L		192C		192R	
193L		193C		193R	
194L		194C		194R	
195L		195C		195R	
196L		196C		196R	
197L		197C		197R	
198L		198C		198R	
199L		199C		199R	
200L		200C		200R	
201L		201C		201R	

Table of As-Built Elevations - Approach Roadway

Location	Elevation	Location	Elevation	Location	Elevation
202L		202C		202R	
203L		203C		203R	
204L		204C		204R	
205L		205C		205R	
206L		206C		206R	

Table of Elevations - Bridge Survey Markers

Location	Station - Offset	Location
End Bridge		

REGISTERED PROFESSIONAL ENGINEER
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KEVIN J. BREHM
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01/04/2024

AS-BUILT ELEVATION SURVEY (E)
FOR
5770' - 6" CONT. COMP. GIRDER BRIDGE
36' - 0" ROADWAY
OVER MISSOURI RIVER (LAKE FRANCIS CASE)
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STR. NO. 12-089-076
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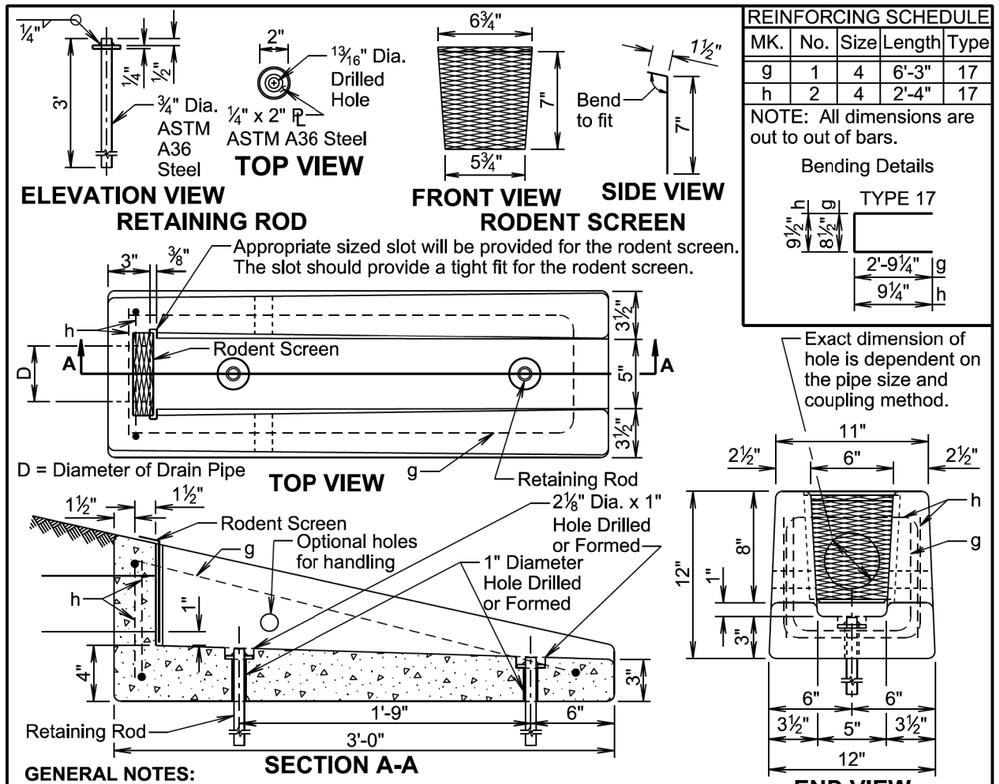
GREGORY & CHARLES MIX COUNTIES
S. D. DEPT. OF TRANSPORTATION
DECEMBER 2023

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KJB	JL	EM	BRIDGE ENGINEER

FOR BIDDING PURPOSES ONLY



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

NOTE: All dimensions are out to out of bars.

Bending Details

GENERAL NOTES:

The concrete will be Class M6. The concrete will conform to the requirements of Section 462 of the Specifications. It is estimated that each unit weighs approximately 210 pounds.

All reinforcing steel will conform to ASTM A615, Grade 60 and will be epoxy coated. The reinforcing steel will be securely retained to prevent displacement during placement of concrete. It is estimated that 7.3 pounds of reinforcing steel is required for each unit.

The pipe will be placed in the concrete headwall with the pipe end flush with the concrete surface adjacent to the rodent screen.

The rodent screen will be galvanized 13 Ga. steel with a diamond shaped flattened mesh pattern. The size will be ½". The size refers to the measurement across the smallest diamond shaped opening measured from the centers of the wires.

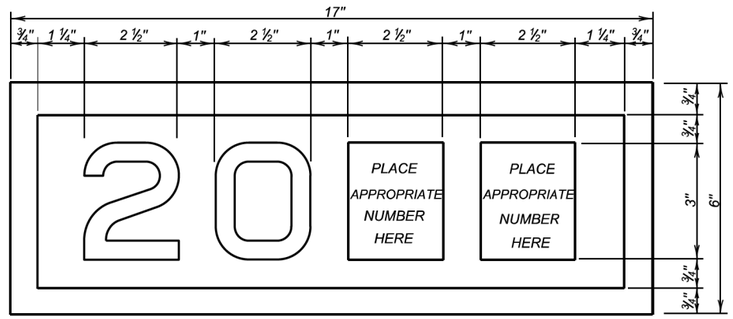
The retaining rod will be galvanized in accordance with ASTM A123 after all shop welding has been completed.

The drawing indicates using ½" fillets; however, ¾" chamfers may be substituted for the ½" fillets.

All costs for furnishing and installing the concrete headwall including equipment, labor, and materials including concrete, reinforcing steel, retaining rods, and rodent screen will be incidental to the contract unit price per each for "Precast Concrete Headwall for Drain".

November 19, 2021

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



YEAR PLATE DETAILS

GENERAL NOTES:

1. Year plates of the general dimensions shown will be constructed on all box culverts and bridges. The year plates will be constructed in reverse and attached to the forms in such a manner that the finished imprint in the concrete does not exceed one-half (1/2) inch in depth.

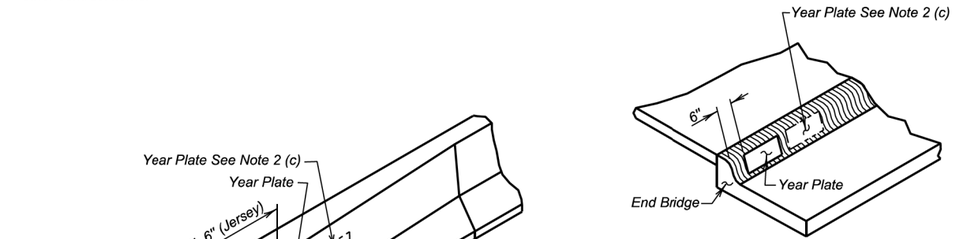
2. Year plates will be located on structure(s) as follows:

   a. On cast-in-place box culverts the year plates will be four and one - half (4 ½) inches below the top of the upstream parapet wall and centered laterally on the upstream face. On precast box culverts the year plate will be centered laterally on the upstream face of the top slab. Where an extended interior wall interferes with this location, the year plate will be centered in an adjacent barrel.

   b. On bridges with six (6) inch curbs, "Jersey" shaped barriers with no endblocks, or "Single Slope" shaped barriers with no endblocks, the year plate will be centered vertically on the curb face approximately six (6) inches from the end of the bridge, or as designated by the Engineer. On bridges with barrier endblocks, the year plate will be centered on the upper sloped portion of the barrier approximately 5'- 6" for "Jersey" shaped barriers from the end of the bridge and 7'-6" for "Single Slope" shaped barriers from the end of bridge, or as designated by the Engineer. There will be one year plate at each end of the bridge on opposite sides.

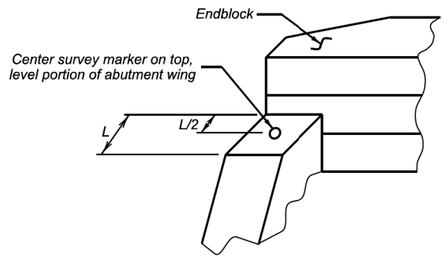
   c. When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date will be placed as listed above and the other located adjacent to it. Both year plates will be shown at each end of the bridge on opposite sides.

3. There will be no separate measurement or payment made for year plates on box culverts and bridges. All costs for this work will be incidental to other contract items.

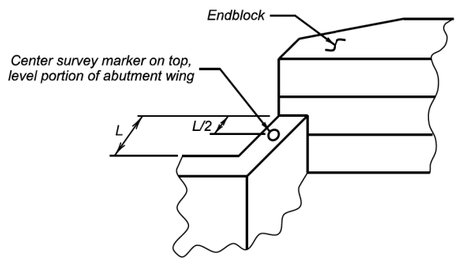


January 22, 2021

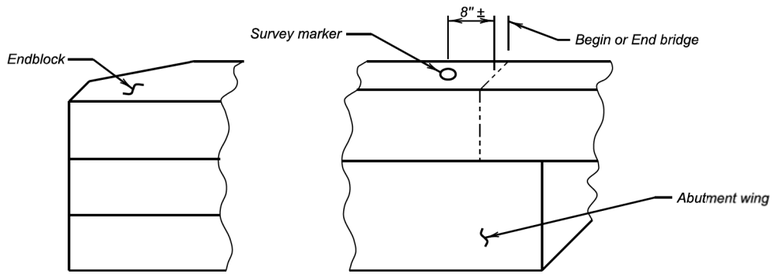
Published Date: 2026	SDDOT	YEAR PLATE DETAILS	PLATE NUMBER 460.02 Sheet 1 Of 1



ABUTMENT WITH "STRAIGHT" WINGS



ABUTMENT WITH "SWEPT BACK" WINGS



ABUTMENT WITH "SWEPT BACK" WINGS

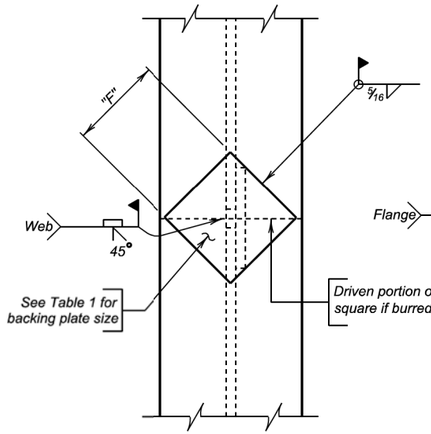
(Endblock on top of wings)

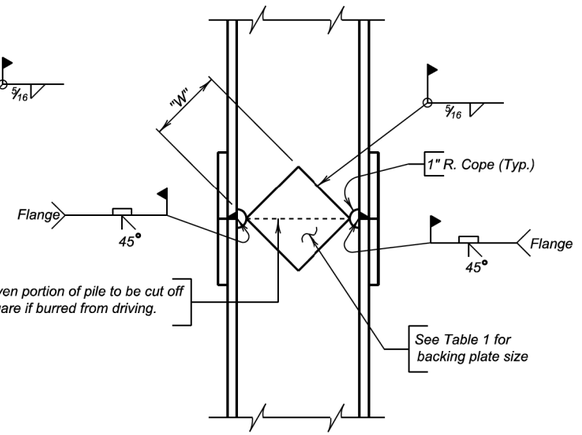
GENERAL NOTES:

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

June 26,2012

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



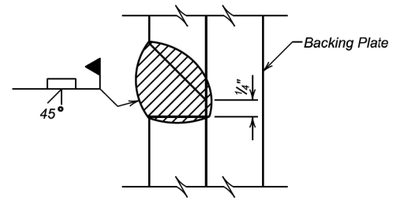


Driven portion of pile to be cut off square if burred from driving.

NOTE:

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

COMPLETE JOINT PENETRATION WELD DETAIL



GENERAL NOTES:

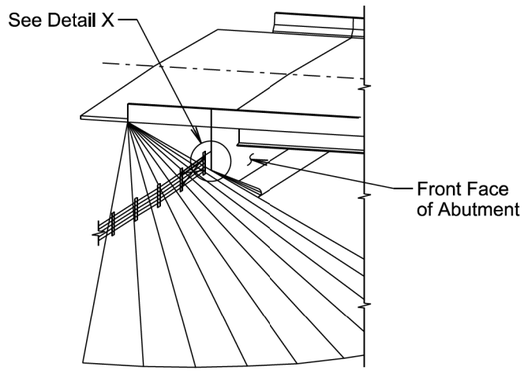
1. Steel for backing plates shall conform to ASTM A709 Grade 50.
2. Welding and weld inspection shall be in conformance with AWS D1.5 (Current Year) Bridge Welding Code - Steel.
3. Welder must be certified and registered with the SDDOT.
4. Backing plate shall at a minimum be as thick as the web of the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

TABLE 1
(BACKING PLATES)

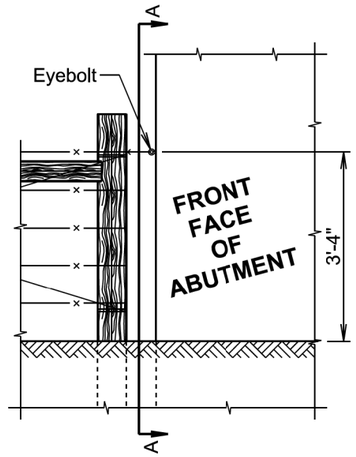
PILE	10"	12"	14"
"F" FLANGE	6 ½"	8"	10"
"W" WEB	4 ¾"	6 ¼"	7 ½"

December 23,2012

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



DETAILS FOR FENCE ANCHORS



DETAIL X

GENERAL NOTES:

The fence and post details shown are for illustrative purpose only. The fence will be as specified elsewhere in the plans.

Eyebolts will be placed on all of the bridge abutment wings.

Eyebolts will be ⅝ inch diameter with 6 inches minimum length and will conform to ASTM A307.

Eyebolts will be galvanized in accordance with AASHTO M232 (ASTM A153).

Eyebolts will be installed after abutment wings are backfilled and berm construction is complete. Drill-in and epoxy eyebolts into abutment such that the eye of the bolt is flush with the concrete surface.

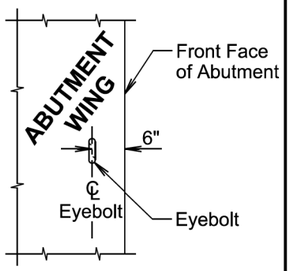
The epoxy resin mixture will be of a type for bonding steel to hardened concrete and will conform to AASHTO M235 Type IV, Grade 3 (Equivalent to ASTM C881, Type IV, Grade 3).

The diameter of the drilled holes will not be less than ⅛ inch greater, nor more than ⅜ inch greater than the diameter of the eyebolts or as per Manufacturer's recommendations. The drilled holes will be blown out with compressed air using a device that will reach the back of the hole to be sure that all debris or loose material has been removed prior to epoxy injection.

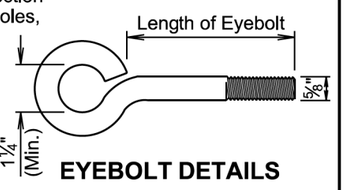
Mix epoxy resin as recommended by the Manufacturer and apply by an injection method as approved by the Engineer. Beginning at the back of the drilled holes, fill the holes ⅓ to ½ full of epoxy, or as recommended by the Manufacturer, prior to insertion of the eyebolts. Care will be taken to prevent epoxy from flowing out of the horizontal holes prior to eyebolt insertion. Rotate the eyebolt during installation to eliminate voids and ensure complete bonding of the bolt. Insertion of the eyebolts by the dipping or painting method will not be allowed.

Loads will not be applied to the epoxy grouted eyebolts until the epoxy resin has had sufficient time to cure as specified by the epoxy resin manufacturer.

The cost for furnishing and installing the eyebolts will be incidental to various contract items.



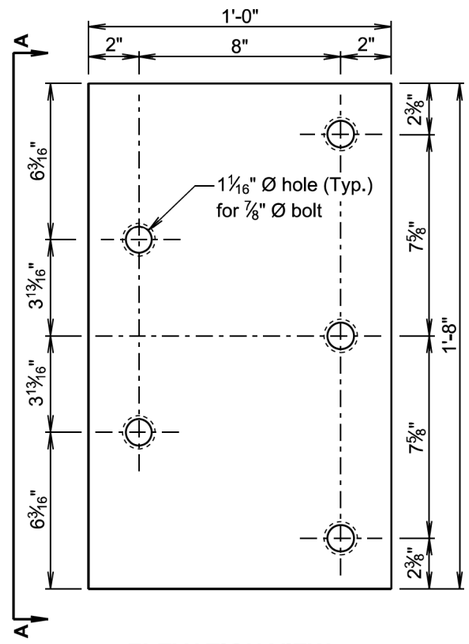
VIEW A-A



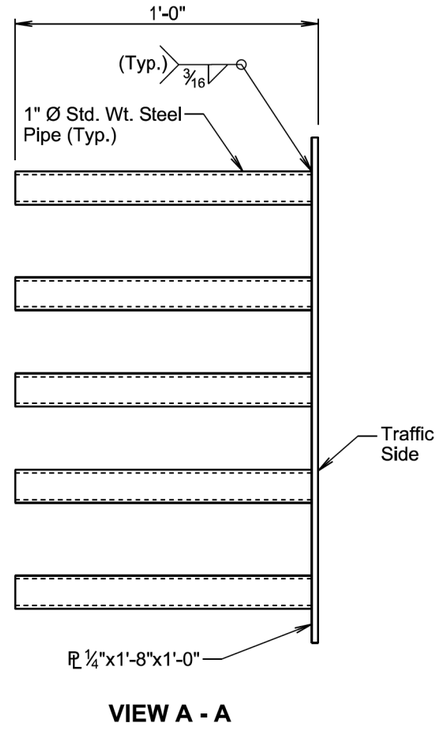
EYEBOLT DETAILS

November 19, 2020

Published Date: 2026	SDDOT	*FENCE ANCHORS FOR BRIDGE ABUTMENTS (SWEPT BACK WINGS)*	*PLATE NUMBER 620.19* *Sheet 1 of 1*



ELEVATION VIEW



VIEW A - A

GENERAL NOTES:

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

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, F3125 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.

April 8, 2025

Published Date: 2026	SDDOT	*5 BOLT INSERT PLATE ASSEMBLY*	*PLATE NUMBER 630.92* *Sheet 1 of 1*