LETTING DATE

CONSTRUCTION PROJECT NO.

TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

MARION COUNTY
SHORTLINE PIKE
KY 1195 OVER PLEASANT RUN CREEK
STA. 16+00.61

ESTIMATE OF QUANTITIES

BID ITEM CODE		08100	08104	08150	08151	08002	08003	03299	23378EC	25017ED	08662
BID ITEM		Concrete Class "A"	Concrete Class "AA"	Steel Reinforcement	Steel Reinforcement, Epoxy Coated	Structure Excavation, Solid Rock	Foundation Preparation	Armored Edge for Concrete	Concrete Sealing	Rail System Side Mounted MGS	Precast PC Box Beam CB17-48
UNIT		C.Y.	C.Y.	LBS.	LBS.	C.Y.	L.S.	L.F.	S.F.	L.F.	L.F.
Substructure	Abutment #1	80.0		6659		40.0			607		
	Abutment #2	80.0		6659		40.0			607		
Superstructure			20.3		2383			48.2	1192	81.3	288
BRIDGE TOTALS		160.0	20.3	13318	2383	80.0	1	48.2	2406	81.3	288

INDEX OF SHEETS

SPECIAL NOTES

Special Note for Concrete Sealing

SPECIAL PROVISIONS

STANDARD DRAWINGS

BDP-001-06	Box Beam General Notes
BDP-002-03	Box Beam Bearing Details
BDP-003-03	Box Beam Miscellaneous Details
BDP-004-04	Box Beam Tension Rod Details
BDP-007-05	Box Beam B17 & CB17 Details
BGX-006-10	Stencils for Structures
BHS-011	Railing Sytem Side Mounted MGS Details
BGX-022	Joint Waterproofing
BJE-001-14	Neoprene Expansion Dams and Armored Edges

SPECIFICATIONS

2019 Standard Specifications for Road and Bridge Construction.

2020 AASHTO LRFD Bridge Design Specifications

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS

KENTUCKY TRANSPORTATION CABINET

REVISION	DATE

PREPARED BY
Division of Structural Design

DATE: January 2023 | CHECKED BY
DESIGNED BY: J. Van Zee | K. Ee
DETAILED BY: E. Downey | J. Van Zee

TITLE SHEET

CROSSING: Pleasant Creek Run

ROUTE	ITEM NO.	COUNTY OF
KY 1195	4-40000.00	MARION
	SHEET NO.	DRAWING NUMBER
	S1	28693

MicroStation v10.16.3.31 USER: joseph.vanzee DATE PLOTTED: 7-NOV-2024 FILE NAME: J:\District04\4-40000 Marion Co\Details\28693.dgn

GENERAL NOTES

SPECIFICATIONS: All references to the Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction with current Supplemental Specifications. All references to the AASHTO Specifications are to the current edition of the AASHTO LRFD Bridge Design Specs, with interims.

DESIGN LOAD: This bridge is designed for a KYHL-93 live load. The KYHL-93 live load is arrived at by increasing the standard HL-93 truck and lane loads as specified in the AASHTO Specifications by 25%.

FUTURE WEARING SURFACE: This Structure is designed for a 15 PSF future wearing surface load.

DESIGN STRESSES:

Concrete Class "A"	~ f'c = 3500 psi
Concrete Class "AA"	~ f'c = 4000 psi
Steel Reinforcement	~ Fy = 60,000 psi

REINFORCEMENT: Dimensions shown from the face of concrete to bars are to center of bars unless otherwise shown. Spacing of bars is from center to center of bars. Clear distance to face of concrete is 2", unless otherwise noted. Any reinforcing bars designated by suffix (e) in the plans shall be epoxy coated in accordance with section 811.10 of the Standard Specifications. Any reinforcing bars designated by suffix (s) in a bill of reinforcement shall be considered a stirrup for purposes of bend diameters.

BEVELED EDGES: Bevel all exposed edges ¾", unless otherwise noted.

COMPLETION OF THE STRUCTURE: The Contractor is required to complete the structure in accordance with the plans and specifications. Material, labor or construction operations, not otherwise specified, are to be included in the bid item most appropriate to the work involved. This may include cofferdams, shoring, excavations, backfilling, removal of all or parts of existing structures, phase construction, incidental materials, labor or anything else required to complete the structure.

SHOP DRAWINGS: Submit shop drawings that are required by the plans and specifications directly to the Division of Structural Design. If any changes in the design plans are proposed by a fabricator or supplier, submit those changes to the Department through the Contractor.

FOUNDATION DATA: See Foundation Layout Sheet.

DIMENSIONS: Dimensions are for a normal temperature of 60 degrees Fahrenheit. Layout dimensions are horizontal dimensions.

MASONRY COATING: Contrary to the Specifications, do not apply Masonry Coating. Apply Concrete Sealing in place of Masonry Coating as noted in CONCRETE SEALER note.

CONCRETE SEALER: All areas detailed in the specifications as requiring masonry coating shall be sealed in accordance with the special note for concrete sealing. The superstructure deck shall also be sealed as shown herein these plans. Concrete surfaces (except the deck) shall receive the ordinary surface finish as described in section 601.03.18(A) prior to being sealed.

CORK: The cost for cork under the superstructure and is incidental to the unit price for Class "AA" Concrete.

VERIFYING FIELD CONDITIONS: The contractor shall verify all dimensions before ordering material. New material that is unsuitable because of variations in the field conditions shall be replaced at Contractors expense.

SPREAD FOOTING: This Bridge did not have any drilling performed because rock was noted in the creek.

Based on a review of the existing subsurface conditions and anticipated structural loads, it is recommended that rock bearing foundation system consisting of spread footings be used for all bridge substructure elements. A presumptive bearing resistance of 12 ksf on unweathered bedrock is being recommended.

Excavation for footings at the structure locations should be level and free of loose, water softened material, etc. Additional rock excavation to achieve suitable bearing conditions may be required depending upon topography and bedrock weathering conditions.

Solid rock excavation will be required for installation of the substructure's spread footings. The contractor shall take care during blasting and other excavation methods to avoid over-breakage and damage to the bedrock beneath the footings.

Footing excavations in bedrock shall be cut neatly so that no forming or backfilling is necessary in the construction of the portions of the footings located in rock. Concrete shall be placed directly against the cut rock faces. Mass concrete should be placed in the excavation from the top of the footing to the bedrock surface where the footing does not extend to the bedrock surface.

Bearing elevation of footings may be adjusted at the discretion of the Engineer if competent, unweathered bedrock is found at a higher elevation than specified for the respective substructure element. The top of new spread footings should be fully embedded into unweathered bedrock. At a minimum, two-foot embedment into competent bedrock shall be maintained.

Prior to placement of any concrete or reinforcing steel in a foundation excavation, the excavation bottom should be clean and all soft, wet, or loose materials should be removed. In no case should concrete be placed upon compressible or water-softened materials. Any clay seams or suspect weak materials at or near the bearing elevation will need to be undercut and replaced with mass concrete.

The bedrock at this location is highly susceptible to weathering and softening in the presence of water. Water must be kept out of the footing excavations. The footing steel and concrete should be placed the same day as or as soon as practical after the footing excavation is made. If the bedrock becomes softened at bearing elevation, the softened material shold be undercut to unweathered material prior to placing the concrete.

Sheeting, shoring, cofferdams and/or dewatering methods may be required for construction of the substructures. Include all costs in the lump sum bid for Foundation Preparation.

Removal of existing spread footings will be required in the excavation for proposed spread footings. The existing footings shall be removed and the base of the new spread footings must be at or below the base of the existing footings. (Note: Minimum 2.0 feet of embedment must still be maintained.)

SUPERSTRUCTURE SLAB: The superstructure slab shall be poured continuously from end to end of slab before allowing concrete to set.

The following abbreviations may have been used in the preparation of these plans:

bet.	Between
b.f.	Back Face
BOF	Bottom of Footing
BOS	Bottom of Slab
bot.	Bottom
Brg.	Bearing
C to C	Center to Center
c.e.	Current Edition
C.Y.	Cubic Yard
Chd.	Chord
CL	Center Line
Clr.	Clear
Conc.	Concrete
Cu.	Cubic
Dwg.	Drawing
e.f.	Each Face
El.	Elevation
eq.	Equal
Est.	Estimate
Ext.	Exterior
F to F	Face to Face
f.f.	Front Face
f.s.	Far Side
fr.	Front
ft.	Feet
I.D.	Inside Diameter
in.	Inch
Int.	Interior
L	Left
LBS	Low Bridge Seat
LBS.	Pounds
M	Meter
MPH	Miles per Hour
n.s.	Near Side
O.D.	Outside Diameter
Opp.	Opposite
PC	Point of Curve
Perp.	Perpendicular
PI	Point of Intersection
PPC	Precast Prestressed Concrete
PPCDU	Precast Prestressed Concrete Deck Unit
PSI	Pounds per Square Inch
PT	Point of Tangent
R	Radius
R	Right
RCBC	Reinforced Concrete Box Culvert
RCDG	Reinforced Concrete Deck Girder
Req'd.	Required
RR	Railroad
Shld	Shoulder
spa.	Spaces
Sta.	Station
Std.	Standard
Str.	Straight
Tan	Tangent
Thru	Through
TOF	Top of Footing
TOS	Top of Slab
Tot.	Total
Typ.	Typical
Vert.	Vertical
W. P.	Working Point
Yd.	Yard

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
KENTUCKY TRANSPORTATION CABINET

REVISION	DATE

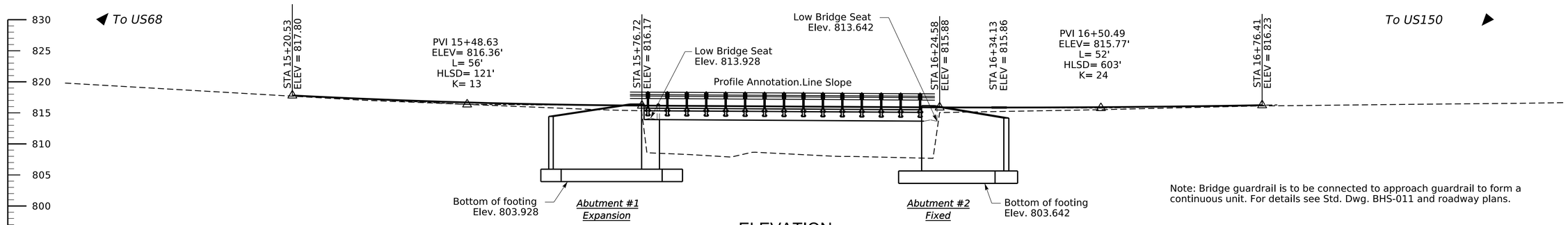
PREPARED BY
Division of Structural Design

DATE: January 2023	CHECKED BY
DESIGNED BY: J. Van Zee	K. Ee
DETAILED BY: E. Downey	J. Van Zee

GENERAL NOTES
CROSSING
Pleasant Creek Run

ROUTE	ITEM NO.	COUNTY OF
KY 1195	4-40000.00	MARION
	SHEET NO.	DRAWING NUMBER
	S2	28693

MicroStation v10.16.3.31 USER: joseph.vanzee DATE PLOTTED: 7-NOV-2024 FILE NAME: J:\District04\4-40000 Marion Co\Details\28693.dgn

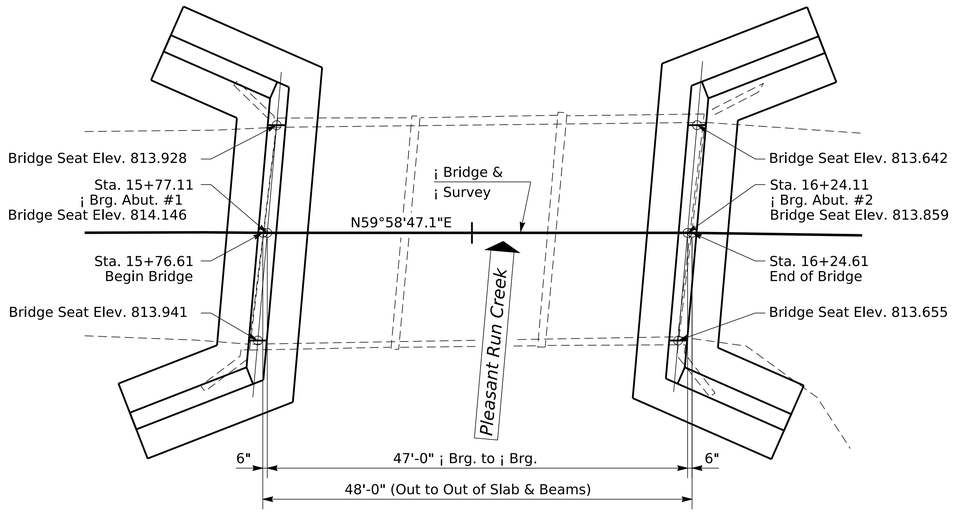


ELEVATION

48'-0" PPC Box Beam, CB17, Span
KYHL-93 Live Load ~ 32'-0" Shoulder Width @ Bridge
5° Skew ~ 24'-0" Bridge Roadway Width ~ 2:1 Fill Slopes

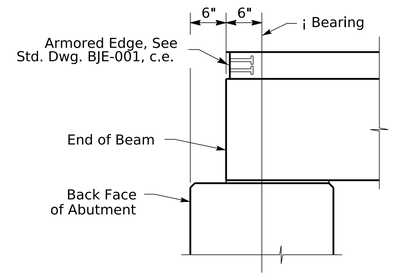
Note: Bridge guardrail is to be connected to approach guardrail to form a continuous unit. For details see Std. Dwg. BHS-011 and roadway plans.

Note: Seat elevations given at top of concrete.



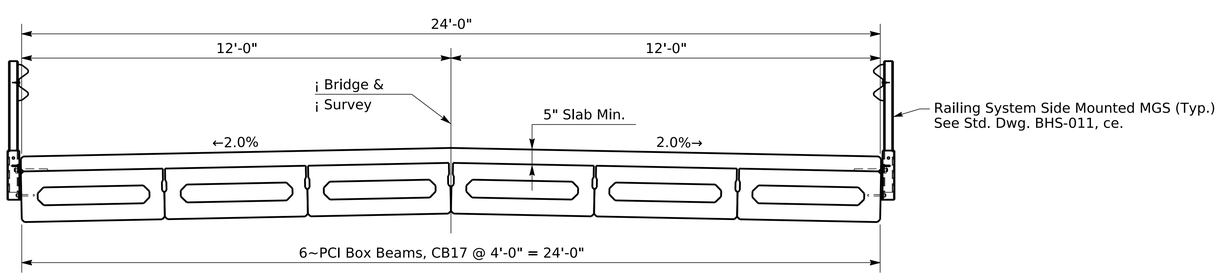
PLAN

~Superstructure not shown~



END OF BEAM DETAIL

~Measured along ¡ Beam~



TYPICAL SECTION

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
KENTUCKY TRANSPORTATION CABINET

REVISION	DATE
Revised Skew	11-7-24

PREPARED BY
Division of
Structural Design

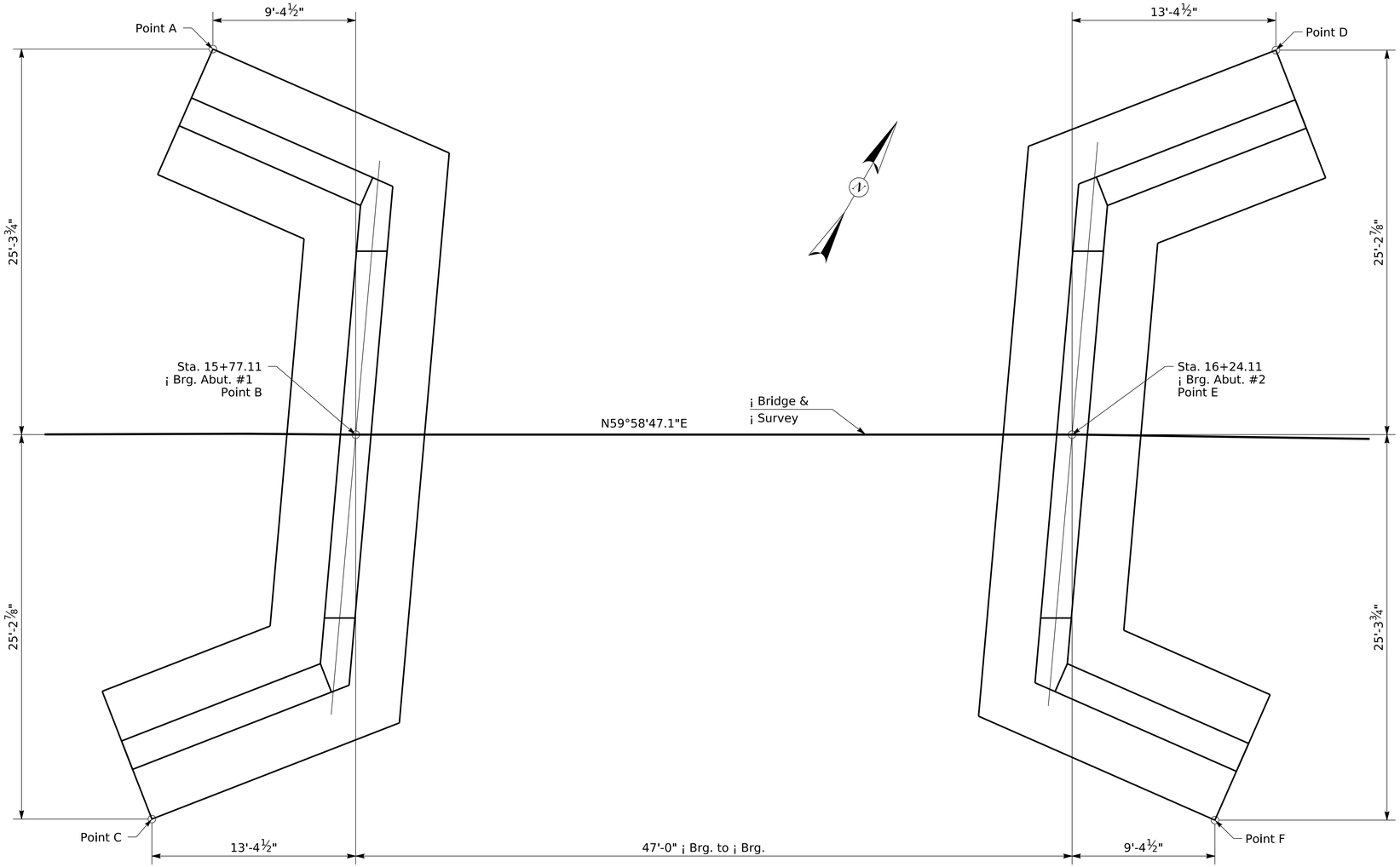
DATE: January 2023	CHECKED BY
DESIGNED BY: J. Van Zee	K. Ee
DETAILED BY: E. Downey	J. Van Zee

LAYOUT

CROSSING
Pleasant Creek Run

ROUTE	ITEM NO.	COUNTY OF
KY 1195	4-40000.00	MARION
	SHEET NO.	DRAWING NUMBER
	S3	28693

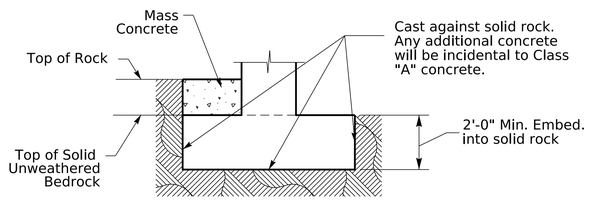
MicroStation v10.16.3.31 USER: joseph.vanzee DATE PLOTTED: 7-NOV-2024 FILE NAME: J:\District04\4-40000 Marion Co\Details\28693.dgn



Abutment #1

Abutment #2

FOUNDATION LAYOUT



Note: Contractor shall pour mass concrete (Class B) on top of footing between top of footing and top of rock to prevent scour. All costs incidental to Foundation Preparation.

Spread Footing Record Abutment #1

Point	Plan Footing Elevation	As-Built Footing Elevation
A	803.928	
B	803.928	
C	803.928	

Footing is designed for a maximum pressure of 8 KSF.

The allowable bearing capacity is 12 KSF.

The Project Resident Engineer is to record the "As-Built Footing Elevation" taken at the bottom of footing and submit one copy of this sheet to:

Kentucky Transportation Cabinet
Director, Division of Structural Design
3rd Floor East
200 Mero Street
Frankfort, KY 40622

If the spread footing foundation is stepped due to unsuitable material found at the given elevation, record the location and elevation of the step as well.

Spread Footing Record Abutment #2

Point	Plan Footing Elevation	As-Built Footing Elevation
D	803.642	
E	803.642	
F	803.642	

Footing is designed for a maximum pressure of 8 KSF.

The allowable bearing capacity is 12 KSF.

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
KENTUCKY TRANSPORTATION CABINET

REVISION	DATE

PREPARED BY
Division of Structural Design

DATE: January 2023	CHECKED BY	
DESIGNED BY: J. Van Zee	K. Ee	
DETAILED BY: E. Downey	J. Van Zee	

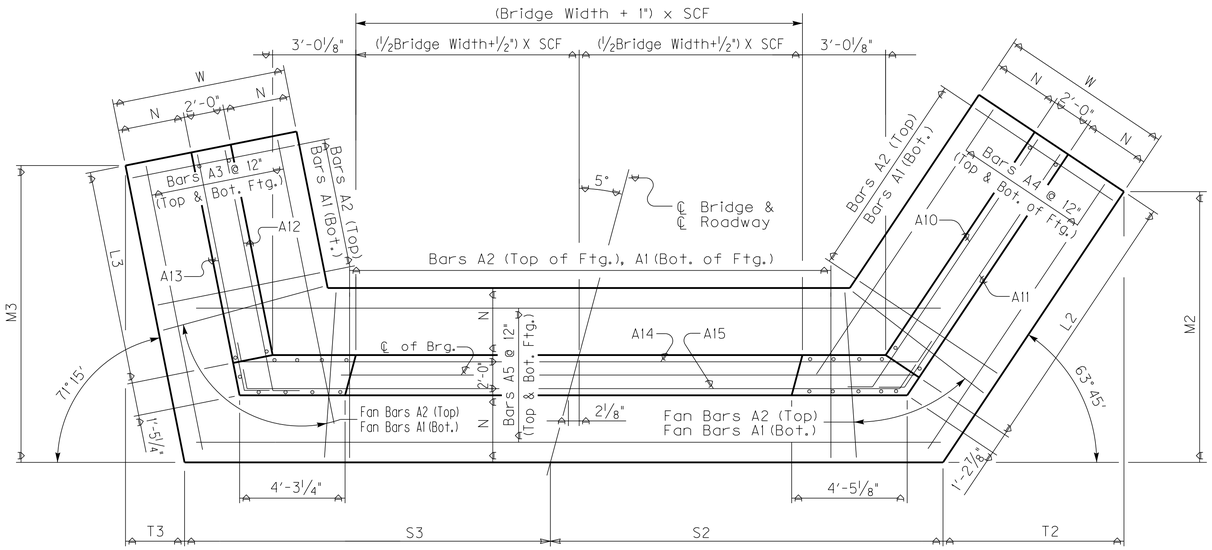
FOUNDATION LAYOUT
CROSSING: Pleasant Creek Run

ROUTE	ITEM NO.	COUNTY OF
KY 1195	4-40000.00	MARION
	SHEET NO.	DRAWING NUMBER
	S4	28693

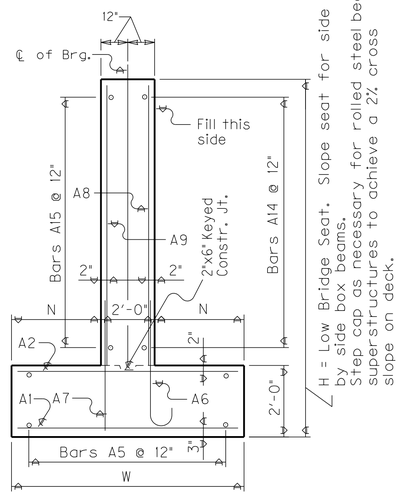
MicroStation v10.16.3.31 USER: joseph.vanzee DATE PLOTTED: 7-NOV-2024 FILE NAME: J:\District04\4-40000 Marion Co\Details\28693.dgn

5° SKEW VARIABLE BRIDGE WIDTH 2:1 FILL SLOPES WINGS SKEWED 25% FROM ROADWAY TO BREASTWALL

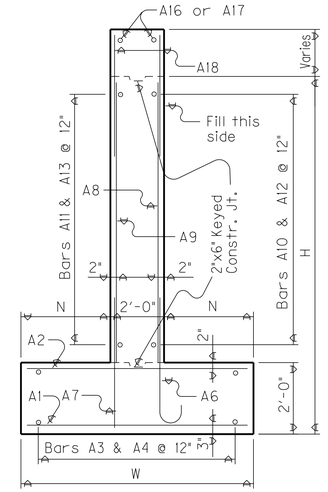
ABUTMENT SKEW CORRECTION FACTOR (SCF) = 1.004



(Left Skew as shown; right skew opp. hand) PLAN

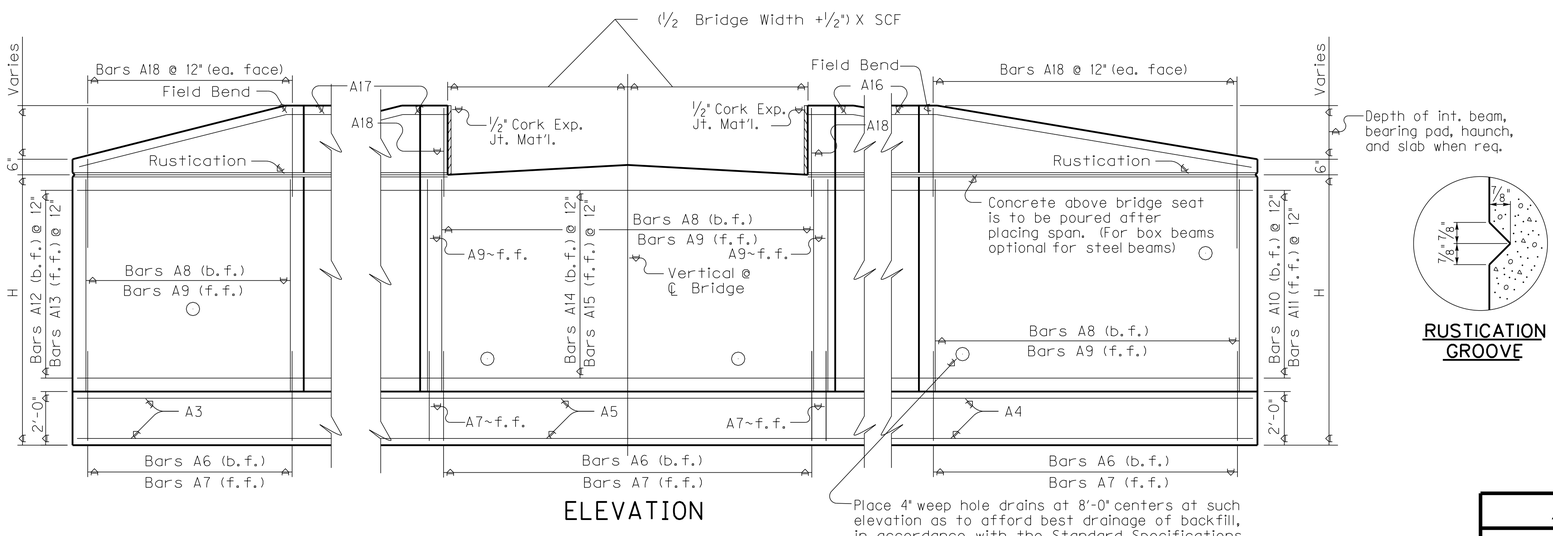


WALL SECTION



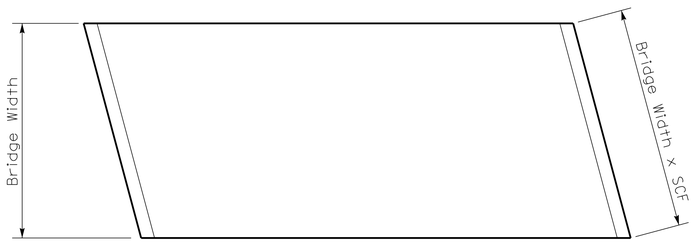
WING SECTION

Note: Trim A16 & A17 bars if necessary



ELEVATION

RUSTICATION GROOVE



PLAN OF SUPERSTRUCTURE SLAB

ABUTMENT DETAILS	ROUTE	ITEM NO.	COUNTY OF
CROSSING: Pleasant Creek Run	KY 1195	4-40000.00	MARION
		SHEET NO. S5	DRAWING NUMBER 28693

5° SKEW VARIABLE BRIDGE WIDTH 2:1 FILL SLOPES WINGS SKEWED 25% FROM ROADWAY TO BREASTWALL

Bill of Reinforcement

MARK	A1					A2					A3			A4			A5					
TYPE	Str.					Str.					Str.			Str.			Str.					
SIZE											#5			#5			#5					
H	No.	Size	Length ft.	Length in.	Spacing	No.	Size	Length ft.	Length in.	Spacing	No.	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.	+Lb =	Length ft.	Length in.
[redacted]																						
9-10	48+Nb=73	7	8	8	12	48+Nb=73	5	8	8	12	18	16	9	18	17	4	18	13	5	+Lb=	37	6⅛
[redacted]																						

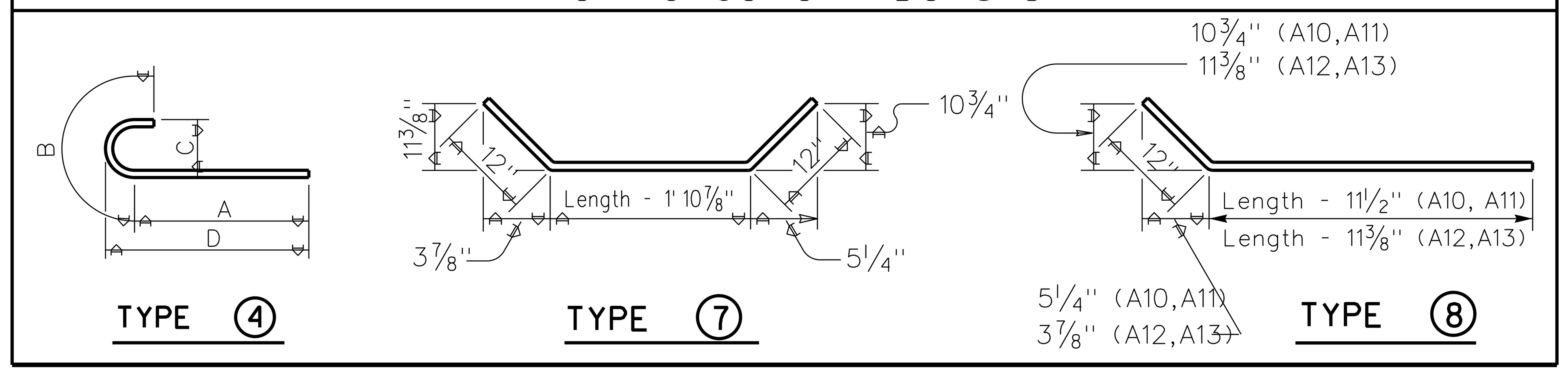
MARK	A6													A7					A8					A9			
TYPE	4													Str.					Str.					Str.			
SIZE																								#5			
H	No.	Size	Length ft.	Length in.	Spacing	A ft.	A in.	B ft.	B in.	C ft.	C in.	D ft.	D in.	No.	Size	Length ft.	Length in.	Spacing	No.	Size	Length ft.	Length in.	Spacing	No.	Length ft.	Length in.	Spacing
[redacted]																											
9-10	34+Nb=59	6	6	1	12	5	1	1	0	0	6	5	4	39+Nb=64	5	4	11	12	34+Nb=59	5	6	10	12	39+Nb=64	6	10	12
[redacted]																											

MARK	A10			A11			A12			A13			A14						A15						A16			A17			A18		
TYPE	8			8			8			8			7						7						Str.			Str.			Str.		
SIZE	#5			#5			#5			#5			#5						#5						#5			#5			#5		
H	No.	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.	+Lb =	Length ft.	Length in.	No.	Length ft.	Length in.	+Lb =	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.	No.	Length ft.	Length in.
[redacted]																																	
9-10	8	16	7	8	15	11	8	15	6	8	15	2	8	11	7	+Lb=	35	8⅛	8	10	4	+Lb=	34	5⅛	2	19	7	2	18	7	76	5	9
[redacted]																																	

Table of Dimensions

H	W Length ft.	W Length in.	N Length ft.	N Length in.	M2 Length ft.	M2 Length in.	M3 Length ft.	M3 Length in.	T2 Length ft.	T2 Length in.	T3 Length ft.	T3 Length in.	L2 Length ft.	L3 Length ft.	S2 Length ft.	S2 Length in.	S2 $+\frac{Lb}{2}=$	S2 Length ft.	S2 Length in.	S3 Length ft.	S3 Length in.	S3 $+\frac{Lb}{2}=$	S3 Length ft.	S3 Length in.
[redacted]																								
9-10	9	0	3	6	15	7½	16	½	7	8½	5	5⅜	14	13	6	11½	+0.5Lb=	19	0	6	6⅛	+0.5Lb=	18	6¾
[redacted]																								

Reinforcement Details



*Concrete quantities computed using 21" beam depth on ½" pad & Variable Bridge Width

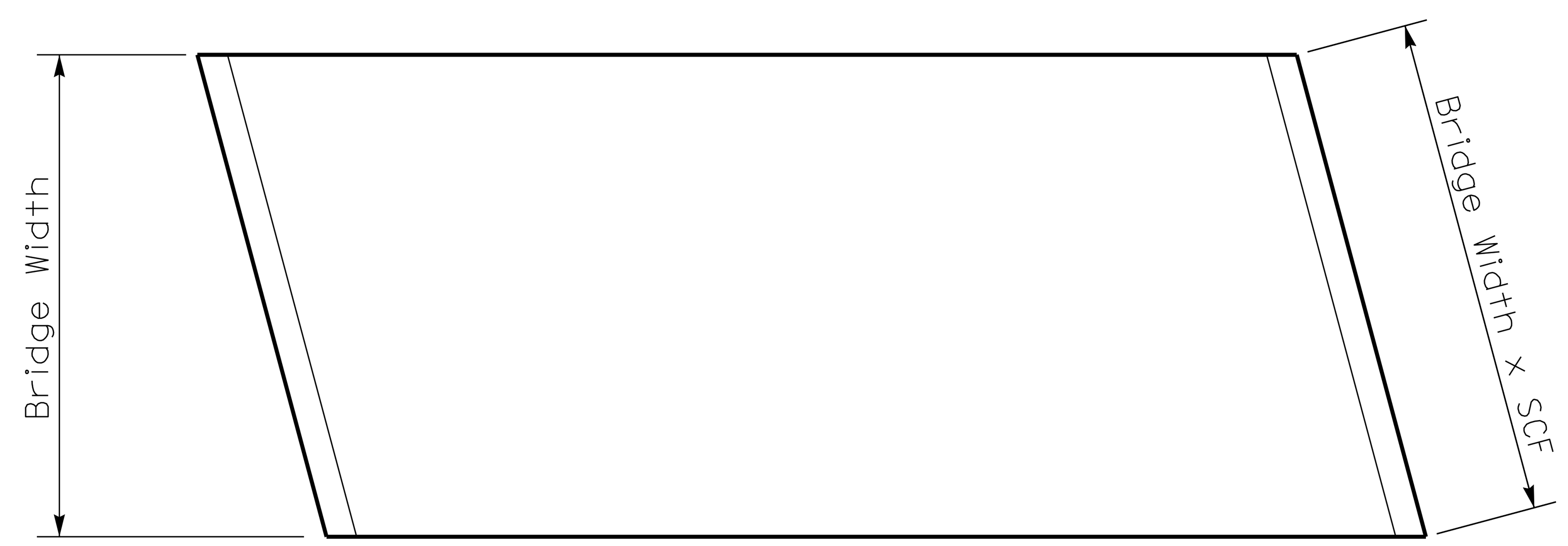
Quantities

H	Concrete* C.Y.	Reinforcement LBS.
[redacted]		
10	49.36+(1.27xLb) = 80	4466+(91xLb) = 6659
[redacted]		

ABUTMENT SKEW CORRECTION FACTOR (SCF) = 1.004

NUMBER OF BARS TO ADD (Nb) = Bridge Width (feet) x SCF (round up to nearest whole number)

LENGTH OF ABUTMENT TO ADD (Lb) = Bridge Width (feet) x SCF (convert decimal to architectural)



PLAN OF SUPERSTRUCTURE SLAB

GENERAL NOTES

SPECIFICATIONS: Construct abutments according to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction. Abutments are designed for side by side box beams as detailed in Standard Drawings BDP-001 through BDP-012, current edition. Dimensions may be adjusted to allow for any out to out bridge width. Abutments are also adequate for Std. Dwg. slabs or steel beam superstructures

FOUNDATION PRESSURE: Construct abutment footings on solid rock bearing material that can support a pressure of 8000 psf service or 10,800 psf strength factored. as recommended by a geotechnical engineer.

WING LENGTHS: Calculated assuming 21" superstructure depth and stream bank elevation at top of footing.

FOOTING ELEVATION: Construct bottom of footing below the anticipated scour elevation. (This typically entails embedding the footings 2'-0" into rock and pouring concrete directly against cut rock faces. as recommended by geotechnical engineer.)

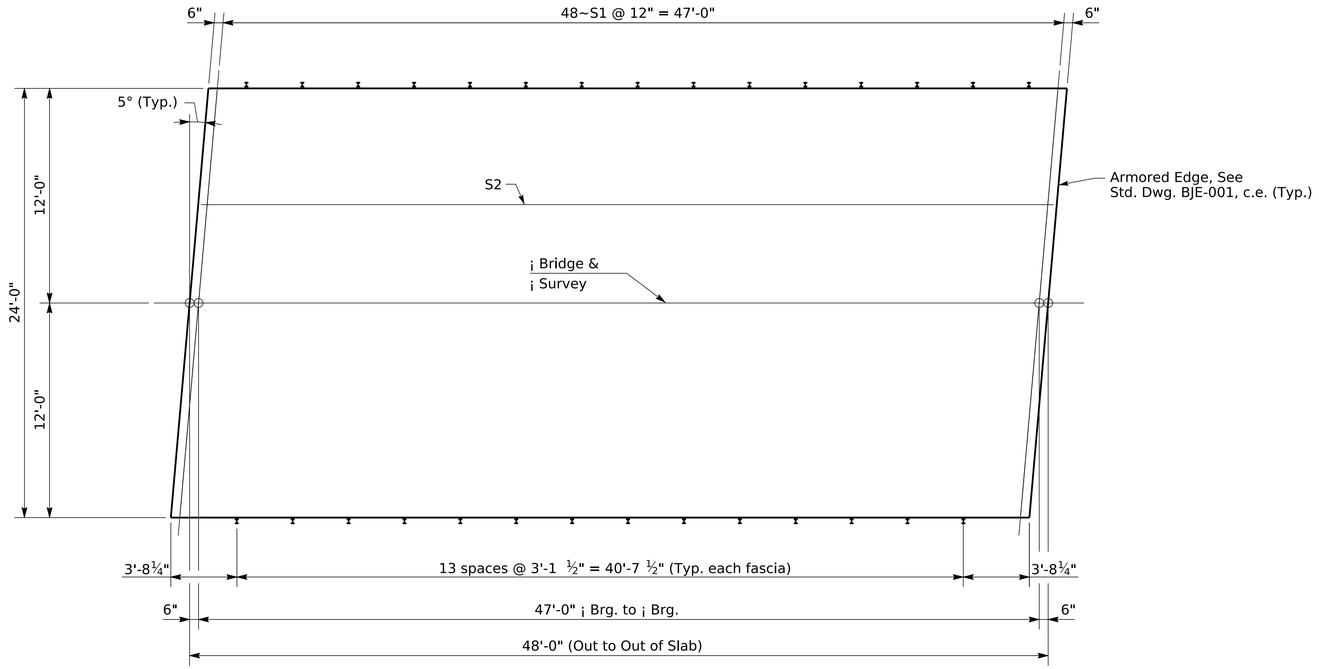
NOTE: Distances to bars shown are clear dimensions unless otherwise noted.

MATERIAL SPECIFICATIONS:
Concrete, Class "A" = 3500 psi
Steel Reinforcement = Grade 60

ABUTMENT DETAILS	ROUTE	ITEM NO.	COUNTY OF
CROSSING: Pleasant Creek Run	KY 1195	4-40000.00	MARION
		SHEET NO. S6	DRAWING NUMBER 28693

BILL OF REINFORCEMENT

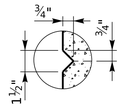
MARK	TYPE	NO.	SIZE	LENGTH	LOCATION
S1e	Str.	48	5	23- 9	Slab
S2e	Str.	24	5	47- 8	Slab



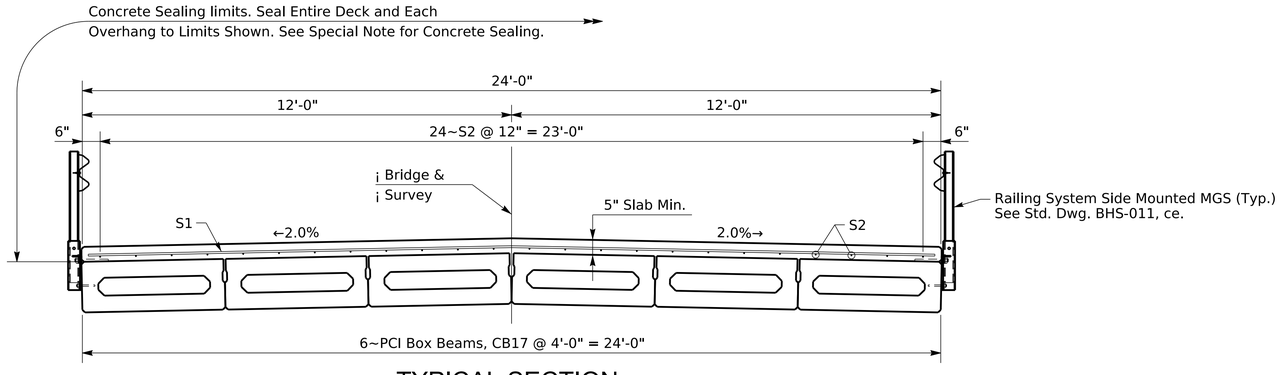
PLAN OF SLAB

NOTE: Contrary to the Standard Drawings (5" slab thickness), the construction elevations will cause the slab to be approximately 6.4" thick at the ends and go to approximately 5" thick at the center of the bridge. This is how the quantities of Class AA Concrete were calculated. There should not be any additional concrete due to the max and min. allowable slab depths shown on the constsruction elevations.

NOTE: Guardrail inserts in beam will need to be varied vertically to maintain proper clearance to top of slab.



"V-Groove"
Rustication



TYPICAL SECTION

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
KENTUCKY TRANSPORTATION CABINET

REVISION	DATE

PREPARED BY
Division of
Structural Design

DATE: January 2023	CHECKED BY
DESIGNED BY: J. Van Zee	K. Ee
DETAILED BY: E. Downey	J. Van Zee

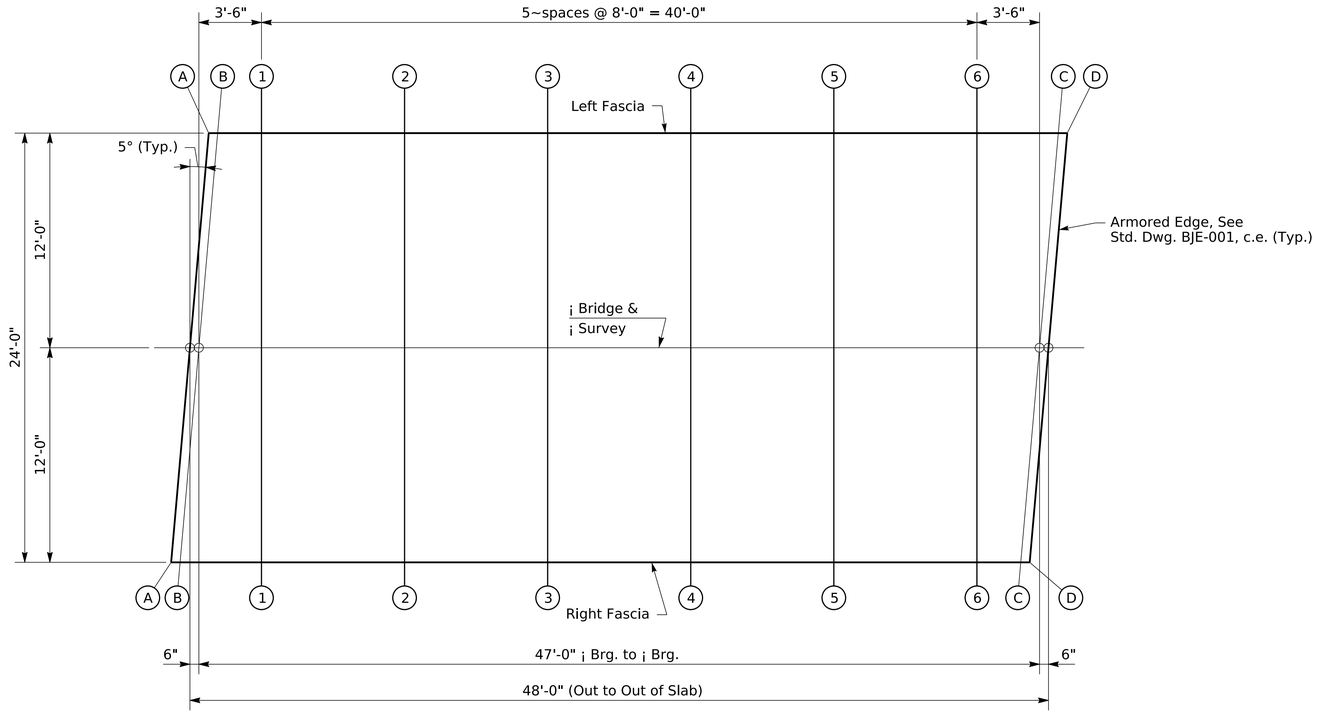
SUPSERSTRUCTURE
CROSSING
Pleasant Creek Run

ROUTE	ITEM NO.	COUNTY OF
KY 1195	4-40000.00	MARION
	SHEET NO.	DRAWING NUMBER
	S7	28693

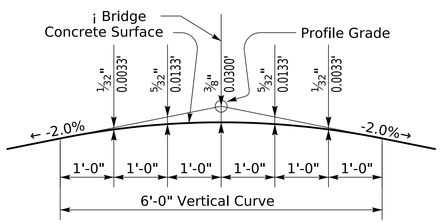
MicroStation v10.16.3.31 USER: joseph.vanzee DATE PLOTTED: 7-NOV-2024 FILE NAME: J:\District04\4-40000 Marion Co\Details\28693.dgn

CONSTRUCTION ELEVATIONS

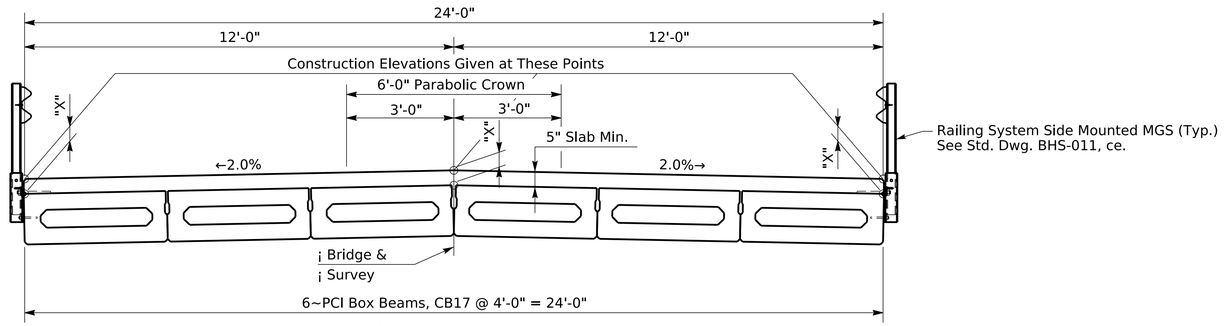
LOCATION	LEFT FASCIA			℄ Bridge			RIGHT FASCIA		
	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"
SKEW LN AA	815.923			816.140			815.936		
SKEW LN BB	815.920			816.137			815.933		
SKEW LN CC	815.634			815.851			815.647		
SKEW LN DD	815.631			815.848			815.644		
GRID LN 01	815.911			816.124			815.915		
GRID LN 02	815.878			816.091			815.881		
GRID LN 03	815.839			816.051			815.840		
GRID LN 04	815.792			816.002			815.791		
GRID LN 05	815.735			815.945			815.732		
GRID LN 06	815.672			815.880			815.667		



GRID LAYOUT



PARABOLIC CROWN



TYPICAL SECTION

NOTES FOR ELEVATIONS TAKEN ON PRESTRESSED CONCRETE BOX BEAMS

Take elevations on top of beam at points indicated after the beams have been laterally tensioned and grouted. The beam elevations are to be read to three decimal places and entered in tables under "Top of Beam" elevations.

Compute dimension "X" as follows: "Construction Elevation" minus "Top of Beam" elevation equals dimension "X". Construction Elevations include camber due to weight of the concrete slab and barrier. Measuring of dimension "X" gives the final check on beam tolerances for camber, beam damage, and errors in erection that produce reverse cambers, sags, andunsightly fascia beams.

For setting templates, measure dimension "X" above top of beams for top of template. Do not set template by elevations.

Temporary supports or shoring will not be permitted under the girders when pouring the concrete floor slab or when taking "Top of Beam" elevations.

Note to Resident: The "Maximum Allowable Camber" shown on the beam sheet is the amount of camber, measured prior to casting the deck, above which the beam will begin to encroach into the slab.

The minimum allowable dimension "X" or slab thickness is 4¾" (0.395'). If any computed dimension "X" is less than that, adjustmants will need to be made to the "X" dimensions on some or all grid lines. Adjustmants must meet approval of the Engineer.

COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS
KENTUCKY TRANSPORTATION CABINET

REVISION	DATE

PREPARED BY
Division of
Structural Design

DATE: January 2023	CHECKED BY
DESIGNED BY: J. Van Zee	K. Ee
DETAILED BY: E. Downey	J. Van Zee

CONSTRUCTION ELEVATIONS
CROSSING
Pleasant Creek Run

ROUTE	ITEM NO.	COUNTY OF
KY 1195	4-40000.00	MARION
	SHEET NO.	DRAWING NUMBER
	S8	28693