

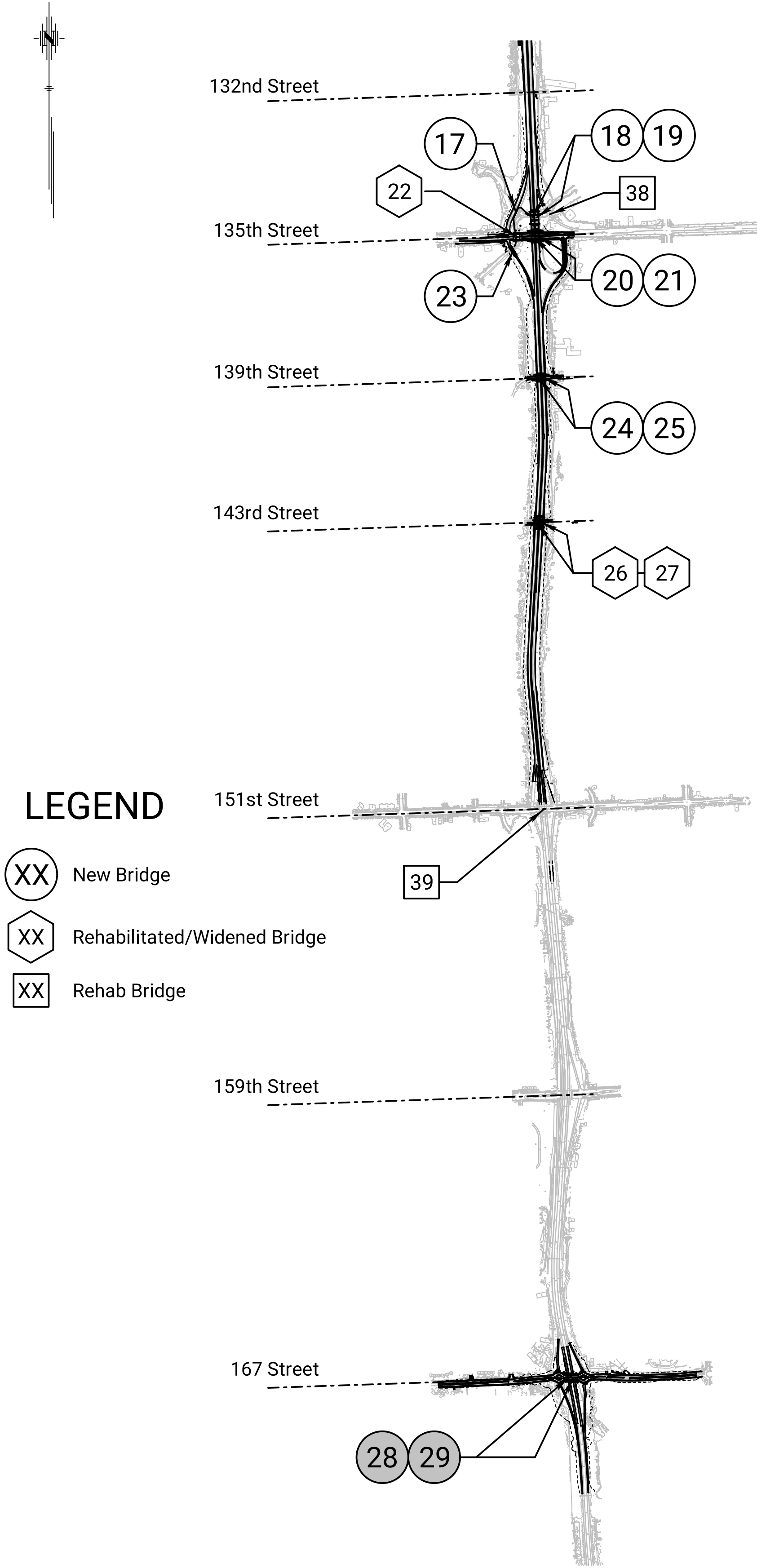
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-01	39

STATE OF KANSAS
DEPARTMENT OF TRANSPORTATION

Bridge 28 and 29
SB and NB US-69 over 167th Street

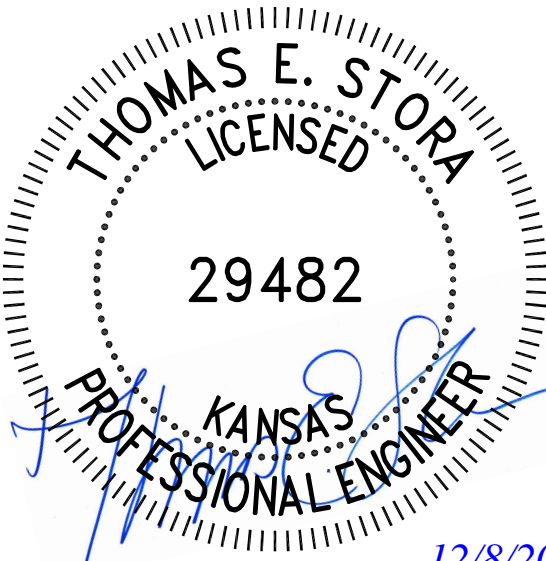
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LOCATION MAP

17	SB US-69 to 135th Street Ramp Sta. 105+47.33 @ 69S-135th Br. No. 69-46-135.84 (450) 4 - 11' x 11' Box (RFB)
18	SB US-69 over Tomahawk Creek Sta. 955+20.38 @ US-69 Br. No. 69-46-135.84 (448) 64' - 100' - 64' P.S. Conc. Beam Spans (PBMC)
19	NB US-69 over Tomahawk Creek Sta. 955+20.39 @ US-69 Br. No. 69-46-135.85 (449) 64' - 100' - 64' P.S. Conc. Beam Spans (PBMC)
20	SB US-69 over 135th Street Sta. 951+84.44 @ US-69 Br. No. 69-46-135.78 (446) 95' - 95' P.S. Conc. Beam Spans (PBMC)
21	NB US-69 over 135th Street Sta. 951+84.45 @ US-69 Br. No. 69-46-135.79 (447) 95' - 95' P.S. Conc. Beam Spans (PBMC)
22	135th Street over Tomahawk Creek Sta. 96+79.62 @ 135th St Br. No. 150-46-08.50 (172) City Bridge 360 45' - 60' - 45' Reinforced Concrete Slab Continuous & Haunched (RCSH)
23	135th Street to SB US-69 Ramp over Tomahawk Creek Sta. 114+32.00 @ 135th-69S Br. No. 69-46-135.74 (445) 48' - 64' - 48' Reinforced Concrete Slab Continuous & Haunched (RCSH)
24	SB US-69 over 139th Street Sta. 925+53.01 @ US-69 Br. No. 69-46-139.28 (451) 92.5' P.S. Conc. Beam Spans (PBMC)
25	NB US-69 over 139th Street Sta. 925+53.02 @ US-69 Br. No. 69-46-139.29 (452) 92.5' P.S. Conc. Beam Spans (PBMC)
26	SB US-69 over 143rd Street Sta. 898+74.44 @ US-69 Br. No. 69-46-138.80 (361) 39' - 52' - 52' - 39' Reinforced Concrete Slab Continuous & Haunched (RCSH)
27	NB US-69 over 143rd Street Sta. 898+74.44 @ US-69 Br. No. 69-46-138.81 (362) 39' - 52' - 52' - 39' Reinforced Concrete Slab Continuous & Haunched (RCSH)
28	SB US-69 over 167th Street Sta. 739+38.09 @ US-69 Br. No. 69-46-139.75 (453) 64.5' - 64.5' P.S. Conc. Beam Spans (PBMC)
29	NB US-69 over 167th Street Sta. 739+38.10 @ US-69 Br. No. 69-46-139.76 (454) 64.5' - 64.5' P.S. Conc. Beam Spans (PBMC)



Applies to sheets BR2829-01 thru BR2829-39

KANSAS DEPARTMENT OF TRANSPORTATION BR.NO.69-46-139.75 (453) STA. 739+38.09 BR.NO.69-46-139.76 (454) STA. 739+38.10			
TITLE/INDEX			
US-69 OVER 167TH STREET			
PROJ. NO. 69-46 KA-5700-03		JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT
DESIGN CK.	CRG	DETAIL CK.	CRG



DESIGN DATA

DESIGN SPECIFICATIONS:
AASHTO Specifications, (9th) Edition and (2020)
Interim Specifications. Load and Resistance Factor Design

DESIGN LOADING:
Live Load: HL-93
Design Dead Load includes an allowance of 15 psf for a future wearing surface.

LRFD DESIGN PILE LOAD:			
Design Loading (Tons/Pile)	Strength	Service	Phi
Abutment 1 and 2	104	70	0.65

LRFD DESIGN DRILLED SHAFT LOAD:			
Design Loading (tons/shaft)	Strength	Service	Phi
Bridge 453, Pier 1	442	300	Side Friction
	0	0	End Bearing
Bridge 454, Pier 1	442	300	Side Friction
	0	0	End Bearing
			0.50

UNIT STRESSES:

Concrete (Grade 4.0)	f'c =	4 ksi
Concrete (Grade 4.0)(AE)	f'c =	4 ksi
Concrete (Grade 4.0)(AE)(SA)(MPC)	f'c =	4 ksi
Reinforcing Steel (Grade 60)	fy =	60 ksi
Structural Steel (A709 Gr. 50)	fy =	50 ksi
Structural Steel (M270 Gr. 50T3)	fy =	50 ksi
Steel Pile	fy =	50 ksi
Steel Casing (⅜" min.)	fy =	50 ksi

PILING SPLICE LOCATION: Integral pile splice locations and weld testing criteria for, Abutments No. 1 and No. 2 will follow the "Standard Pile Details" Sheet BR2829-37.

PILING: Drive all piling to bear upon the Liberty Shale or Iola Limestone formations, a minimum elevation of 932.0 at Abutment No. 1 and varying from 935.0 to 927.0 feet at Abutment No. 2 for Bridge 453. Drive all piling to bear upon the Liberty Shale or Iola Limestone formations, a minimum elevation of 928.0 and 935.0 feet for Bridge 454, Abutment 1 and Abutment 2, respectively. Driving shall stop when in the opinion of the Department additional driving may damage the piling. Drive all piling to the Pile Driving Formula Load of:

Abutment No. 1	104	Tons
Abutment No. 2	104	Tons

As a minimum drive each pile to the load and penetration, but in no case shall the pile be driven to more than 110% of Pile Driving Formula Driving Load. At any location where problems are experienced, pile damage is suspected, or the Pile Driving Formula Load occurs significantly above the design pile tip elevation, the Department may request that the Pile Driving Analyzer (PDA) equipment be used.

Install piling at Abutments prior to beginning backfill operations for the MSE retaining walls. Provide galvanized corrugated metal pipe (CMP) casings from the bottom of the MSE fill to 6" beneath the bottom of the abutment. Predrill steel piles at Abutment No. 2 for Bridge 453 & Bridge 454 to an estimated elevation of 940.0'. Backfill the holes with concrete to the bottom of the casing to an estimated elevation of 945.00'. Backfill annular spacing between the pipe and the casing with 3/8" pea gravel, leaving the remaining 15.0' empty. See Sheet BR2829-08 and BR2829-09 for specific limits of casing and backfill.

DRILLED SHAFTS: Construct the drilled shafts using the cased method. A permanent smooth steel casing is required. Use Grade 4.0 Concrete in the drilled shaft. In no case shall the bottom of the drilled shaft be placed higher than the elevation shown unless otherwise directed by the Geotechnical Engineer.

If the location of the top of the shaft is such that the casing cannot be overtopped to remove concrete impurities, provide extra casing length to over-pour the concrete in the shaft and chip back to the plan elevation of the top of the shaft.

If the permanent casing is to be corrugated metal pipe (CMP) then it will be galvanized.

SONIC TESTING: Equip all drilled shafts with piping to allow sonic testing to be done. Install pipes at locations shown on the Design Documents. All wet pours and first constructed shaft will be tested. Also, the Department has the option to require sonic, non-destructive, integrity testing at any location of concern. Report test results directly to the Department. No work will be done above the top of drilled shaft without the approval of the Department.

COLUMN CONSTRUCTION: Cure the drilled shaft footing as required by the KDOT Standard Specifications before beginning the column construction (placing resteel or formwork). Do not place cast in place shear bolts, coil inserts or other devices used as falsework support in the column without the approval of the Department. Do not remove the column formwork without the approval of the Department. Curing shall continue after the formwork is removed as required by the KDOT Standard Specifications.

PIER BEAM CONSTRUCTION: Cure the columns as required by the KDOT Specifications before beginning the pier beam construction (placing resteel or formwork). Do not drill and grout bolts or other devices into the columns used for falsework support unless shown on the Design Documents. Cure the columns as required by the KDOT Specifications before placing pier beam concrete. Do not remove falsework used to support the pier beam until the pier beam concrete has cured as required by the KDOT Specifications. Do not set girders or beams on the pier beam until after the falsework is removed or the pier beam concrete has 0.75f'c strength as tested.

ANCHOR BOLTS: Place the reinforcing bars below the bearing devices to clear the anchor bolts.

ANCHOR BOLTS: Anchor bolts will adhere to KDOT Standard Specification Division 1600 (Grade 105) with the following exception. The threads may be rolled or cut.

PREFORMED ANCHOR BOLT HOLES: Preform 3 inch diameter holes using only corrugated polyethylene tubing (Type C) at the locations shown. When temperatures are expected to go below freezing, seal the preformed holes or fill them with a propylene glycol-based antifreeze to prevent expansion damage. The holes will be free of water, antifreeze or foreign materials at the time of grouting the anchor bolts. The polyethylene tubing may remain in-place. Trim the tubing flush with the top of concrete.

BEARING (STEEL REINFORCED ELASTOMERIC): Elastomeric Bearing Device shall be factory bonded to the steel sole plate by a vulcanization process. The steel sole plate and swedge anchor bolt shall be furnished by the bearing device fabricator.

BEARING (TFE/ELASTOMERIC): The Elastomeric portion of the Bearing Device shall be factory bonded to the steel base plate and the steel cover plate by a vulcanization process. All exposed surfaces of the base plate, cover plate, sole plate and side retainers shall be painted with an in organic zinc primer and water borne acrylic top coat. Repair painted surfaces damaged by welding operations. Mask all exposed stainless steel before field painting; clean any overspray on the stainless steel sheet. The steel plates, side retainers and swedge anchor bolts shall be furnished by the bearing device fabricator.

BEARING (Reinforced Elastomeric Pad) (Method A):Bearing devices at Pier No. 1. shall be fabricated with an elastomer satisfying:

- Shore A Durometer Hardness of 60
- Low Temperature Grade 3 requirements
- Type A certification for elastomeric bearing device acceptance is required
- Include design method and all material properties on shop details.

BRIDGE BACKWALL PROTECTION SYSTEM: Apply a Bridge Backwall Protection System to the approach side of the abutments and the wings in accordance with KDOT Specifications and the manufacturer's recommendations. Cover the abutments to the limits shown on the details, not including the top of the pavement rest. Cover the abutment wings from the bottom of the curb to the bottom of the wing. Prior to backfilling, repair any damage done to the system if required by the Department. See the General Notes on the "Abutment Aggregate Drain" sheet BR2829-16

ABUTMENT AGGREGATE DRAIN: See the General Notes on the "Abutment Aggregate Drain" sheet BR2829-16.

BACKFILL COMPACTION: Compact backfill at the abutments.

EMBANKMENT: Complete the embankment at the abutments as shown on the Bridge Excavation sheet prior to driving the abutment piling or commencing with the abutment footing excavation.

SLOPE PROTECTION (AGGREGATE): Place Slope Protection (Aggregate) to the limits and thicknesses shown on the Design Documents or as directed by the Department. Use (D₈ = 2") as described in Division 1100 placed to the limits shown on the Design Documents.

DRIP LINE PROTECTION: Place a 10 foot wide mat of geotextile under the rock/rubble embankment on the berm and berm slopes and centered on the drip lines of the slab.

CONCRETE: Superstructure concrete is Concrete (Grade 4.0)(AE) (SA)(MPC). Substructure concrete is Concrete (Grade 4.0)(AE). The Design-Builder may use Concrete (Grade 4.0) in the footings. Bevel all exposed edges of all concrete with a ¾ inch triangular molding, except as otherwise noted on the Design Documents. Construction joints are optional with the Design-Builder, but if used, place only at locations shown, or at locations approved by the Department.

TEMPORARY SHORING: Furnish shoring at the location shown on the Design Documents for the temporary bracing of the structure during work on the bridge. Maintain the temporary shoring until the Engineer authorizes its removal. The temporary shoring plans are to be designed and sealed by a registered Professional Engineer. Submit design calculations and shoring plans to the Engineer for review before work is scheduled to begin. Work shall not begin until the Engineer grants approval.

REINFORCING STEEL: All reinforcing steel dimensions are to the centerline of bars unless otherwise noted. All reinforcing steel, except the spiral bars, shall conform to the requirements of ASTM A615, Grade 60. Spiral bars may meet the requirements of either ASTM A615 (Gr. 40 or 60) or AASHTO M 32.

REINFORCING STEEL: Where noncoated bars come in contact with epoxy coated bars, they need not be coated.

PLACING SEQUENCE: The Design-Builder will adhere to the placing direction/sequence shown on the Design Documents. Changes will be accepted only if the Design-Builder's Engineer adjusts the haunch dimensions so the fabricator can adjust the web camber and headed stud anchor heights accordingly. This revised diagram will be approved by the Design Engineer prior to deck forming. If profile grinding decreases the clearance to the top mat of reinforcement to less than 2½" a polymer overlay will be placed if required by the Department. The Design-Builder may place the Barrier continuously from one end of the bridge to the other.

CONCRETE PLACING: Place and hand vibrate all concrete for the abutments above the construction joint to the bottom of deck elevation just prior to the normal paving train operations. Do this work in a manner to avoid cold joints in either the slab or in the abutment.

TEMPERATURE: The design temperature for all dimensions is 60° F.

DIMENSIONS: All dimensions shown on the Design Documents are horizontal dimensions unless otherwise noted. Make necessary allowances for roadway grade and cross slope.

CONSTRUCTION LOADS: Limited traffic is permitted on the new sub-deck, one-course deck or any concrete overlay during the curing period, keep any exposed deck wet during the curing period. See KDOT Specifications Section 710 Tables 710-1 & 710-2 for additional information.

MULTI-LAYER POLYMER CONCRETE OVERLAY: No concrete curing membrane will be used on structures with a polymer overlay. Roughen the bridge deck surface using a burlap drag attached to the finish machine. When the date and temperature requirements of the specifications are met, grind profile, place a polymer overlay, and apply permanent pavement markings on the bridge deck. When the date and temperature requirements are not met, complete any required grinding and apply temporary pavement markings. Apply the polymer overlay according to the next available date(s) and temperature allowed per the current specifications. See KDOT specification for complete information.

CONCRETE MASONRY COATING: Exterior concrete faces of the bridge rails and slab fascia, all exposed surfaces of columns to the top of the crashwall, and bridge pier capbeams, except the top of the capbeam will be coated with an approved pigment sealer (uniform color) within the limits detailed in the Design Documents. All surfaces to be coated shall be prepared with a light brush sandblast prior to application. The form release agent used on concrete surfaces to be coated, shall be compatible with the color stain product to be applied to the surface. The use of curing compound on surfaces to be coated is prohibited.

ERECTION ELEVATION CHECKS: After the abutment concrete has cured and before setting any structural steel, present verification to the Department that the elevations at the bearings match plan elevation (+ ¼"). Present verification to the Department that the elevations at all field splice locations match the elevations (½") in the Design Documents before any connection is fully tightened. (For steel girders that are blocked on the ground, fully tighten the bolted connections prior to erection.)

FALSEWORK INSPECTION: This project has falsework plan requirements which are considered "Category 1" by KDOT Standard Specifications. If falsework deficiencies or variations from the approved and sealed plans are found, the falsework design Engineer of Record will provide written approval of the changes.

DECK FINISHING: Set the finishing machine normal to the centerline of the structure for striking off and screeding the concrete.

DECK PROTECTIVE SYSTEM: Epoxy coated reinforcing steel shall be used at the following locations:

- All bridge superstructure components, including decks, rails, and concrete diaphragms.
- Abutments.
- Pier Columns and capbeams subject to vehicular splash and spray, defined as elements within 10 feet of the edge of any roadway.

CONTRACTOR CONSTRUCTION STAKING: Contractor Construction Staking for Clear span bridges requires two independent surveys. See KDOT Specifications.



TRAFFIC DATA		
	SB US-69	NB US-69
	BR28	BR29
AADT (2019)	17,450	16,250
AADT (2050)	35,300	33,300
DHV	7%	9%
D	N/A	N/A
T	12%	5%

LFD & LRFR RATING FACTORS		
Rating Level	Inventory	Operating
	Truck	
HS-20 (36T)	2.162	3.611
Type HET (110T)		1.576
2002 LFD Rating. 17th Edition AASHTO		
HL-93 Loading	1.455	1.886
2018 Manual for Bridge Evaluation *		

* Latest Version (With 2020 Interim Revisions)

			KANSAS DEPARTMENT OF TRANSPORTATION		
			BR.NO.69-46-139.75 (453)		
			BR.NO.69-46-139.76 (454)		
			STA. 739+38.09		
			STA. 739+38.10		
GENERAL NOTES					
US-69 OVER 167TH STREET					
PROJ. NO. 69-46 KA-5700-03			JOHNSON CO.		
DESIGNED	JAT	DETAILED	JAT		
DESIGN CK.	CRG	DETAIL CK.	CRG		

STRUCTURAL STEEL NOTES

STRUCTURAL STEEL: The rolled girders and flange splice plates shall meet AASHTO M270 Gr. 50T3 requirements except as noted. Web splice plates shall meet ASTM A709 Gr. 50T3 requirements except as noted. All other structural steel shall meet ASTM A709 Gr. 50, unless noted otherwise. Shop and Field Splices shall be made only where shown on the Design Documents as a "splice" or as an "optional splice." Elimination of any "splice" may be requested.

SHOP DETAILS: Reference blocking diagrams on the shop details to a level line running the entire length of the girder.

FABRICATION OF FIELD SPLICES: Prepare joints for the field splices in accordance with KDOT Standard Specifications. Use Type "B" shop laydown.

FABRICATION OF WELDED SPLICES: See Figure 6.4.1-1 "Flange and Web Welded Splice Configurations" of the Bridge Design Manual. All flange splices shall be full penetration welds.

WELDING: Material, Fabrication and Construction shall conform to KDOT Standard Specifications. On the shop drawings, show a code or symbol in the tail of the weld symbol that refers to an approved, pre-qualified weld procedure.

WELDED STUD SHEAR CONNECTORS : Weld Shear Stud Connectors with automatically timed stud welding equipment connected to a suitable power source. All stud welding shall conform to KDOT Specifications. For bridges with skewed reinforcing steel the Design-Builder has the option to place the Welded Shear Stud Connectors parallel to the skew angle.

RADIOGRAPHIC INSPECTION OF GIRDERS: Radiograph all butt welds in the flanges and all but the middle one third of the web butt welds in each span.

MAGNETIC PARTICLE INSPECTION: Magnetic particle inspection is required.

BOLTS: All bolts, nuts and hardened flat washers shall conform to the heavy hex structural requirements of ASTM F3125 Grade A325, Type 1, and KDOT Standard Specifications unless otherwise noted. Direct Tension Indicators (DTIs) are to comply with the requirements of the latest edition of ASTM F959.

BOLTED CONNECTIONS: Girder Connections: Use 7⁄8 inch diameter heavy hex structural bolts for the main member connections. Use 15⁄16 inch diameter bolt holes. Do not ream during field erection. Accurately align all connections by driving 15⁄16 inch diameter drift pins in all corners and in 1⁄4 of the remaining holes in each plate. See KDOT Standard Specifications.

Secondary Member Connections: Use 3⁄4 inch diameter heavy hex structural bolts for the secondary member connections. Use 13⁄16 inch diameter bolt holes. Oversized or slotted holes, as specified in the KDOT Standard Specifications, may be used in only one of the two members connected and must be shown in the approved shop drawings. Oversized or slotted holes may require additional standard hardened washers or plate washers. Report to the Department prior to any required field reaming that will remove more than 1⁄4 inch of material from one ply of the connected parts.

Use Direct Tension Indicators (DTIs) on all high strength bolts. Place the DTI under the bolt head and turn the nut to tighten. This method is preferred whenever possible. Face the protrusions on the DTI to the underside of the bolt head. Place a hardened flat washer under the nut. See KDOT Specifications.

TEMPORARY CONNECTIONS: Provide temporary bolts in the cross frames and diagonal bracing for erection purposes. Show such proposals on the shop details.

ERECTION: Bring each line of girders to the correct line, grade (or relative grade) and camber, and secure in place prior to connection of the girder field splices. Provide falsework bents as necessary to maintain the correct line and elevation. Leave the falsework bents in place until all girder splice connections are completed. Submit information which clearly shows the proposed layout and use of falsework bents. The Engineer shall approve such information prior to erection of structural steel.

ERECTION PLANS: This is a Category C Structure. Submit detailed Erection Plans to the Engineer at least 4 weeks before beginning the erection process. Portions of the submitted details shall bear the seal of a licensed Professional Engineer. Identify, on the Erection Plans, the Erection Supervisor required by KDOT Standard Specifications. The Erection Supervisor will attend the required pre-erection meeting before these operations begin as described in KDOT Standard Specifications. No structural erection work will begin without approved erection plans.

PAINTING: The shop and field coats applied to Structural Steel shall conform to an inorganic zinc primer with a waterborne acrylic finish coat. The finish coat will be Kansas Brown, this color will match Federal Standard #30045.

Touch Up: Prepare and paint all bolts, nuts, studs, and other small areas of damaged paint (1 yd² or less), requiring touch up, with an approved organic zinc primer.

PAINTING TOP FLANGES: (Studs applied in the shop) Apply a 3 mil primer coat of an approved inorganic zinc primer to the tops of the top flanges and to the studs.

(Studs applied in the field) Shop Work --Blast clean the tops of the top flanges to SSPC-SP10 Specifications (latest Revision).

Field Work --Blast clean the tops of the top flanges to SSPC-SP6 Specifications (latest Revision) before the studs are applied. After the studs are applied, blast clean the tops of the top flanges and the studs to SSPC-SP6 Specifications and paint with an approved organic zinc primer to a minimum dry film thickness of 3 mils.

POSSESSION AND PROTECTION OF STRUCTURAL STEEL: The Design-Builder will deliver the Structural Steel to a storage area near the job site, as approved by the Department and the Design-Builder. The Design-Builder will be responsible for the Structural Steel following its delivery. This responsibility includes protection against theft, damage and vandalism. Coordinate delivery of the structural steel and all other incidentals for the installation of the structural steel with the Design-Builder.

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NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL
DESIGNED	JAT	DETAILED JAT
DESIGN CK.	CRG	DETAIL CK. CRG

KANSAS DEPARTMENT OF TRANSPORTATION

BR.NO. 69-46-139.75 (453)

STA. 739+38.09

BR.NO. 69-46-139.76 (454)

STA. 739+38.10

STRUCTURAL STEEL NOTES

US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03

JOHNSON CO.

DESIGNED	JAT	DETAILED	JAT		
DESIGN CK.	CRG	DETAIL CK.	CRG		

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-04	39

Removal Notes:

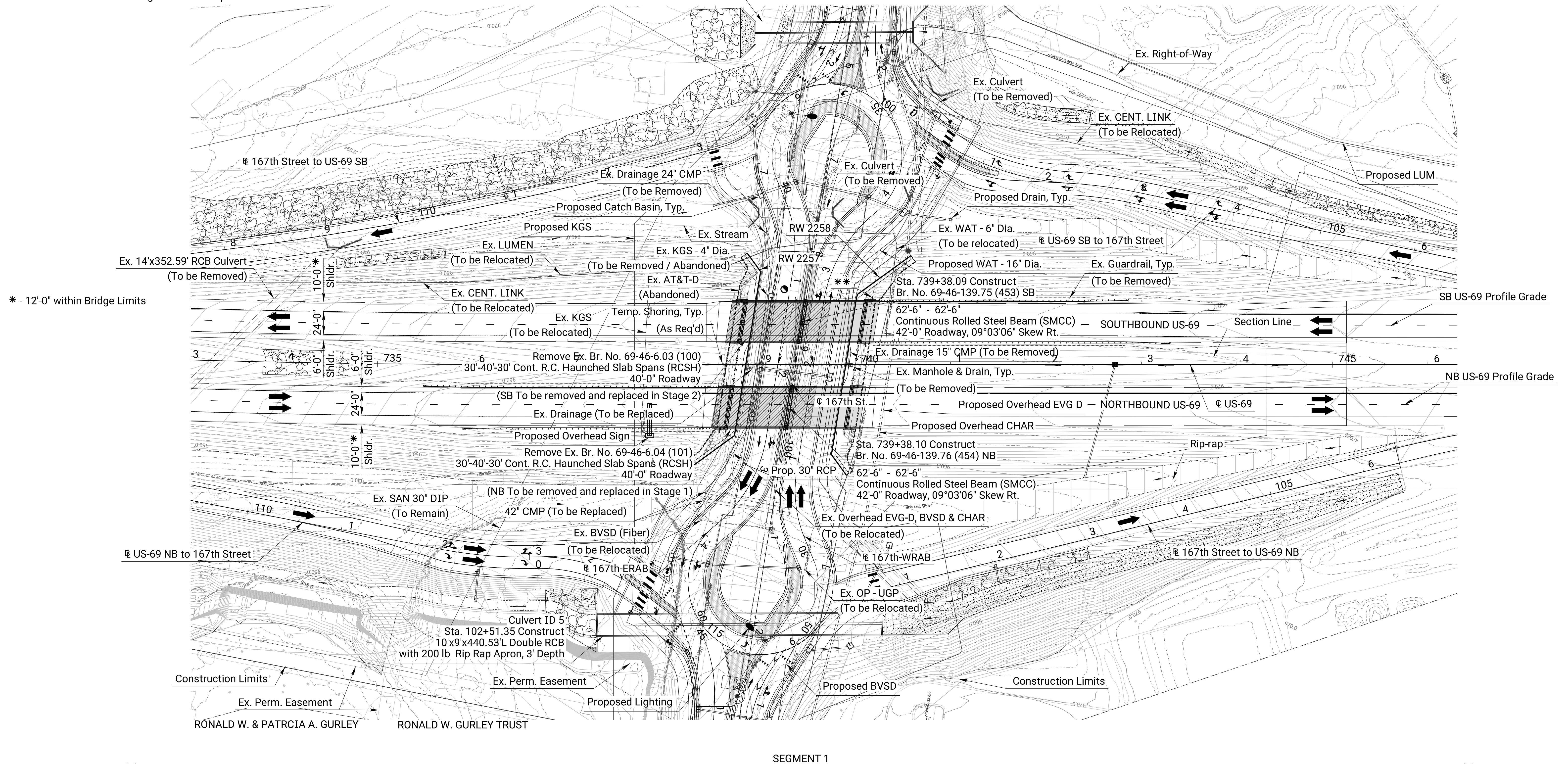
Existing Bridge No. 69-46-6.03 (100) & 69-46-6.04 (101) will be removed. All materials removed from the existing structure shall become the property of the Design-Builder. Remove this material from the site to locations approved by the Field Engineer. All structural removal shall be done in accordance with Section 702 of the Standard Specifications. This is a Category B demolition. Submit detailed Demolition Plans to the Field Engineer per KDOT Specifications. No demolition work shall begin without approved Demolition Plans. A Licensed Professional Engineer is not required.

Culvert ID 4
Sta. 95+63 Construct
10'x9'x184.23'L Double RCB
with 200 lb Rip Rap Apron, 3' Depth

Sta. 739+19.37 @ US-69 = Sta. 41+99.64 @ 167th-ERAB
 Sta. 739+38.09 @ US-69 = Sta. 99+27.27 @ 167th St.
 Sta. 739+56.83 @ US-69 = Sta. 32+09.72 @ 167th-WRAB

Scale: 1"=50'

BLUHAWK APARTMENTS LLC, KANSAS



Utility Owners

ATT-D	AT&T Distribution
EVG-D	Evergy Distribution
BVSD	Blue Valley School District
OP-UGP	City of Overland Park (Power)
KGS	Kansas Gas
CHAR	Charter Spectrum
CEN. LINK	Century Link (Fiber)
WAT	Waterone
LUMEN	Lumen

NOTE:

For Roadway Plan information, see Roadway Segment 1 Design Documents.
 ** - 4" Dia. Piping for Upper Geomembrane, Typ.

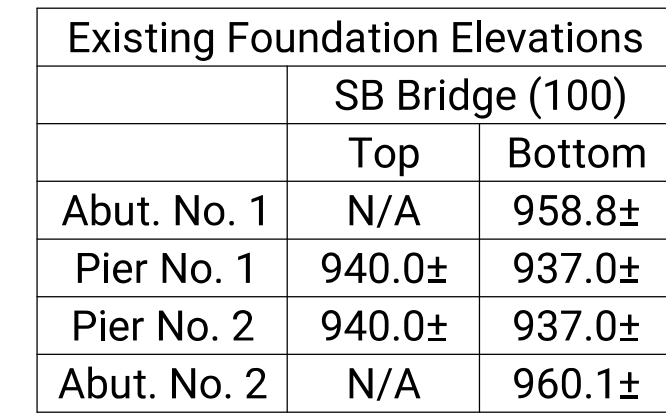
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KANSAS DEPARTMENT OF TRANSPORTATION	
BR.NO.69-46-139.75 (453)	STA. 739+38.09
BR.NO.69-46-139.76 (454)	STA. 739+38.10

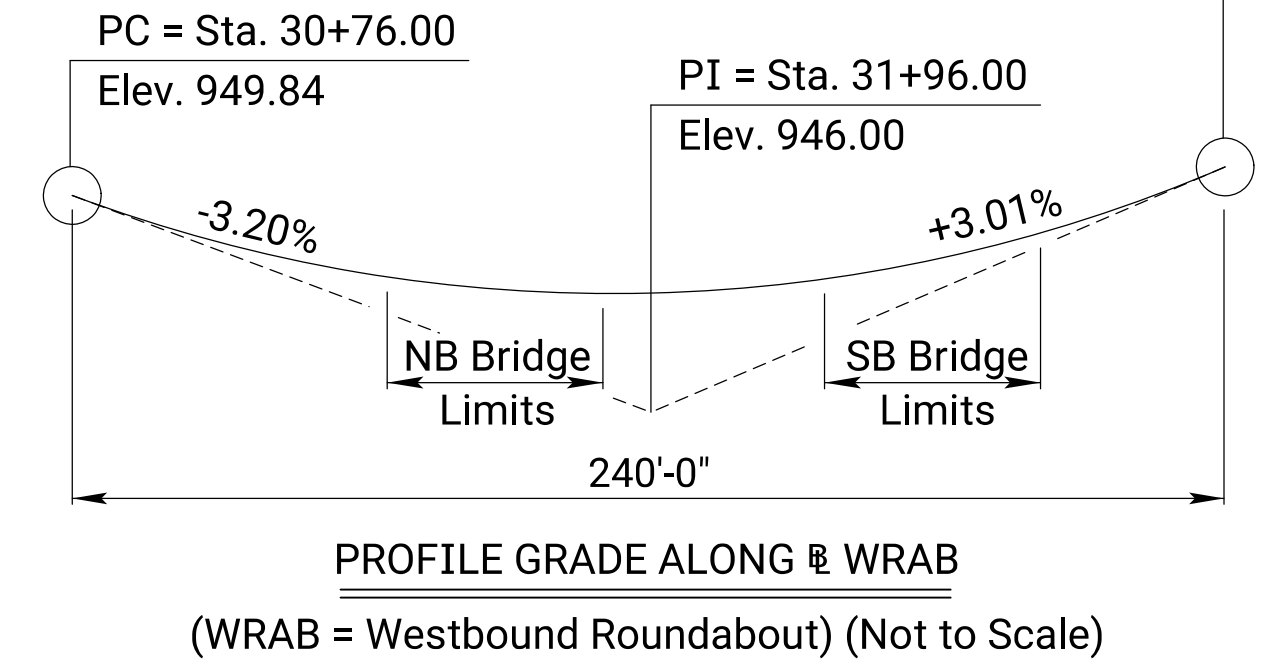
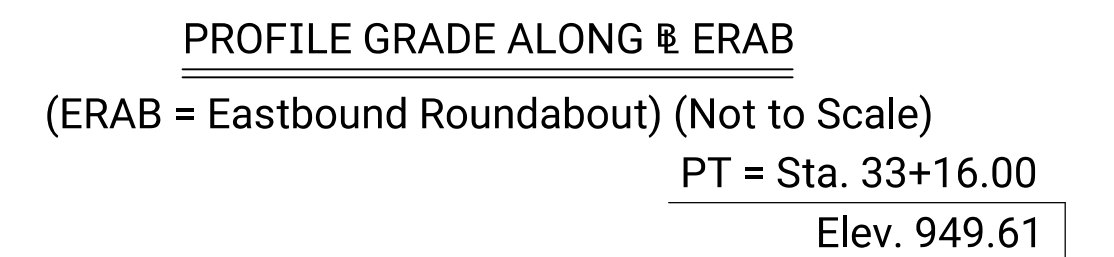
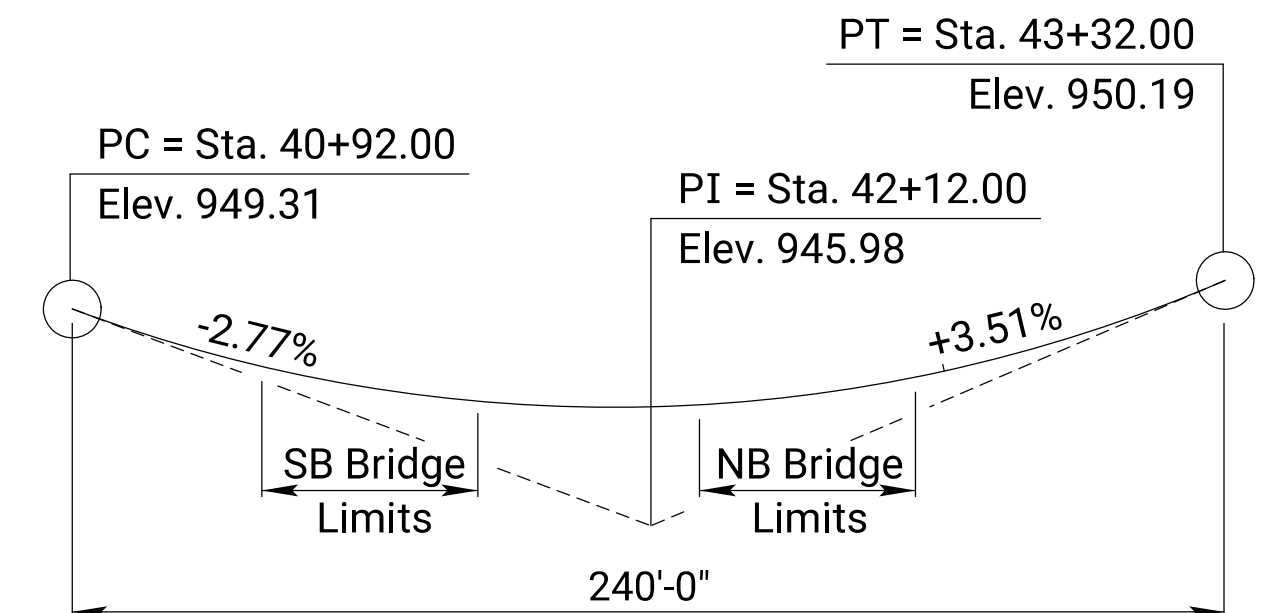
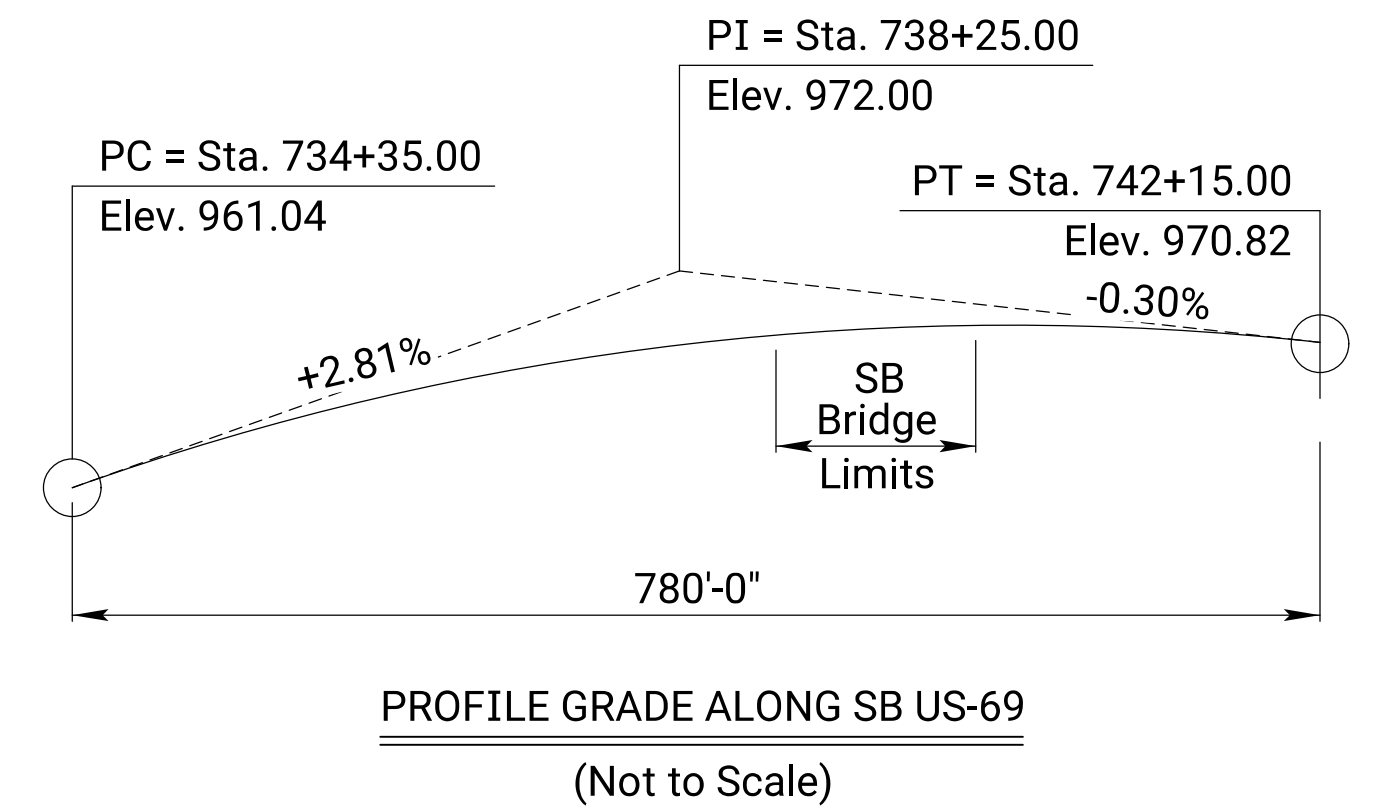
CONTOUR MAP

US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03				JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT		
DESIGN CK	CRG	DETAIL CK	CRG		



Minimum Vertical Clearances			
167th St. Direction	BR 453 (SB)		
	Sta.	Offset	Clearance
Eastbound	739+46.36	64.58' Lt.	17'-7 $\frac{1}{8}$ "
Westbound	739+50.41	64.58' Lt.	17'-6 $\frac{3}{8}$ "



B.M. #9:
4' "T" Post driven flush, 3' west of woven wire R/W fence. 50'± North of 2nd
Lieutenant Justin L. Sisson Memorial Highway sign.
Sta. 725+08.15, 145.67' Rt. Elev. 940.899

B.M. #10:
2' "T" Post driven till refusal 3' West of wood corner fence post on East R/W at
Northwest corner of KDOT facility on 167th St.
Sta. 747+40.01, 128.89' Rt. Elev. 974.516

Notes:

Profile Grade stations and elevations are given at the intersections of the \mathbb{C} piers and abutments with \mathbb{C} US-69.

For Plan and Profile of 167th Street, see Segment 1 Design Documents.

For Additional RW 2257 and RW 2258 Details, see Retaining Wall Segment 1 Design Documents.

- * - Utilities shown in approximate location. Design-Builder to verify.
- ** - Remove existing Abutment No. 1 and existing Pier foundations to 2'-0" below proposed grade. Remove existing Abutment No. 2 to 2'-0" below MSE wall foundation.
- - 2:1 Max. along face of Wingwall. Maintain 4:1 Max. for 8'-0" behind MSE Wall.

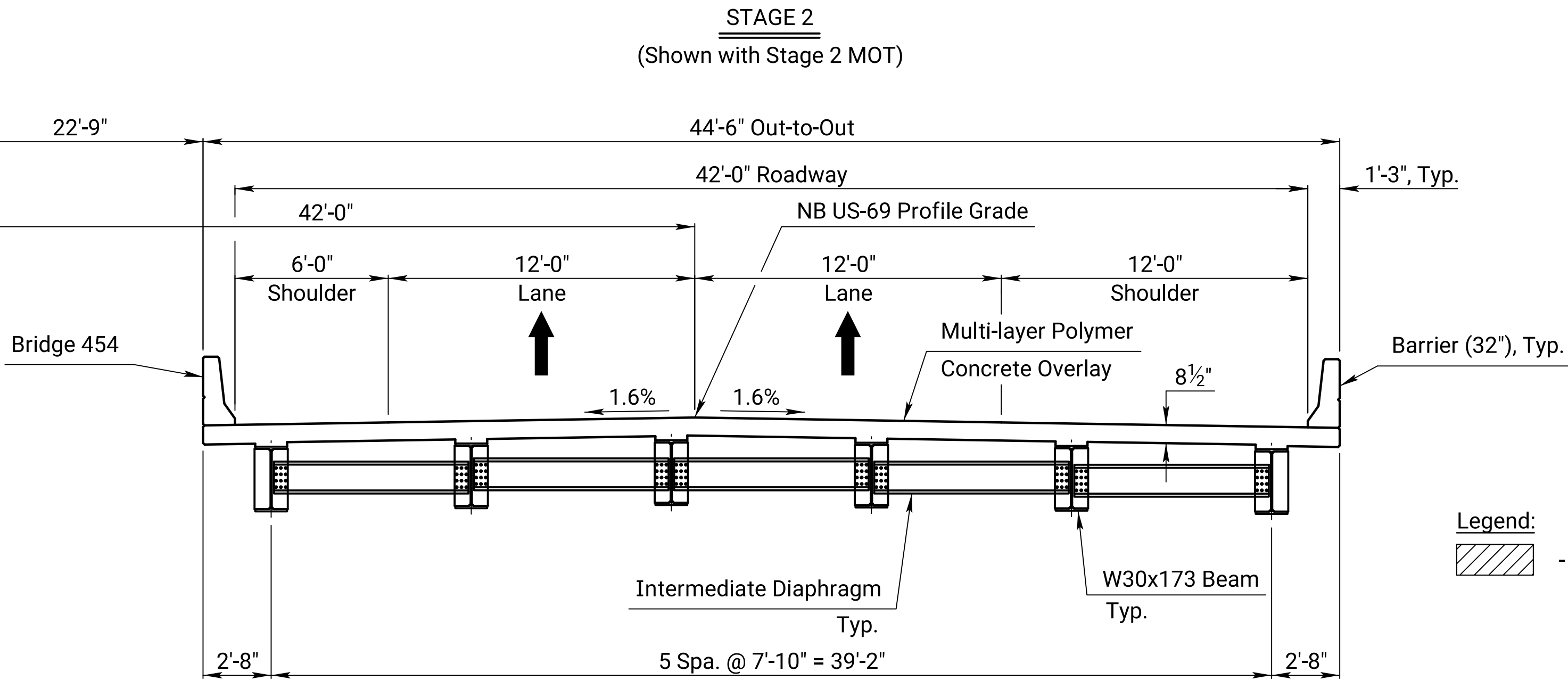
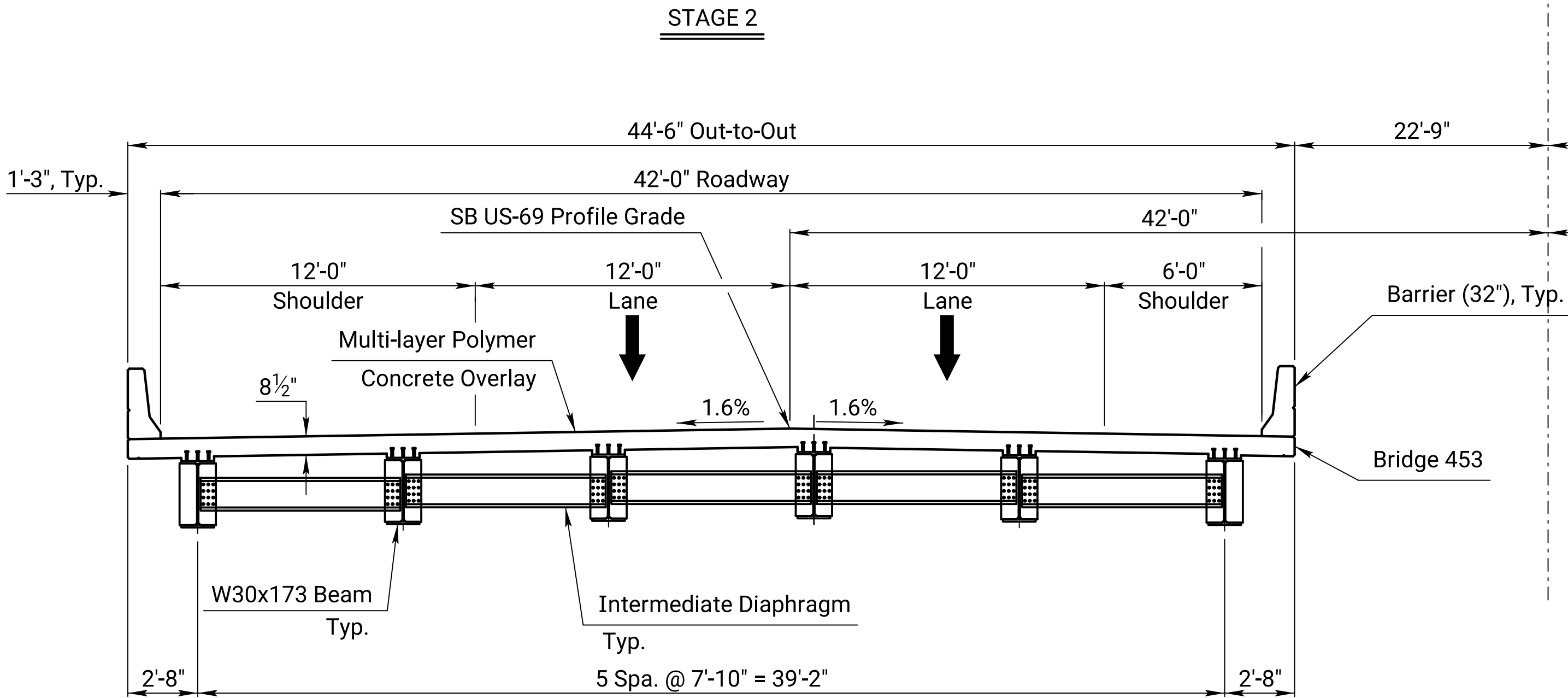
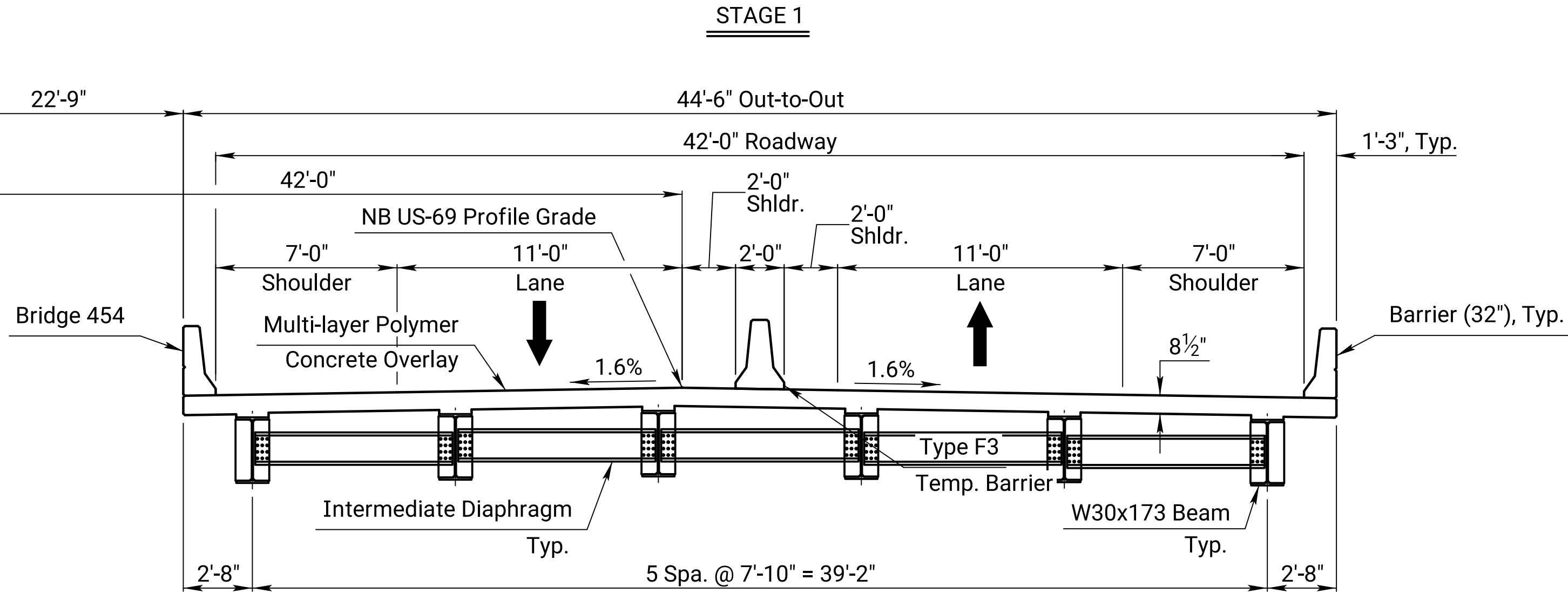
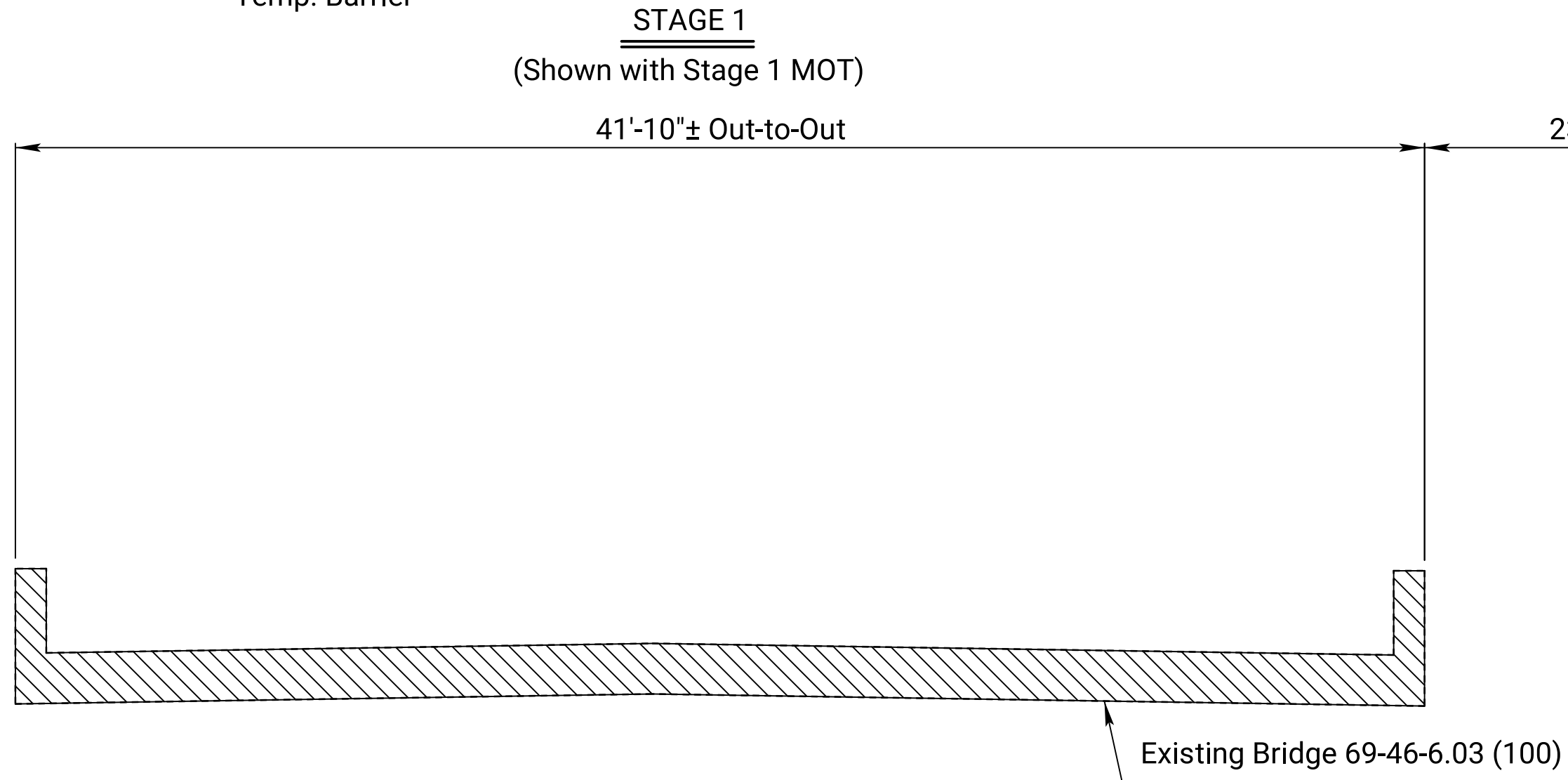
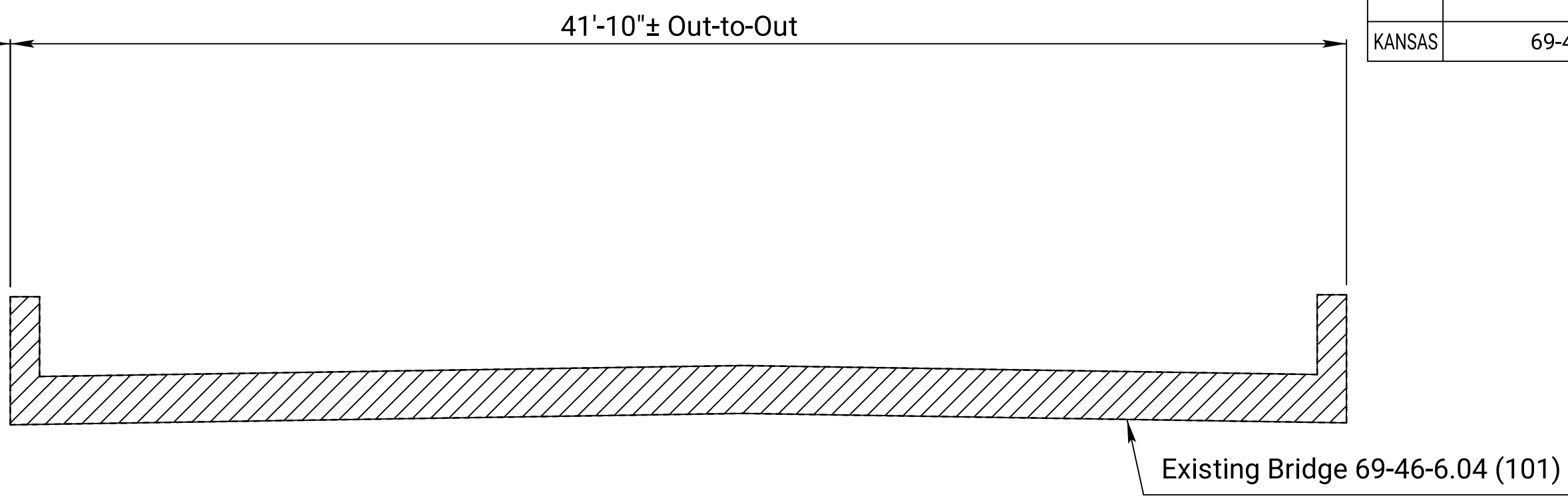
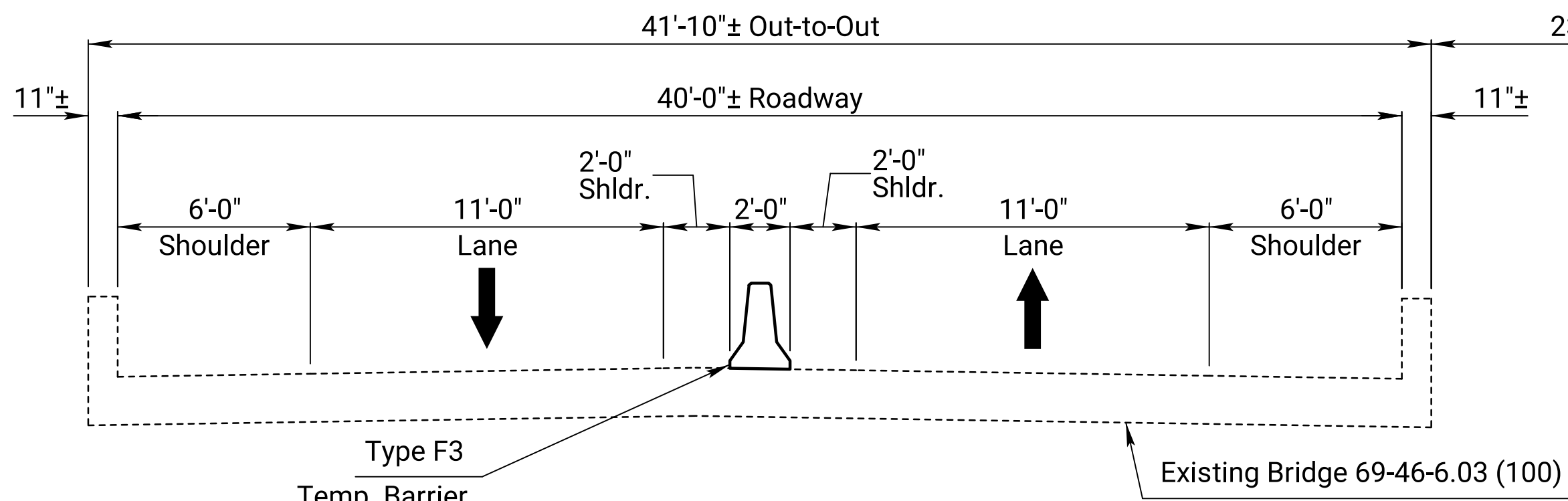
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KANSAS DEPARTMENT OF TRANSPORTATION				
BR.NO. 69-46-139.75 (453)			STA. 739+38.09	
BR.NO. 69-46-139.76 (454)			STA. 739+38.10	
BRIDGE 453				
CONSTRUCTION LAYOUT				
SB US-69 OVER 167TH STREET				
PROJ. NO. 69-46 KA-5700-03			JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT	
DESIGN CK.	CRG	DETAIL CK.	CRG	



US 69 EXPRESS
CONSTRUCTORS

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-07	39



Legend:
- Limits of Removal

PROPOSED SB TYPICAL SECTION

PROPOSED NB TYPICAL SECTION

Notes:
See Segment 1 Roadway Design Documents for additional MOT Details.
For additional slab details, see Sheet BR2829-27.

CONSTRUCTION SEQUENCE:

1. Establish Stage 1 MOT on Existing Bridge No. 69-46-6.03 (100) (SB).
2. Demolish Existing Bridge No. 69-46-6.04 (101) (NB).
3. Construct Proposed Bridge 454 (NB) as shown in the Design Documents.
4. Place Stage 2 MOT as shown, divert traffic onto Proposed Bridge 454 (NB).
5. Demolish Existing Bridge No. 69-46-6.03 (100) (SB).
6. Construction Proposed Bridge 453 (SB) as shown in the Design Documents.
7. Establish Final traffic pattern as shown in the final condition.

			KANSAS DEPARTMENT OF TRANSPORTATION			
			BR.NO.69-46-139.75 (453)		STA. 739+38.09	
			BR.NO.69-46-139.76 (454)		STA. 739+38.10	
			PHASED CONSTRUCTION			
			TYPICAL SECTIONS			
			US-69 OVER 167TH STREET			
			PROJ. NO. 69-46 KA-5700-03			JOHNSON CO.
NO.	DATE	REVISIONS	DESIGNED	JAT	DETAILED	JAT
0	2023-12-08	RFC SUBMITTAL	DESIGN CK.	CRG	DETAIL CK.	CRG



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-08	39

Notes:

Investigative core holes shall be provided as shown on the plans. Perform the work in accordance with KDOT Spec. 703.

Construct the drilled shafts using the cased method. A permanent smooth steel casing is required. The inner diameter of the casing shall be 5.0 feet.

For all drilled shafts, use smooth-walled permanent casing unless bedrock is present at the ground surface. The casing shall be the same nominal diameter as the drilled shaft and 6" larger in diameter than the rock socket. The rock socket shall be centered with the drilled shaft and properly sized spacers shall be used to center and align the reinforcing steel cage.

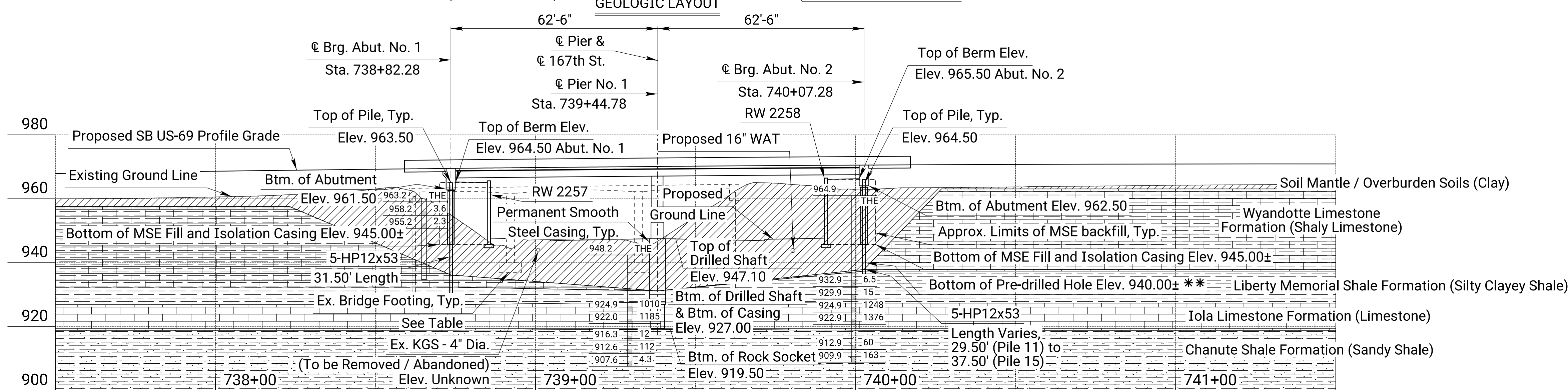
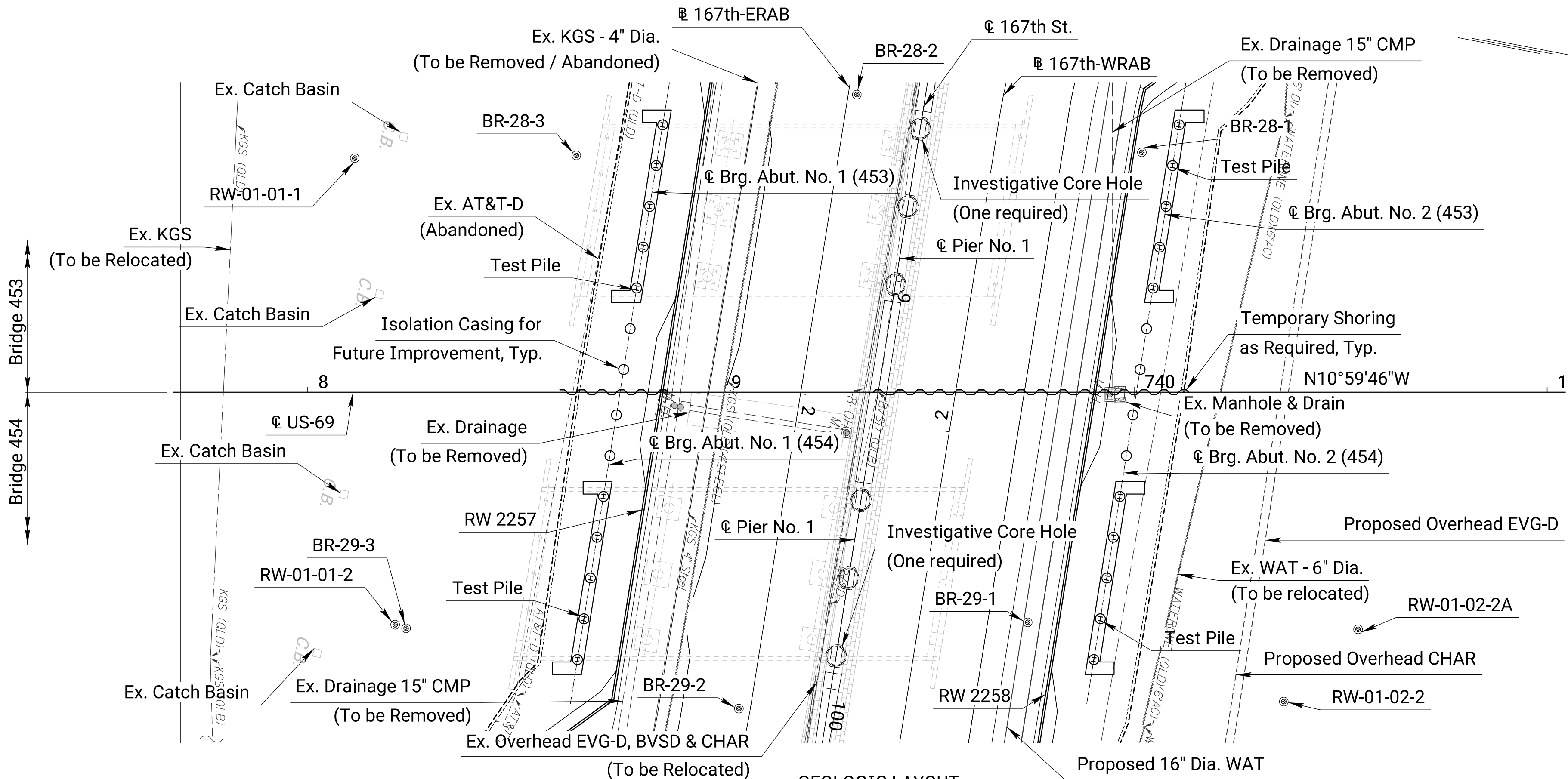
It is critical that the bottom of rock socket be clean and relatively flat. Allow no loose material within the footing when the footing is considered ready to pour. In no case shall the bottom of the drilled shaft be placed higher than the elevation shown unless otherwise directed by the Geotechnical Engineer. A wet pour is anticipated. Wet pour procedures and equipment should be placed prior to the installed of the shaft.

Pre-drill steel piles at Abutments No. 2 into the Liberty Memorial Shale at an estimated elevation of 940.0. Drive all production piles to practical refusal at Abutments No. 1 and 2 into the Iola Limestone and Liberty Memorial Shale, respectively, with estimated pile tip elevations of 932.0 at Abutment No. 1 and varying from 935.0 to 927.0 feet at Abutment No. 1. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling and/or the nominal geotechnical resistance is achieved. Nominal geotechnical capacity of the piles will be developed by the Engineer using driving criteria developed from the test pile PDA data.

For portion of pile within predrilled hole below the casing, backfill the holes with concrete to the bottom of the casing at an estimated elevation of 945.00 at Abutment No. 1 and No. 2. the top 15'-0" of the casing shall remain empty; the remaining portion of the casing shall be backfilled with 3/8" pea gravel.

Conduct field testing using PDA on two test piles, with one at each abutment, using Pile Driving Analyzer (PDA) equipment in general accordance with KDOT Specifications. The test piling may remain in place as permanent piling. The test piles should have a minimum nominal geotechnical resistance value of 160 tons (104 tons/0.65). Compressive stresses measured by PDA shall not exceed 0.9Fy (45 ksi for Grade 50 steel).

Pile points are required for all piles.



Existing Foundation Elevations		
SB Bridge (100)		
	Top	Bottom
Abut. No. 1	N/A	958.8±
Pier No. 1	940.0±	937.0±
Pier No. 2	940.0±	937.0±
Abut. No. 2	N/A	960.1±

LOG OF PILE DRIVING						
Footing	Pile No.	Pile Tip Elevation	Refusal Tons	Footing	Pile No.	Pile Tip Elevation
Abut. No. 1	1	932.00		Abut. No. 2	11	927.00
	2	932.00			12	929.00
	3	932.00			13	931.00
	4	932.00			14	933.00
	5	932.00			15	935.00

NOTE:
Formations and elevations shown are based on historical and current data provided by the Geotechnical Engineer. Actual elevations of top of rock may vary.
For pile and drilled shaft layout plan and details, see Sheet BR2829-10.

**- Pre-drilling activities and final pre-drill elevations will need to be evaluated and established in the field at the time of drilling by the Geotechnical Engineer.

SCALE: 1"= 15' Horiz. 1"= 15' Vert.

NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION

BR.NO.69-46-139.75 (453)

STA. 739+38.09

BR.NO.69-46-139.76 (454)

STA. 739+38.10

BRIDGE 453

ENGINEERING GEOLOGY

SB US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03

JOHNSON CO.

DESIGNED	JAT	DETAILED	JAT		
DESIGN CK.	CRG	DETAIL CK.	CRG		

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-09	39

Notes

Investigative core holes shall be provided as shown on the plans. Perform the work in accordance with KDOT Spec. 703.

Construct the drilled shafts using the cased method. A permanent smooth steel casing is required. The inner diameter of the casing shall be 5.0 feet.

For all drilled shafts, use smooth-walled permanent casing unless bedrock is present at the ground surface. The casing shall be the same nominal diameter as the drilled shaft and 6" larger in diameter than the rock socket. The rock socket shall be centered with the drilled shaft and properly sized spacers shall be used to center and align the reinforcing steel cage.

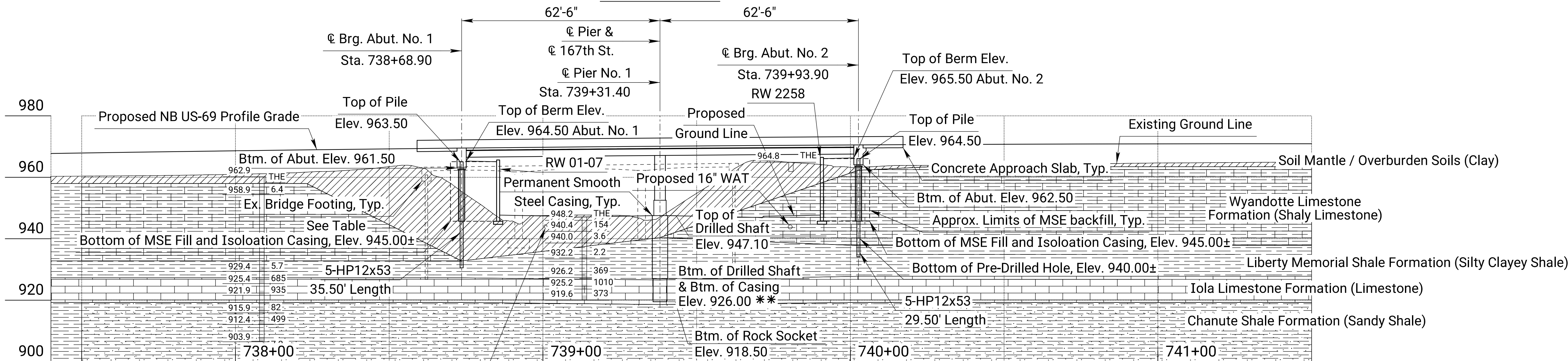
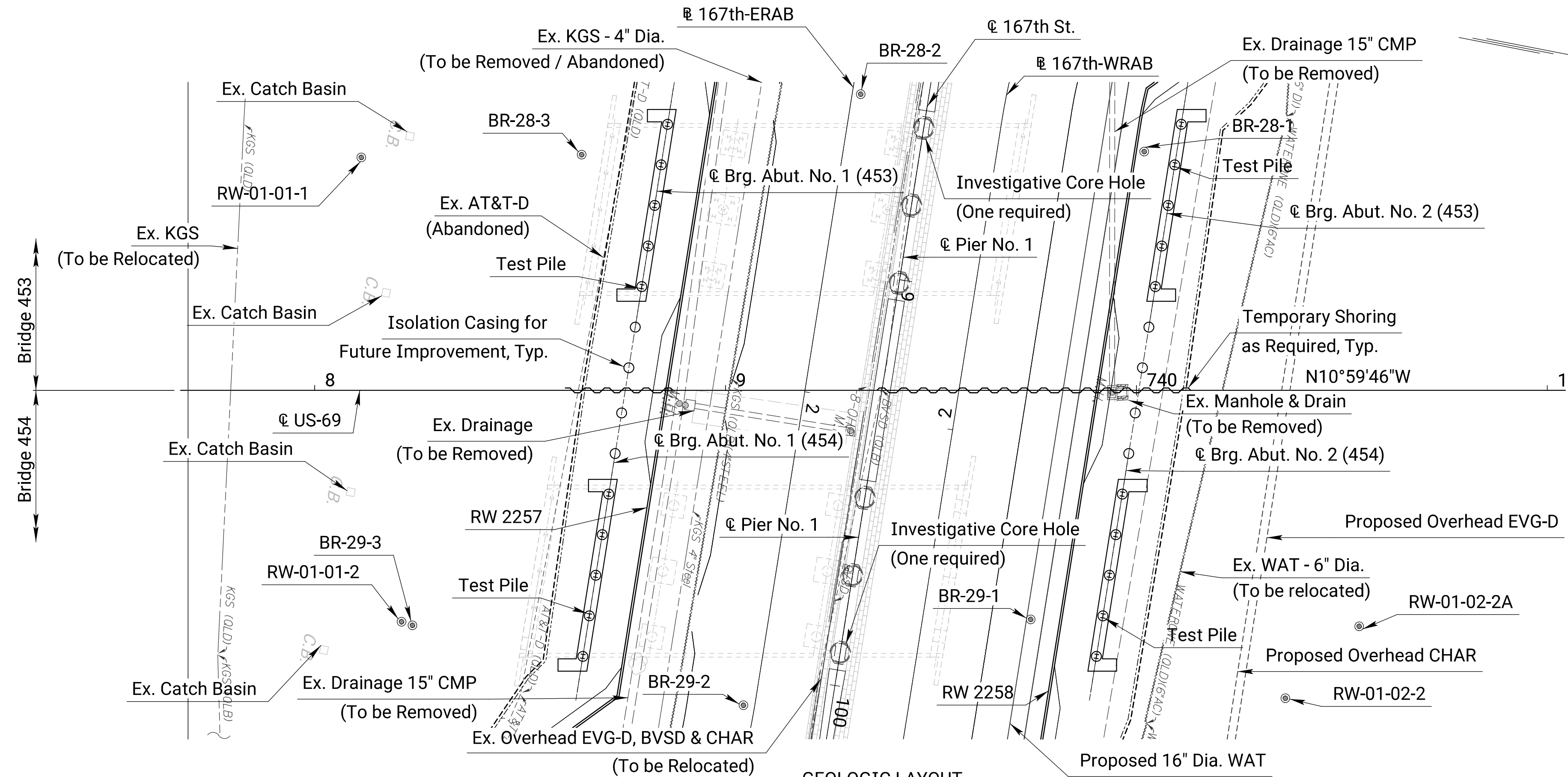
It is critical that the bottom of rock socket be clean and relatively flat. Allow no loose material within the footing when the footing is considered ready to pour. In no case shall the bottom of the drilled shaft be placed higher than the elevation shown unless otherwise directed buy the Geotechnical Engineer. A wet pour is anticipated. Wet pour procedures and equipment should be placed prior to the installed of the shaft.

Pre-drill steel piles at Abutments No. 2 into the Liberty Memorial Shale at an estimated elevation of 940.0. Drive all production piles to practical refusal at Abutments No. 1 and 2 into the Iola Limestone and Liberty Memorial Shale, with estimated pile tip elevations of 928.0 and 935.0 feet, respectively. Driving shall stop when in the opinion of the Engineer additional driving may damage the piling and/or the nominal geotechnical resistance is achieved. Nominal geotechnical capacity of the piles will be developed by the Engineer using driving criteria developed from the test pile PDA data.

For portion of pile within predrilled hole below the casing, backfill the holes with concrete to the bottom of the casing at an estimated elevation of 945.00 at Abutment No. 1 and No. 2. the top 15'-0" of the casing shall remain empty; the remaining portion of the casing shall be backfilled with 3/8" pea gravel.

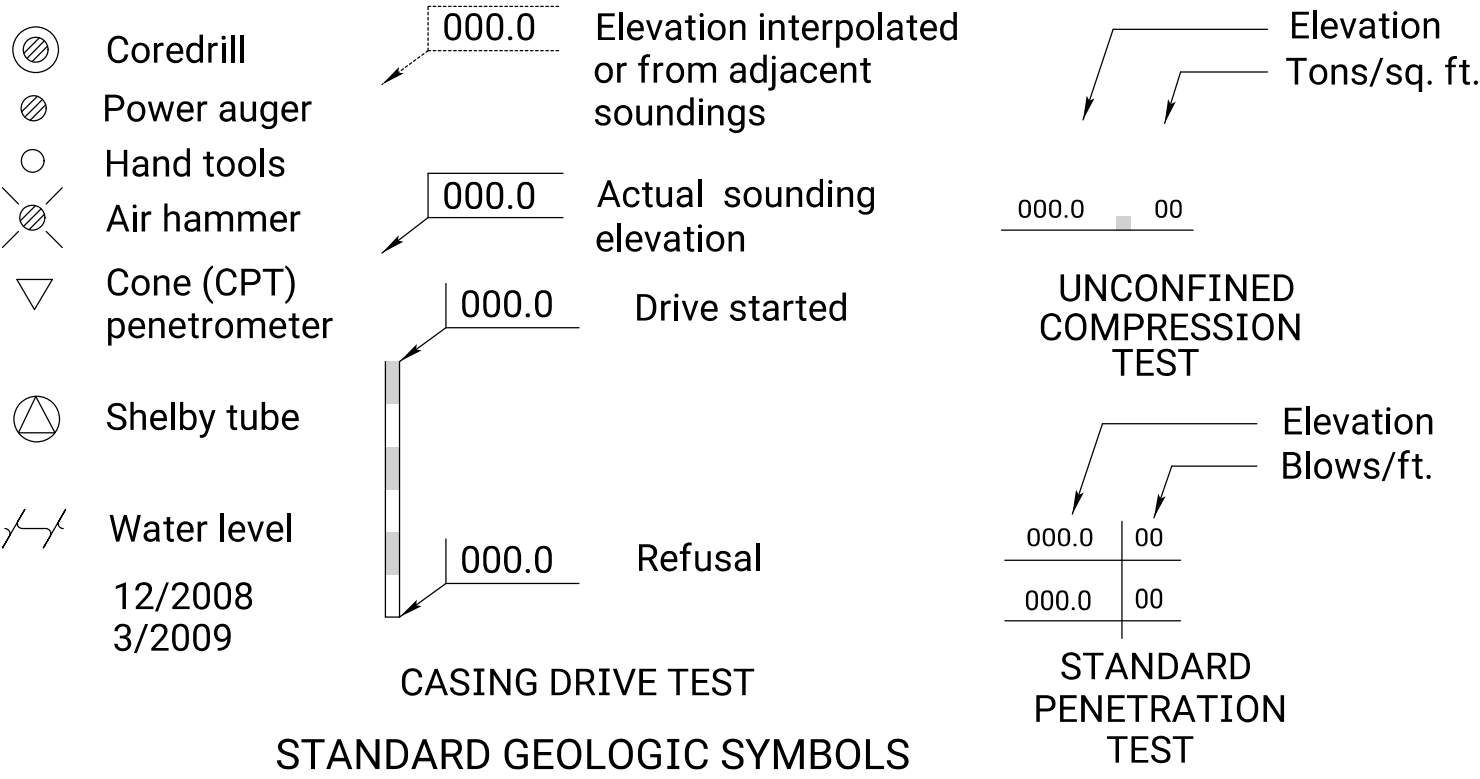
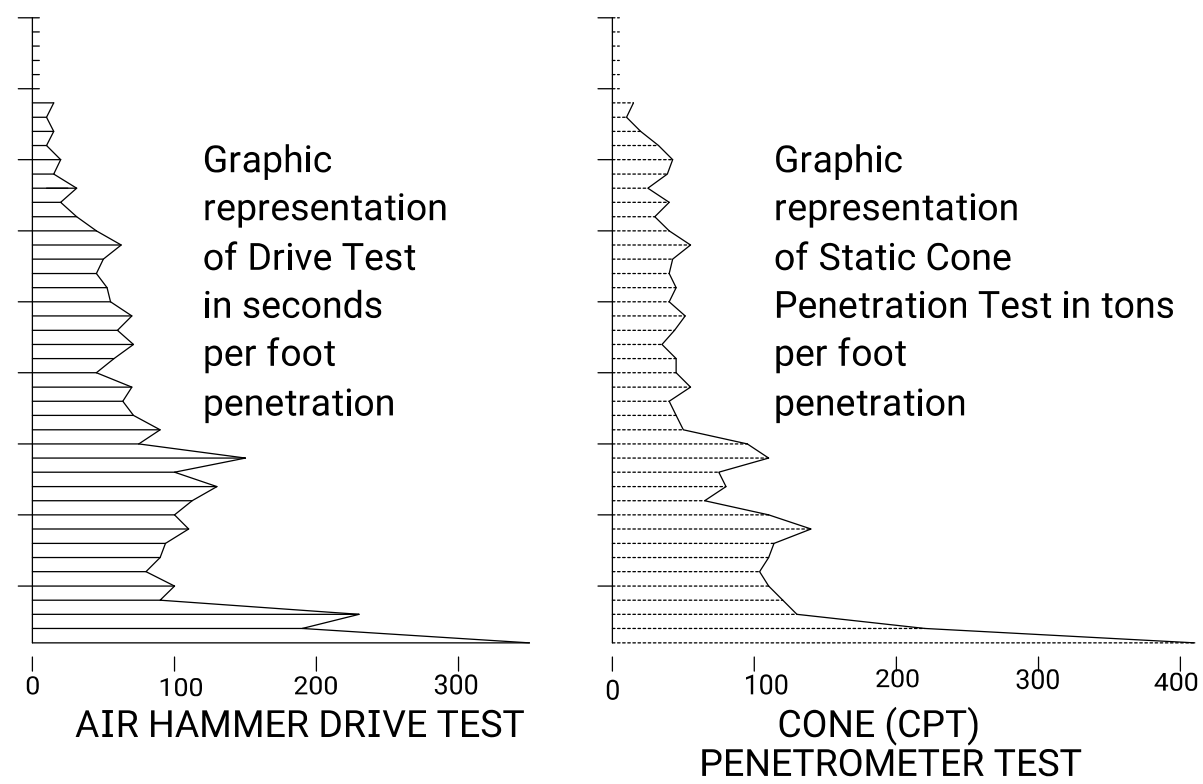
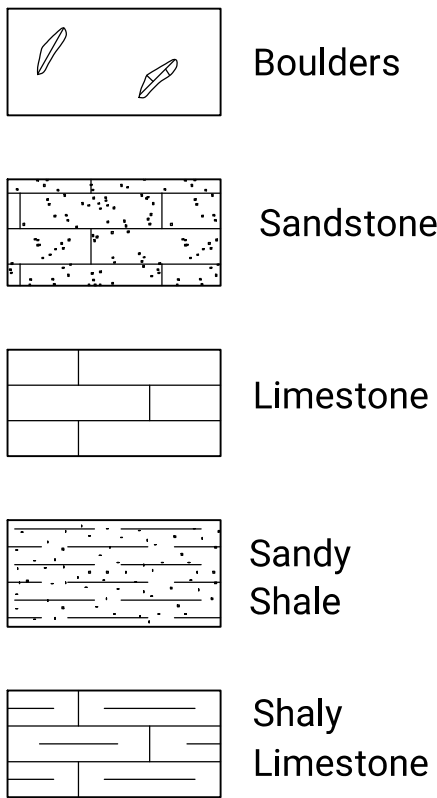
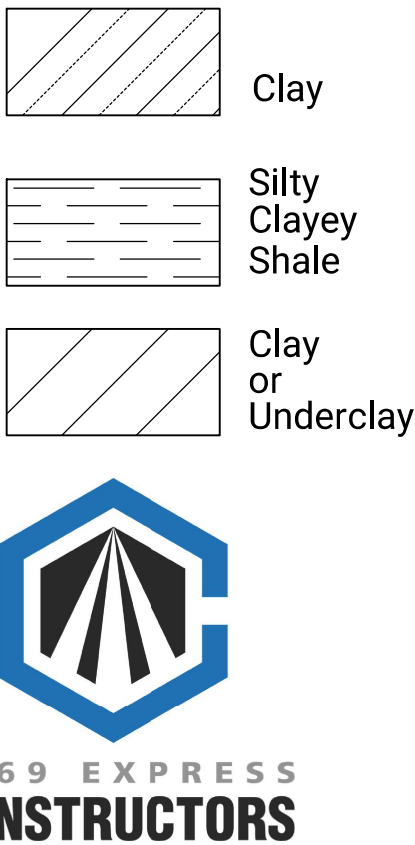
Conduct field testing using PDA on two test piles, with one at each abutment, using Pile Driving Analyzer (PDA) equipment in general accordance with KDOT Specifications. The test piling may remain in place as permanent piling. The test piles should have a minimum nominal geotechnical resistance value of 160 tons (104 tons/0.65). Compressive stresses measured by PDA shall not exceed 0.9Fy (45 ksi for Grade 50 steel).

Pile points are required for all piles.



Existing Foundation Elevations		
NB Bridge (101)		
	Top	Bottom
Abut. No. 1	N/A	958.5±
Pier No. 1	940.0±	938.0±
Pier No. 2	940.0±	938.0±
Abut. No. 2	N/A	959.8±

LOG OF PILE DRIVING							
Footing	Pile No.	Pile Tip Elevation	Refusal Tons	Footing	Pile No.	Pile Tip Elevation	Refusal Tons
Abut. No. 1	6	928.00		Abut. No. 2	16	935.00	
	7	928.00			17	935.00	
	8	928.00			18	935.00	
	9	928.00			19	935.00	
	10	928.00			20	935.00	



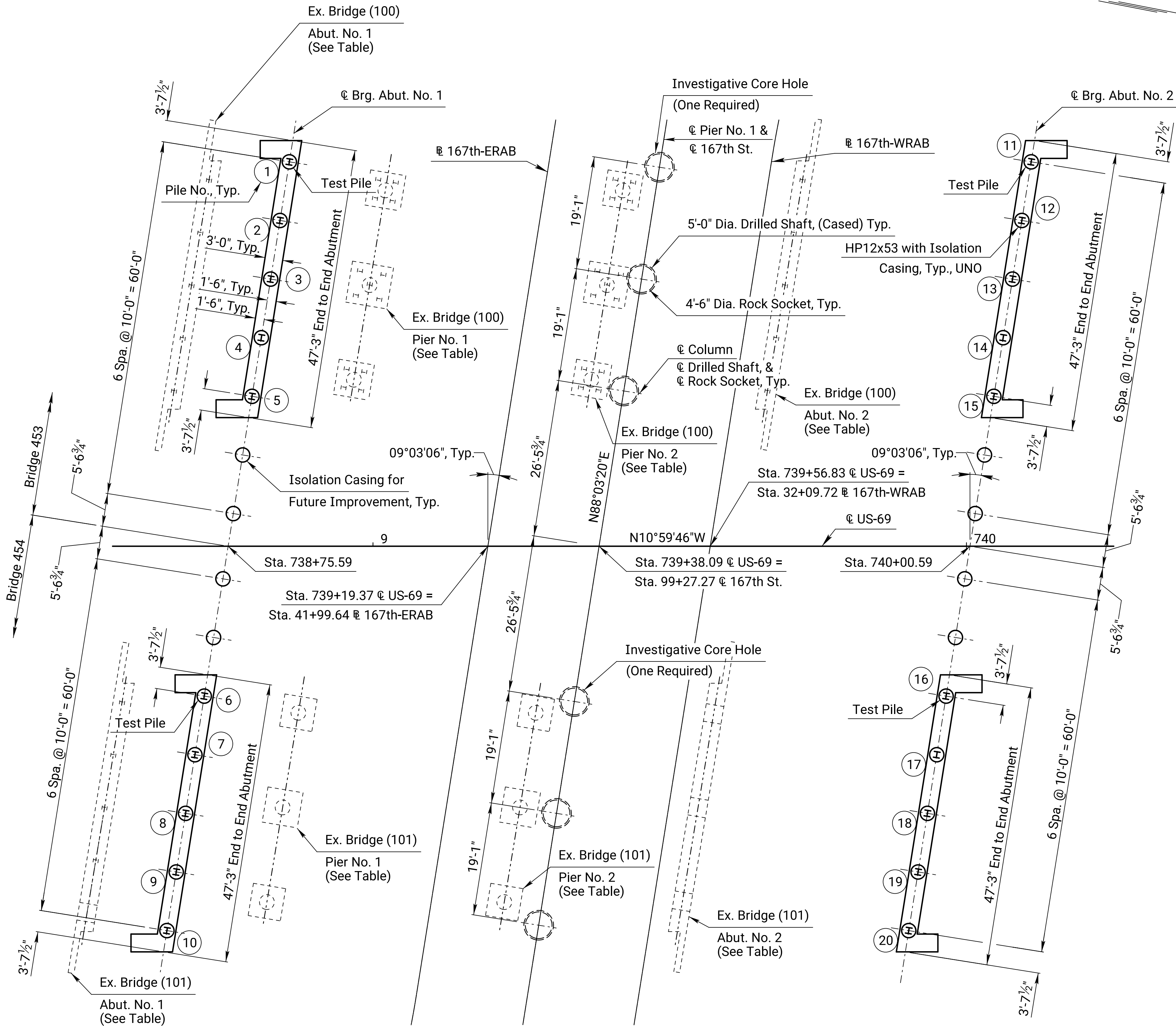
** - Bottom of Casing shall be placed 5' below top of Liberty Memorial Shale Formation. Elevation shown on plans is the lowest anticipated depth of casing required. The bottom of Rock Socket Elevation shall remain the same regardless of the Bottom of Casing Elevation.

NOTE:
Formations and elevations shown are based on historical and current data provided by the Geotechnical Engineer. Actual elevations of top of rock may vary. For additional details and notes, see Sheet BR2829-08. For pile and drilled shaft layout plan and details, see Sheet BR2829-10.

SCALE: 1"= 15' Horiz. 1"= 15' Vert.			KANSAS DEPARTMENT OF TRANSPORTATION BR.NO.69-46-139.75 (453) BR.NO.69-46-139.76 (454)						STA. 739+38.09 STA. 739+38.10	
			BRIDGE 454 ENGINEERING GEOLOGY NB US-69 OVER 167TH STREET							
			PROJ. NO. 69-46 KA-5700-03						JOHNSON CO.	
			DESIGNED		JAT		DETAILED		JAT	
			DESIGN CK.		CRG		DETAIL CK.		CRG	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-10	39

Existing Foundation Foundations				
	SB Bridge (100)		NB Bridge (101)	
	Top	Bottom	Top	Bottom
Abut. No. 1	N/A	958.8±	N/A	958.5±
Pier No. 1	940.0±	937.0±	940.0±	938.0±
Pier No. 2	940.0±	937.0±	940.0±	938.0±
Abut. No. 2	N/A	960.1±	N/A	959.8±

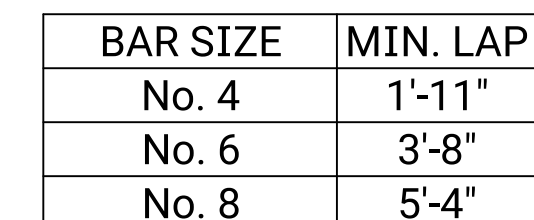


FOUNDATION PLAN

Notes:
For Abutment Details, see Sheet BR2829-11 thru BR2829-14.
For Pier Details, see Sheet BR2829-17 thru BR2829-19.
For Utilities & Notes, see Sheets BR2829-02 and BR2829-08 and BR2829-09.

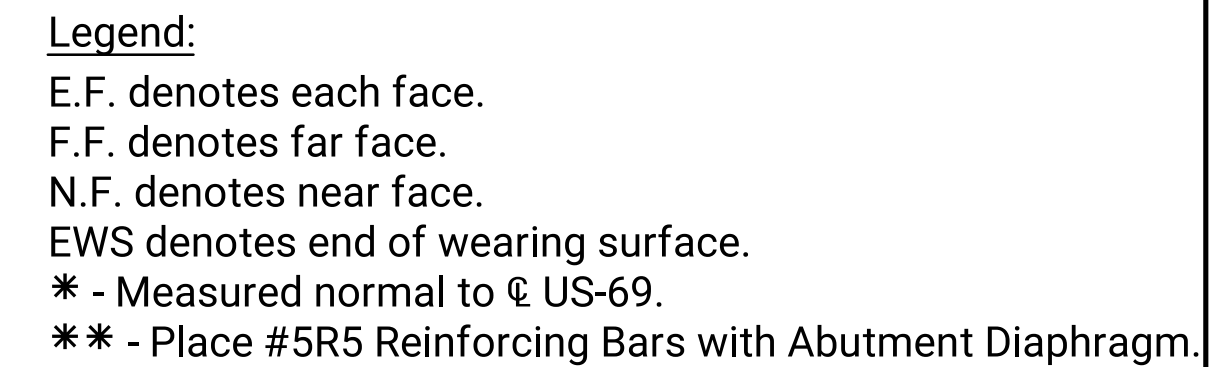
			KANSAS DEPARTMENT OF TRANSPORTATION BR.NO.69-46-139.75 (453) STA. 739+38.09 BR.NO.69-46-139.76 (454) STA. 739+38.10		
NO. DATE		REVISIONS			
0 2023-12-08		RFC SUBMITTAL			
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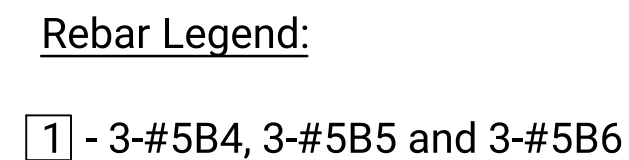
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KANSAS DEPARTMENT OF TRANSPORTATION			
BR.NO.69-46-139.75 (453)		STA. 739+38.09	
BR.NO.69-46-139.76 (454)		STA. 739+38.10	
ABUTMENT NO. 1			
PLAN & ELEVATION			
US-69 OVER 167TH STREET			
PROJ. NO. 69-46 KA-5700-03		JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT
DESIGN/CK	CRG	DETAIL/CK	CRG

BAR SIZE	MIN. LAP
No. 4	1'-11"
No. 6	3'-8"
No. 8	5'-4"



(Bridge 453 shown, Bridge 454 similar)



Notes:

Dimensions and Elevations measured along Centerline of Bearing unless noted otherwise.

For Sections A-A and B-B, see Sheet BR2829-13.

For Wingwall details, see Sheet BR2829-14.

For Foundation Layout, see Sheet BR2829-10.

For Barrier Details, see Sheets BR2829-29 & BR2829-30.

TABLE OF BEAM SEAT ELEVATIONS						
BEAM	A/M	B/L	C/K	D/J	E/H	F/G
BR 453	966.84	966.96	967.07	967.16	967.03	966.90
BR 454	966.72	966.86	966.99	967.09	966.97	966.86

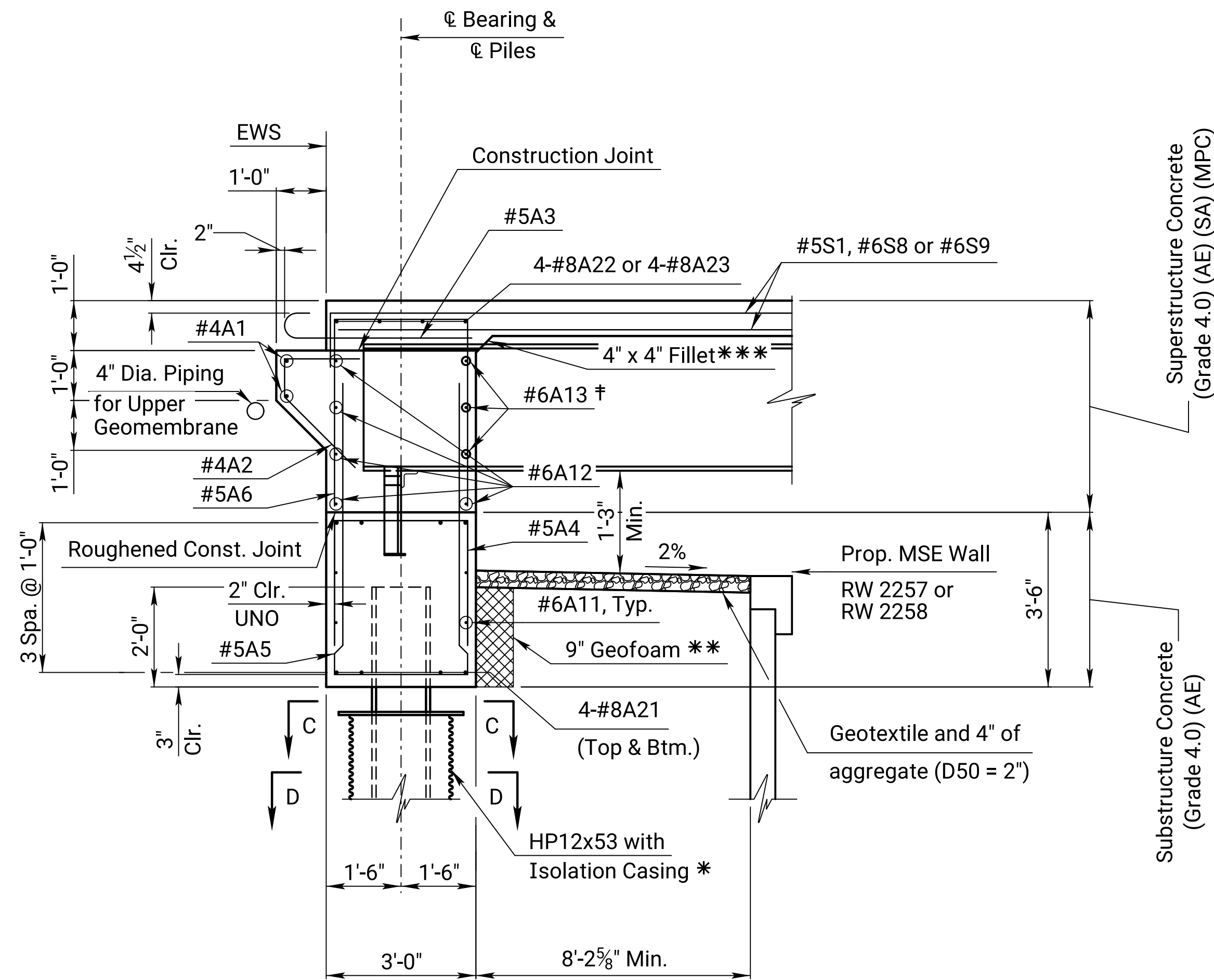
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KANSAS DEPARTMENT OF TRANSPORTATION	
BR.NO.69-46-139.75 (453)	STA. 739+38.09
BR.NO.69-46-139.76 (454)	STA. 739+38.10

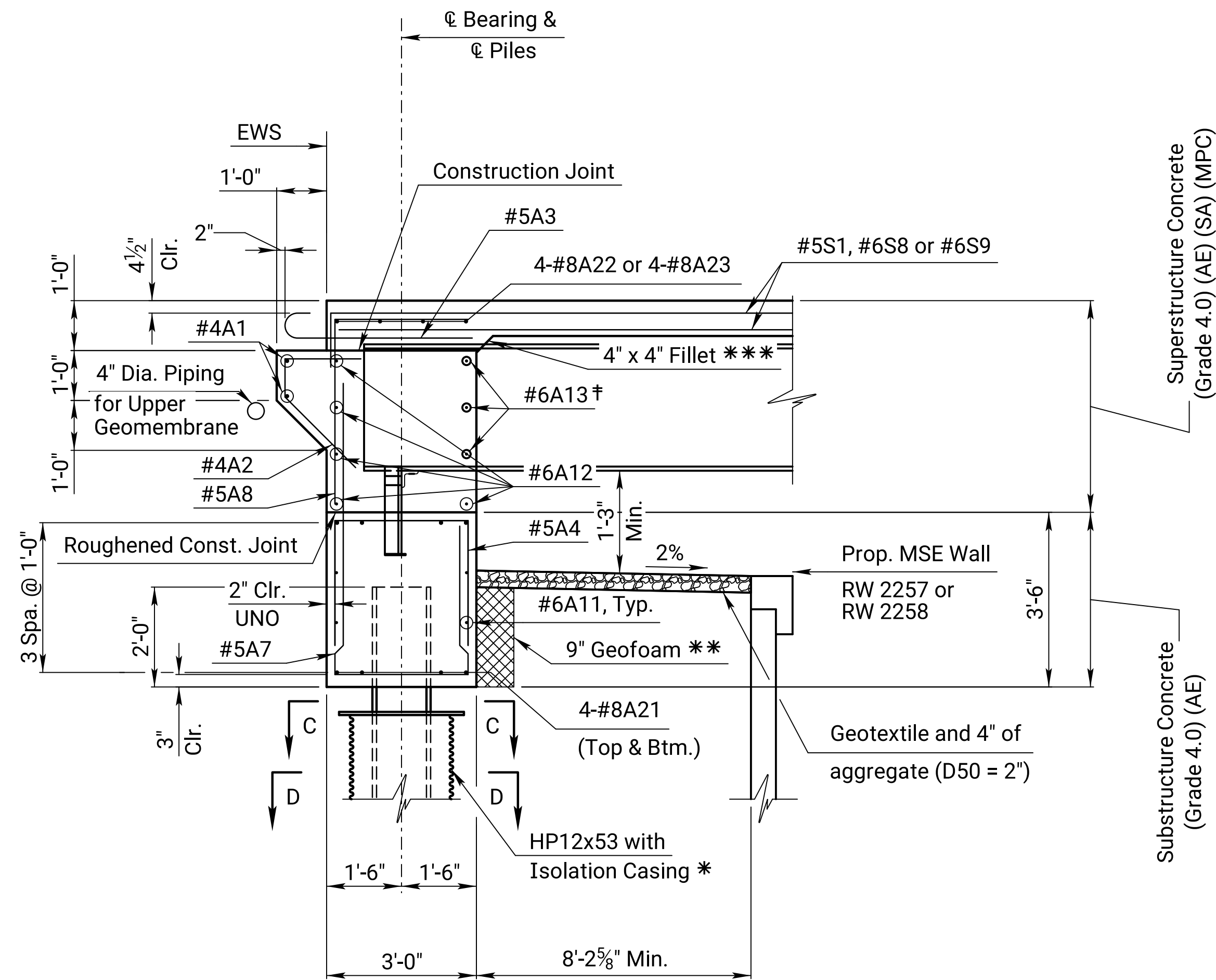
ABUTMENT NO. 2
PLAN & ELEVATION
US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03				JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT		
DESIGN CK	CRG	DETAI CK	CRG		

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-13	39



SECTION A-A
(Abutment No. 1 Shown, Abutment No. 2 Similar)



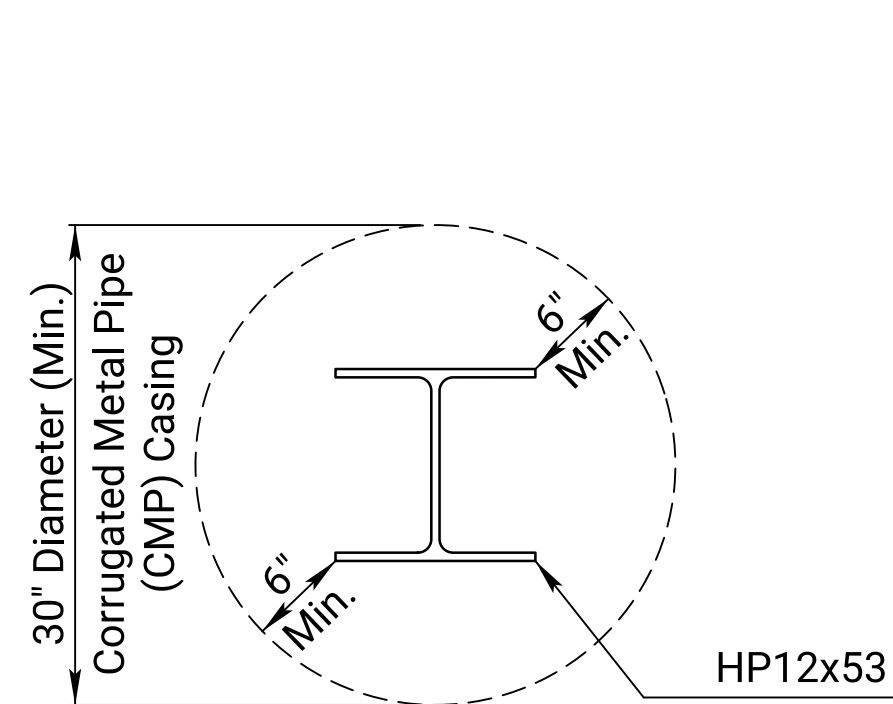
SECTION B-B
(Abutment No. 1 Shown, Abutment No. 2 Similar)

LEGEND:
 AB1 denotes Abutment No. 1.
 AB2 denotes Abutment No. 2.
 EWS denotes end of wearing surface.
 UNO denotes Unless Noted Otherwise

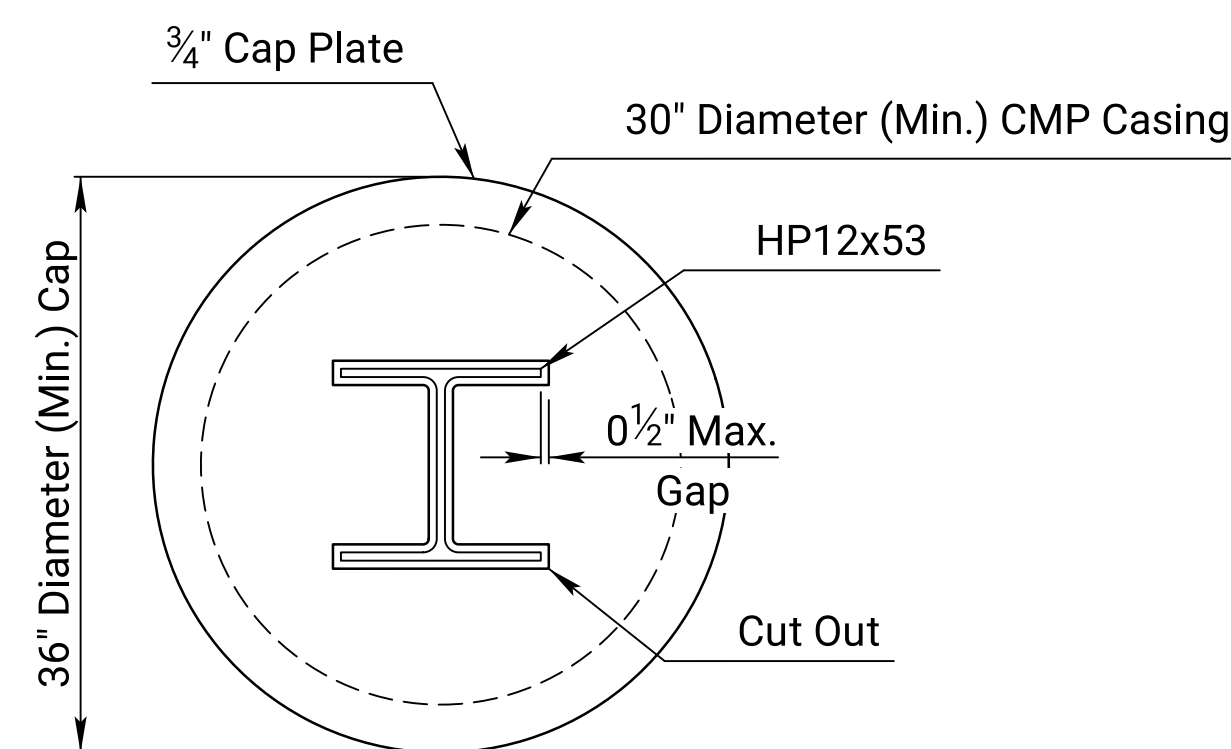
NOTES:

- * - Backfill with concrete to the bottom of casing. Backfill with ¾" pea gravel to the bottom of the casing, leaving the top 15'-0" open.
- ** - Depth of geofoam is 2'-8" from bottom of aggregate to bottom of abutment footing.
- *** - Design Builder has the option of construction a 4" x 4" fillet at the face of the diaphragm.
- † - 2" Ø hole. Place black mastic or expansion joint material around bars through girders to prevent concrete intrusion.

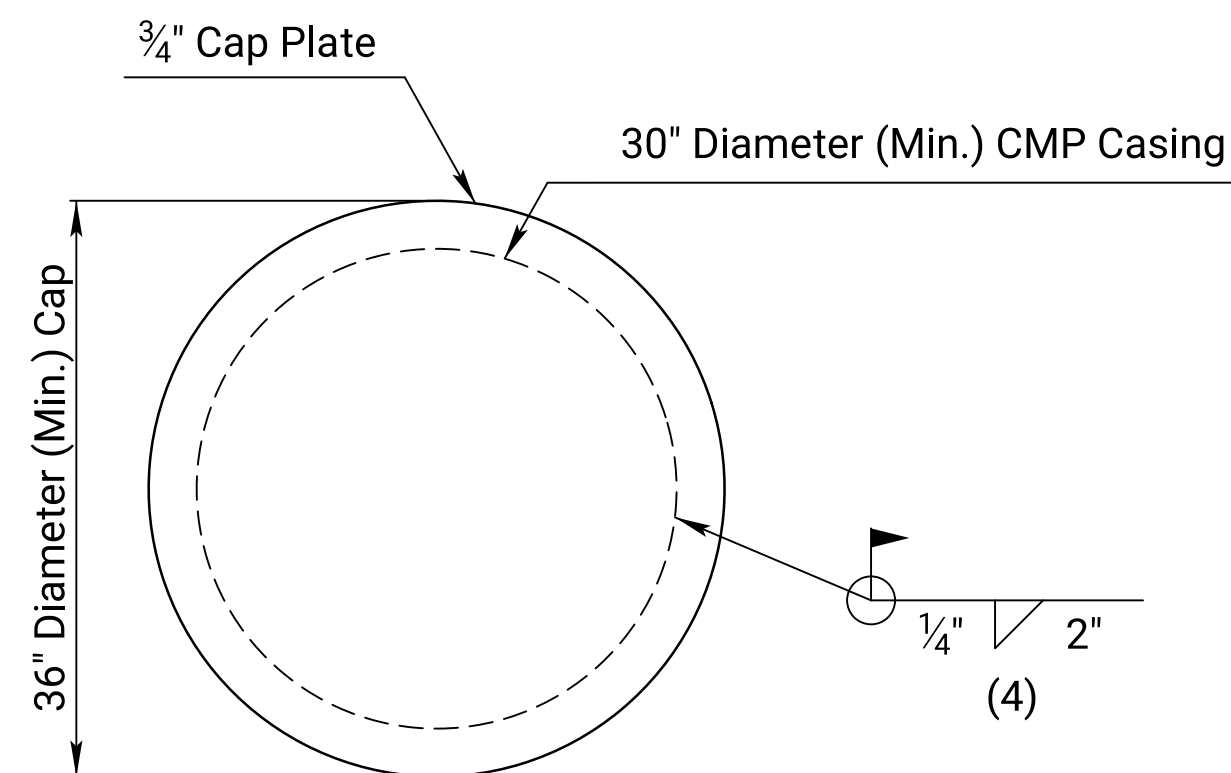
For Girder Support Details, see Sheet BR2829-15.



SECTION D-D



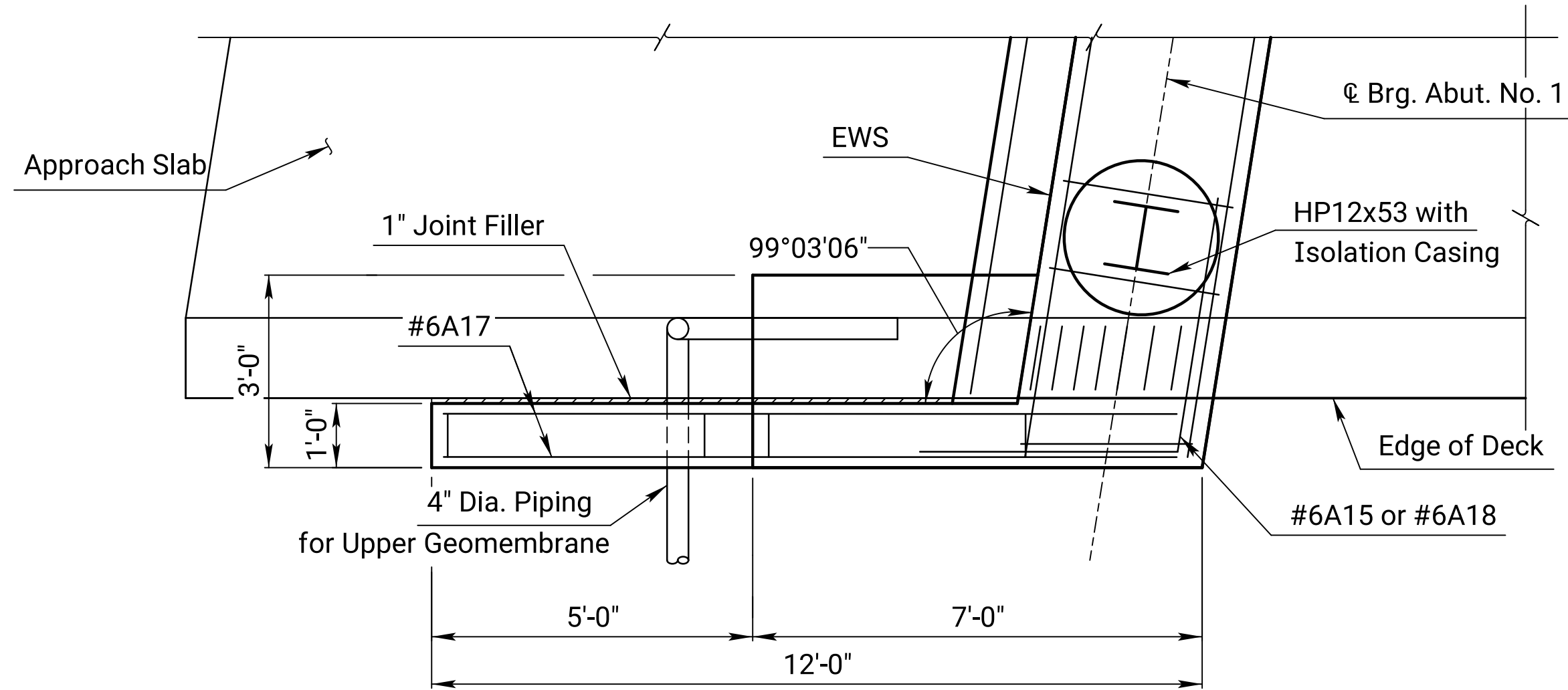
SECTION C-C



CAP DETAIL FOR FUTURE IMPROVEMENT CASES

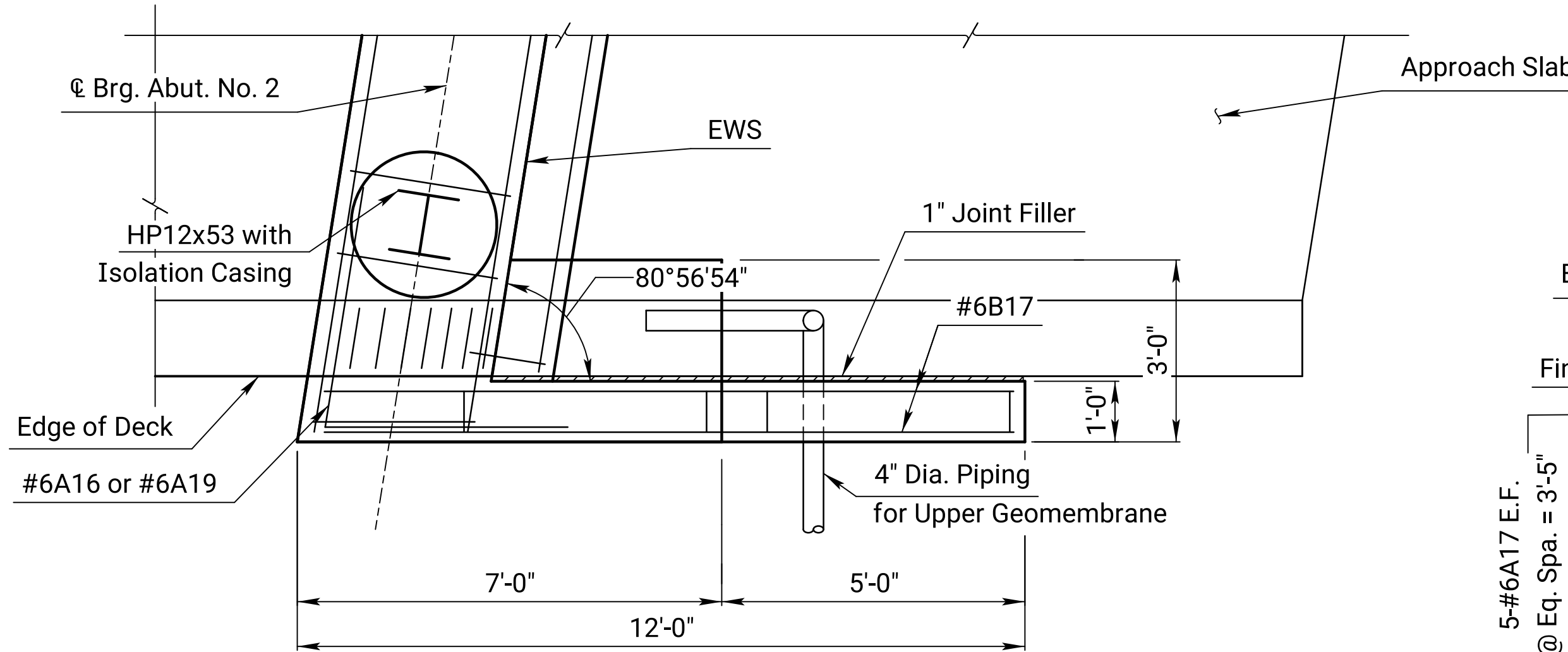
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NO.		DATE		REVISIONS						ABUTMENT DETAILS US-69 OVER 167TH STREET PROJ. NO. 69-46 KA-5700-03JOHNSON CO.									
0		2023-12-08		RFC SUBMITTAL															
										DESIGNED		JAT	DETAILED		JAT				
										DESIGN CK.		CRG	DETAIL CK.		CRG				

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-14	39



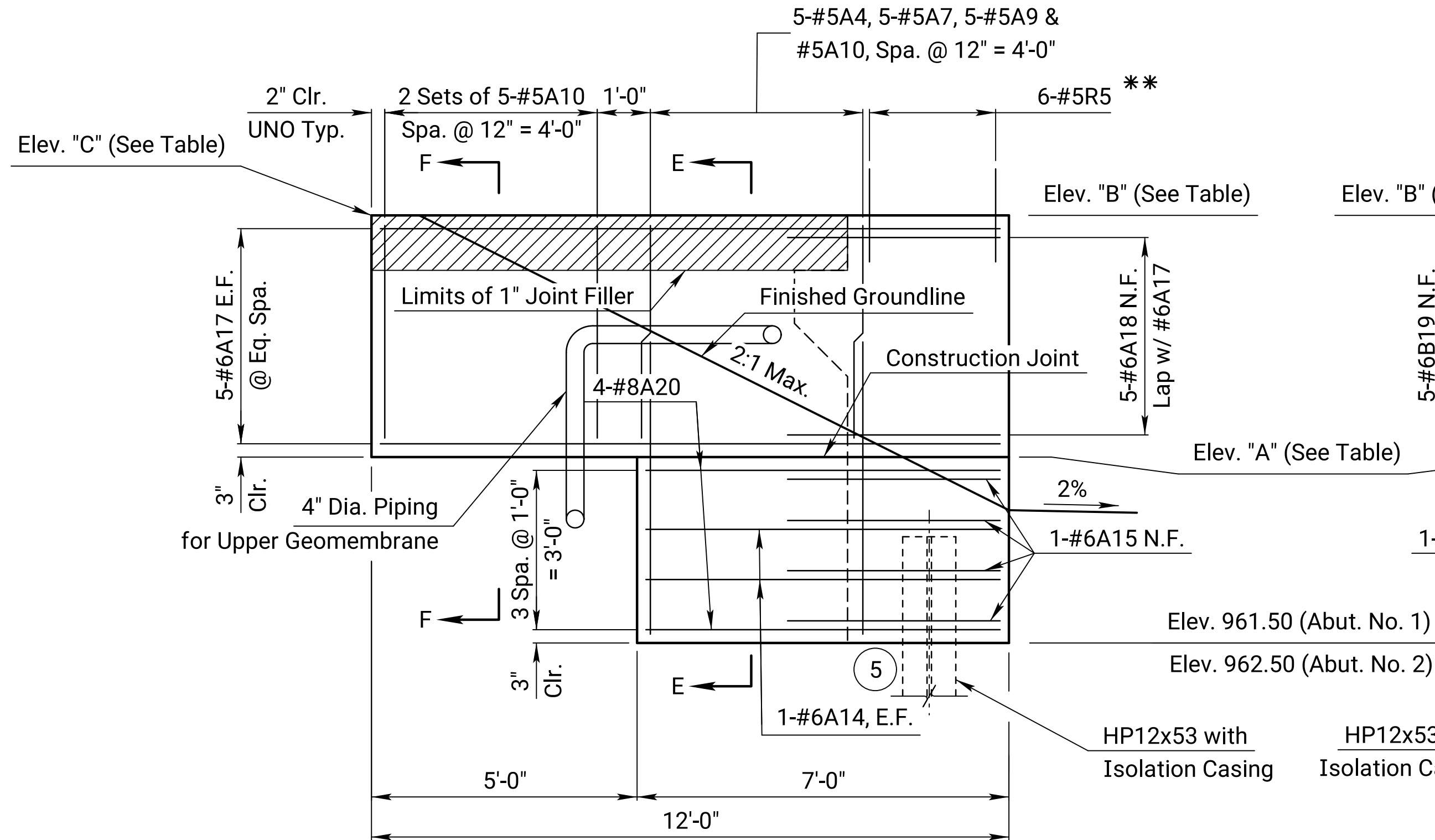
OBTUSE CORNER WINGWALL PLAN

Abutment No. 1, Wingwall No. 2 Shown, others Similar

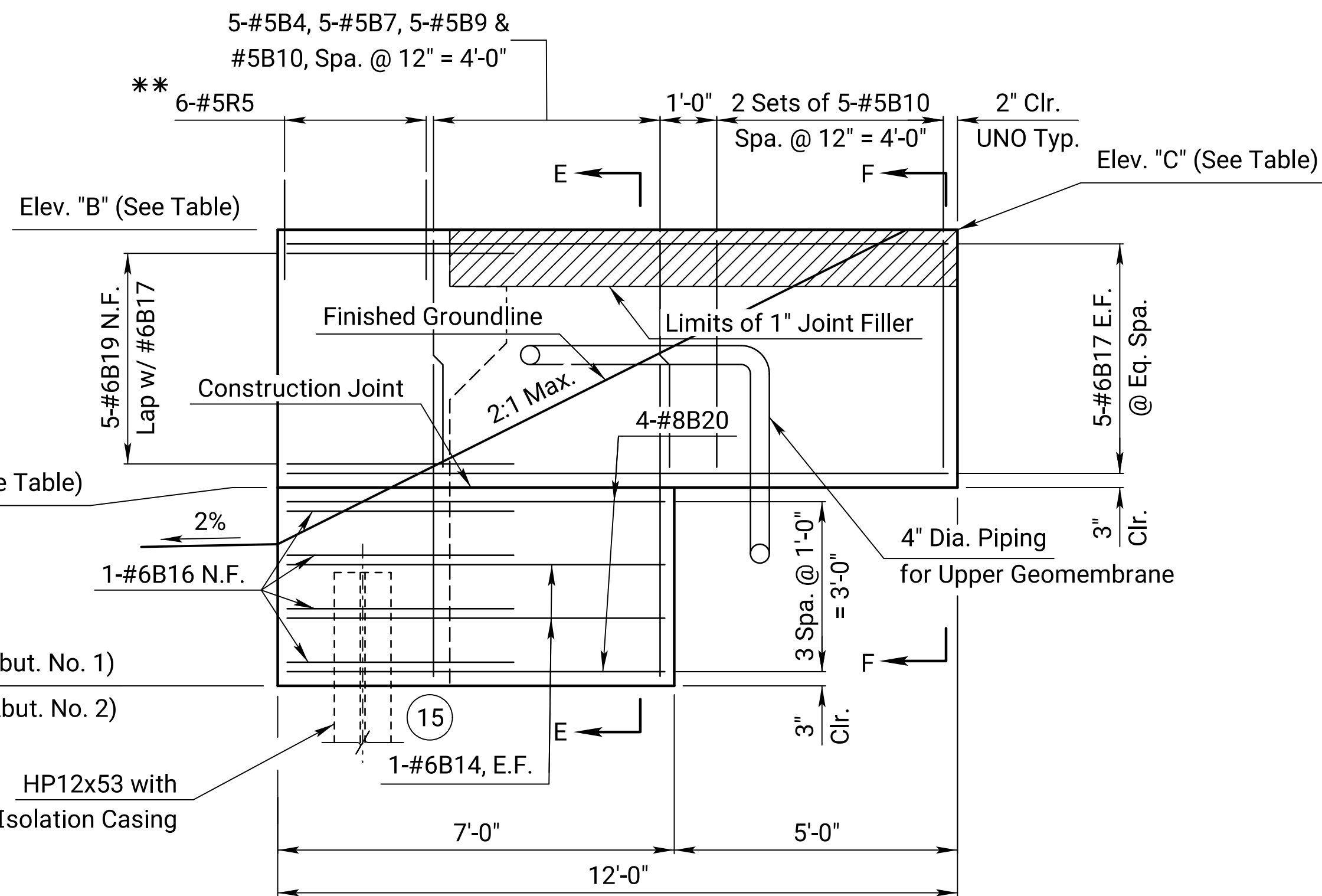


ACUTE CORNER WINGWALL PLAN

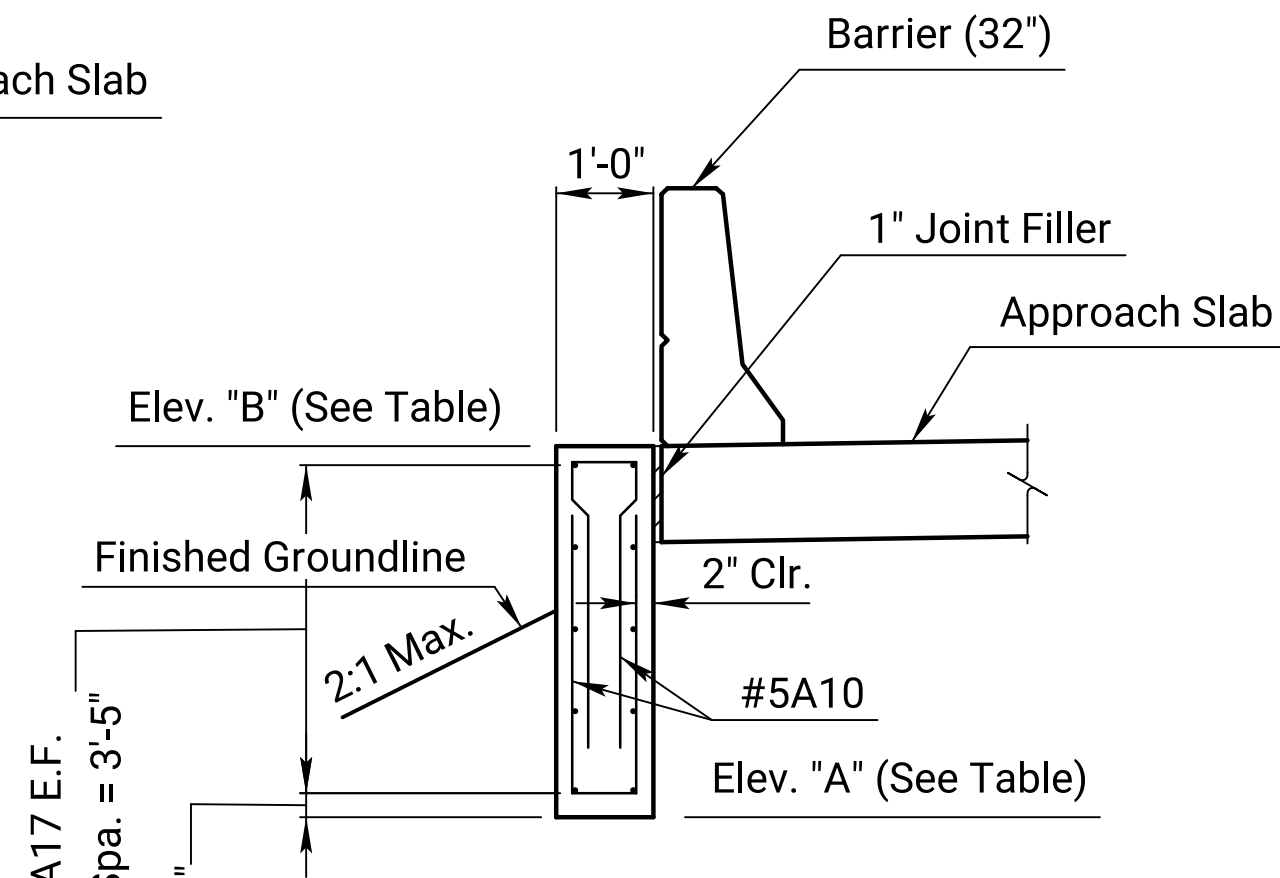
Abutment No. 2, Wingwall No. 6 Shown, others Similar



OBTUSE CORNER WINGWALL ELEVATION

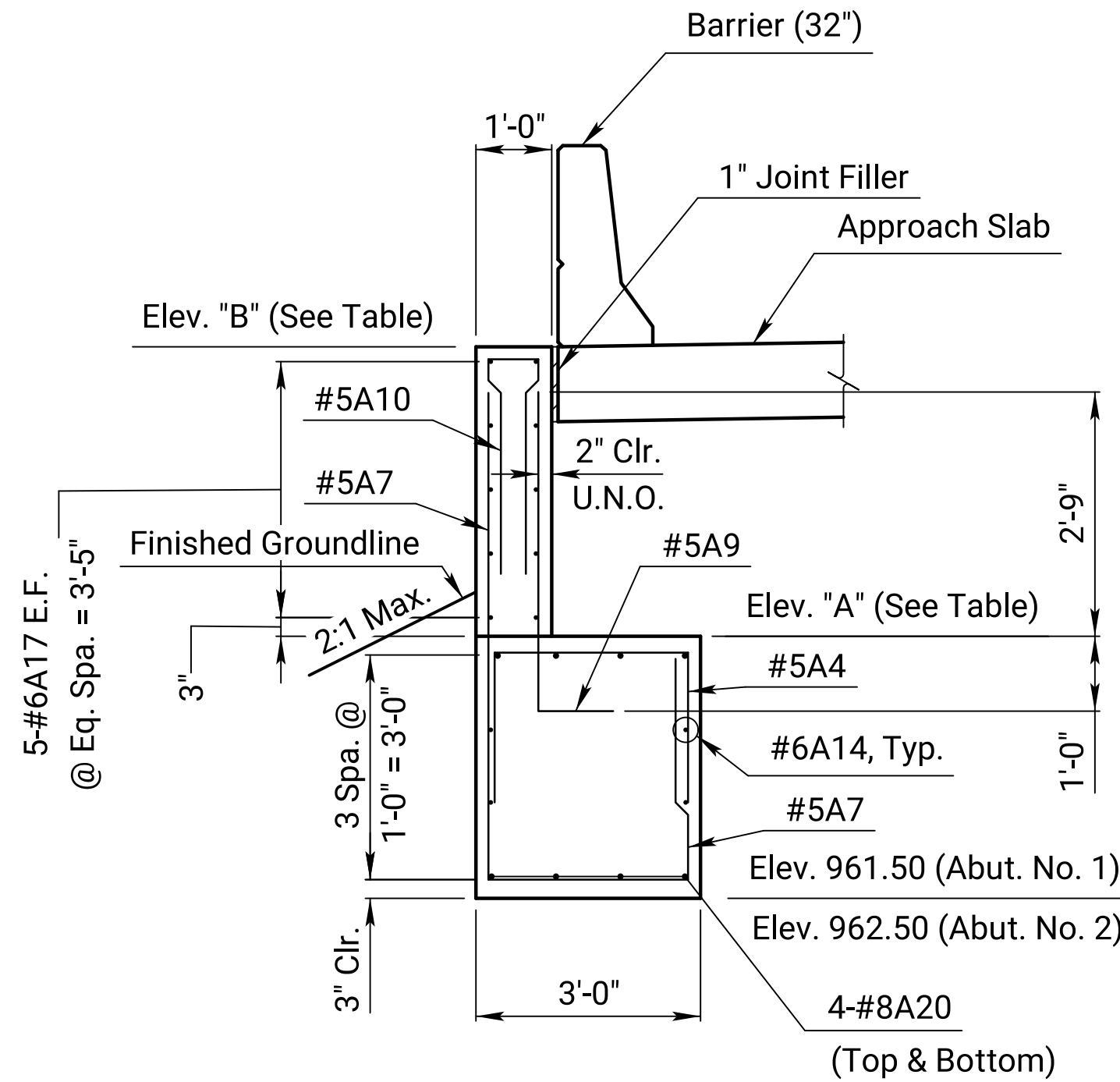


ACUTE CORNER WINGWALL ELEVATION



SECTION F-F

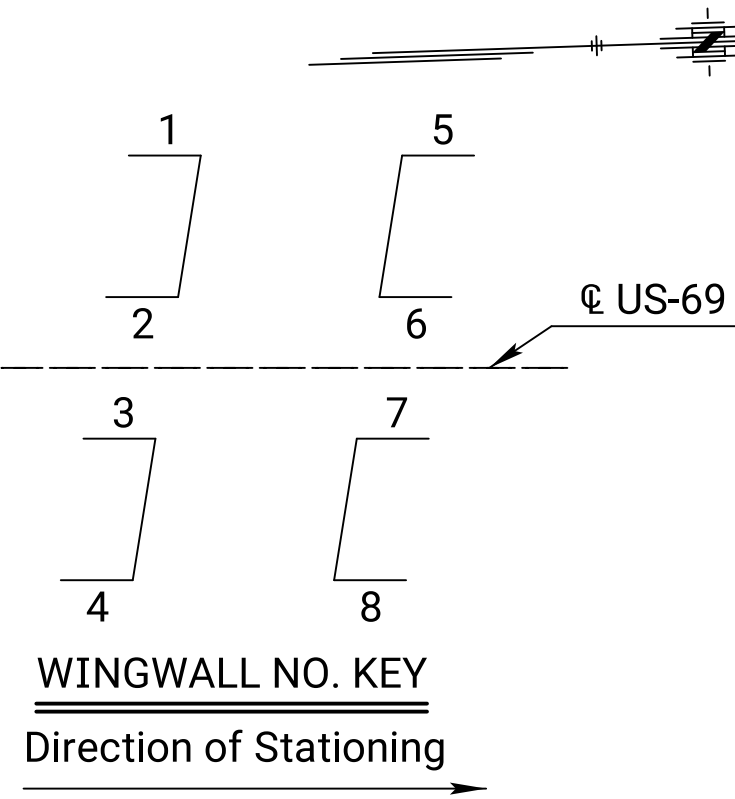
Abutment No. 1, Abutment No. 2 Similar



SECTION E-E

Abutment No. 1, Abutment No. 2 Similar

ELEVATION TABLE			
WINGWALL NO.	ELEV. A	ELEV. B	ELEV. C
1	965.00	969.27	969.15
2	965.00	969.29	969.17
3	965.00	969.22	969.09
4	965.00	969.05	968.91
5	966.00	970.20	970.23
6	966.00	970.26	970.32
7	966.00	970.21	970.28
8	966.00	970.08	970.15



Legend:

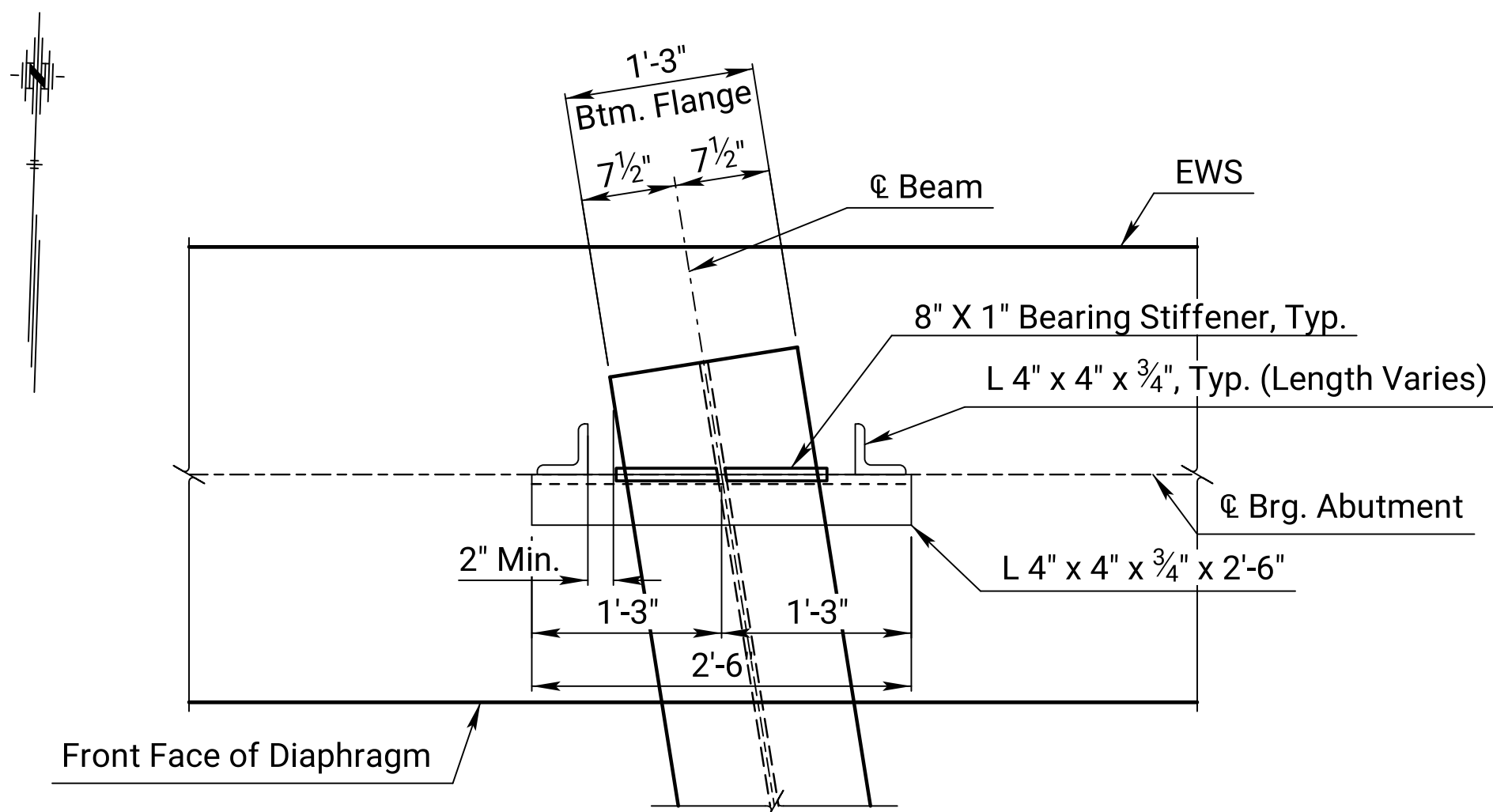
E.F. denotes each face.
F.F. denotes far face.
N.F. denotes near face.
EWS denotes end of wearing surface.
**- Place #5R5 Reinforcing Bars with Abutment Diaphragm.

NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION BR.NO.69-46-139.75 (453) STA. 739+38.09 BR.NO.69-46-139.76 (454) STA. 739+38.10			
WINGWALL DETAILS			
US-69 OVER 167TH STREET			
PROJ. NO. 69-46 KA-5700-03		JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT
DESIGN CK.	CRG	DETAIL CK.	CRG

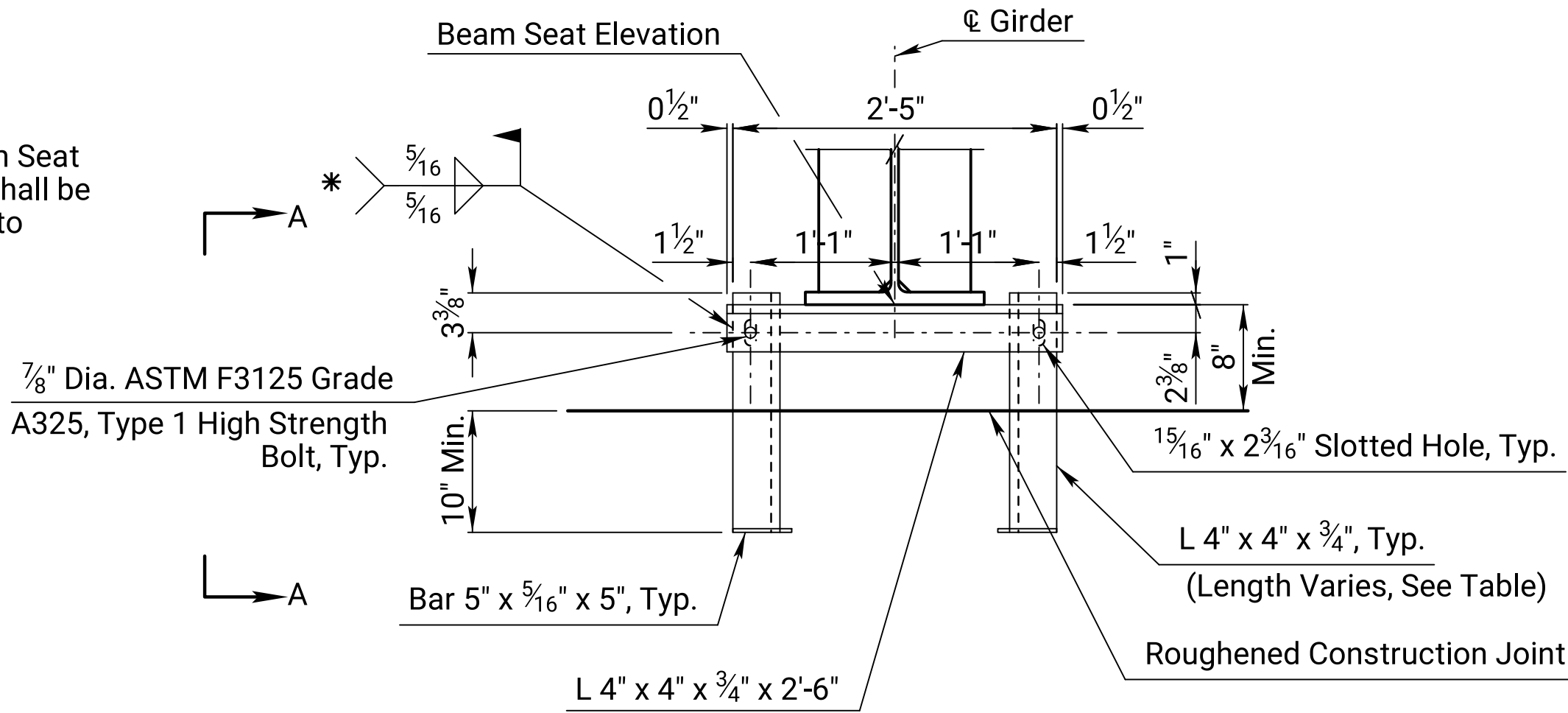


STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-15	39

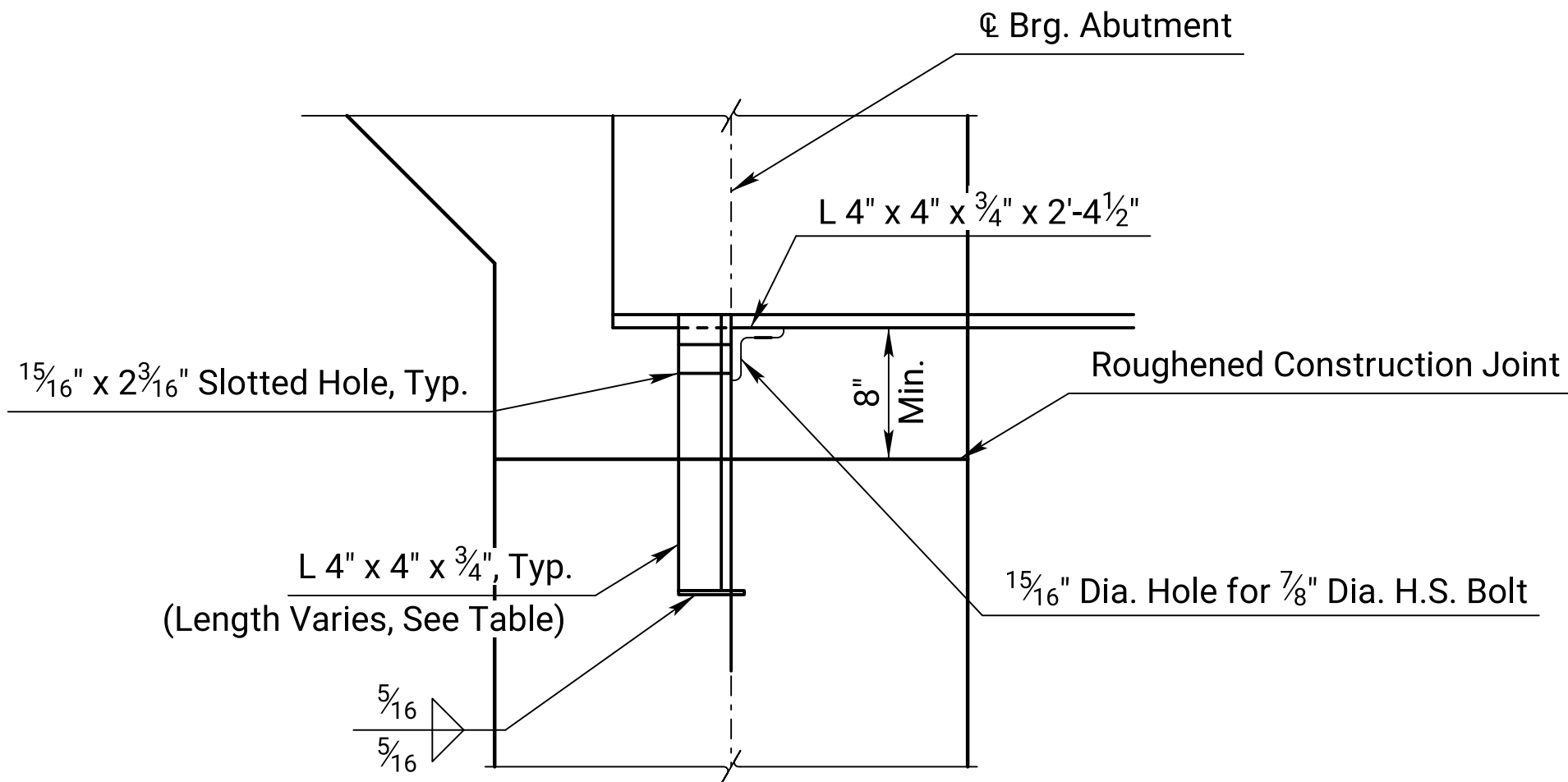


PLAN
(Abutment No. 1, Bridge 453 Shown, others Similar)

* - After verifying Beam Seat Elevations, the angles shall be welded as shown prior to placing the beams.



ELEVATION



SECTION A-A

Bridge 453 Beam Support Length						
Beam	A	B	C	D	E	F
AB1 Length	1'-10"	1'-11"	2'-1"	2'-2"	2'-0"	1'-11"
AB2 Length	1'-10"	1'-11"	2'-0"	2'-1"	2'-0"	1'-10"

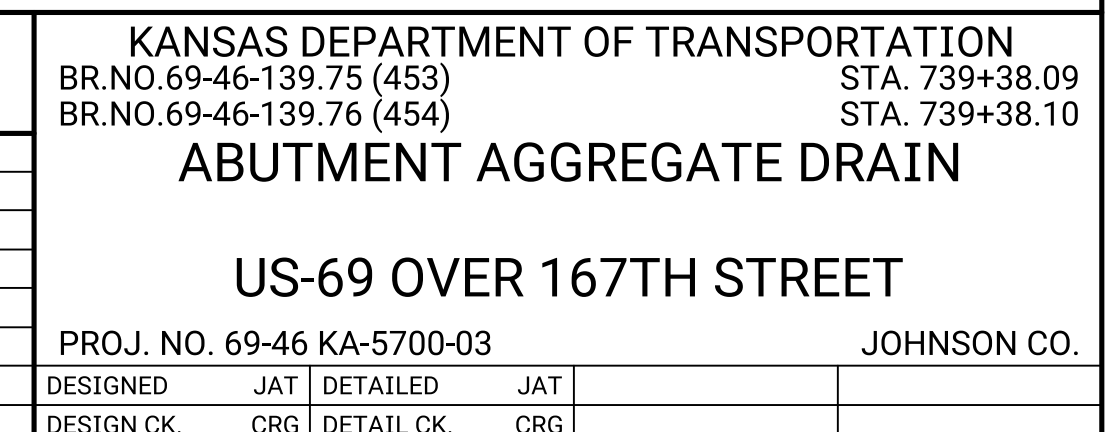
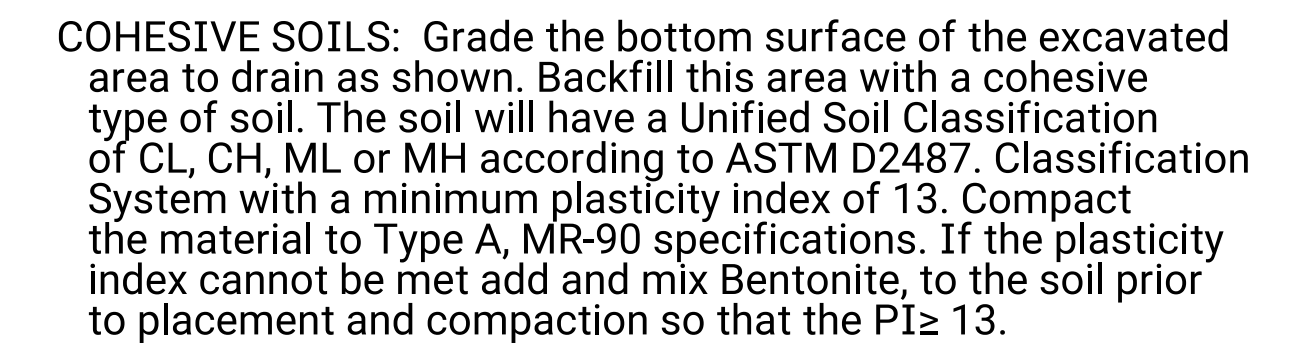
Bridge 454 Beam Support Length						
Beam	G	H	J	K	L	M
AB1 Length	1'-9"	1'-11"	2'-0"	1'-11"	1'-9"	1'-8"
AB2 Length	1'-10"	1'-11"	2'-1"	1'-11"	1'-10"	1'-8"

NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION				STA. 739+38.09	
BR.NO. 69-46-139.75 (453)				STA. 739+38.10	
BR.NO. 69-46-139.76 (454)					
BEAM SUPPORT					
AT ABUTMENT DETAILS					
US-69 OVER 167TH STREET					
PROJ. NO. 69-46 KA-5700-03				JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT		
DESIGN CK.	CRG	DETAIL CK.	CRG		



GENERAL NOTES



STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-17	39

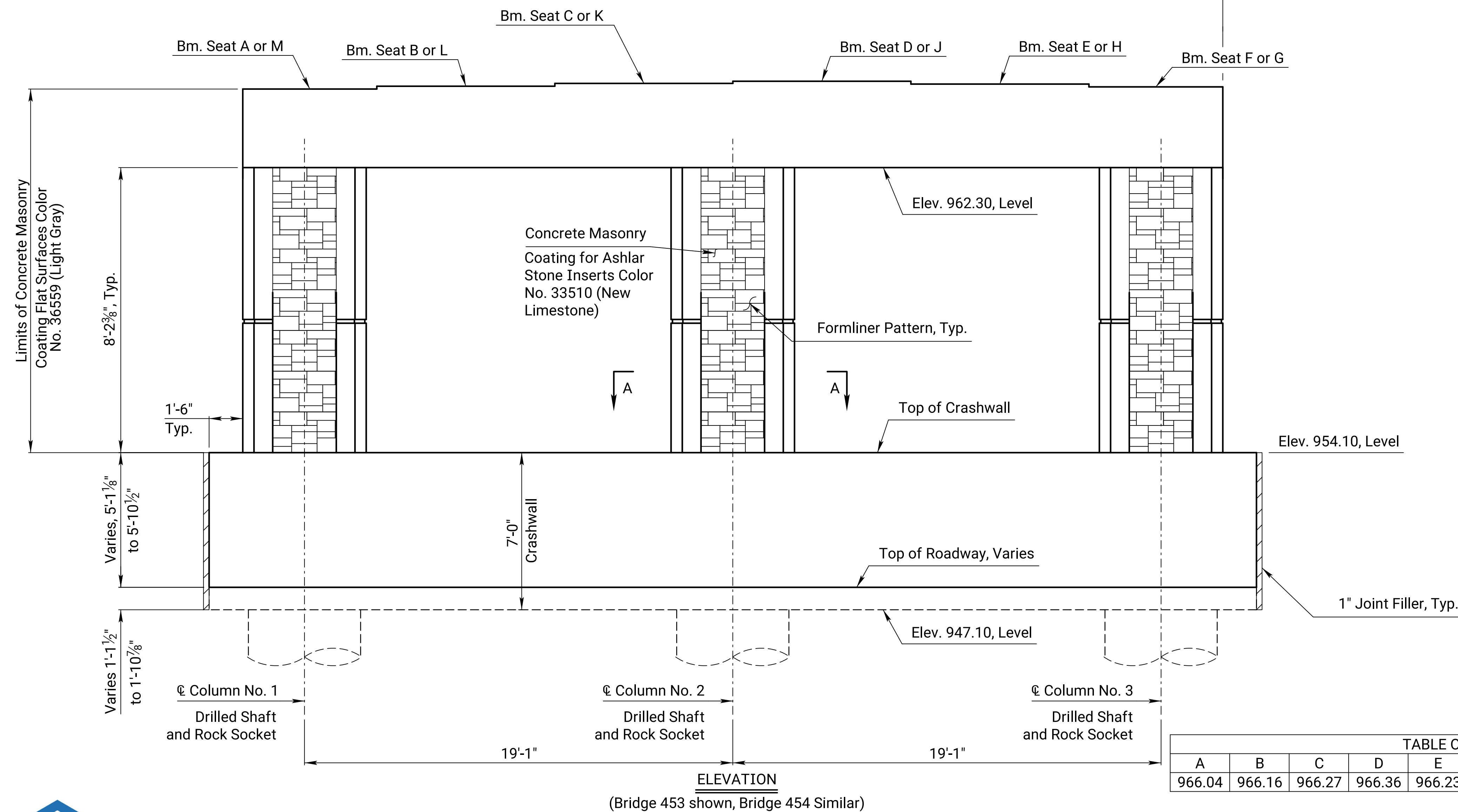
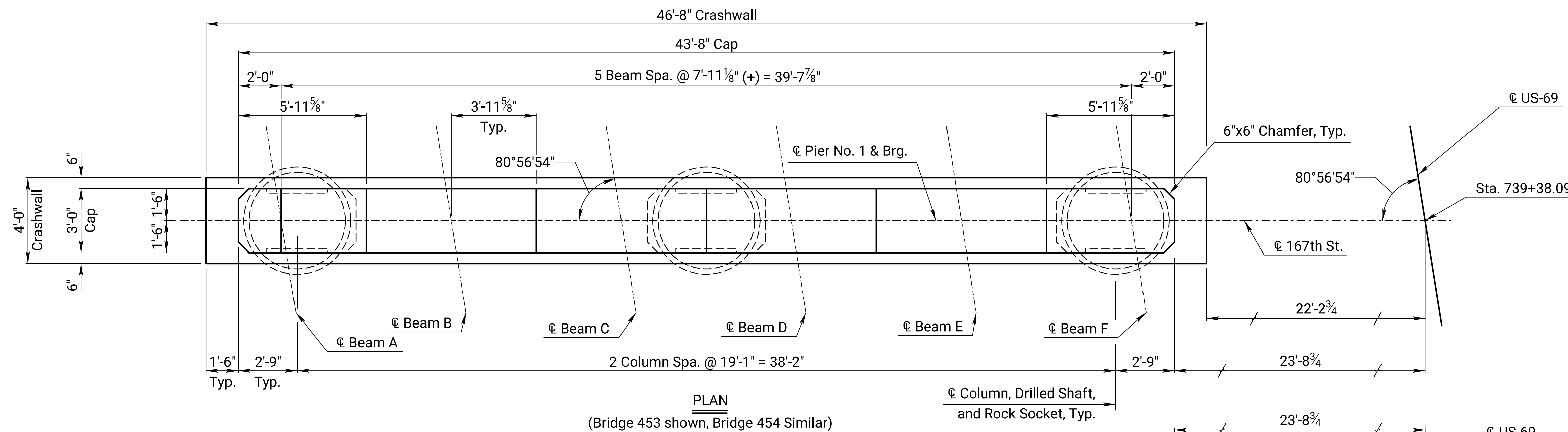
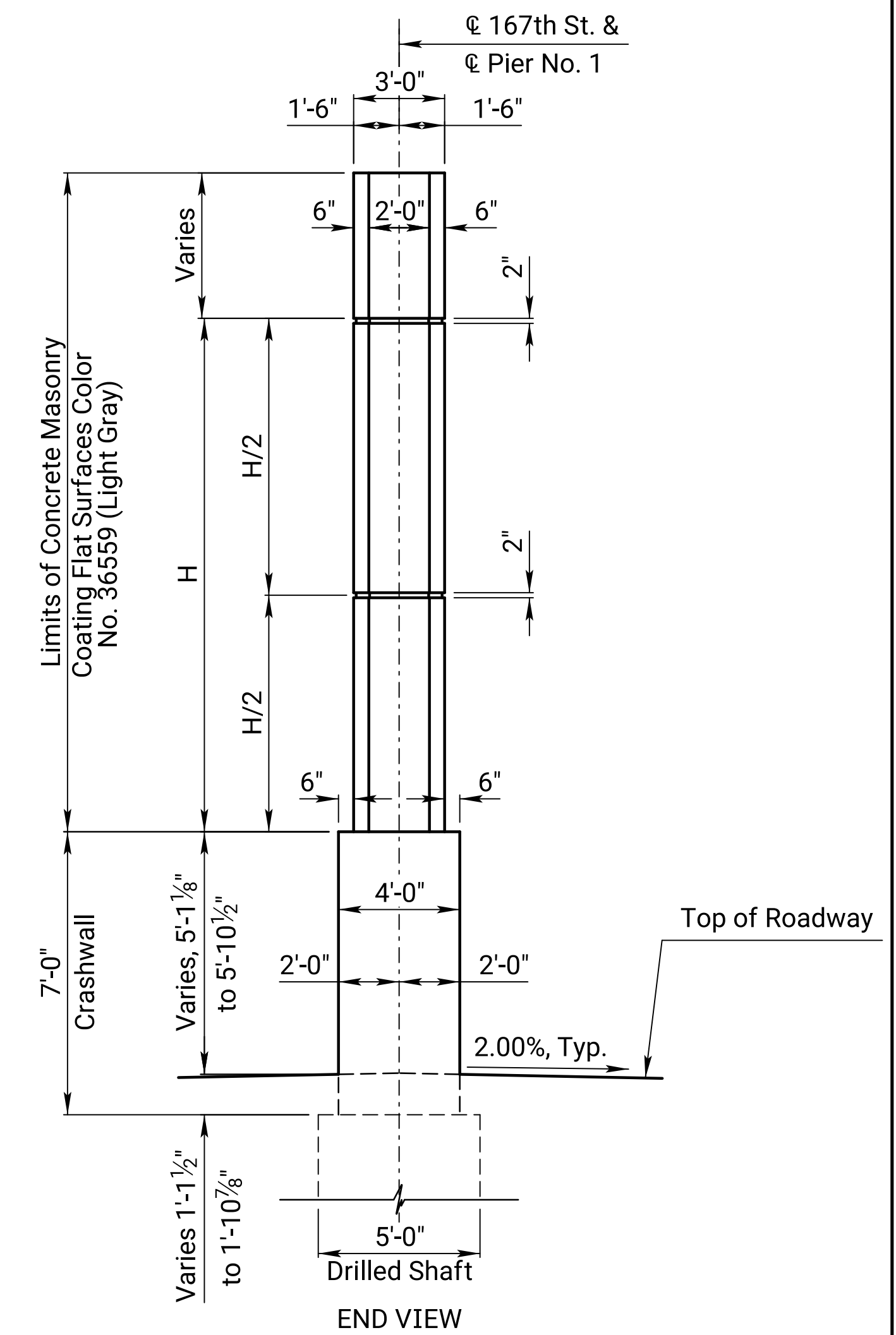
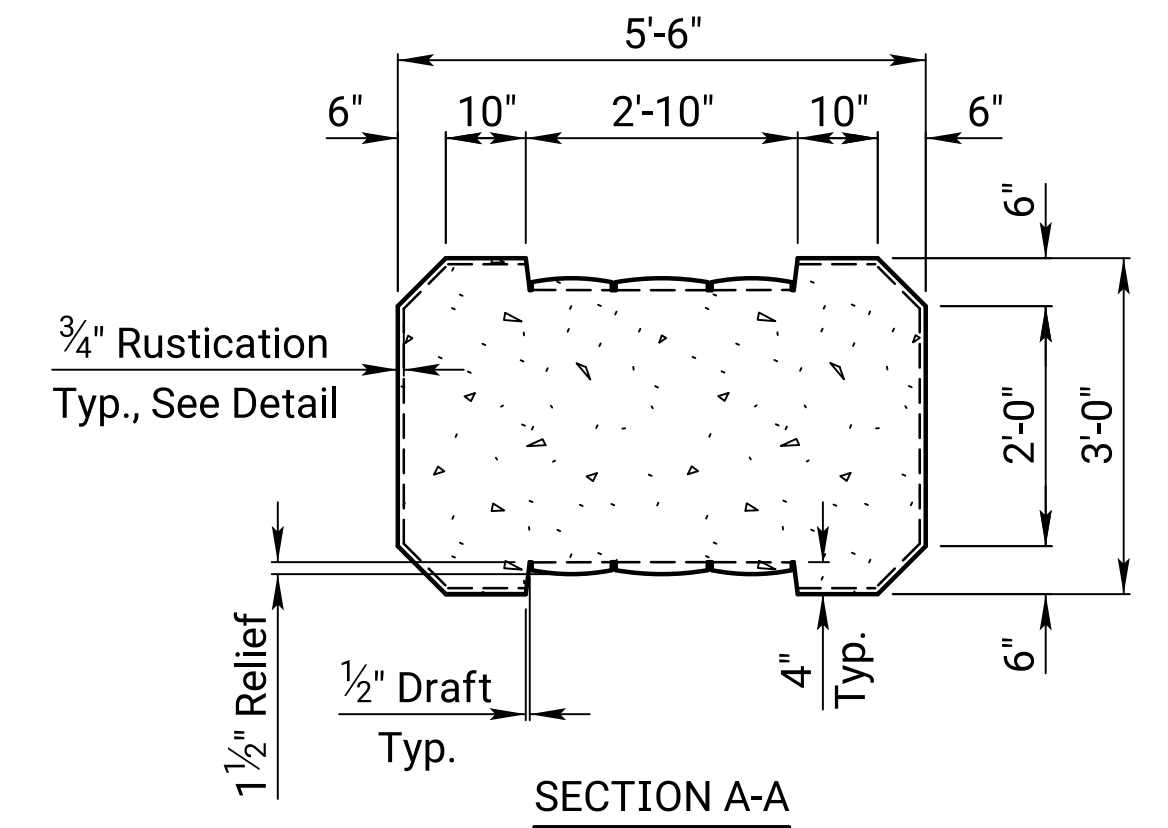


TABLE OF BEAM SEAT ELEVATIONS											
A	B	C	D	E	F	G	H	J	K	L	M
966.04	966.16	966.27	966.36	966.23	966.09	966.03	966.14	966.26	966.15	966.01	965.88



Color Stain for Piers:

All exposed surfaces of the pier above the crashwall, except the top of the cap beam, will be coated with a Concrete Masonry Coating. Color of the pigmented sealer shall match Color No. 36559 (Light Gray) of the SAE International Standard AMS-STD-595A for all flat surfaces and Color No. 33510 (New Limestone) of SAE International Standard AMS-STD-595A for the Ashlar Stone texture inset. Apply the pigmented sealer to all exposed surfaces above the top of the crashwall.

All substructures within 100' of pedestrian facility shall receive an anti-graffiti coating on all exposed surfaces of the columns from the top of crashwall to top of column.

On Bridge Pier Columns:

Form liner used shall be Scott Systems, Inc.: Form liner pattern #167D "Ashlar Stone"
The Ashlar Stone pattern shall appear natural and non-repeating.

The depth of relief for the form liner shall vary up to a maximum of 1½".

The depth of relief for the form liner shall vary up to a maximum of 1/2". The maximum height or width of any single "stone" shall be 15". Form liner shall be placed such that simulated mortar joints are horizontal and vertical.

[illegible]

KANSAS DEPARTMENT OF TRANSPORTATION	
BR.NO.69-46-139.75 (453)	STA. 739+38.09
BR.NO.69-46-139.76 (454)	STA. 739+38.10

ARCHITECTURAL PIER DETAILS

US-69 OVER 167TH STREET

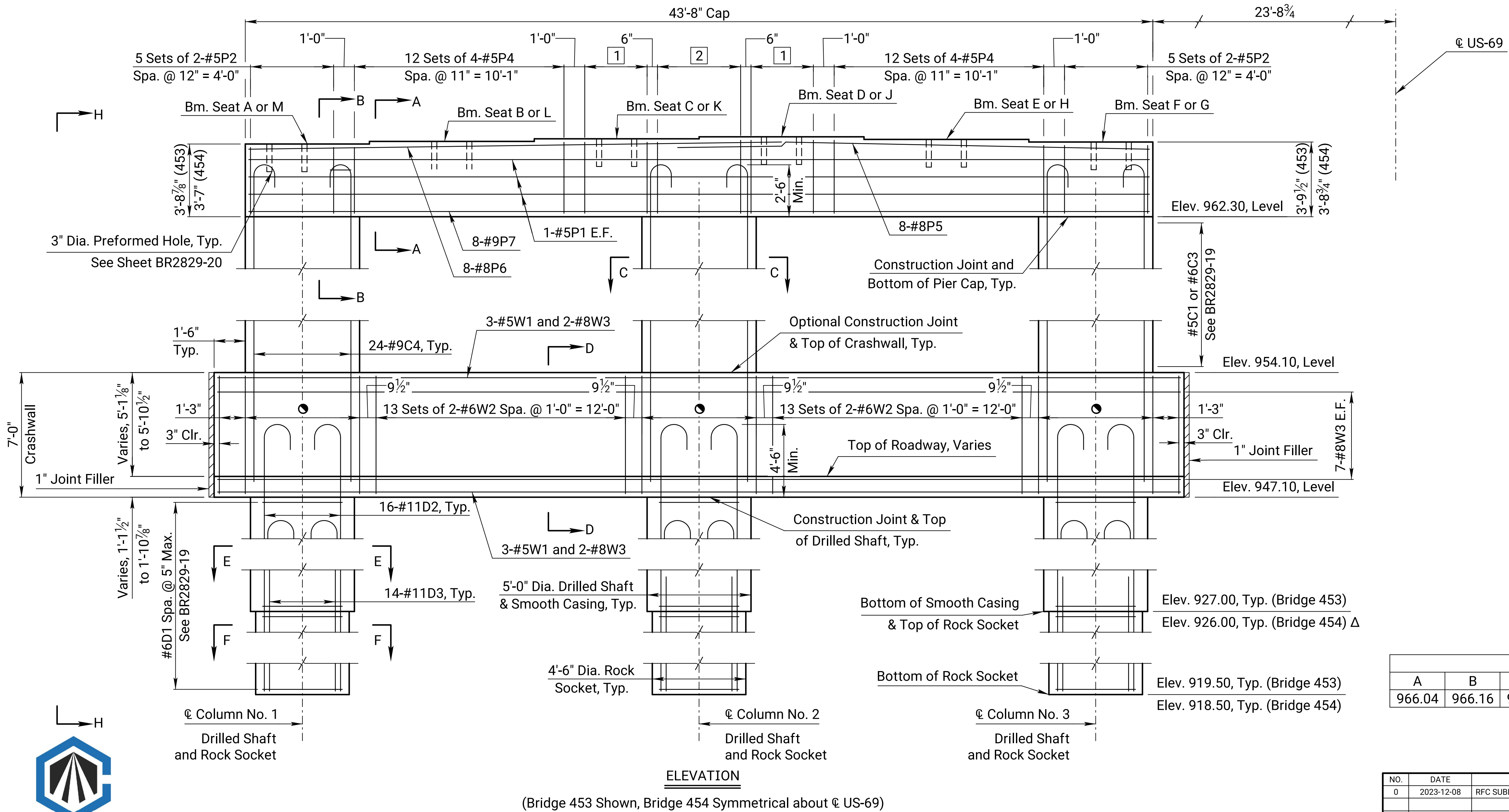
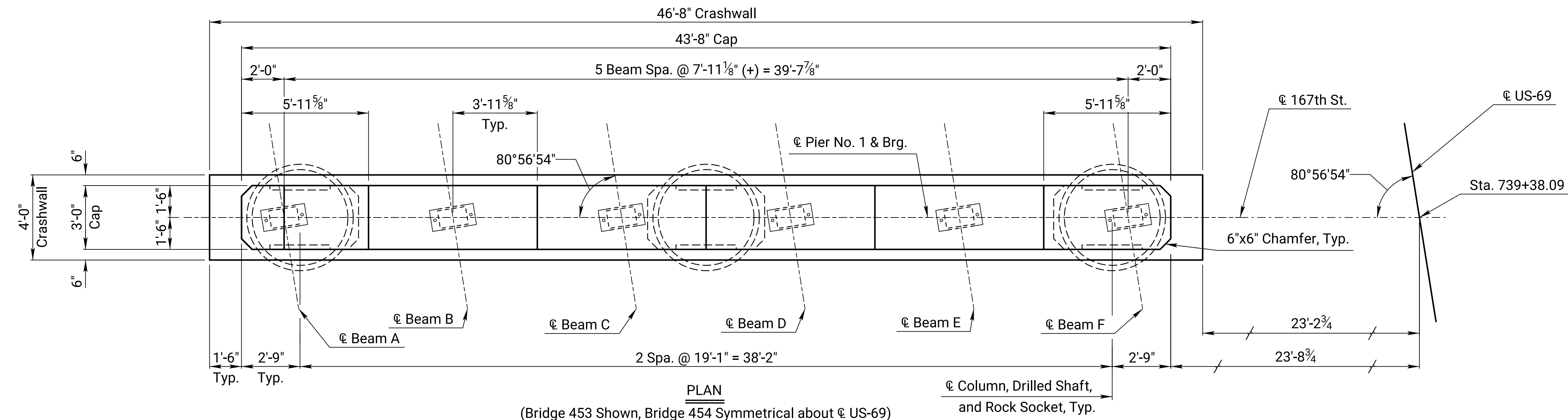
PROJ. NO. 69-46 KA-5700-03				JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT		
DESIGN CK	CRG	DETAI CK	CRG		

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-18	39

MINIMUM LAP LENGTHS	
BAR	LENGTH
No. 6	3'-8"
No. 8	5'-4"

LRFD Design Drilled Shaft Load (tons / shaft)

	Strength I	Service I	Phi
Side Friction	442	300	0.55



Rebar Legend:

- 1 - 7 Sets of 4-#5P4 Spa. @ 6" = 3'-0"
2 - 5 Sets of 2-#5P3 Spa. @ 12" = 4'-0"
● - 6 Sets of 2-#6W2 (See Sheet BR2829-19 for Spacing)

Legend:

E.F. denotes each face.
Δ - Bottom of Casing shall be placed 5' below top of Liberty Memorial Shale Formation. See Sheet BR2829-09 for additional details.

Notes:

All Dimensions and Elevations measured along Centerline of Bearing.
For Sections A-A, B-B, C-C, D-D, E-E, F-F, and View H-H, see Sheet BR2829-19.
For Bearing Details, see Sheet BR2829-20.
For surface treatment requirements, see Sheet BR2829-17.
For Location of Preformed Holes for Anchor Bolts, see Sheet BR2829-20.

TABLE OF BEAM SEAT ELEVATIONS										
A	B	C	D	E	F	G	H	J	K	M
966.04	966.16	966.27	966.36	966.23	966.09	966.03	966.14	966.26	966.15	965.88

TABLE OF BEAM SEAT ELEVATIONS										
A	B	C	D	E	F	G	H	J	K	M
966.04	966.16	966.27	966.36	966.23	966.09	966.03	966.14	966.26	966.15	965.88

NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

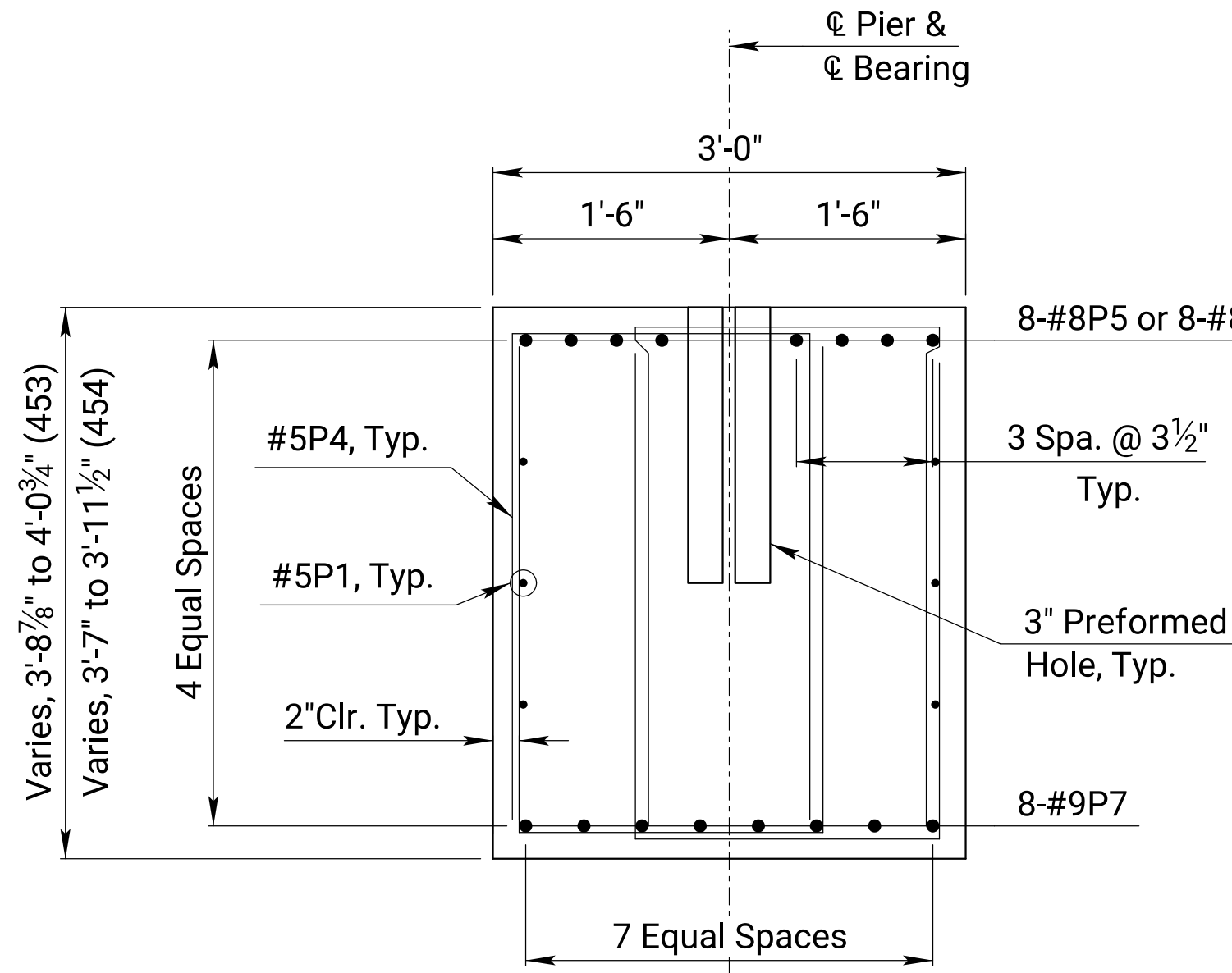
KANSAS DEPARTMENT OF TRANSPORTATION
BR.NO.69-46-139.75 (453) STA. 739+38.09
BR.NO.69-46-139.76 (454) STA. 739+38.10

PIER PLAN
AND ELEVATION
US-69 OVER 167TH STREET

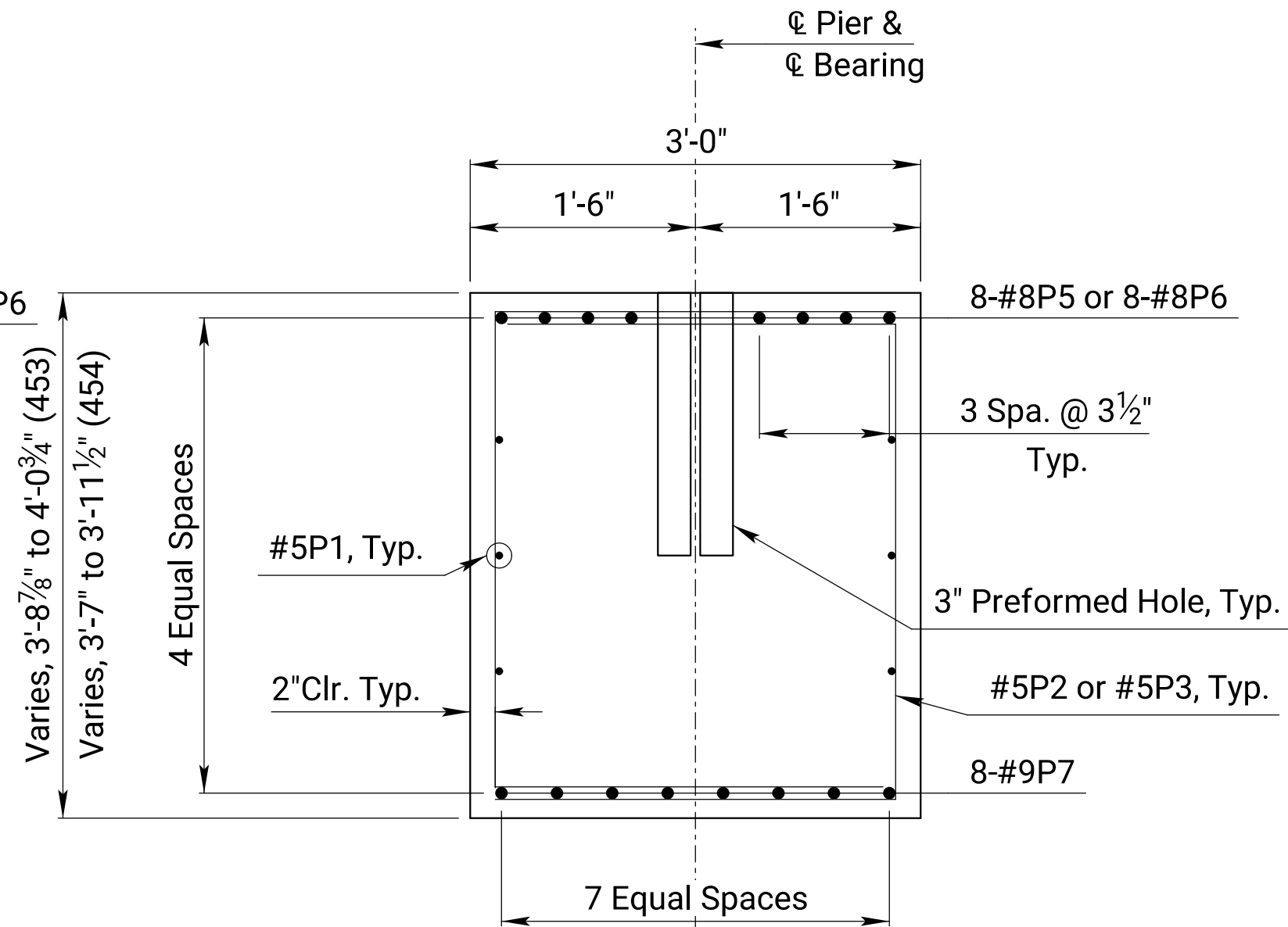
PROJ. NO. 69-46 KA-5700-03				JOHNSON CO.			
DESIGNED	JAT	DETAILED	JAT				
DESIGN CK.	CRG	DETAIL CK.	CRG				



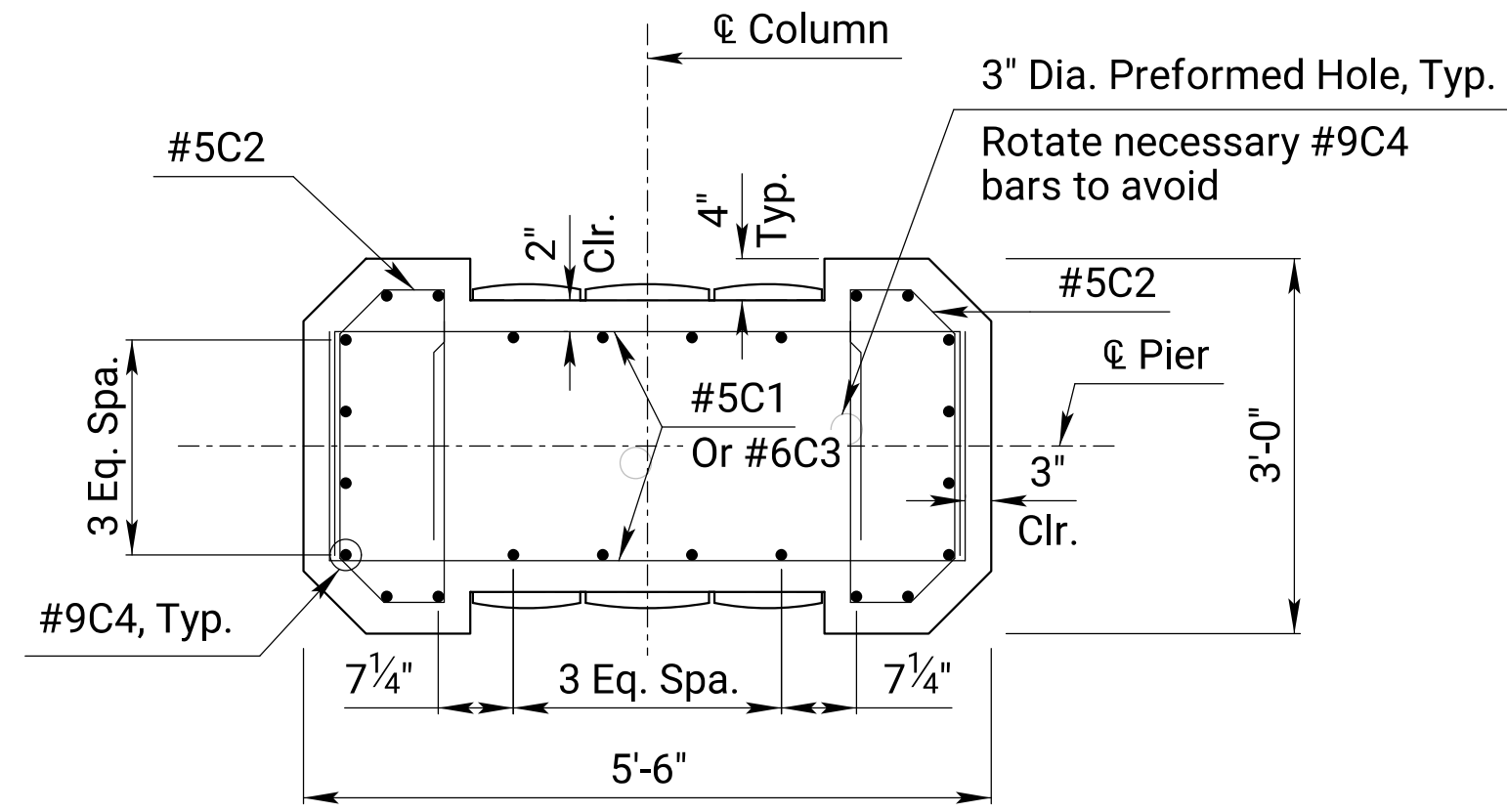
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-19	39



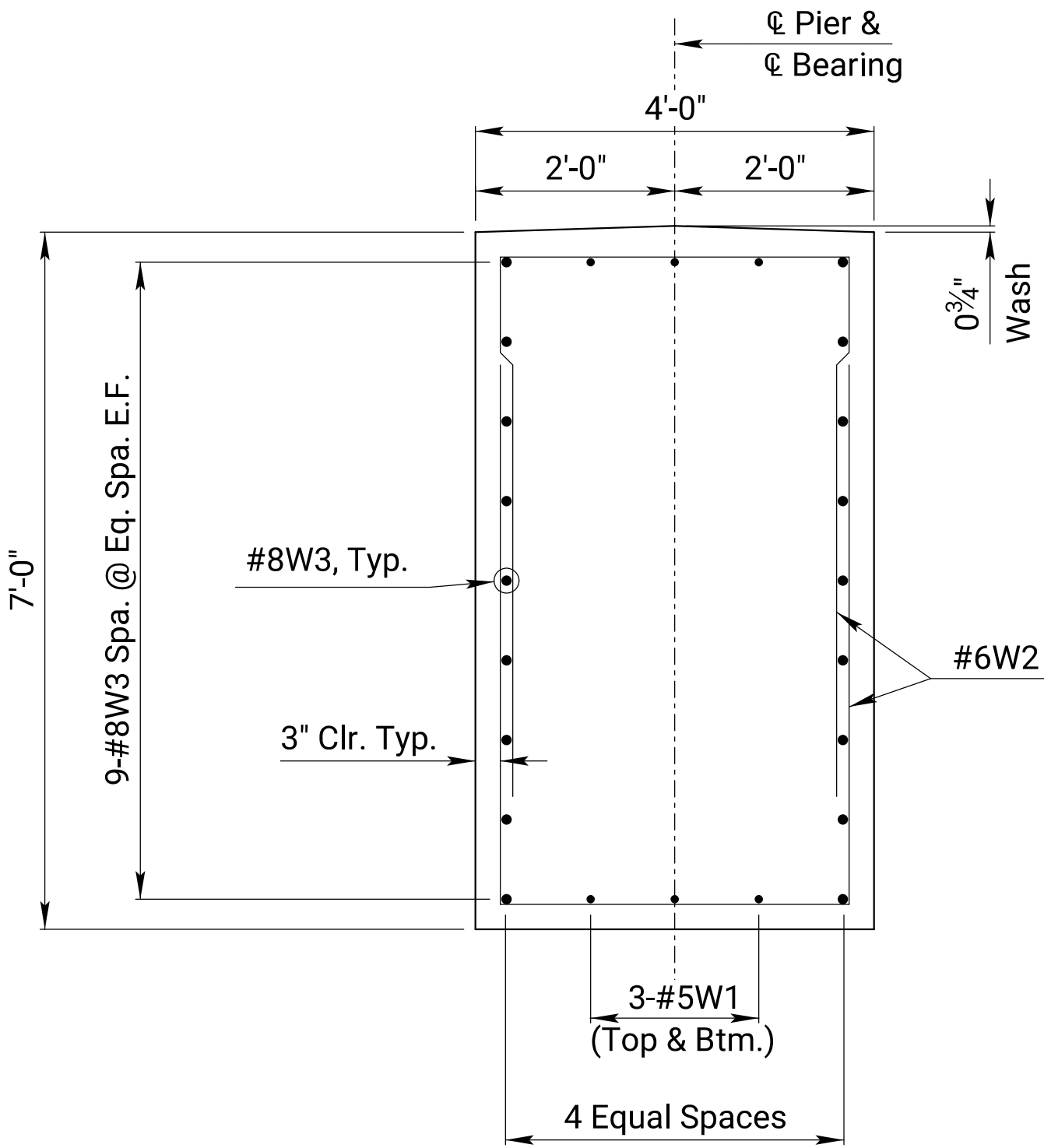
SECTION A-A



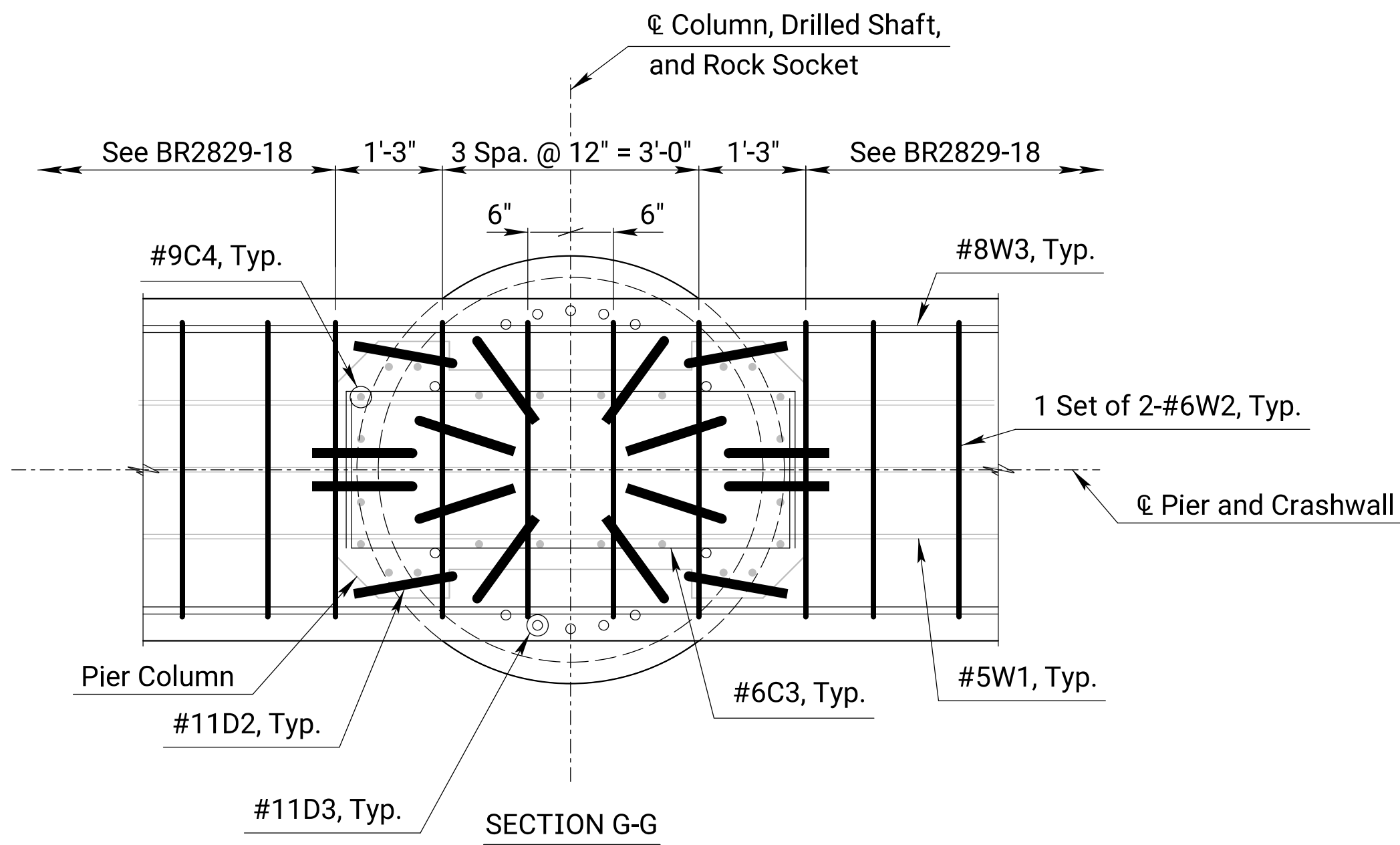
SECTION B-B



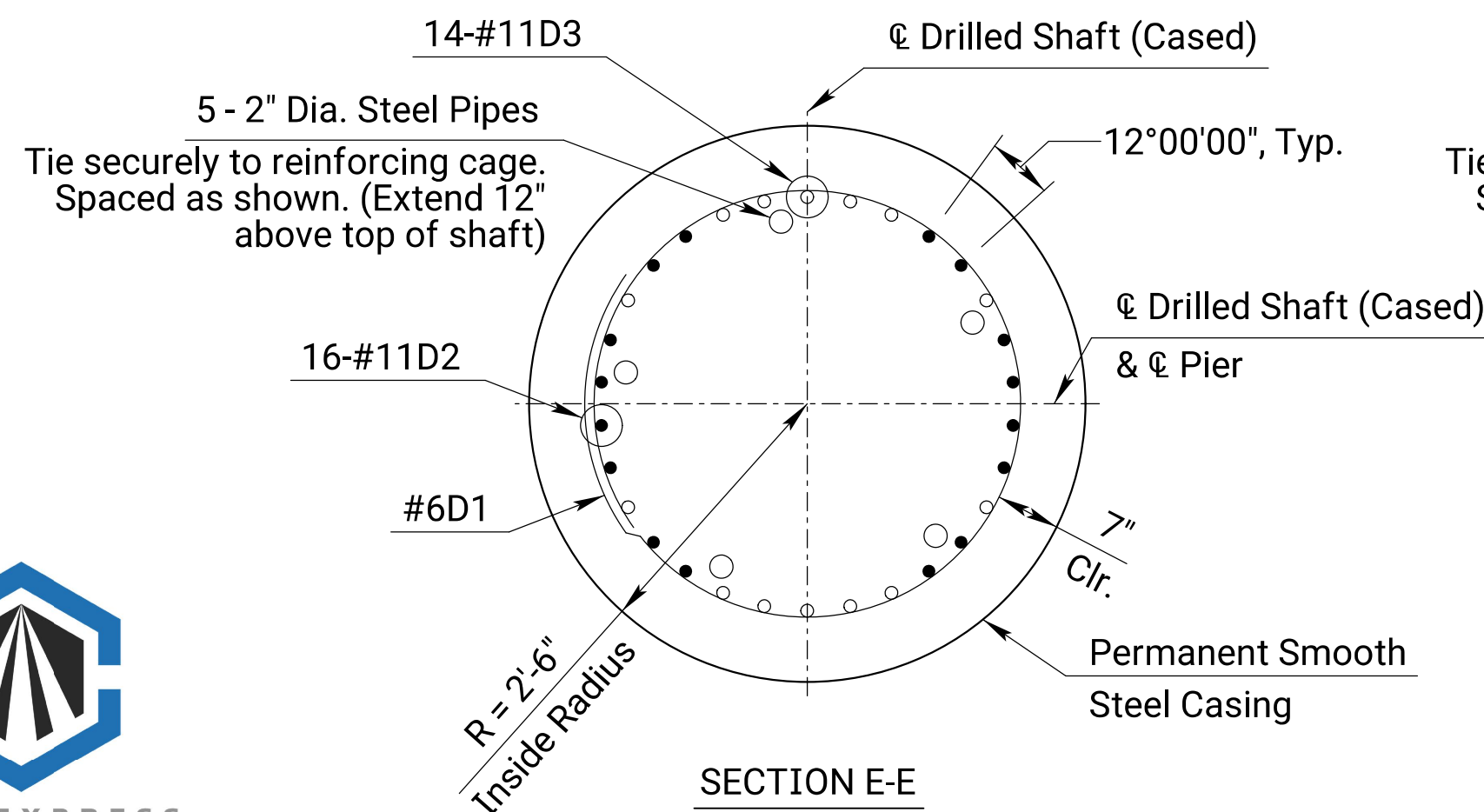
SECTION C-C
(Preformed Holes for Bridge 453, Column 3 Shown, Others Similar)



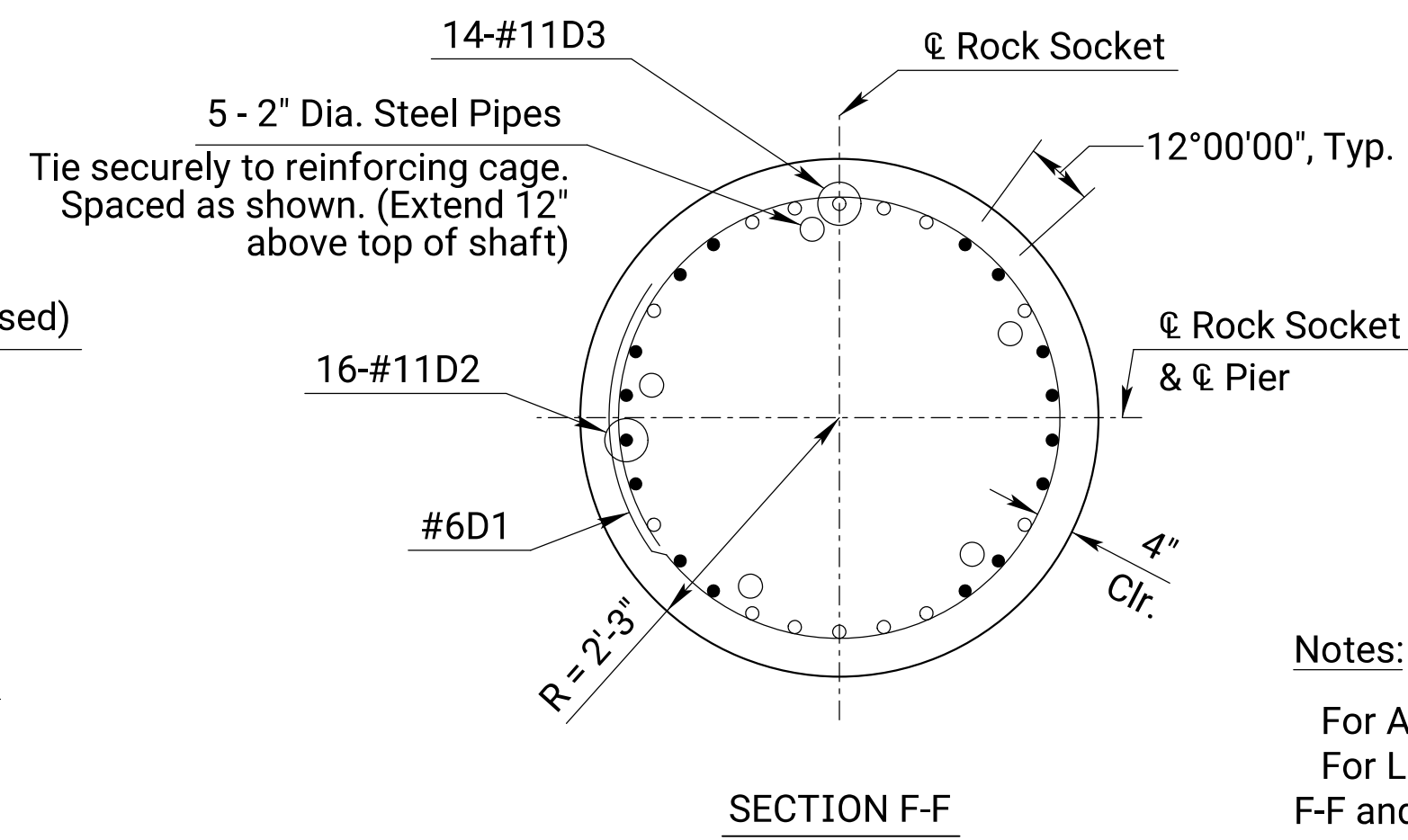
SECTION D-D



SECTION G-G



SECTION E-E



SECTION F-F

Legend:

Δ - Bottom of Casing shall be placed 5' below top of Liberty Memorial Shale Formation. See Sheet BR2829-09 for additional details.

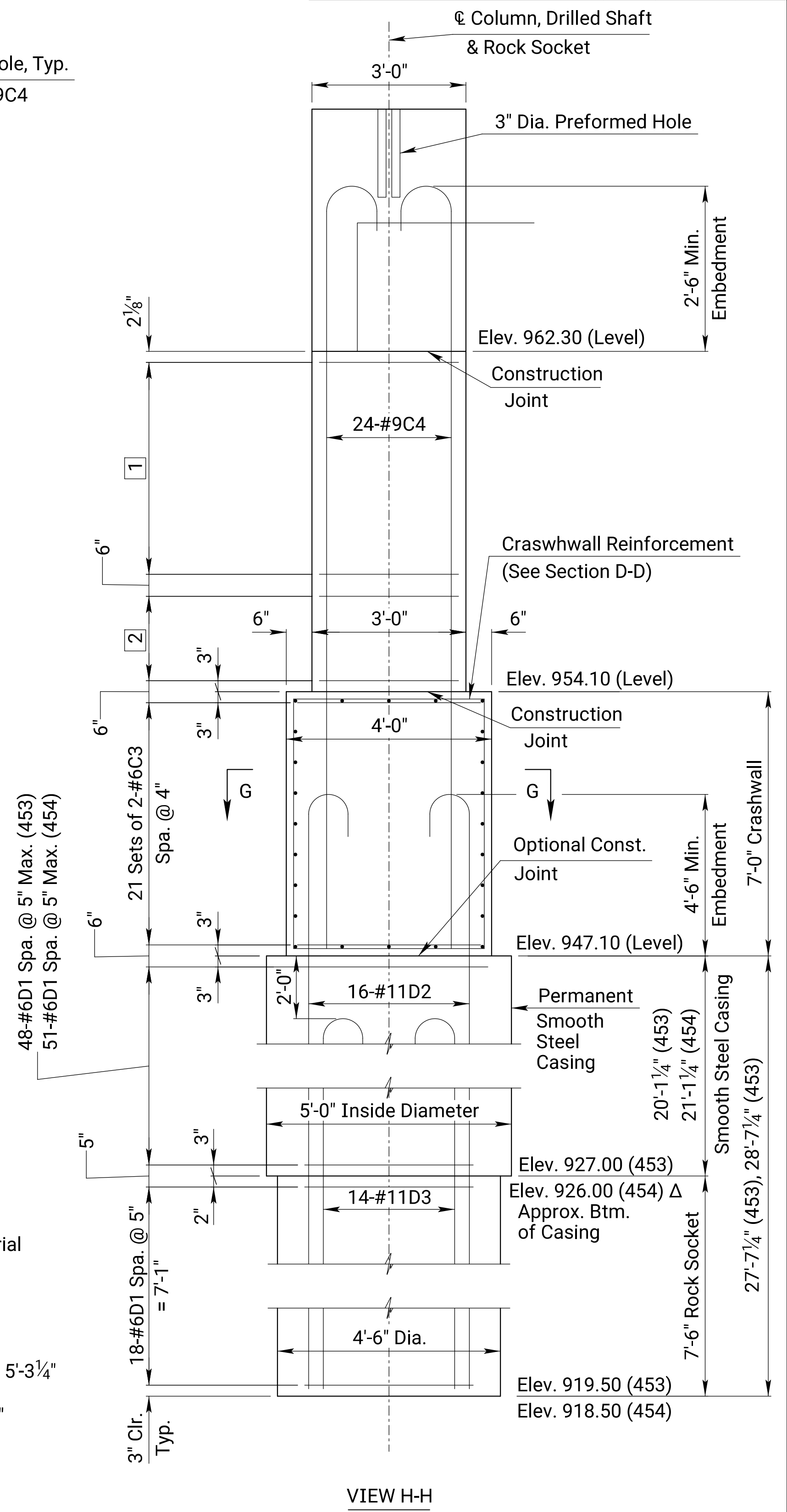
Rebar Legend:

- 1 - 12 Sets of 2-#5C1 and 13 Sets of 2-#5C2 Spa. @ 5 3/4" = 5'-3 1/4"
2 - 7 Sets of 2-#6C3 and 7 Sets of 2-#5C2 Spa. @ 4" = 2'-0"

MINIMUM LAP LENGTHS	
BAR	LENGTH
No. 6	3'-8"
No. 8	5'-4"

Notes:

For Architectural Details, see Sheet BR2829-17.
For Location of Sections A-A, B-B, C-C, D-D, E-E, F-F and View H-H, see Sheet BR2829-18.
For preformed hole details and bearing details, see Sheet BR2829-20.

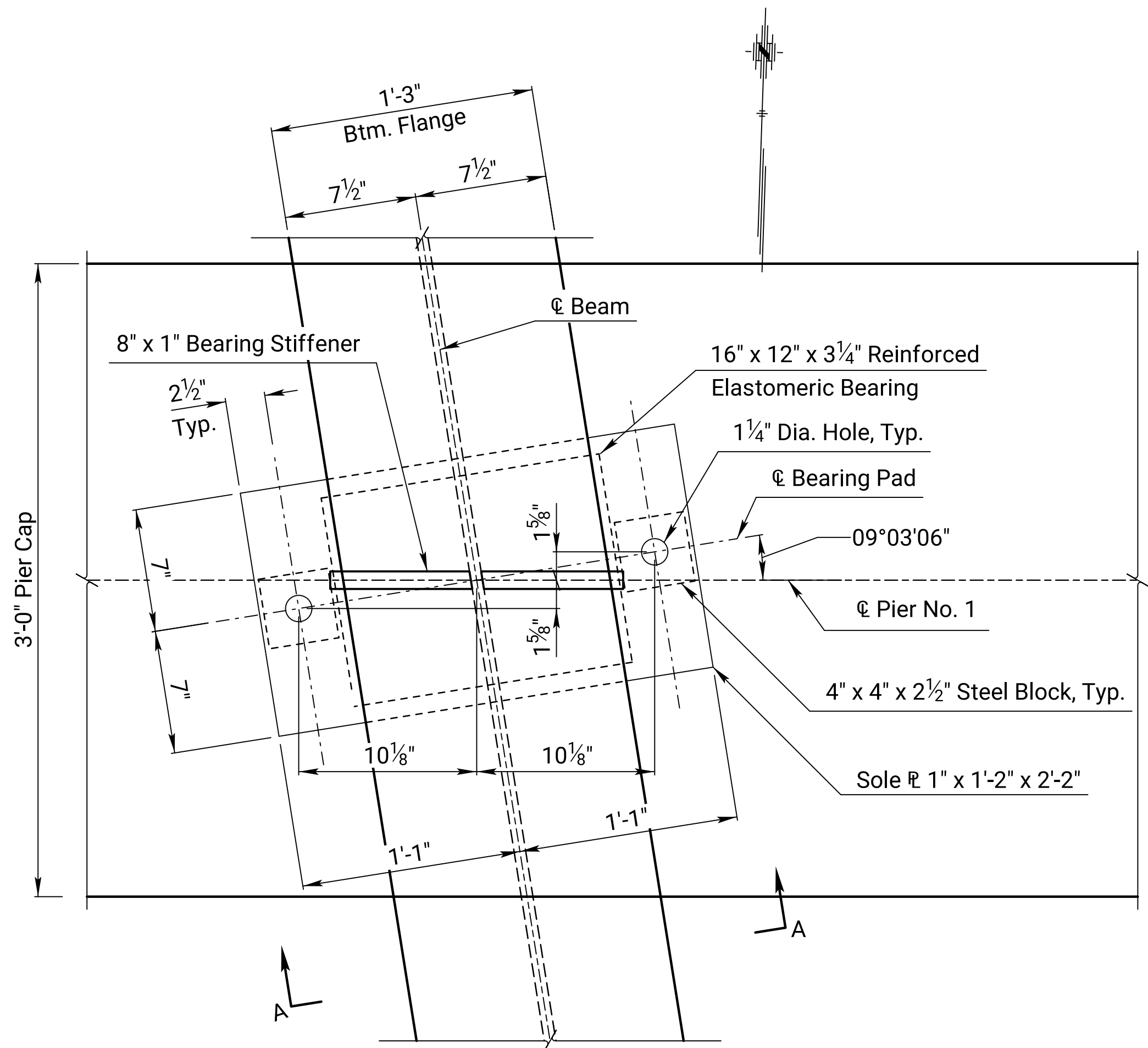


VIEW H-H

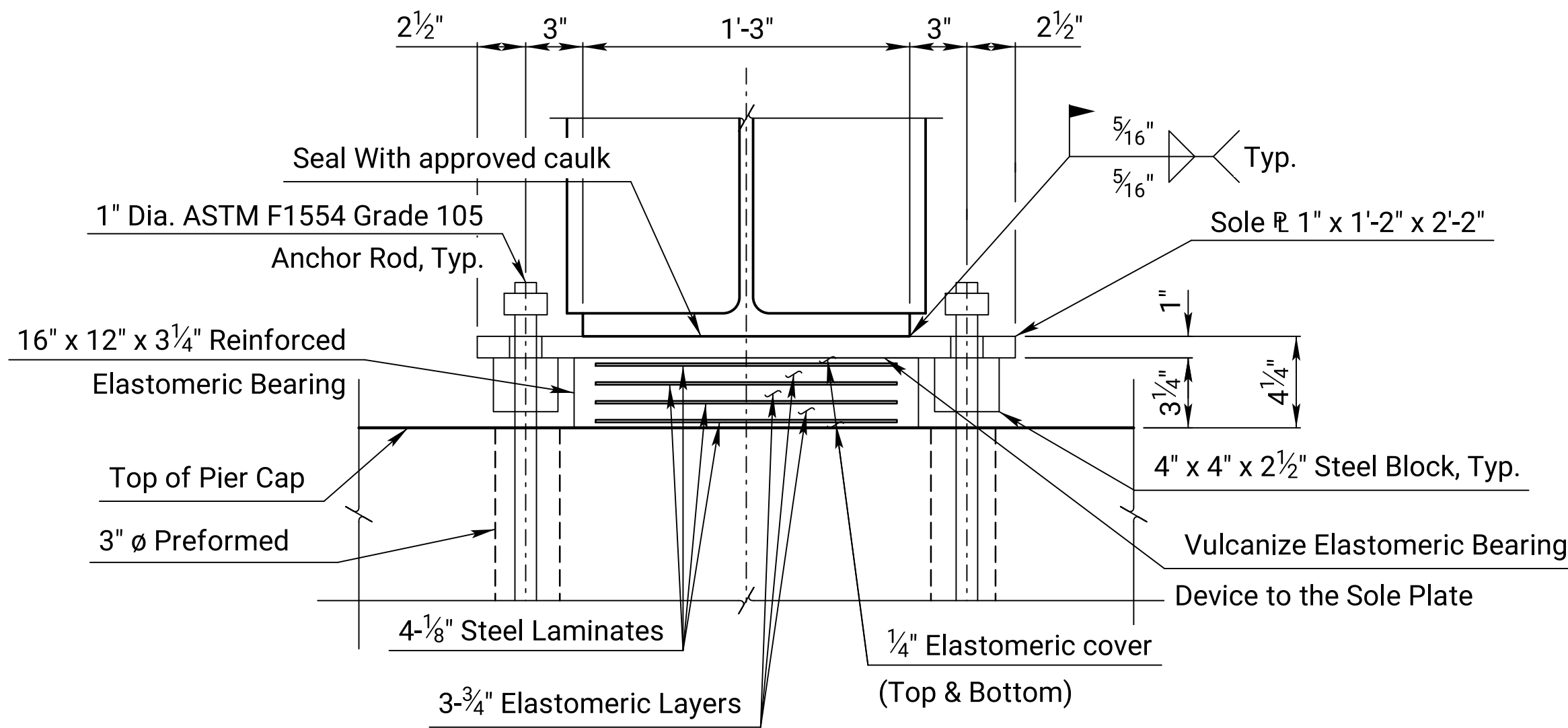
NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION BR.NO.69-46-139.75 (453) STA. 739+38.09 BR.NO.69-46-139.76 (454) STA. 739+38.10			
PIER DETAILS			
US-69 OVER 167TH STREET			
PROJ. NO. 69-46 KA-5700-03		JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT
DESIGN CK.	CRG	DETAIL CK.	CRG

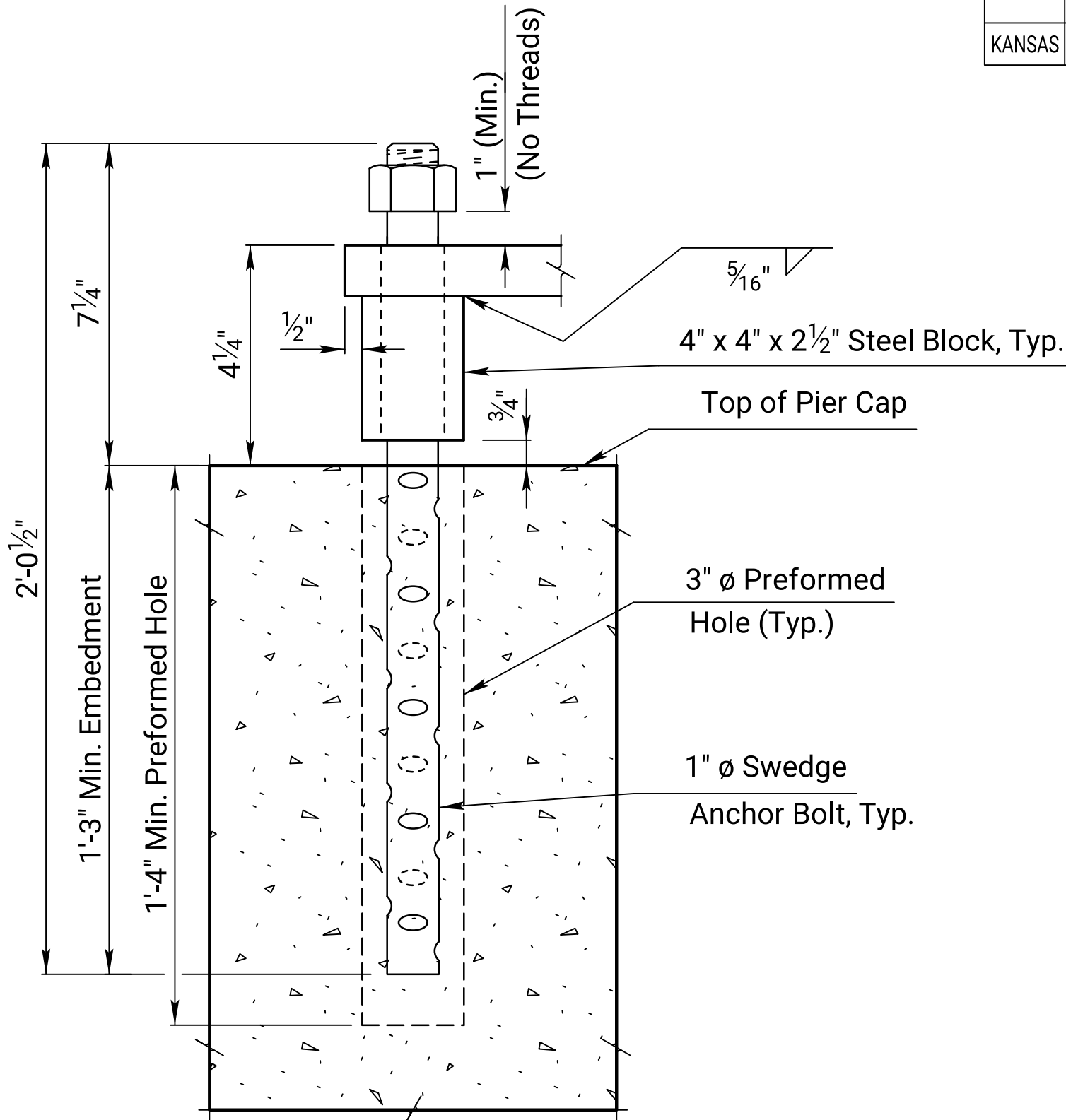
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-20	39



PLAN



SECTION A-A



SWEDGE ANCHOR BOLT

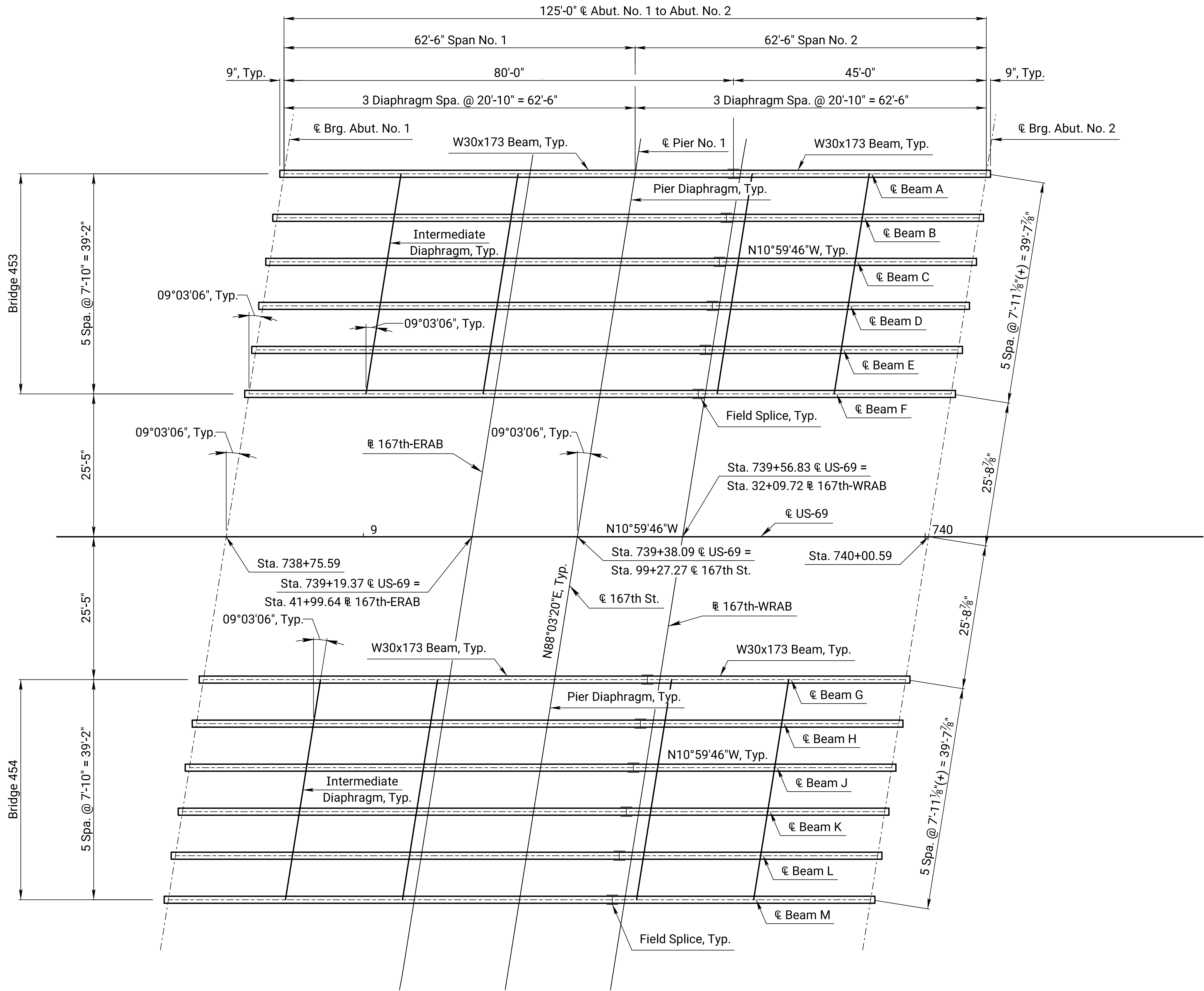
(Elastomeric Bearing not shown)

Notes:
Bearings designed using Method A of the AASHTO Specifications.
For Bearing Layout, see Sheet BR2829-18.



			KANSAS DEPARTMENT OF TRANSPORTATION			
			BR.NO.69-46-139.75 (453)		STA. 739+38.09	
			BR.NO.69-46-139.76 (454)		STA. 739+38.10	
			PIER BEARING DETAILS			
			US-69 OVER 167TH STREET			
			PROJ. NO. 69-46 KA-5700-03		JOHNSON CO.	
			DESIGNED	JAT	DETAILED	JAT
			DESIGN CK.	CRG	DETAIL CK.	CRG

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-21	39



FRAMING PLAN
(Abutment Diaphragms not Shown)

Notes:

For Structural Steel Notes, see Sheet BR2829-03.

For Steel Beam Details, see Sheet BR2829-22.

For Splice and Diaphragm details, see Sheet BR2829-23.

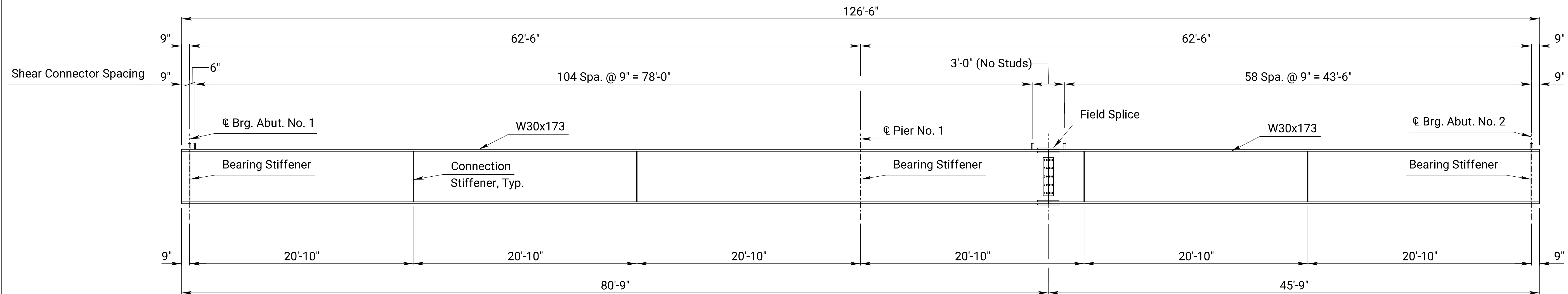
For Haunch Details and Beam Deflections, see Sheet BR2829-24.

			KANSAS DEPARTMENT OF TRANSPORTATION			
			BR.NO.69-46-139.75 (453)		STA. 739+38.09	
			BR.NO.69-46-139.76 (454)		STA. 739+38.10	
			FRAMING PLAN			
			US-69 OVER 167TH STREET			
			PROJ. NO. 69-46 KA-5700-03		JOHNSON CO.	
			DESIGNED	JAT	DETAILED	JAT
			DESIGN CK.	CRG	DETAIL CK.	CRG

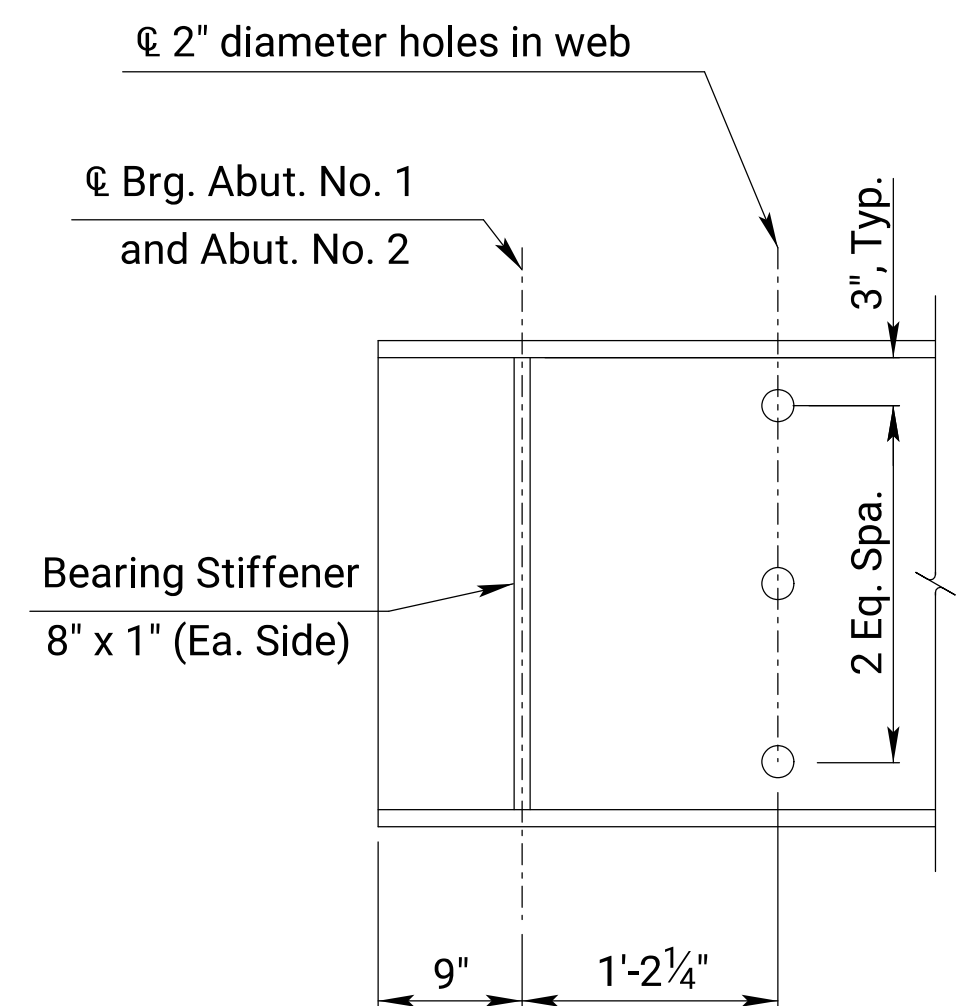
NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL



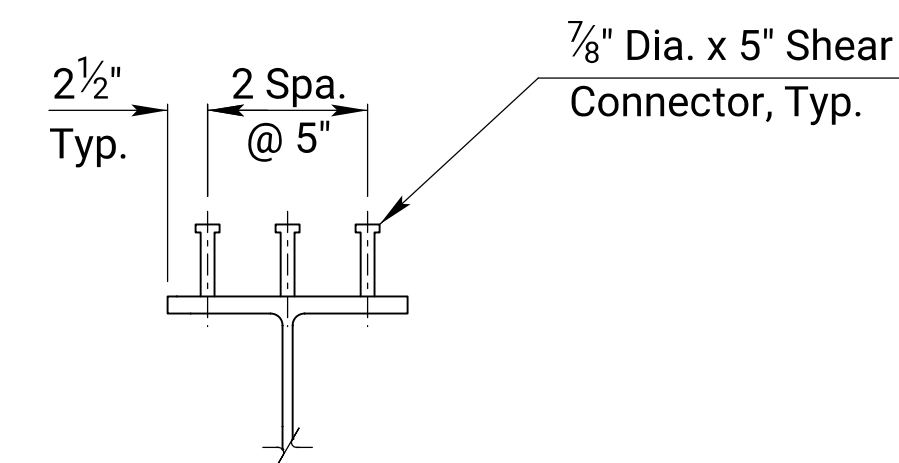
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-22	39



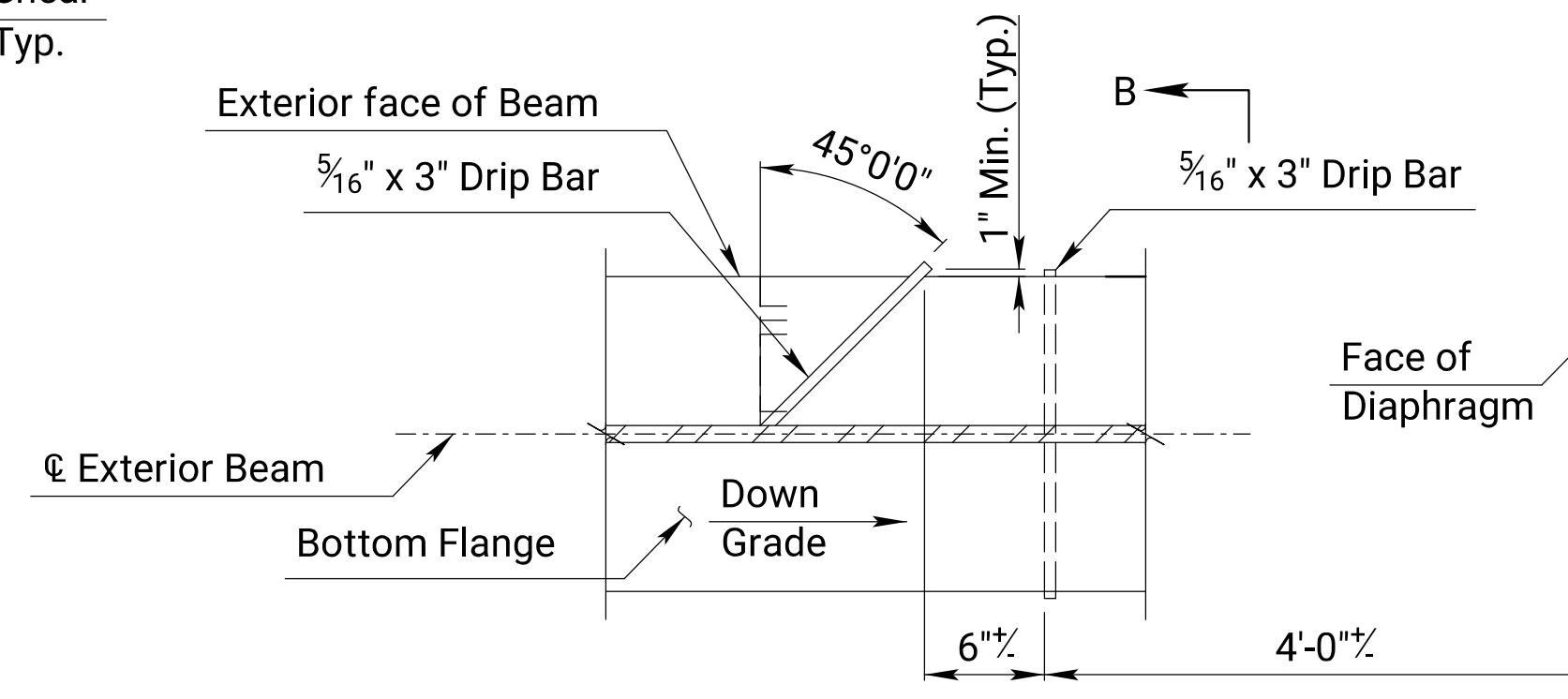
GIRDER ELEVATION



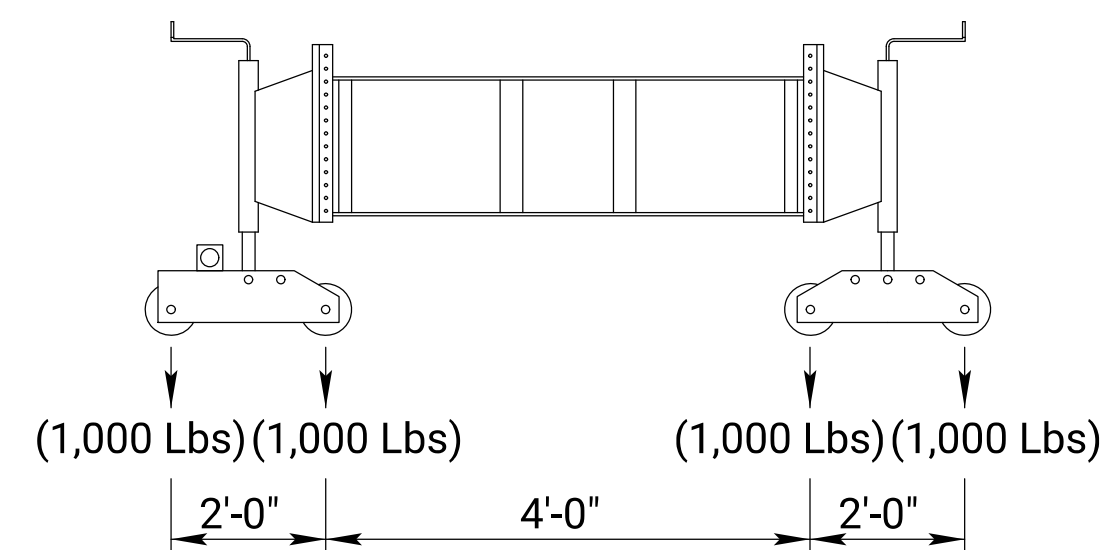
HOLES AT GIRDER ENDS



SHEAR CONNECTOR DETAIL

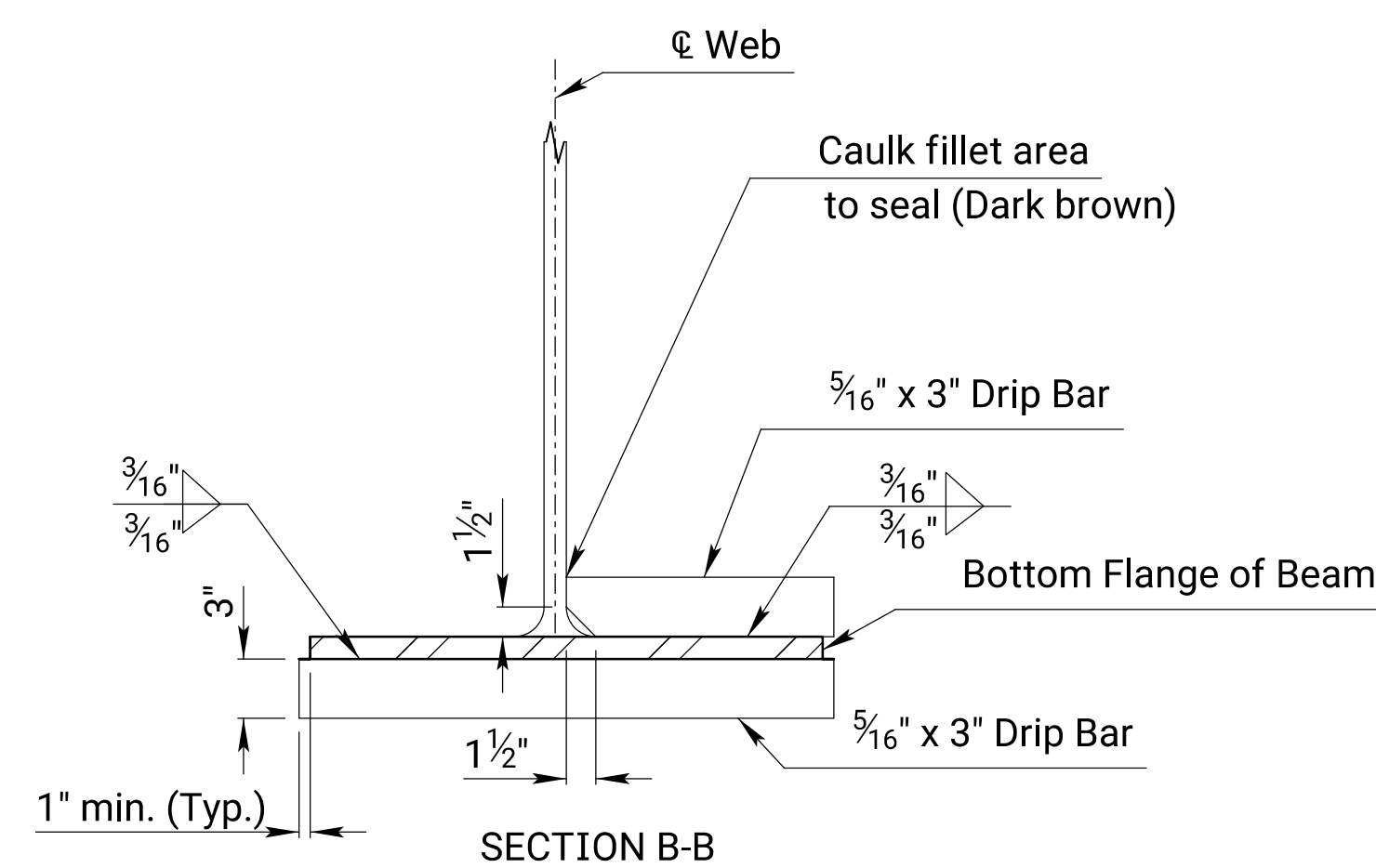


DRIP BAR DETAILS



ASSUMED FINISHING MACHINE
VALUES LOADING DIAGRAM

Note:
Rotation (maximum = 1°) in the exterior girder was calculated assuming
screed wheel loads as shown and placed 3' beyond the outside of the
deck. The maximum overhang bracket spacing was assumed at 4.0 ft.
The actual screed loadings or bracket spacing will be reflected in the
design calculations for a torsional analysis of the exterior girder and
bracing. The design calculations shall bear the seal of a licensed
Professional Engineer. Submit according to KDOT Specifications Section
700 for falsework and formwork.



SECTION B-B

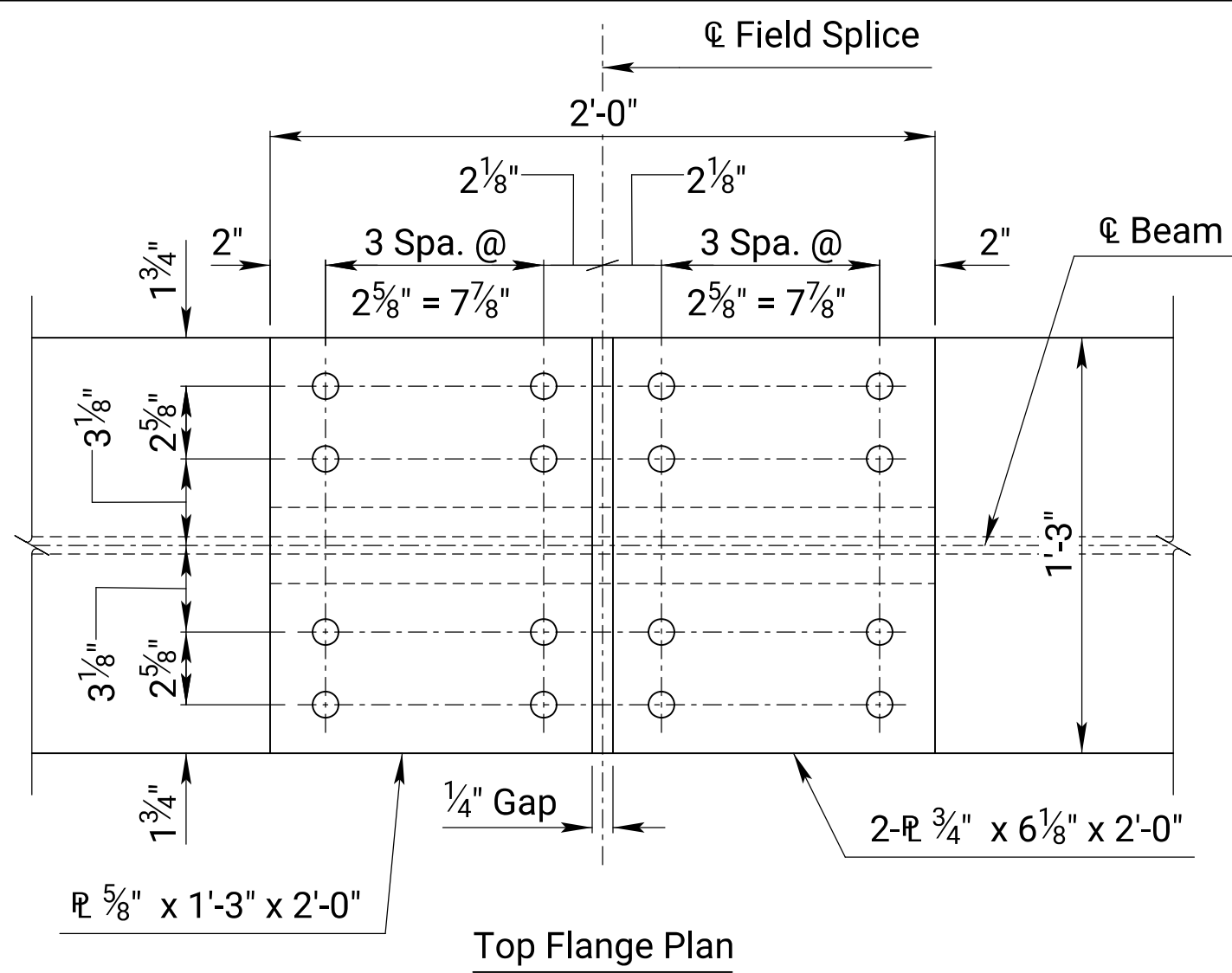
Notes:
For Framing Plan, see Sheet BR2829-21.

[illegible]

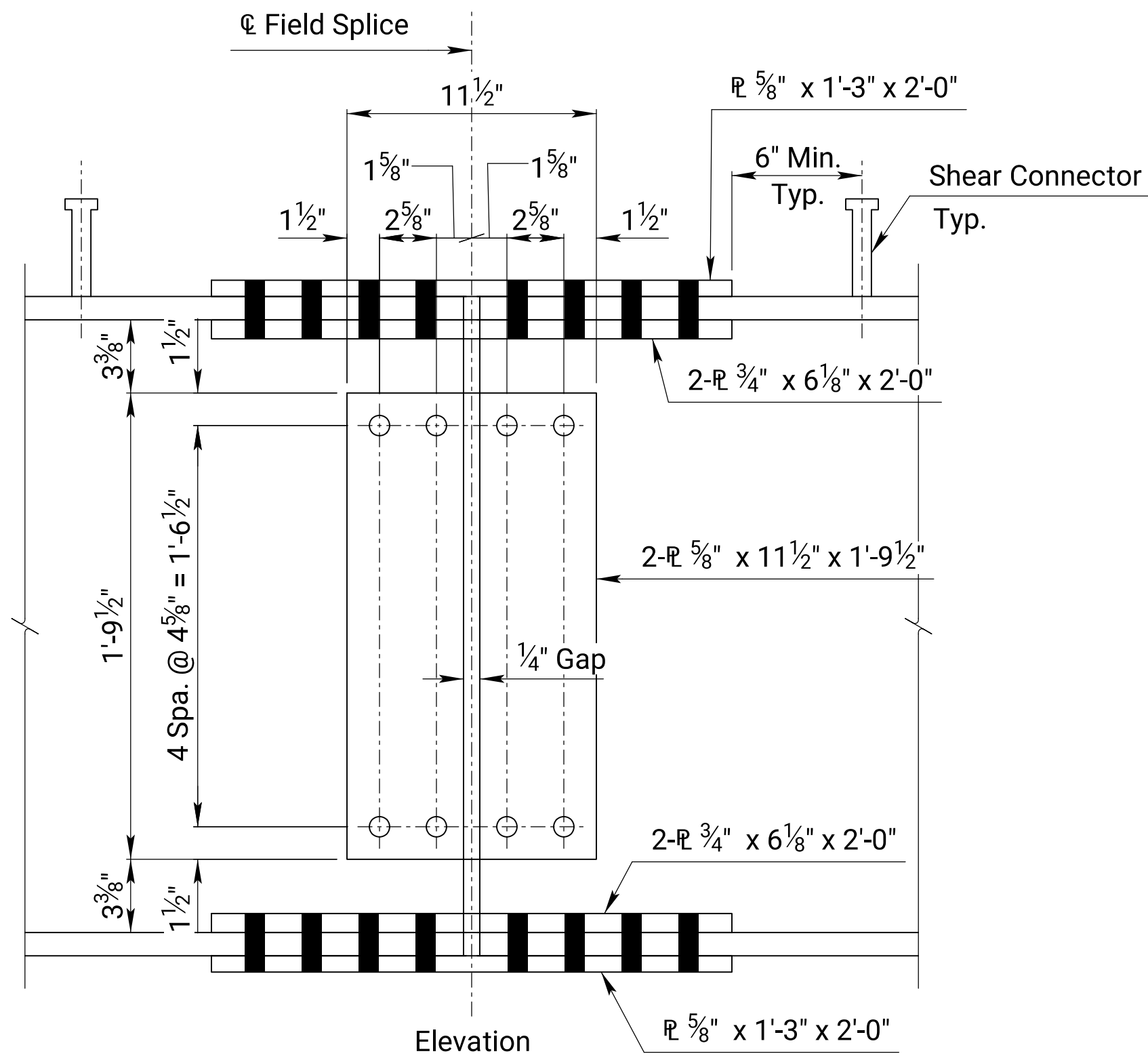
<p align="center">KANSAS DEPARTMENT OF TRANSPORTATION BR.NO. 69-46-139.75 (453) STA. 739+38.09 BR.NO. 69-46-139.76 (454) STA. 739+38.10</p>			
<p align="center">STEEL BEAM DETAILS</p>			
<p align="center">US-69 OVER 167TH STREET</p>			
<p>PROJ. NO. 69-46 KA-5700-03</p>			<p>JOHNSON CO.</p>
DESIGNED	JAT	DETAILED	JAT
DESIGN CK	CRG	DETAIL CK	CRG



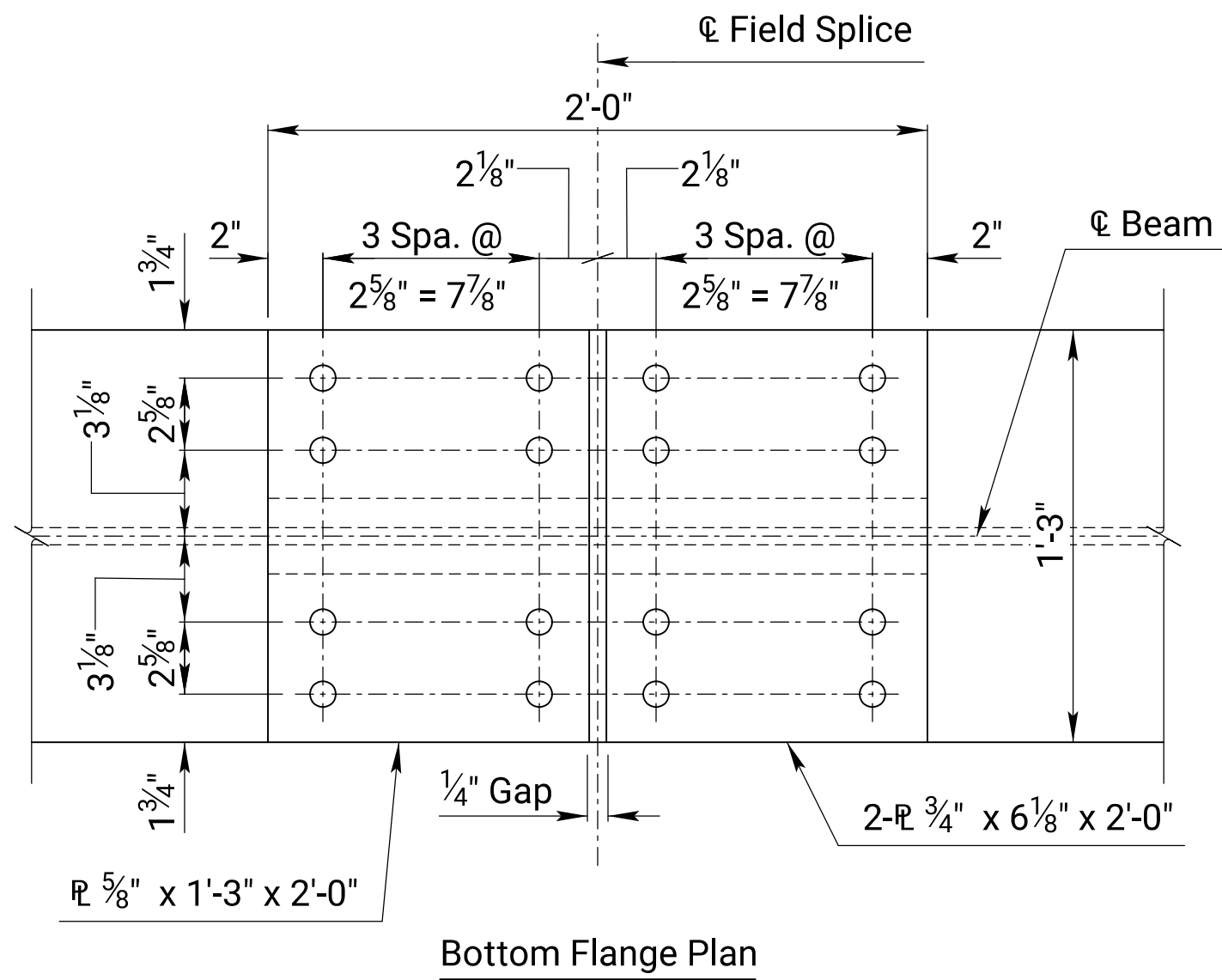
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-23	39



Top Flange Plan

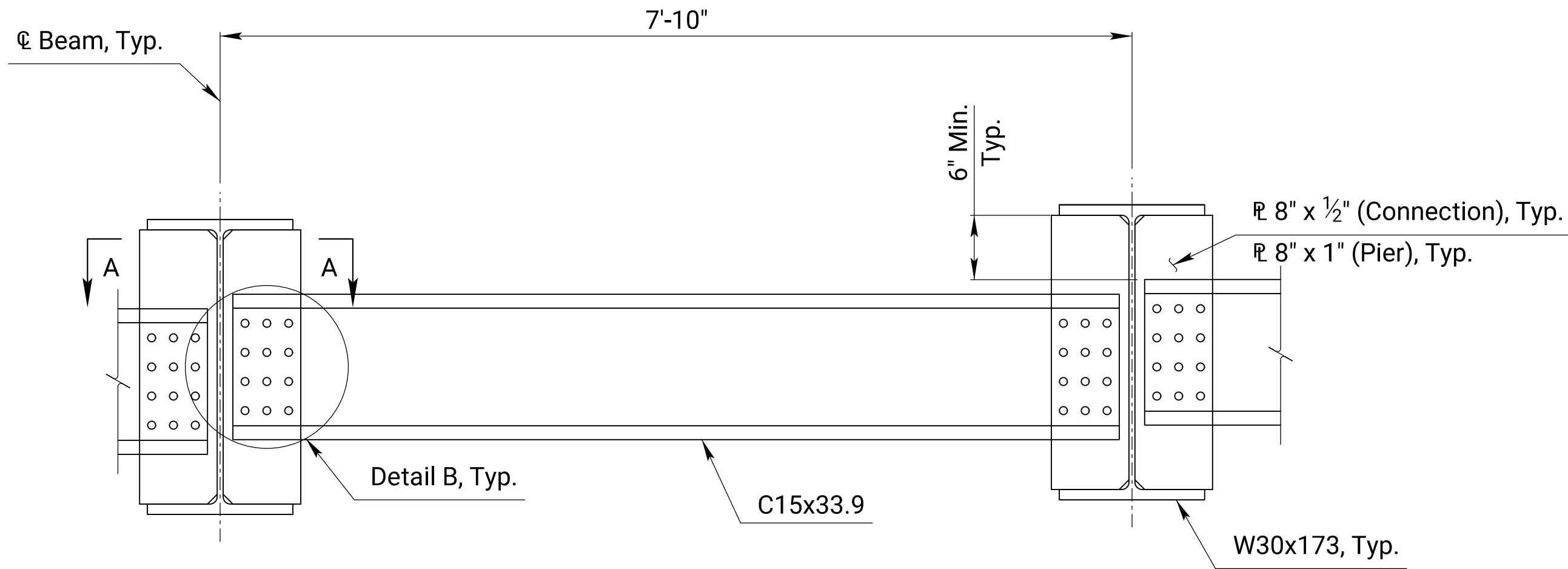


Elevation

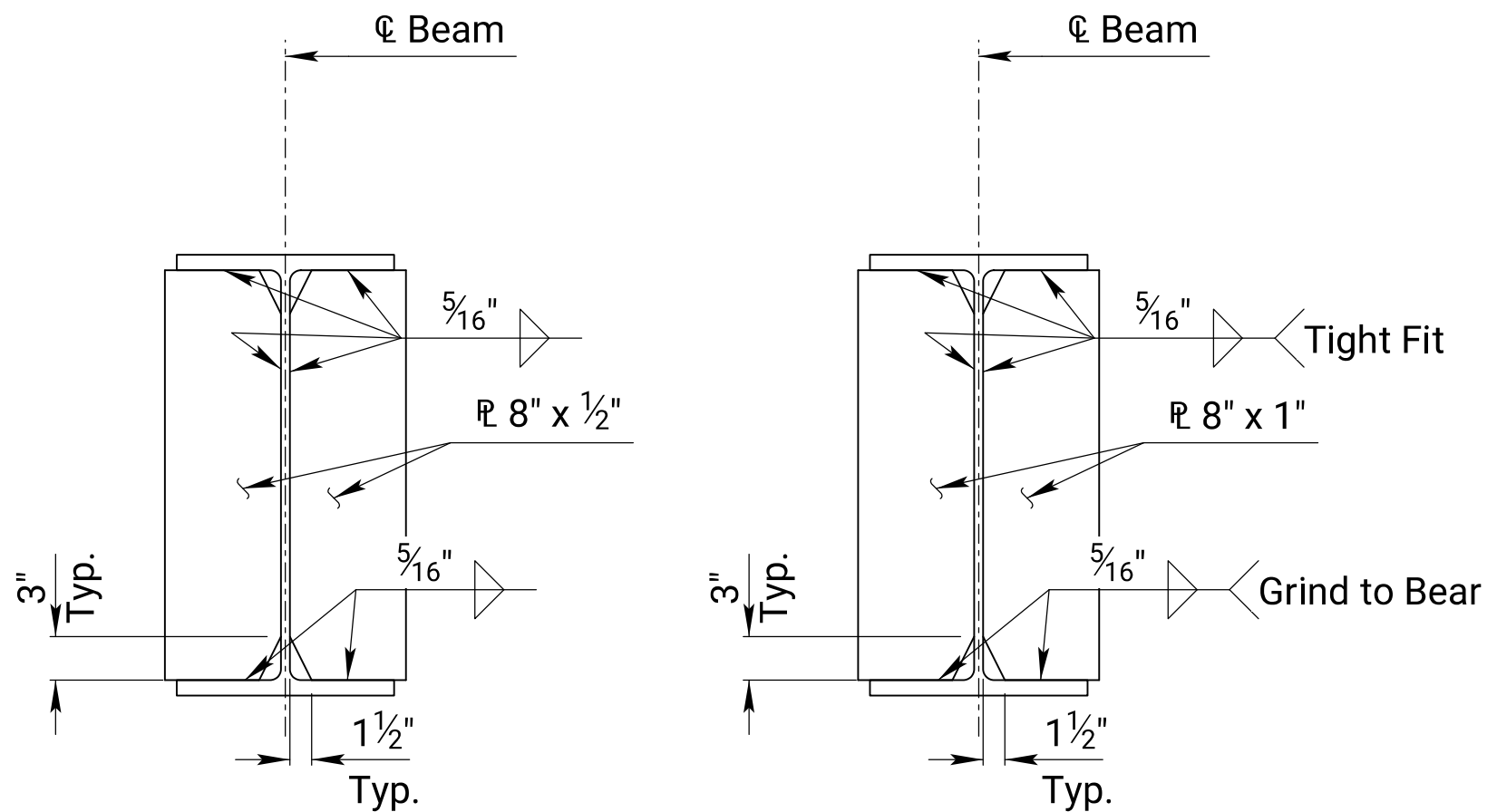


Bottom Flange Plan

FIELD SPLICE DETAILS



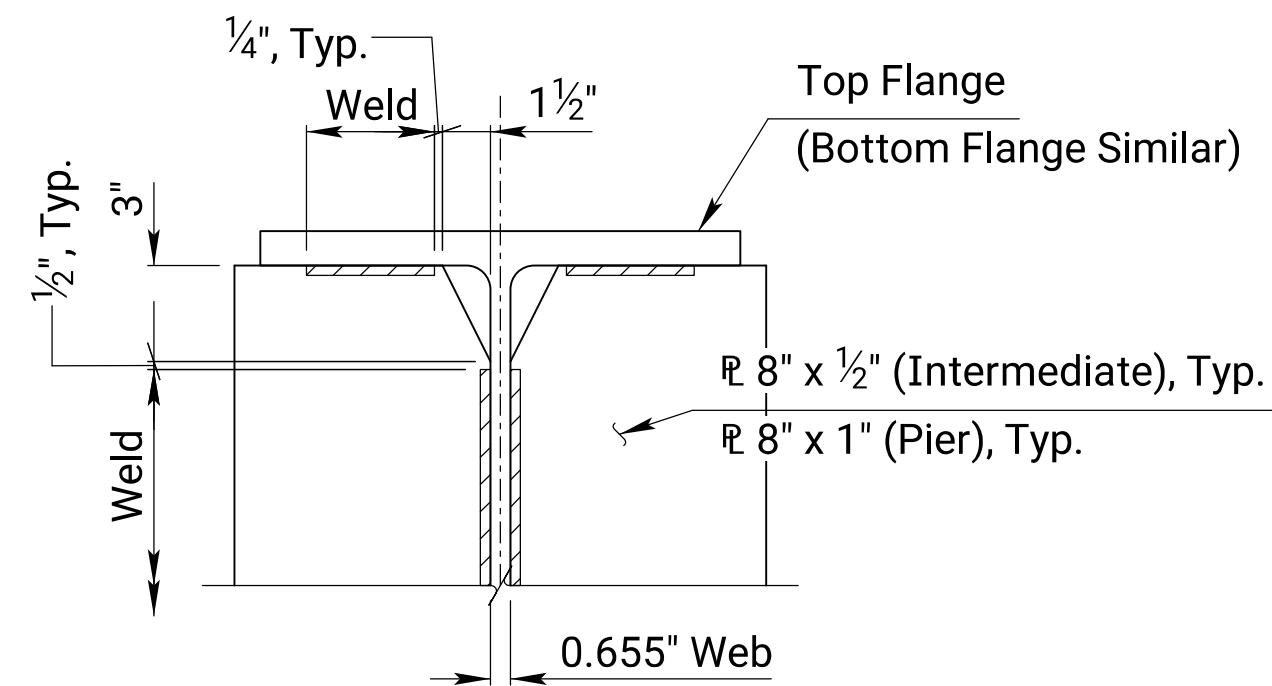
INTERMEDIATE DIAPHRAGM DETAILS



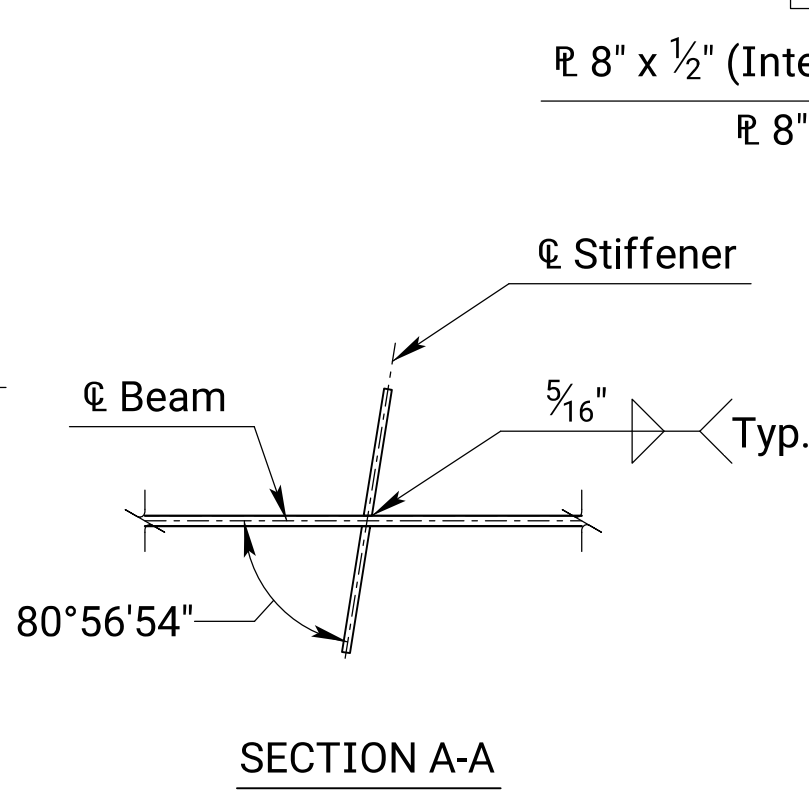
CONNECTION STIFFENERS

BEARING STIFFENERS

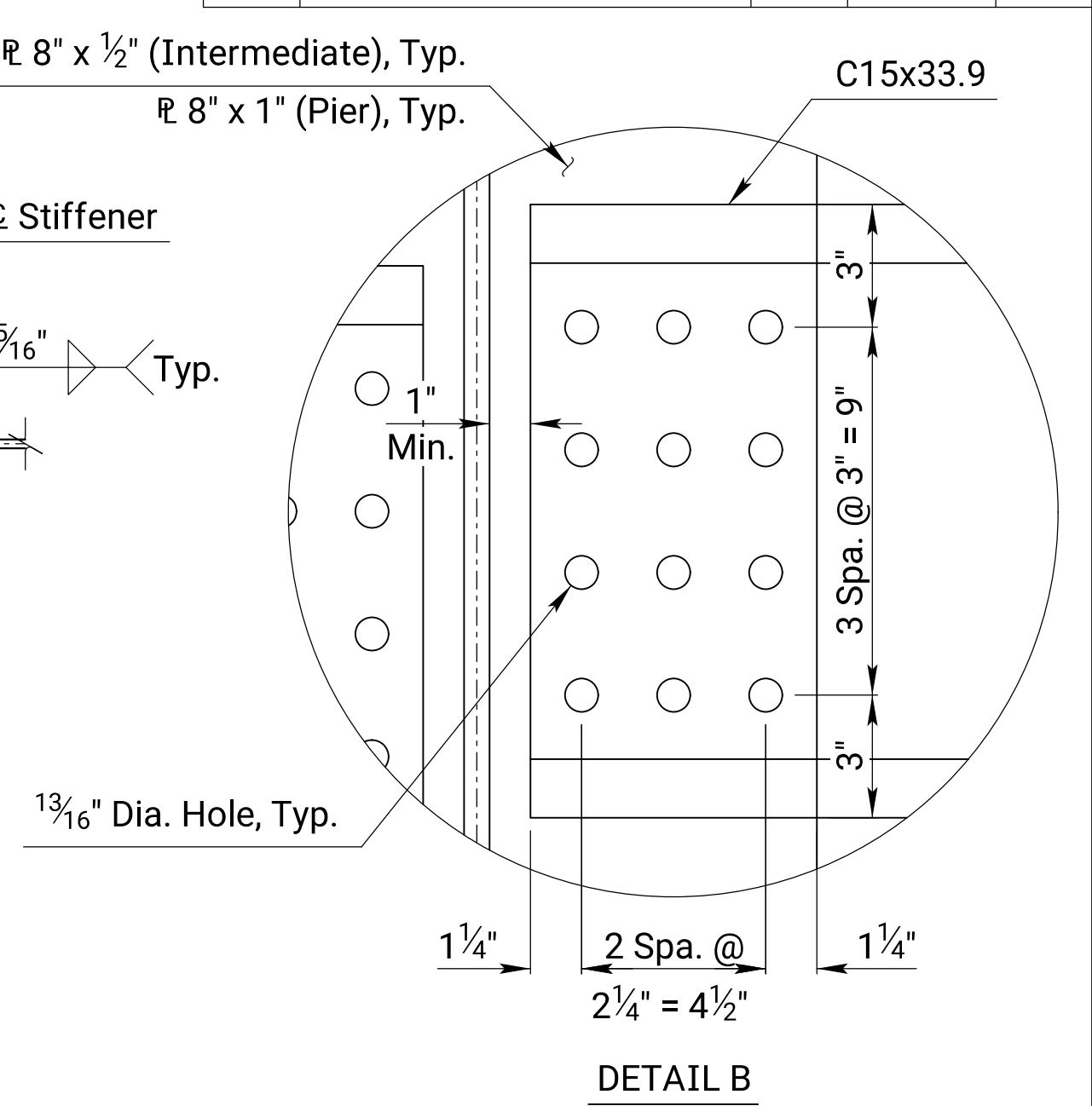
WELDING DETAILS



COPE AND WELD TERMINATION DETAILS



SECTION A-A



DETAIL B

Notes:

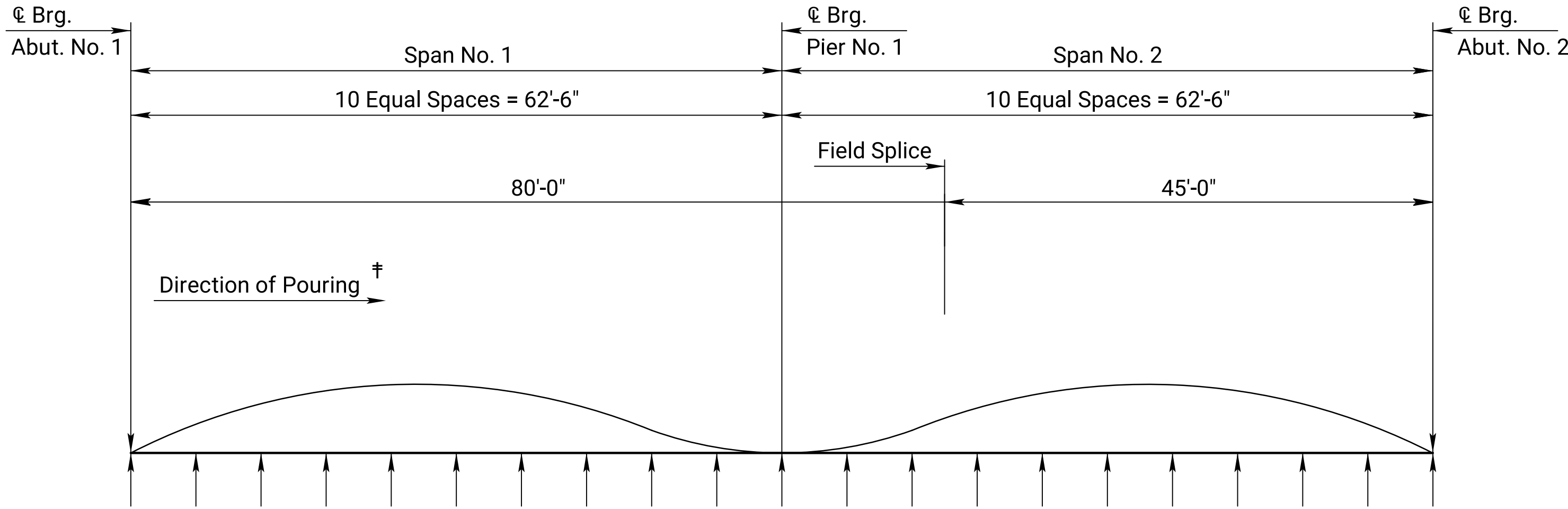
For Framing Plan, see Sheet BR2829-21.
For Structural Steel Notes, see Sheet BR2829-03.

NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION				STA. 739+38.09	
BR.NO. 69-46-139.75 (453)				STA. 739+38.10	
BR.NO. 69-46-139.76 (454)					
STEEL DIAPHRAGM AND					
SPLICE DETAILS					
US-69 OVER 167TH STREET					
PROJ. NO. 69-46 KA-5700-03				JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT		
DESIGN CK.	CRG	DETAIL CK.	CRG		



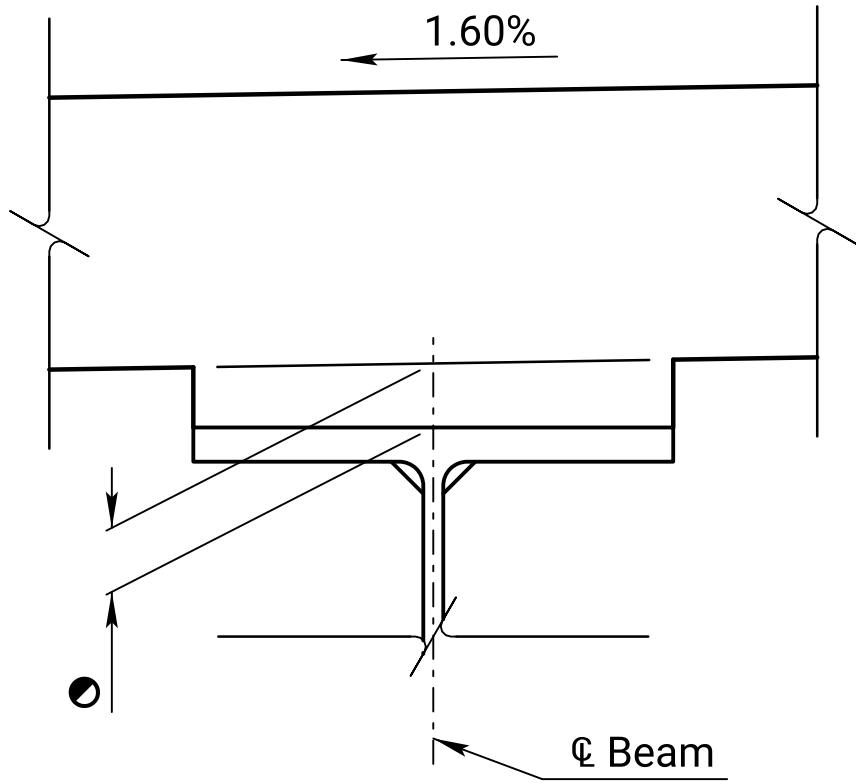
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-24	39



Exterior Girder	Concrete Dead Load (Composite + Non-Comp.)	0.00	0.19	0.35	0.46	0.51	0.49	0.42	0.30	0.16	0.05	0.00	0.05	0.16	0.29	0.42	0.48	0.51	0.46	0.35	0.19	0.00
	Steel Dead Load (Non-Comp.)	0.00	0.04	0.08	0.11	0.12	0.11	0.10	0.07	0.04	0.01	0.00	0.01	0.04	0.07	0.10	0.11	0.12	0.11	0.08	0.04	0.00
	Adjustment for Vertical Curve	0.00	0.08	0.15	0.20	0.22	0.23	0.22	0.20	0.15	0.08	0.00	0.08	0.15	0.20	0.22	0.23	0.22	0.20	0.15	0.08	0.00
	Required Haunch Dimension	2.00	2.32	2.58	2.76	2.84	2.83	2.73	2.56	2.35	2.14	2.00	2.14	2.35	2.55	2.73	2.83	2.84	2.76	2.58	2.32	2.00

Interior Girder	Concrete Dead Load (Composite + Non-Comp.)	0.00	0.21	0.38	0.50	0.55	0.53	0.45	0.33	0.18	0.05	0.00	0.05	0.18	0.32	0.45	0.53	0.55	0.50	0.38	0.21	0.00
	Steel Dead Load (Non-Comp.)	0.00	0.05	0.08	0.11	0.12	0.12	0.10	0.07	0.04	0.01	0.00	0.01	0.04	0.07	0.10	0.12	0.12	0.11	0.08	0.05	0.00
	Adjustment for Vertical Curve	0.00	0.08	0.15	0.20	0.22	0.23	0.22	0.20	0.15	0.08	0.00	0.08	0.15	0.20	0.22	0.23	0.22	0.20	0.15	0.08	0.00
	Required Haunch Dimension	2.00	2.33	2.61	2.80	2.89	2.88	2.77	2.59	2.36	2.15	2.00	2.15	2.36	2.58	2.77	2.88	2.89	2.80	2.61	2.33	2.00

Dead Load Deflections at Field Splices (in.)			
Field Splice		Concrete	Total
		0.257	0.319
	Interior	0.281	0.344



BEAM FILLET DETAIL

● - Fillet values vary along each beam to account for dead load deflection and vertical curvature of the profile grades.

DEAD LOAD CAMBER DIAGRAM AT TENTH POINTS

(Dimensions are in inches)

Construct the finished deck to plan grade by varying the depth of the fillet over the beam to provide for beam profile, concrete dead load deflection and, if necessary, vertical curvature. After the beams are completely erected and the falsework bents are removed, profile each beam. Correct any variation between the actual profile and the concrete dead load deflection shown in the plans by varying the depth of the concrete fillets over the beams so that the finished floor is constructed to the theoretical grade. The minimum depth of the slab over the beam shall be 10½ inches.

*Beam Field Splice Elevations		
	Beam	Field Splice Elevation
Bridge 453	A	969.13
	B	969.25
	C	969.36
	D	969.45
	E	969.32
	F	969.18
Bridge 454	G	969.12
	H	969.24
	J	969.36
	K	969.25
	L	969.11
	M	968.98

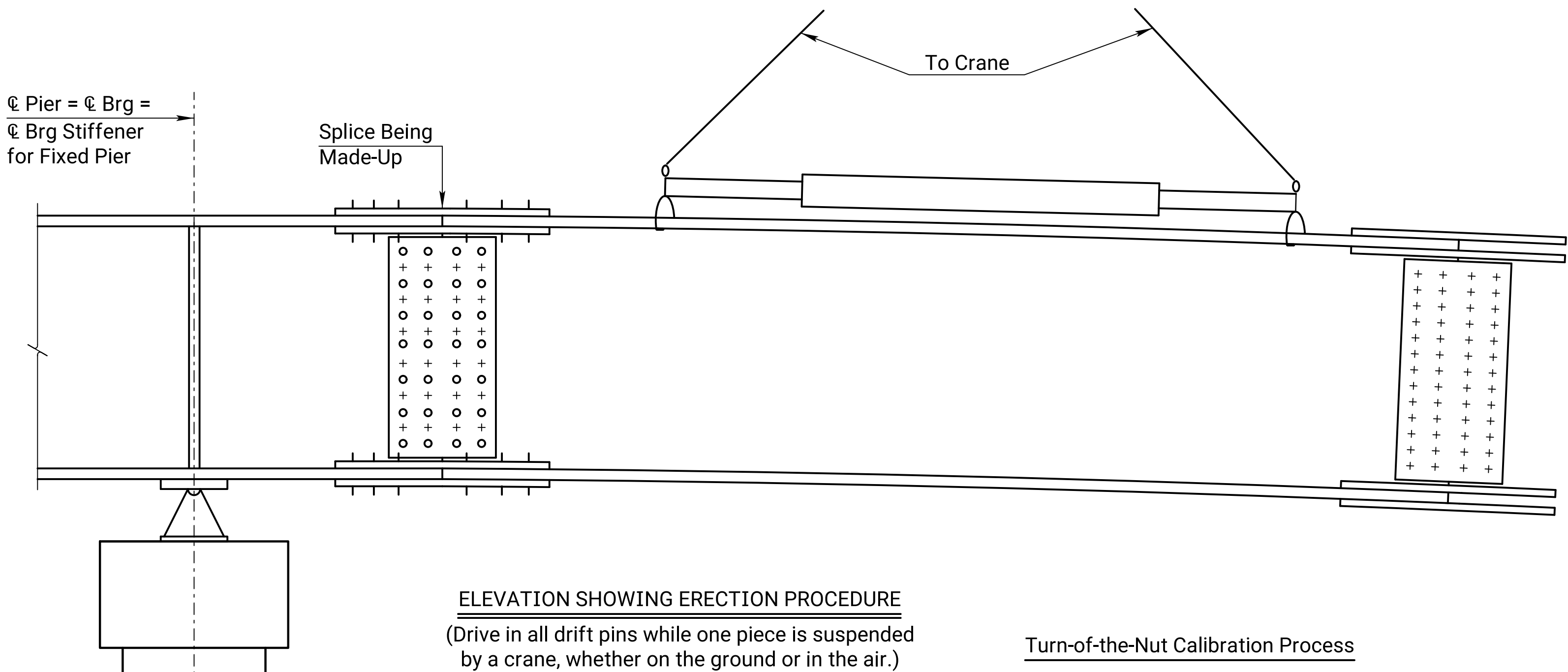
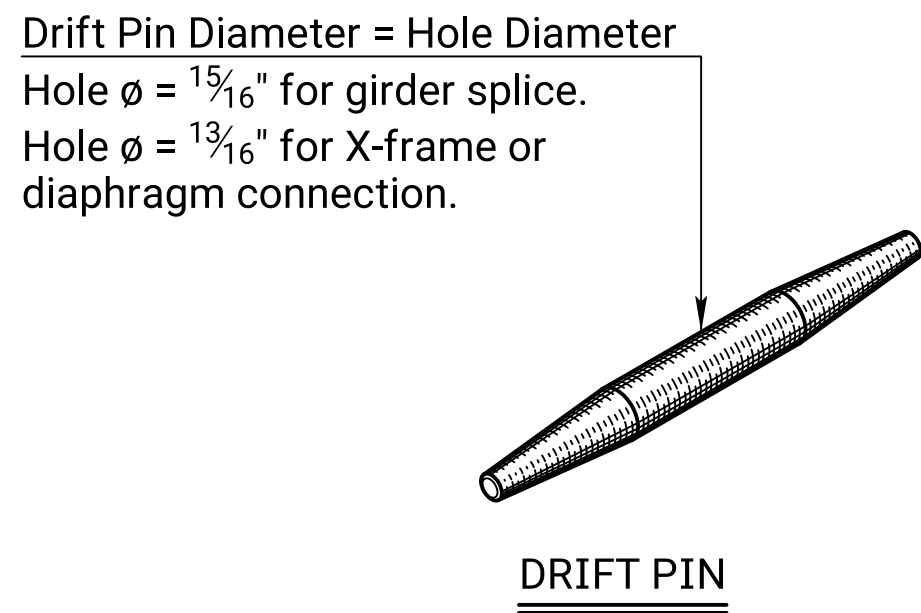
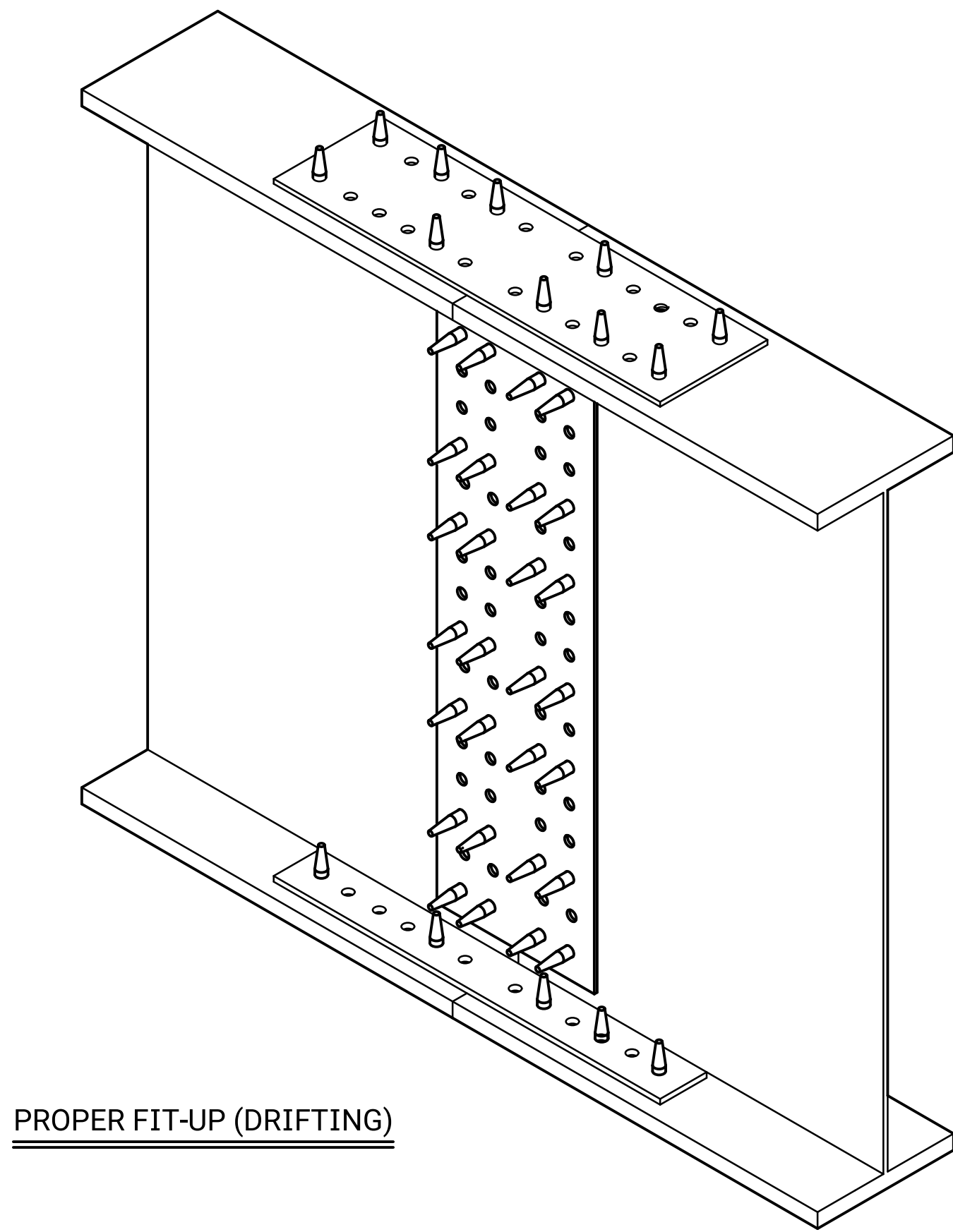
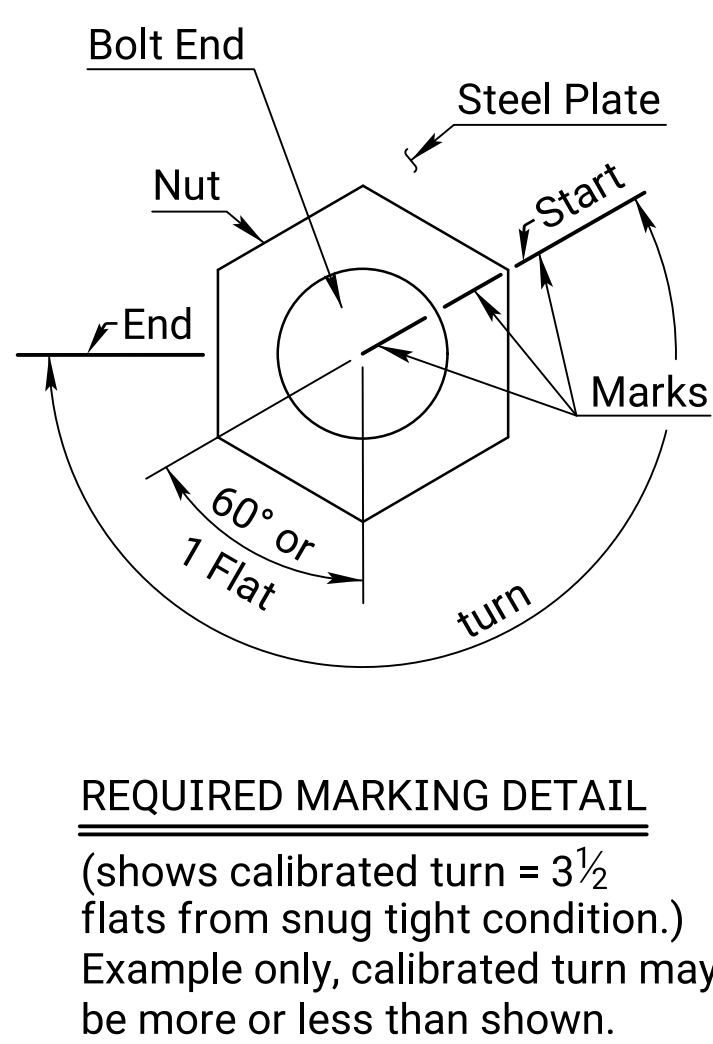
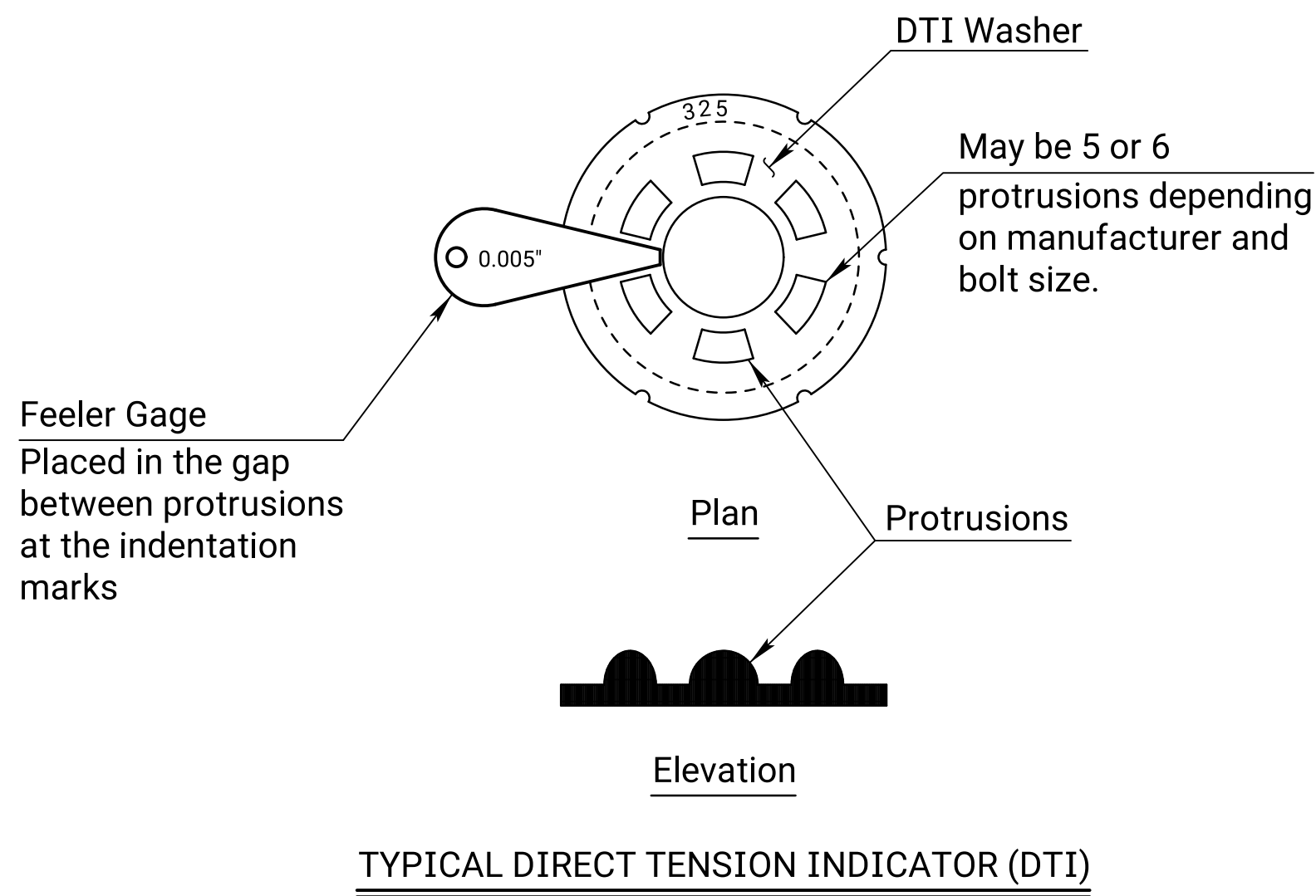
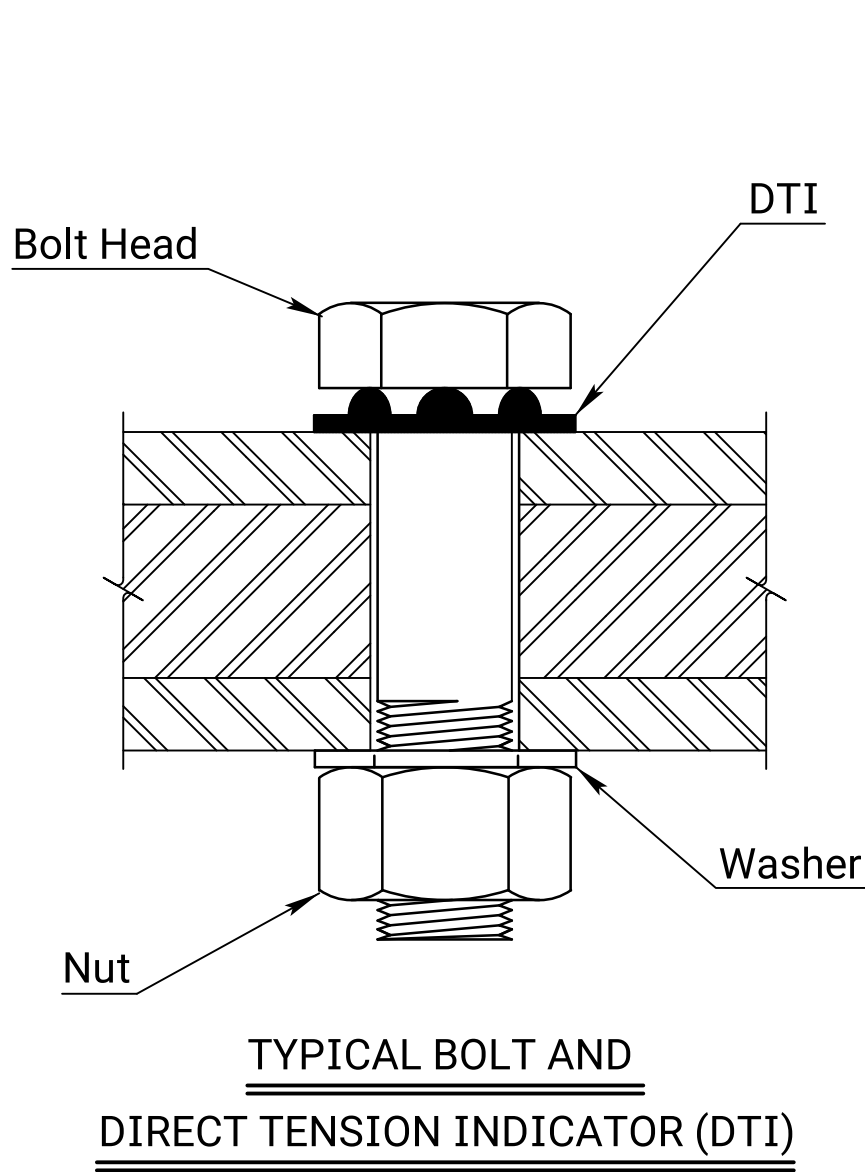
*Elevations are at top of splice plates and are computed as straight lines through Abutment / Pier control points with adjustment made for beam dead load deflection.

‡ Changes in pouring direction requires recalculation of fillets and/or grading.



NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION			
BR.NO. 69-46-139.75 (453)		STA. 739+38.09	
BR.NO. 69-46-139.76 (454)		STA. 739+38.10	
BEAM DEFLECTION AND HAUNCH DIMENSIONS US-69 OVER 167TH STREET			
PROJ. NO. 69-46 KA-5700-03		JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT
DESIGN CK.	CRG	DETAIL CK.	CRG



Fit Up

During the fit up, install drift pins in all corner bolt holes, plus 25 percent of the bolt holes (as a min.), evenly distributed throughout the splice. Fill at least 25 percent of the bolt holes with high strength bolts. Fully tighten these bolts by the calibrated turn-of-the-nut method before removing any drift pins or moving the members. These bolts shall be either erection bolts or production bolts. Erection bolts are used during fit up, to compress the plies of the splice to achieve a snug condition. Erection bolts are the property of the Design-Builder and do not remain in the bridge permanently. Erection bolts must be A325, and can be reused. Erection bolts are required when the abutting plates are of different thickness and no fill plate is provided. This situation usually results in a slight bending of the splice plates. If erection bolts are not used, the DTI's may fully compress before the plates are in firm contact. This would be cause for rejecting the splice. Clearly mark the erection bolts so that they are not left in the splice.

Erection

Two independent crews shall survey the bearing seat elevations. The Engineer shall verify that the results of those surveys show that the bearing seat elevations are within $\pm \frac{1}{4}$ inch of the plan elevations before erection begins. Use the blocking diagram, as shown on the shop drawings, when erecting the beams/girders on the ground. Do not lift the assembled pieces into position until at least 25 percent of the holes are filled with fully tightened bolts. Locate the centerline of the bearing stiffener with the centerline of bearing device. Secure the beams/girders to the top of the pier cap prior to placement of the bearing device anchor bolts.

Turn-of-the-Nut Calibration Process

Tighten all girder splice and diaphragm bolts using the calibrated turn-of-the-nut method. Use the DTI to determine the turn required for each bolt diameter & length. Perform the calibration process as described below on the actual beam splice or using 3 plies of steel plate with the same thickness as the actual splice.

- Bring at least 25 percent of the bolts in the splice to a "snug-tight-condition". "Snug tight condition" is defined as (with all plies in firm contact) "the full effort of a man on a spud wrench". Usually a smaller impact gun ($\frac{1}{2}$ " drive) is used to snug the splice and a larger impact gun (1" drive) is used for final tightening. This is preferred over the use of a spud wrench. Production bolting and calibration must use the same tools and lubricating procedures. If an impact wrench is used to "iron the plates" and snug the bolts for calibration, then an impact wrench must be used during the snugging process during production bolting.
- See "Required Marking Detail" (choose a bolt at the center of the splice and recheck snug on adjacent bolts).
 - Mark the outside of the socket at one of the corners.
 - Mark the bolt, plate, and nut at a corner with a start line.
 - Align the mark on the socket with the start mark on the bolt end.
 - While holding a backup wrench on the head of the bolt, turn the nut 1/2 turn (3 flats).
 - Record the number of refusals.
 - If all of the gaps refuse, go to another bolt and turn the nut 2 flats (1/3 turn).
 - If there are fewer than 3 refusals turn the nut an additional 1/4 of a flat (15 degrees).
 - Repeat step g., turning the nut 1/3 of a flat or less each time, until all of the gaps refuse the feeler gage. Record the amount required to cause all of the gaps to refuse the feeler gage. This is the target amount.
- Repeat this process for each bolt diameter and length.

Production Bolt Tightening

- Install bolts and tighten to "snug tight" in a pattern, starting at the center of the splice and working toward the edge. On large girders this may have to be done twice, as the center bolts will become loose as plates are "Ironed out". This step is important because typically, any variation in results during production bolting is the result of a change in the materials, lubricant or equipment used to take the bolts to a "snug tight" condition during the calibration process.
- Mark all of the bolts, nuts and the plate as shown in the marking detail. Mark the socket with a start and stop point. The stop point corresponds to the target rotation determined earlier.
- Align the start mark on the socket with the line on the plate. While the bolt is being backed up, turn the nut until the stop mark on the socket lines up with the start mark on the plate.
- Repeat with all bolts of the same length in the splice.

Acceptance and Rejection of Bolts

- The Department shall check all bolts with a feeler gage.
- All nuts must be turned at least the target rotation beyond "snug tight".
- All DTI's must have at least 3 refusals of the 0.005" gage.
- If all gaps refuse the 0.005" gage, and the nut, plate and bolt are not marked, reject the bolt.
- If all gaps refuse the 0.005" gage, and the turned element has not been rotated more than 45° beyond the calibrated turn, accept the bolt.
- If all gaps refuse the 0.005" gage, and the turned element has been rotated more than 45° beyond the calibrated turn, reject the bolt.

For additional information see the structural steel section of the Bridge Construction Manual.

Suggested Impact wrench models:

CP 611
IR 2940
Cleco WS2110
ATP 1011/1040
Norbar PT1500

NO.		DATE	REVISIONS	
0		2023-12-08	RFC SUBMITTAL	

KANSAS DEPARTMENT OF TRANSPORTATION

BR.NO.69-46-139.75 (453)

STA. 739+38.09

BR.NO.69-46-139.76 (454)

STA. 739+38.10

STEEL ERECTION, FIT-UP

AND BOLTING PROCEDURE

US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03

JOHNSON CO.

DESIGNED

JAT

DETAILED

JAT

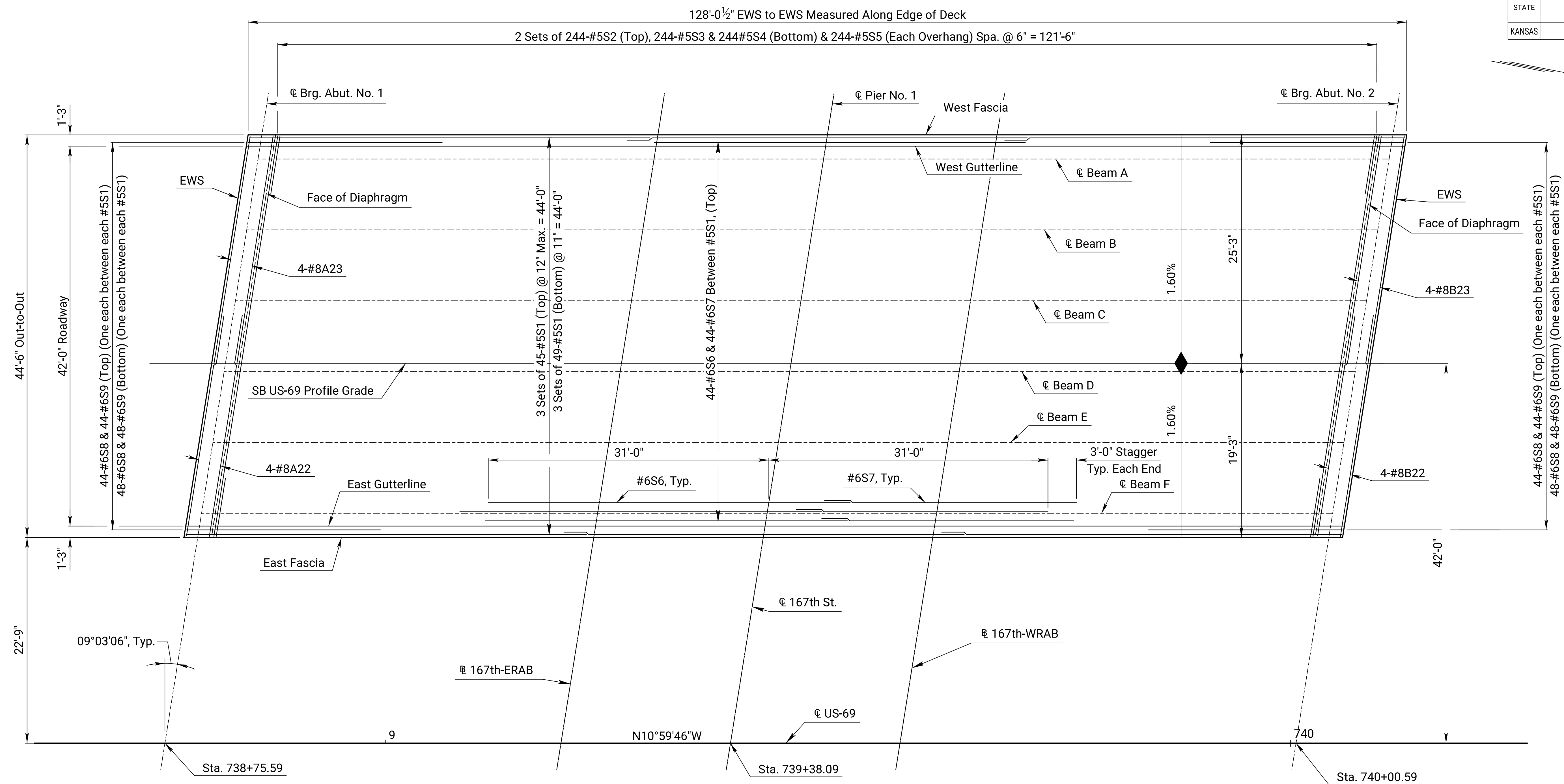
DESIGN CK.

CRG

DETAIL CK.

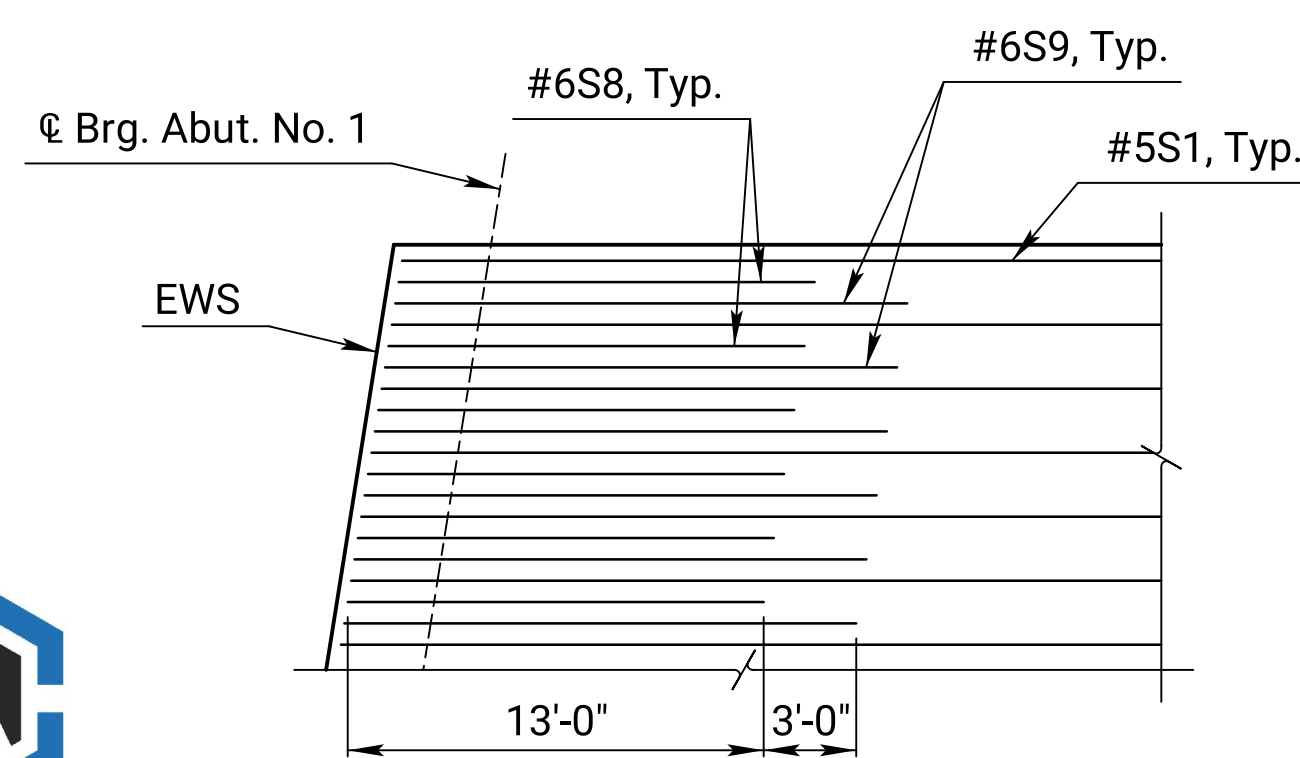
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-26	39

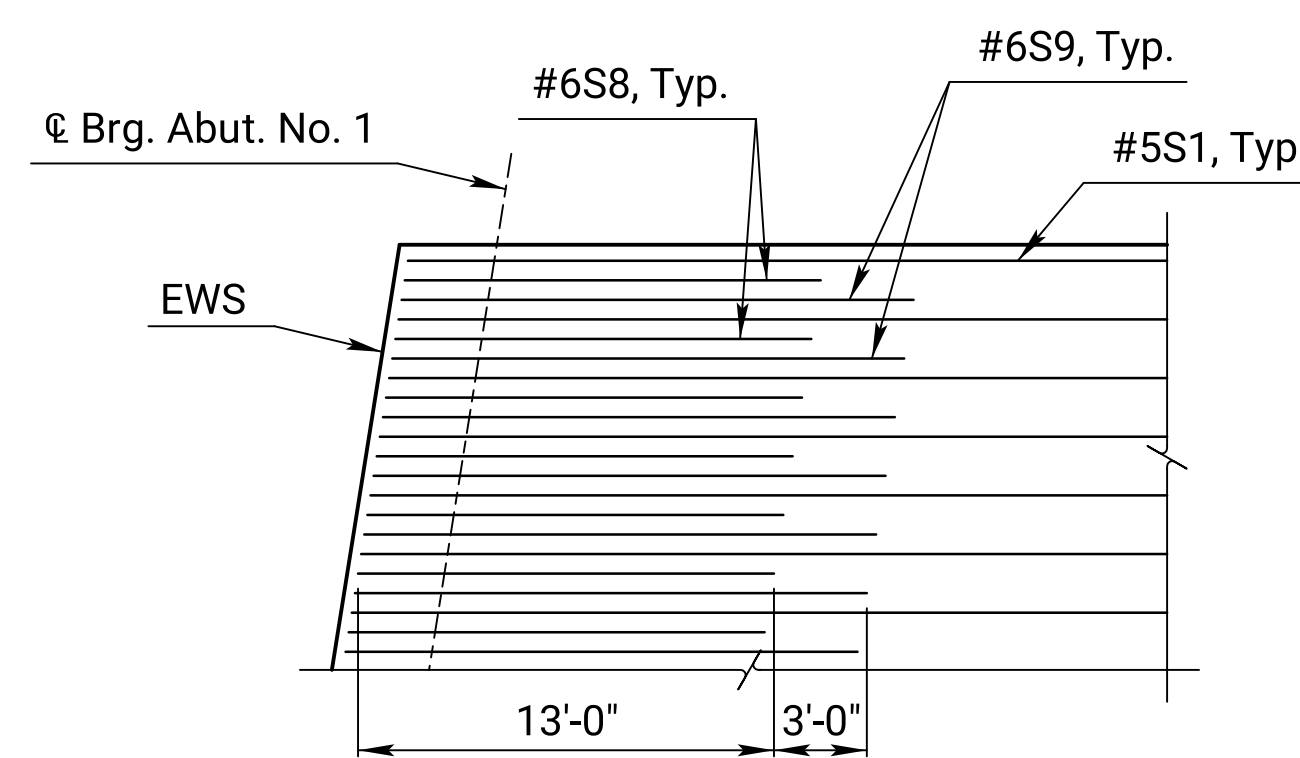


MINIMUM LAP LENGTHS	
BAR	LENGTH
#5 Bar	2'-5"
#6 Bar	3'-7"

SLAB PLAN
(Bridge 453 Shown, Bridge 454 Similar)



END SLAB REINFORCEMENT (TOP)
(Rear Abutment Shown, Forward Abutment Similar)



END SLAB REINFORCEMENT (BOTTOM)
(Rear Abutment Shown, Forward Abutment Similar)

Notes:

Place transverse bars parallel to substructure units. Transverse Bar spacing is measured along beam.
For Beam Spacing and Framing Plans, see Sheet, BR2829-21.
For Slab Section, see Sheet BR2829-27.
For Top of Finished Deck Elevations, see Sheet BR2829-28.
For Barrier Details, see Sheets BR2829-29 and BR2829-30.



US 69 EXPRESS
CONSTRUCTORS

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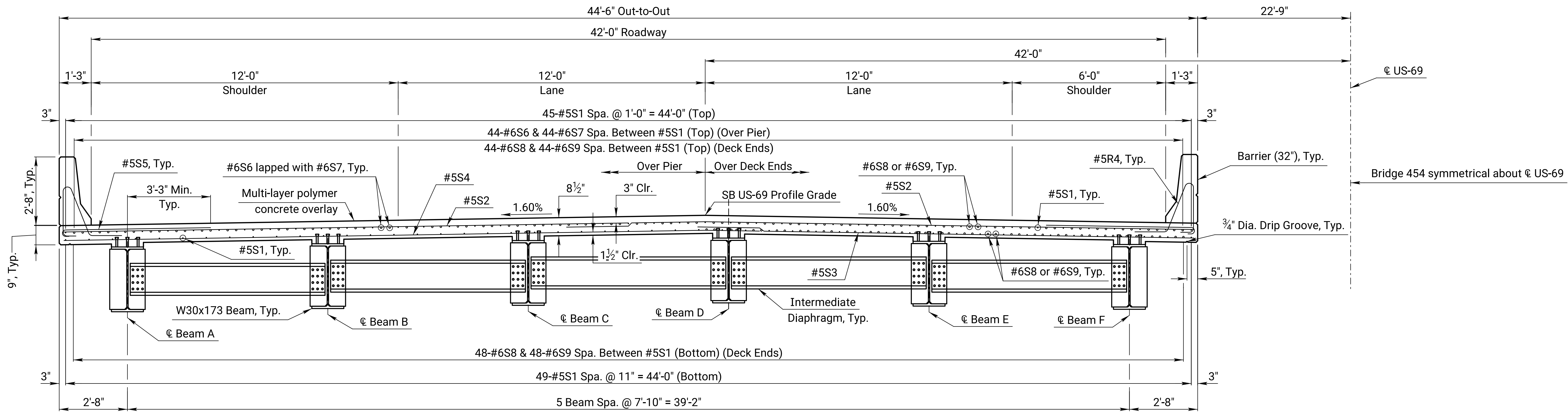
KANSAS DEPARTMENT OF TRANSPORTATION	
BR.NO.69-46-139.75 (453)	STA. 739+38.09
BR.NO.69-46-139.76 (454)	STA. 739+38.10

SLAB PLAN

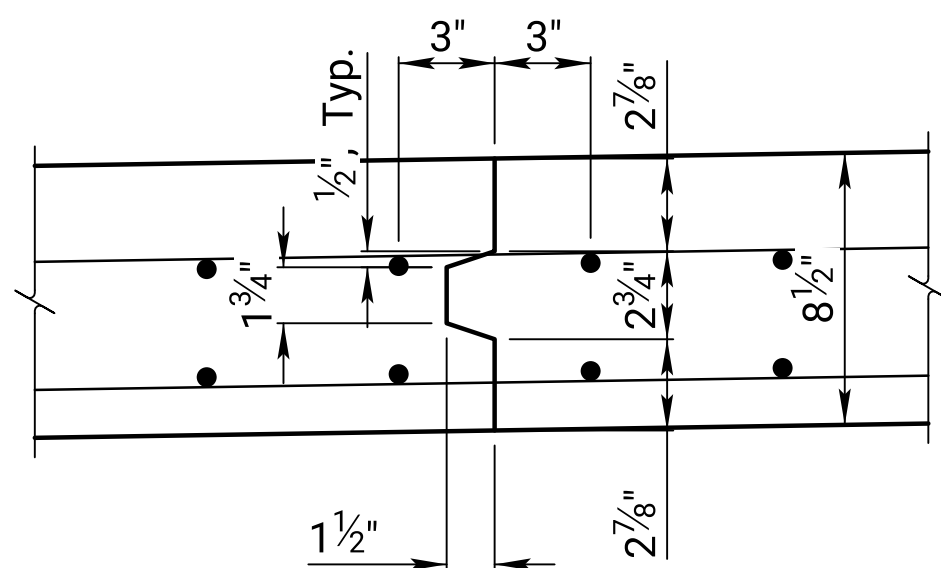
US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03				JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT		
DESIGN CK	CRG	DETAIL CK	CRG		

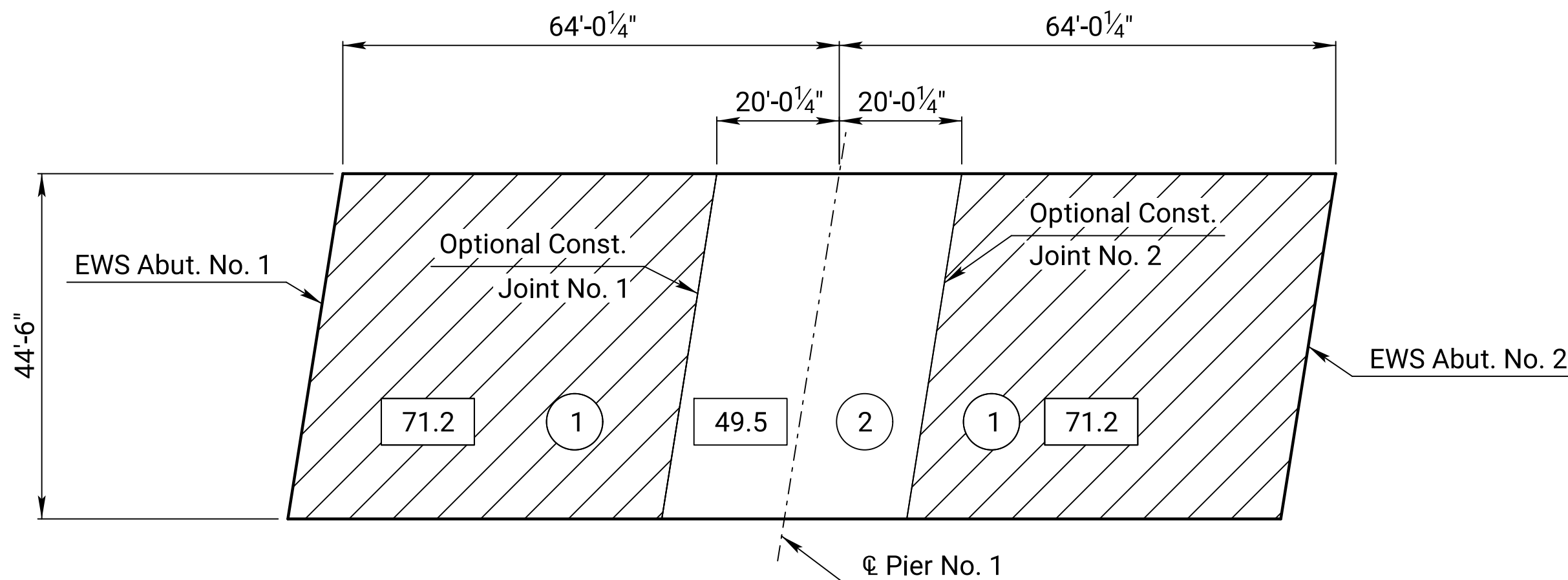
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-27	39



SLAB SECTION
Bridge 453 Shown, Bridge 454 Similar



OPTIONAL TRANSVERSE SLAB CONSTRUCTION JOINT



CONCRETE PLACING SEQUENCE

- (X) Circled numbers indicate placing sequence. See General Notes, Sheet BR2829-02, for "Placing Sequence" note.
- Continuous deck pour procedures, which proceed from end to end of the bridge and place the abutment and pier diaphragm concrete concurrently with the deck concrete is acceptable if the Design-Builder can assure the following:
1. Concrete in adjacent spans is placed before the pier and abutment diaphragm concrete has reached its initial set.
 2. Any discontinuous pour stops shall be short of the pier(s); if pouring from south to north, this would be construction joint 1 and, if pouring from north to south, this would be construction joint 2, as shown in the pour sequence diagram.
 3. If the placement of concrete is delayed and the concrete has taken its initial set, stop the placement, saw to the nearest optional construction joint, shown in the pour sequence diagram, and remove all concrete beyond the construction joint, following the instruction outlined in (2.) above.
- The Design-Builder may place the barrier rail continuously from one end of the bridge to the other.
- XXX Boxed numbers indicate quantity (cu. yds.) of Concrete (Grade 4.0) (AE)(SA)(MPC) required to pour 8 1/2" deck, pier diaphragms and abutments above the construction joint (for information only).

- Notes:
- Place construction joints only at locations shown or at locations approved by the Department.
 - For Barrier Details, see Sheet BR2829-29 & BR2829-30.
 - For Diaphragm Details, see Sheet BR2829-23.
 - For Steel Beam Details, see Sheet BR2829-22.
 - For Haunch Dimensions, see Sheet BR2829-24.
 - For Top of Finished Deck Elevations, see Sheet BR2829-28.



			KANSAS DEPARTMENT OF TRANSPORTATION			
			BR.NO.69-46-139.75 (453)		STA. 739+38.09	
			BR.NO.69-46-139.76 (454)		STA. 739+38.10	
			SLAB SECTION AND DETAILS US-69 OVER 167TH STREET			
			PROJ. NO. 69-46 KA-5700-03		JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT			
DESIGN CK.	CRG	DETAIL CK.	CRG			

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-28	39

TOP OF FINISHED DECK ELEVATIONS BRIDGE 453																	
LOCATION	POINT	LEFT EDGE OF DECK		BEAM A		BEAM B		BEAM C		BEAM D		BEAM E		BEAM F		RIGHT EDGE OF DECK	
		STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
€ BRG. ABUT. NO. 1	0	738+86.31	969.25	738+85.88	969.29	738+84.64	969.41	738+83.39	969.52	738+82.14	969.60	738+80.90	969.46	738+79.65	969.33	738+79.22	969.28
	1	738+92.56	969.32	738+92.13	969.36	738+90.89	969.47	738+89.64	969.58	738+88.39	969.67	738+87.15	969.53	738+85.90	969.39	738+85.47	969.34
	2	738+98.81	969.38	738+98.38	969.42	738+97.14	969.53	738+95.89	969.64	738+94.64	969.73	738+93.40	969.59	738+92.15	969.45	738+91.72	969.40
	3	739+05.06	969.44	739+04.63	969.48	739+03.39	969.59	739+02.14	969.70	739+00.89	969.79	738+99.65	969.65	738+98.40	969.51	738+97.97	969.47
	4	739+11.31	969.49	739+10.88	969.53	739+09.64	969.65	739+08.39	969.76	739+07.14	969.85	739+05.90	969.71	739+04.65	969.57	739+04.22	969.53
	5	739+17.56	969.55	739+17.13	969.59	739+15.89	969.70	739+14.64	969.82	739+13.39	969.90	739+12.15	969.77	739+10.90	969.63	739+10.47	969.58
	6	739+23.81	969.61	739+23.38	969.64	739+22.14	969.76	739+20.89	969.87	739+19.64	969.96	739+18.40	969.82	739+17.15	969.69	739+16.72	969.64
	7	739+30.06	969.66	739+29.63	969.70	739+28.39	969.81	739+27.14	969.93	739+25.89	970.01	739+24.65	969.88	739+23.40	969.74	739+22.97	969.69
	8	739+36.31	969.71	739+35.88	969.75	739+34.64	969.86	739+33.39	969.98	739+32.14	970.06	739+30.90	969.93	739+29.65	969.79	739+29.22	969.75
€ PIER NO. 1	9	739+42.56	969.76	739+42.13	969.80	739+40.89	969.91	739+39.64	970.03	739+38.39	970.12	739+37.15	969.98	739+35.90	969.85	739+35.47	969.80
	10	739+48.81	969.81	739+48.38	969.85	739+47.14	969.96	739+45.89	970.08	739+44.64	970.17	739+43.40	970.03	739+42.15	969.89	739+41.72	969.85
€ PIER NO. 1	0	739+48.81	969.81	739+48.38	969.85	739+47.14	969.96	739+45.89	970.08	739+44.64	970.17	739+43.40	970.03	739+42.15	969.89	739+41.72	969.85
	1	739+55.06	969.85	739+54.63	969.89	739+53.39	970.01	739+52.14	970.13	739+50.89	970.21	739+49.65	970.08	739+48.40	969.94	739+47.97	969.90
	2	739+61.31	969.90	739+60.88	969.94	739+59.64	970.06	739+58.39	970.17	739+57.14	970.26	739+55.90	970.12	739+54.65	969.99	739+54.22	969.94
	F.S.	-	-	739+65.88	969.97	739+64.64	970.09	739+58.39	970.21	739+62.14	970.29	739+60.90	970.16	739+59.65	970.03	-	-
	3	739+67.56	969.94	739+67.13	969.98	739+65.89	970.10	739+64.64	970.22	739+63.39	970.30	739+62.15	970.17	739+60.90	970.04	739+60.47	969.99
	4	739+73.81	969.99	739+73.38	970.03	739+72.14	970.14	739+70.89	970.26	739+69.64	970.35	739+68.40	970.21	739+67.15	970.08	739+66.72	970.03
	5	739+80.06	970.03	739+79.63	970.07	739+78.39	970.18	739+77.14	970.30	739+75.89	970.39	739+74.65	970.25	739+73.40	970.12	739+72.97	970.08
	6	739+86.31	970.06	739+85.88	970.10	739+84.64	970.22	739+83.39	970.34	739+82.14	970.43	739+80.90	970.29	739+79.65	970.16	739+79.22	970.12
	7	739+92.56	970.10	739+92.13	970.14	739+90.89	970.26	739+89.64	970.38	739+88.39	970.47	739+87.15	970.33	739+85.90	970.20	739+85.47	970.16
	8	739+98.81	970.14	739+98.38	970.18	739+97.14	970.30	739+95.89	970.41	739+94.64	970.50	739+93.40	970.37	739+92.15	970.24	739+91.72	970.19
	9	740+05.06	970.17	740+04.63	970.21	740+03.39	970.33	740+02.14	970.45	740+00.89	970.54	739+99.65	970.41	739+98.40	970.27	739+97.97	970.23
	10	740+11.31	970.20	740+10.88	970.25	740+09.64	970.36	740+08.39	970.48	740+07.14	970.57	740+05.90	970.44	740+04.65	970.31	740+04.22	970.26

TOP OF FINISHED DECK ELEVATIONS BRIDGE 454																	
LOCATION	POINT	LEFT EDGE OF DECK		BEAM G		BEAM H		BEAM J		BEAM K		BEAM L		BEAM M		RIGHT EDGE OF DECK	
		STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
€ BRG. ABUT. NO. 1	0	738+71.97	969.20	738+71.54	969.24	738+70.30	969.35	738+69.05	969.46	738+67.80	969.35	738+66.55	969.22	738+65.30	969.08	738+64.88	969.03
	1	738+78.22	969.27	738+77.79	969.31	738+76.55	969.42	738+75.30	969.53	738+74.05	969.42	738+72.80	969.28	738+71.55	969.14	738+71.13	969.10
	2	738+84.47	969.33	738+84.04	969.37	738+82.80	969.48	738+81.55	969.60	738+80.30	969.49	738+79.05	969.35	738+77.80	969.21	738+77.38	969.16
	3	738+90.72	969.40	738+90.29	969.43	738+89.05	969.55	738+87.80	969.66	738+86.55	969.55	738+85.30	969.41	738+84.05	969.27	738+83.63	969.23
	4	738+96.97	969.46	738+96.54	969.49	738+95.30	969.61	738+94.05	969.72	738+92.80	969.61	738+91.55	969.48	738+90.30	969.34	738+89.88	969.29
	5	739+03.22	969.52	739+02.79	969.55	739+01.55	969.67	739+00.30	969.78	738+99.05	969.67	738+97.80	969.54	738+96.55	969.40	738+96.13	969.35
	6	739+09.47	969.57	739+09.04	969.61	739+07.80	969.73	739+06.55	969.84	739+05.30	969.73	739+04.05	969.60	739+02.80	969.46	739+02.38	969.41
	7	739+15.72	969.63	739+15.29	969.67	739+14.05	969.78	739+12.80	969.90	739+11.55	969.79	739+10.30	969.65	739+09.05	969.52	739+08.63	969.47
	8	739+21.97	969.69	739+21.54	969.72	739+20.30	969.84	739+19.05	969.95	739+17.80	969.85	739+16.55	969.71	739+15.30	969.57	739+14.88	969.53
€ PIER NO. 1	9	739+28.22	969.74	739+27.79	969.78	739+26.55	969.89	739+25.30	970.01	739+24.05	969.90	739+22.80	969.76	739+21.55	969.63	739+21.13	969.58
	10	739+34.47	969.79	739+34.04	969.83	739+32.80	969.95	739+31.55	970.06	739+30.30	969.95	739+29.05	969.82	739+27.80	969.68	739+27.38	969.64
€ PIER NO. 1	0	739+34.47	969.79	739+34.04	969.83	739+32.80	969.95	739+31.55	970.06	739+30.30	969.95	739+29.05	969.82	739+27.80	969.68	739+27.38	969.64
	1	739+40.72	969.84	739+40.29	969.88	739+39.05	970.00	739+37.80	970.11	739+36.55	970.00	739+35.30	969.87	739+34.05	969.73	739+33.63	969.69
	2	739+46.97	969.89	739+46.54	969.93	739+45.30	970.04	739+44.05	970.16	739+42.80	970.05	739+41.55	969.92	739+40.30	969.78	739+39.88	969.74
	F.S.	-	-	739+51.54	969.97	739+50.30	970.08	739+49.05	970.20	739+47.80	970.09	739+46.55	969.96	739+45.30	969.82	-	-
	3	739+53.22	969.94	739+52.79	969.98	739+51.55	970.09	739+50.30	970.21	739+49.05	970.10	739+47.80	969.97	739+46.55	969.83	739+46.13	969.79
	4	739+59.47	969.98	739+59.04	970.02	739+57.80	970.14	739+56.55	970.25	739+55.30	970.15	739+54.05	970.01	739+52.80	969.88	739+52.38	969.83
	5	739+65.72	970.03	739+65.29	970.07	739+64.05	970.18	739+62.80	970.30	739+61.55	970.19	739+60.30	970.06	739+59.05	969.93	739+58.63	969.88
	6	739+71.97	970.07	739+71.54	970.11	739+70.30	970.23	739+69.05	970.34	739+67.80	970.24	739+66.55	970.10	739+65.30	969.97	739+64.88	969.92
	7	739+78.22	970.11	739+77.79	970.15	739+76.55	970.27	739+75.30	970.38	739+74.05	970.28	739+72.80	970.15	739+71.55	970.01	739+71.13	969.97
	8	739+84.47	970.15	739+84.04	970.19	739+82.80	970.31	739+81.55	970.42	739+80.30	970.32	739+79.05	970.19	739+77.80	970.05	739+77.38	970.01
	9	739+90.72	970.19	739+90.29	970.23	739+89.05	970.35	739+87.80	970.46	739+86.55	970.36	739+85.30	970.23	739+84.05	970.09	739+83.63	970.05
	10	739+96.97	970.22	739+96.54	970.26	739+95.30	970.38	739+94.05	970.50	739+92.80	970.40	739+91.55	970.26	739+90.30	970.13	739+89.88	970.09

Note:
Elevations are at top of concrete slab
(bottom of polymer overlay) over € Beam.



NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION
BR.NO.69-46-139.75 (453)
BR.NO.69-46-139.76 (454)

STA. 739+38.09
STA. 739+38.10

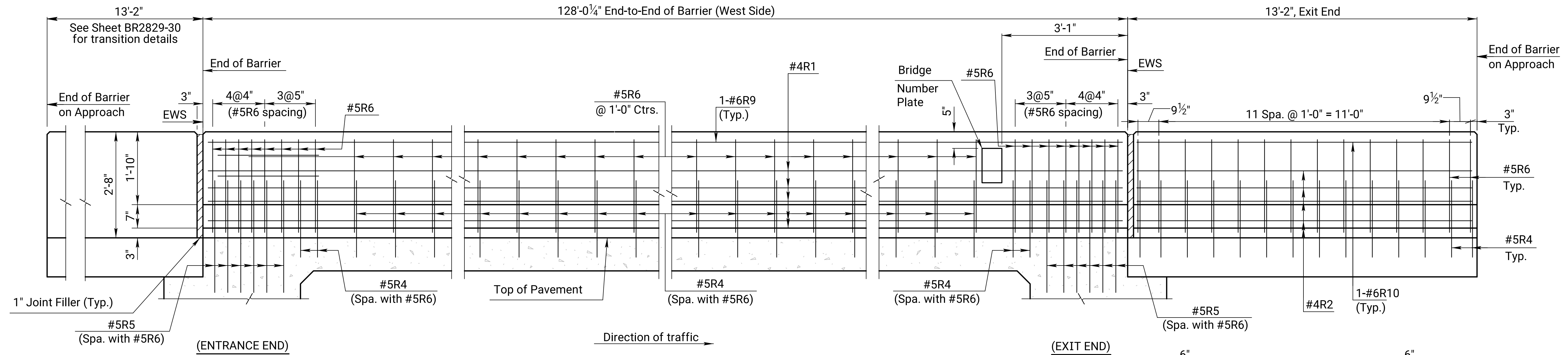
TOP OF FINISHED
DECK ELEVATIONS
US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03
JOHNSON CO.

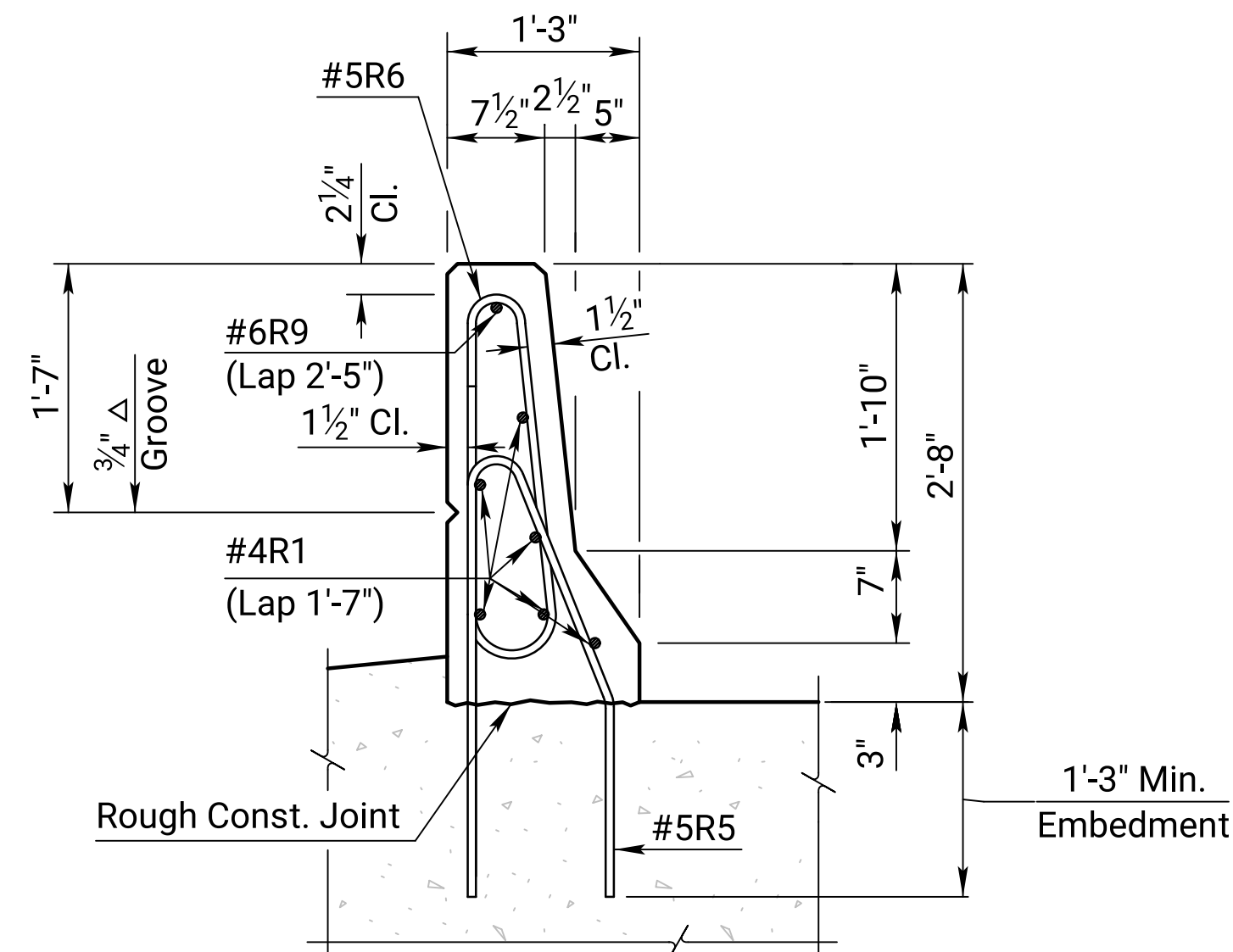
DESIGNED JAT
DESIGN CK. CRG

DETAILED JAT
DETAIL CK. CRG

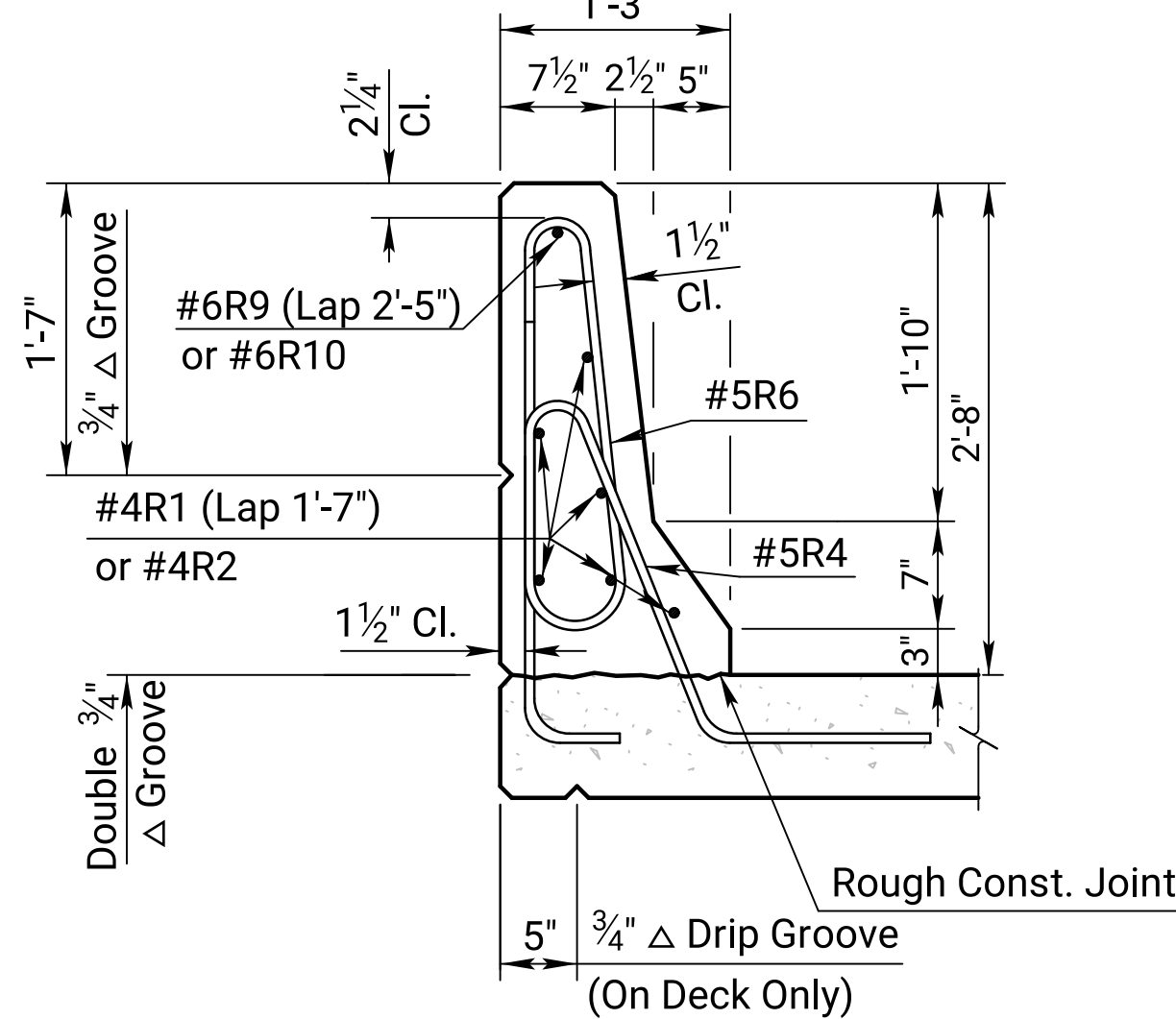
STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-29	39



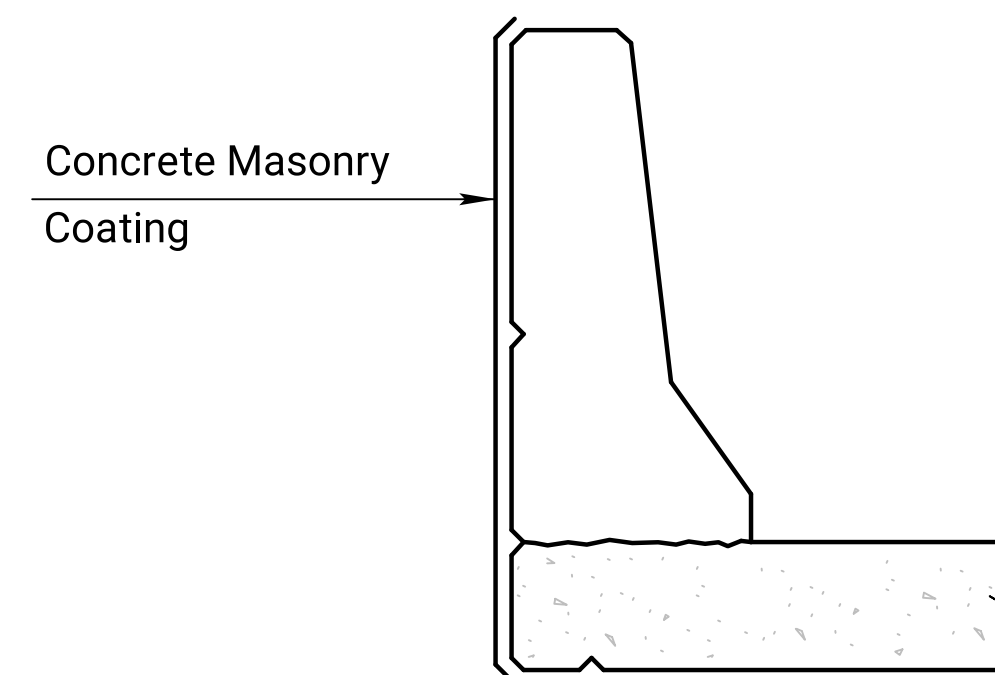
WEST BARRIER ELEVATION
Bridge 453, West Barrier Shown, others similar



SECTION THRU BARRIER
(At abutment)



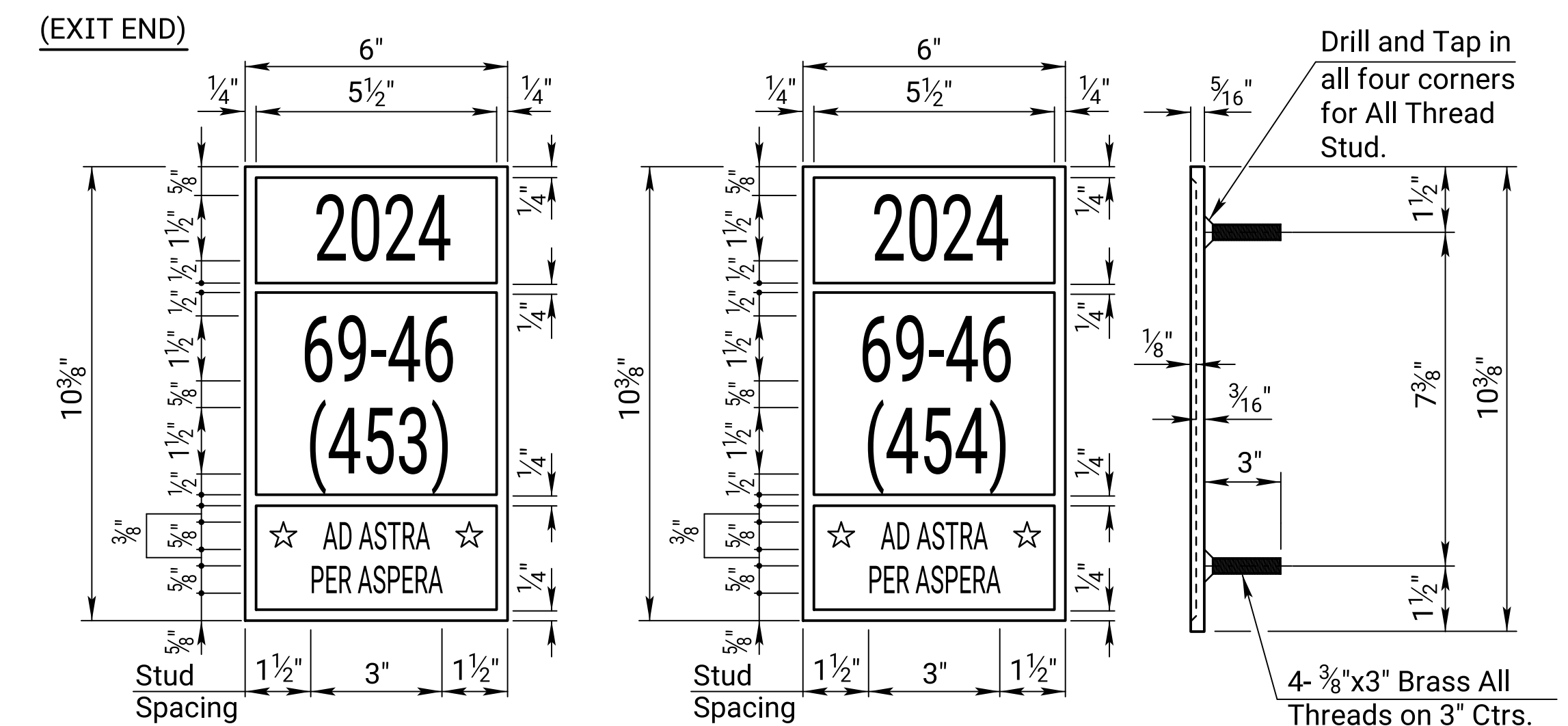
SECTION THRU BARRIER
(On Deck and Approach Slab)



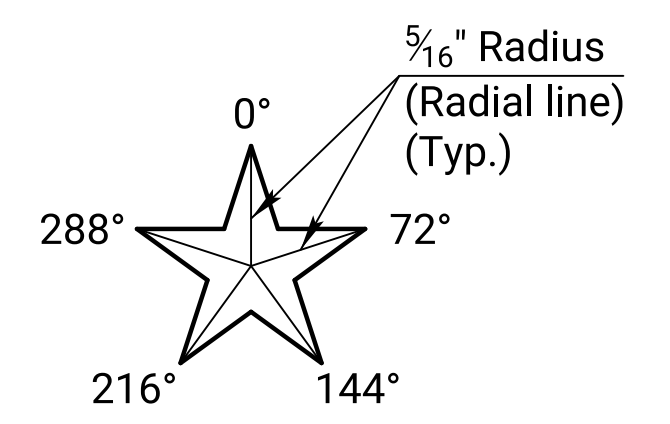
LIMITS OF CONCRETE MASONRY COATING

Concrete Masonry Coating:

Apply a pigmented sealer to the face of west barrier and the bridge slab fascia. Color is Federal Standard 37722 (White-Gray) of SAE International Standard AMS-STD-595A.



BRIDGE NUMBER PLATE
(1 Required per Bridge)
(See Construction Layout Sheet BR2829-05 for Location)



STAR GEOMETRY

[illegible]

KANSAS DEPARTMENT OF TRANSPORTATION	
BR.NO.69-46-139.75 (453)	STA. 739+38.09
BR.NO.69-46-139.76 (454)	STA. 739+38.10

40-139.78 (434) STA: 735+00
BARRIER DETAILS
(1 OF 2)
US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03				JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT		
DESIGNED	CRG	DETAILED	CRG		

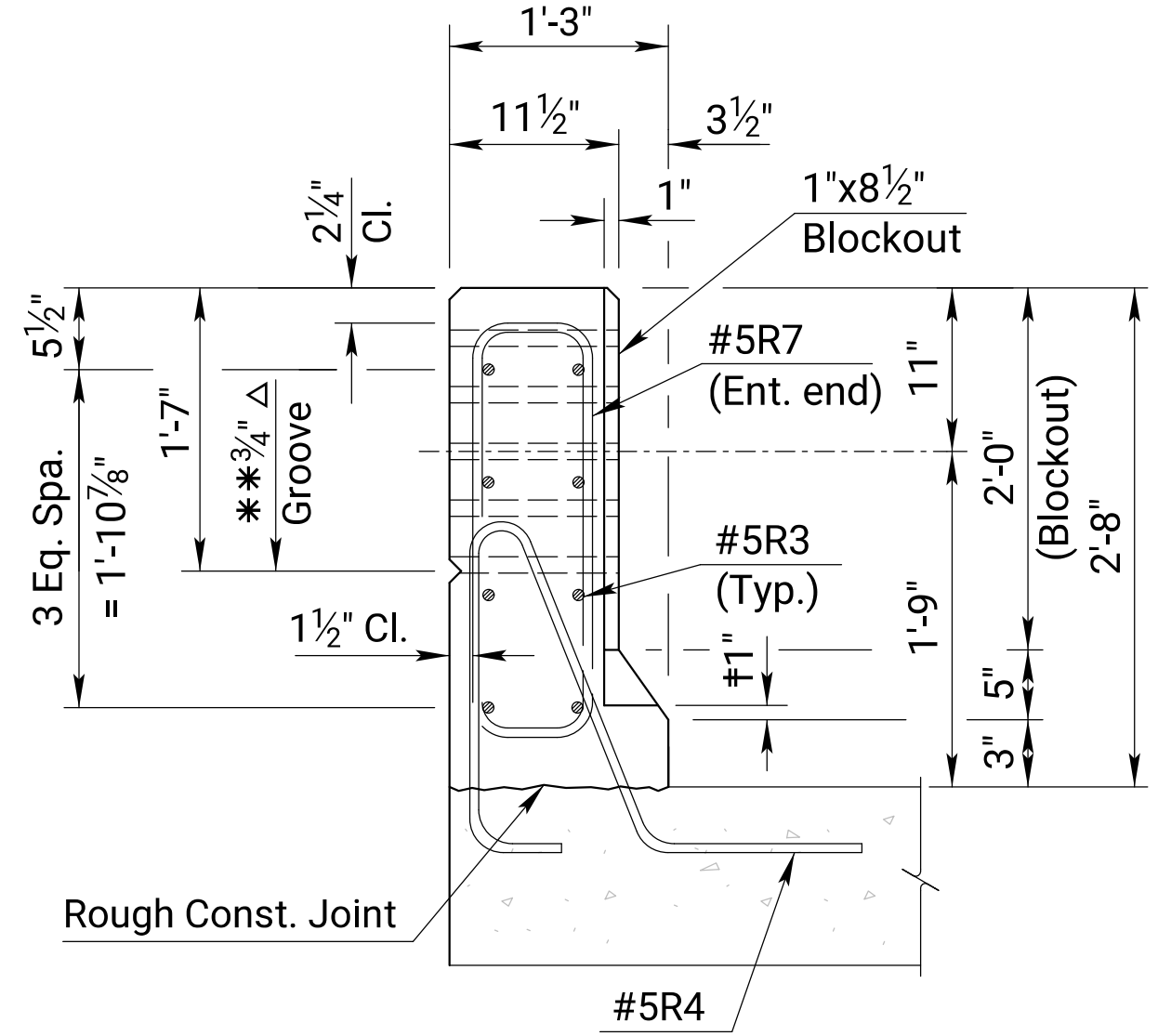
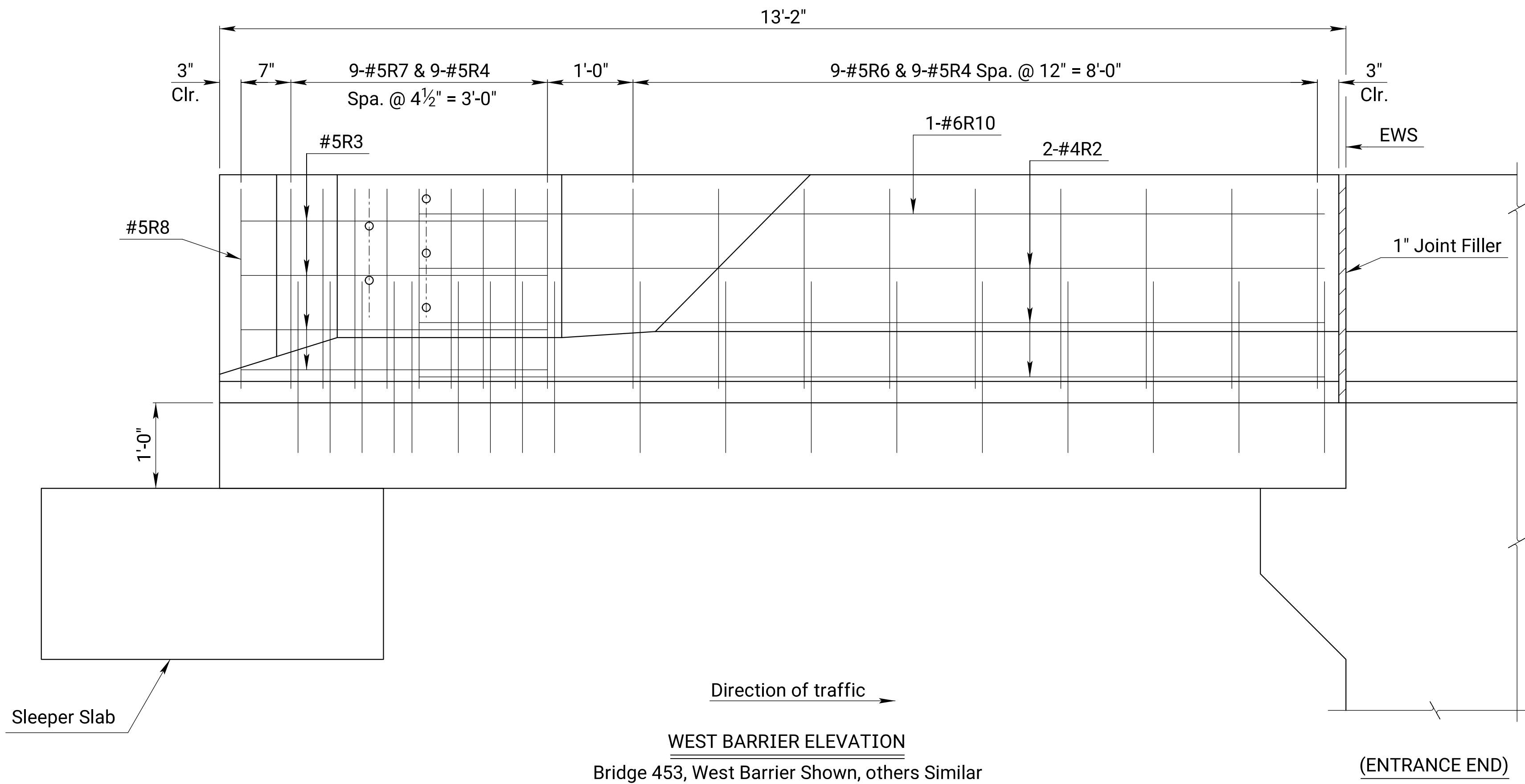
Note:
For Bill of Reinforcing, see Sheets BR2829-32 thru BR2829-36.

231208 69-46 KA-5700-03 BR28&29 RFC r00

File: BR2829-29 - Barrier Details (1 of 2).dgn

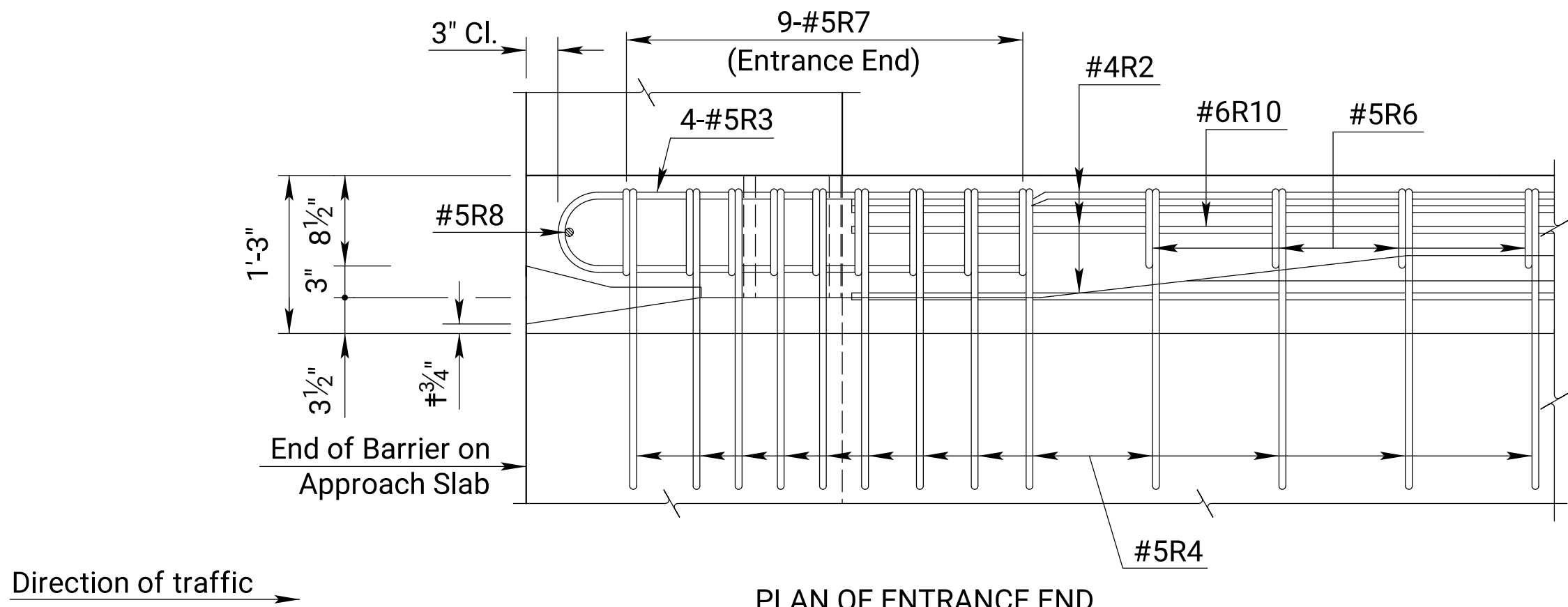
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STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-30	39

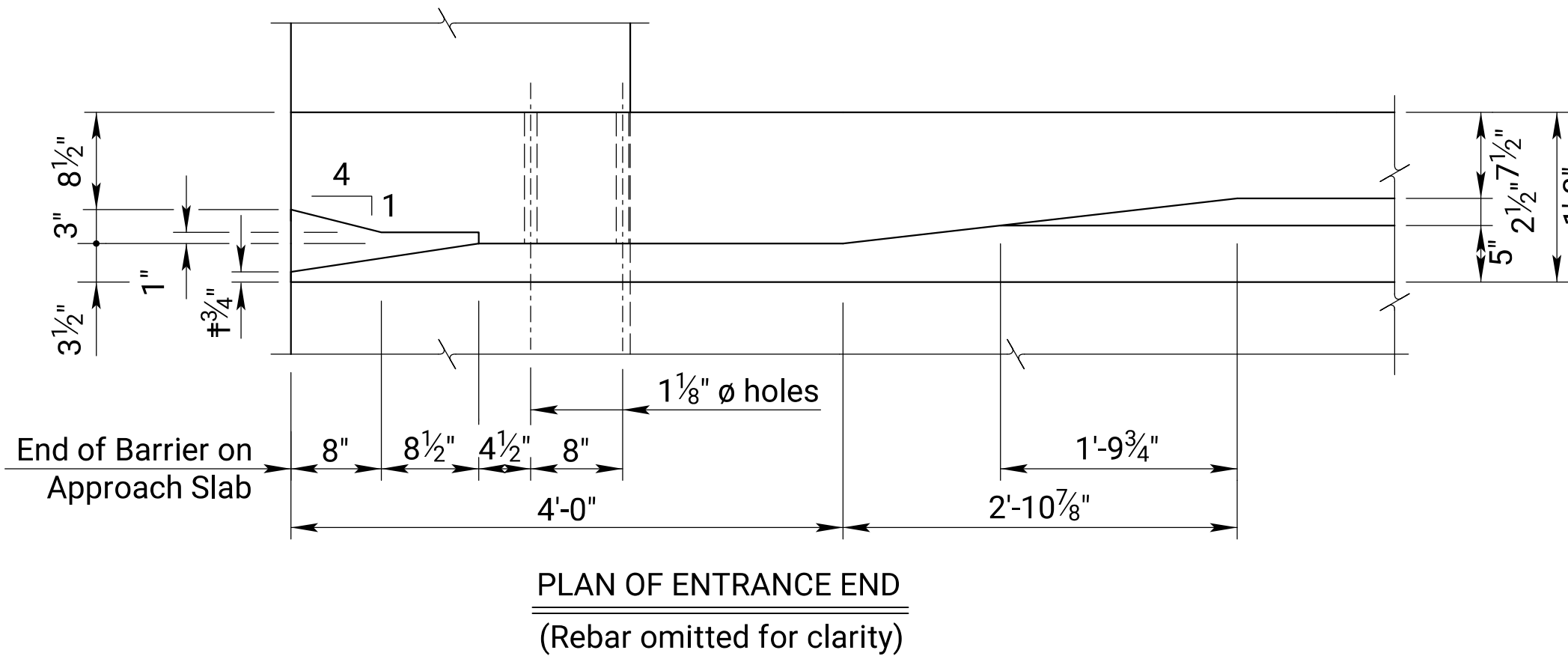
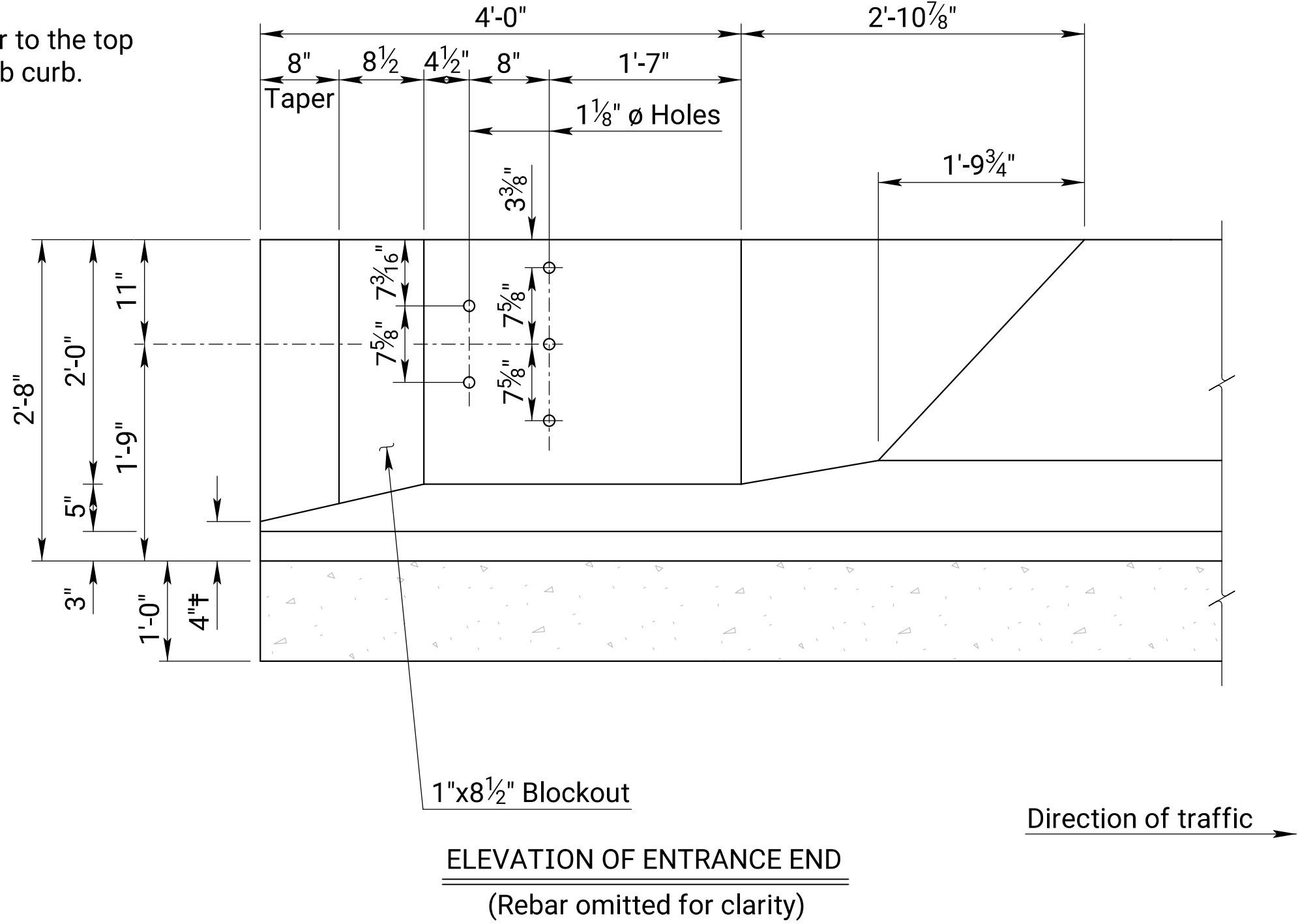


**Eliminate the 3/4" Triangular Groove where it conflicts with the 1 1/8" ø hole.

† Extend the 4:1 taper to the top of the approach slab curb.



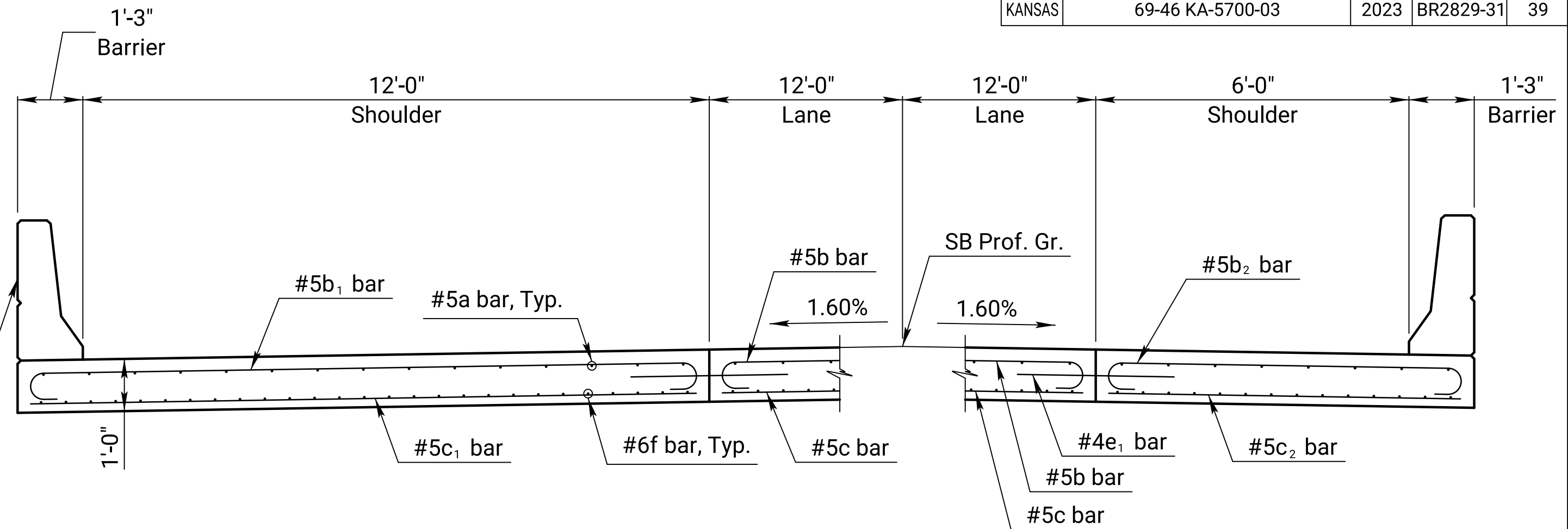
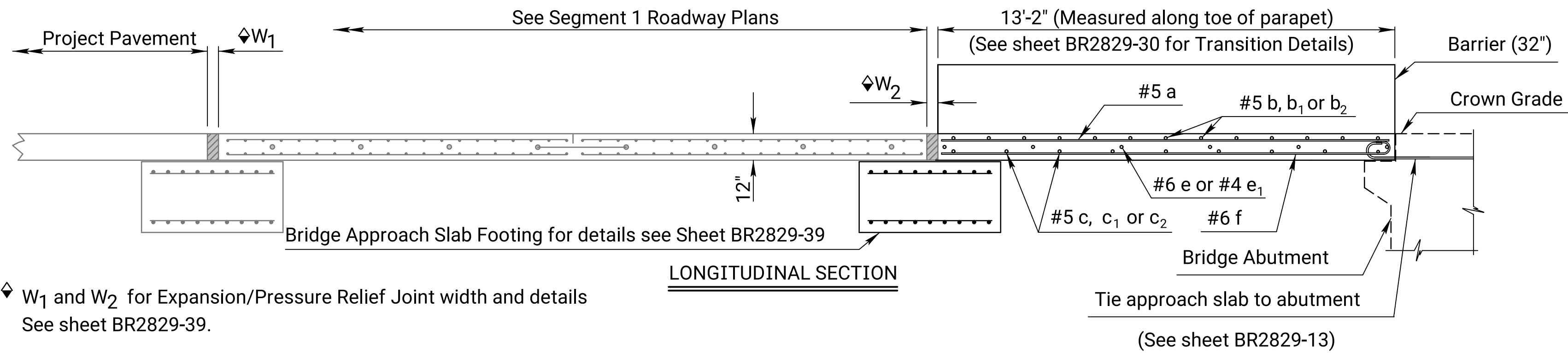
† Extend the 4:1 taper to the top of the approach slab curb.



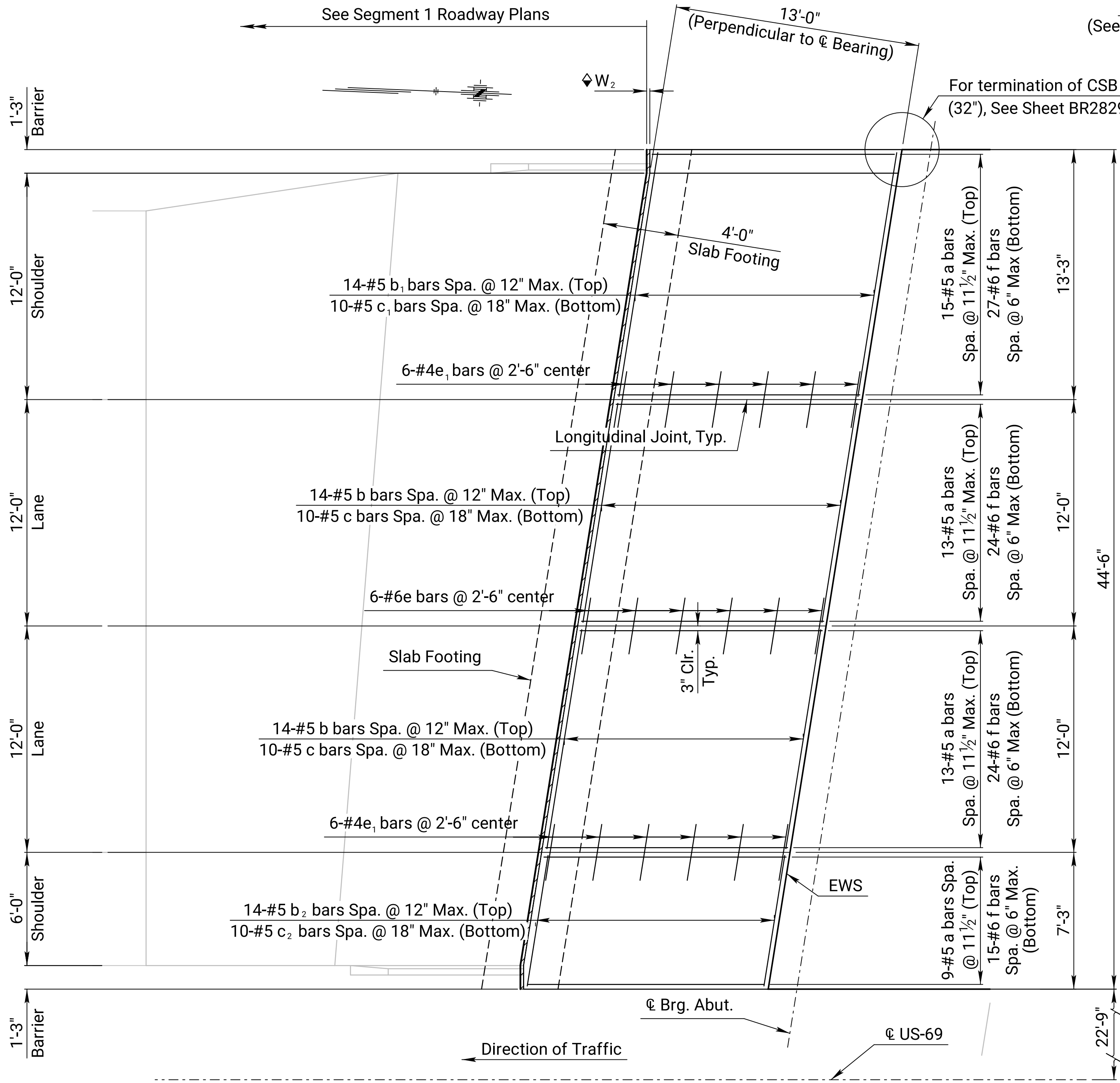
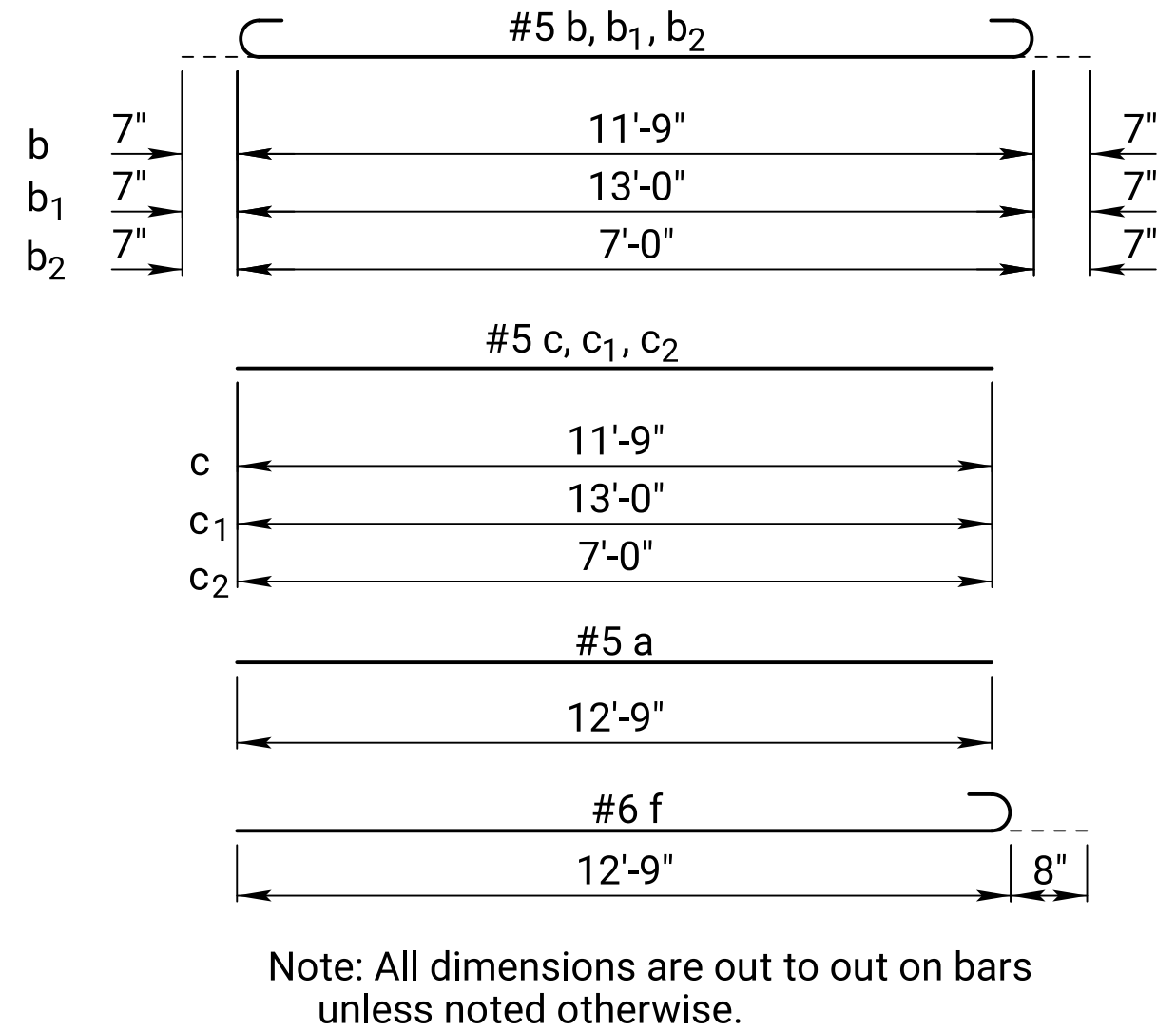
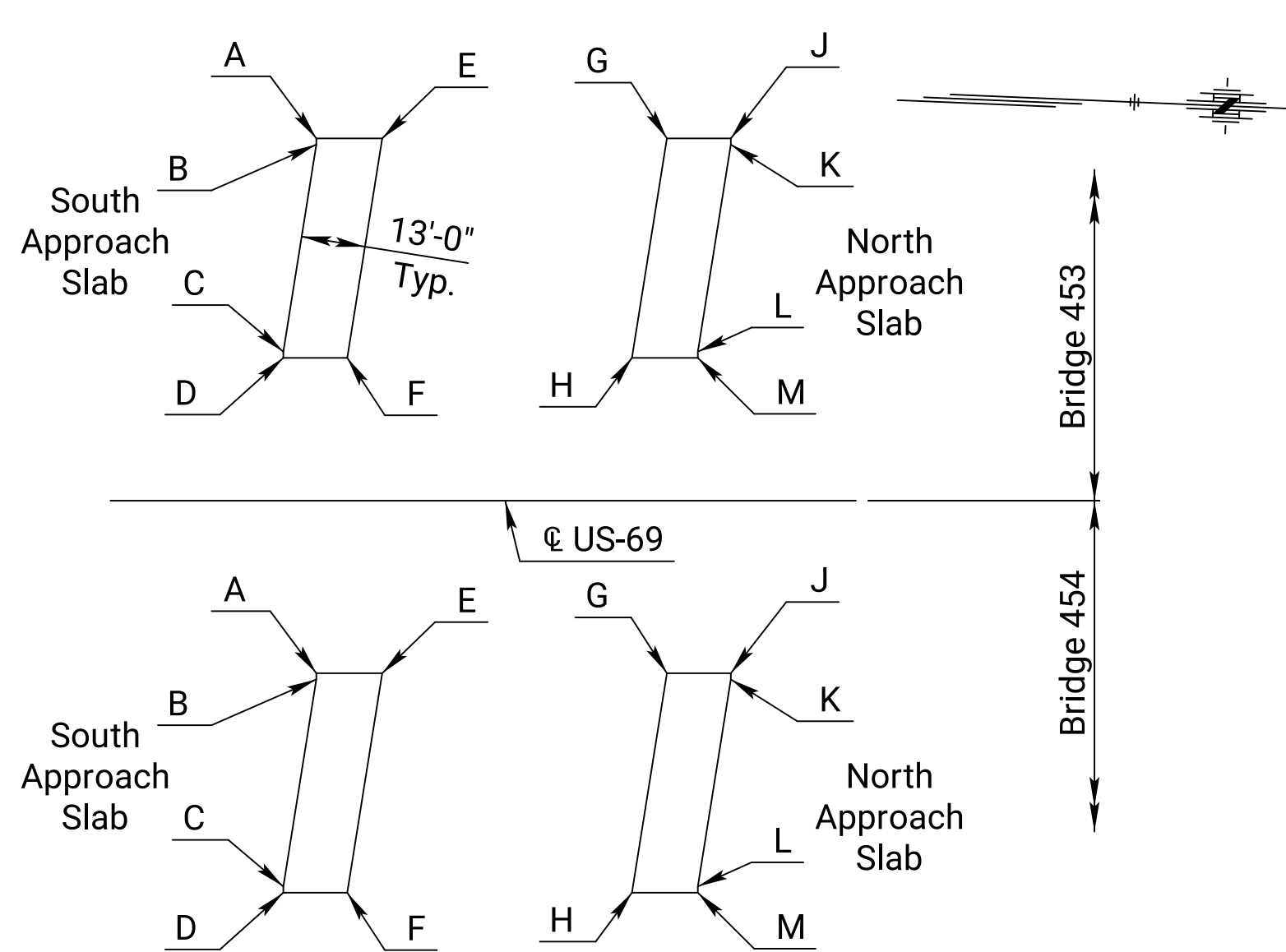
NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION BR.NO.69-46-139.75 (453) STA. 739+38.09 BR.NO.69-46-139.76 (454) STA. 739+38.10			
BARRIER DETAILS (2 OF 2) US-69 OVER 167TH STREET			
PROJ. NO. 69-46 KA-5700-03		JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT
DESIGN CK.	CRG	DETAIL CK.	CRG

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-31	39



Bridge	Approach	A or J		B or K		C or L		D or M		E or G		F or H	
		Sta.	Offset	Sta.	Offset	Sta.	Offset	Sta.	Offset	Sta.	Offset	Sta.	Offset
453	South	738+71.42	67.25' Lt.	738+71.42	66.00' Lt	738+64.74	24.00' Lt.	738+64.74	22.75' Lt.	738+84.79	67.25' Lt.	738+77.70	22.75' Lt.
	North	740+25.79	67.25' Lt.	740+25.79	66.00' Lt.	740+19.10	24.00' Lt.	740+19.10	22.75' Lt.	740+12.84	67.25' Lt.	740+05.75	22.75' Lt.
454	South	738+57.09	22.75' Rt.	738+57.09	24.00' Rt.	738+50.40	66.00' Rt.	738+50.40	67.25' Rt.	738+70.45	22.75' Rt.	738+63.36	67.25' Rt.
	North	740+11.45	22.75' Rt.	740+11.45	24.00' Rt.	740+04.76	66.00' Rt.	740+04.76	67.25' Rt.	739+98.50	22.75' Rt.	739+91.42	67.25' Rt.



EXPANSION JOINT WIDTH DETAILS (W ₂)							
Temp. (°F)	40°	50°	60°	70°	80°	90°	100°
Formed Concrete Opening Size	2 1/4"	2 1/4"	2 1/8"	2"	2"	1 7/8"	1 7/8"

Note: Temperature shall be based upon the average Ambient Temperature over previous 24 hours prior to construction.

BENDING DIAGRAMS

BILL OF MATERIALS

Bar Schedule

Bar	a	b	b ₁	b ₂	c	c ₁	c ₂	e	e ₁	f
No.	50	28	14	14	20	10	10	6	12	90
Size	#5	#5	#5	#5	#5	#5	#5	#6	#4	#6
Length	12'-9"	12'-11"	14'-2"	8'-2"	11'-9"	13'-1"	7'-0"	3'-0"	3'-0"	13'-6"
Reinforcing Steel (Grade 60) (Epoxy Coated)									3,627 lbs.	
Expansion Jt. Membrane Sealant (W2)									45.0 Lin. Ft.	

Reinforcing Steel and Quantities shown in the Bill of Materials is per approach slab, 4 total approach slabs

Note: Reinforcing steel and joint lengths shown for information only.

NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION
BR.NO.69-46-139.75 (453) STA. 739+38.09
BR.NO.69-46-139.76 (454) STA. 739+38.10

APPROACH SLAB DETAILS

US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03				JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT		
DESIGN CK.	CRG	DETAIL CK.	CRG		

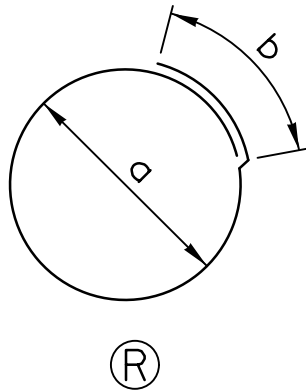
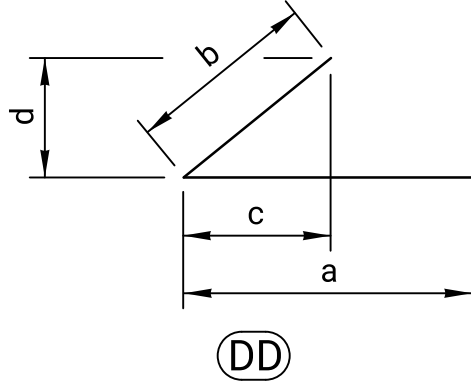
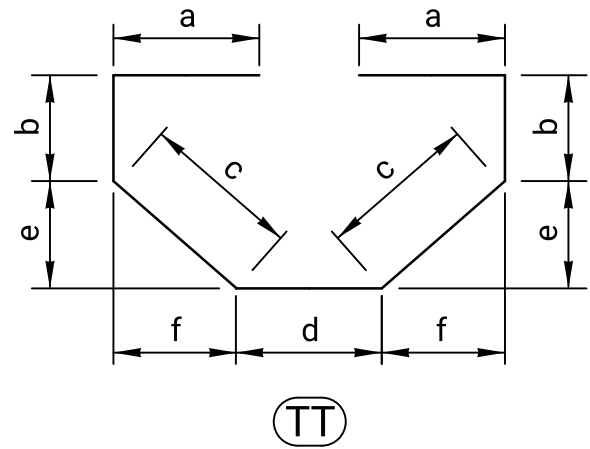
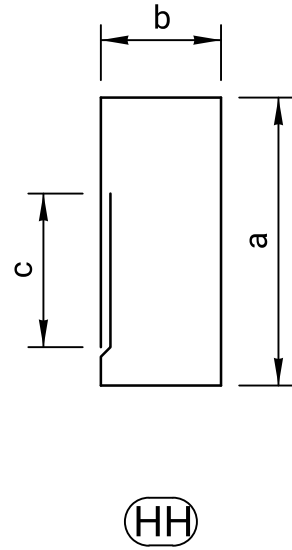
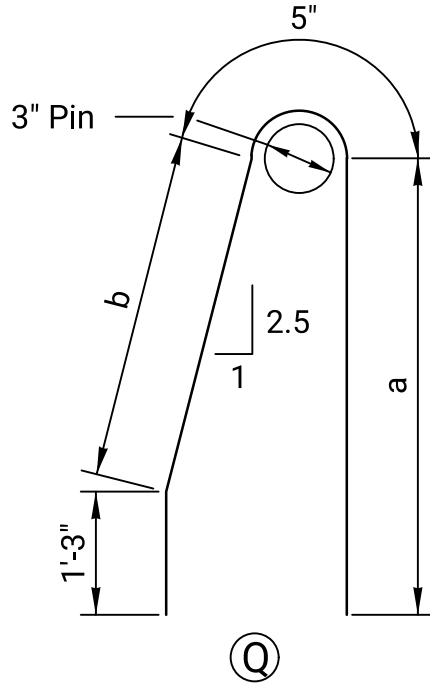
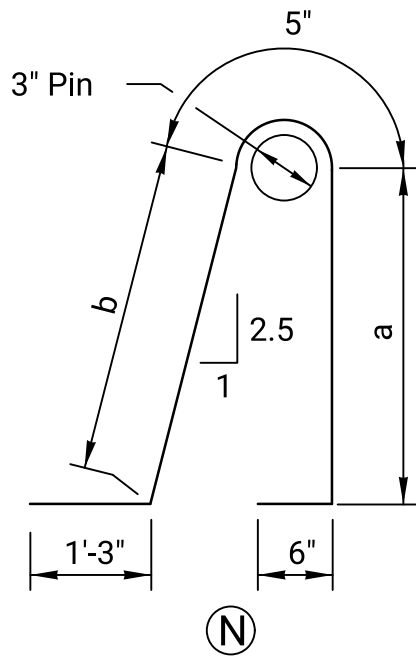
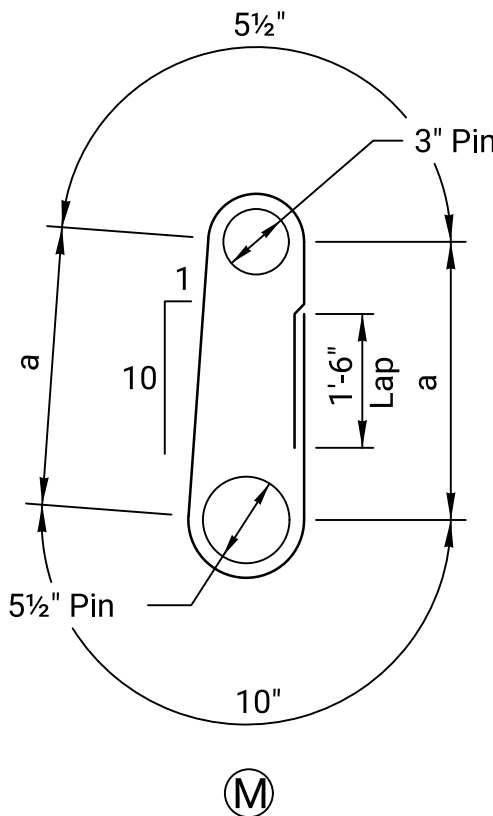
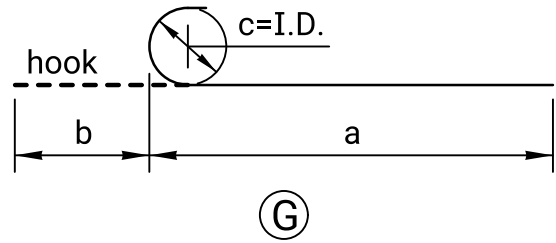
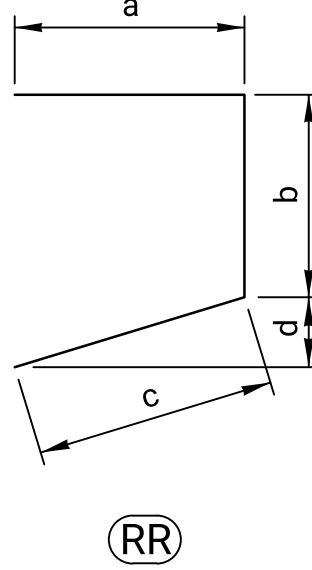
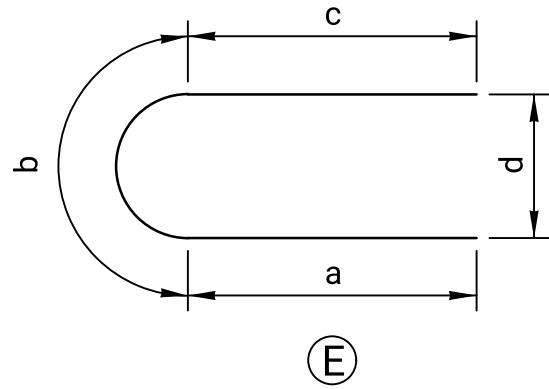
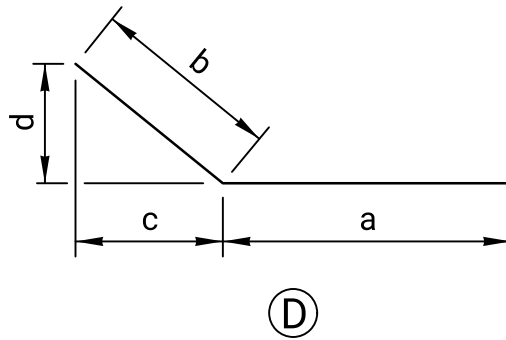
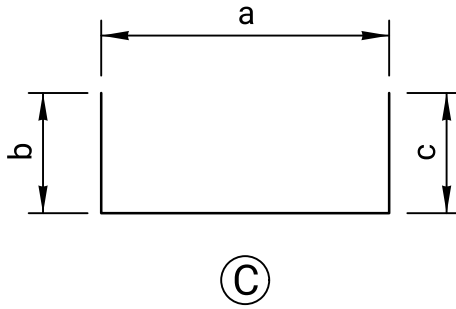
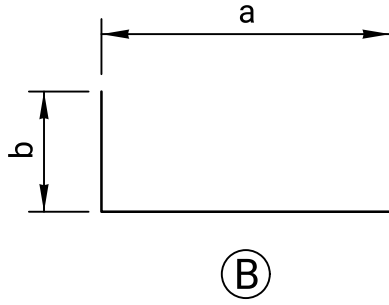
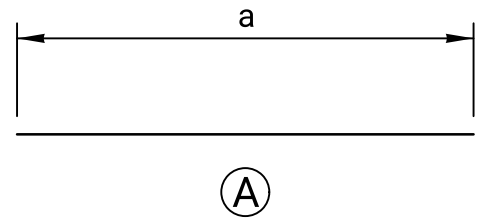


Notes

Spacing of longitudinal reinforcing bars is normal to centerline.
Spacing of transverse reinforcing bars is parallel to centerline.
At the Design-Builder's option, #4x3'-0" tie bars @ 15" centers may be substituted for the #6e bars at 2'-6" centers.
All reinforcing shall be epoxy coated.
Clearance from the face of concrete for all reinforcing steel shall be 2 inches.
Standard reinforcing bar hooks in accordance with the latest ACI specifications shall be used throughout.
The pressure relief joint shall be omitted when the concrete bridge approach pavement abuts asphalt pavement.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-32	39

BILL OF REINFORCING											
Location	Design Mark	Bending Mark	Size	Number	Length	Dimensions					
						a	b	c	d	e	f
Substructure (Epoxy Coated)	Abutment No. 1	A1	A	4	4	23'-3"	23'-3"			e	f
		A2	RR	4	46	4'-9"	1'-8"	9"	2'-4"	1'-8"	
		A3	G	5	46	4'-3"	3'-8"	7"	3¾"		
		A5	C	5	38	15'-10"	2'-8"	6'-7"	6'-7"		
		A6	C	5	38	9'-10"	2'-8"	3'-7"	3'-7"		
		A7	C	5	20	12'-4"	2'-8"	6'-7"	3'-1"		
		A8	B	5	10	6'-3"	2'-8"	3'-7"			
		A9	B	5	10	4'-9"	1'-0"	3'-9"			
		A10	C	5	30	7'-6"	8"	3'-5"	3'-5"		
	Abutment No. 2	A12	A	6	10	25'-4"	25'-4"				
		A13	A	6	18	10'-11"	10'-11"				
		A17	A	6	20	11'-5"	11'-5"				
		A18	D	6	5	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		A19	DD	6	5	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		A22	D	8	4	25'-11"	20'-6"	5'-5"	2"	5'-5"	
		A23	A	8	4	26'-3"	26'-3"				
		B1	A	4	4	23'-3"	23'-3"				
		B2	RR	4	46	4'-9"	1'-8"	9"	2'-4"	1'-8"	
		B3	G	5	46	4'-3"	3'-8"	7"	3¾"		
		B5	C	5	38	15'-10"	2'-8"	6'-7"	6'-7"		
		B6	C	5	38	9'-10"	2'-8"	3'-7"	3'-7"		
		B7	C	5	20	12'-4"	2'-8"	6'-7"	3'-1"		
		B8	B	5	10	6'-3"	2'-8"	3'-7"			
		B9	B	5	10	4'-9"	1'-0"	3'-9"			
		B10	C	5	30	7'-6"	8"	3'-5"	3'-5"		
		B12	A	6	10	25'-4"	25'-4"				
		B13	A	6	18	10'-11"	10'-11"				
		B17	A	6	20	11'-5"	11'-5"				
		B18	D	6	5	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		B19	DD	6	5	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		B22	D	8	4	25'-11"	20'-6"	5'-5"	2"	5'-5"	
		B23	A	8	4	26'-3"	26'-3"				



BENDING DIAGRAMS

Notes:
Ⓐ denotes bending mark. Dimensions are out to out, unless noted otherwise.
No allowance for bend curvature is to be made except for standard hook and radii in excess of same.
All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60.



NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION

BR.NO. 69-46-139.75 (453) STA. 739+38.09

BR.NO. 69-46-139.76 (454) STA. 739+38.10

BRIDGE 453 BILL OF REINFORCING

(1 OF 2)

SB US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03 JOHNSON CO.

DESIGNED	JAT	DETAILED	JAT		
DESIGN CK.	CRG	DETAIL CK.	CRG		

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-33	39

BILL OF REINFORCING												
Location		Design Mark	Bending Mark	Size	Number	Length	Dimensions					
							a	b	c	d	e	f
Substructure (Epoxy Coated)	Pier No. 1	P1	A	5	6	43'-4"	43'-4"					
		P2	C	5	20	8'-7"	3'-3"	2'-8"	2'-8"			
		P3	C	5	10	8'-11"	3'-7"	2'-8"	2'-8"			
		P4	C	5	152	8'-2"	2'-0"	3'-1"	3'-1"			
		P5	A	8	8	19'-11"	19'-11"					
		P6	A	8	8	28'-9"	28'-9"					
		P7	A	9	8	43'-4"	43'-4"					
		C1	C	5	72	9'-0"	5'-0"	2'-0"	2'-0"			
		C2	TT	5	120	8'-3"	2'-2 3/4"	6"	6"	1'-9½"	4¼"	4¼"
		C3	C	6	168	9'-0"	5'-0"	2'-0"	2'-0"			
		C4	G	9	72	18'-10"	17'-7"	1'-3"	9½"			
W1	A	5	6	46'-4"	46'-4"							
W2	C	6	92	14'-0"	3'-8"	5'-2"	5'-2"					
W3	A	8	18	46'-4"	46'-4"							
Substructure (Non-Epoxy Coated)	Abutment No. 1	A4	C	5	58	7'-8"	2'-8"	2'-6"	2'-6"			
		A11	A	6	8	25'-4"	25'-4"					
		A14	A	6	8	6'-5"	6'-5"					
		A15	D	6	4	8'-0"	4'-0"	4'-0"	7½"	3'-11½"		
		A16	DD	6	4	8'-0"	4'-0"	4'-0"	7½"	3'-11½"		
		A20	A	8	16	6'-5"	6'-5"					
	A21	A	8	16	26'-2"	26'-2"						
	Abutment No. 2	B4	C	5	58	7'-8"	2'-8"	2'-6"	2'-6"			
		B11	A	6	8	25'-4"	25'-4"					
		B14	A	6	8	6'-5"	6'-5"					
		B15	D	6	4	8'-0"	4'-0"	4'-0"	7½"	3'-11½"		
		B16	DD	6	4	8'-0"	4'-0"	4'-0"	7½"	3'-11½"		
		B20	A	8	16	6'-5"	6'-5"					
	B21	A	8	16	26'-2"	26'-2"						
Pier No. 1	D1	R	6	198	16'-3"	4'-2"	3'-1"					
	D2	G	11	48	33'-9"	32'-2"	1'-7"	1'-0"				
D3	G	11	42	27'-2"	25'-7"	1'-7"	1'-0"					

BILL OF REINFORCING												
Location		Design Mark	Bending Mark	Size	Number	Length	Dimensions					
							a	b	c	d	e	f
Superstructure (Epoxy Coated)	Slab	S1	A	5	282	44'-3"	44'-3"					
		S2	A	5	488	23'-5"	23'-5"					
		S3	A	5	244	19'-6"	19'-6"					
		S4	A	5	244	27'-4"	27'-4"					
		S5	G	5	488	6'-4"	5'-9"	7"	3¼"			
		S6	A	6	44	40'-0"	40'-0"					
		S7	A	6	44	28'-7"	28'-7"					
		S8	B	6	184	15'-0"	13'-0"	2'-0"				
	S9	B	6	184	18'-0"	16'-0"	2'-0"					
	Barrier Rail	R1	A	4	36	43'-8"	43'-8"					
		R2	A	4	24	12'-9"	12'-9"					
		R3	E	5	8	7'-6"	3'-4"	10¼"	3'-4"	6½"		
		R4	N	5	316	6'-2"	1'-11"	2'-1"				
		R5	Q	5	24	5'-10"	2'-8"	1'-6"				
		R6	M	5	322	6'-6"	1'-10¼"					
		R7	HH	5	18	7'-6"	2'-4"	8"	1'-6"			
		R8	B	5	2	3'-7½"	1'-4"	2'-3½"				
R9		A	6	6	44'-3"	44'-3"						
R10	A	6	4	12'-9"	12'-9"							

For Bending Diagrams, see Sheet BR2829-32.

[illegible]

PROJ. NO. 69-46 KA-5700-03				JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT		
DESIGN CK.	CRG	DETAIL CK.	CRG		

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-34	39

BILL OF REINFORCING											
Location	Design Mark	Bending Mark	Size	Number	Length	Dimensions					
						a	b	c	d	e	f
Substructure (Epoxy Coated)	Abutment No. 1	A1	A	4	4	23'-3"	23'-3"				
		A2	RR	4	46	4'-9"	1'-8"	9"	2'-4"	1'-8"	
		A3	G	5	46	4'-3"	3'-8"	7"	3¾"		
		A5	C	5	38	15'-10"	2'-8"	6'-7"	6'-7"		
		A6	C	5	38	9'-10"	2'-8"	3'-7"	3'-7"		
		A7	C	5	20	12'-4"	2'-8"	6'-7"	3'-1"		
		A8	B	5	10	6'-3"	2'-8"	3'-7"			
		A9	B	5	10	4'-9"	1'-0"	3'-9"			
		A10	C	5	30	7'-6"	8"	3'-5"	3'-5"		
		A12	A	6	10	25'-4"	25'-4"				
		A13	A	6	18	10'-11"	10'-11"				
		A17	A	6	20	11'-5"	11'-5"				
		A18	D	6	5	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		A19	DD	6	5	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		A22	D	8	4	25'-11"	20'-6"	5'-5"	2"	5'-5"	
		A23	A	8	4	26'-3"	26'-3"				
	Abutment No. 2	B1	A	4	4	23'-3"	23'-3"				
		B2	RR	4	46	4'-9"	1'-8"	9"	2'-4"	1'-8"	
		B3	G	5	46	4'-3"	3'-8"	7"	3¾"		
		B5	C	5	38	15'-10"	2'-8"	6'-7"	6'-7"		
		B6	C	5	38	9'-10"	2'-8"	3'-7"	3'-7"		
		B7	C	5	20	12'-4"	2'-8"	6'-7"	3'-1"		
		B8	B	5	10	6'-3"	2'-8"	3'-7"			
		B9	B	5	10	4'-9"	1'-0"	3'-9"			
		B10	C	5	30	7'-6"	8"	3'-5"	3'-5"		
		B12	A	6	10	25'-4"	25'-4"				
		B13	A	6	18	10'-11"	10'-11"				
		B17	A	6	20	11'-5"	11'-5"				
		B18	D	6	5	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		B19	DD	6	5	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		B22	D	8	4	25'-11"	20'-6"	5'-5"	2"	5'-5"	
		B23	A	8	4	26'-3"	26'-3"				

Notes:

No allowance for bend curvature is to be made except for standard hook and radii in excess of same.

All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60.

For Bending Diagrams, see Sheet BR2829-32.



NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION
BR.NO.69-46-139.75 (453)
BR.NO.69-46-139.76 (454)

STA. 739+38.09
STA. 739+38.10

BRIDGE 454 BILL OF REINFORCING
(1 OF 2)
NB US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03 JOHNSON CO.

DESIGNED	JAT	DETAILED	JAT	
DESIGN CK.	CRG	DETAIL CK.	CRG	

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-35	39

BILL OF REINFORCING											
Location	Design Mark	Bending Mark	Size	Number	Length	Dimensions					
						a	b	c	d	e	f
Substructure (Epoxy Coated)	Pier No. 1	P1	A	5	6	43'-4"	43'-4"				
		P2	C	5	20	8'-7"	3'-3"	2'-8"	2'-8"		
		P3	C	5	10	8'-10"	3'-6"	2'-8"	2'-8"		
		P4	C	5	152	8'-2"	2'-0"	3'-1"	3'-1"		
		P5	A	8	8	19'-11"	19'-11"				
		P6	A	8	8	28'-9"	28'-9"				
		P7	A	9	8	43'-4"	43'-4"				
		C1	C	5	72	9'-0"	5'-0"	2'-0"	2'-0"		
		C2	TT	5	120	8'-3"	2'-2¾"	6"	6"	1'-9½"	4¼"
		C3	C	6	168	9'-0"	5'-0"	2'-0"	2'-0"		
		C4	G	9	72	18'-10"	17'-7"	1'-3"	9½"		
		W1	A	5	6	46'-4"	46'-4"				
		W2	C	6	92	14'-0"	3'-8"	5'-2"	5'-2"		
		W3	A	8	18	46'-4"	46'-4"				
Substructure (Non-Epoxy Coated)	Abutment No. 1	A4	C	5	58	7'-8"	2'-8"	2'-6"	2'-6"		
		A11	A	6	8	25'-4"	25'-4"				
		A14	A	6	8	6'-5"	6'-5"				
		A15	DD	6	4	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		A16	D	6	4	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		A20	A	8	16	6'-5"	6'-5"				
		A21	A	8	16	26'-2"	26'-2"				
	Abutment No. 2	B4	C	5	58	7'-8"	2'-8"	2'-6"	2'-6"		
		B11	A	6	8	25'-4"	25'-4"				
		B14	A	6	8	6'-5"	6'-5"				
		B15	DD	6	4	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		B16	D	6	4	8'-0"	4'-0"	4'-0"	7½"	3'-11½"	
		B20	A	8	16	6'-5"	6'-5"				
		B21	A	8	16	26'-2"	26'-2"				
	Pier No. 1	D1	R	6	207	16'-3"	4'-2"	3'-1"			
		D2	G	11	48	34'-9"	33'-2"	1'-7"	1'-0"		
		D3	G	11	42	28'-2"	26'-7"	1'-7"	1'-0"		

BILL OF REINFORCING											
Location	Design Mark	Bending Mark	Size	Number	Length	Dimensions					
						a	b	c	d	e	f
Superstructure (Epoxy Coated)	Slab	S1	A	5	282	44'-3"	44'-3"				
		S2	A	5	488	23'-5"	23'-5"				
		S3	A	5	244	19'-6"	19'-6"				
		S4	A	5	244	27'-4"	27'-4"				
		S5	G	5	488	6'-4"	5'-9"	7"	3¼"		
		S6	A	6	44	40'-0"	40'-0"				
		S7	A	6	44	28'-7"	28'-7"				
		S8	B	6	184	15'-0"	13'-0"	2'-0"			
		S9	B	6	184	18'-0"	16'-0"	2'-0"			
	Barrier Rail	R1	A	4	36	43'-8"	43'-8"				
		R2	A	4	24	12'-9"	12'-9"				
		R3	E	5	8	7'-6"	3'-4"	10¼"	3'-4"	6½"	
		R4	N	5	316	6'-2"	1'-11"	2'-1"			
		R5	Q	5	24	5'-10"	2'-8"	1'-6"			
		R6	M	5	322	6'-6"	1'-10¼"				
		R7	HH	5	18	7'-6"	2'-4"	8"	1'-6"		
		R8	B	5	2	3'-7½"	1'-4"	2'-3½"			
		R9	A	6	6	44'-3"	44'-3"				
		R10	A	6	4	12'-9"	12'-9"				

Notes:

No allowance for bend curvature is to be made except for standard hook and radii in excess of same.

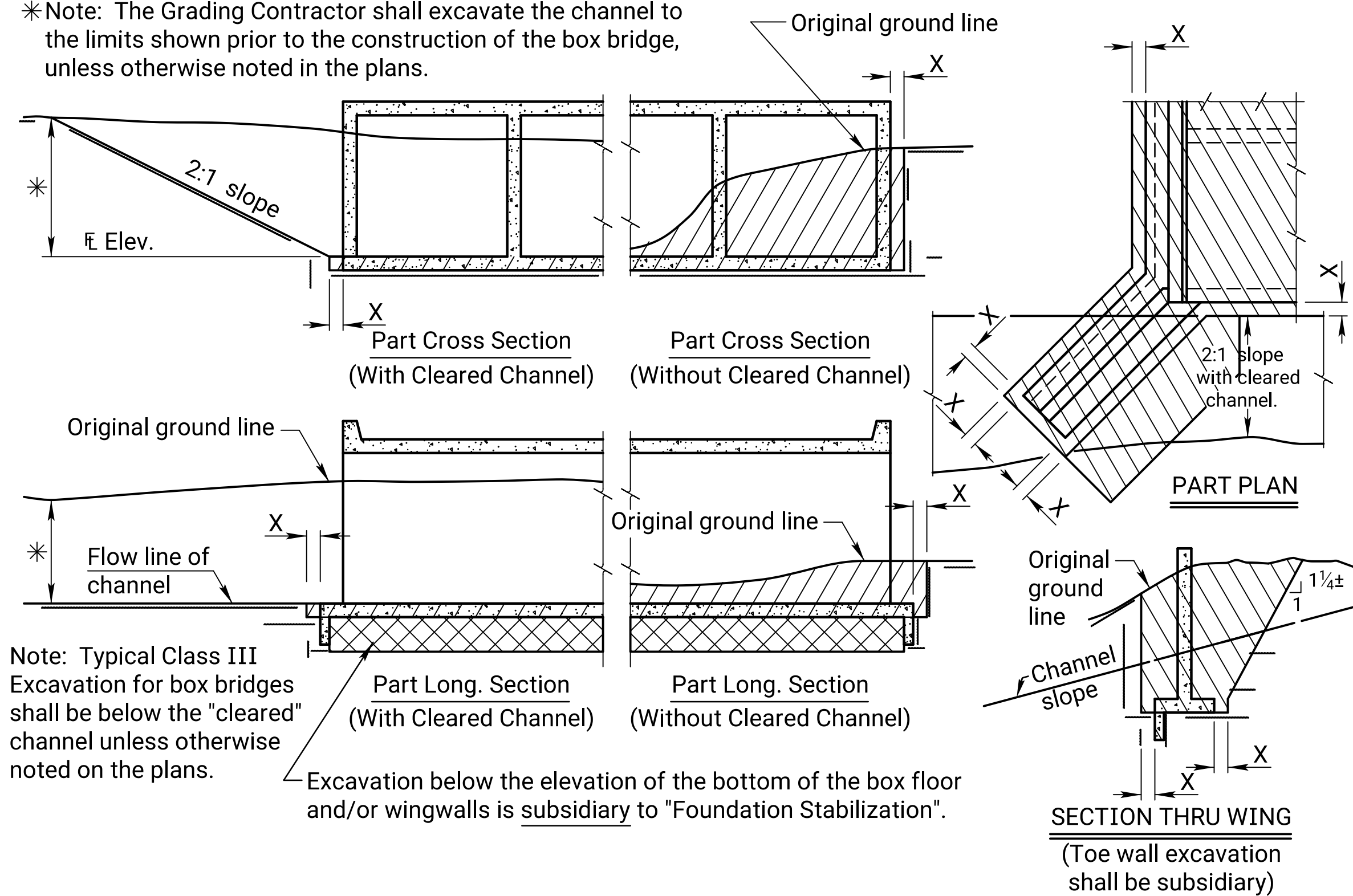
All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60.

For Bending Diagrams, see Sheet BR2829-32.

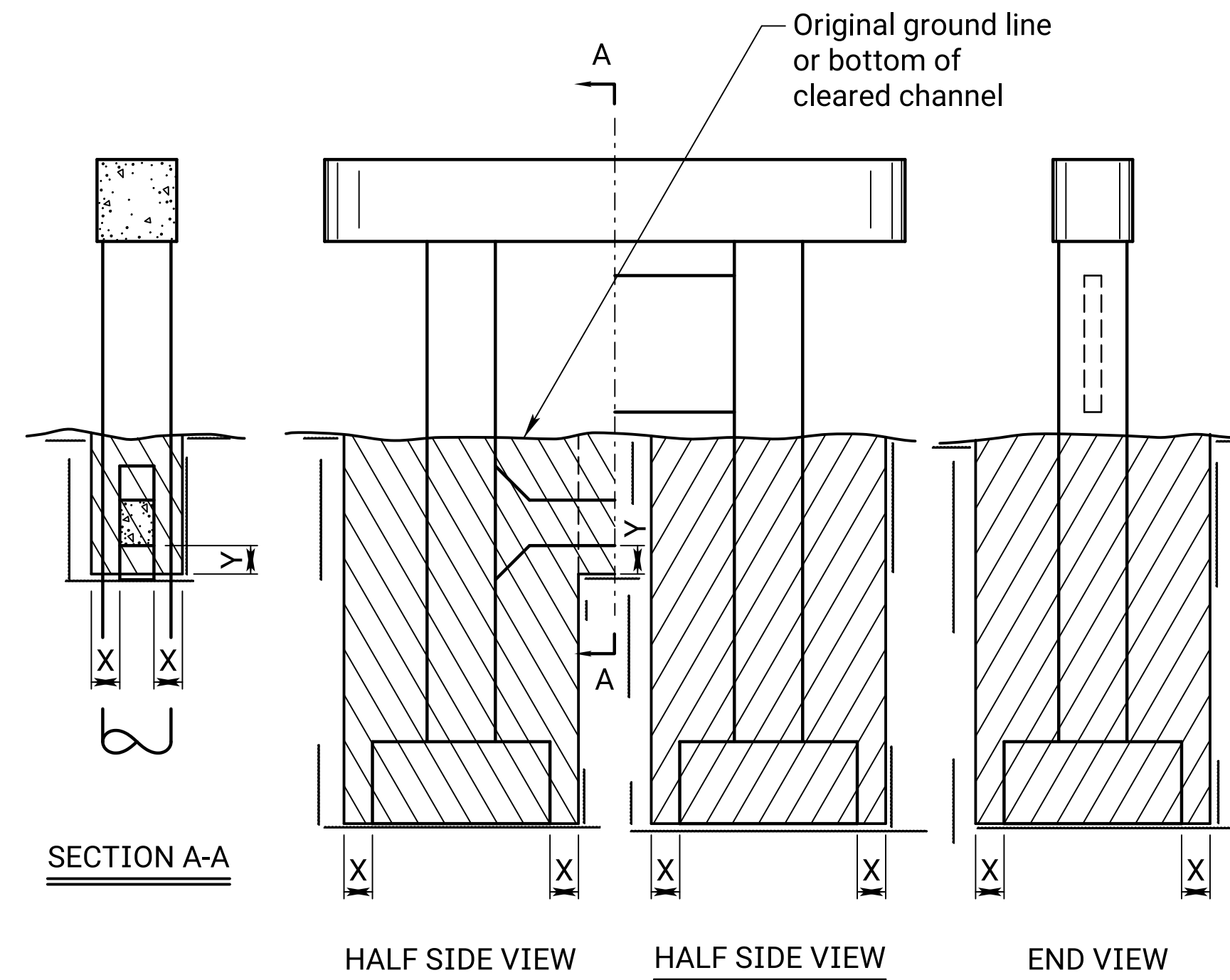
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						BR.NO.69-46-139.75 (453)			STA. 739+38.09					
						BR.NO.69-46-139.76 (454)			STA. 739+38.10					
									BRIDGE 454 BILL OF REINFORCING					
									(2 OF 2)					
									NB US-69 OVER 167TH STREET					
									PROJ. NO. 69-46 KA-5700-03					
									JOHNSON CO.					
NO.			DATE			REVISIONS								
0			2023-12-08			RFC SUBMITTAL								

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-36	39

*Note: The Grading Contractor shall excavate the channel to the limits shown prior to the construction of the box bridge, unless otherwise noted in the plans.

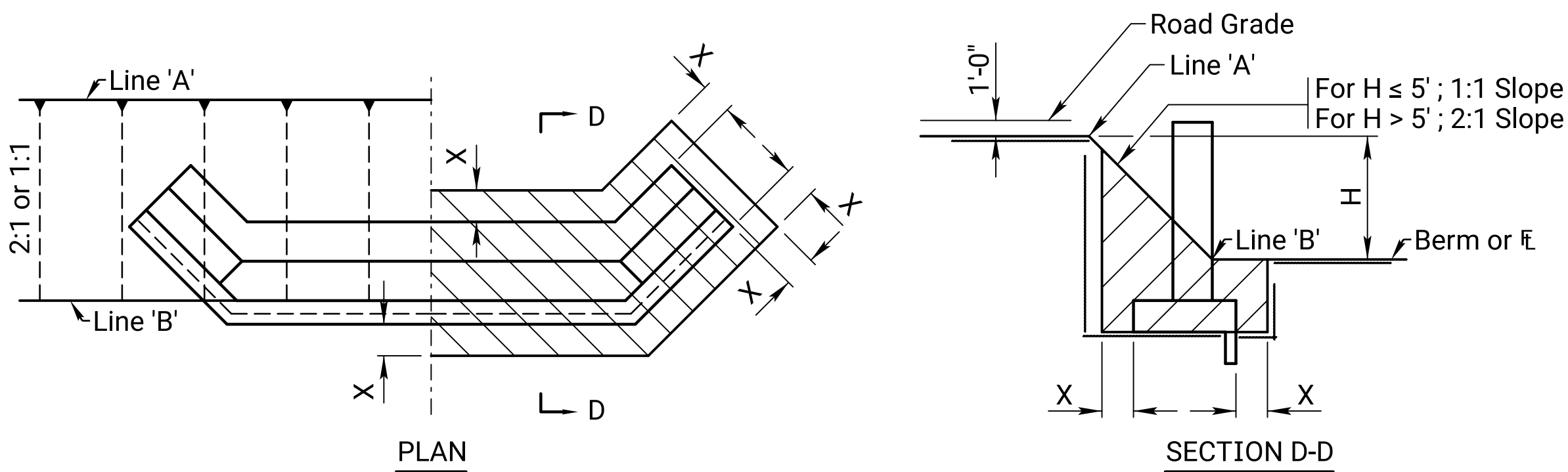


EXCAVATION DETAILS FOR REINFORCED CONCRETE BOX CULVERT

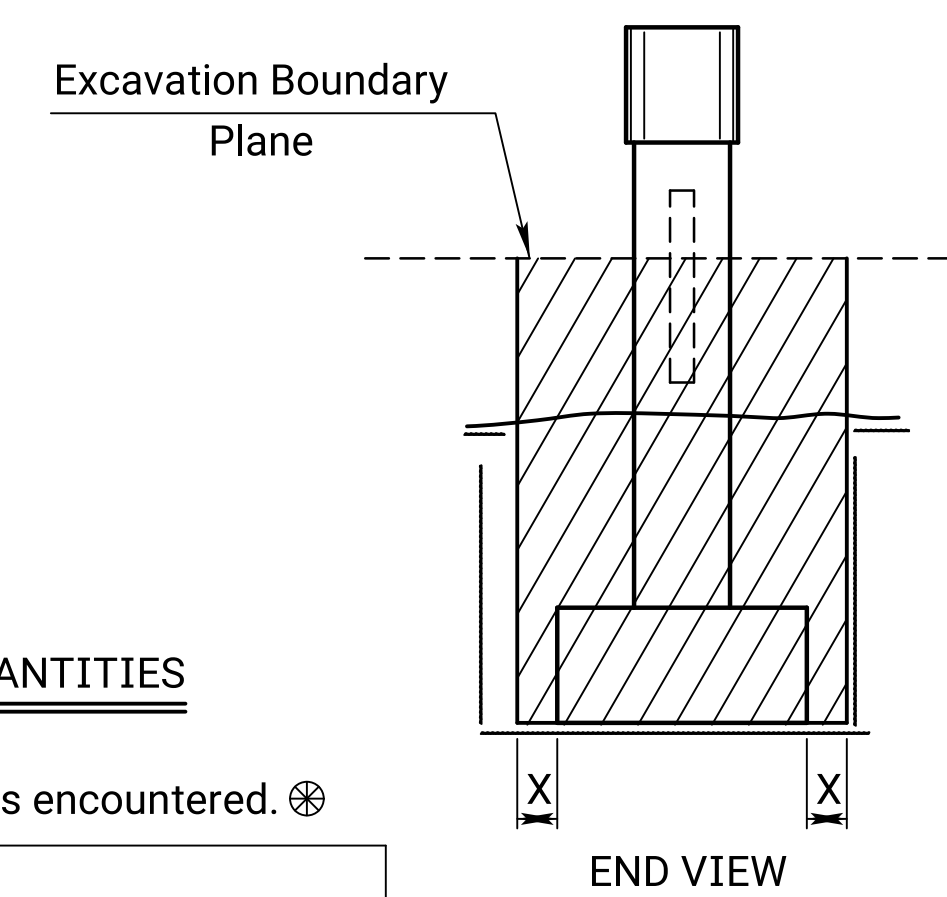


EXCAVATION DETAILS FOR TYPICAL PIERS

See detail when rock or shale (rock) is encountered. ☼

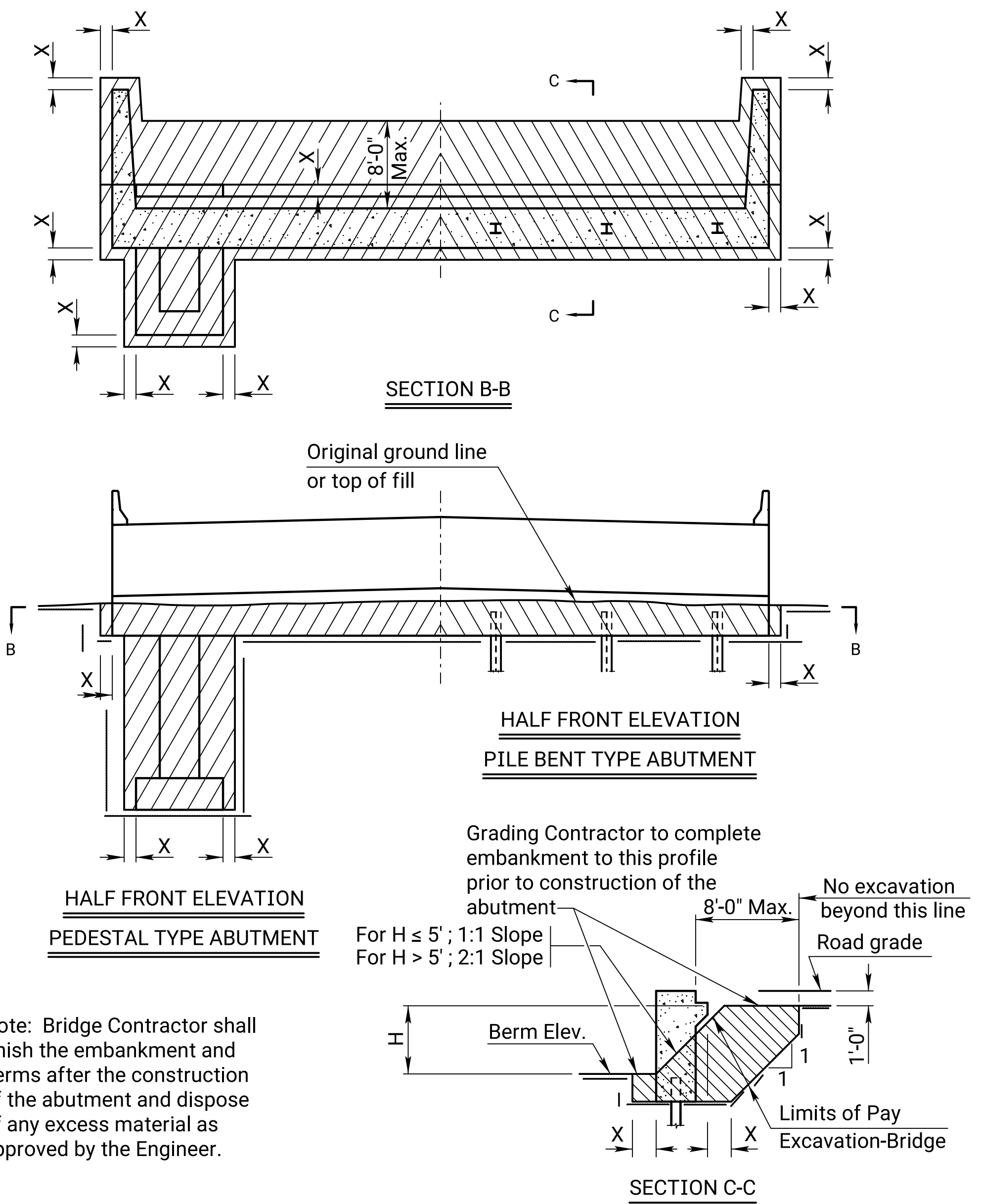


EXCAVATION DETAILS FOR ABUTMENTS WITH FLARED WINGWALLS



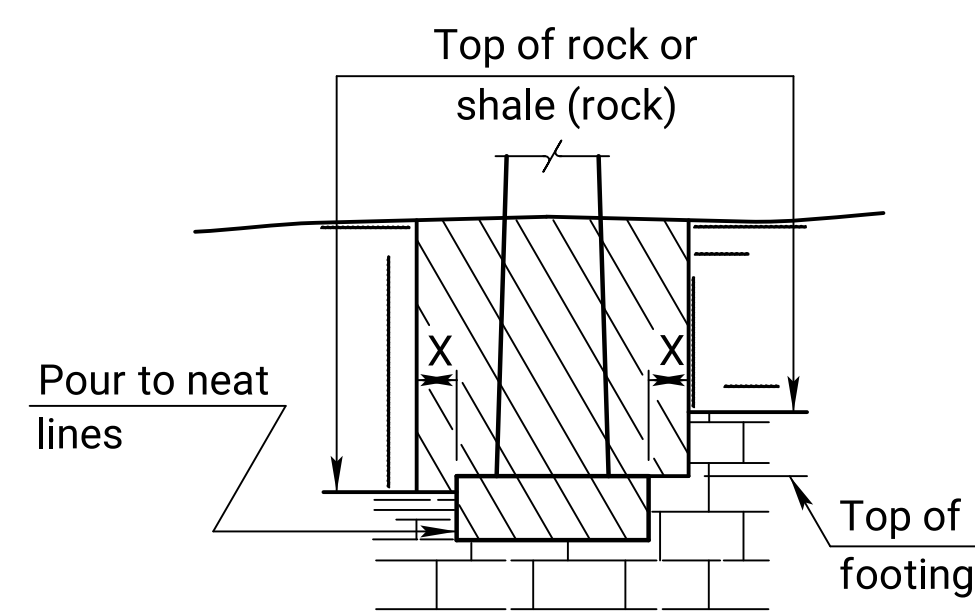
CLASS II EXCAVATION QUANTITIES

See detail when rock or shale (rock) is encountered. ☼



EXCAVATION DETAILS FOR TYPICAL ABUTMENTS

See detail when rock or shale (rock) is encountered. ☉

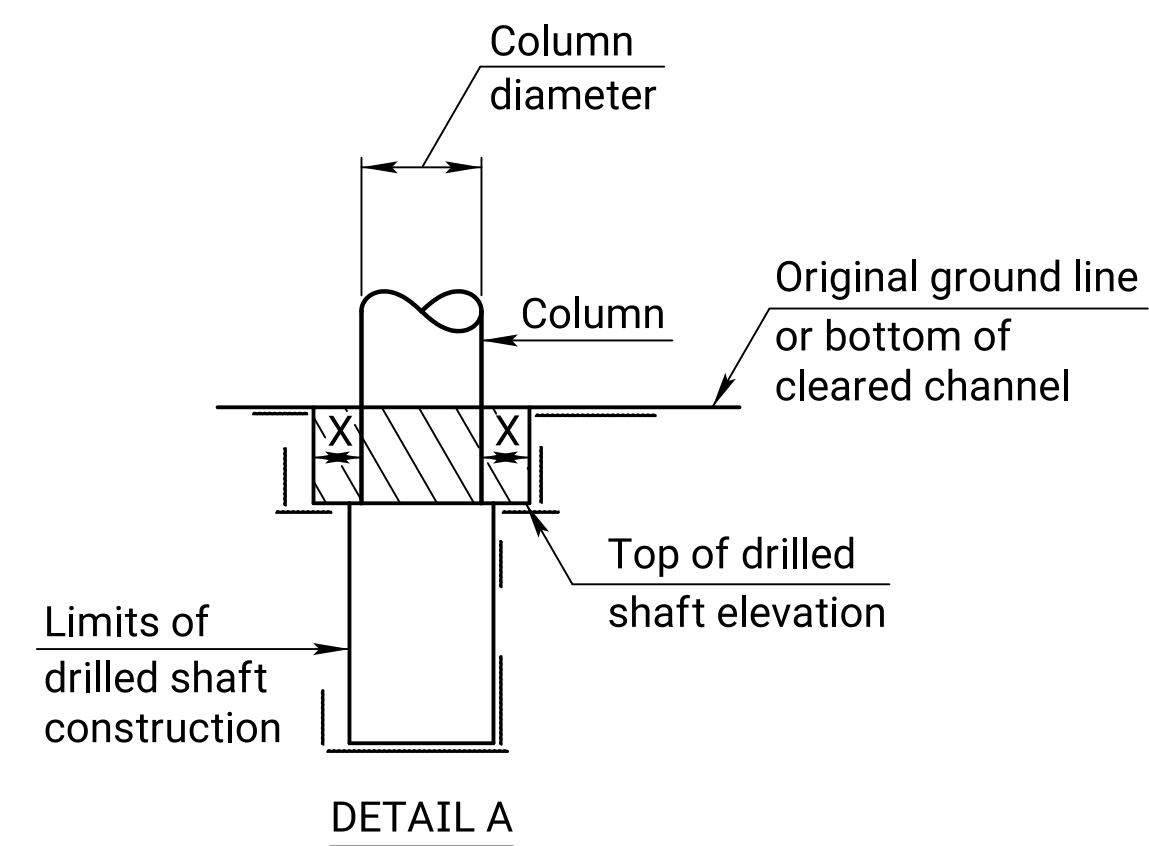


⊗ EXCAVATION DETAIL FOR FOOTINGS IN ROCK

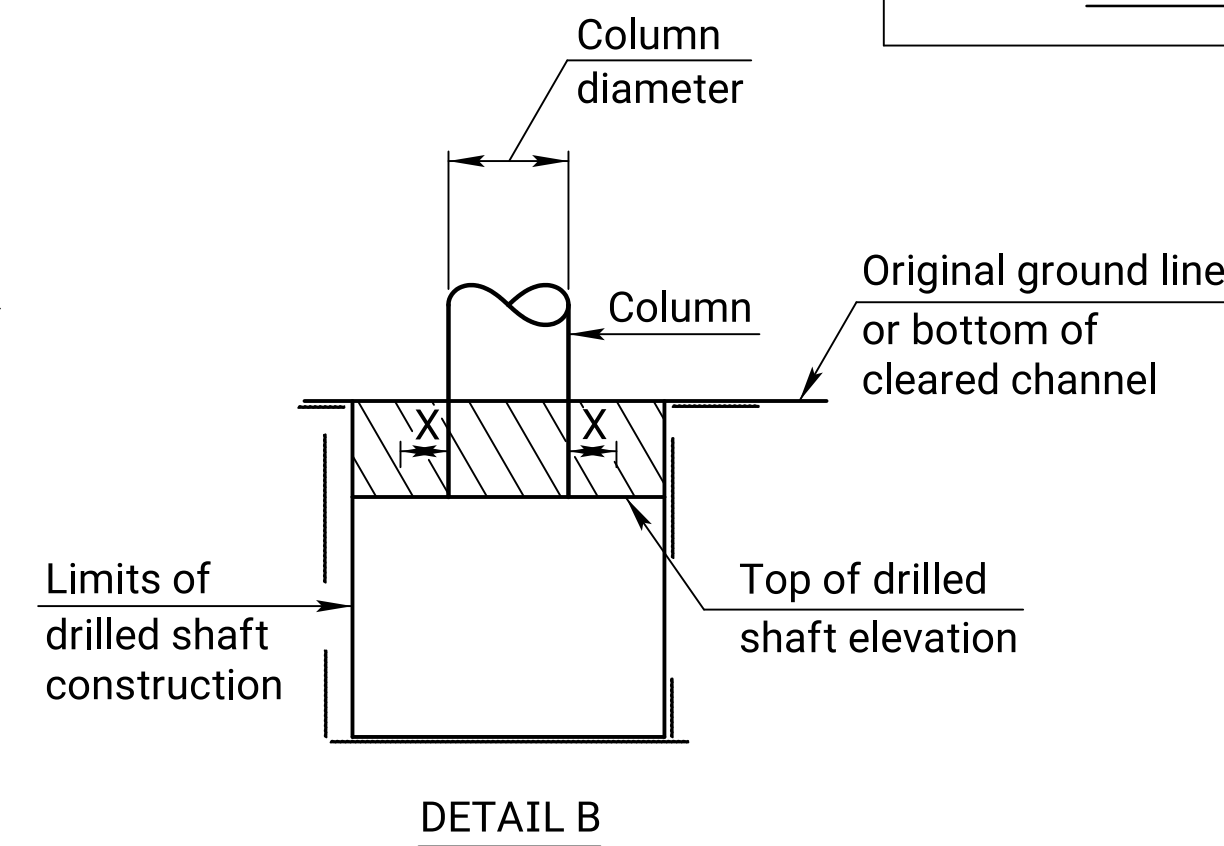
OR SHALE (ROCK)
(Piers and Abutments)



Note: Excavation below top of rock, hard shale or below top of footing, whichever is lower, shall be to neat lines of the concrete construction.



DETAIL A



DETAIL B

DRILLED SHAFT DETAILS

Note: Whenever the limits of the drilled shaft construction are greater than the Column Diameter + 2X, the limits of Class I, II or III Excavation shall be the limits of the drilled shaft construction. (See Detail B)

Note: Sides of trenches in hard or compacted soil including embankments shall be shored, sheeted, braced or otherwise supported when the trench is more than 5 feet in depth and 8 feet or more in length. In lieu of the shoring, the sides of the trench above the 5 foot level may be sloped to preclude collapse. The slope for average soils shall be 1:1. If the angle of repose of the soil is less, flatter slopes shall be required.

Dimension "X" shall be 2'-0" unless indicated otherwise on the general plans.

Dimension "Y" shall be 1'-6" unless indicated otherwise on the general plans.

NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

KANSAS DEPARTMENT OF TRANSPORTATION	
BR.NO.69-46-139.75 (453)	STA. 739+38.09
BR.NO.69-46-139.76 (454)	STA. 739+38.10

BRIDGE EXCAVATION
(LRFD)
US-69 OVER 167TH STREET

PROJ. NO. 69-46 KA-5700-03				JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT		
DESIGN CK	CRG	DETAIL CK	CRG		

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	69-46 KA-5700-03	2023	BR2829-38	39

GENERAL NOTES

Reference is made to the latest edition of the CRSI "Manual of Standard Practice" for recommended industry practices concerning reinforcing steel.

Use only the following types of bar supports:

- 1) Wire Bar Supports:
 - a) Epoxy coated reinforcing: Class 1 Protection
 - b) Non-epoxy coated reinforcing: Class 1, 2, or 3 Protection
- 2) Plastic Bar Supports
- 3) Supplementary bars

When securing epoxy coated reinforcement, use tie wires or metal clips that are epoxy or plastic coated.

Do not weld reinforcing steel to bar supports or to other reinforcing steel. Shop weld spacer frames for haunched slabs.

Tie bars at all intersections around the perimeter of each mat and at not less than 2'-0" centers or at every intersection, whichever is greater.

Where more than one length of bar support is required, lap the end legs so they are locked or tied together.

Use proper height supports to maintain the distance between the reinforcing and the formed surface or the top surface of deck slabs within 1/4" of that indicated on the plans.

Spacings shown are maximums. Use sufficient supports, as determined by the Engineer, to retain the reinforcing steel in position.

Construct any platforms, required for the support of workers and/or equipment during concrete placement, directly on the forms and not on the reinforcing steel.

Designs and arrangements of Supports or Spacers other than as shown on this sheet, may be used with the permission of the Department.

Required Shaft Supports		
Diameter (in.)	Circumference (in.)	No. of Spacers
18	56	3
24	75	3
30	94	4
36	113	4
42	131	5
48	150	6
54	169	6
60	188	7
66	207	7
72	226	8
78	244	9
84	263	9
90	282	10
96	301	11
102	320	11
108	339	12

* Note: Longitudinal reinforcing steel is placed on the bottom of the rock socket. Maintain 3" clearance from the bottom of rock socket to the first spiral or tie bar.

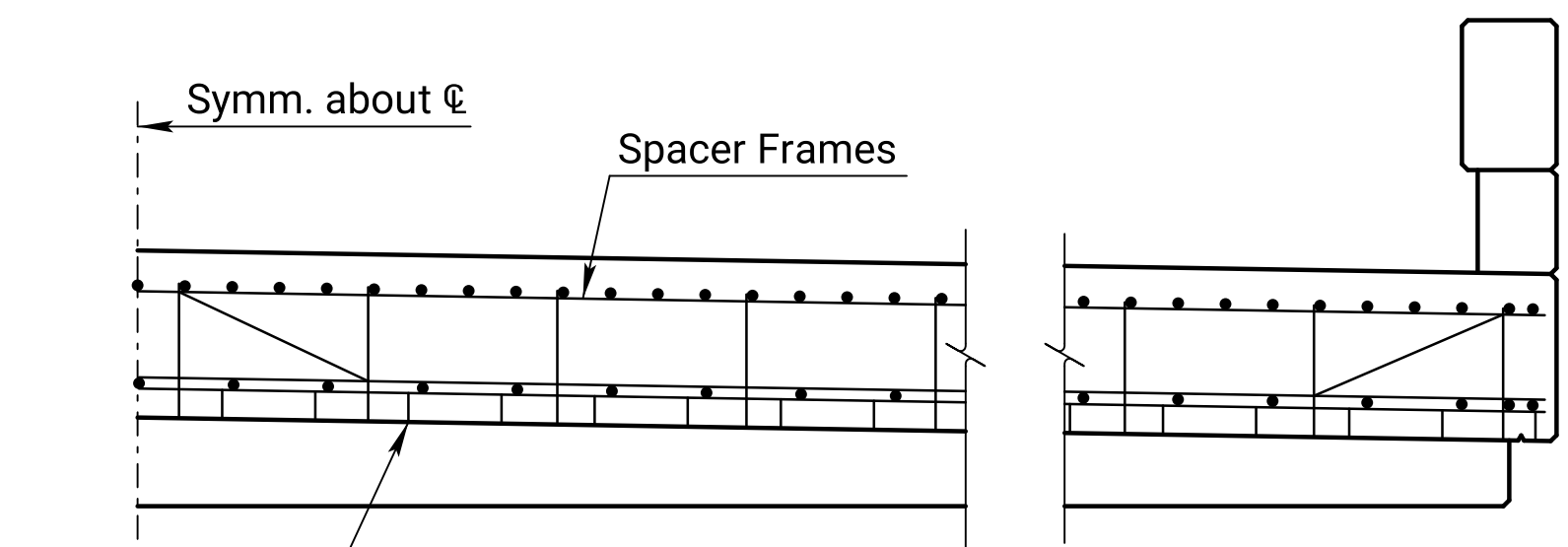
DETAIL A

NO.	DATE	REVISIONS
0	2023-12-08	RFC SUBMITTAL

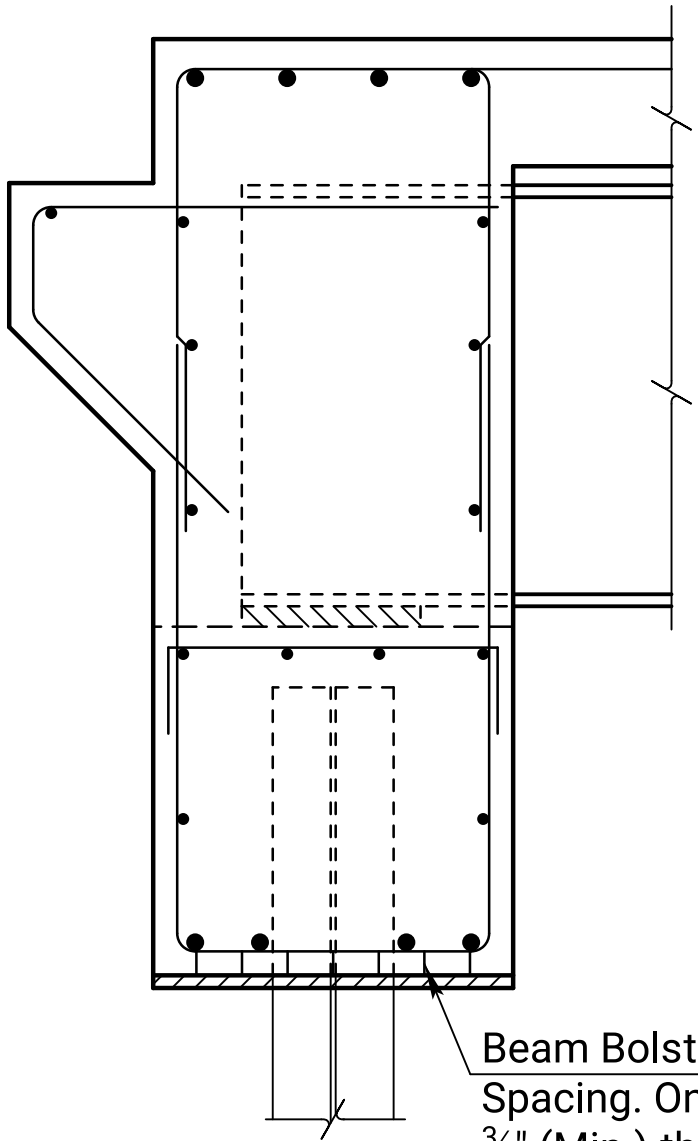
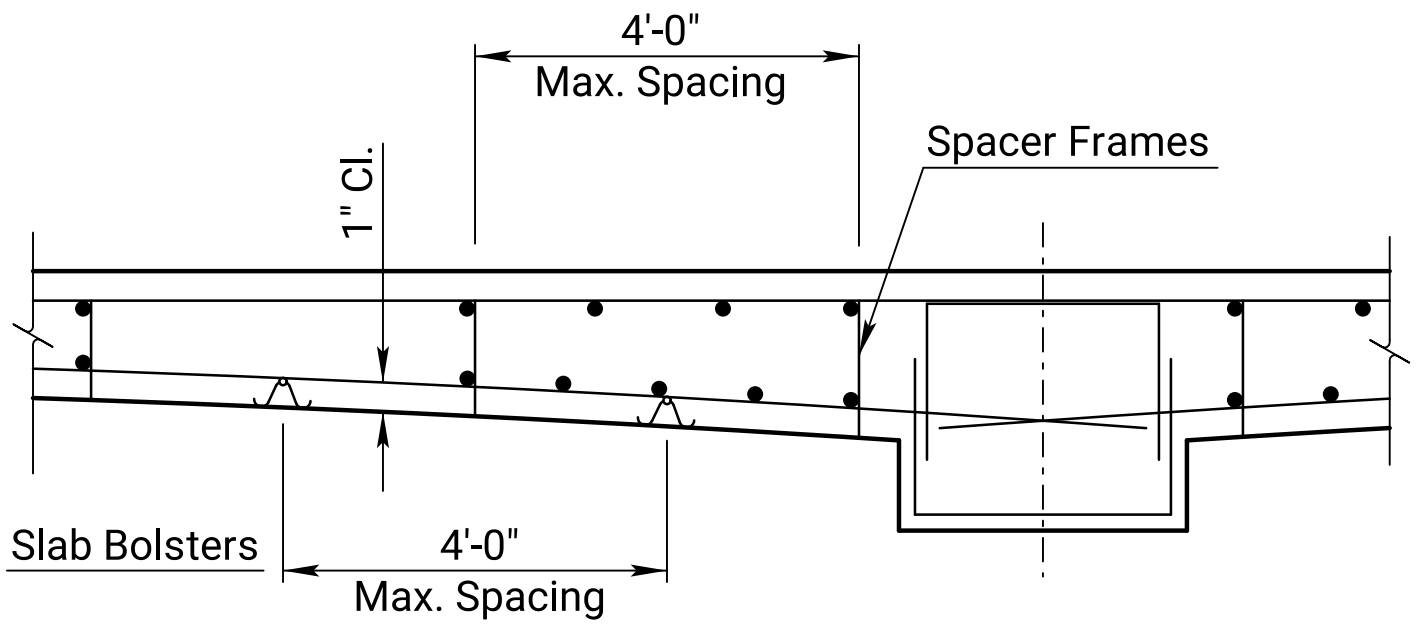
KANSAS DEPARTMENT OF TRANSPORTATION
BR.NO.69-46-139.75 (453) STA. 739+38.09
BR.NO.69-46-139.76 (454) STA. 739+38.10

SUPPORTS AND SPACERS
FOR REINFORCING STEEL
US-69 OVER 167TH STREET

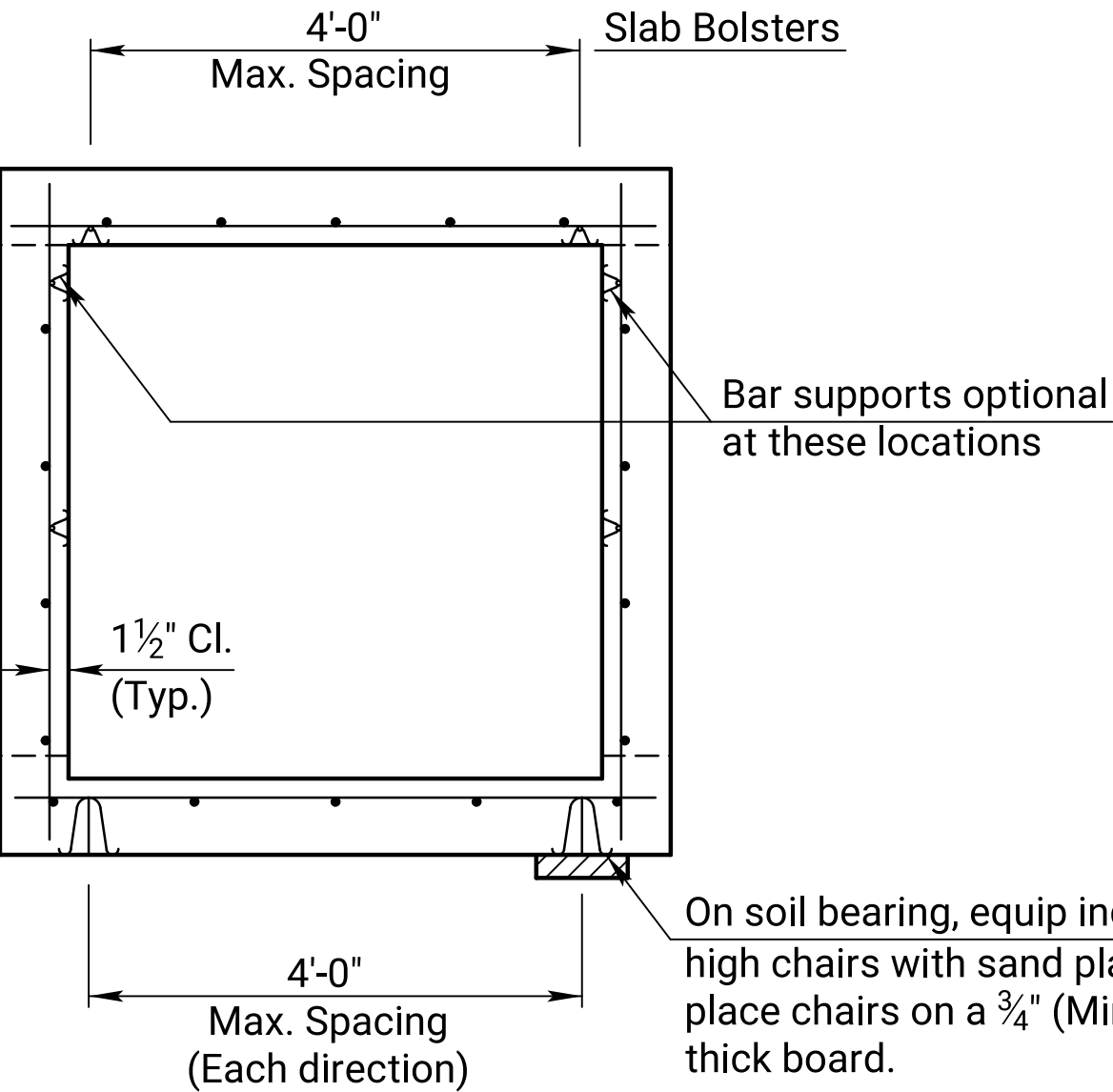
PROJ. NO. 69-46 KA-5700-03		JOHNSON CO.	
DESIGNED	JAT	DETAILED	JAT
DESIGN CK.	CRG	DETAIL CK.	CRG



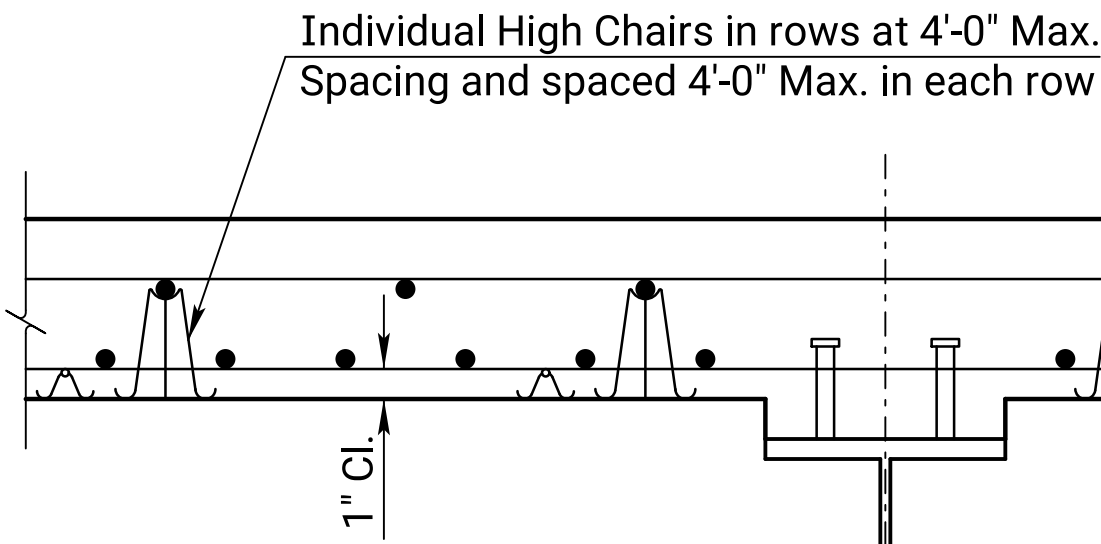
CONTINUOUS HAUNCHED SLAB



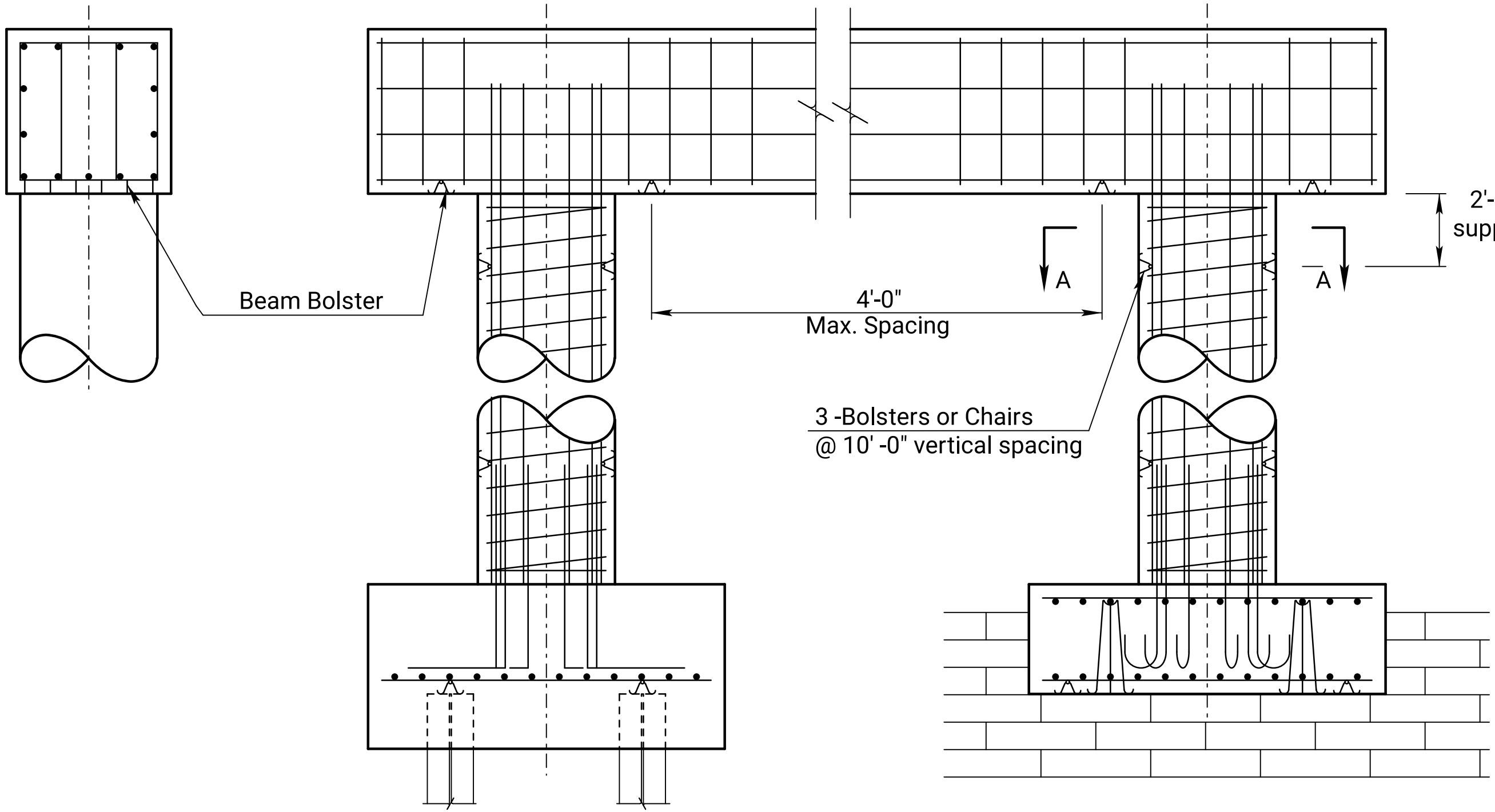
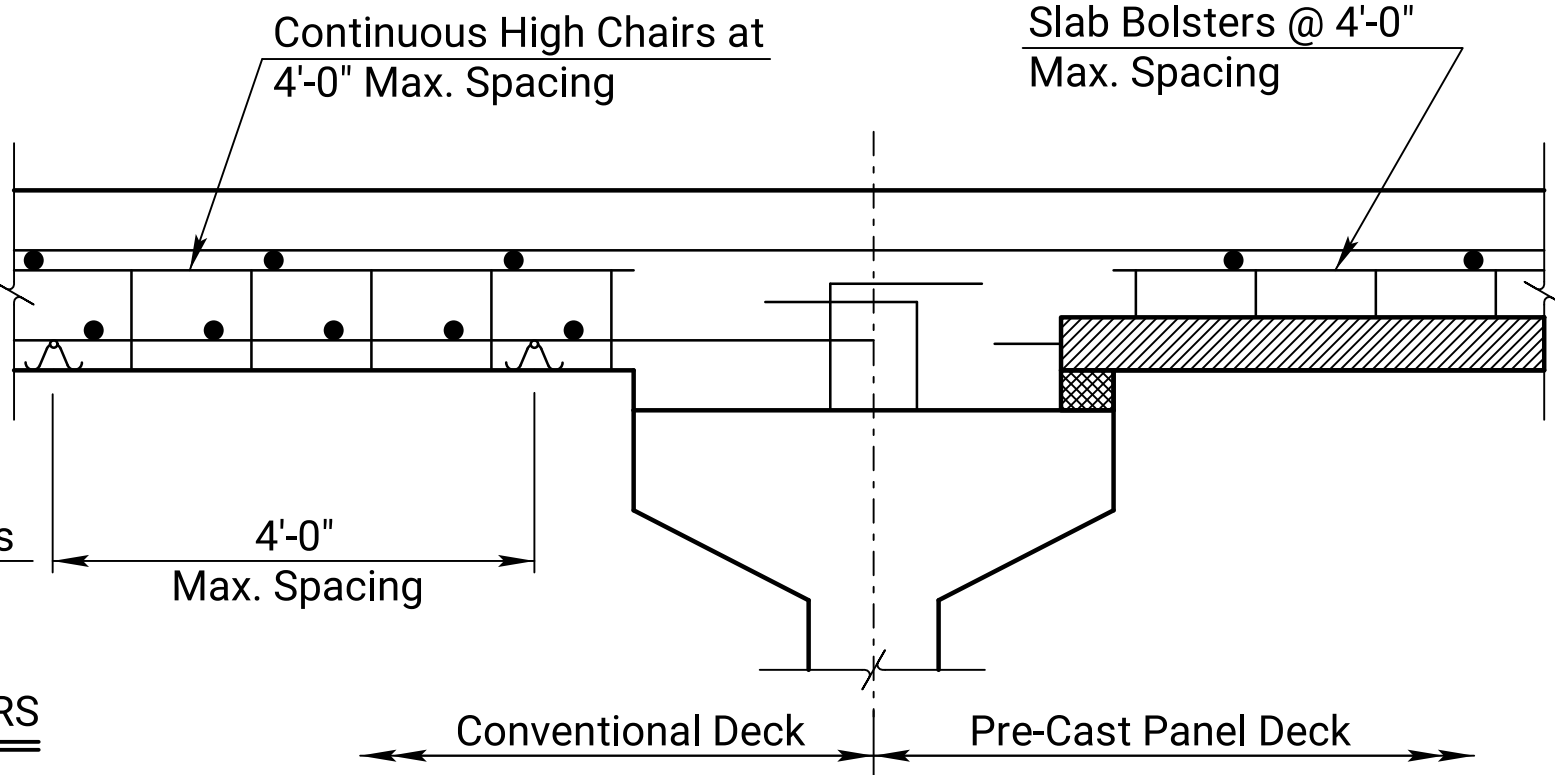
ABUTMENT



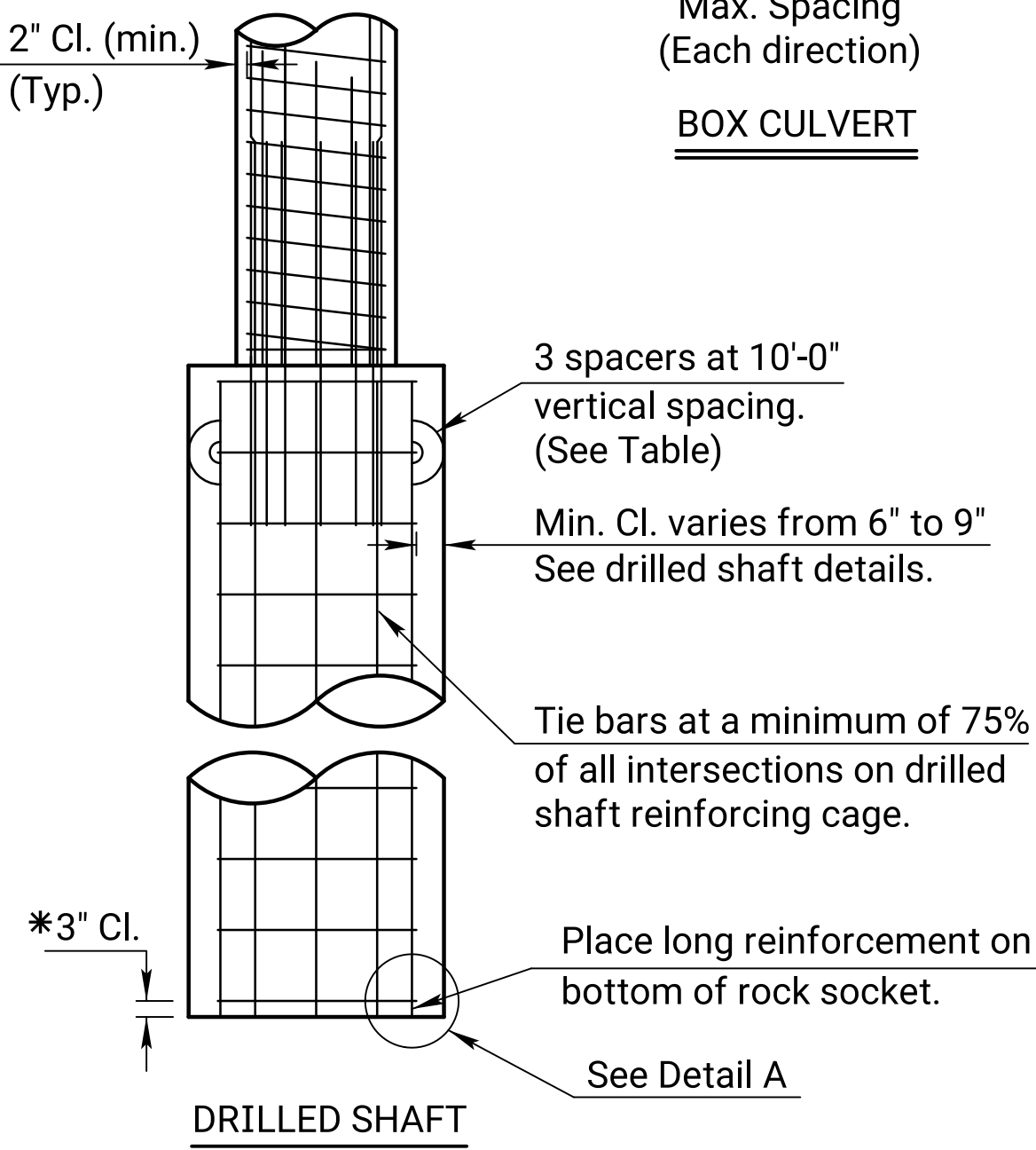
BOX CULVERT



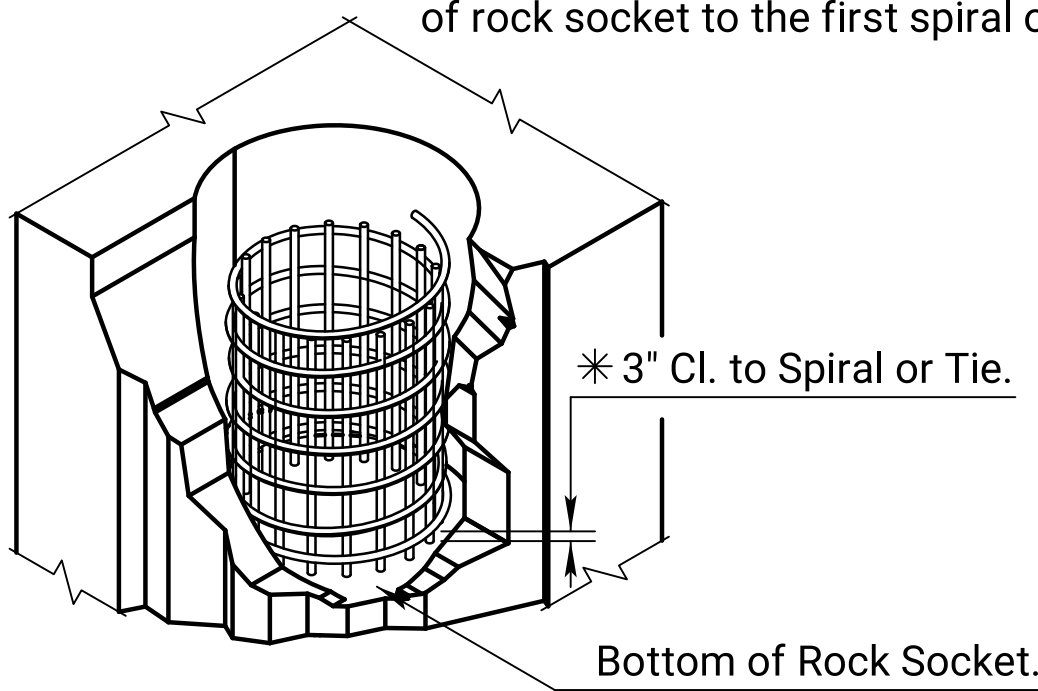
DECK GIRDERS



PIER



DRILLED SHAFT



Bolsters or Chairs (Typ.)

SECTION A-A



231208_69-46_KA-5700-03_BR28&29_RFC_r00