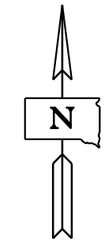
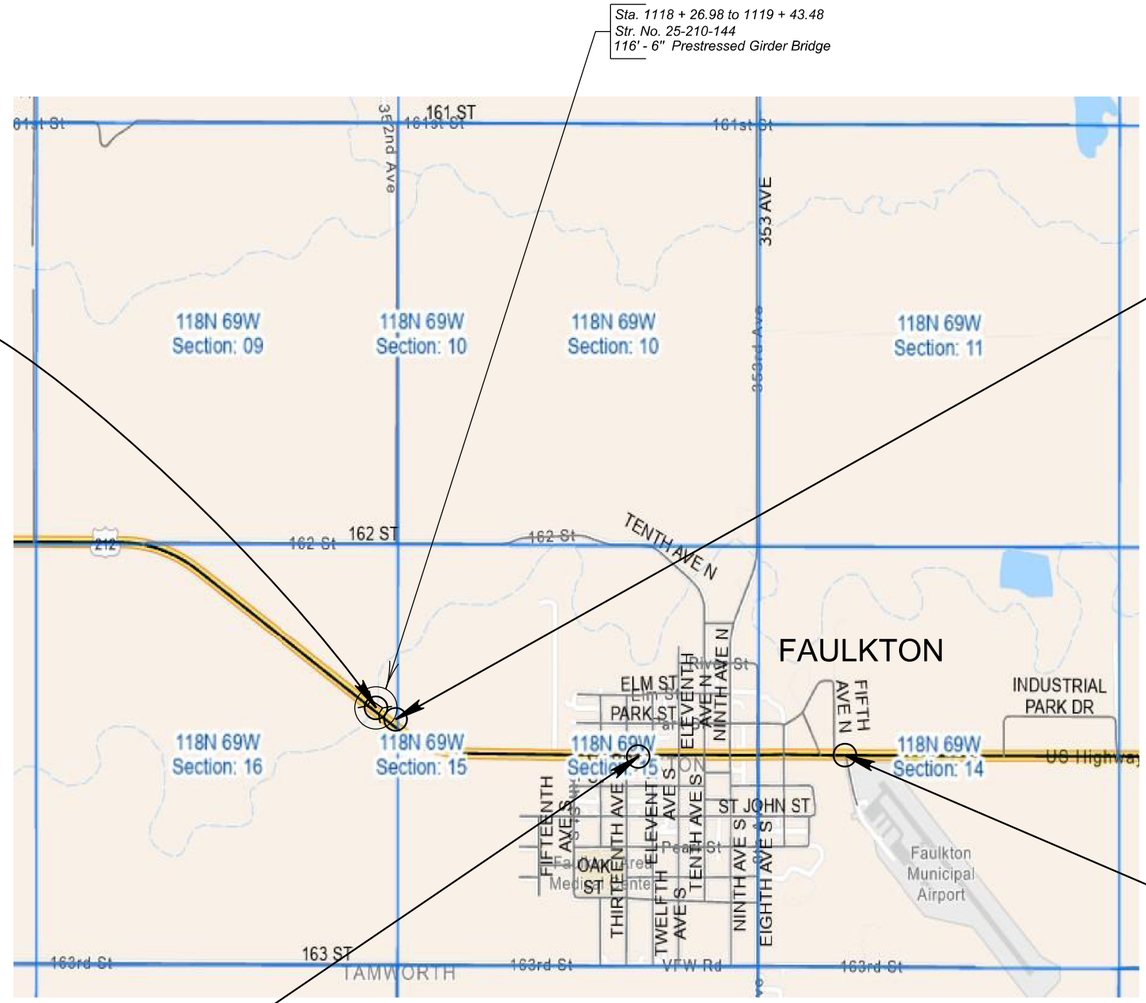
Section E: Structure Plans

INDEX OF SHEETS -





SECTION E – ESTIMATE OF STRUCTURE QUANTITIES

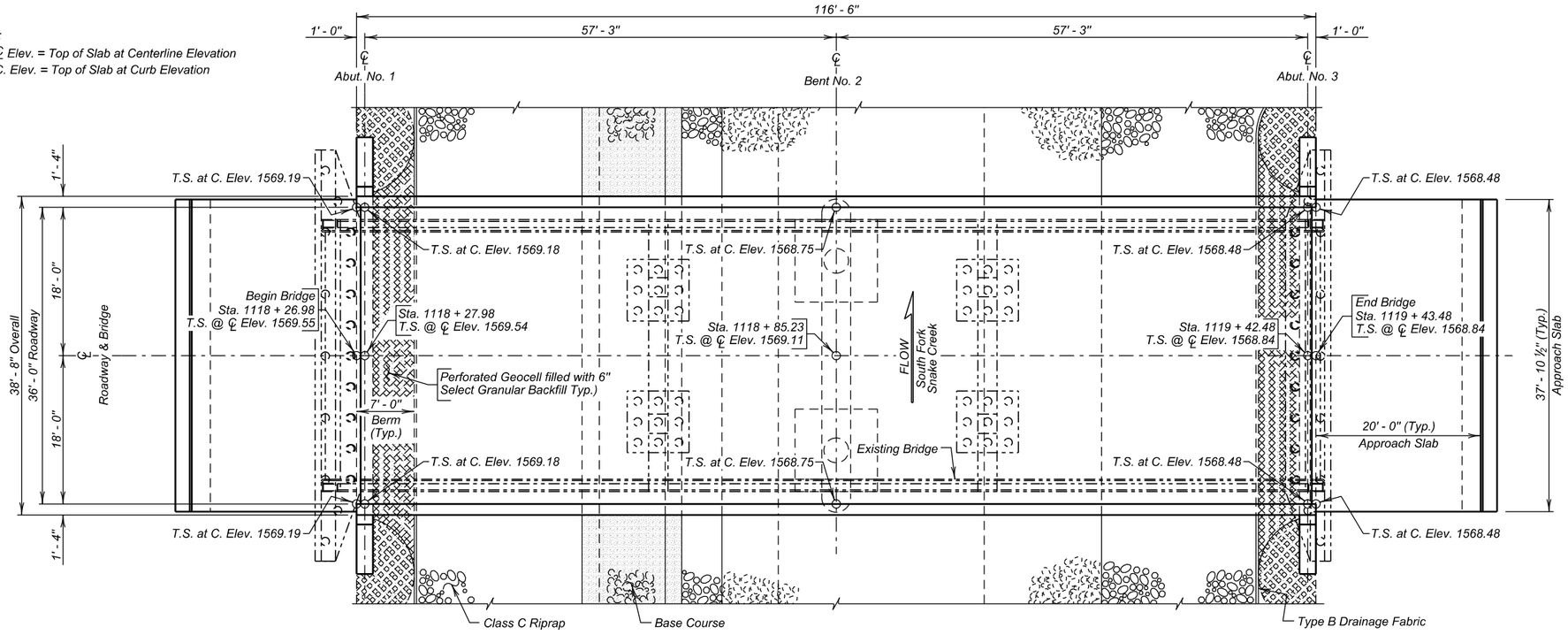
Str. No. 25-210-144

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E3310	Bridge Elevation Survey	Lump Sum	LS
120E7000	Select Granular Backfill	18.6	Ton
250E0030	Incidental Work, Structure	Lump Sum	LS
260E1010	Base Course	87.7	Ton
410E0030	Structural Steel, Miscellaneous	Lump Sum	LS
410E2600	Membrane Sealant Expansion Joint	75.8	Ft
420E0100	Structure Excavation, Bridge	149	CuYd
430E0200	Bridge End Embankment	310	CuYd
430E0300	Granular Bridge End Backfill	76.0	CuYd
430E0510	Approach Slab Underdrain Excavation	14.1	CuYd
430E0700	Precast Concrete Headwall for Drain	4	Each
460E0030	Class A45 Concrete, Bridge Deck	163.6	CuYd
460E0050	Class A45 Concrete, Bridge	110.9	CuYd
460E0150	Concrete Approach Slab for Bridge	172.4	SqYd
460E0160	Concrete Approach Sleeper Slab for Bridge	37.9	SqYd
460E0230	Concrete Penetrating Sealer	462.0	SqYd
480E0100	Reinforcing Steel	15,612	Lb
480E0200	Epoxy Coated Reinforcing Steel	2,680	Lb
480E0300	Stainless Reinforcing Steel	35,193	Lb
510E0100	Extract Pile	15	Each
510E0300	Preboring Pile	140	Ft
510E3401	HP 12x53 Steel Test Pile, Furnish and Drive	355	Ft
510E3405	HP 12x53 Steel Bearing Pile, Furnish and Drive	3,340	Ft
560E8036	36" Minnesota Shape Prestressed Concrete Beam	570	Ft
680E0304	4" Perforated Dual Wall HDPE Pipe	78	Ft
680E0324	4" Dual Wall HDPE Pipe	71	Ft
680E2500	Porous Backfill	14.0	Ton
700E0310	Class C Riprap	3,178.7	Ton
700E1100	Overburden Excavation for Riprap	519	CuYd
734E0090	Perforated Geocell	530	SqFt
831E0110	Type B Drainage Fabric	2,515	SqYd

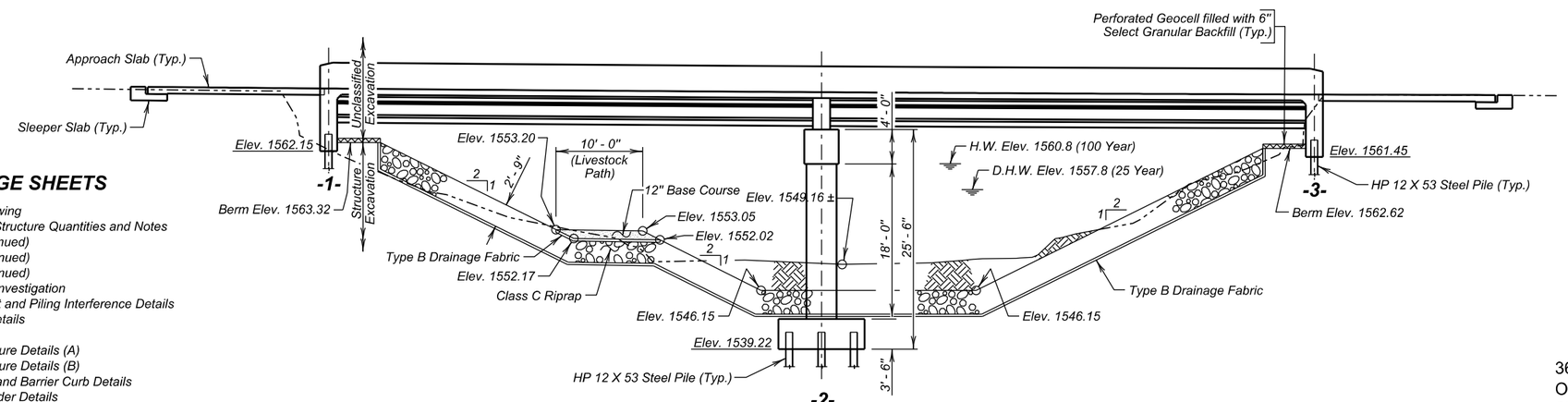
The elevations shown in these plans are based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88).

SD DOT	PROJECT	SECTION	SHEET
	NH-B 0212(194)266	E	3/26

NOTES:
T.S. at ℄ Elev. = Top of Slab at Centerline Elevation
T.S. at C. Elev. = Top of Slab at Curb Elevation



PLAN



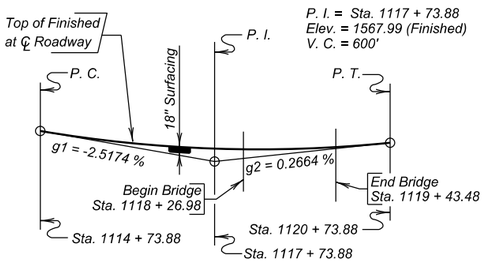
-2-
ELEVATION

-X081-
INDEX OF BRIDGE SHEETS

HYDRAULIC DATA

Q_d	2762 cfs
A_d	438 sq. ft.
V_d	6.3 fps
Q_F	2762 cfs
Q_{100}	6276 cfs
Q_{OT}	$>Q_{500}$
V_{max}	9.6 fps

Q_d = Design discharge for the proposed bridge based on 25 year frequency. El. 1557.8.
Q_{OT} = Overtopping discharge and frequency > Q_{500} year recurrence interval. El. 1568.6 at Sta. 1120 + 10.00.
Q_F = Designated peak discharge for the basin approaching proposed project based on 25 year frequency.
Q_{100} = Computed discharge for the basin approaching proposed project based on 100 year frequency. El. 1560.8.
V_{max} = Maximum computed outlet velocity for the proposed bridge, based on 100 year frequency.



VERTICAL CURVE DATA

GENERAL DRAWING
FOR
116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93
PCN 05H1

FAULK COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2025

-X081-

PLANS BY :
OFFICE OF BRIDGE DESIGN, SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM/KB	BR	BT	BRIDGE ENGINEER
FALK05H1	05H1GA01		

ESTIMATE OF STRUCTURE QUANTITIES

DESCRIPTION	QUANTITY	UNIT	REMARKS
Bridge Elevation Survey	Lump Sum	LS	
Select Granular Backfill	18.6	Ton	
Incidental Work, Structure	Lump Sum	LS	
Base Course	87.7	Ton	
Structural Steel, Miscellaneous	Lump Sum	LS	
Membrane Sealant Expansion Joint	75.8	Ft	
Structure Excavation, Bridge	149	CuYd	
Bridge End Embankment	310	CuYd	
Granular Bridge End Backfill	76	CuYd	
Approach Slab Underdrain Excavation	14.1	CuYd	
Precast Concrete Headwall for Drain	4	Each	
Class A45 Concrete, Bridge Deck	163.6	CuYd	
Class A45 Concrete, Bridge	110.9	CuYd	
Concrete Approach Slab for Bridge	172.4	SqYd	
Concrete Approach Sleeper Slab for Bridge	37.9	SqYd	
Concrete Penetrating Sealer	462.0	SqYd	
Reinforcing Steel	15,612	Lb	
Epoxy Coated Reinforcing Steel	2,680	Lb	
Stainless Reinforcing Steel	35,193	Lb	
Extract Pile	15	Each	
Preboring Pile	140	Ft	
HP 12x53 Steel Test Pile, Furnish and Drive	355	Ft	
HP 12x53 Steel Bearing Pile, Furnish and Drive	3,340	Ft	
36" Minnesota Shape Prestressed Concrete Beam	570	Ft	
4" Perforated Dual Wall HDPE Pipe	78	Ft	
4" Dual Wall HDPE Pipe	71	Ft	
Porous Backfill	14.0	Ton	
Class C Riprap	3,178.7	Ton	
Overburden Excavation for Riprap	519	CuYd	
Perforated Geocell	530	SqFt	
Type B Drainage Fabric	2,515	SqYd	

BRIDGE SPECIFICATIONS

1. Design Specifications: AASHTO LRFD Bridge Design Specifications, 10th Edition.

2. Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 10-7-26 Version, Required Provisions, and Special Provisions as included in the proposal. The Standard Specifications for Roads and Bridges are available for download and viewing at: https://dot.sd.gov/doing-business/contractors/standard-specifications

BRIDGE DESIGN LOADING

1. Girders are designed simple span for AASHTO HL-93 Live Load.

2. Dead Load includes 22 psf for future wearing surface on the roadway.

DESIGN MATERIAL STRENGTHS*

Class A45 Concrete	f'_c = 4,500 psi
Reinforcing Steel (ASTM A615, Gr. 60)	f_y = 60,000 psi
Stainless Steel (ASTM A955, Gr. 60)	f_y = 60,000 psi
Piling (ASTM A572 Grade 50)	f_y = 50,000 psi

*For prestressed beams, see notes regarding Prestressed Girders.

GENERAL CONSTRUCTION

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 120.10. 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. The elevation of the bridge deck is 18 inches above subgrade elevation.

INCIDENTAL WORK, STRUCTURE

1. In place centerline Sta. 1118+22.88 to centerline Sta. 1119+44.52 is a 122'-0", 3 span continuous non-composite girder viaduct a 30'-0" clear roadway. The superstructure consists of a reinforced concrete slab with pigeon hole concrete railing faced with W-beam. The deck has been overlaid with 2-inches of low slump dense concrete, which was then later overlaid with an Epoxy chip seal. The substructure consists of 2 column reinforced concrete bents supported on timber piling and concrete sill abutments supported on timber pilling.

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. All portions of the existing bridge not salvaged for future highway related use will be removed and disposed of by the Contractor on a site obtained by the Contractor and approved by the Engineer in accordance with the Environmental Commitments found in Section A.

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

4. The foregoing is a general description of the in-place bridge and should not be construed to be complete in all details. Before preparing the bid, it is the responsibility of the Contractor to make a visual inspection of the structure to verify the extent of the work and materials involved. 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 Concrete unless otherwise indicated.

2. Type II cement conforming to Section 750 is required except Type III cement may be used for prestressed beams.

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 grout pads 3/4-inch. The quantity of grout is included in and will be paid for at the contract unit price per cubic yard for Class A45 Concrete, Bridge.

ESTIMATE OF STRUCTURE QUANTITIES AND NOTES
FOR
116' - 6" PRESTRESSED GIRDER BRIDGE

STR. NO. 25-210-144
OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	KB	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA02		

ABUTMENTS

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

2. The HP 12x53 Piling were designed using a factored bearing resistance of 98 tons per pile. Piling will develop a field verified nominal bearing resistance of 245 tons per pile.

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

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

5. Piles will not be driven out of position by more than three inches in the direction parallel to the girder centerline. A pile-driving template will be used to ensure this accuracy.

6. Each finished abutment will include a Bridge Survey Marker. See Standard Plate 460.05.

BENT

1. The HP 12x53 Piling were designed using a factored bearing resistance of 98 tons per pile. Piling will develop a field verified nominal bearing resistance of 245 tons per pile.

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

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

4. 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.

SUPERSTRUCTURE

1. Girder lifting hooks will be cut off before placement of concrete deck slab.

2. The diaphragms at the bent will be poured integrally with the deck slab. Placement of diaphragms at the bent will not slow down the rate of deck concrete placement and finishing. The Contractor will place the concrete for the specified diaphragms ahead of the deck concrete in such a manner that advancement of the deck concrete reaches the diaphragm just as placement of concrete in the diaphragm is complete.

3. 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. If the deck finish machine cannot match the exact skew of the bridge, the difference will need be approved by the Engineer.

4. The concrete bridge deck will be placed and finished at a minimum rate of 28 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 28 feet per hour can be maintained and the concrete has attained a minimum compressive strength of 2000 psi.

5. Snap ties, if used in the barrier curb formwork, will be corrosion resistant. The corrosion resistant ties will be inert in concrete and compatible with the reinforcing steel.

6. Any concrete mortar that gets on all surfaces of all the superstructure components will be washed off or removed before it is dry.

PRESTRESSED GIRDERS

1. Minimum concrete compressive strength f'_c = 7000 psi at 28 days for all girders, f'_{ci} = 6000 psi for all Girders.

2. All mild reinforcing steel will be deformed bars conforming to ASTM A615, Grade 60.

3. Individual tendons in all pretensioned sections will consist of seven-wire uncoated Type 270K Strands having a nominal diameter of 0.6-inch and a minimum ultimate strength of 58600 lbs. per cable. An initial tensile force of 43500 lbs. will be applied to all 0.6-inch cables in all girders. All prestressing steel will conform to AASHTO M203. (low-relaxation strands).

4. All prestressed girders within a span will be cast within an 8-day period. If not, the newest girder will be at least 6 weeks old before the deck slab is poured. The girders will be poured in all steel forms.

5. Prestressed concrete girders will always be lifted by the devices provided in the top flanges near the ends of the girders. Types of lifting devices other than those shown on the plans may be used provided they are approved by the Office of Bridge Design. The design of the lifting devices will be the responsibility of the fabricator.

6. Each beam will be marked showing structure number, casting date, and beam number. Marking will be on the face of the beam near the end and the location will be exposed after the diaphragms have been cast. Facia beams will be marked on an inside face. All markings will be stenciled and clearly legible. For beam designations and locations, see superstructure layout plan and Erection Data sheet.

7. The physical properties of the elastomeric bearing pads will conform to the requirements of Section 18.2 of the AASHTO LFRD Bridge Construction Specification and the AASHTO Materials Specification M251. The elastomeric bearing pads will conform to Grade 50 (durometer). The cost of the pads will be incidental to the contract unit price per cubic yard for Class A45 Concrete, Bridge. Certification that pads are 50 durometer and meet the requirements of AASHTO LFRD Bridge Construction Specification Section 18.2 and AASHTO Materials Specification M251 will be furnished to the Engineer with the shop drawings. No laminated bearing pads will be allowed.

8. All exposed corners will be chamfered 3/4-inch or rounded to 3/4-inch radius.

9. Dead Load of girder taken as effective at transfer. Cut strands flush with end of girder and coat end of strands with mortar, EXCEPT the strands that are to be extended and bent.

10. The Contractor will be responsible for ensuring that transportation stresses, handling, and erection do not cause damage to the girders.

11. Furnish and Install Inserts for T8 Rebars as shown in the plans. All costs involved will be incidental to the contract unit price per foot of 36” Minnesota Shape Prestressed Concrete Beam.

ABUTMENT BACKWALL COATING

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

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

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

NOTES (CONTINUED)

FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

STR. NO. 25-210-144

OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	KB	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA03		

BOLT TESTING

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

SHOP PLANS

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

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/or the appropriate Shop Plans. Field welding to bridge components will not be allowed. Field placed concrete inserts or drilled-in anchor bolts will be allowed if approved by the Engineer. All costs associated with providing the Fall Protection System will be incidental to the other contract items.

CLASS B COMMERCIAL TEXTURE FINISH

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

   Barrier: All exposed surfaces (front and top).

   Color will be “AMS-STD 595 37875”.

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.

PILE DRIVING

1. A driveability analysis was performed using the wave equation analysis program (GRLWEAP). A list of acceptable hammers is provided below:

   Delmag D36-23 APE D36-26 SPI D36-36

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

3. It is anticipated that at least 15 treated timber piles will interfere with piling for this new structure. Any existing pile that interferes with piling for the new structure will be extracted. Payment for the extracting piling will be contract unit price per each for Extract Pile and will be full compensation for extracting piling including materials, labor, and equipment necessary or incidental to the satisfactory completion of this work.

APPROACH SLABS

1. Sleeper slab riser will be cast with or later than the approach slab. Care will be taken to ensure the correct grade is maintained across the top pf the sleeper slab riser.

2. 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.

3. 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.

4. 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.

5. 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 slab and behind the abutments as shown in the plans in accordance with Section 435 of the Construction Specifications.

2. The 4-inch diameter dual wall HDPE Pipe and perforated dual wall HDPE pipe will conform to ASTM D3350 and AASHTO M252, Type S or SP.

3. Care will be taken to ensure that the 4-inch diameter Perforated dual wall HDPE Drain Pipe and the 4-inch diameter dual wall HDPE 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 Perforated HDPE Drain Pipe, 4-inch diameter HDPE outlet pipe, and 5-inch diameter schedule 40 steel pipe, will be incidental to the contract unit price per foot for 4” Perforated Dual Wall HDPE Pipe and 4” Dual Wall HDPE Pipe.

RIPRAP

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

PERFORATED GEOCELL

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

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

2. Perforated Geocell will be 6 inches tall with Type B Drainage Fabric underlying the perforated Geocell. Installation will adhere to the manufacturer’s recommendation.

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

4. Perforated Geocell will be paid for at the contract unit price per square foot. Payment will be full compensation for furnishing and installing the Perforated Geocell.

5. Select Granular Backfill will be paid for at the contract unit price per ton of material furnished. Payment will be full compensation for furnishing, loading, hauling, and placing the Select Granular Backfill.

NOTES (CONTINUED)
FOR
116' - 6" PRESTRESSED GIRDER BRIDGE

STR. NO. 25-210-144
OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	KB	BT	BRIDGE ENGINEER
FALK05H1	05H1GA04		

OVERBURDEN EXCAVATION FOR RIPRAP

1. This work will consist of the removal and replacement of material between the limits of the finished groundline and the top of the riprap. For illustration see Riprap Details sheet.

2. Excavation is to be completed after temporary diversion method is in place, if required, with minimal standing water to create the profile of slope protection specified in plans.

3. The removed material will be placed on top of the riprap to the natural ground, proposed groundline, or specified shape and elevations shown in plans. When overburden extends into the streambed it will form the channel bottom and profile as specified in plans. The finished ground under the bridge will be shaped to match the upstream and downstream channel and flood plain.

4. The overburden material will be placed on top of the riprap and have a maximum lift depth of 1' – 0" and compacted free of flowing water or standing water in excess or six inches above the riprap at the lowest elevation.

5. The intent of the compaction effort is to provide a stable ground covering over the riprap to the satisfaction of the engineer, not to provide a densified fill. Typically, packing the material with the bucket of an excavator will produce satisfactory results. Material may be added to excavated material to facilitate compaction and handling. Importing, stockpiling, blending, and/or wasting of materials will be incidental to the contract unit price for Overburden Excavation for Riprap.

6. Payment for Overburden Excavation for Riprap will be at the contract unit price and will be full compensation for labor, equipment, tools, and incidentals, including furnishing, installing, and removal of temporary works necessary to complete the work. Payment will be for plans quantity unless measurement is ordered by the Engineer.

7. Before preparing the bid, it is the responsibility of the Contractor to verify existing conditions to determine if a temporary diversion method and/or dewatering will be required. If required, the Contractor must submit the temporary diversion method and/or dewatering for approval to the Construction Engineer 30 days prior to construction

AS - BUILT ELEVATION SURVEY

The Contractor will be responsible for producing an as-built elevation survey soon after construction is completed but, before the bridge is opened to traffic. The Contractor will be responsible for recording the as-built elevation shown in the plans. The completed table will be given to the Engineer and copies forwarded to the Office of Bridge Design and the Senior Region Bridge Engineer. The elevations will be based on the National Geodetic Survey (NGS) North American Vertical Datum of 1988 (NAVD88). The Engineer will provide the Contractor with a description, elevation, and location of the nearest benchmark that has a NAVD88 established elevation for the Contractor's use. The 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.

NOTES (CONTINUED)

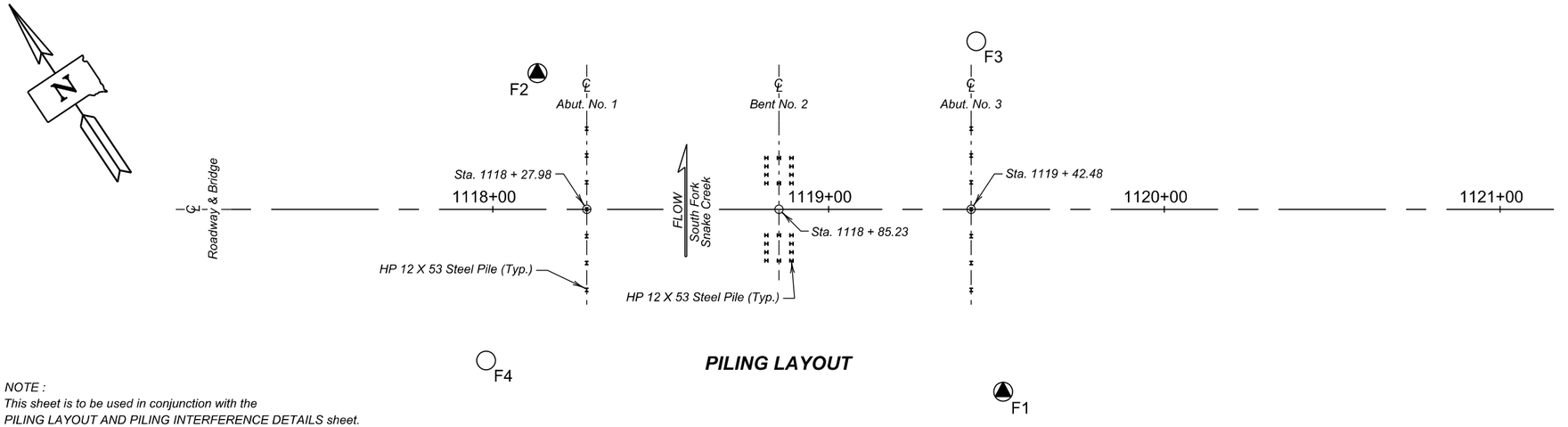
FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

STR. NO. 25-210-144

OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	KB	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA05		



PILING LAYOUT

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

COFFERDAM SOIL PARAMETERS

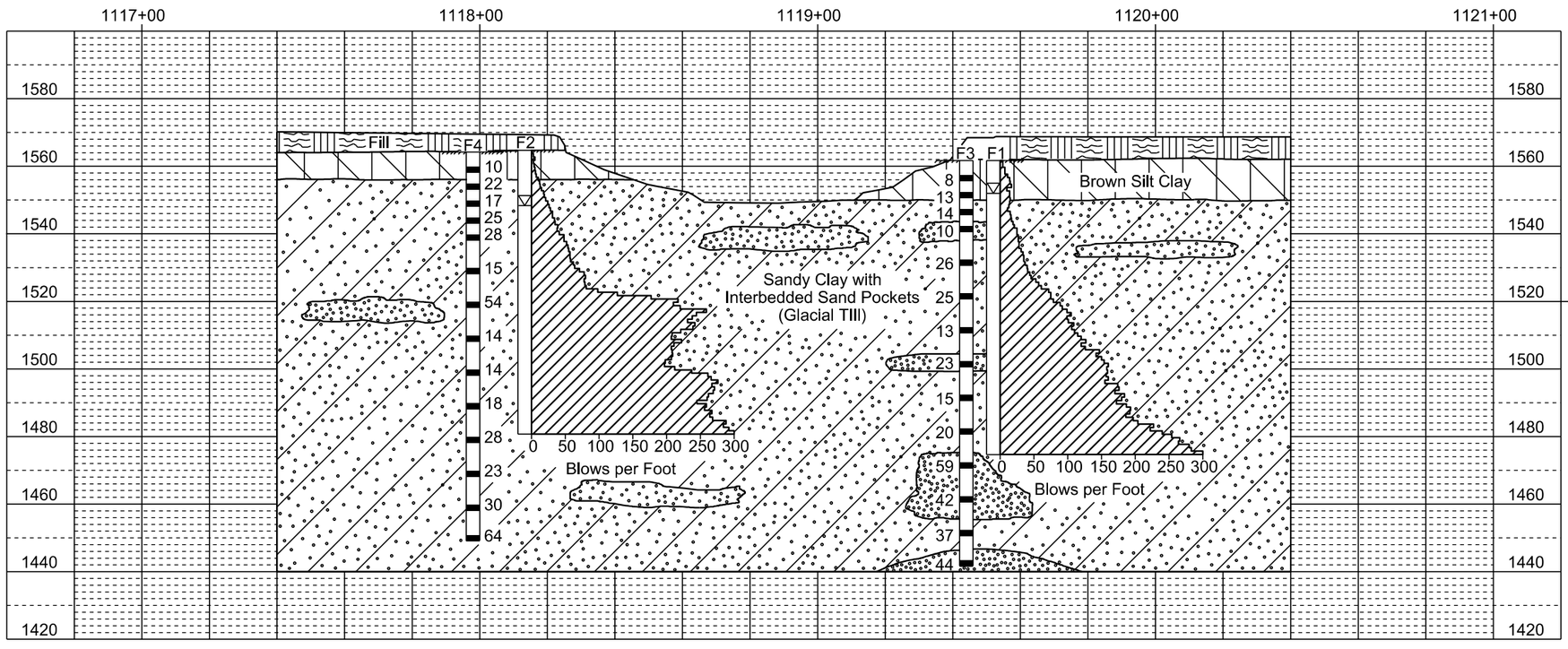
	Friction Angle (Φ)	Cohesion (c)	Wet Unit Weight (γ_w)
Sandy Clay (Glacial Till)	20°	500 psf	125 pcf

Hole Number	F3	
Station	1119+44	
Depth	15.0	ft
Soil Color	Brown	
Classification	Clay Silt	
Strength (Qu)	5,044	psf
Dry Density	108.7	pcf
Wet Density	130.8	pcf
Moisture	20.3	%
Pass No. 10	92.8	%
Pass No. 40	84.5	%
Pass No. 200	62.9	%
Sand Content	29.8	%
Silt Content	33.4	%
Clay Content	29.5	%

Hole Number	F3	
Station	1119+44	
Depth	30.0	ft
Soil Color	Gray	
Classification	Clay Silt	
Strength (Qu)	1,994	psf
Dry Density	105.1	pcf
Wet Density	127.2	pcf
Moisture	21.0	%
Pass No. 10	96.2	%
Pass No. 40	86.3	%
Pass No. 200	62.4	%
Sand Content	33.7	%
Silt Content	34.3	%
Clay Content	28.1	%

Hole Number	F4	
Station	1117+98	
Depth	20.0	ft
Soil Color	Brown	
Classification	Clay Sand	
Strength (Qu)	6,339	psf
Dry Density	112.8	pcf
Wet Density	132.1	pcf
Moisture	17.1	%
Pass No. 10	91.1	%
Pass No. 40	83.8	%
Pass No. 200	62.0	%
Sand Content	29.1	%
Silt Content	31.7	%
Clay Content	30.2	%

Hole Number	F4	
Station	1117+98	
Depth	45.0	ft
Soil Color	Gray	
Classification	Clay Sand	
Strength (Qu)	13,060	psf
Dry Density	120.9	pcf
Wet Density	137.3	pcf
Moisture	13.6	%
Pass No. 10	94.1	%
Pass No. 40	85.7	%
Pass No. 200	59.2	%
Sand Content	34.9	%
Silt Content	38.3	%
Clay Content	20.9	%



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

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

LEGEND

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

Drive tests are conducted by dropping a 490 pound hammer 30 inches to drive a 2⅞ inch drill stem to measure the resistance to penetration of the soil.

Penetration test holes are drilled with a 6⅝ inch diameter hollow stem auger. Penetration tests are conducted by dropping a 140 pound hammer 30 inches to collect samples and measure the resistance to penetration of the soil. Samples are collected using a lined Modified California Sampler. Penetration test results are listed as uncorrected "N" values in blows per foot.

GROUNDWATER ELEVATIONS

JULY 2023

F1 1552.0

AUGUST 2023

F2 1548.3

OCTOBER 2023

F3 MUD ROTARY
F4 MUD ROTARY

MEASURED SKIN FRICTION

	ELEV.	PSF
F1	1474.7	585
F2	1480.7	558

SUBSURFACE INVESTIGATION

FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

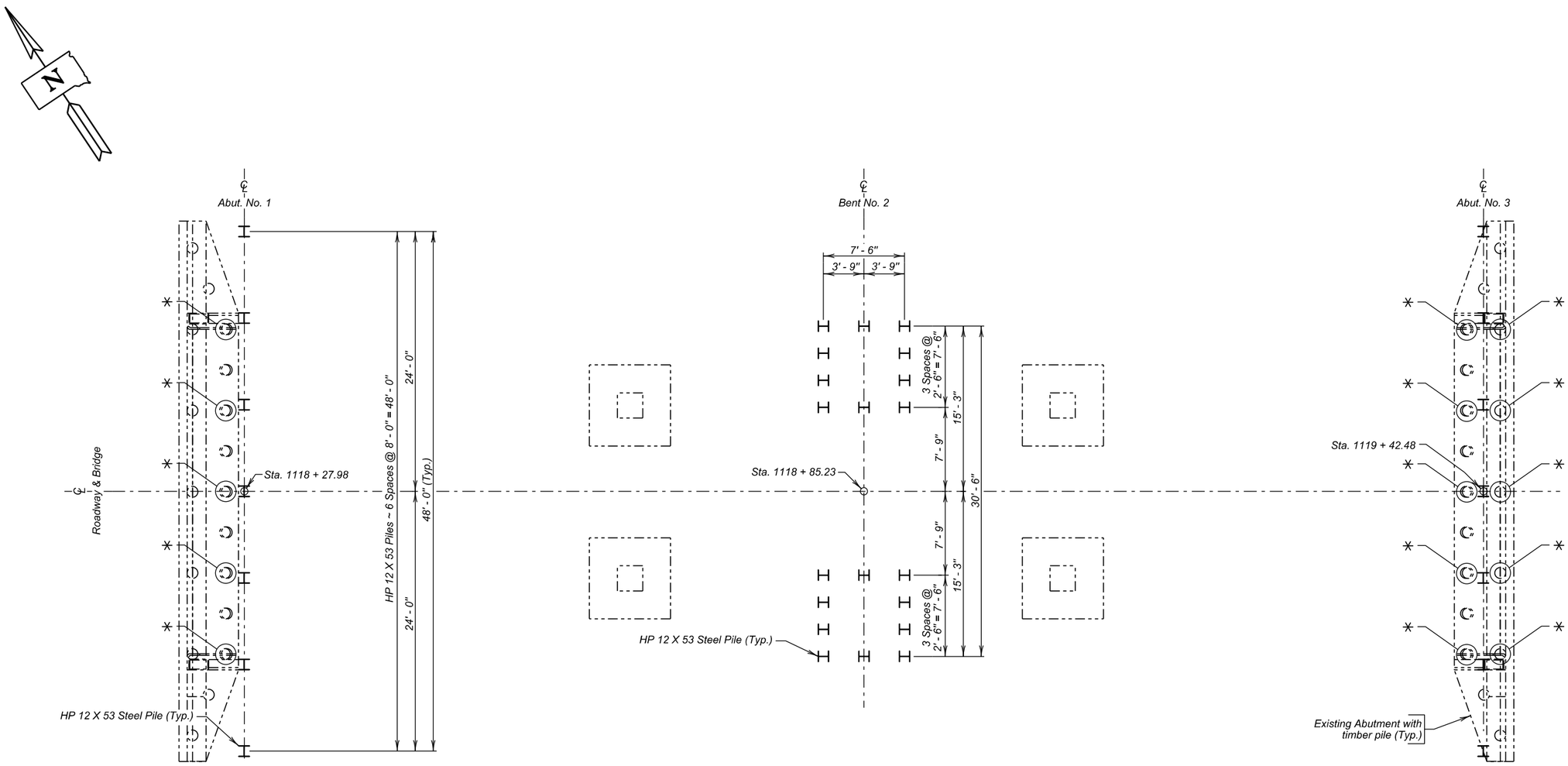
36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93

FAULK COUNTY

S. D. DEPT. OF TRANSPORTATION

OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	SH/BR	HK/BT	Steven A. Johnson BRIDGE ENGINEER
FALK05H1	05H1GA06		



PILING LAYOUT

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

NOTE:
✳ Existing timber pile to be extracted.

ESTIMATED QUANTITIES		
ITEM	*UNIT*	*QUANTITY*
Extract Pile	*Each*	*15*

PILING LAYOUT AND PILING INTERFERENCE DETAILS

FOR

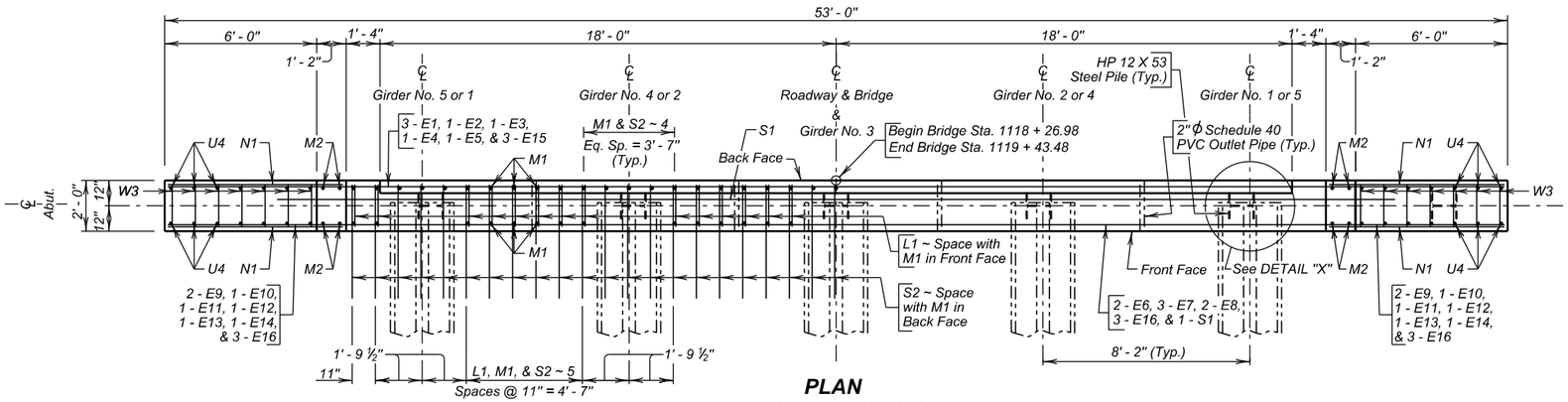
116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93

FAULK COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	BR	BT	Steven A. Johnson BRIDGE ENGINEER
FALK05H1	05H1GA07		

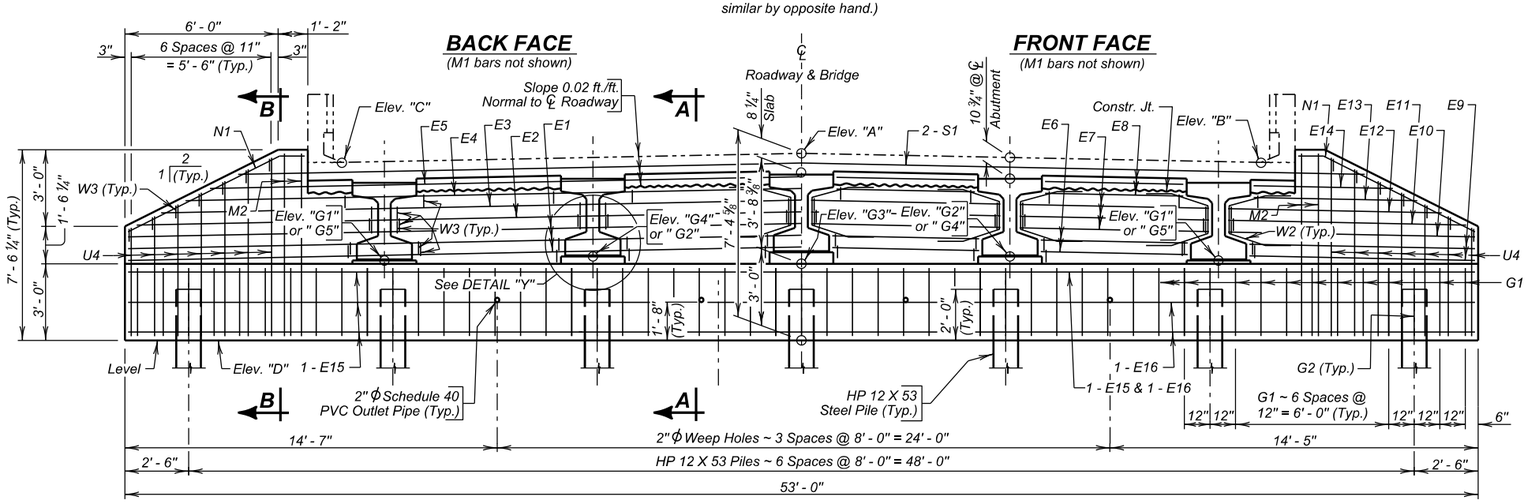
SD DOT	PROJECT	SECTION	SHEET
	NH-B 0212(194)266	E	10/26



PLAN
(Abut. No. 1 shown, Abut No. 3 similar by opposite hand.)

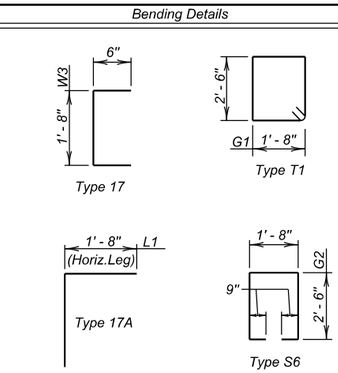
INCREASING STATIONS Abut. No. 1

INCREASING STATIONS Abut. No. 3



REINFORCING SCHEDULE
(For One Abutment)

	Mk.	No.	Size	Length	Type
	E1	3	6	52' - 8"	Str.
	E2	1	6	52' - 0"	Str.
	E3	1	6	50' - 2"	Str.
	E4	1	6	48' - 3"	Str.
	E5	1	6	46' - 4"	Str.
	E6	8	4	5' - 8"	Str.
	E7	12	4	7' - 4"	Str.
	E8	8	4	5' - 4"	Str.
	E9	4	4	8' - 9"	Str.
	E10	2	4	9' - 7"	Str.
	E11	2	4	9' - 3"	Str.
	E12	2	4	8' - 3"	Str.
	E13	2	4	6' - 4"	Str.
	E14	2	4	5' - 5"	Str.
	E15	4	6	52' - 8"	Str.
	E16	3	7	52' - 8"	Str.
	G1	46	4	9' - 1"	T1
	G2	7	5	8' - 2"	S6
△	L1	28	4	3' - 4"	17A
△	M1	71	5	5' - 10"	Str.
	M2	8	5	7' - 0"	Str.
	N1	4	5	7' - 7"	19B
△	S1	2	9	44' - 1"	Str.
△	S2	43	5	7' - 4"	14A
ϕ	U4	14	5	11' - 2"	Str.
	W1	5	5	4' - 8"	Str.
	W2	10	4	6' - 1"	14
	W3	74	5	2' - 8"	17

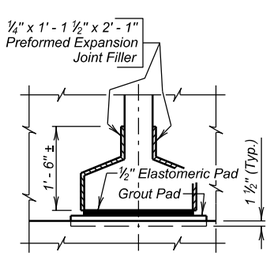


NOTES:
All dimensions are out to out of bars.
ϕ See cutting diagram.
△ Bars to be Epoxy Coated.

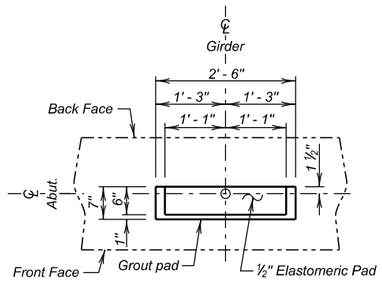
ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY Abut. No. 1	QUANTITY Abut. No. 3
ϕ	Class A45 Concrete, Bridge	Cu. Yd.	24.8	24.8
	Reinforcing Steel	Lb.	2228	2228
	Epoxy Coated Reinforcing Steel	Lb.	1123	1123
	Structure Excavation, Bridge	Cu. Yd.	11.5	12.1
	HP 12 x 53 Steel Test Pile, Furnish and Drive	Ft.	1 @ 125' = 125'	1 @ 125' = 125'
	HP 12 x 53 Steel Bearing Pile, Furnish and Drive	Ft.	6 @ 120' = 720'	6 @ 120' = 720'
	Preboring Pile	Ft.	7 @ 10' = 70'	7 @ 10' = 70'

ϕ Includes 0.1 cu. yds. for grout pads. 8 ft. of 2" dia. PVC Outlet Pipe is an approximate quantity contained in the Class A45 Concrete, Bridge.



DETAIL "Y"
(Typical at girder ends; abutments only)



DETAIL "X"

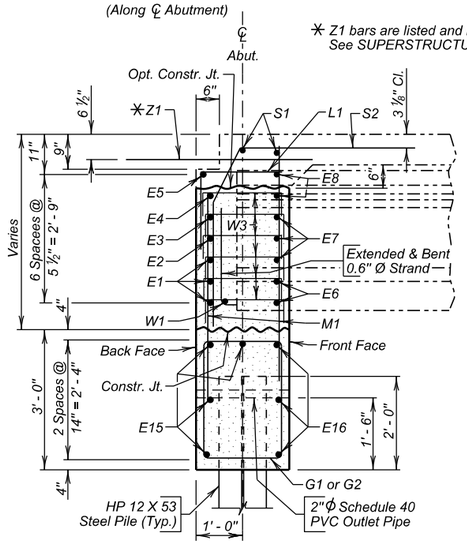
TABLE OF ELEVATIONS

Abut. No.	Elev. "A"	Elev. "B" & "C"	Elev. "D"	Elev. "G1" & "G5"	Elev. "G2" & "G4"	Elev. "G3"
1	1569.54	1569.18	1562.15	1565.27	1565.44	1565.60
3	1568.84	1568.48	1561.45	1564.58	1564.74	1564.90

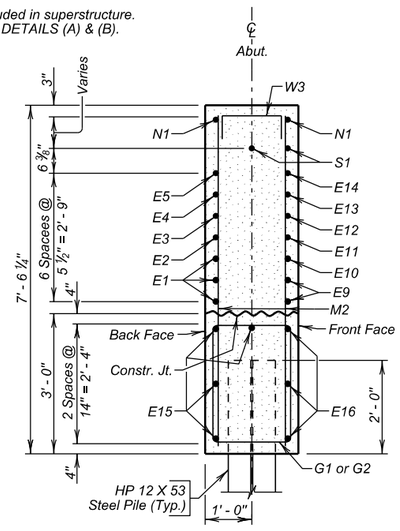
NOTE -
Elev. "A", "B", and "C" are top of slab at ℄ of Abutment. Elev. "G1", "G2", "G3", "G4" and "G5" are top of grout pad elevations at ℄ Abutment. Top of Grout Pads will be Level and Smooth.

ELEVATION
(Along ℄ Abutment)

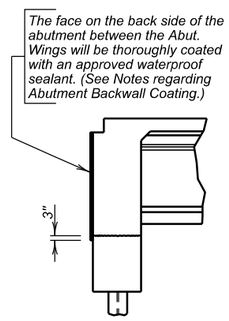
✳ Z1 bars are listed and included in superstructure. See SUPERSTRUCTURE DETAILS (A) & (B).



SECTION A - A



SECTION B - B



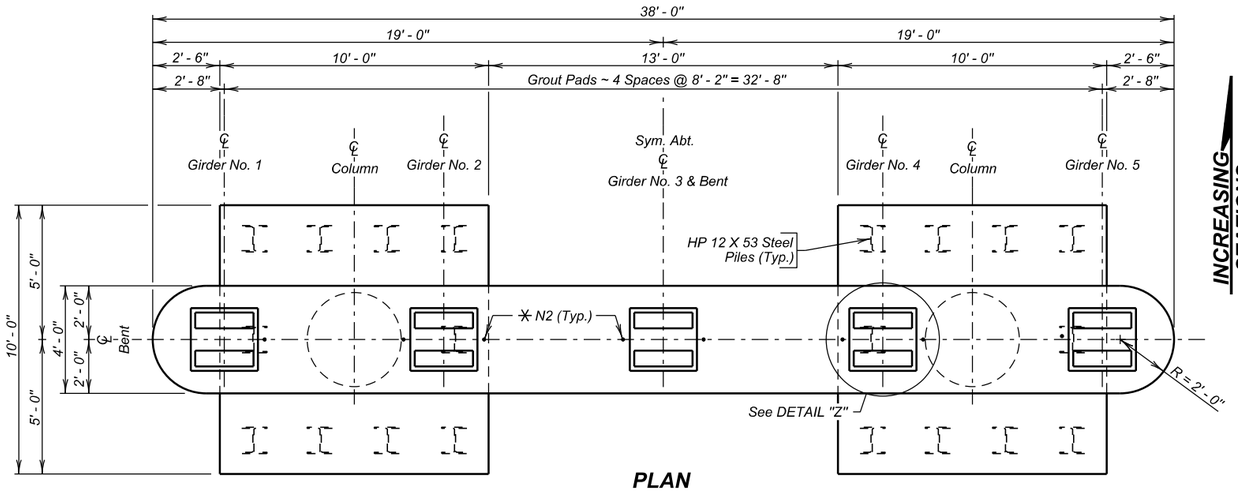
ABUT. BACKWALL COATING DETAILS

ABUTMENT DETAILS
FOR
116' - 6" PRESTRESSED GIRDER BRIDGE
36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93

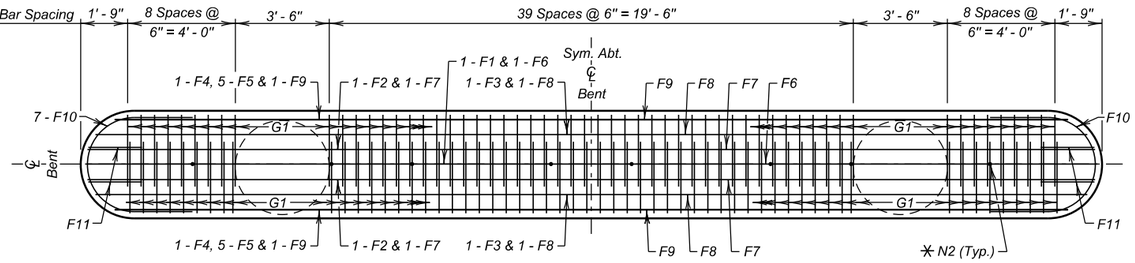
FAULK COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2025

8 OF 24

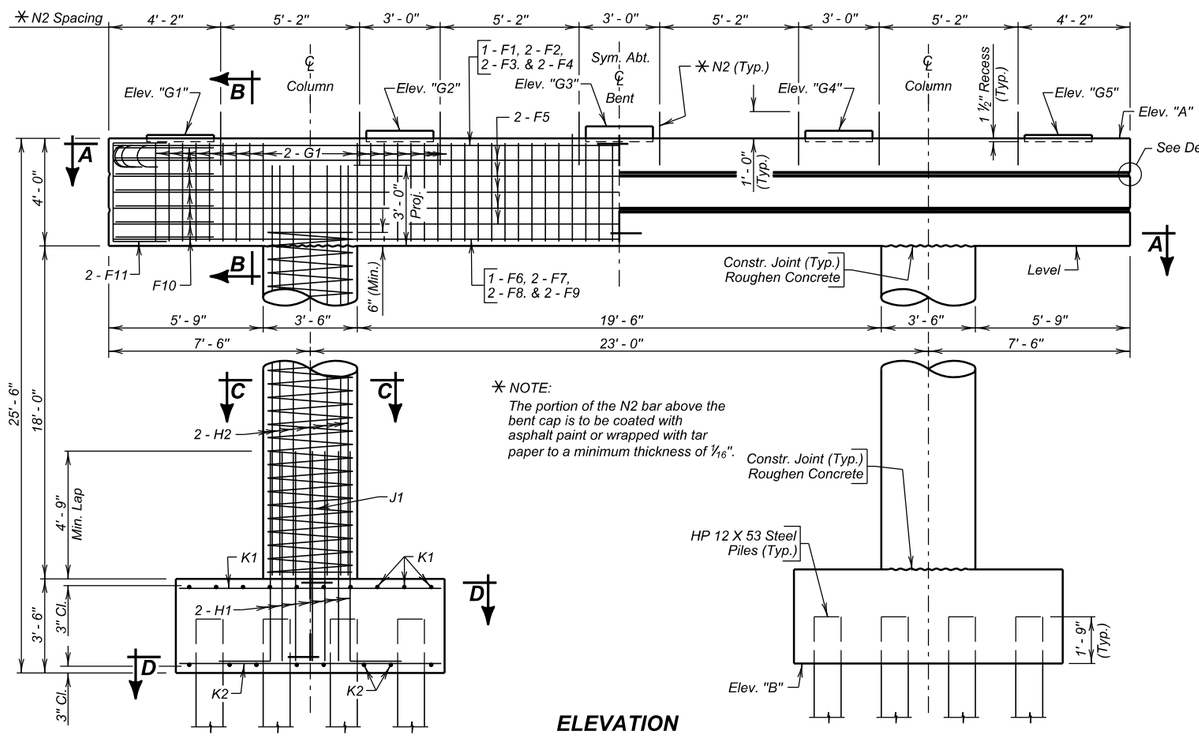
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	KB	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA08		



PLAN

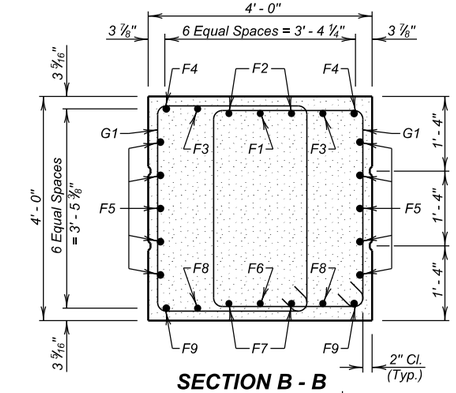


SECTION A - A

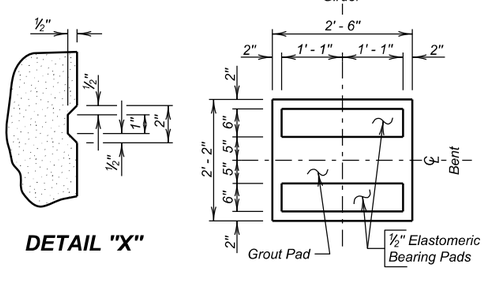


ELEVATION

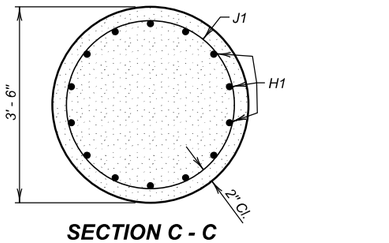
✳ NOTE:
The portion of the N2 bar above the bent cap is to be coated with asphalt paint or wrapped with tar paper to a minimum thickness of 1/16".



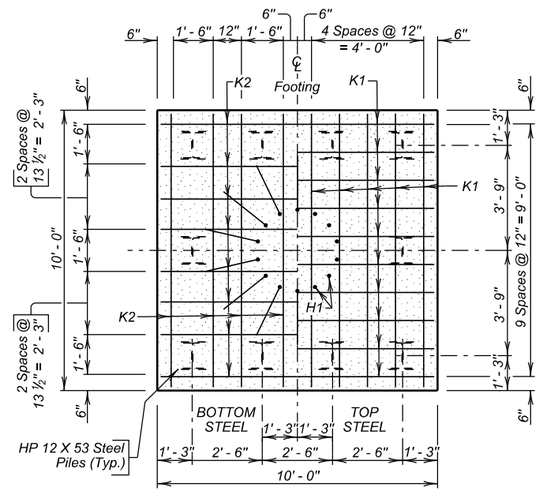
SECTION B - B



DETAIL "Z"



SECTION C - C



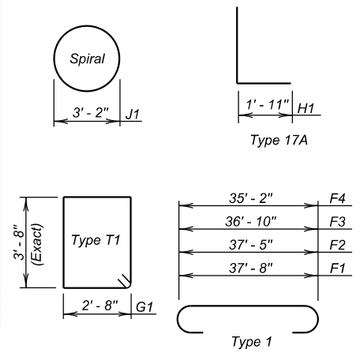
SECTION D - D

SD DOT	PROJECT	SECTION	SHEET
	NH-B 0212(194)266	E	11/26

REINFORCING SCHEDULE

Mk.	No.	Size	Length	Type
F1	1	11	40' - 2"	1
F2	2	11	39' - 11"	1
F3	2	11	39' - 4"	1
F4	2	11	37' - 8"	1
F5	10	4	35' - 2"	Str.
F6	1	11	37' - 8"	Str.
F7	2	11	37' - 5"	Str.
F8	2	11	36' - 10"	Str.
F9	2	11	35' - 2"	Str.
F10	14	5	10' - 2"	S11
F11	4	5	7' - 8"	17
G1	116	5	13' - 7"	T1
H1	28	10	9' - 11"	17A
H2	28	10	21' - 0"	Str.
J1	2	4	558' - 0"	Spiral
K1	40	4	9' - 9"	Str.
K2	32	10	9' - 9"	Str.
N2	8	8	2' - 0"	Str.

Bending Details



All dimensions are out to out of bars.
Spirals - Use 6" pitch and 1 ½ extra turns at each end. Use 1 ½ turns for lap at splice as required, or weld as approved by the Office of Bridge Design. Use 4 vertical spacer bars per column. Spirals may be smooth bars, bar length shown does not include splices.

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
⍁	Class A45 Concrete, Bridge	Cu. Yd.	61.3
△	Reinforcing Steel	Lb.	11156
	Structure Excavation, Bridge	Cu. Yd.	125.2
	HP 12 X 53 Steel Test Pile, Furnish and Drive	Ft.	1 @ 105' = 105'
	HP 12 X 53 Steel Bearing Pile, Furnish and Drive	Ft.	19 @ 100' = 1900'

⍁ Includes 0.3 Cu. Yds. for Grout Pads.
△ Includes 162 lbs. for Spacer Bars.
Each bar is computed at ¾ lbs per linear foot regardless of type furnished.

⟠ TABLE OF ELEVATIONS

Bent No.	Elev. "A"	Elev. "B"	Elev. "G1" or "G5"	Elev. "G2" or "G4"	Elev. "G3"
2	1564.72	1539.22	1564.85	1565.01	1565.17

NOTES:
⟠ Elev. "G1", "G2", "G3", "G4", and "G5" are on top of grout pads at ℄ Bent.
Top of grout pads will be level and smooth.

BENT DETAILS

FOR

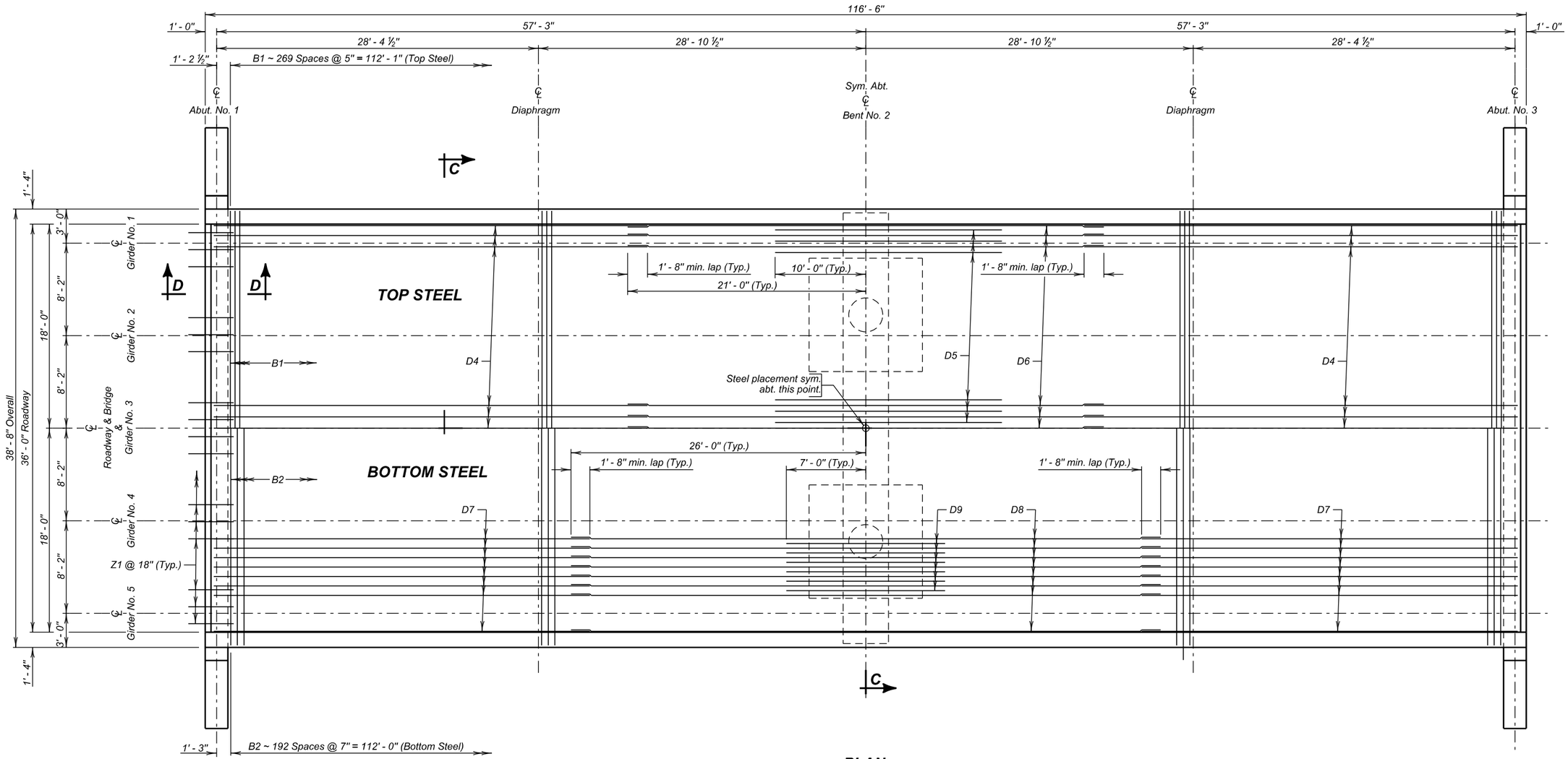
116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93

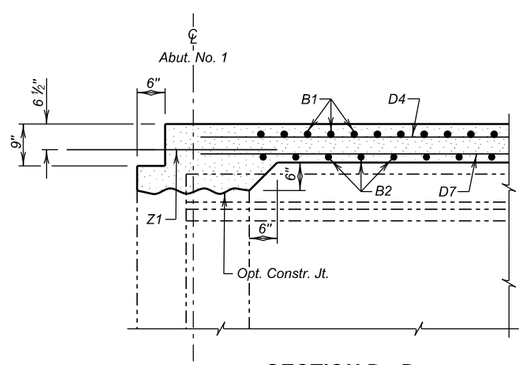
FAULK COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	BR	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA09		

SD DOT	PROJECT	SECTION	SHEET
	NH-B 0212(194)266	E	12/26



PLAN



SECTION D - D

SUPERSTRUCTURE DETAILS (A)

FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY	0° SKEW
OVER S. FORK SNAKE CREEK	SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48	NH-B 0212(194)266
STR. NO. 25-210-144	HL-93

FAULK COUNTY

S. D. DEPT. OF TRANSPORTATION

OCTOBER 2025

10 OF 24

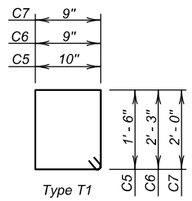
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KB	BR	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA10		

SD DOT	PROJECT	SECTION	SHEET
	NH-B 0212(194)266	E	13/26

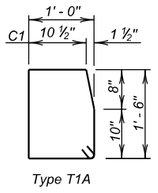
REINFORCING SCHEDULE

	Mk.	No.	Size	Length	Type
∡	B1	270	5	39' - 7"	1
	B2	193	5	38' - 4"	Str.
	B15	12	5	9' - 6"	19B
	B16	8	4	26' - 9"	Str.
⟠	B17	8	4	5' - 8"	Str.
	B18	12	8	3' - 0"	19B
	B19	12	5	2' - 0"	Str.
	B20	12	6	3' - 6"	17A
	B21	4	4	5' - 9"	19
	B22	4	4	3' - 3"	19B
	C1	210	5	5' - 10"	T1A
	C2	214	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
	D	16	4	29' - 9"	Str.
	D0	16	5	30' - 7"	Str.
	D1	48	4	26' - 11"	Str.
	D2	4	4	2' - 6"	Str.
	D3	4	4	2' - 6"	19B
	D4	74	5	38' - 3"	Str.
	D5	36	6	20' - 0"	Str.
	D6	37	6	42' - 0"	Str.
	D7	60	5	33' - 2"	Str.
	D8	30	5	52' - 0"	Str.
	D9	24	5	14' - 0"	Str.
	T1	8	6	5' - 8"	Str.
	T2	16	5	7' - 4"	Str.
	T3	8	5	5' - 4"	Str.
✳	T4	6	5	5' - 0"	Str.
	T5	3	5	35' - 10"	Str.
✳	T6	16	5	5' - 3"	17A
	T7	4	5	3' - 0"	Str.
	T8	16	6	2' - 6"	Str.
✳	U1	20	4	10' - 10"	S4
✳	U2	10	6	11' - 4"	S4
	U3	24	4	3' - 7"	17
⊛	Z1	48	7	4' - 0"	Str.

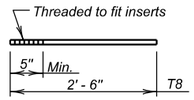
Bending Details

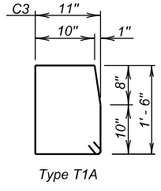


Type T1

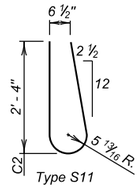


Type T1A

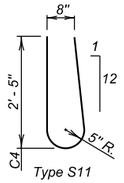




Type T1A



Type S11



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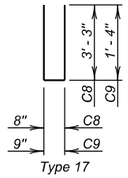
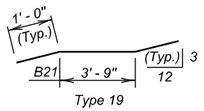
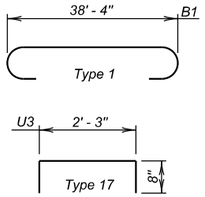


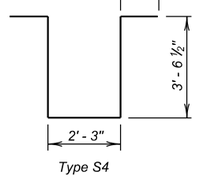
Type 17



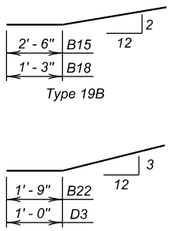
Type 19



Type 1



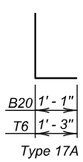
Type S4



Type 19B

Type 17

Type 19B



Type 17A

NOTES -

All reinforcing steel will be stainless steel except as noted.

All dimensions are out to out of bars.

✳ Bars to be epoxy coated.

⟠ Bend in field as necessary to fit.

∡ Tip bars as required to maintain top and bottom clear cover.

⊛ The Contractor may substitute two bars and a mechanical splice for the single bar shown. All additional costs of this option will be borne by the Contractor.

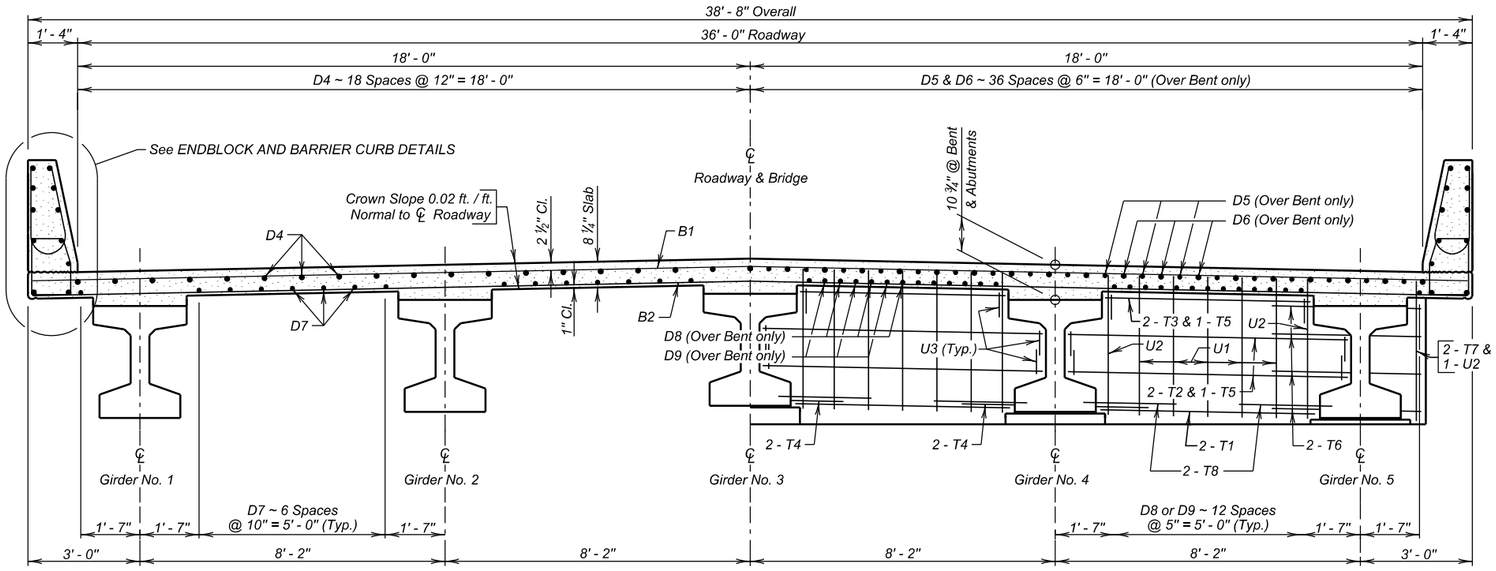
ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
☆	Class A45 Concrete, Bridge Deck	Cu.Yd.	163.6
⏍	Stainless Reinforcing Steel	Lb.	35193
⊛	Epoxy Coated Reinforcing Steel	Lb.	434
	36" Minnesota Shape Prestressed Concrete Beam	Ft.	570.0
	Concrete Penetrating Sealer	Sq.Yd.	462

⊛ Only Bent Diaphragms.

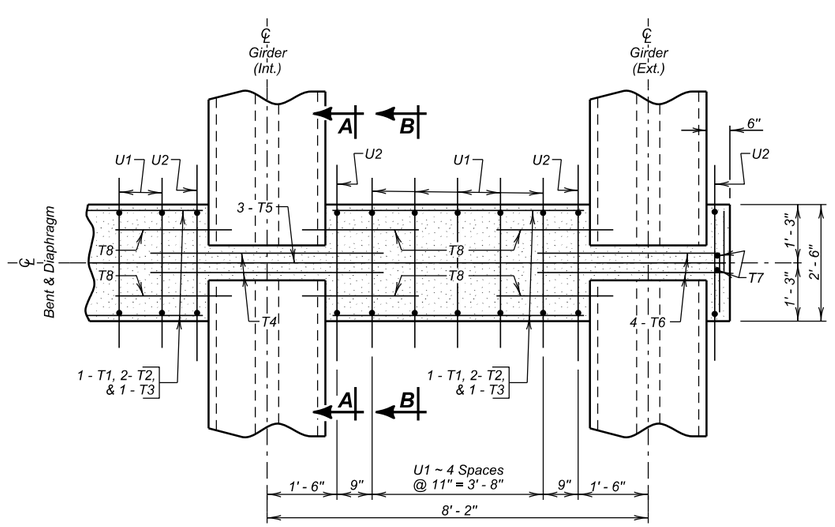
⏍ Includes quantities for Bent Diaphragms, Barrier Curbs, and Slab.

☆ Includes quantities for Bent Diaphragms, Barrier Curbs, Slab, and Haunch. (Average depth of 2 ¼" used for Haunch Quantity.) Concrete Quantity for Barrier Curbs is 0.1184 Cu.Yd. / Ft. and for End blocks is 0.7184 Cu.Yd. each.



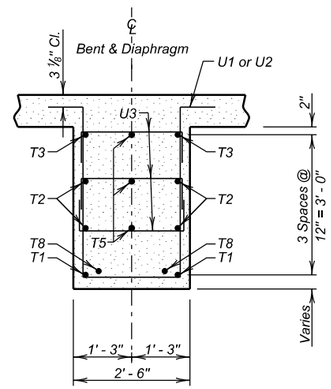
SECTION C - C

(Midspan diaphragm not shown in this section, see DIAPHRAGM DETAILS.)



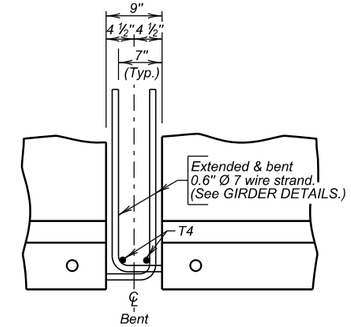
BENT DIAPHRAGMS

(Slab Not Shown)



SECTION B - B

(Girders Not Shown)



SECTION A - A

(Showing extended and bent strand detail and T4 bar placement at Bent. T6 similar at exterior girder.)

NOTE -

Concrete will be placed in the space under the beams at Bent No. 2 (within the diaphragm width) during the diaphragm pour. If upon form removal the space is not completely filled and consolidated, the Contractor will grout in the remaining voids.

SUPERSTRUCTURE DETAILS (B)

FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW

OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W

STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266

STR. NO. 25-210-144 — HL-93

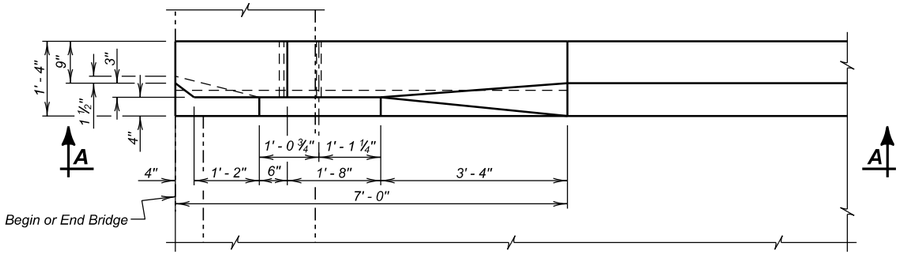
FAULK COUNTY

S. D. DEPT. OF TRANSPORTATION

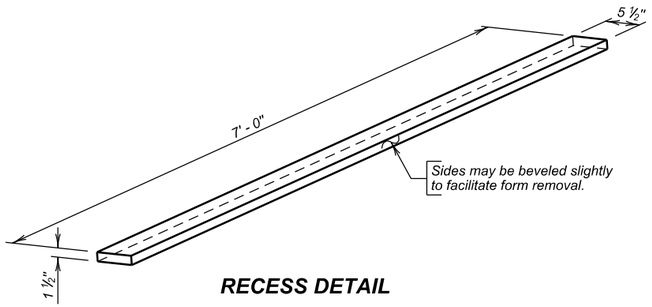
OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KB	BR	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA11		

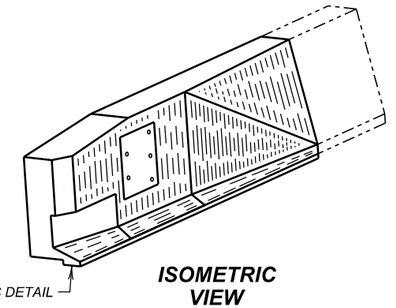
SD DOT	PROJECT	SECTION	SHEET
	NH-B 0212(194)266	E	14/26



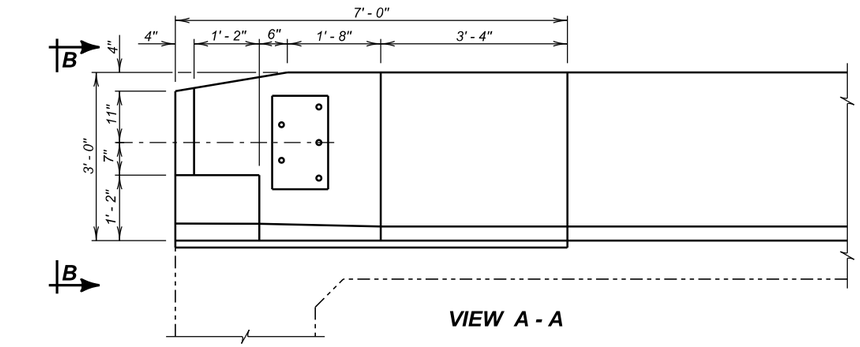
PART PLAN



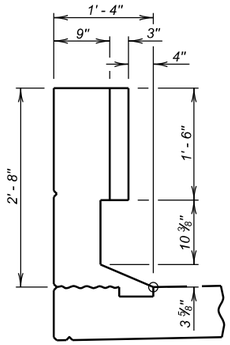
RECESS DETAIL



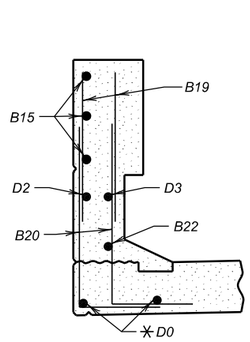
ISOMETRIC VIEW



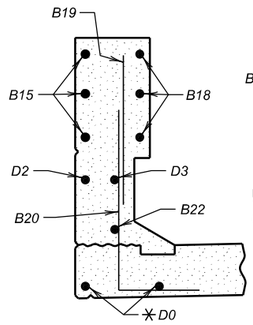
VIEW A - A



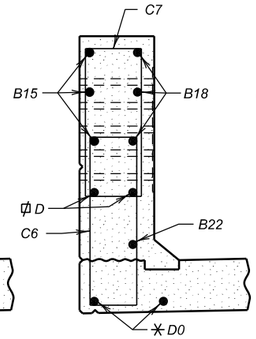
VIEW B - B



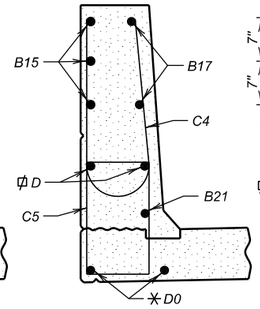
SECTION C - C



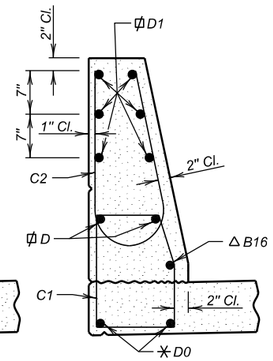
SECTION D - D



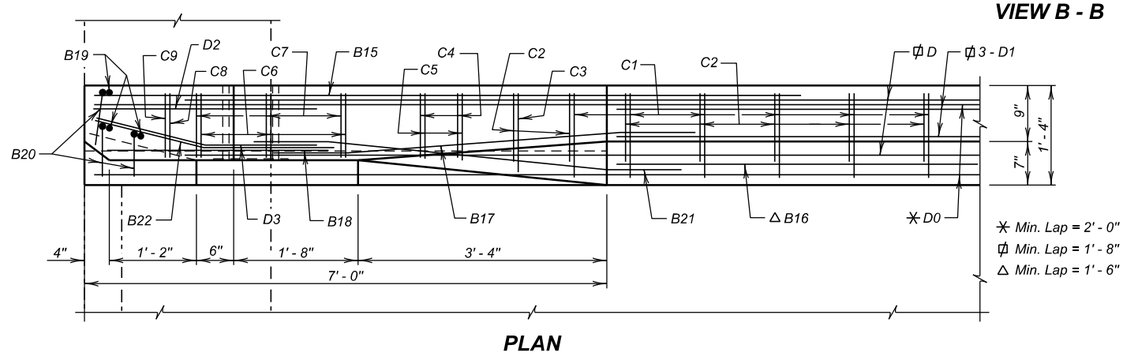
SECTION E - E



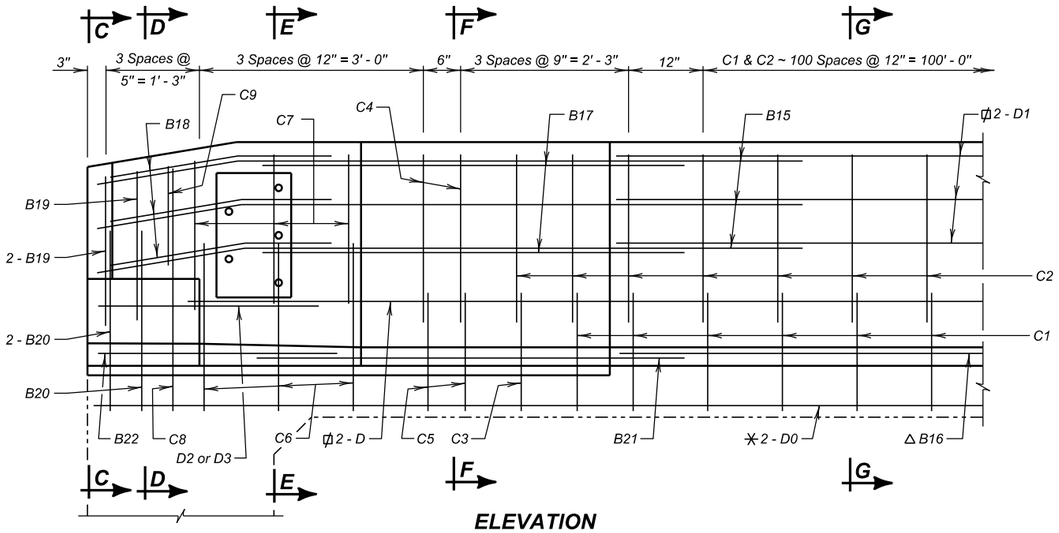
SECTION F - F



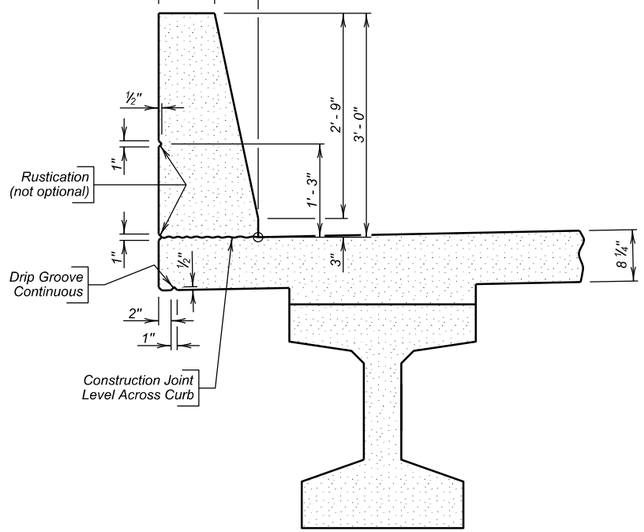
SECTION G - G



PLAN



ELEVATION



BARRIER DETAILS

ENDBLOCK AND BARRIER CURB DETAILS

FOR

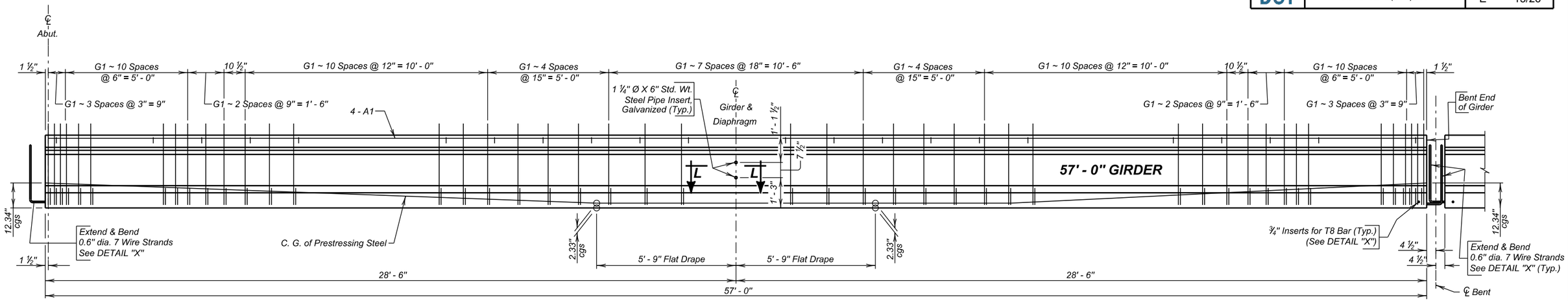
116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93

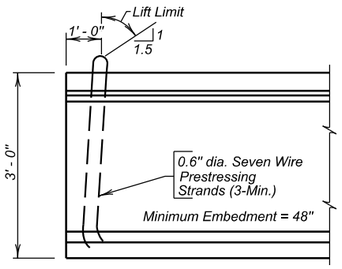
FAULK COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KB	BR	BT	Steve A. Johnson BRIDGE ENGINEER
FALK05H1	05H1GA12		

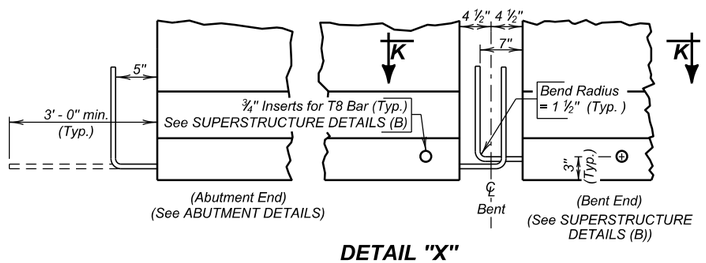
SD DOT	PROJECT	SECTION	SHEET
	NH-B 0212(194)266	E	15/26



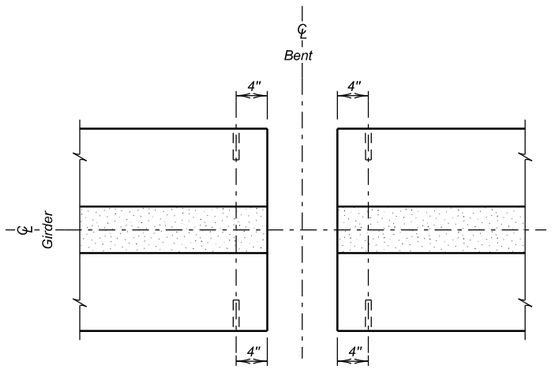
ELEVATION



TYPICAL LIFTING DEVICE



DETAIL "X"



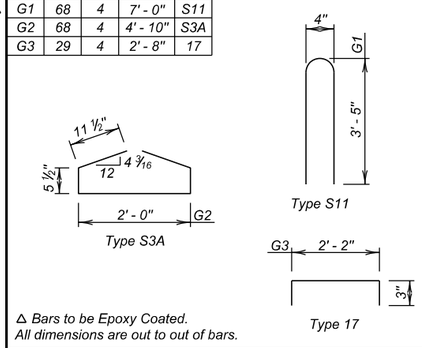
SECTION K - K

Layout for inserts at beam ends (Bent only)

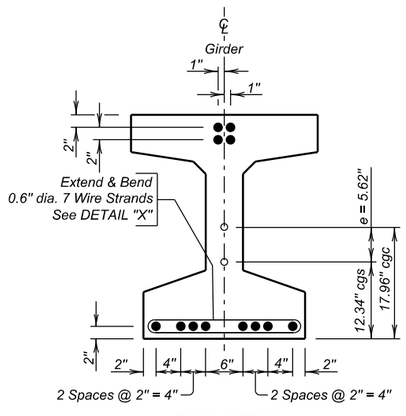
REINFORCING SCHEDULE

(For One Girder)

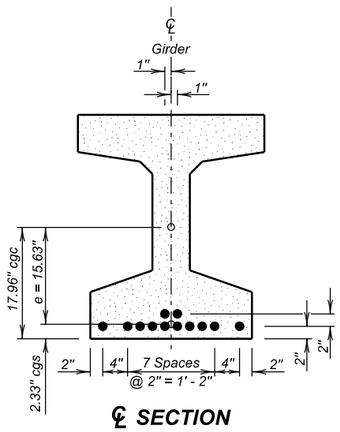
Mk.	No.	Size	Length	Type	Bending Details
A1	4	7	56' - 9"	Str.	
G1	68	4	7' - 0"	S11	
G2	68	4	4' - 10"	S3A	
G3	29	4	2' - 8"	17	



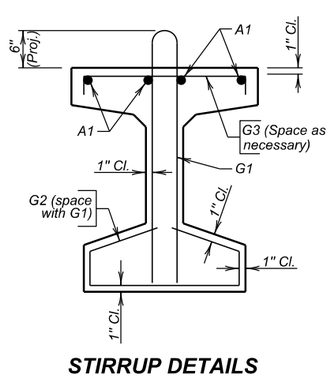
△ Bars to be Epoxy Coated.
All dimensions are out to out of bars.



END VIEW



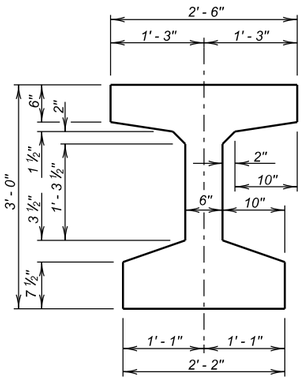
℄ SECTION



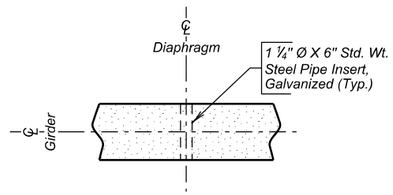
STIRRUP DETAILS

57' - 0" GIRDERS

(12 ~ 0.6 Dia. Type 270 Low Lax. Strands)



TYPE 36 GIRDER



SECTION L - L

57' - 0" GIRDER DETAILS

FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY	0° SKEW
OVER S. FORK SNAKE CREEK	SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48	NH-B 0212(194)266
STR. NO. 25-210-144	HL-93

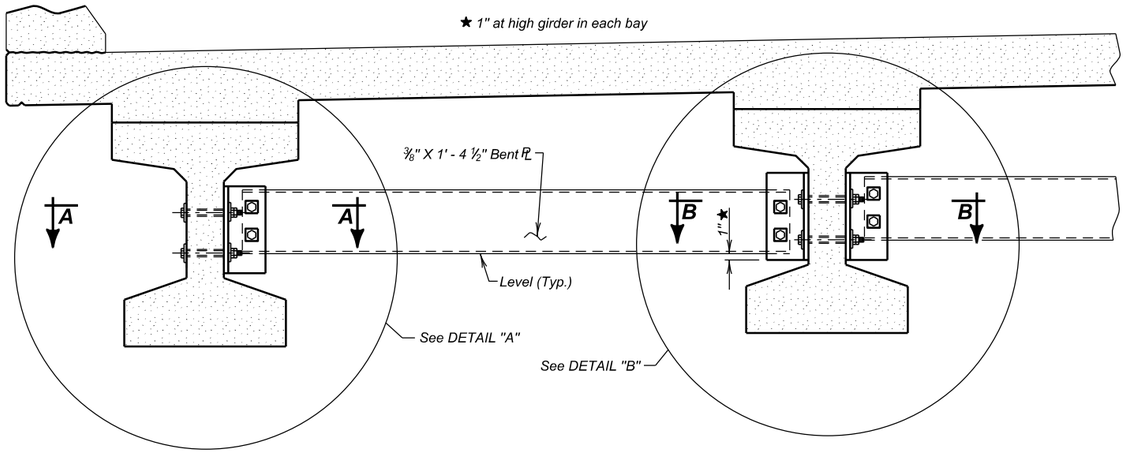
FAULK COUNTY

S. D. DEPT. OF TRANSPORTATION

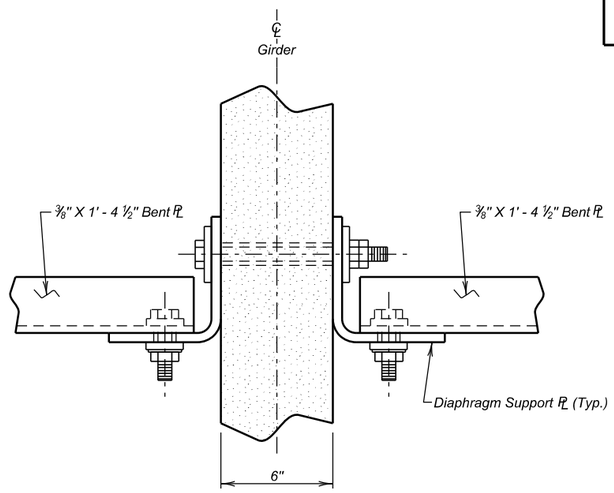
OCTOBER 2025

13 OF 24

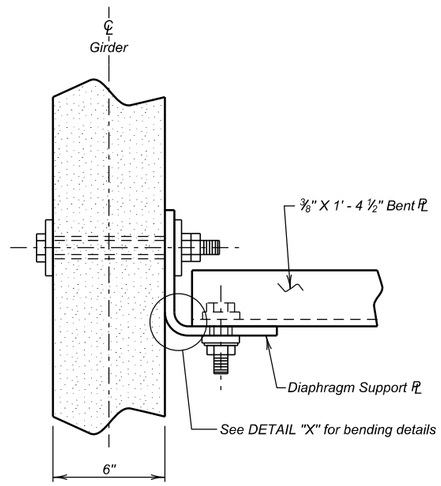
DESIGNED BY	CK. DES. BY	DRAFTED BY	
KB	BR	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA13		



SECTION AT DIAPHRAGM

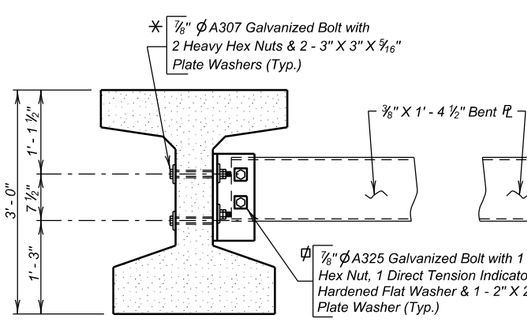


SECTION B - B

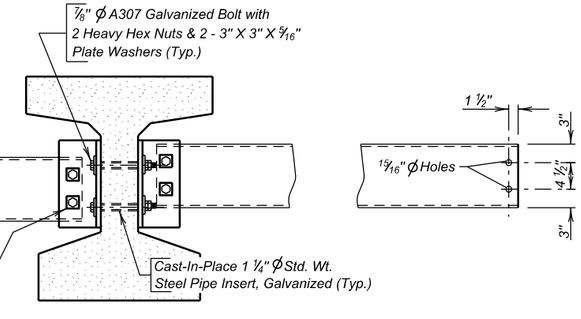


SECTION A - A

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

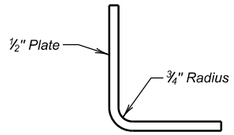


DETAIL "A"
(Typ. Exterior Girder)

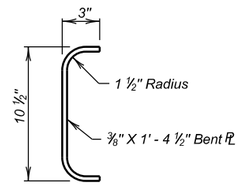


DETAIL "B"
(Typ. Interior Girder)

⌀ *Bolt Head and Direct Tension Indicator shall be adjacent to 15/16" ∅ holes in Bent Plate Diaphragm.*



DETAIL "X"



END VIEW BENT PLATE DIAPHRAGM

NOTES:

1. *All steel for the diaphragms including plate washers will conform to ASTM A36 and will be galvanized in accordance with ASTM A123 or A153. Bolts, nuts, and washers will be galvanized in accordance with ASTM F2329. Direct Tension Indicators will conform to Section 410.3. G.5b of the Specifications.*
2. *The steel diaphragms between adjacent girders will be installed as soon as possible and in conjunction with girder erection.*
3. *All costs associated with furnishing, fabricating, assembly and installation of diaphragms will be included in the lump sum price for Structural Steel, Miscellaneous.*

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

△ *For informational purposes only, the estimated weight of structural steel is 1776 Lbs. for 8 diaphragms.*

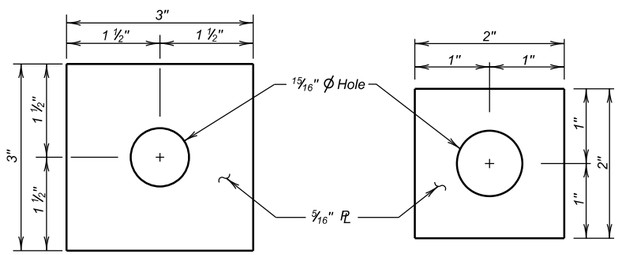
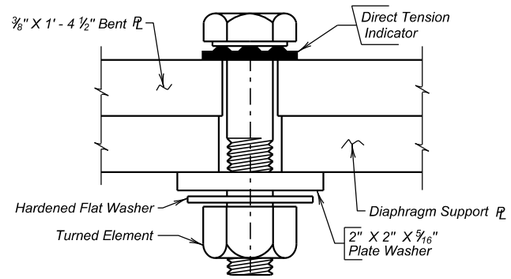
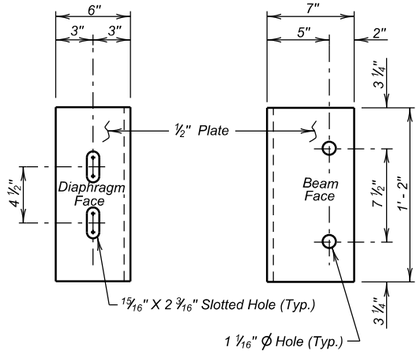


PLATE WASHER DETAILS



DIRECT TENSION INDICATOR DETAIL



DIAPHRAGM SUPPORT PLATE

DIAPHRAGM DETAILS

FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93

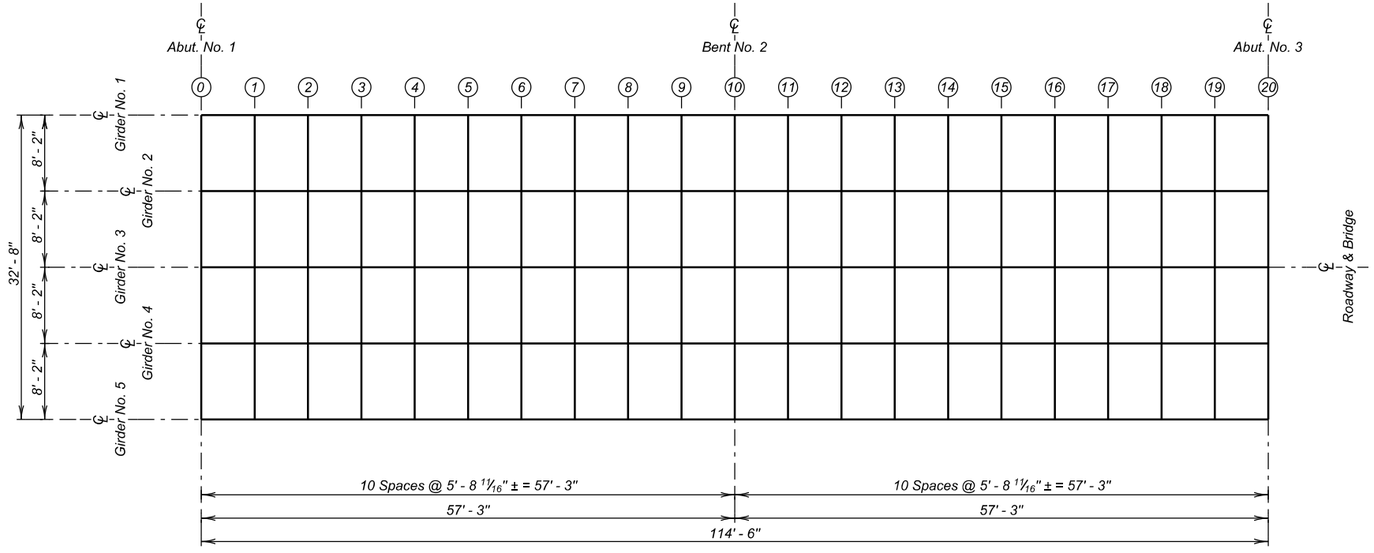
FAULK COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KB	BR	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA14		

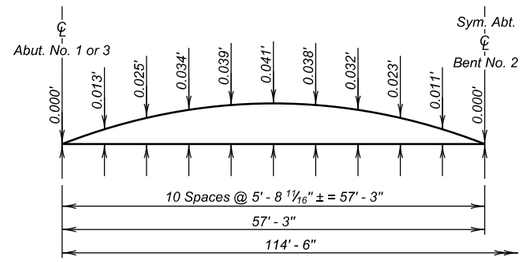
SD DOT	PROJECT	SECTION	SHEET
	NH-B 0212(194)266	E	17/26

TABLE OF SLAB FORM ELEVATIONS AND CALCULATIONS

		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Girder No. 1	Elev. "M"	1569.210	1569.174	1569.138	1569.100	1569.061	1569.020	1568.976	1568.929	1568.881	1568.832	1568.786	1568.763	1568.742	1568.720	1568.697	1568.671	1568.643	1568.612	1568.580	1568.547	1568.513
	(-) Elev. "N"																					
	(=) d																					
	(-) 0.688																					
	(=) h																					
Girder No. 2	Elev. "M"	1569.374	1569.337	1569.301	1569.264	1569.225	1569.183	1569.139	1569.093	1569.045	1568.996	1568.949	1568.926	1568.905	1568.883	1568.860	1568.834	1568.806	1568.776	1568.743	1568.710	1568.676
	(-) Elev. "N"																					
	(=) d																					
	(-) 0.688																					
	(=) h																					
Girder No. 3	Elev. "M"	1569.537	1569.501	1569.464	1569.427	1569.388	1569.346	1569.302	1569.256	1569.208	1569.159	1569.112	1569.089	1569.068	1569.047	1569.023	1568.998	1568.970	1568.939	1568.907	1568.873	1568.840
	(-) Elev. "N"																					
	(=) d																					
	(-) 0.688																					
	(=) h																					
Girder No. 4	Elev. "M"	1569.374	1569.337	1569.301	1569.264	1569.225	1569.183	1569.139	1569.093	1569.045	1568.996	1568.949	1568.926	1568.905	1568.883	1568.860	1568.834	1568.806	1568.776	1568.743	1568.710	1568.676
	(-) Elev. "N"																					
	(=) d																					
	(-) 0.688																					
	(=) h																					
Girder No. 5	Elev. "M"	1569.210	1569.174	1569.138	1569.100	1569.061	1569.020	1568.976	1568.929	1568.881	1568.832	1568.786	1568.763	1568.742	1568.720	1568.697	1568.671	1568.643	1568.612	1568.580	1568.547	1568.513
	(-) Elev. "N"																					
	(=) d																					
	(-) 0.688																					
	(=) h																					

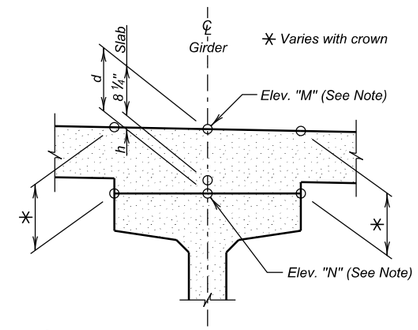


GIRDER LAYOUT



CAMBER DIAGRAM

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



NOTE –

Based on a "d" of 10 ¾" at the ℄ of each abutment and 10 ¾" at the ℄ of the Bent (see SEC. C - C on SUPERSTRUCTURE DETAILS (A), it is anticipated that the midspan haunch dimension "h" over the ℄ of each girder will be 1 ¼". If when computing the dimensions in the table, it is found that any dimension "h" is less than zero or greater than 4" the Office of Bridge Design of the South Dakota Dept. of Transportation will be notified immediately. After the "Table of Slab Form Elevations and Calculations" has been completely filled out and approved for deck forming, a copy will be forwarded to the Office of Bridge Design for review and analysis for the purpose of securing information relative to camber growth in the beams. This information is necessary for preparing plans for future structures of this type.

NOTE –

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

ERECTION DATA AND SLAB FORM ELEVATIONS

FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY	0° SKEW
OVER S. FORK SNAKE CREEK	SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48	NH-B 0212(194)266
STR. NO. 25-210-144	HL-93

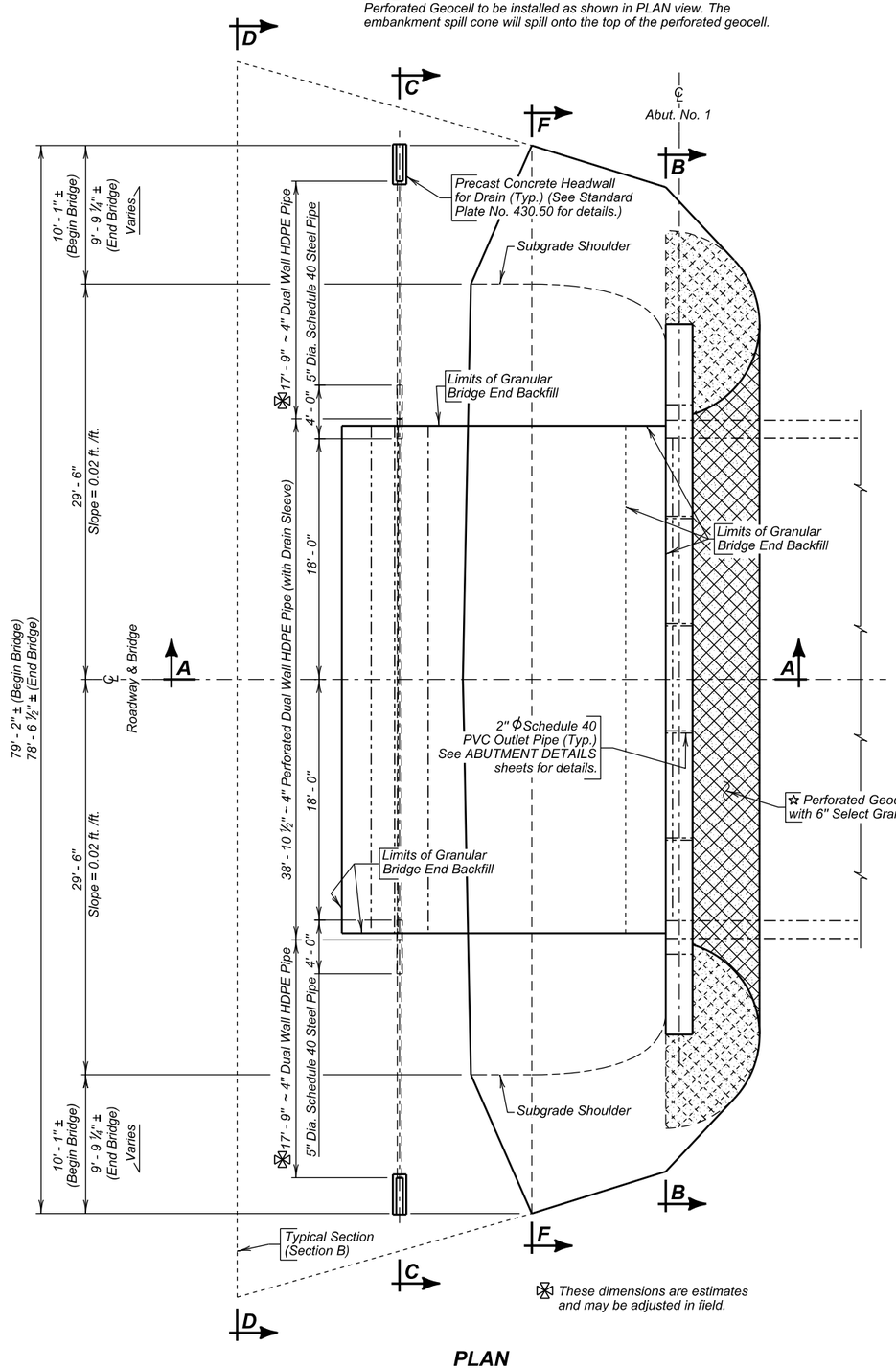
FAULK COUNTY

S. D. DEPT. OF TRANSPORTATION

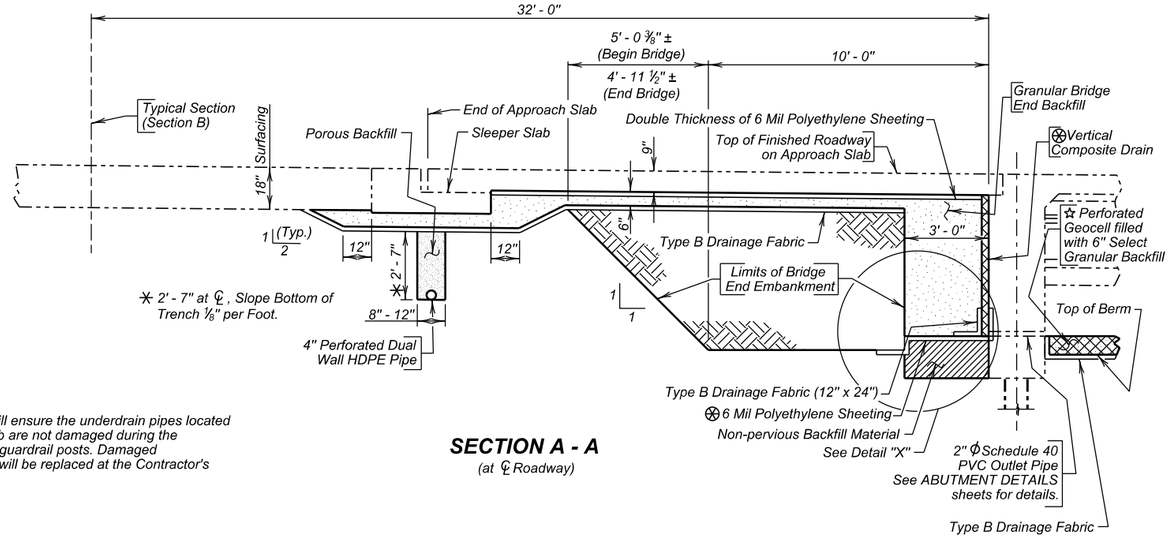
OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
KB	BR	BT	Steven A. Johnson BRIDGE ENGINEER
FALK05H1	05H1GA15		

NOTE:
Perforated Geocell to be installed as shown in PLAN view. The embankment spill cone will spill onto the top of the perforated geocell.

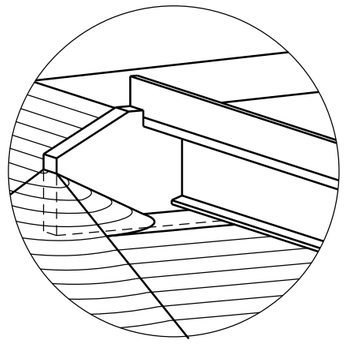


PLAN
(Bridge End Backfill shown adjacent to Abut. No. 1 Abut. No. 3 similar opposite hand except as shown.)

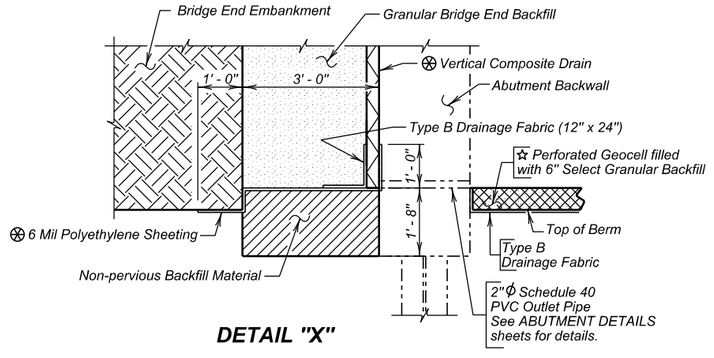


SECTION A - A
(at ℄ Roadway)

NOTE:
The Contractor will ensure the underdrain pipes located at the sleeper slab are not damaged during the installation of the guardrail posts. Damaged underdrain pipes will be replaced at the Contractor's expense.



SPILL CONE DETAIL AT EMBANKMENT



DETAIL "X"

⊛ *Provide hole in vertical composite drain and 6 mil polyethylene sheeting to provide drainage through weep holes.*

☆ *See PERFORATED GEOCELL notes for payment information.*

ESTIMATED QUANTITIES
(For Two Abutments)

ITEM	UNIT	QUANTITY
Granular Bridge End Backfill	Cu. Yd.	76
Bridge End Embankment	Cu. Yd.	310
Porous Backfill	Ton	14
4" Perforated Dual Wall HDPE Pipe	Ft.	78
4" Dual Wall HDPE Pipe	Ft.	71
Approach Slab Underdrain Excavation	Cu. Yd.	14.1
Precast Concrete Headwall for Drain	Each	4

1. 16 ft. 5" dia. Schedule 40 Steel Pipe.
Item 1 is the approximate quantity contained in the 4" Perforated Dual Wall HDPE Pipe and is for information only.
2. 375 sq. ft. Vertical Composite Drain.
3. 3056 sq. ft. 6 mil Polyethylene Sheeting, not including laps.
4. 182 sq. yd. Type B Drainage Fabric.
Items 2 thru 4 are approximate quantities contained in the Granular Bridge End Backfill and are for information only.

For estimating purposes only, a factor of 1.89 tons/cu. yd. was used to convert cu. yds. to tons.

Shrinkage Factor of 1.25 used.

Quantity based on a 12" wide trench.

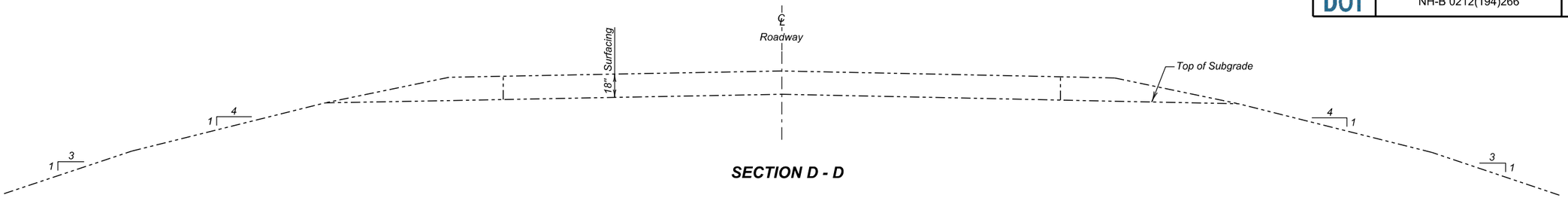
DETAILS OF BRIDGE END BACKFILL (A)
FOR
116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93

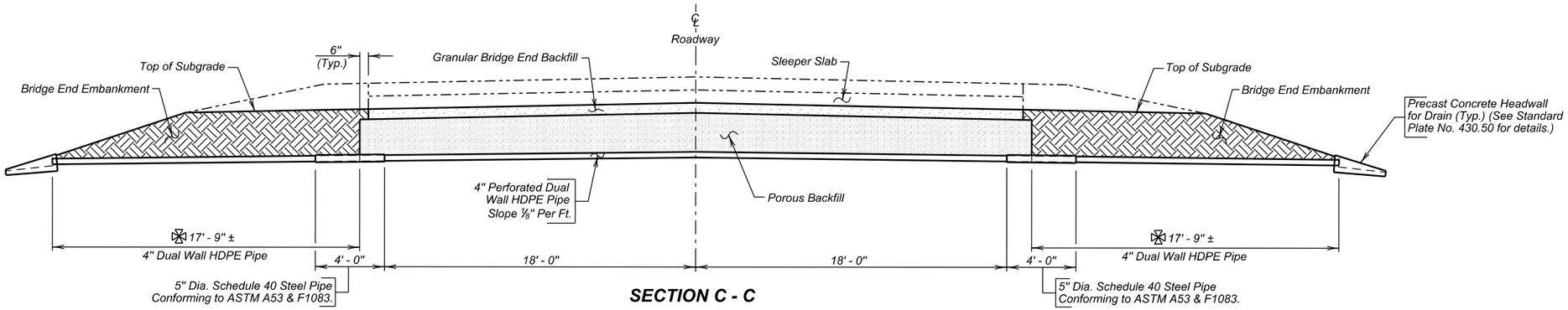
FAULK COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	KB	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA16		

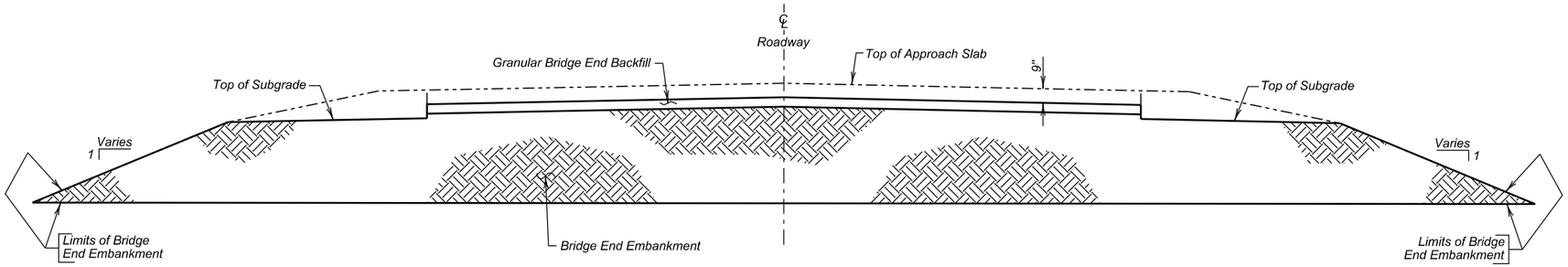
SD DOT	PROJECT	SECTION	SHEET
	NH-B 0212(194)266	E	19/26



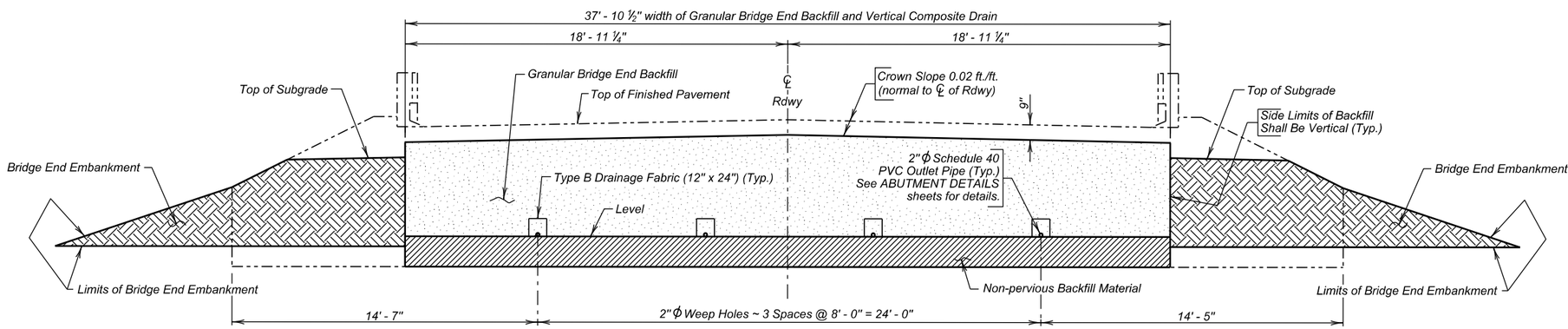
SECTION D - D



SECTION C - C



SECTION F - F



SECTION B - B

DETAILS OF BRIDGE END BACKFILL (B)

FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY	0° SKEW
OVER S. FORK SNAKE CREEK	SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48	NH-B 0212(194)266
STR. NO. 25-210-144	HL-93

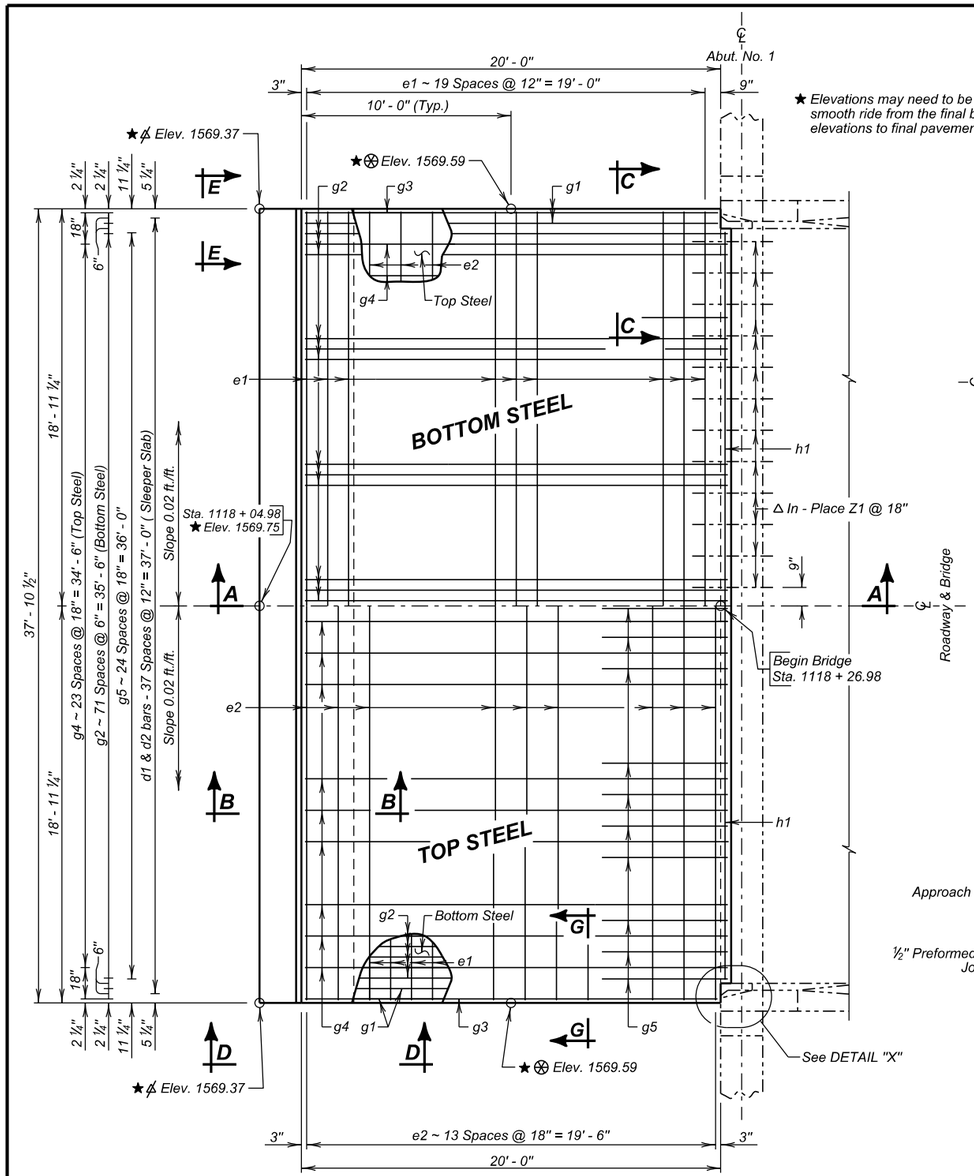
FAULK COUNTY

S. D. DEPT. OF TRANSPORTATION

OCTOBER 2025

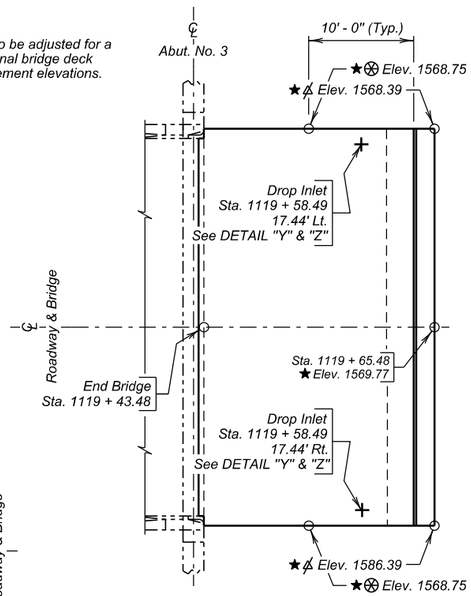
17 OF 24

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	KB	BT	Steve A. Johnson BRIDGE ENGINEER
FALK05H1	05H1GA17		



PLAN
(Shown adj. to Abut. No. 1, Abut No. 3 similar opposite hand except as shown.)

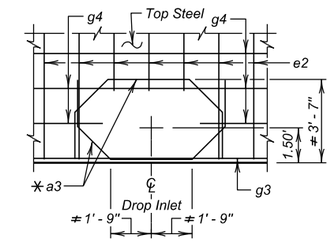
★ Elevations may need to be adjusted for a smooth ride from the final bridge deck elevations to final pavement elevations.



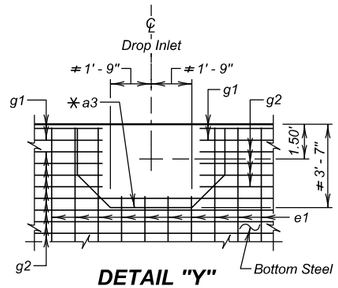
PLAN
(Shown adj. to Abut. No. 3)

✳ Add a3 bar to bottom layer of steel as shown in DETAIL "Y" and top layer of steel as shown in DETAIL "Z".

≠ Cut all bars in area of drop inlet as shown in DETAIL "Y" and DETAIL "Z".



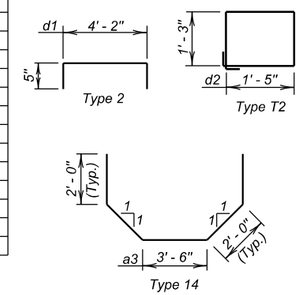
DETAIL "Z"
(Plan for Top Steel when drop inlet is used.)



DETAIL "Y"
(Plan for Bottom Steel when drop inlet is used.)

REINFORCING SCHEDULE
(For Two Approach Slabs & Two Sleeper Slabs)

Mk.	No.	Size	Length	Type
Sleeper Slabs				
c1	32	5	37' - 7"	Str.
d1	152	4	5' - 0"	2
d2	76	4	6' - 1"	T2
Approach Slabs				
a3	6	4	11' - 6"	14
e1	40	6	37' - 7"	Str.
e2	28	4	37' - 7"	Str.
g1	8	8	19' - 8"	Str.
g2	144	8	20' - 2"	Str.
g3	4	4	19' - 8"	Str.
g4	48	4	20' - 2"	Str.
g5	50	4	6' - 0"	Str.
h1	4	6	35' - 8"	Str.



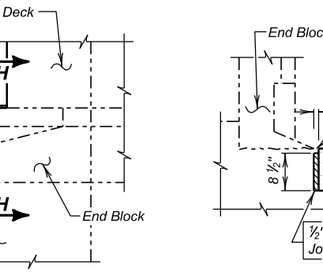
NOTE:
All bars to be epoxy coated.
All dimensions are out to out of bars.

ESTIMATED QUANTITIES
(For Two Approach Slabs and Two Sleeper Slabs)

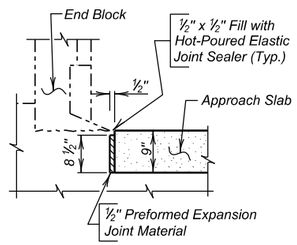
ITEM	UNIT	QUANTITY
Concrete Approach Slab for Bridge	Sq. Yd.	172.4
Concrete Approach Sleeper Slab for Bridge	Sq. Yd.	37.9

1. 43.7 Cu. Yds. Concrete in Approach Slabs.
2. 12295 Lbs. Epoxy Coated Re-Steel in Approach Slabs.
3. 13.6 Cu. Yds. Concrete in Sleeper Slabs.
4. 2071 Lbs. Epoxy Coated Re-Steel in Sleeper Slabs.
5. 19 Sq. Ft. of Polystryrene Insulation Board

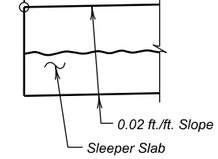
Items 1 thru 5 are approximate quantities contained in the above bid items and are for information only.



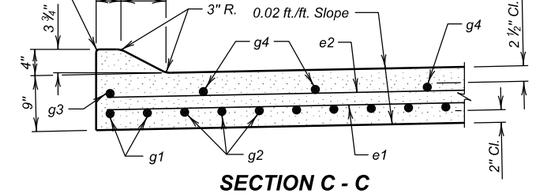
DETAIL "X"
(Typ. all corners)



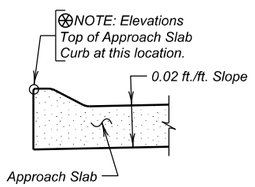
SECTION H - H



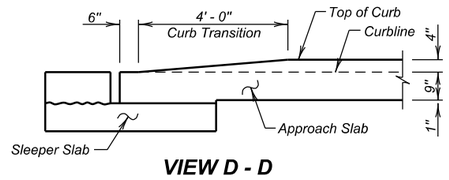
VIEW E - E



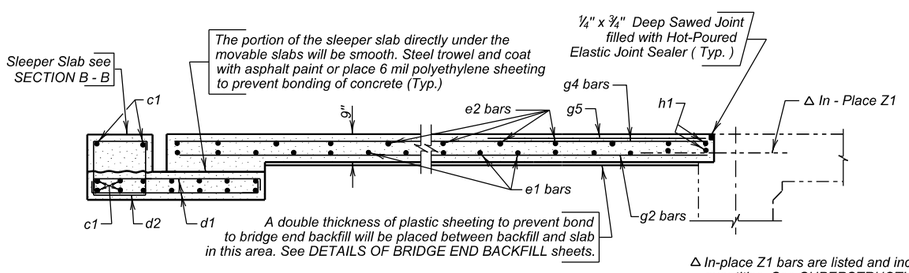
SECTION C - C



SECTION G - G
(Resteel not show)

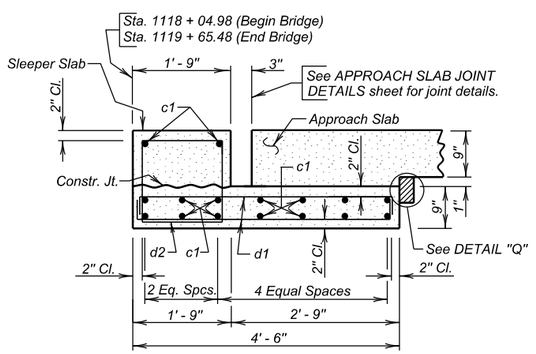


VIEW D - D

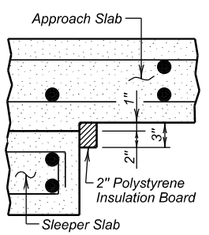


SECTION A - A

△ In-place Z1 bars are listed and included in superstructure quantities. See SUPERSTRUCTURE DETAILS sheet.



SECTION B - B
(Sleeper Slab)



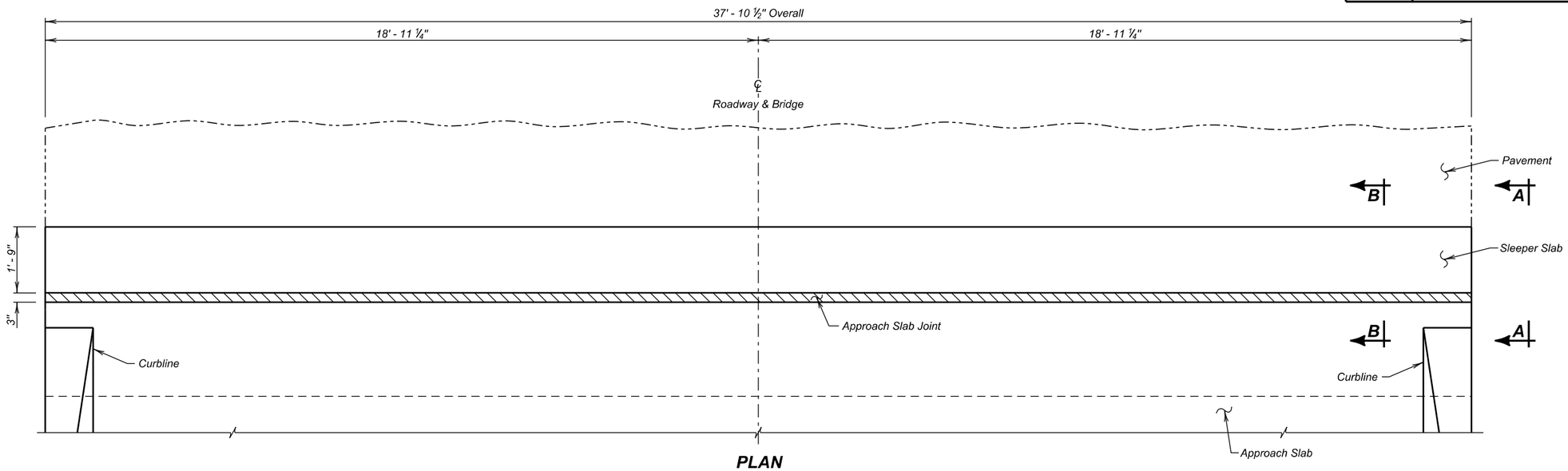
DETAIL "Q"

DETAILS OF APPROACH SLAB ADJACENT TO BRIDGE
FOR
116' - 6" PRESTRESSED GIRDER BRIDGE

36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93

FAULK COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2025

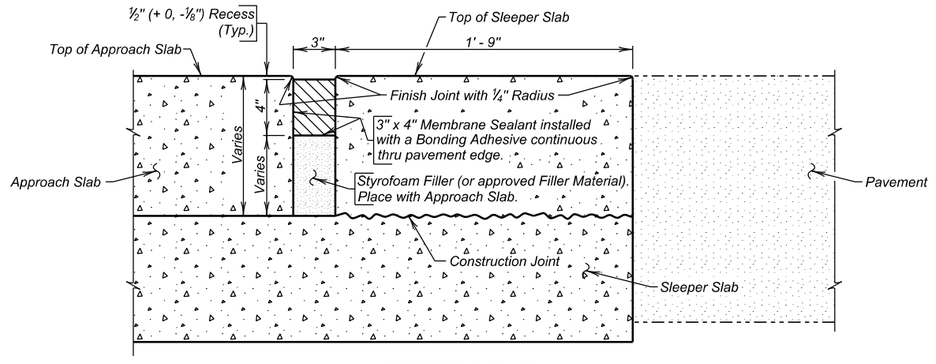
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	BR	BT	Steve A. Johnson BRIDGE ENGINEER
FALK05H1	05H1GA18		



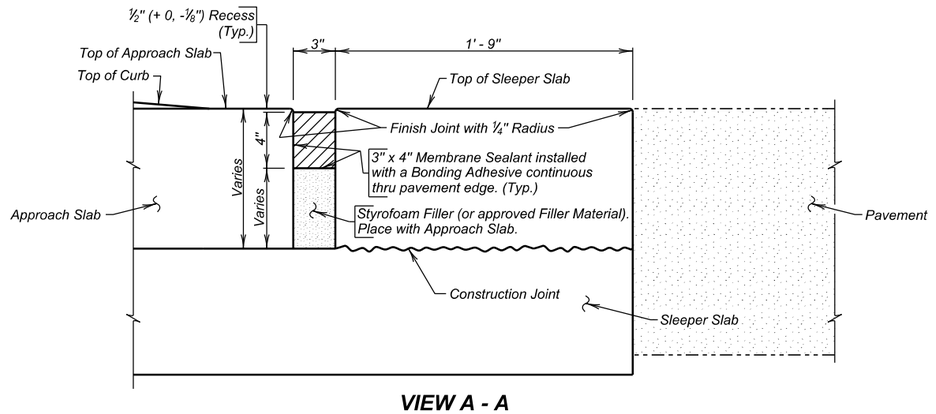
PLAN

GENERAL NOTES

1. The membrane sealant will be on the approved product list for membrane sealant expansion joints.
2. The manufacturer will supply the membrane sealant in packaging that precompresses the membrane sealant. The precompressed dimension will be as recommended by the sealant manufacturer to provide a water tight seal throughout a joint movement range of + 25% (minimum) from the specified joint opening dimension. In no case will the precompressed dimension exceed 75% of the joint opening width. The foam sealant will be slowly self expanding to permit workers ample time to install the membrane sealant before the membrane sealant exceeds the joint opening width.
3. The membrane sealant will be supplied in pieces 5 feet in length or longer. The foam sealant will be ultra-violet and ozone resistant.
4. The bonding adhesive used to attach the membrane sealant to the adjacent concrete will be approved by the membrane sealant manufacturer.
5. Adhesive used to join adjacent pieces of the membrane sealant will be as recommended by the manufacturer.
6. If styrofoam filler material is used in the construction, it will be closed cell and water-tight as approved by the Engineer.
7. The minimum ambient air temperature at the time of joint installation and adhesive curing will be 40° F.
8. A technical representative of the membrane sealant manufacturer will be present at the jobsite during installation. The technical representative will be knowledgeable in the correct procedures for the preparation and installation of the joint material to insure the Contractor installs the joint to the Manufacturers recommendations.
9. Concrete surfaces that will be in contact with the membrane sealant will be thoroughly cleaned by abrasive blasting to remove all laitance and contaminants (such as oil, curing compounds, etc.) from the concrete surface. At a minimum two passes of abrasive blasting with the nozzle held at an angle to within 1 to 2 inches of the concrete surface will be required. Cleaning of the concrete surfaces with solvents, wire brushing, or grinding will not be permitted.
10. After abrasive blasting, but immediately prior to membrane joint installation, the entire joint contact surface will be air blasted. The air compressor used for joint cleaning will be equipped with trap devices capable of providing moisture-free and oil-free air at a recommended pressure of 90 psi. To obtain complete bonding with the adhesive, the adjacent concrete surfaces must be dry and clean. The contact surfaces for the joint will be visually inspected by the Engineer immediately prior to joint installation to verify the surface is dry and clean.
11. Individual spliced sections will be installed as per the manufacturers' recommendations. The membrane joint sealant manufacturer will submit a detailed installation procedure to the Engineer at least 5 days prior to joint installation for his review.
12. Traffic will not be allowed on the joint until the bonding adhesive has had time to cure, as recommended by the manufacturer.
13. Use plywood or other material to protect concrete adjacent to the joint from spalling before any equipment is moved across the joint. Any spall areas will be repaired at the Contractor's expense by breaking out and replacing adjacent concrete, as approved by the Engineer.
14. The membrane sealant expansion joint will be measured in feet to the nearest one-tenth foot, complete in place. Measurement will be made of the overall horizontal length. The membrane sealant expansion joint will be paid for at the contract unit price per foot complete in place. Payment for this item will be full compensation for furnishing all the required materials in place, including labor, equipment and incidentals necessary to complete the work in accordance with the plans and the foregoing specifications.



SECTION B - B



VIEW A - A

ESTIMATED QUANTITIES
(For Two Approach Slabs)

ITEM	UNIT	QUANTITY
Membrane Sealant Expansion Joint	Ft.	75.8

APPROACH SLAB JOINT DETAILS

FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

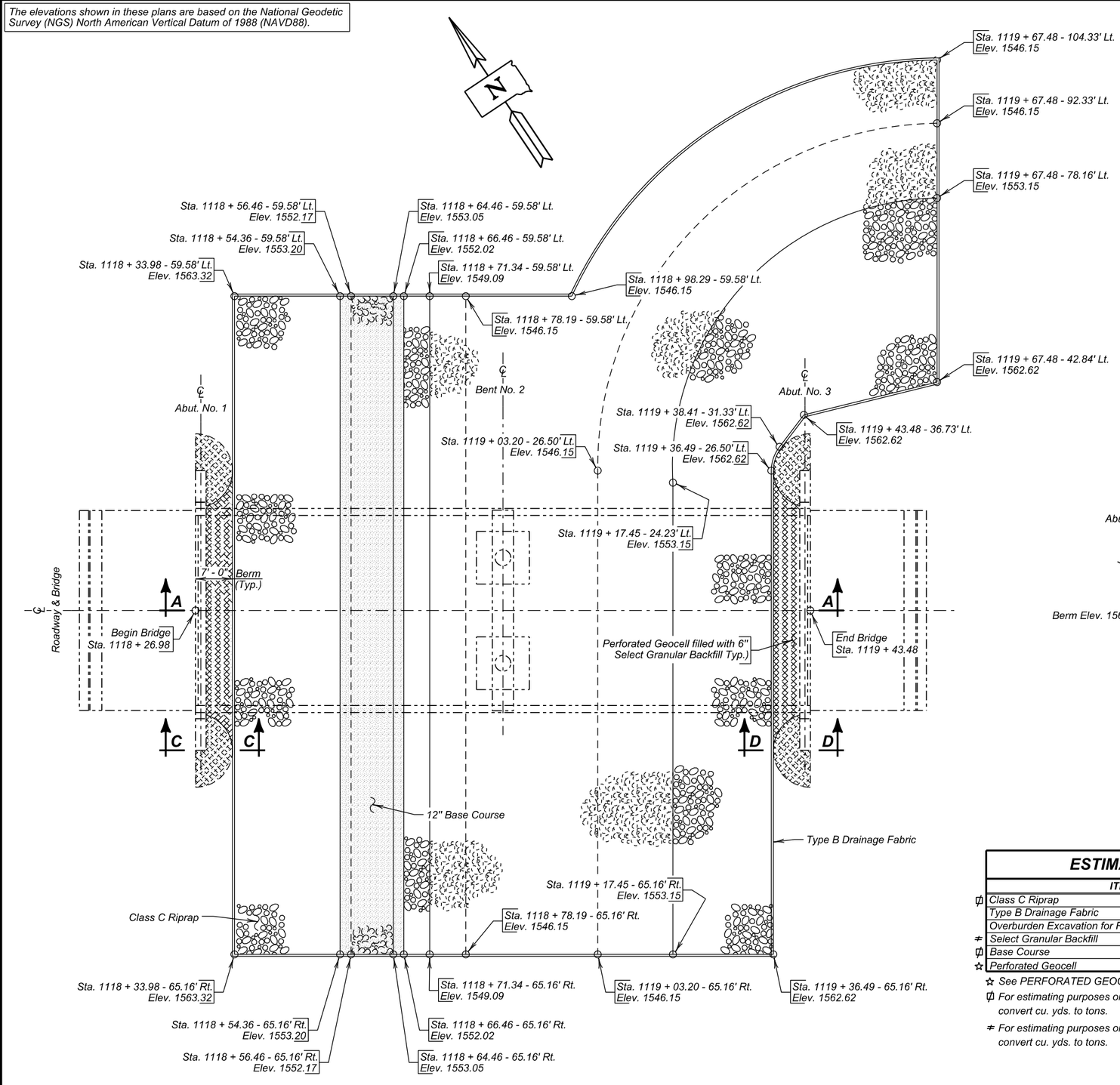
36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93

FAULK COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2025

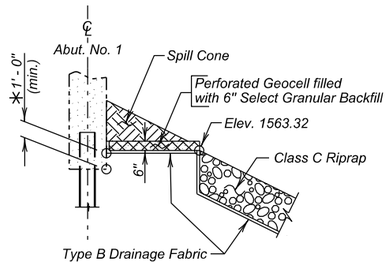
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	BR	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA19		

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

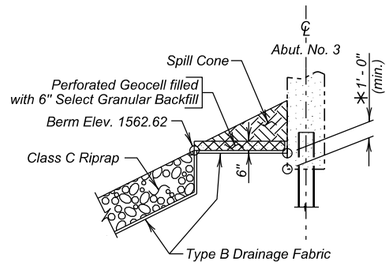
SD DOT	PROJECT	SECTION	SHEET
	NH-B 0212(194)266	E	22/26



PLAN

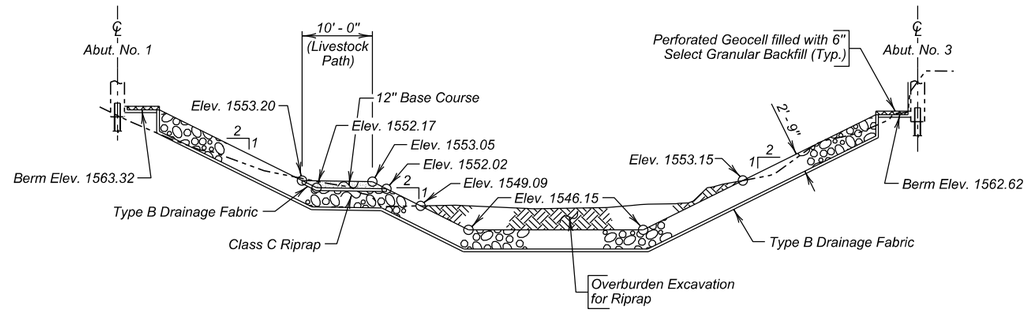


SECTION C - C



SECTION D - D

✳ Bridge berm will be built according to Standard Plate No. 120.10. (See SECTION B.)



SECTION A - A

ESTIMATED QUANTITIES

	ITEM	UNIT	QUANTITY
⍁	Class C Riprap	Ton	3178.7
	Type B Drainage Fabric	Sq. Yd.	2515
	Overburden Excavation for Riprap	Cu. Yd.	519
≠	Select Granular Backfill	Ton	18.6
⍁	Base Course	Ton	87.7
☆	Perforated Geocell	Sq. Ft.	530

☆ See PERFORATED GEOCELL notes for payment information.

⍁ For estimating purposes only, a factor of 1.4 tons/cu. yd. was used to convert cu. yds. to tons.

≠ For estimating purposes only, a factor of 1.89 tons/cu. yd. was used to convert cu. yds. to tons.

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

RIPRAP DETAILS

FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

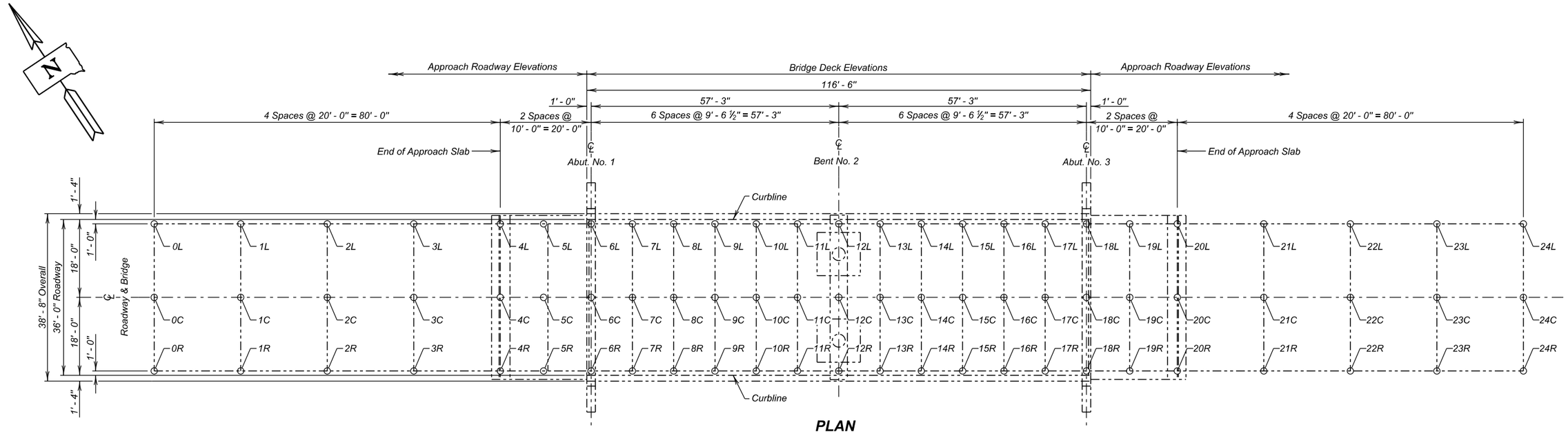
36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93

FAULK COUNTY
S. D. DEPT. OF TRANSPORTATION
OCTOBER 2025

DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	BR	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA20		

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

SD DOT	PROJECT	SECTION	SHEET
	NH-B 0212(194)266	E	23/26



PLAN

Table of As-Built Elevations - Approach Roadway					
Location	Elevation	Location	Elevation	Location	Elevation
0L		0C		0R	
1L		1C		1R	
2L		2C		2R	
3L		3C		3R	
4L		4C		4R	
5L		5C		5R	
19L		19C		19R	
20L		20C		20R	
21L		21C		21R	
22L		22C		22R	
23L		23C		23R	
24L		24C		24R	

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.

Table of As-Built Elevations - Bridge Deck					
Location	Elevation	Location	Elevation	Location	Elevation
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	

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

ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
Bridge Elevation Survey	L. S.	Lump Sum

AS - BUILT ELEVATION SURVEY

FOR

116' - 6" PRESTRESSED GIRDER BRIDGE

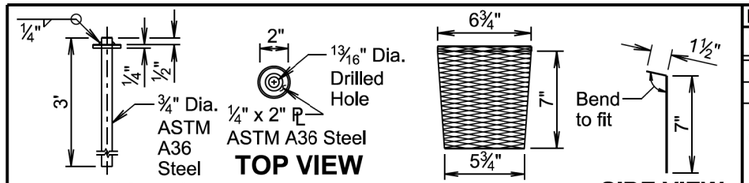
36' - 0" ROADWAY — 0° SKEW
OVER S. FORK SNAKE CREEK — SEC. 16-T118N-R69W
STA. 1118 + 26.98 TO 1119 + 43.48 — NH-B 0212(194)266
STR. NO. 25-210-144 — HL-93

FAULK COUNTY

S. D. DEPT. OF TRANSPORTATION

OCTOBER 2025

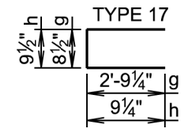
DESIGNED BY	CK. DES. BY	DRAFTED BY	
CHM	BR	BT	Steve A Johnson BRIDGE ENGINEER
FALK05H1	05H1GA24		

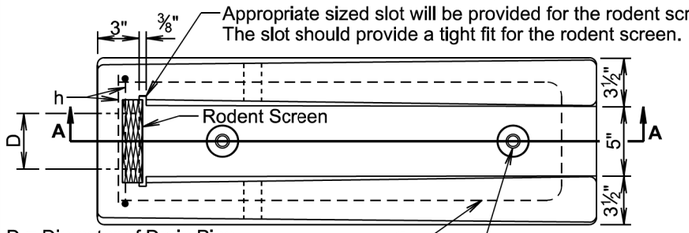


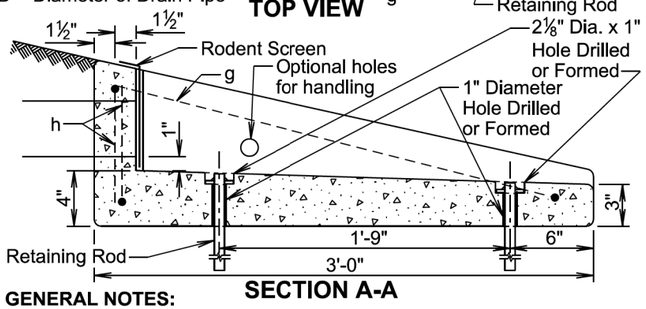
REINFORCING SCHEDULE				
MK.	No.	Size	Length	Type
g	1	4	6'-3"	17
h	2	4	2'-4"	17

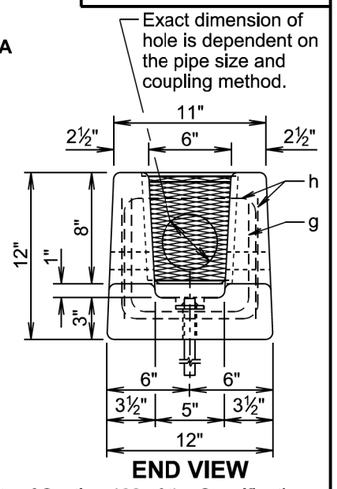
NOTE: All dimensions are out to out of bars.

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.

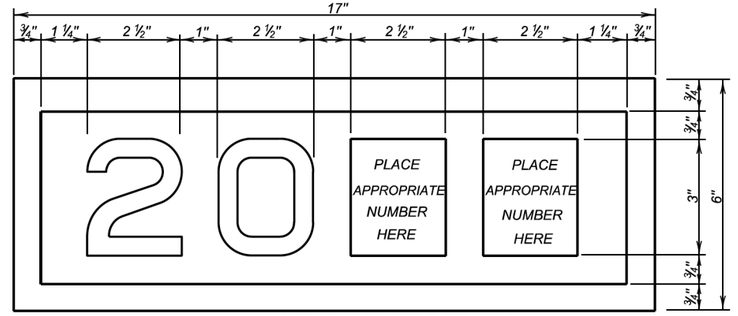
The retaining rod will be galvanized in accordance with ASTM A123 after all shop welding has been completed.

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: 2027	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.

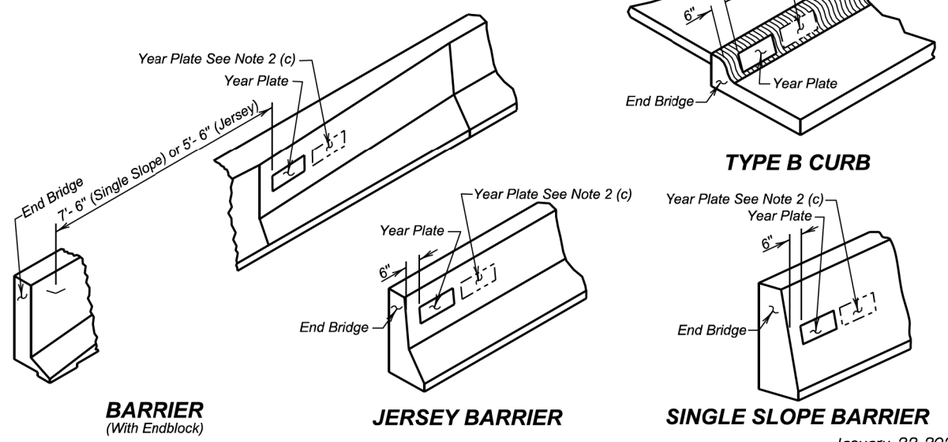
2. Year plates will be located on structure(s) as follows:

   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.

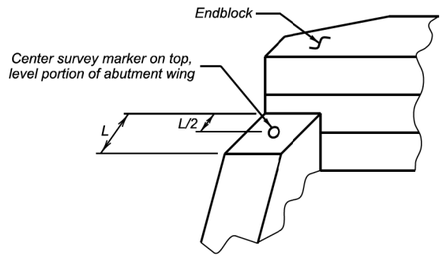
   c. When the plans specify that both the original date of construction and the date of reconstruction are to be shown, one date will be placed as listed above and the other located adjacent to it. Both year plates will be shown at each end of the bridge on opposite sides.

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.

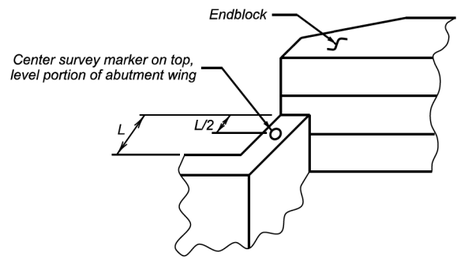


January 22, 2021

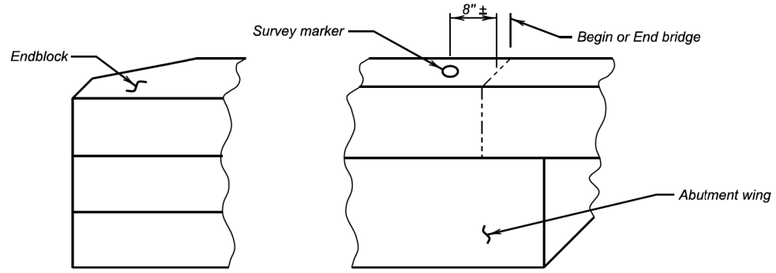
Published Date: 2027	SDDOT	YEAR PLATE DETAILS	PLATE NUMBER 460.02
			Sheet 1 Of 1



ABUTMENT WITH "STRAIGHT" WINGS



ABUTMENT WITH "SWEPT BACK" WINGS



ABUTMENT WITH "SWEPT BACK" WINGS

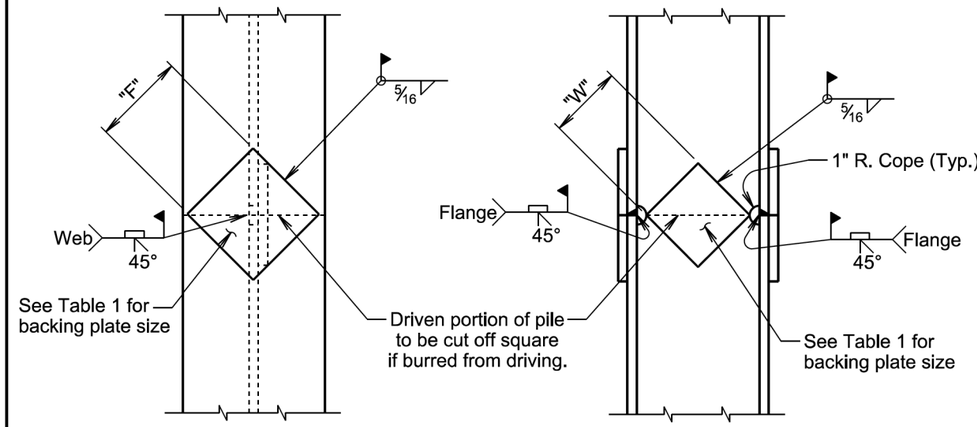
(Endblock on top of wings)

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.

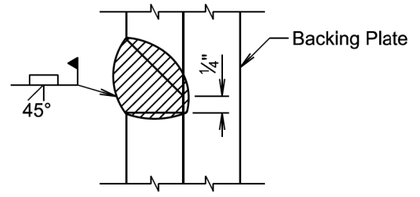
June 26, 2012

Published Date: 2027	SDDOT	BRIDGE SURVEY MARKER	PLATE NUMBER 460.05
			Sheet 1 of 1



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

COMPLETE JOINT PENETRATION WELD DETAIL



GENERAL NOTES:

Steel for backing plates will conform to ASTM A709, Grade 50 or ASTM A572, Grade 50.

Welding and weld inspection will be in conformance with AWS D1.5 (Current Year) Bridge Welding Code - Steel.

Welder must be certified and registered with the SDDOT.

Backing plate will at a minimum be as thick as the web of the pile being spliced.

Web must be coped with 1 inch radius.

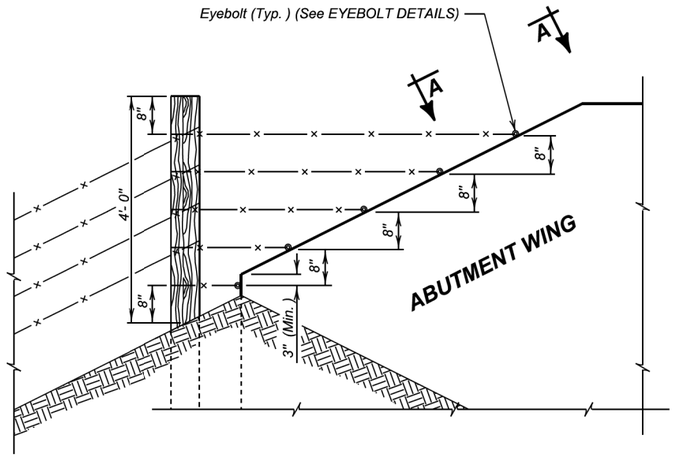
Submit Welding Procedure Specification (WPS) to Bridge Construction Engineer for approval prior to pile driving.

TABLE 1
(BACKING PLATES)

PILE	10"	12"	14"
"F" FLANGE	6½"	8"	10"
"W" WEB	4¾"	6¼"	7½"

April 17, 2026

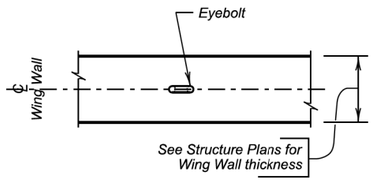
Published Date: 2027	SDDOT	H PILE SPLICE DETAILS	PLATE NUMBER 510.40
			Sheet 1 of 1



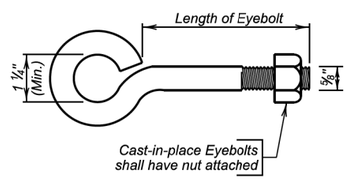
DETAIL FOR FENCE ANCHORS

GENERAL NOTES:

1. The fence and post details shown are for illustrative purpose only. The fence shall be as specified elsewhere in the plans.
2. Eyebolts shall be placed on all of the bridge abutment wings.
3. Eyebolts shall be ⅝ inch diameter and shall conform to ASTM A307.
4. Eyebolts, nuts, and concrete inserts shall be galvanized in accordance with AASHTO M232 (ASTM A153). Concrete inserts of corrosion resistant material need not be galvanized.
5. Cast-in-place eyebolts shall have a nut attached, be 4 ½ inches (Min.) in length and shall be embedded such that the eye of the bolt is flush with the concrete surface. (See Eyebolt Details) As an alternate, cast-in-place concrete inserts, capable of developing the full strength of the ⅝ inch diameter threaded eyebolt, may be used and shall be set in the concrete in accordance with the manufacturer's recommendations. The eyebolt shall be of sufficient length to develop its full strength. The eye of the eyebolt shall be flush with the concrete surface.
6. The cost for furnishing and installing eyebolts and/or concrete inserts shall be incidental to various contract items.



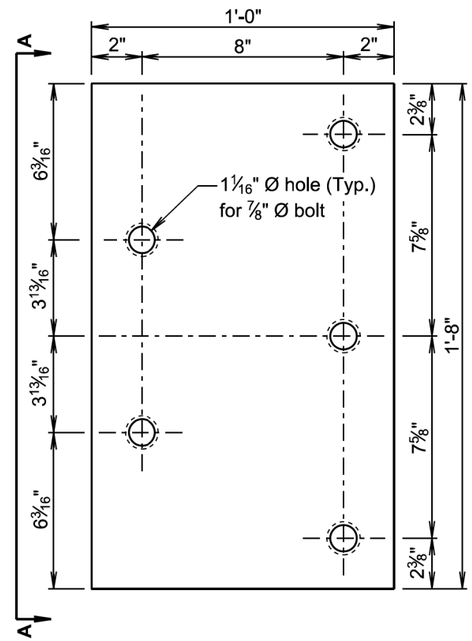
VIEW A - A



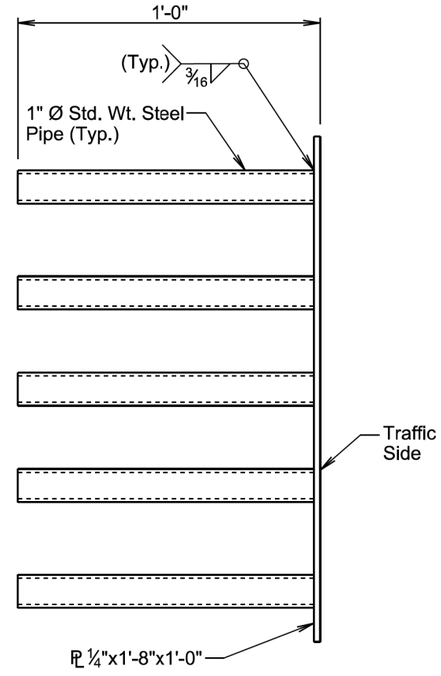
EYEBOLT DETAILS

December 23, 2012

Published Date: 2027	SDDOT	FENCE ANCHORS FOR BRIDGE ABUTMENT WINGS (WINGS LONGER THAN 6')	PLATE NUMBER 620.17
			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", "Class A45 Concrete, Bridge Barrier", or "Class A45 Concrete, Bridge Repair", as applicable.

April 17, 2026

Published Date: 2027	SDDOT	5 BOLT INSERT PLATE ASSEMBLY	PLATE NUMBER 630.92
			Sheet 1 of 1