

# TRANSPORTATION CABINET DEPARTMENT OF HIGHWAYS

## WOLFE-MORGAN COUNTIES

### RAMP A OVER RED RIVER

#### STA. 22 + 33.50

INDEX OF SHEETS	
Sheet No.	Description
S1	Title Sheet
S2	General Notes
S3	Layout
S4-S7	Subsurface Data
S8	Geometric Layout
S9-S10	Foundation Layout
S11-S12	Integral End Bent 1
S13-S15	Pier Details
S16-S17	Integral End Bent 2
S18	Integral End Bent Details
S19	Framing Plan
S20	PPC I-Beam Type 4
S21-S24	Superstructure
S25-S26	Construction Elevations
S27	Rail System Type 3
S28	Steel Diaphragms

SPECIAL NOTES	
11C	Drilled Shafts


SPECIAL PROVISIONS	
69	Embankment at Bridge End Bent Structures

STANDARD DRAWINGS	
BBP-001-12	Elastomeric Bearing Pads for Prestressed Beams
BBP-002-04	Bearing Details
BCX-006-10	Stencils for Structures
BCX-012-02	Geotechnical Legend
RGX-100-06	Treatment of Embankment at End Bents
RGX-105-08	Treatment of Embankment at End Bents
BJE-001-13	Neoprene Expansion Dams and Armored Edges
BPS-003-09	HP12x53 Steel Pile

SPECIFICATIONS	
2012	Standard Specifications for Road and Bridge Construction.
2012	AASHTO LRFD Bridge Design Specifications, 6th Edition.

ESTIMATE OF QUANTITIES																				
BID ITEM CODE	08100	08104	08150	08151	08001	08002	08019	02231	02998	08046	08033	08039	08094	03299	21532ED	08634	21420ED	21421ED	20745ED	20746ED
BID ITEM	Concrete Class "A"	Concrete Class "AA"	Steel Reinforcement	Steel Reinforcement, Epoxy Coated	Structure Excavation, Common	Structure Excavation, Solid Rock	Cyclopean Stone Rip Rap	Structure Granular Backfill	Masonry Coating	Piles - Steel HP 12 x 53	Test Piles	Pre-Drilling for Piles	Pile Points 12 Inch	Armored Edge for Concrete	Railing System Type 3	Precast PC I-Beam Type 4	Drilled Shaft 66" (Common)	Drilled Shaft 60" (Rock)	Rock Soundings	Rock Corings
UNIT	C.Y.	C.Y.	LBS.	LBS.	C.Y.	C.Y.	Tons	C.Y.	S.Y.	L.F.	L.F.	L.F.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.
Integral End Bent #1	17.8	24.3		3550	81	4	552	69	27	62	28	60	6							
Pier #1	50.8	13.5	9436	72	36				50							41	16	41	46	
Pier #2	47.4	13.5	8543	72	33				50							46	16	46	46	
Integral End Bent #2	18.2	24.9		3597			453	71	28	166	47		6							
Substructure																				
Superstructure		173.7		50047					875					58	470	922.5				
<b>BRIDGE TOTALS</b>	134.2	249.9	17979	57338	150	4	1005	140	1030	228	75	60	12	58	470	922.5	87	32	87	92

Plans Prepared By:  
**H. W. LOCHNER, INC.**



Bryan C. Reid, P.E.  
KY. No. 27998

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	B.C. REID	
<b>Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS</b>		
COUNTY <b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>TITLE SHEET</b>		
ITEM NUMBER	PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	SHEET NO. <b>S1</b> DRAWING NO. <b>27081</b>
<b>10-126.70</b>		

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL - REV 10-11-16\S27081\_001.DGN  
 CONSTRUCTION PROJECT NO.  
 LETTING DATE  
 USER: breid  
 DATE PLOTTED: July 1, 2016  
 E-SHEET NAME:  
 MicroStation v8.11.9.714

# GENERAL NOTES

**SPECIFICATIONS:** References to the Specifications are to the current edition of the Kentucky Department of Highways Standard Specification for Road and Bridge Construction including any current Supplemental Specification. All references to the AASHTO Specifications are to the sixth edition of the AASHTO LRFD Bridge Design Specifications for Highway Bridges.

**DESIGN LOAD AND METHOD:** This bridge is designed for KY HL-93 live load. The KY HL-93 live load is arrived at by increasing the Standard KY HL-93 truck and lane loads as specified in the AASHTO Specifications by 25%. All reinforced concrete members are designed by the load and resistance factor method as specified in the current AASHTO Specification.

**WIND LOAD:** This bridge is designed for a wind load based on a wind velocity of 100 mph.

**FUTURE WEARING SURFACE:** This bridge is designed for a 60 psf future wearing surface.

**MATERIALS DESIGN SPECIFICATION:**

FOR CLASS "A" REINFORCED CONCRETE	F'C = 3500 PSI
FOR CLASS "AA" REINFORCED CONCRETE	F'C = 4000 PSI
FOR STEEL REINFORCEMENT	FY = 60000 PSI
FOR STEEL PILING	FY = 50000 PSI

**CONCRETE:** Use Class "AA" concrete in the superstructure deck, parapet, and diaphragms. Class "A" Concrete is to be used in substructure. Prestressed girder concrete shall be in accordance with the plans and specifications.

**REINFORCEMENT:** Dimensions shown from the face of concrete to bars are to center of bars unless otherwise shown. Spacing is from center to center of bars. Clear distance to face of concrete is 2", unless otherwise noted. Epoxy coat bars designated by suffix (e) in accordance with Section 811.10 of the Standard Specifications. Use stirrup bend diameters for bars designated by suffix (s) in a Bill of Reinforcement.

**BEVELED EDGES:** Bevel all exposed edges  $\frac{3}{4}$ ", unless otherwise noted.

**SHOP DRAWINGS:** Submit shop drawings that are required by the plans and specifications directly to the Bridge Consultant. If any changes in the design plans are proposed by a fabricator of supplier, submit those changes to the Bridge Consultant through the Contractor. The Bridge Consultant shall provide a copy of the final approved shop plans to the Division of Structural Design.

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

**SLOPE PROTECTION:** Use dry cyclopean stone in accordance with the plans and Specifications. Geotextile Fabric is to be incidental to this item.

**PILE POINTS:** Provide pile points for all point bearing piles. Ensure pile points are in accordance with Section 604 of the Specifications and of the type shown on the Foundation Layout Sheet.

**PILING:** Piling shall be driven to refusal. Test piles shall be driven where designated on the plans to determine the length of pile required. All test piles shall be accurately located so they may be used in the structure.

**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.

**SPIRAL COLUMN TIES:** Splices for spirals where desired by the contractor shall be made with a minimum of one and one-half turns of spiral. No additional payment will be made for these splices, and the cost will be considered incidental to the cost of the developed-length of spiral shown on the plans. Spiral reinforcement shall meet the requirements of subsection 811.02.01 of the Specifications.

The length shown in the bill of reinforcement for spirals is the distance from top of footing to bottom layer of reinforcement in the pier cap. The number of turns shown is the length divided by the pitch, plus 3 turns (total number of closed coils) expressed to the nearest whole number. One and one-half closed coils shall be provided at the ends of each spiral unit. 4 channel, tee or angle spacers, weighing approximately 0.8 lbs. per linear foot of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. Weight of spiral reinforcement is included in the estimate of quantities for each pier.

**POURING SEQUENCE:** The pouring sequence of the slab may not be changed without the written approval of the Engineer.

**MASONRY COATING:** Apply masonry coating to the concrete surfaces as specified in Section 601.03.18 (B).

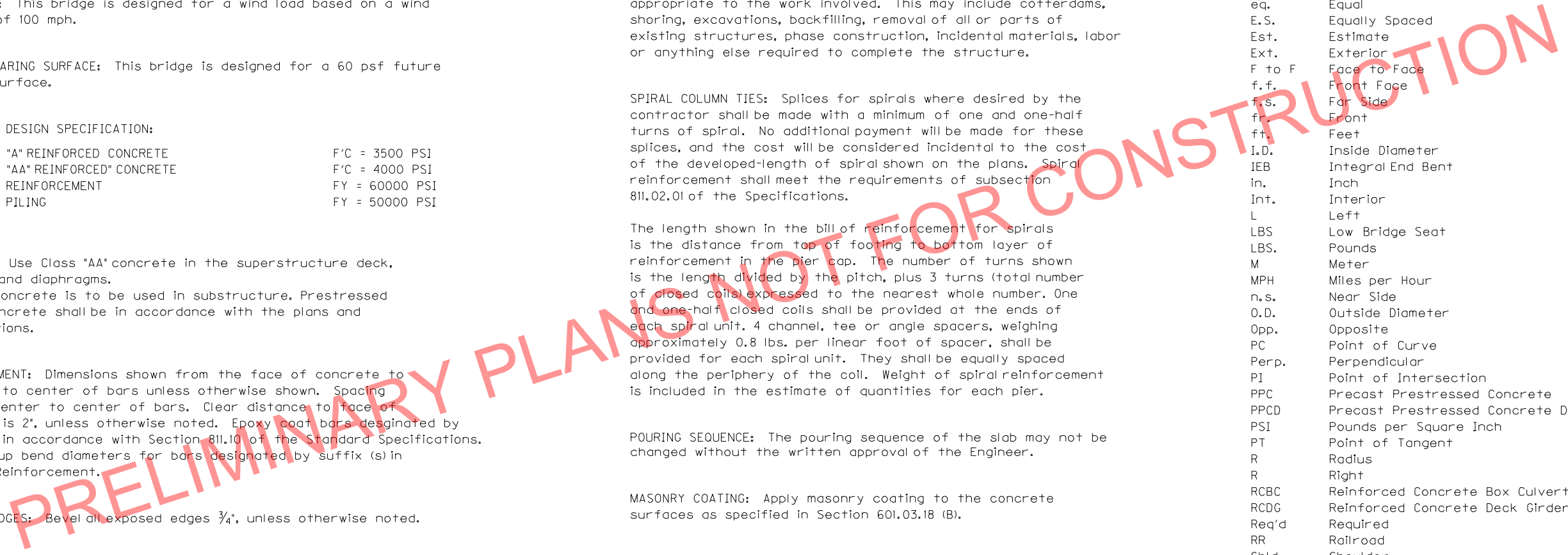
**END BENT CONSTRUCTION:** Geotextile fabric and perforated pipe installed in accordance to Special Provision 69 shall be considered incidental to unit price bid for Structure Granular Backfill.

**GEOTECHNICAL INFORMATION:** Additional information can be found in geotechnical report S-017-2014.

**CONSTRUCTION IDENTIFICATION:** The names of the Prime Contractor and any sub-contractors shall be imprinted in the concrete in accordance with Standard Drawing BGX-006, c.e. at a location designated by the Engineer. The contractor shall furnish all plans, equipment, and labor necessary to do the work for which no direct payment will be made.

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

bet.	Between
b.f.	Back Face
B0F	Bottom of Footing
bot.	Bottom
Brq.	Bearing
C to C	Center to Center
c.e.	Current Edition
C.Y.	Cubic Yard
Chd.	Chord
CL	Center Line
Cl.	Clear
Conc.	Concrete
Cu.	Cubic
Dwg.	Drawing
e.f.	Each Face
El.	Elevation
eq.	Equal
E.S.	Equally Spaced
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
IEB	Integral End Bent
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
PPCD	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
Tot.	Total
Typ.	Typical
Vert.	Vertical
W.P.	Working Point
Yd.	Yard



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USER: demitthson  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

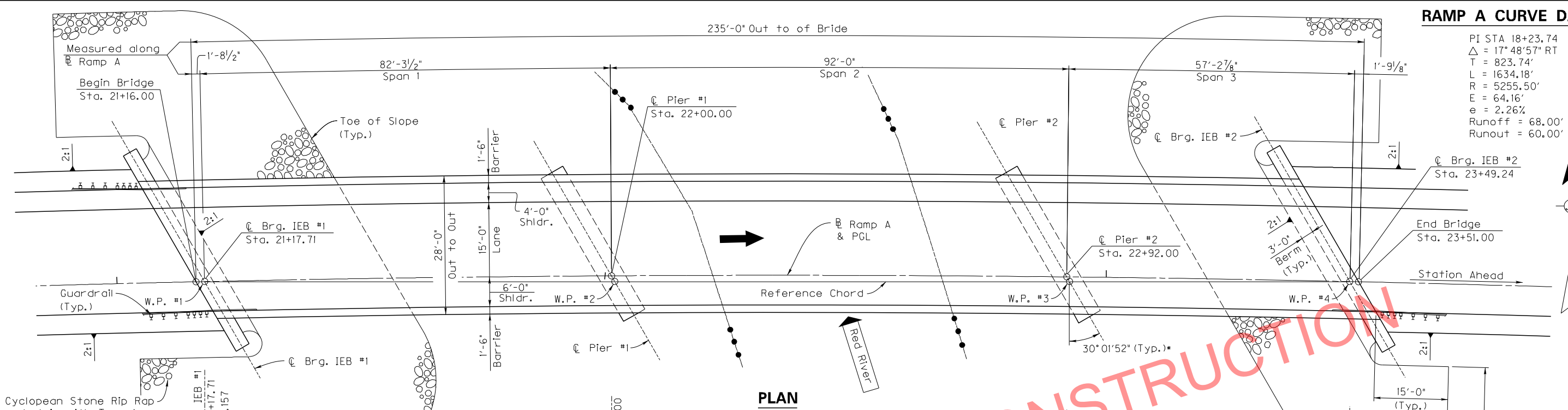
MicroStation v8.11.9.459

REVISION		DATE
DATE: June, 2016		CHECKED BY
DESIGNED BY: B.C. REID		W.D. BURTON
DETAILED BY: W.R. ABBOTT		W.D. BURTON
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
<b>WOLFE-MORGAN</b> <small>COUNTY</small>		
<small>ROUTE</small> <b>RAMP A</b>	<small>CROSSING</small> <b>RED RIVER</b>	
<b>GENERAL NOTES</b>		
ITEM NUMBER	PREPARED BY	
<b>10-126.70</b>	<b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	
	SHEET NO.	DRAWING NO.
	<b>S2</b>	<b>27081</b>

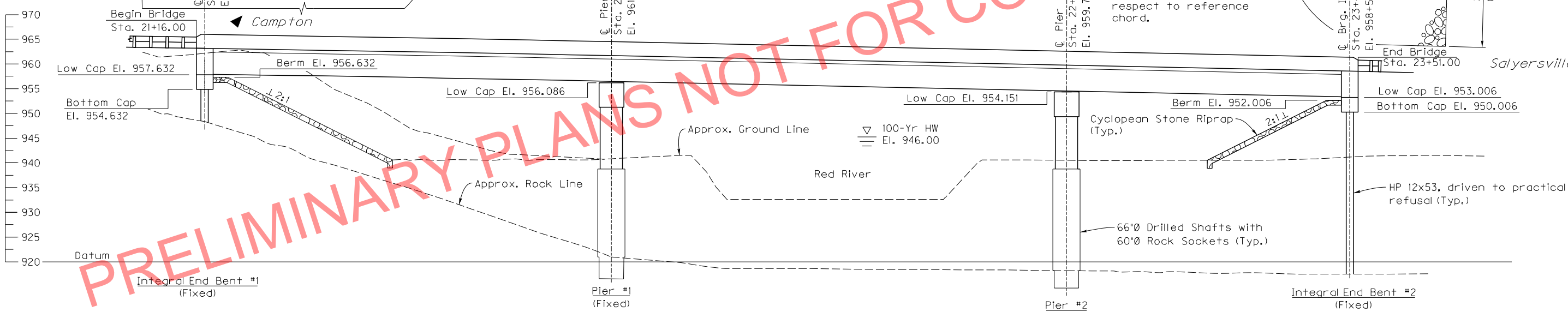
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 USER: breid  
 DATE PLOTTED: October 11, 2016  
 E-SHEET NAME:  
 MicroStation v8.11.9.714

**RAMP A CURVE DATA**

PI STA 18+23.74  
 $\Delta = 17^\circ 48' 57''$  RT  
 T = 823.74'  
 L = 1634.18'  
 R = 5255.50'  
 E = 64.16'  
 e = 2.26%  
 Runoff = 68.00'  
 Runout = 60.00'

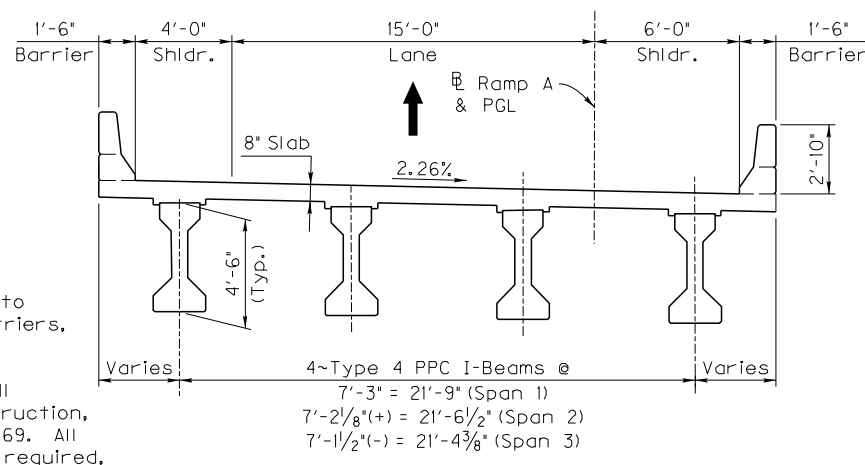


**PLAN**

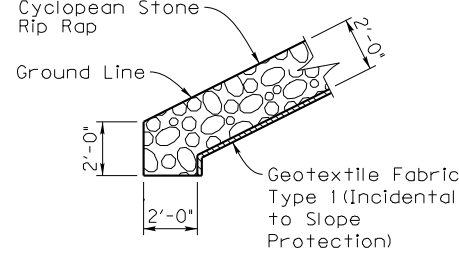


**ELEVATION**

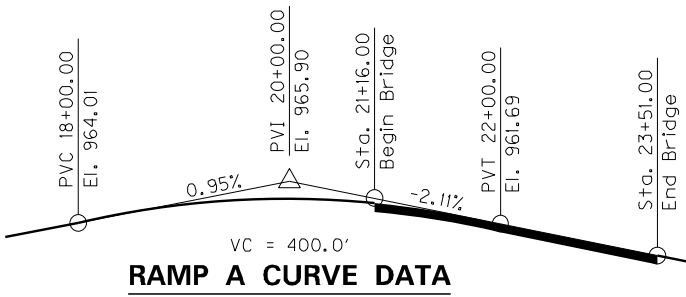
82'-3 1/2" ~ 92'-0" ~ 57'-2 7/8"  
 Type 4 PPC I-Beam  
 KY HL-93 Live Load ~ Continuous for Live Load  
 33'-0" Shoulder Width @ Bridge  
 25'-0" Roadway Width @ Bridge  
 Skew Varies ~ 2:1 Fill Slopes



**TYPICAL SECTION**



**TOE OF SLOPE DETAIL**



**RAMP A CURVE DATA**

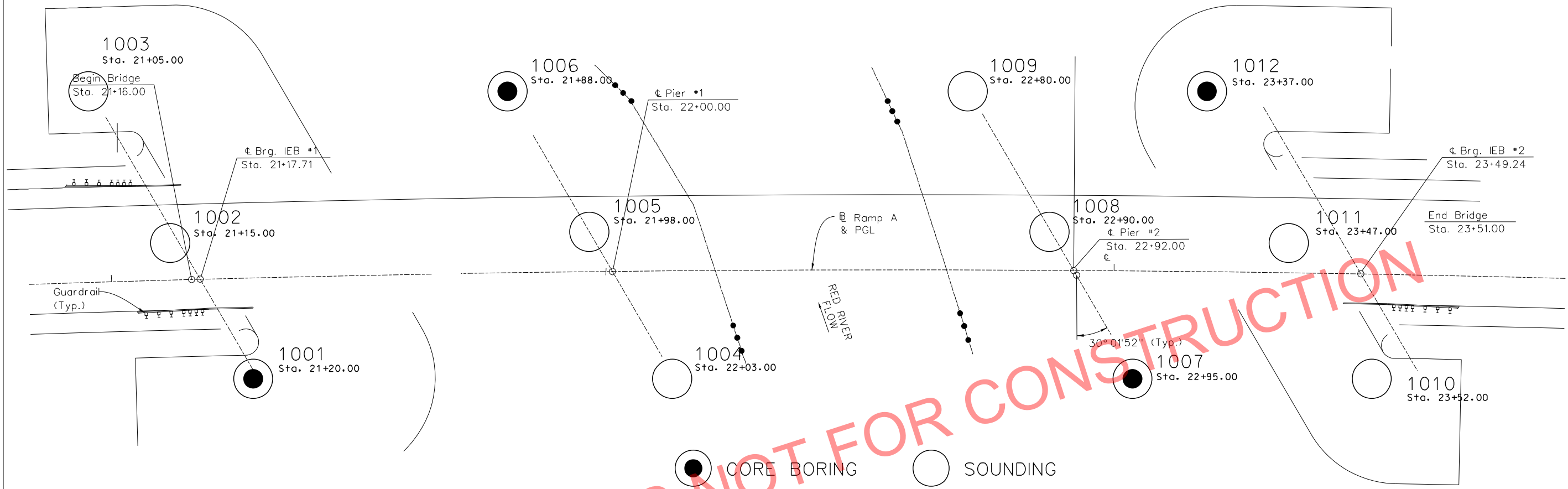
ITEM NUMBER	10-126.70
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- NOTES:**
- 1.) Roadway guardrail is to attach to bridge barriers, see Roadway Plans.
  - 2.) For end bent backfill and method of construction, see Special Provision 69. All geotextile fabric, if required, shall be incidental to structure granular backfill.

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: D.M. SMITHSON	B.C. REID	
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
<b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>LAYOUT</b>		
PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		SHEET NO. <b>S3</b> DRAWING NO. <b>27081</b>

# SUBSURFACE DATA

Plan Scale 1" = 10'



● CORE BORING ○ SOUNDING

END BENT #1  
APPROXIMATE ROADWAY GRADE ELEV. = 963.14

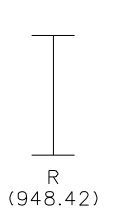
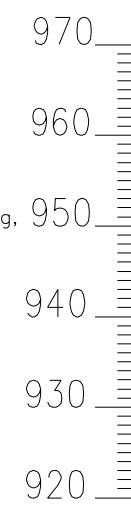
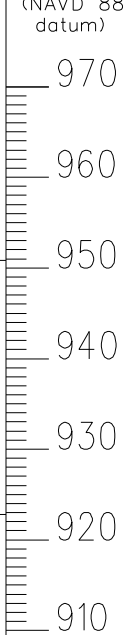
Profile Scale:  
Vertical 1" = 10'  
Horizontal not to scale

Hole No.	1003
Station	21+05.00
Offset	23.0' Lt.
Elev.	960.50
(NAVD 88 datum)	

Hole No.	1002
Station	21+15.00
Offset	7.0' Lt.
Elev.	961.72

Hole No.	1001
Station	21+20.00
Offset	8.0' Rt.
Elev.	962.80

PRELIMINARY PLANS NOT FOR CONSTRUCTION



W%	LI	D50	D95	SDI (JS)	
18		0.496	23.289		N=8, A-2-4(0), GC, S+C=31(15+16)
KY RQD	REC				
0	100				66 (1) (957.30 - 953.60) Weathered clay, shale, and siltstone, reddish brown to gray
56	100				97 (6) (953.60 - 947.30) Siltstone, gray, iron staining, planar partings at 953, 950
84	100				

Top of rock elev. = 957.30  
Base of weathered rock elev. = 953.60

REVISION		DATE
DATE: June, 2016	CHECKED BY:	
DESIGNED BY:	J. GODFREY	
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
COUNTY <b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>Red River</b>	
<b>SUBSURFACE DATA</b>		
PREPARED BY		SHEET NO.
<b>K.S. WARE &amp; ASSOCIATES, LLC</b>		<b>S4</b>
ITEM NUMBER		DRAWING NO.
<b>10.126.70</b>		<b>27081</b>

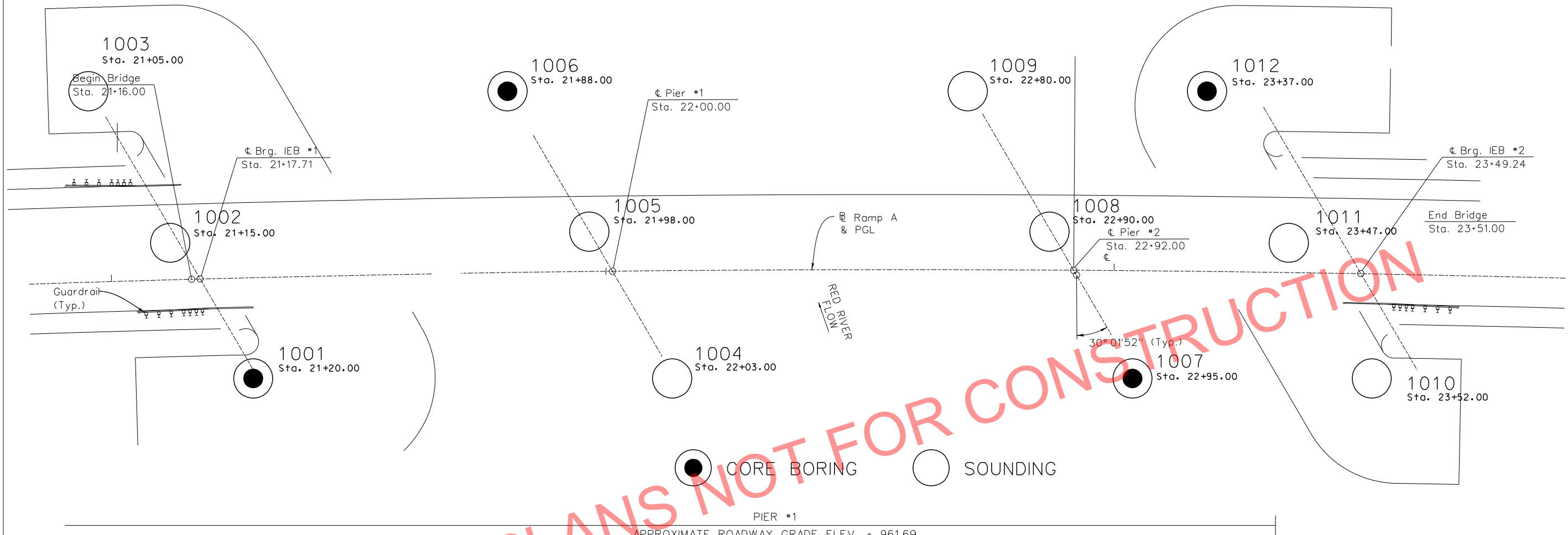
**S-017-2014**

ITEM NUMBER	10.126.70
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USER: dsmitison  
DATE PLOTTED: October 11, 2016  
E-SHEET NAME:  
MicroStation v8.11.9.459

# SUBSURFACE DATA

Plan Scale 1" = 10'



● CORE BORING ○ SOUNDING

PIER #1

APPROXIMATE ROADWAY GRADE ELEV. = 961.69

Hole No.  
Station  
Offset  
Elev.  
(NAVD 88  
datum)

1006  
21+88.00  
23.0' Lt.  
940.48

1005  
21+98.00  
7.0' Lt.  
940.69

1004  
22+03.00  
8.0' Rt.  
940.95

Profile Scale:  
Vertical 1" = 10'  
Horizontal not to scale

PRELIMINARY PLANS NOT FOR CONSTRUCTION

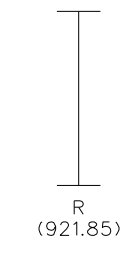
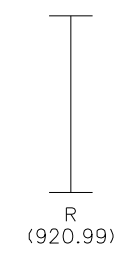
USER: dsmithson  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.459

W%	LI	D50	D95	SDI (JS)	
13		0.092	0.371	■	A-4(0), SM, S+C=43(29+14)
32		0.161	0.465	<	N=3, A-2-4(0), SM, S+C=15(7+8)
18		0.123	19.253	<	N=6, A-4(0), SM, S+C=40(25+16)
28		0.031	2.167	<	N=2, A-4(0), ML, S+C=60(41+19)
KY RQD	REC				
0	100				76 (5) (921.48 - 918.48) Weathered shale, gray, broken up
39	83				95 (6) (918.48 - 911.48) Shale, gray, micaceous minerals, planar partings
100	100				

Top of rock elev. = 921.48  
Base of weathered rock elev. = 918.48



REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY:	DETAILED BY: S. ANDREWS	
J. GODFREY		
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
COUNTY <b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>Red River</b>	
<b>SUBSURFACE DATA</b>		
PREPARED BY		SHEET NO.
K.S. WARE & ASSOCIATES, LLC		<b>S5</b>
DRAWING NO.		<b>27081</b>

**S-017-2014**

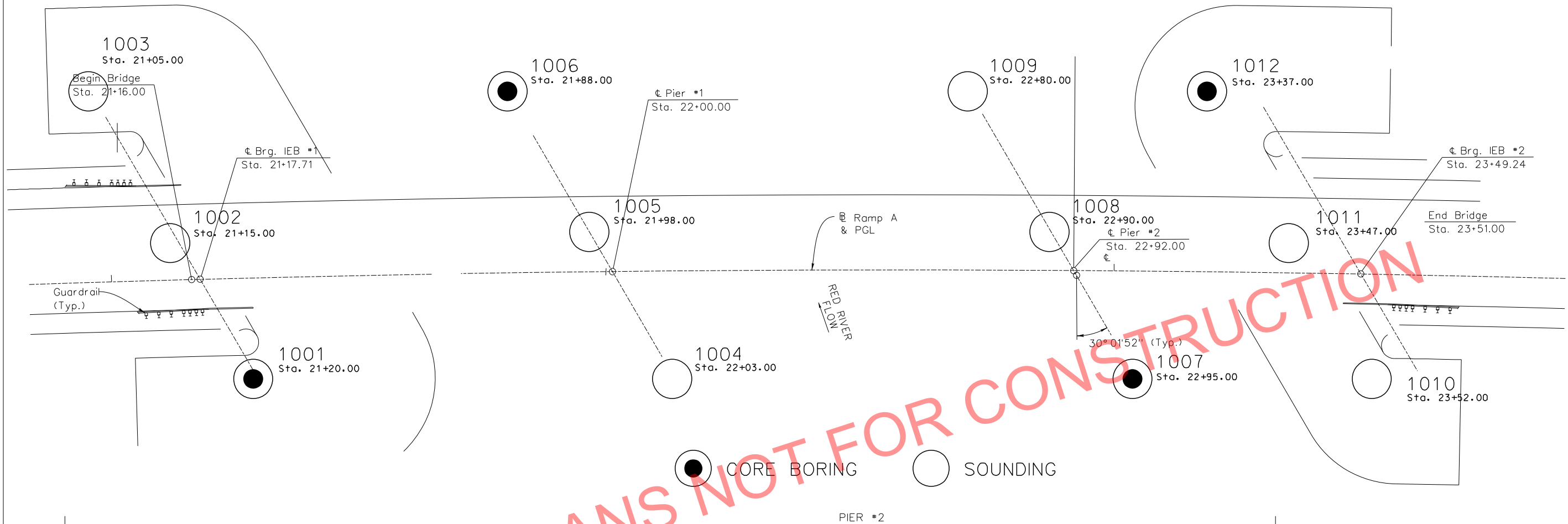
ITEM NUMBER	
10.126.70	

**SHEET 2 OF 4**



# SUBSURFACE DATA

Plan Scale 1" = 10'



PRELIMINARY! PLANS NOT FOR CONSTRUCTION

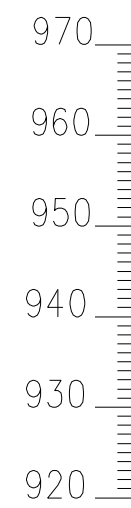
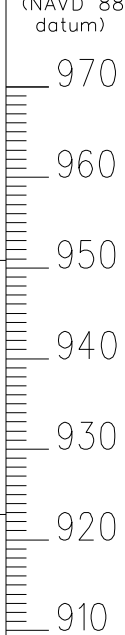
Hole No. Station Offset Elev. (NAVD 88 datum)

1009  
22+80.00  
23.0' Lt.  
938.86

1008  
22+90.00  
7.0' Lt.  
938.82

1007  
22+95.00  
8.0' Rt.  
940.43

Profile Scale:  
Vertical 1" = 10'  
Horizontal not to scale



WZ	LI	D50	D95	SDI (JS)
23		0.350	13.051	■ A-2-4(0), SM, S+C=25(18+7)
35				< N=3, A-4(0), SM, S+C=37(24+13)
37		0.107	0.378	< N=2, A-4(0), ML, S+C=68(45+23)
28		0.018	2.985	< N=2, A-3(0), SP-SM, S+C=9(3+6)
18		0.180	0.982	< N=56/0.80', A-2-4(0), SM, S+C=26(18+8)
0	100	0.246	13.315	85 (5) (920.13 - 916.63) Weathered shale, light gray with micaceous minerals, planar partings
50	93			96 (6) (916.63 - 910.13) Shale, gray, fine grained, micaceous minerals, slightly sandy
96	100			

Top of rock elev. = 920.13  
Base of weathered rock elev. = 916.63

**SHEET 3 OF 4**

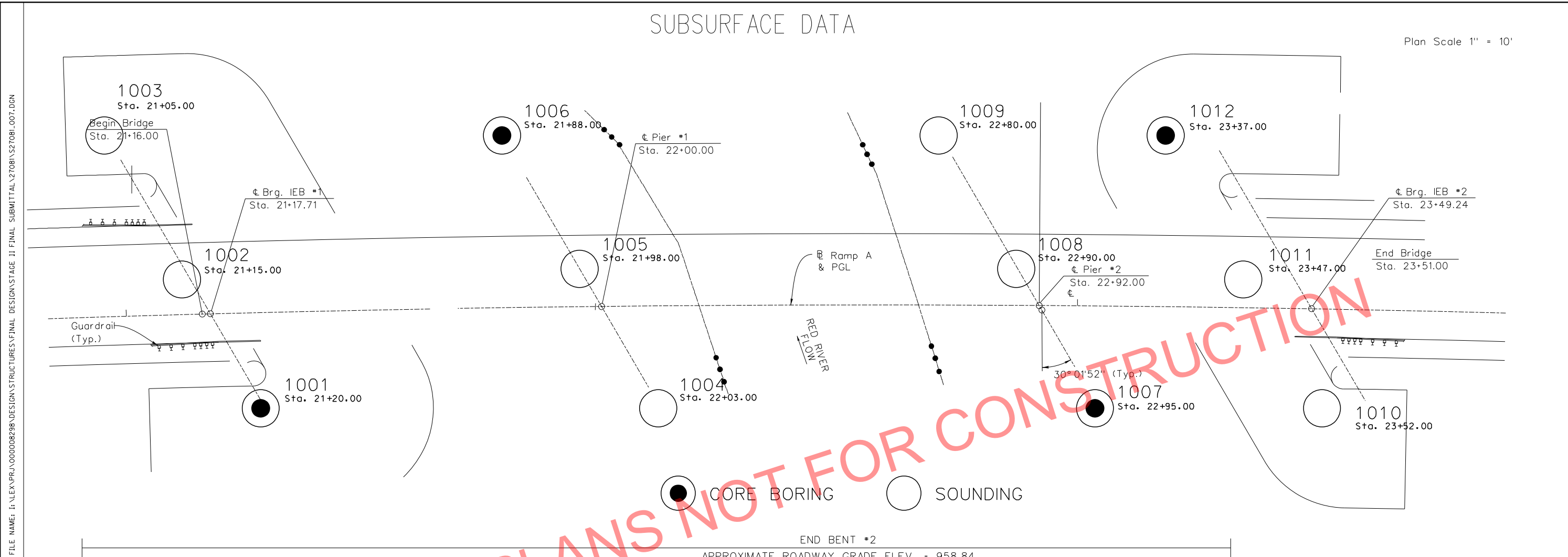
<b>S-017-2014</b>
ITEM NUMBER
10.126.70

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY:		
DETAILED BY: S. ANDREWS	J. GODFREY	
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
COUNTY <b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>Red River</b>	
<b>SUBSURFACE DATA</b>		
PREPARED BY		SHEET NO.
<b>K.S. WARE &amp; ASSOCIATES, LLC</b>		<b>S6</b>
		DRAWING NO.
		<b>27081</b>

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 USER: dsmitthson  
 DATE PLOTTED: October 11, 2016  
 E-SHEET NAME:  
 MicroStation v8.11.9.459

SUBSURFACE DATA

Plan Scale 1" = 10'



PRELIMINARY PLANS NOT FOR CONSTRUCTION

FILE NAME: I:\LEX\PR\A00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27081\007.DGN  
 USER: dsmitthson  
 DATE PLOTTED: October 11, 2016  
 E-SHEET NAME: MicroStation v8.11.9.459

Hole No.	Station	Offset	Elev.	(NAVD 88 datum)
1012	23+37.00	23.0' Lt.	938.92	
1011	23+47.00	7.0' Lt.	939.35	
1010	23+52.00	8.0' Rt.	939.65	

W%	LI	D50	D95	SDI (JS)
17		0.113	0.374	A-2-4(0), SM, S+C=35(14+18)
35		0.139	0.393	N=3, A-2-4(0), SM, S+C=23(15+8)
34		0.180	0.825	N=3, A-3(0), SP-SM, S+C=8(4+4)
26		0.014	0.296	N=0, A-4(0), ML, S+C=77(57+20)
KY RQD	REC	0.172	0.571	N=60/0.70', A-3(0), SP-SM, S+C=10(4+6)
0	100			
36	83			46 (2) (918.72 - 915.32) Weathered shale, crumbling with planar partings, micaceous minerals, gray
95	100			96 (6) (915.32 - 908.72) Shale, fine grained, micaceous minerals, gray

936.9	OW
9/5/2014	
	R (918.65)
	R (919.45)

Profile Scale:  
 Vertical 1" = 10'  
 Horizontal not to scale

Top of rock elev. = 918.72  
 Base of weathered rock elev. = 915.32

SHEET 4 OF 4

<b>S-017-2014</b>
ITEM NUMBER
10.126.70

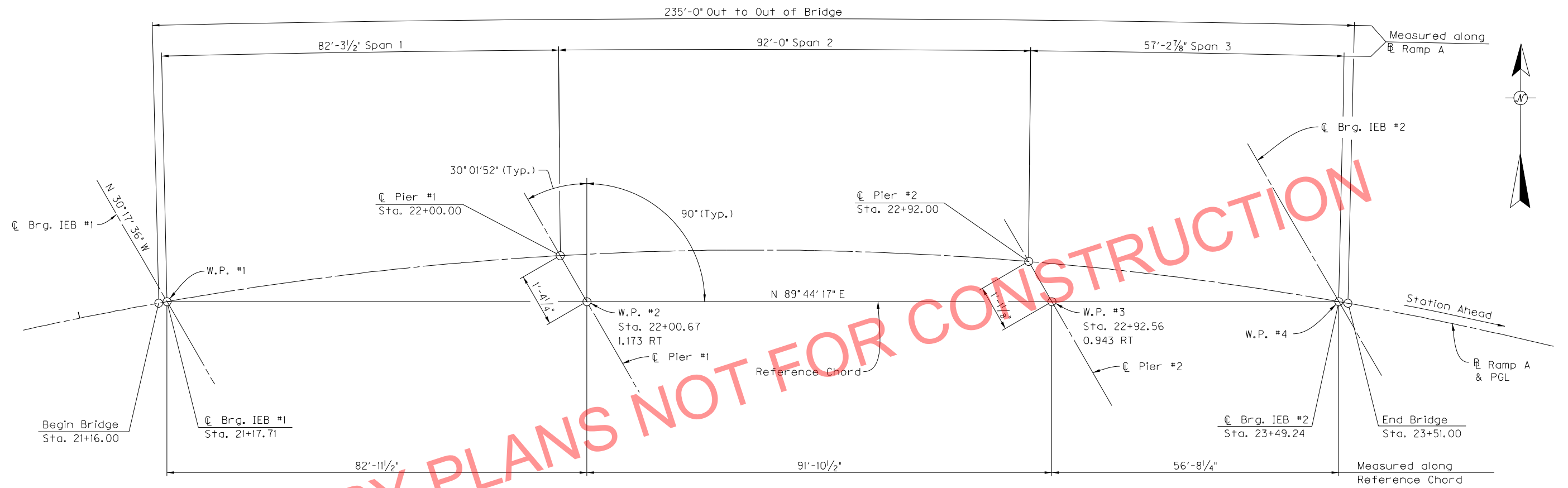
REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY:	J. GODFREY	
DETAILED BY: S. ANDREWS		
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
<b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>Red River</b>	
<b>SUBSURFACE DATA</b>		
PREPARED BY		SHEET NO.
<b>K.S. WARE &amp; ASSOCIATES, LLC</b>		<b>S7</b>
		DRAWING NO.
		<b>27081</b>

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27081\27081.008.DGN

USER: breid  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.714



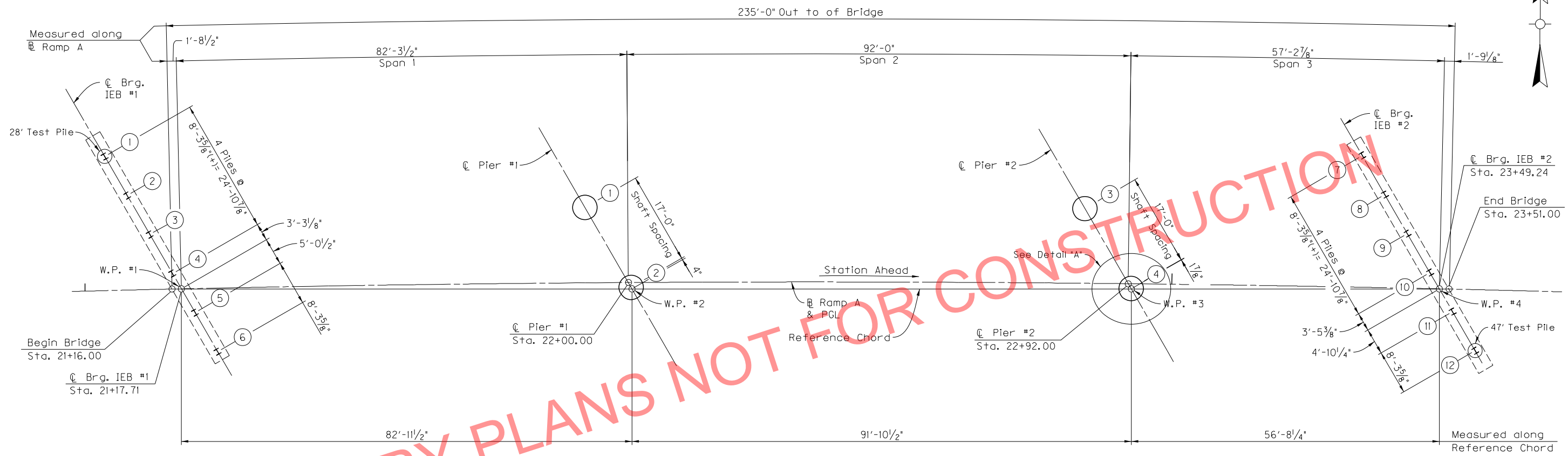
PRELIMINARY PLANS NOT FOR CONSTRUCTION

**GEOMETRIC LAYOUT**  
(Curvature exaggerated for clarity.)

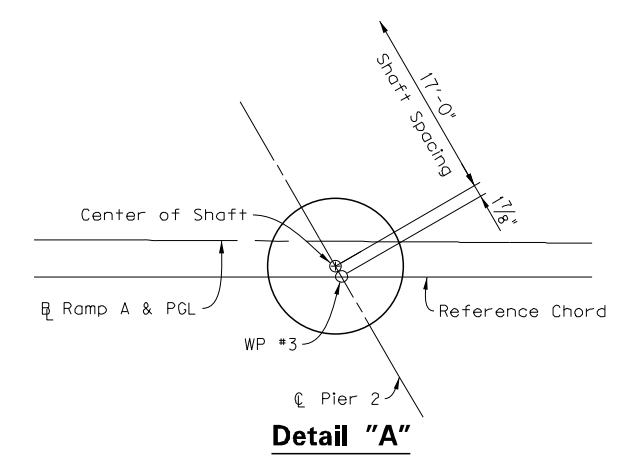
REVISION	
DATE: June, 2016	CHECKED BY
DESIGNED BY: B.C. REID	W.D. BURTON
DETAILED BY: W.R. ABBOTT	B.C. REID
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>	
COUNTY <b>WOLFE-MORGAN</b>	
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>
<b>GEOMETRIC LAYOUT</b>	
ITEM NUMBER	PREPARED BY
<b>10-126.70</b>	<b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY
	SHEET NO. <b>S8</b> DRAWING NO. <b>27081</b>



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 USER: breid  
 DATE PLOTTED: October 11, 2016  
 E-SHEET NAME:  
 MicroStation v8.11.9.714



PLAN



PRELIMINARY PLANS NOT FOR CONSTRUCTION

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	B.C. REID	
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
COUNTY <b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>FOUNDATION LAYOUT (1 of 2)</b>		
PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	ITEM NUMBER <b>10-126.70</b>	SHEET NO. <b>S9</b> DRAWING NO. <b>27081</b>

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27081\_010.DGN

USER: breid  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.714

Pile Record for Point Bearing Piles - IEB #1				
Pile No.	Pile Cut-off Elevation (Feet)	Pile Length in Place (Feet)	Point of Pile Elevation as Driven (Feet)	Design Axial Load (Tons)
1	956.632			73
2	956.632			73
3	956.632			73
4	956.632			73
5	956.632			73
6	956.632			73

Pile Record for Point Bearing Piles - IEB #2				
Pile No.	Pile Cut-off Elevation (Feet)	Pile Length in Place (Feet)	Point of Pile Elevation as Driven (Feet)	Design Axial Load (Tons)
7	952.006			73
8	952.006			73
9	952.006			73
10	952.006			73
11	952.006			73
12	952.006			73

**Miscellaneous**

At the south end of End Bent 1, solid rock excavation may be necessary in order to reach the required base of pile cap elevation.

**Slope Protection**

Slope protection will be required at the bridge meeting the requirements of sections 703 and 805 of the Standard Specifications of Road and Bridge Construction, current edition. The limits, size, and thickness of the slope protection shall be as specified in HEC 23. Place a Type I Geotextile Fabric, in accordance with Sections 214 and 843 of the Standard Specifications of Road and Bridge Construction, current edition, between the embankment and the slope protection.

**Predrilling For Piles**

Pre-drilling will be necessary for pile installation at the south end of End Bent 1 (Station 21+20, 8 ft RT and Station 21+15, 7 ft LT). Holes will need to be drilled into solid rock in order to ensure a minimum pile embedment of 10 feet below the bottom of the cap. The holes shall be drilled to an elevation of 944.6 feet at End Bent 1. If the rock line is encountered below these elevations then pre-drilling shall continue until the pile bears on solid rock but drilling into bedrock will not be required. Backfill the holes with sand or pea gravel after the pile is placed in the hole. A temporary casing will be required to prevent collapse of the hole. Remove the casing as the hole is being backfilled. Drive piles to practical refusal after backfill operations are complete. Include the cost of all materials, labor, and equipment needed to pre-drill, backfill the holes, and drive the piles to refusal in the price per linear foot "Pre-drilling for Piles".

Drilled Shaft Record										
Drill Shaft No.	Top of Drilled Shaft Common Elevation (Design)	Top of Drilled Shaft Common Elevation (Actual)	Top of Drilled Shaft Solid Rock Elevation (Design)	Top of Drilled Shaft Solid Rock Elevation (Actual)	Bottom of 66" Steel Casing Elevation (Design)	Bottom of 66" Steel Casing Elevation (Actual)	Bottom of Drilled Shaft Solid Rock Elevation (Design)	Bottom of Drilled Shaft Solid Rock Elevation (Actual)	Total Length of Drilled Shaft Common	Total Length of Drilled Shaft Solid Rock
PIER #1										
1	938.900		918.500		918.500		910.500			
2	938.900		918.500		918.500		910.500			
PIER #2										
3	938.900		916.000		916.000		908.000			
4	938.900		916.000		916.000		908.000			

**Hammer Criteria**

Single-acting diesel hammers with rated energies between 23 kip-ft and 40 kip-ft are recommended to adequately drive the H-piles to practical refusal without encountering excessive blow counts or overstressing the piles. The use of hammers other than single-acting diesel may require different energies. The contractor shall submit the proposed pile driving system to the Department for approval prior to the installation of the first pile. Approval of the pile driving system by the Engineer will be subject to satisfactory field performance of the pile driving procedures.

**Drilled Shaft Foundation for Piers**

See Sheets S16 and S17 for Drilled Shaft Notes.

**Field Data**

For each pile, the Project Engineer shall record the following on this sheet: Pile Length in Place and Point of Pile Elevation as Driven.

Submit this record to: Kentucky Transportation Cabinet  
Director, Division of Structural Design  
Room #322  
200 Mero Street  
Frankfort, KY 40622

This pile record does not replace other pile records the Project Engineer is required to keep and submit.  
Use HP 12x53 in accordance with BPS-003, c.e.  
Use Grade 50 steel H-Piles with reinforced pile points as end bearing piles.

**Driving Criteria**

DRIVING CRITERIA: Drive point bearing piles to practical refusal.

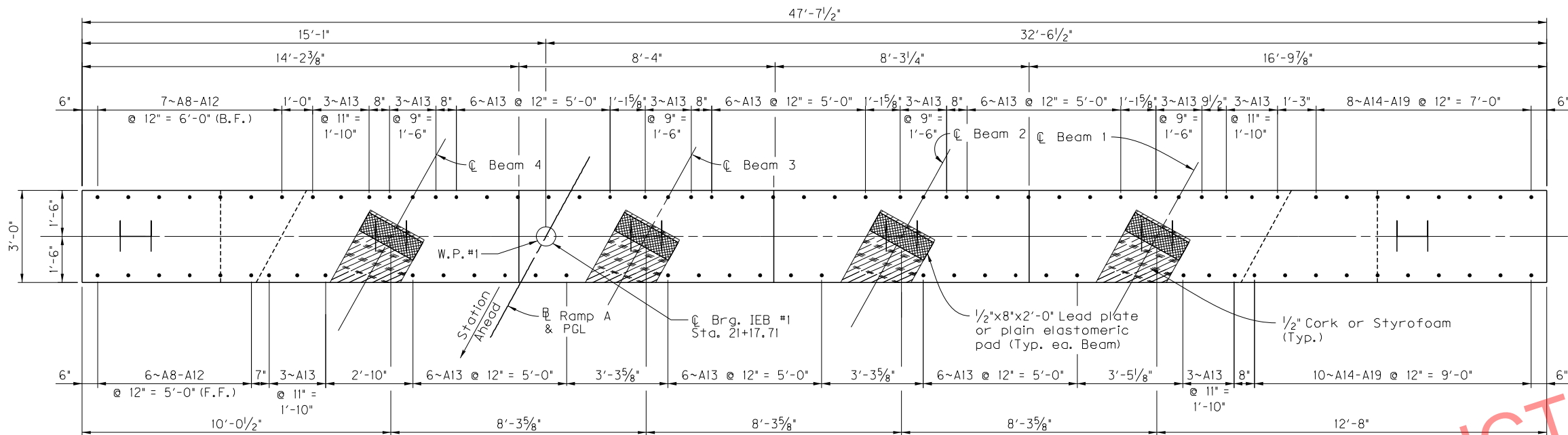
PRACTICAL REFUSAL: For this project minimum blow requirements are reached after total penetration becomes 1/2" or less for 10 consecutive blows, practical refusal is obtained after the pile is struck an additional 10 blows with total penetration of 1/2" or less. Advance the production piling to the driving resistances specified above and to depths determined by test pile(s) and subsurface data sheet(s). Immediately cease driving operations if the pile visibly yields or becomes damaged during driving. If hard driving is encountered because of dense strata or an obstruction, such as a boulder before the pile is advanced to the depth anticipated, the Engineer will determine if more blows than the average driving resistances specified for practical refusal is required to further advance the pile. Drive additional production and test piles if directed by the Engineer.

**Definitions of Terms**

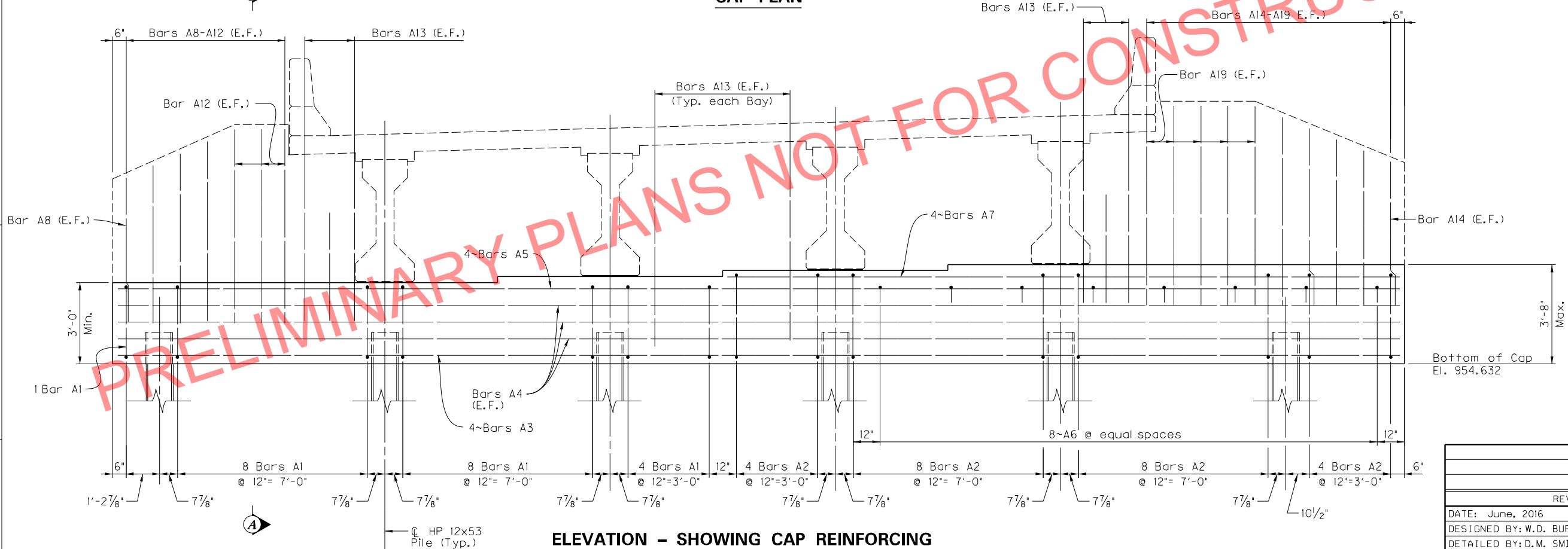
- PILE CUT-OFF ELEVATION: Elevation of the top of pile in the finished structure.
- PILE LENGTH IN PLACE: Actual pile length below the Pile Cut-Off Elevation in the finished structure.
- POINT OF PILE ELEVATION AS DRIVEN: Actual point of pile elevation in the finished structure.
- DESIGN AXIAL LOAD: Load carried by each pile as estimated from structural design calculations for Factored LRFD Loadings.
- CALCULATED FIELD BEARING: Contrary to Section 604.03.07 of the Standard Specifications, in place bearing values are not required for piles bearing on rock when driven to practical refusal.

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	B.C. REID	
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
COUNTY <b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>FOUNDATION LAYOUT (2 of 2)</b>		
ITEM NUMBER	PREPARED BY	SHEET NO.
<b>10-126.70</b>	<b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	<b>\$10</b> DRAWING NO. <b>27081</b>

FILE NAME: I:\LEX\PR\A00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27081\011.DGN  
 USER: breid  
 DATE PLOTTED: October 11, 2016  
 E-SHEET NAME: MicroStation v8.11.9.714



**CAP PLAN**



**ELEVATION - SHOWING CAP REINFORCING**  
(Looking Back Station)

**NOTES:**

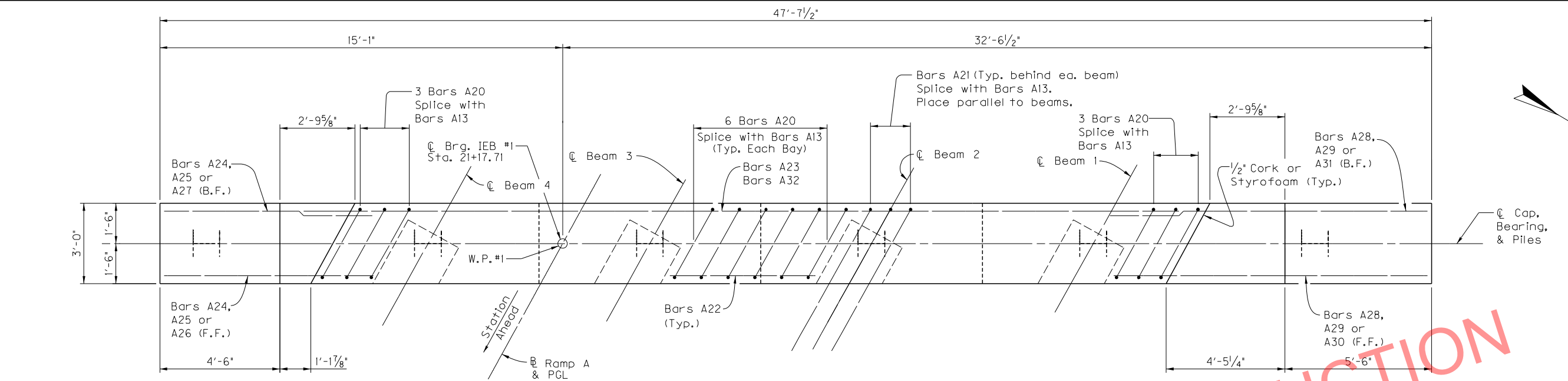
1. For pile spacing see Foundation Layout, Sheet S9.
2. Construction joint is not roughened under cork or bearing pads.
3. Elevations are given at the top of concrete.
4. All cap concrete shall be Class "A".
5. For Section A-A, see Sheet S18.

TABLE OF BEARING	
Point	Elevation
Beam 1	958.300
Beam 2	958.078
Beam 3	957.856
Beam 4	957.632

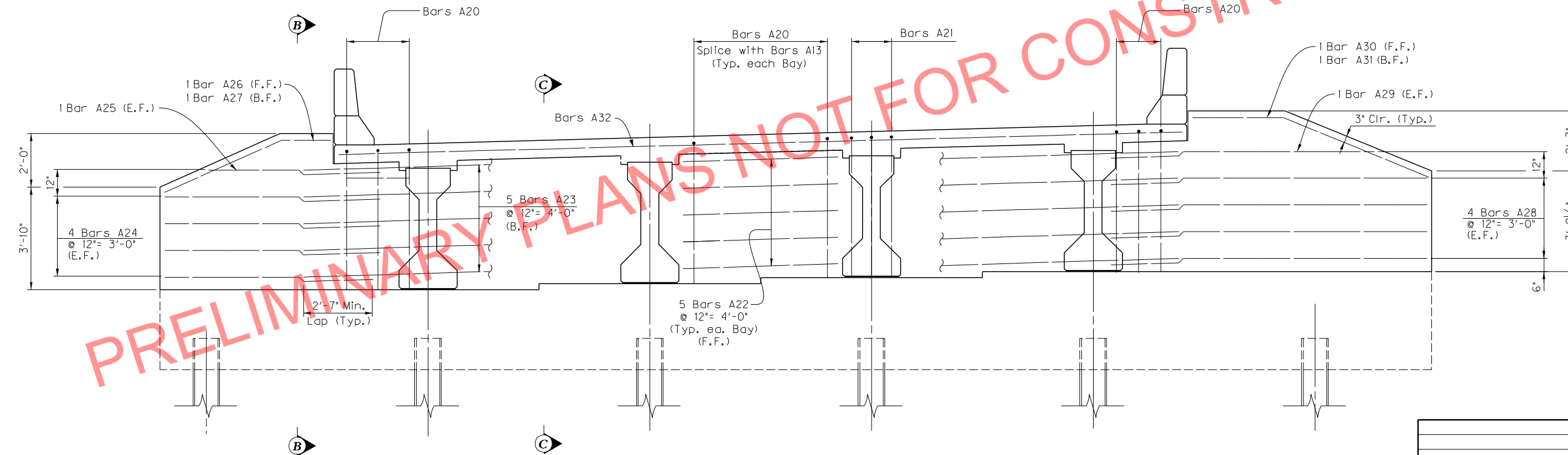
ITEM NUMBER	10-126.70
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REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: W.D. BURTON	B.C. REID	
DETAILED BY: D.M. SMITHSON	B.C. REID	
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
<b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>INTEGRAL END BENT 1 (1 OF 2)</b>		
PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		SHEET NO. <b>S11</b> DRAWING NO. <b>27081</b>

PRELIMINARY PLANS NOT FOR CONSTRUCTION



**PLAN - SHOWING DIAPHRAGM & WING REINFORCING**



**ELEVATION - SHOWING DIAPHRAGM & WING REINFORCING**  
(Looking Back Station)

PRELIMINARY PLANS NOT FOR CONSTRUCTION

Notes:  
 1. Diaphragm Concrete shall be Class 'AA'.  
 2. For Sections B-B and C-C, see Sheet S18.

ITEM NUMBER
10-126.70

REVISION		DATE
DATE: May, 2016	CHECKED BY	
DESIGNED BY: W.D. BURTON	B.C. REID	
DETAILED BY: D.M. SMITHSON	W.D. BURTON	
<b>Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS</b>		
<b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>INTEGRAL END BENT 1 (2 OF 2)</b>		
PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		SHEET NO. <b>S12</b> DRAWING NO. <b>27081</b>

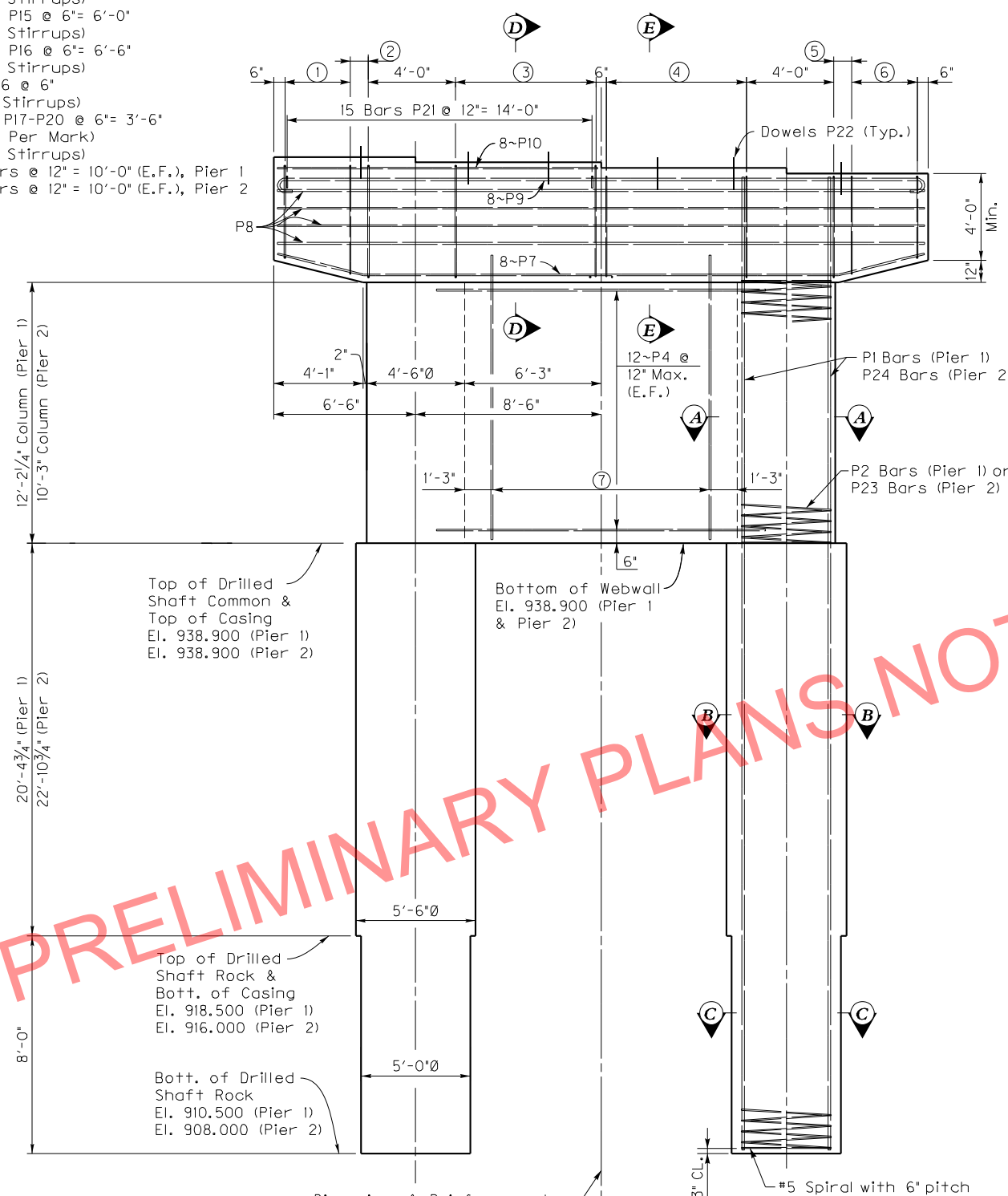
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USER: breid  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.714

- ① 8 Bars P11-P14 @ 6"= 3'-6"  
(2 Bars per Mark)  
(Double Stirrups)
- ② 1 Bar P15 @ 6"  
(Double Stirrups)
- ③ 13 Bars P15 @ 6"= 6'-0"  
(Double Stirrups)
- ④ 14 Bars P16 @ 6"= 6'-6"  
(Double Stirrups)
- ⑤ 1 Bar P16 @ 6"  
(Double Stirrups)
- ⑥ 8 Bars P17-P20 @ 6"= 3'-6"  
(2 Bars Per Mark)  
(Double Stirrups)
- ⑦ 11 P3 Bars @ 12"= 10'-0" (E.F.), Pier 1  
11 P5 Bars @ 12"= 10'-0" (E.F.), Pier 2

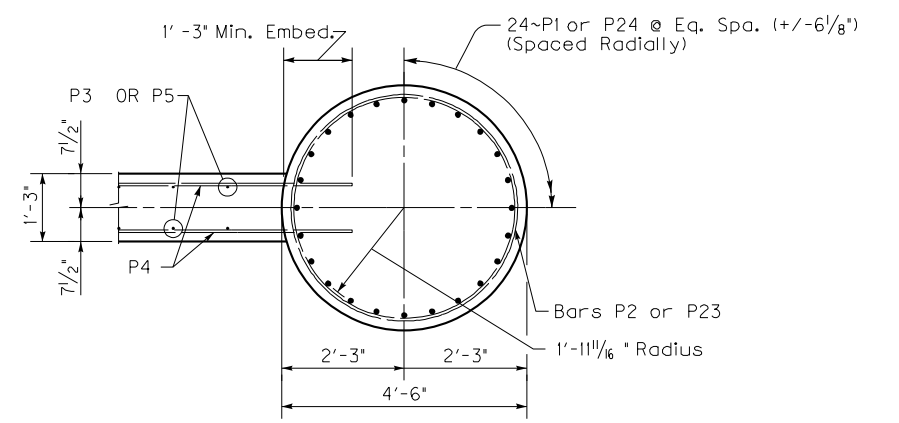


Dimensions & Reinforcement Symmetrical about this  $\perp$  Unless otherwise noted.

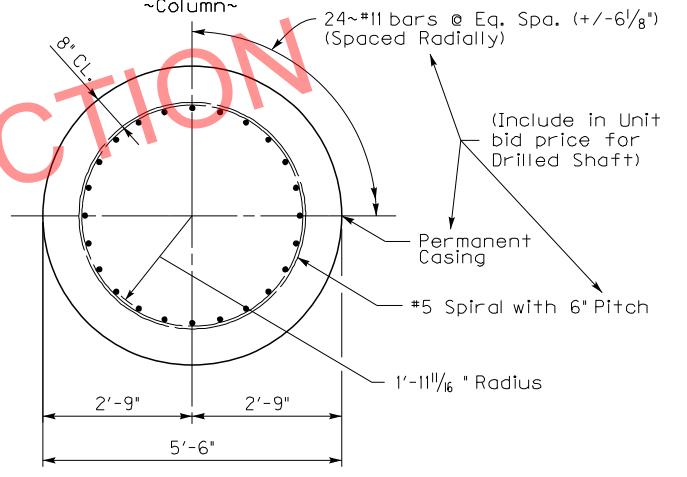
**ELEVATION**

**NOTES:**

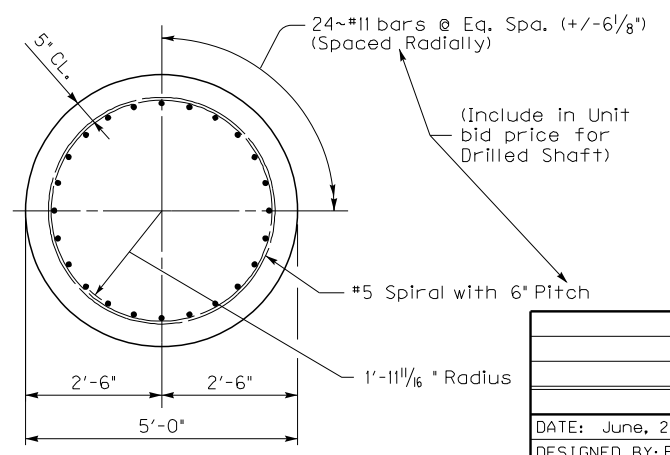
1. For drilled shaft locations, see Foundation Layout Sheet S9.
2. Contrary to the Standard Specifications and the Special Note for Drilled Shafts, the maximum coarse aggregate size for Class 'A' Modified Concrete to be used in drilled shafts is #78. This applies to all concrete placed below the top of drilled shaft common.
3. For Sections D-D and E-E, see Sheet S15.



**SECTION A-A**  
~Column~



**SECTION B-B**  
~Drilled Shaft Common~



**SECTION C-C**  
~Drilled Shaft Solid Rock~

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: D.M. SMITHSON	B.C. REID	
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
<b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>PIER DETAILS (1 OF 3)</b>		
ITEM NUMBER	PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	SHEET NO. <b>S13</b> DRAWING NO. <b>27081</b>
<b>10-126.70</b>		



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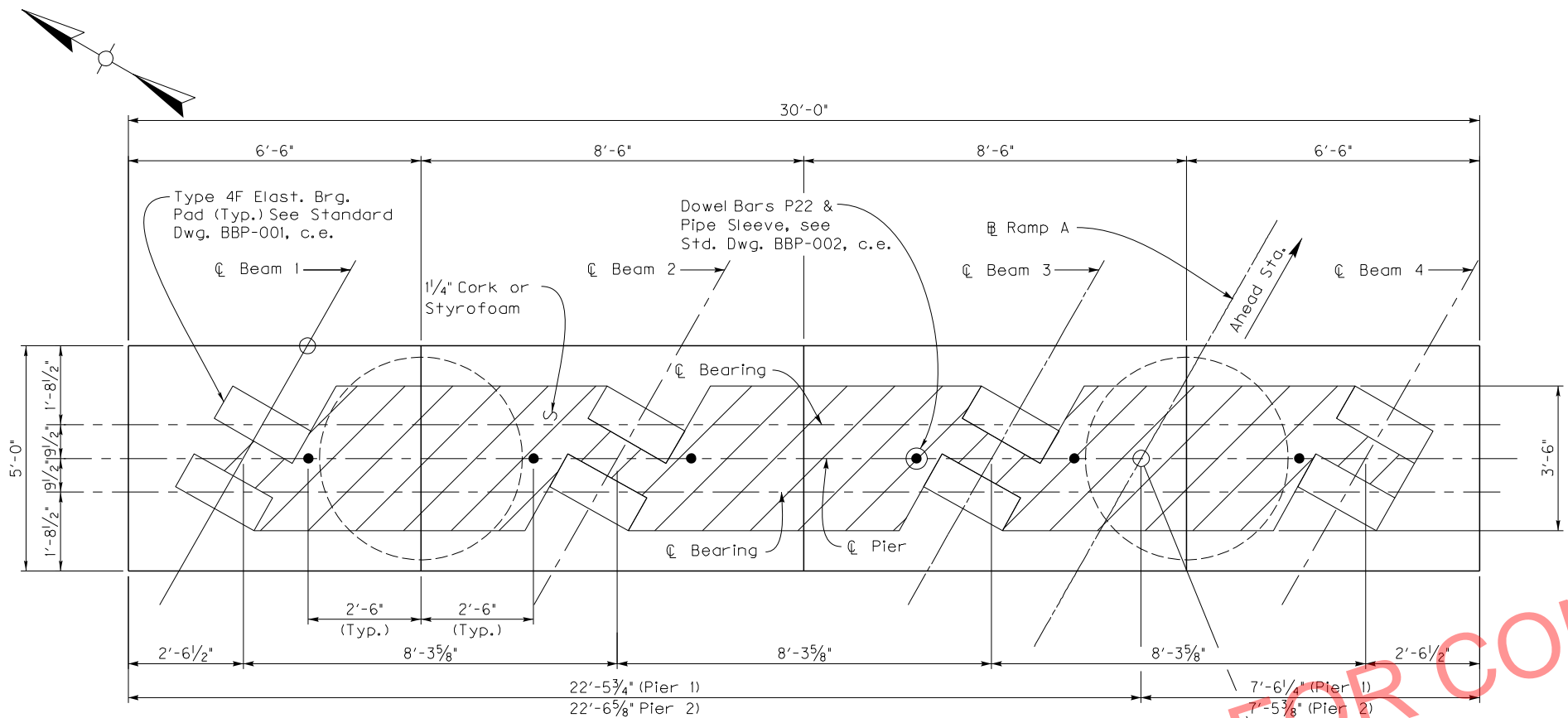
USER: breid  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.714

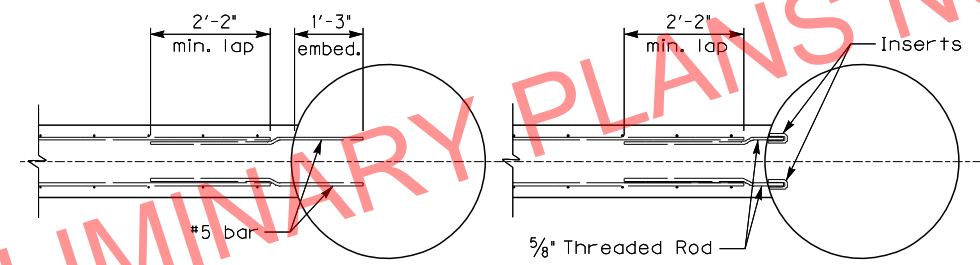
**DRILLED SHAFT NOTES**

1. Drilled shafts shall be constructed in accordance with the Special Note for Drilled Shafts, current edition. Include all costs (materials including spiral and longitudinal reinforcement, reinforcement splices and mechanical couplers, concrete, and temporary or permanent casing, labor and equipment) associated with the drilled shafts in the unit price bid for Drilled Shaft, Common or Solid Rock, as applicable.
2. Permanent casing is required in the overburden. Permanent casing is incidental to the unit bid price for Drilled Shaft-66 in (Common).
3. The Contractor shall provide subsurface exploration borings at each drilled shaft location in accordance with the Special Note for Drilled Shafts, current edition. Rock Sounding and Rock Coring will be required at each shaft location. Payment will be based on actual sounding and coring lengths.
4. Elevations for the Bottom of Drilled Shaft-Common, Bottom of Casing, Top of Drilled Shaft-Solid Rock and Bottom of Drilled Shaft-Solid Rock will be determined by the Division of Structural Design, Geotechnical Branch, based on the results of the Rock Sounding and Rock Coring. Quantities for the Drilled Shafts shown on the title sheet are estimates and the actual installed and paid quantities will be determined after the Rock Sounding and Rock Coring is complete in accordance with the Special Note for Drilled Shafts, current edition.
5. Reinforcement cages shall be held centered in the rock socket and adjusted as necessary to match plan location at the bottom of the pier column.



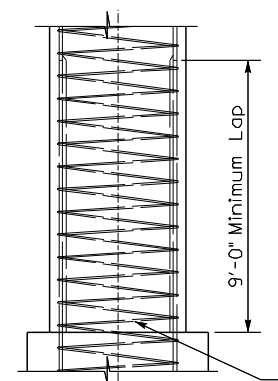
**PLAN OF CAP**

C Pier #1  
 Sta. 22+00.00  
 C Pier #2  
 Sta. 22+92.00



**Permissible Webwall Reinforcement Options (Column Portion)**

These options may be used in lieu of detailed webwall reinforcement, however, payment will be based on the Steel Reinforcement quantity shown on the Title Sheet. Threaded inserts are to develop a safe load, in tension, of 9.3 kips with a safety factor of 3. Ensure threaded rods have a minimum 60 ksi yield strength, threaded to fit inserts, and have an effective tensile stress area equal to or greater than that of the reinforcing bars.



**MANDATORY SPLICE**

Drilled shaft reinforcement must project into columns to be spliced as shown. Projecting shaft reinforcement is incidental to the total cost of the drilled shafts.

TOP OF PIER CAP ELEVATION		
	Pier 1	Pier 2
Beam 1	956.831	954.903
Beam 2	956.584	954.652
Beam 3	956.336	954.402
Beam 4	956.086	954.151

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: D.M. SMITHSON	B.C. REID	

Commonwealth of Kentucky  
DEPARTMENT OF HIGHWAYS

COUNTY  
**WOLFE-MORGAN**

ROUTE CROSSING  
**RAMP A RED RIVER**

**PIER DETAILS (2 OF 3)**

PREPARED BY  
**LOCHNER**  
H.W. LOCHNER, INC.  
LEXINGTON, KENTUCKY

SHEET NO.  
**S14**

DRAWING NO.  
**27081**

ITEM NUMBER	10-126.70
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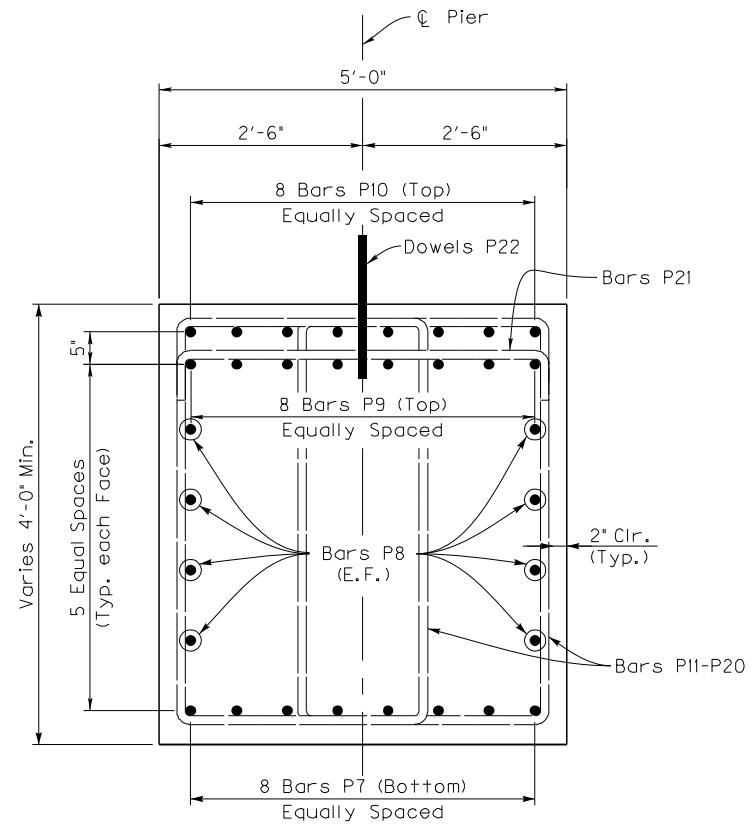


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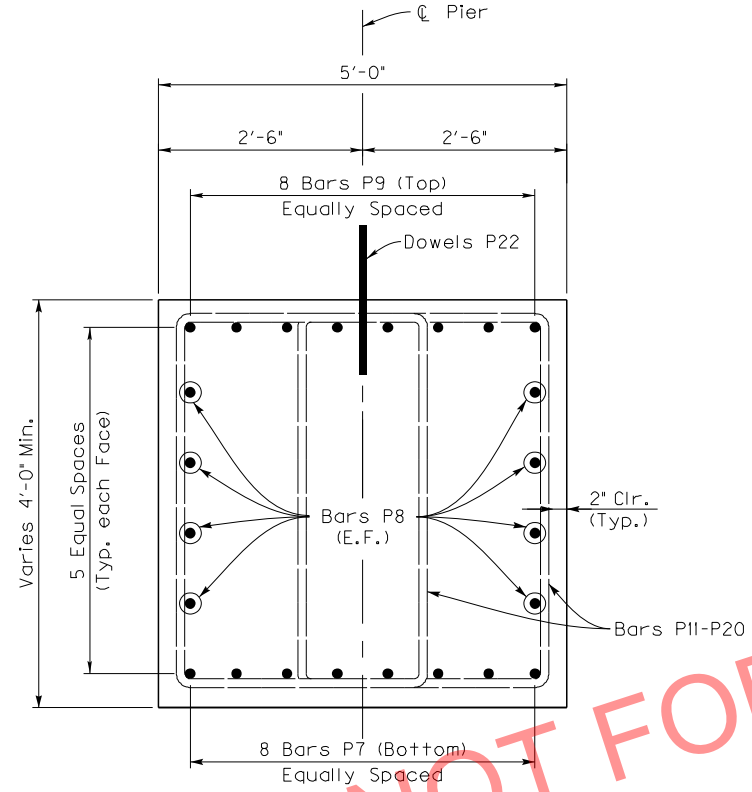
USER: dsmithson  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.459



**SECTION D-D**

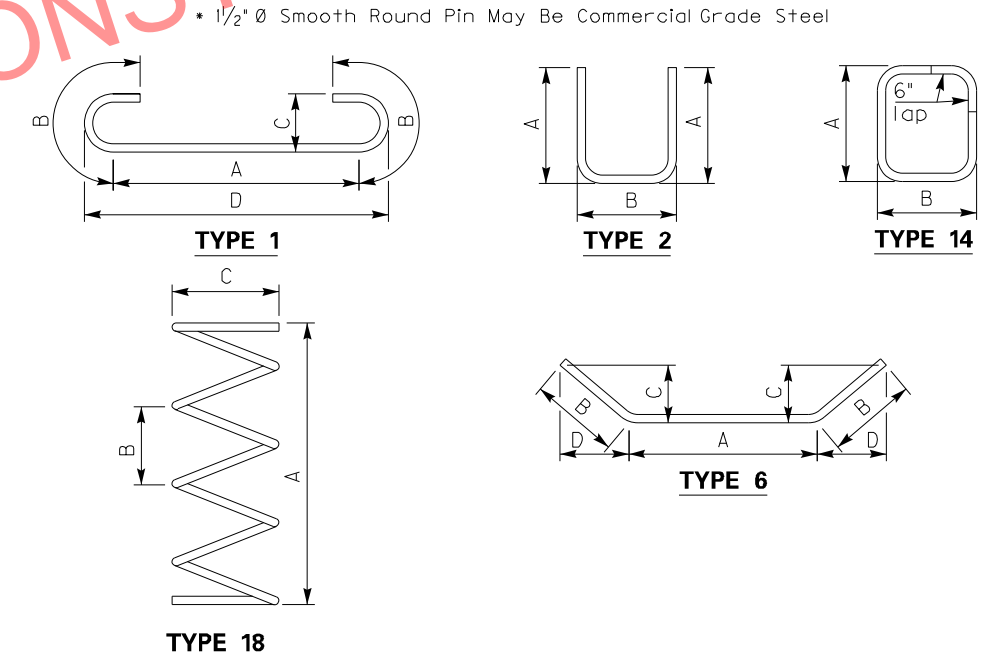


**SECTION E-E**

PRELIMINARY PLANS NOT FOR CONSTRUCTION

**BILL OF REINFORCEMENT**

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C	D
P1	Str.	48	11	17-0	Column, Pier 1				
P2	18	2	5	364-1	Column Spiral, Pier 1	12-5	0-6	4-2	
P3	Str.	22	5	13-0	Webwall, Pier 1				
P4	Str.	48	5	15-0	Webwall				
P5	Str.	22	5	11-0	Webwall, Pier 2				
P6	NOT USED								
P7	6	16	8	29-11	Cap Bottom Bars	21-9	4-1	1-10 <sup>5</sup> / <sub>8</sub>	3-11 <sup>1</sup> / <sub>4</sub>
P8	Str.	16	5	29-8	Cap Side				
P9	1	16	8	31-10	Cap Top Bars	29-0	1-5	0-8	29-8
P10	Str.	16	5	14-8	Cap Top Bars				
P11	14s	8	5	16-6	Cap Stirrup	4-3	3-6		
P12	14s	8	5	17-2	Cap Stirrup	4-7	3-6		
P13	14s	8	5	17-8	Cap Stirrup	4-9	3-6		
P14	14s	8	5	18-2	Cap Stirrup	5-1	3-6		
P15	14s	56	5	18-2	Cap Stirrup	5-1	3-6		
P16	14s	60	5	17-4	Cap Stirrup	4-8	3-6		
P17	14s	8	5	17-2	Cap Stirrup	4-7	3-6		
P18	14s	8	5	16-8	Cap Stirrup	4-4	3-6		
P19	14s	8	5	16-2	Cap Stirrup	4-1	3-6		
P20	14s	8	5	15-8	Cap Stirrup	3-10	3-6		
P21	2s	30	5	5-8	Cap	0-6	4-8		
P22e	Str.	12	*	2-0	Cap Dowel				
P23	18	2	5	313-4	Column Spiral, Pier 2	10-6	0-6	4-2	
P24	Str.	48	11	15-1	Column, Pier 2				



REVISION	DATE

DATE: June, 2016  
DESIGNED BY: B.C. REID  
DATE: June, 2016  
CHECKED BY: W.D. BURTON  
DETAILED BY: D.M. SMITHSON  
B.C. REID

**Commonwealth of Kentucky**  
**DEPARTMENT OF HIGHWAYS**

COUNTY  
**WOLFE-MORGAN**

ROUTE **RAMP A** CROSSING **RED RIVER**

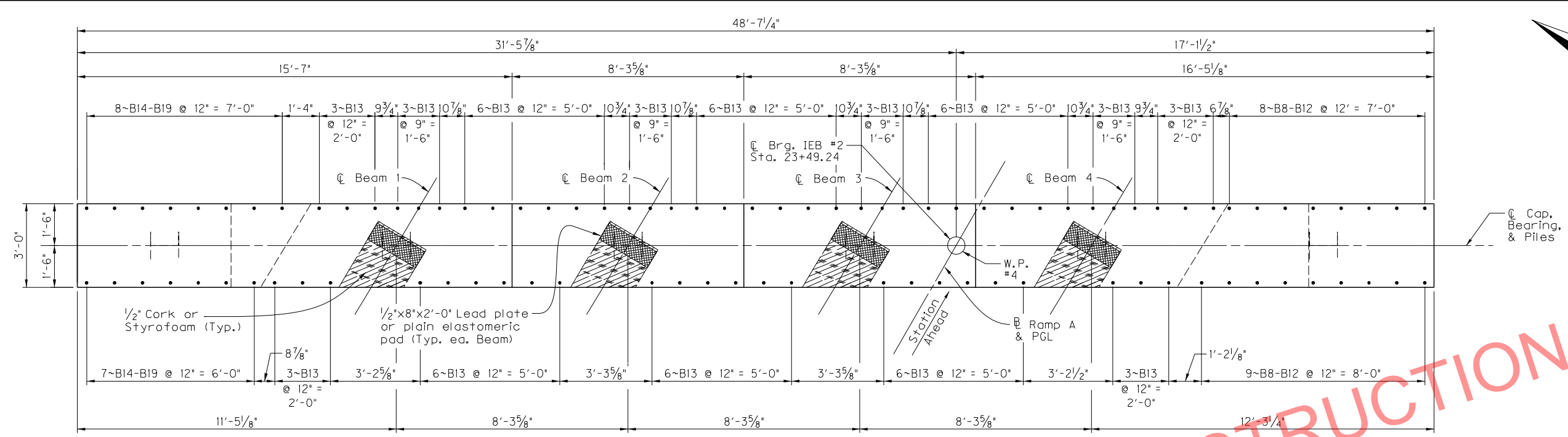
**PIER DETAILS (3 OF 3)**

PREPARED BY  
**LOCHNER**  
H.W. LOCHNER, INC.  
LEXINGTON, KENTUCKY

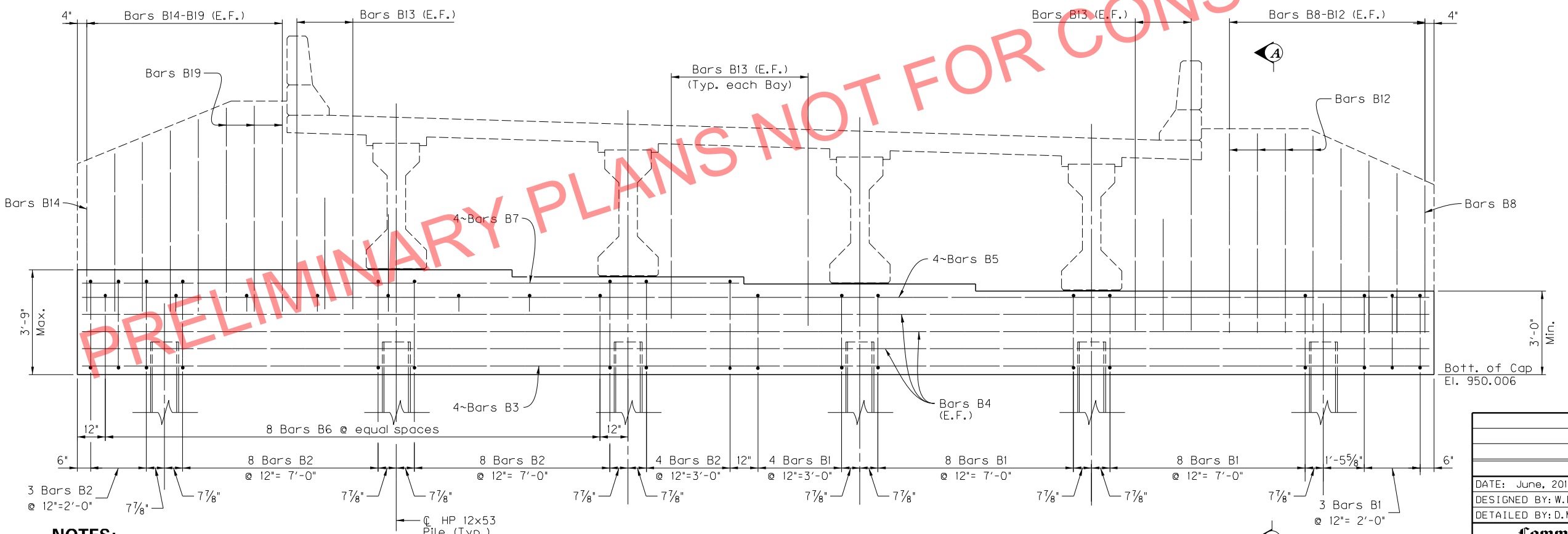
SHEET NO.  
**S15**  
DRAWING NO.  
**27081**

ITEM NUMBER	10-126.70
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 DATE PLOTTED: October 11, 2016  
 E-SHEET NAME: MicroStation v8.11.9.714



**CAP PLAN**



**ELEVATION - SHOWING CAP REINFORCING**

**NOTES:**

1. For pile spacing see Foundation Layout, Sheet S9.
2. Construction joint is not roughened under cork or bearing pads.
3. Elevations are given at the top of concrete.
4. All cap concrete shall be Class "A".
5. For Section A-A, see Sheet S18.

TABLE OF BEARING	
Point	Elevation
Beam 1	953.759
Beam 2	953.508
Beam 3	953.257
Beam 4	953.006

ITEM NUMBER	10-126.70
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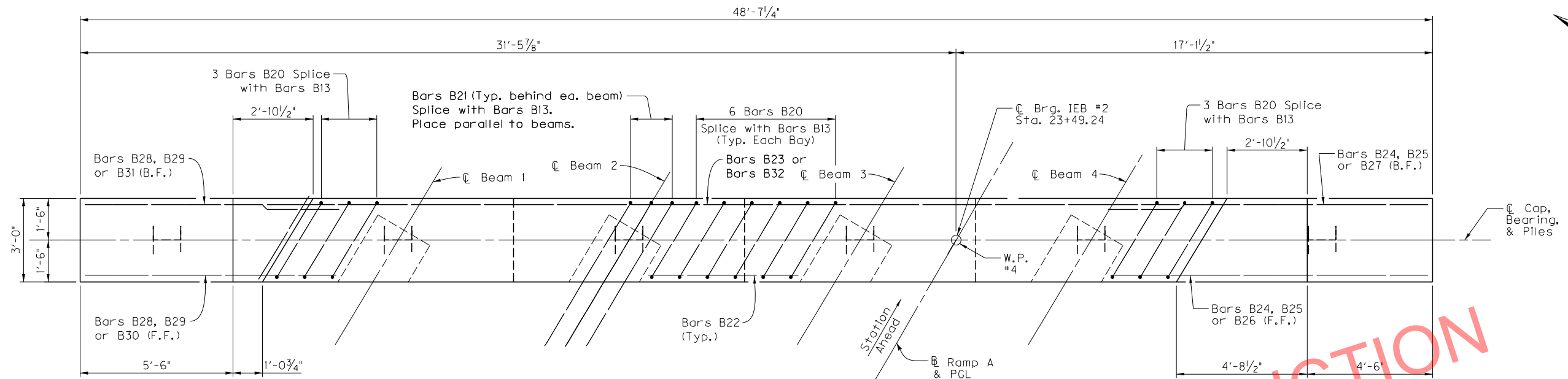
REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: W.D. BURTON	B.C. REID	
DETAILED BY: D.M. SMITHSON	B.C. REID	
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
COUNTY <b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>INTEGRAL END BENT 2 (1 OF 2)</b>		
PREPARED BY <b>LOCHNER</b>		SHEET NO. <b>S16</b>
H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		DRAWING NO. <b>27081</b>

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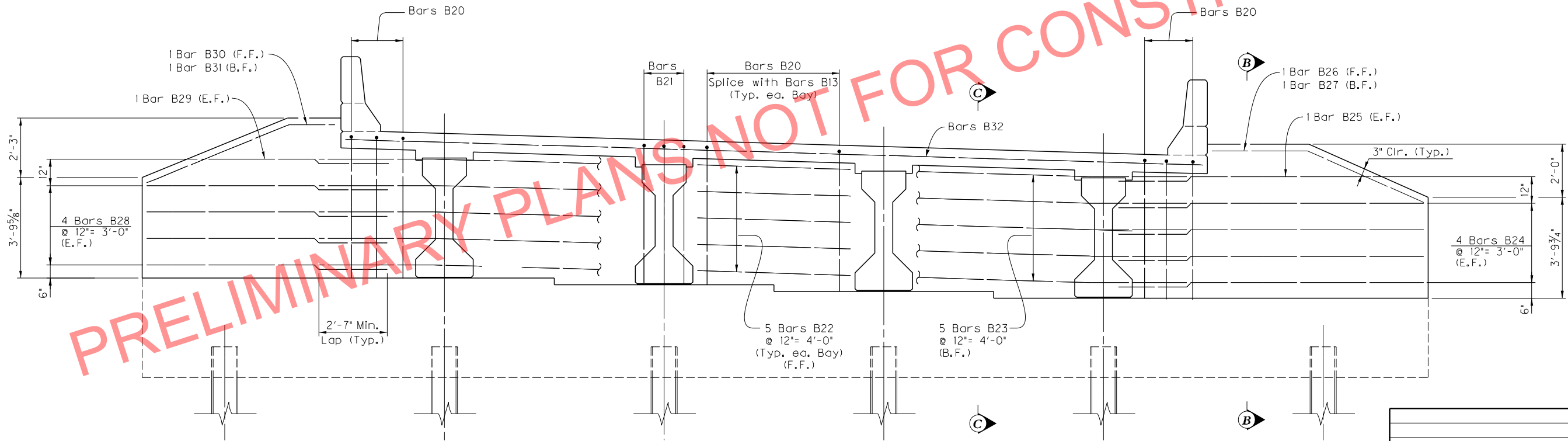
USER: breid  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.714



**PLAN - SHOWING DIAPHRAGM & WING REINFORCING**



**ELEVATION - SHOWING DIAPHRAGM & WING REINFORCING**

- Notes:
1. Diaphragm Concrete shall be Class "AA".
  2. For Sections B-B and C-C, see Sheet S18.

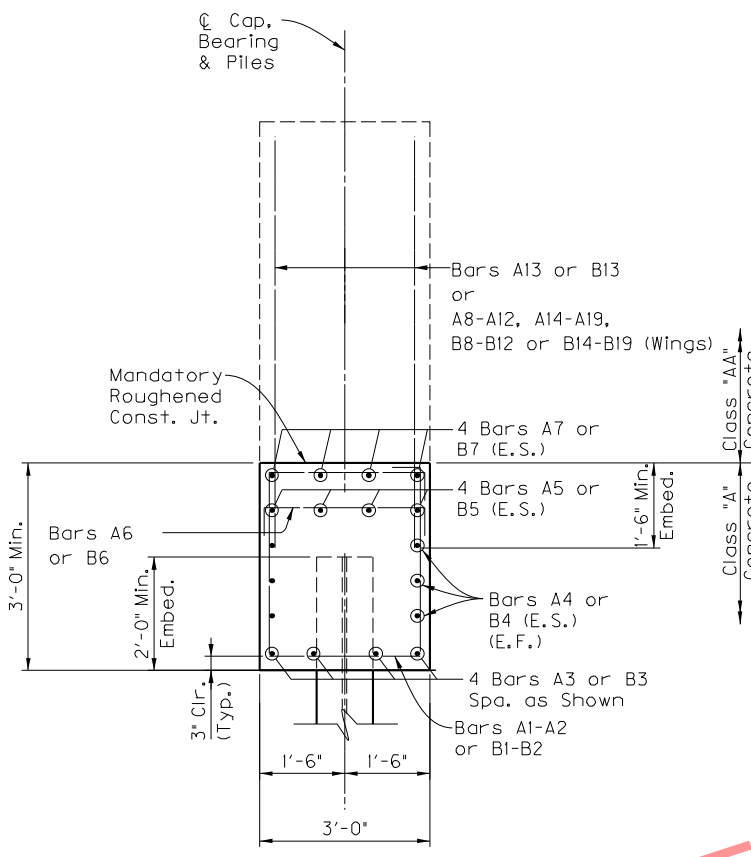
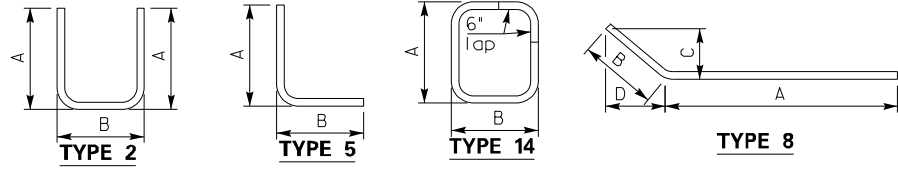
PRELIMINARY PLANS NOT FOR CONSTRUCTION

REVISION		DATE
DATE: June, 2016		CHECKED BY
DESIGNED BY: W.D. BURTON		B.C. REID
DETAILED BY: W.R. ABBOTT		B.C. REID
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
COUNTY <b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>INTEGRAL END BENT 2 (2 OF 2)</b>		
ITEM NUMBER	PREPARED BY	SHEET NO.
<b>10-126.70</b>	<b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	<b>S17</b>
		DRAWING NO. <b>27081</b>

**BILL OF REINFORCEMENT**

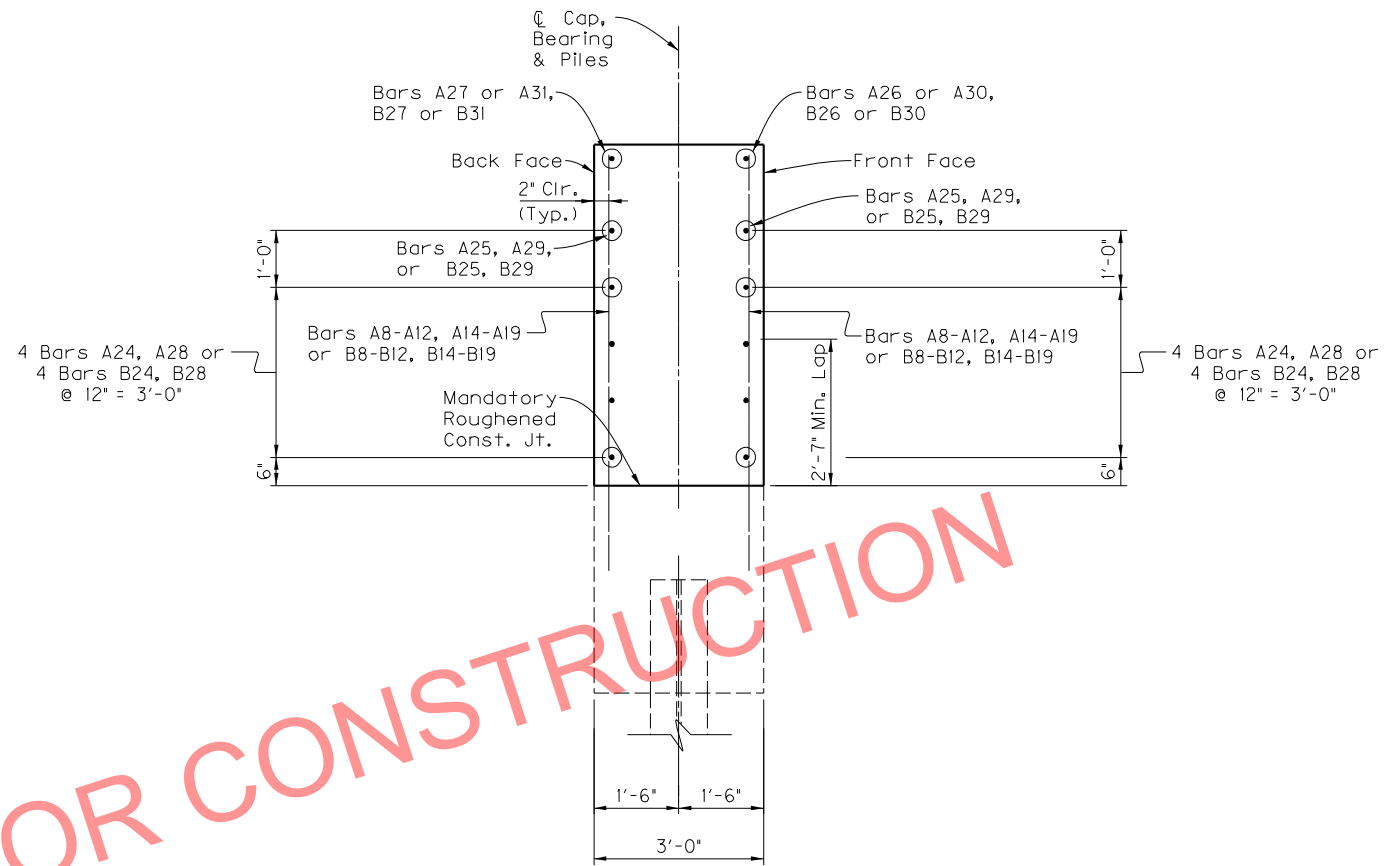
MARK	TYPE	SIZE	NO.	LENGTH FT. IN.	LOCATION	A		B		C		D	
						FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
A1e	14s	5	21	11-6	Cap	2-7	2-8						
A2e	14s	5	24	12-4	Cap	3-0	2-8						
A3e	Str.	8	4	47-3	Cap								
A4e	Str.	5	6	47-3	Cap								
A5e	Str.	8	4	47-3	Cap								
A6e	2s	5	8	3-8	Cap	2-8	0-6						
A7e	Str.	5	4	24-9	Cap								
A8e	Str.	5	2	5-4	Cap/Wing								
A9e	Str.	5	2	5-10	Cap/Wing								
A10e	Str.	5	2	6-3	Cap/Wing								
A11e	Str.	5	2	6-8	Cap/Wing								
A12e	Str.	5	5	7-2	Cap/Wing								
A13e	Str.	5	60	4-2	Cap/Diaphragm								
A14e	Str.	5	2	5-3	Cap/Wing								
A15e	Str.	5	2	5-8	Cap/Wing								
A16e	Str.	5	2	6-1	Cap/Wing								
A17e	Str.	5	2	6-6	Cap/Wing								
A18e	Str.	5	2	6-11	Cap/Wing								
A19e	Str.	5	8	7-4	Cap/Wing								
A20e	2s	5	24	13-5	Diaphragm/Slab	5-2	3-1						
A21e	5	5	12	15-2	Diaphragm/Slab	5-2	10-0						
A22e	Str.	5	15	5-5	Diaphragm								
A23e	Str.	5	5	32-10	Diaphragm								
A24e	Str.	5	8	7-10	Wing/Diaphragm								
A25e	Str.	5	2	6-2	Wing/Diaphragm								
A26e	8	5	1	5-10	Wing	4-10	1-0	0-4 <sup>7</sup> / <sub>8</sub>	0-11				
A27e	8	5	1	7-3	Wing	4-10	2-5	0-11 <sup>3</sup> / <sub>4</sub>	2-2 <sup>1</sup> / <sub>2</sub>				
A28e	Str.	5	8	11-9	Wing/Diaphragm								
A29e	Str.	5	2	9-9	Wing/Diaphragm								
A30e	8	5	1	9-11	Wing	5-10	4-1	1-6 <sup>1</sup> / <sub>2</sub>	3-9 <sup>3</sup> / <sub>8</sub>				
A31e	8	5	1	8-5	Wing	5-10	2-7	0-11 <sup>3</sup> / <sub>4</sub>	2-4 <sup>3</sup> / <sub>4</sub>				
A32e	Str.	5	2	31-7	Slab								

B1e	14	5	23	11-6	Cap	2-7	2-8						
B2e	14	5	23	12-4	Cap	3-0	2-8						
B3e	Str.	8	4	48-3	Cap								
B4e	Str.	5	6	48-3	Cap								
B5e	Str.	8	4	48-3	Cap								
B6e	2s	5	8	3-8	Cap	2-8	0-6						
B7e	Str.	5	4	23-6	Cap								
B8e	Str.	5	2	5-3	Cap/Wing								
B9e	Str.	5	2	5-8	Cap/Wing								
B10e	Str.	5	2	6-2	Cap/Wing								
B11e	Str.	5	2	6-7	Cap/Wing								
B12e	Str.	5	9	7-0	Cap/Wing								
B13e	Str.	5	60	4-2	Cap/Diaphragm								
B14e	Str.	5	2	5-3	Cap/Wing								
B15e	Str.	5	2	5-8	Cap/Wing								
B16e	Str.	5	2	6-1	Cap/Wing								
B17e	Str.	5	2	6-6	Cap/Wing								
B18e	Str.	5	2	6-11	Cap/Wing								
B19e	Str.	5	5	7-3	Cap/Wing								
B20e	2s	5	24	13-5	Diaphragm/Slab	5-2	3-1						
B21e	5	5	12	15-2	Diaphragm/Slab	5-2	10-0						
B22e	Str.	5	15	5-5	Diaphragm								
B23e	Str.	5	5	32-9	Diaphragm								
B24e	Str.	5	8	11-5	Wing/Diaphragm								
B25e	Str.	5	2	9-5	Wing/Diaphragm								
B26e	8	5	1	9-0	Wing	4-9	4-3	1-8 <sup>3</sup> / <sub>4</sub>	3-10 <sup>5</sup> / <sub>8</sub>				
B27e	8	5	1	7-6	Wing	4-9	2-9	1-1 <sup>3</sup> / <sub>8</sub>	2-6 <sup>1</sup> / <sub>8</sub>				
B28e	Str.	5	8	9-1	Wing/Diaphragm								
B29e	Str.	5	2	7-0	Wing/Diaphragm								
B30e	8	5	1	6-8	Wing	5-9	0-11	0-4 <sup>7</sup> / <sub>8</sub>	0-10 <sup>1</sup> / <sub>8</sub>				
B31e	8	5	1	8-1	Wing	5-9	2-4	0-10 <sup>5</sup> / <sub>8</sub>	2-1 <sup>1</sup> / <sub>8</sub>				
B32e	Str.	5	2	32-5	Slab								



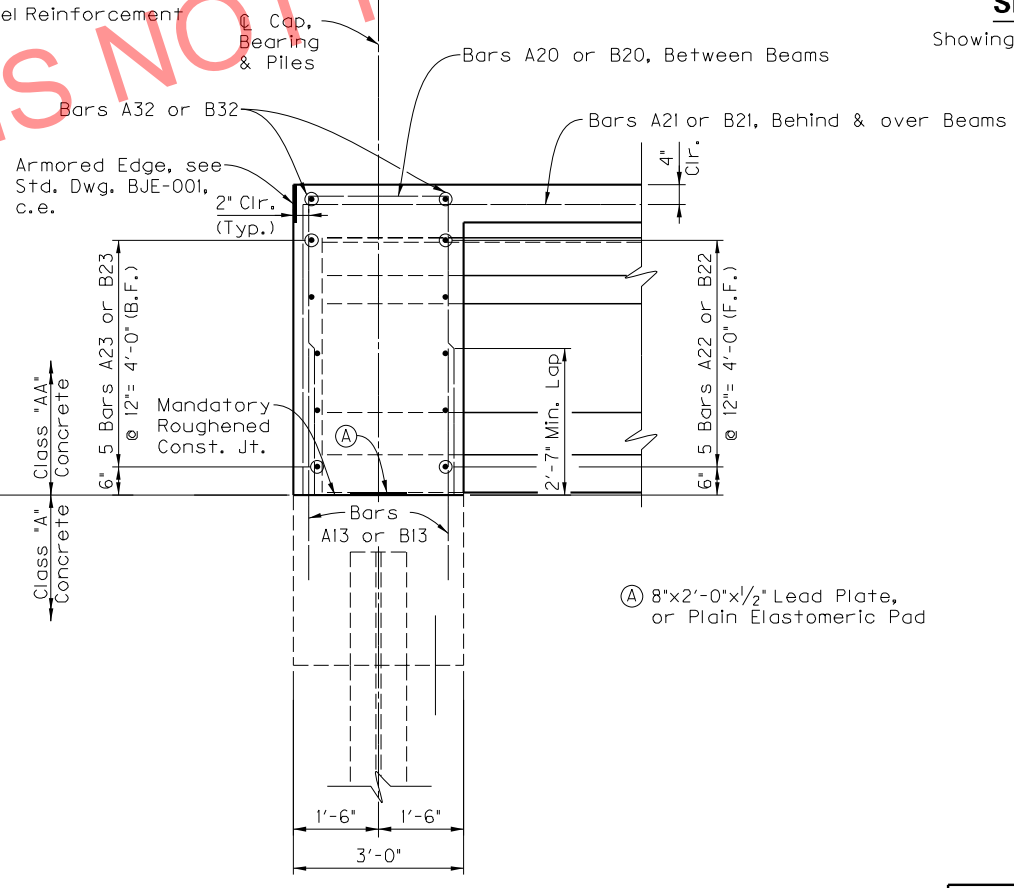
**SECTION A-A**

Showing Cap & Dowel Reinforcement



**SECTION B-B**

Showing Wing Reinforcement



**SECTION C-C**

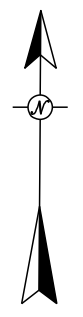
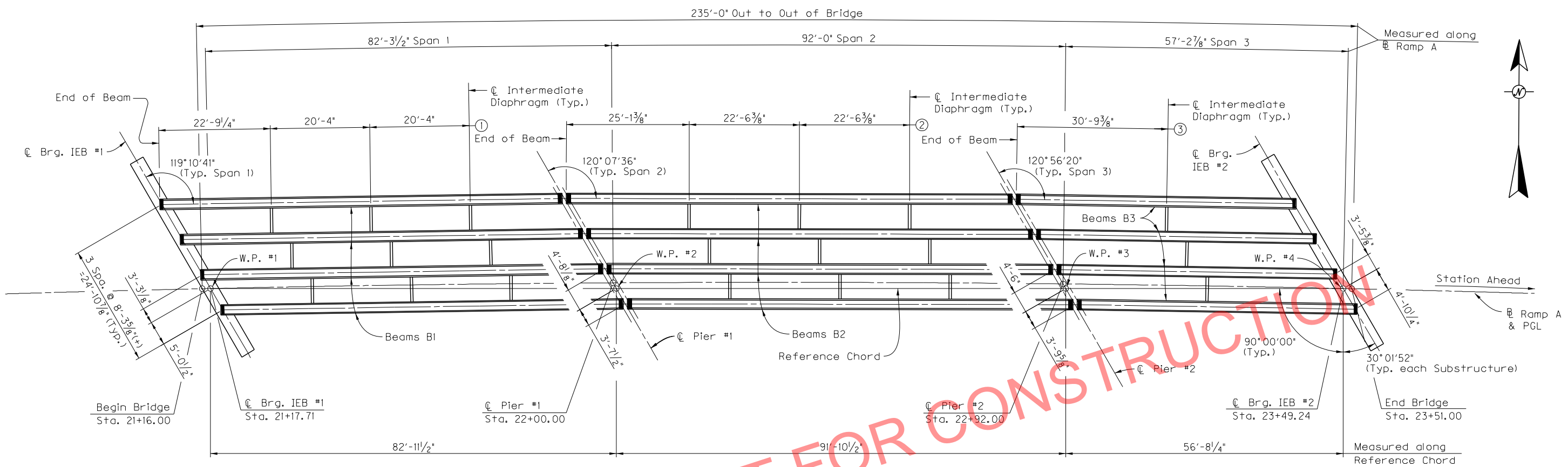
Showing Diaphragm Reinforcement

PRELIMINARY PLANS NOT FOR CONSTRUCTION

- Notes:
1. Reinforcing Bars designated by suffix (s) shall be considered a stirrup for purposes of bend diameter.
  2. All bars are epoxy coated.

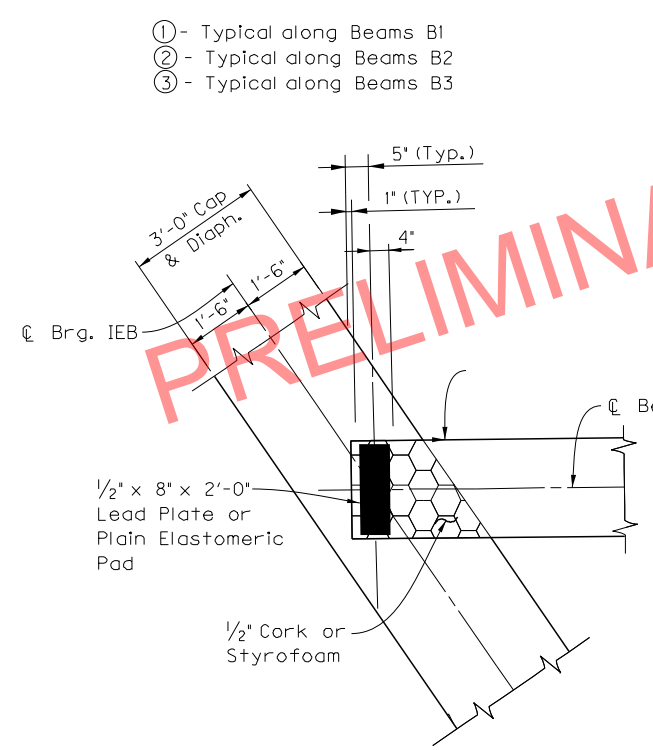
REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: W.D. BURTON	B.C. REID	
DETAILED BY: D.M. SMITHSON	B.C. REID	
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
<b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>INTEGRAL END BENT DETAILS</b>		
ITEM NUMBER	PREPARED BY	SHEET NO.
<b>10-126.70</b>	<b>LOCHNER</b>	<b>S18</b>
	H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	DRAWING NO. <b>27081</b>

FILE NAME: I:\LEX\PR\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27081.019.DGN  
 USER: breid  
 DATE PLOTTED: October 11, 2016  
 E-SHEET NAME:  
 MicroStation v8.11.9.714

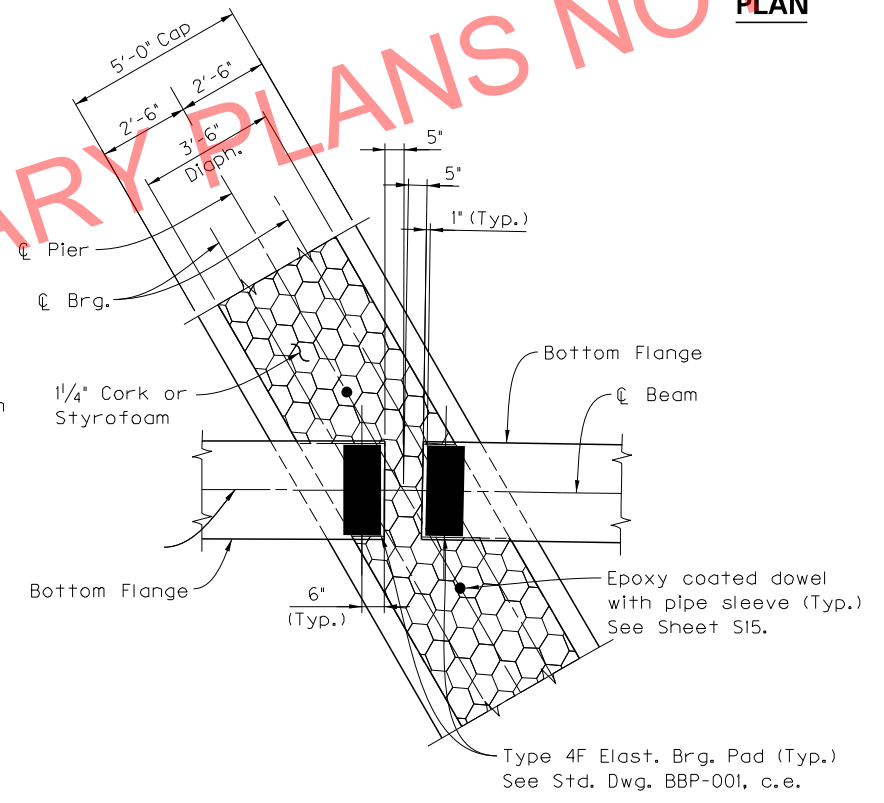


- ① - Typical along Beams B1
- ② - Typical along Beams B2
- ③ - Typical along Beams B3

**PLAN**

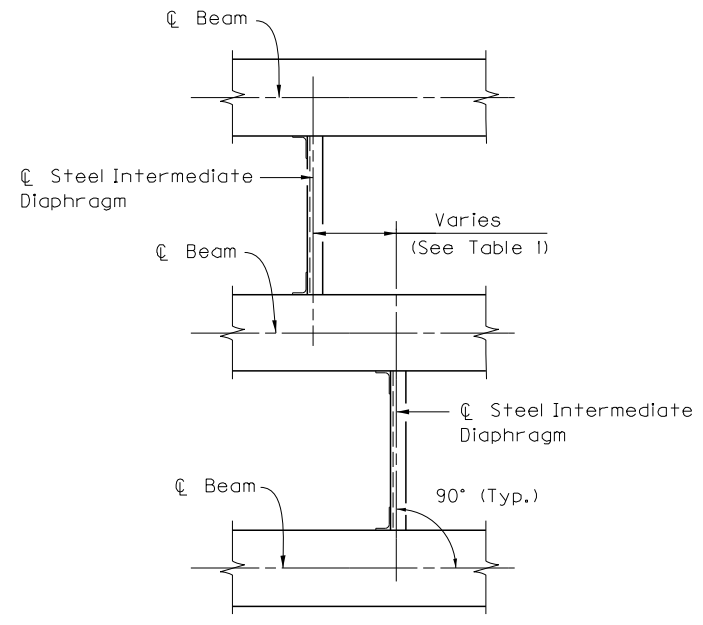


**INTEGRAL END BENTS**



**PIERS**

**BEARING DETAILS**



**INTERMEDIATE DIAPHRAGM DETAIL**

Span 1	Span 2	Span 3
4'-0 <sup>5</sup> / <sub>8</sub> "	4'-2"	4'-3 <sup>1</sup> / <sub>4</sub> "

REVISION	DATE

DATE: June, 2016  
 DESIGNED BY: B.C. REID  
 CHECKED BY: W.D. BURTON  
 DETAILED BY: W.R. ABBOTT

**Commonwealth of Kentucky**  
**DEPARTMENT OF HIGHWAYS**  
 COUNTY  
**WOLFE-MORGAN**

ROUTE **RAMP A** CROSSING **RED RIVER**  
**FRAMING PLAN**  
 PREPARED BY  
**LOCHNER**  
 H.W. LOCHNER, INC.  
 LEXINGTON, KENTUCKY

ITEM NUMBER
10-126.70

NOTE:  
 For Steel Diaphragm  
 Details, See Sheet S28.

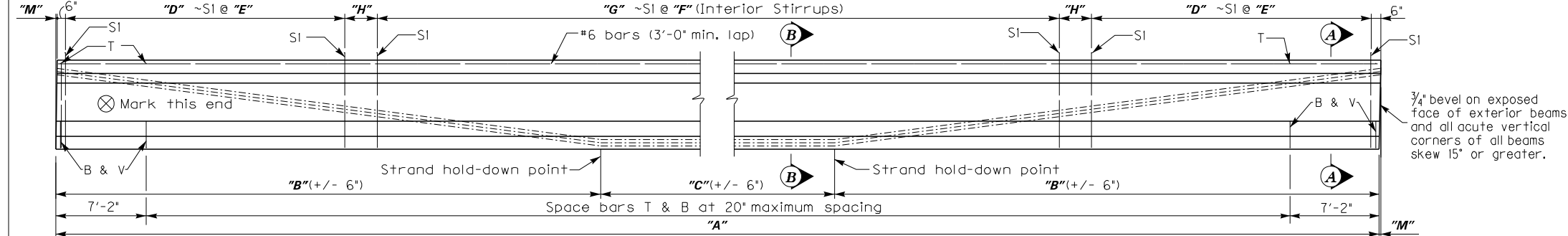
SHEET NO.  
**S19**  
 DRAWING NO.  
**27081**



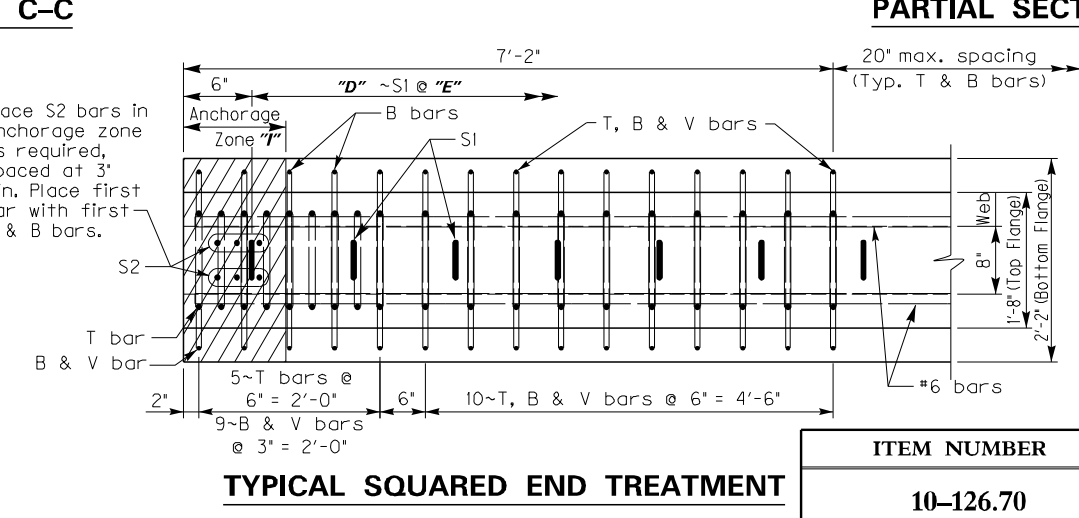
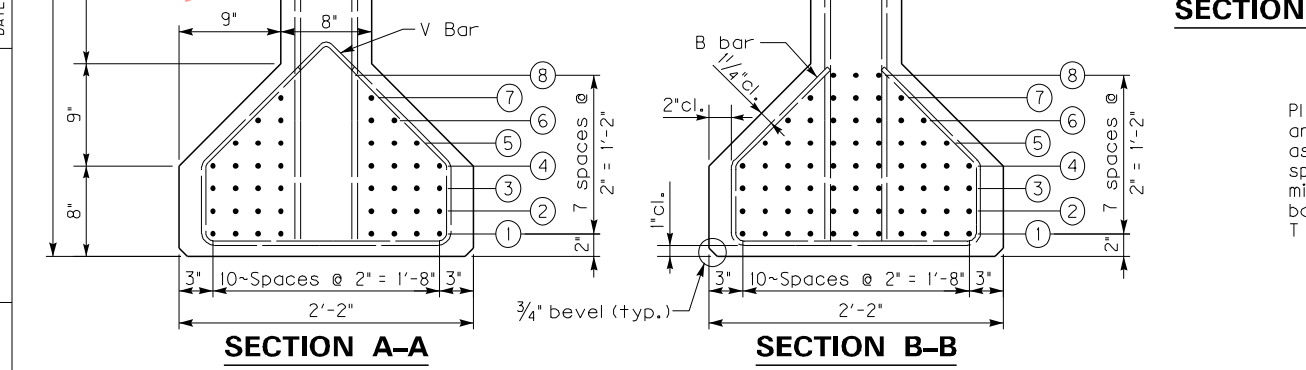
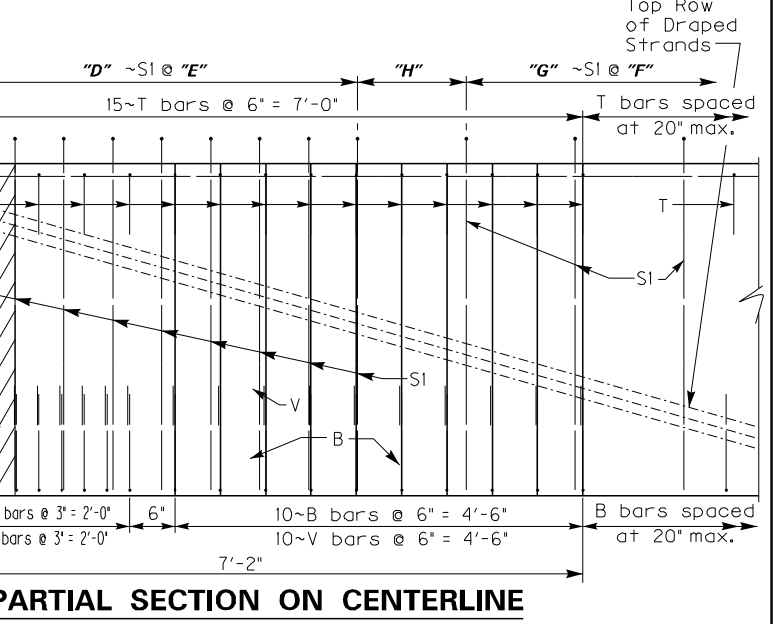
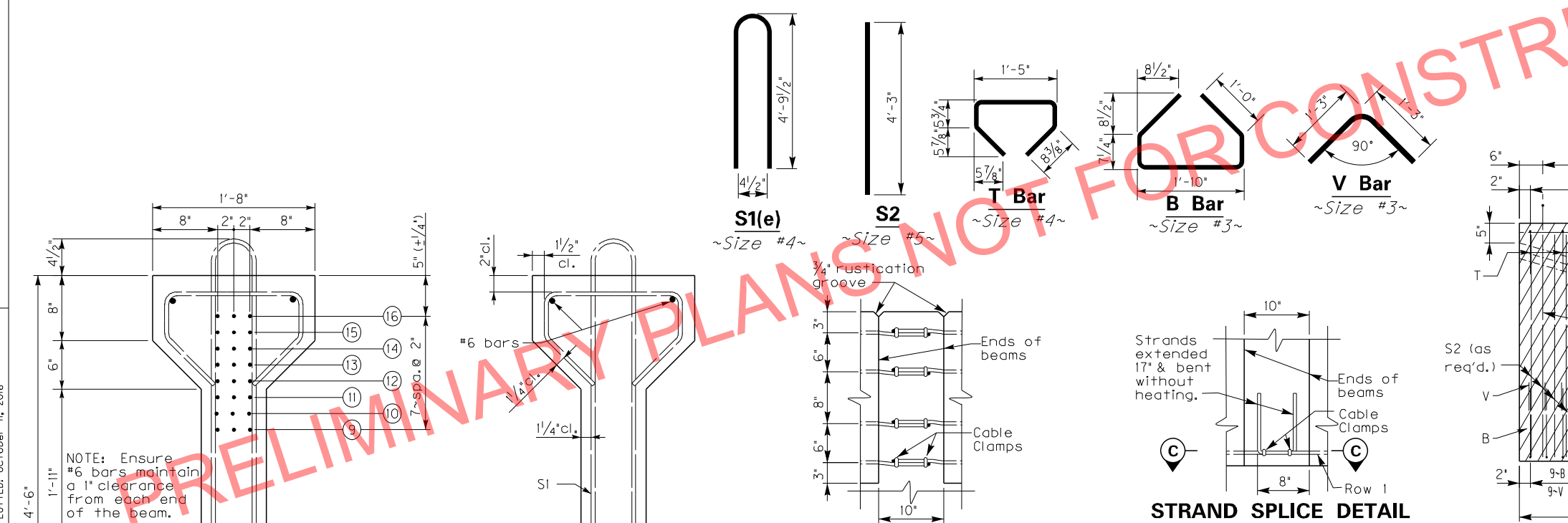
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Mark	Strand Data with number indicated in rows																Total No.	Concrete Stress (psi)		No. of S Bars		Hold-Down Capacity lbs.	Beam Data (measured along centerline)											Maximum Allowable Camber											
	Midspan (SECTION B-B)								End (SECTION A-A)									f'ci	f'c	S1	S2		Dimensions												Appr. Weight										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)							(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	A	B	C			D	E	F	G	H	I	M			
B1	11	7	3	3	3															3	3	3	3	3		27	4000	6000	11	12	45,453	4	82'-3"	36'-1 1/2"	10'	42	6'	18"	27	7 1/2"	13 1/2"		0	70,329	2 1/2"
B2	11	7	3	3																3	3	3	3	3		24	5000	8000	136	12	34,109	4	91'-1 1/2"	40'-6 3/4"	10'	45	6'	12"	46	6 3/4"	13 1/2"		0	77,914	2 3/4"
B3	11	7																		3	3					18	4000	6000	62	8	23,794	4	57'-2 3/8"	26'-1 1/4"	5'	22	6'	24"	18	7 1/2"	13 1/2"		0	48,922	2 1/4"

**General Notes**  
CONCRETE: Ensure prestressed girder concrete is in accordance with these plans and the specifications.  
MATERIALS DESIGN SPECIFICATIONS: For prestressed beams:  
FY = 60,000 psi F'S = 270,000 psi  
PRESTRESSING REINFORCEMENT: Ensure that strands are 1/2" (over-sized diameter, 0.167 sq. in.), uncoated seven-wire low-relaxation conforming to AASHTO M 203, Grade 270.  
Billing of the cost for redesign of beam and subsequent plan modifications will be made for any request of alternate strand type or arrangement. The designer of the original plans is responsible for the billing and work.  
CONSTRUCTION METHOD: Pretension all beams. Ensure concrete has attained f'ci (shown in the table) in standard test cylinders that are made and cured identically with the beams without bond stresses being transferred to the concrete or releasing the end anchors. Attain f'c (shown in the table) at or prior to 28 days. Apply an initial force of 33,817 lbs. per low-relaxation strand to develop a stress of 202,500 psi. No beam will be accepted that is honeycombed to the extent that strength of the beam or resistance to deterioration has been affected. An allowance of 0.0005L is made for shortening of beams due to shrinkage and elastic change. Show a detensioning plan by sequential numbering of the strand pattern on the shop plans.  
LIFTING DEVICES: Detail lifting devices on the shop plans. Loads are to be distributed equally to each device.  
BEARING DEVICES: Include the price for lead plates and/or bearing pads in the bid for precast beams.  
FABRICATION: 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. If the measured camber is greater than the "Maximum Allowable Camber" the contractor will be responsible for any necessary adjustments to assure a minimum slab thickness as shown in the plans. This work will be considered incidental to the completion of the structure and have the approval of the Engineer.



ELEVATION OF BEAM



REVISION		DATE
DATE: June, 2016		CHECKED BY
DESIGNED BY: B.C. REID		W.D. BURTON
DETAILED BY: D.M. SMITHSON		B.C. REID
Commonwealth of Kentucky DEPARTMENT OF HIGHWAYS		
COUNTY WOLFE-MORGAN		
ROUTE RAMP A	CROSSING RED RIVER	
PPC I-BEAM TYPE 4		
PREPARED BY LOCHNER		SHEET NO. S20
H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		DRAWING NO. 27081

ITEM NUMBER  
**10-126.70**

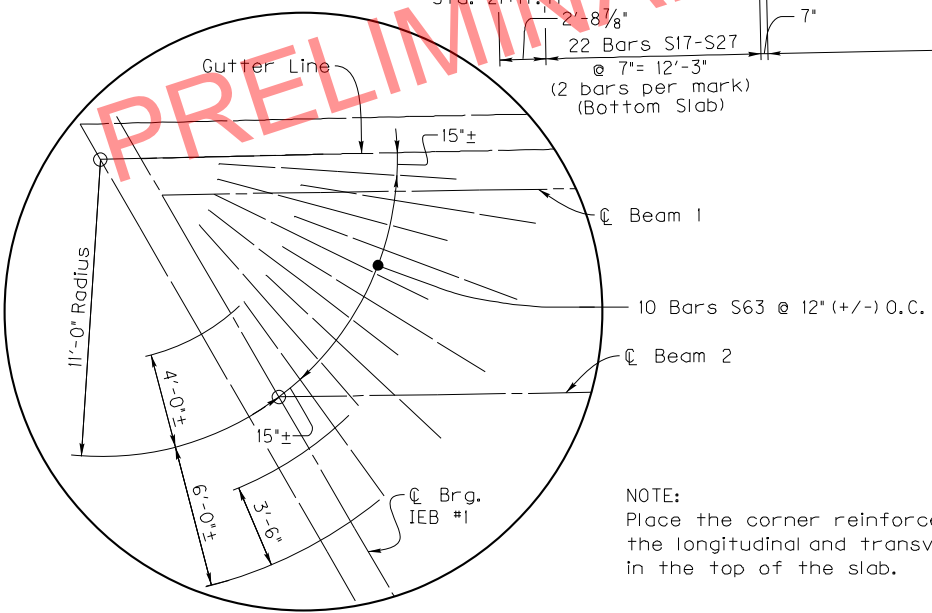
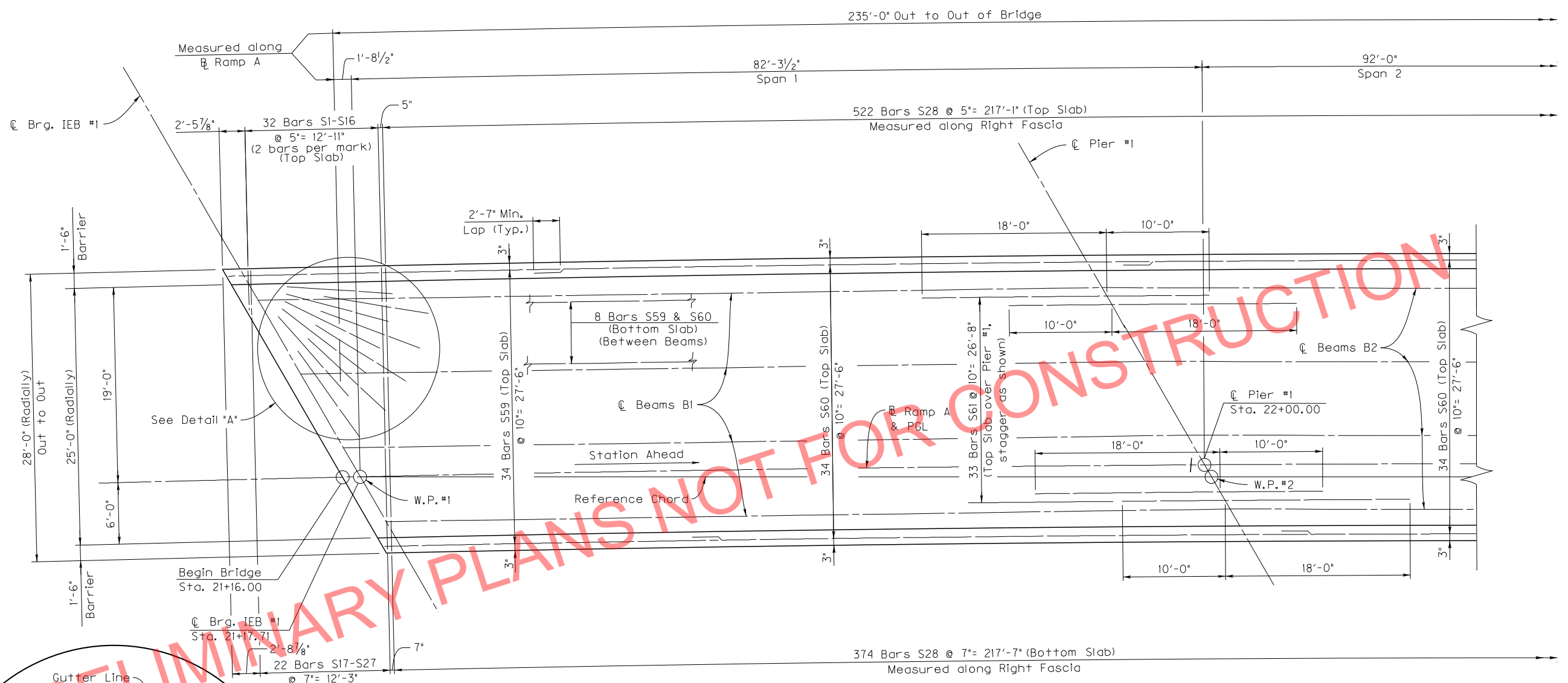
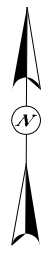


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USER: breid  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.714



NOTE:  
Place the corner reinforcement beneath the longitudinal and transverse reinforcement in the top of the slab.

**PLAN**

**DETAIL "A"**

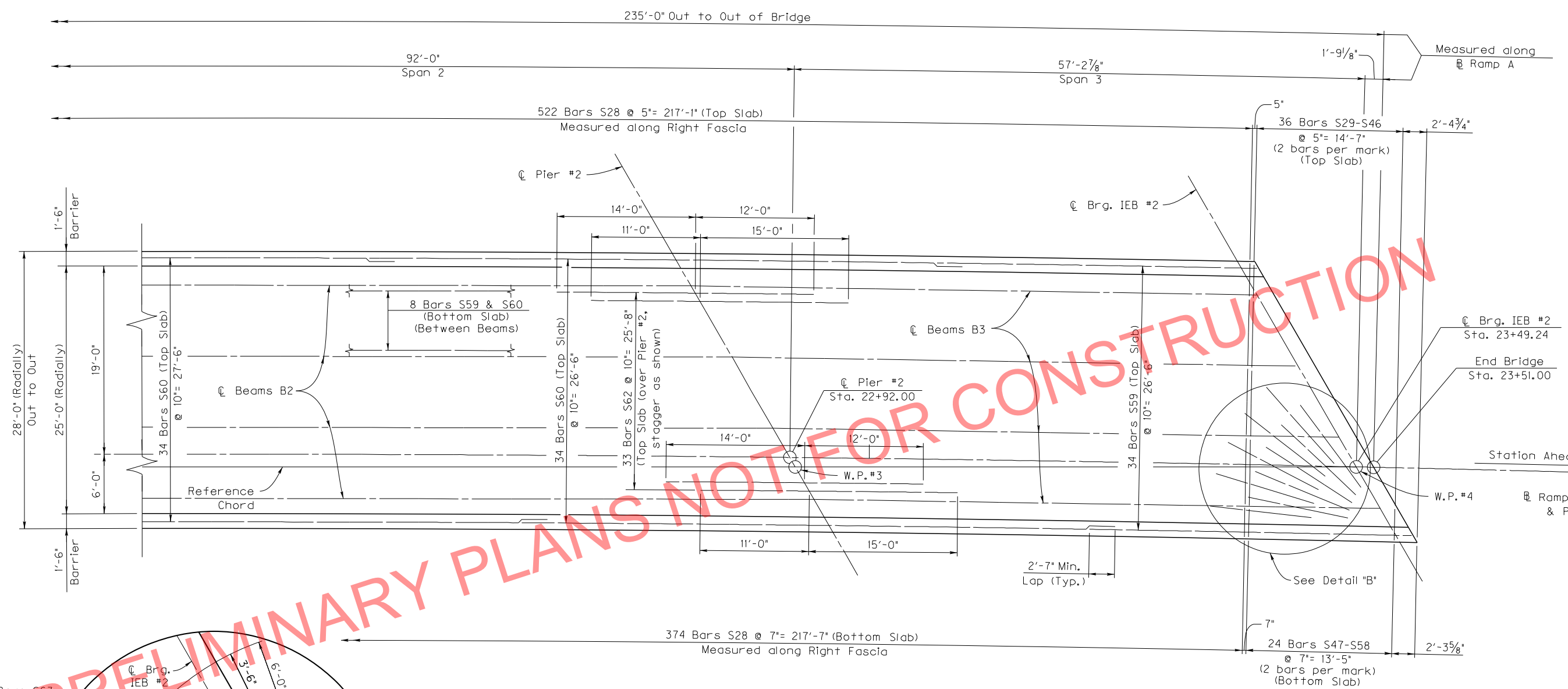
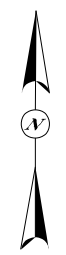
REVISION		DATE

DATE: June, 2016	CHECKED BY: W.D. BURTON
DESIGNED BY: B.C. REID	
DETAILED BY: W.R. ABBOTT	B.C. REID

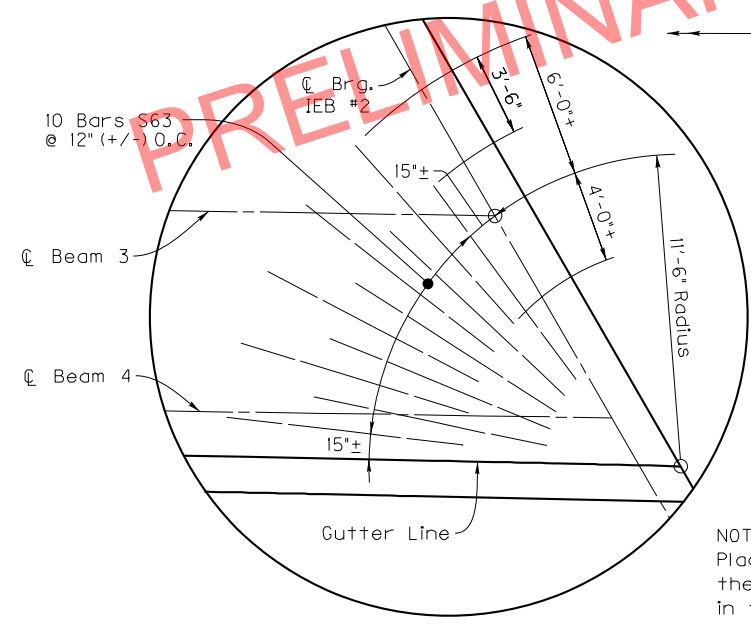
Commonwealth of Kentucky  
DEPARTMENT OF HIGHWAYS  
COUNTY  
**WOLFE-MORGAN**

ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>
<b>SUPERSTRUCTURE (1 OF 4)</b>	
PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	SHEET NO. <b>S21</b> DRAWING NO. <b>27081</b>

ITEM NUMBER	10-126.70
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**PLAN**



**DETAIL "B"**

NOTE:  
Place the corner reinforcement beneath the longitudinal and transverse reinforcement in the top of the slab.

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27081\S27081.022.DGN  
 USER: breid  
 DATE PLOTTED: October 11, 2016  
 E-SHEET NAME:  
 MicroStation v8.11.9.714

ITEM NUMBER	10-126.70
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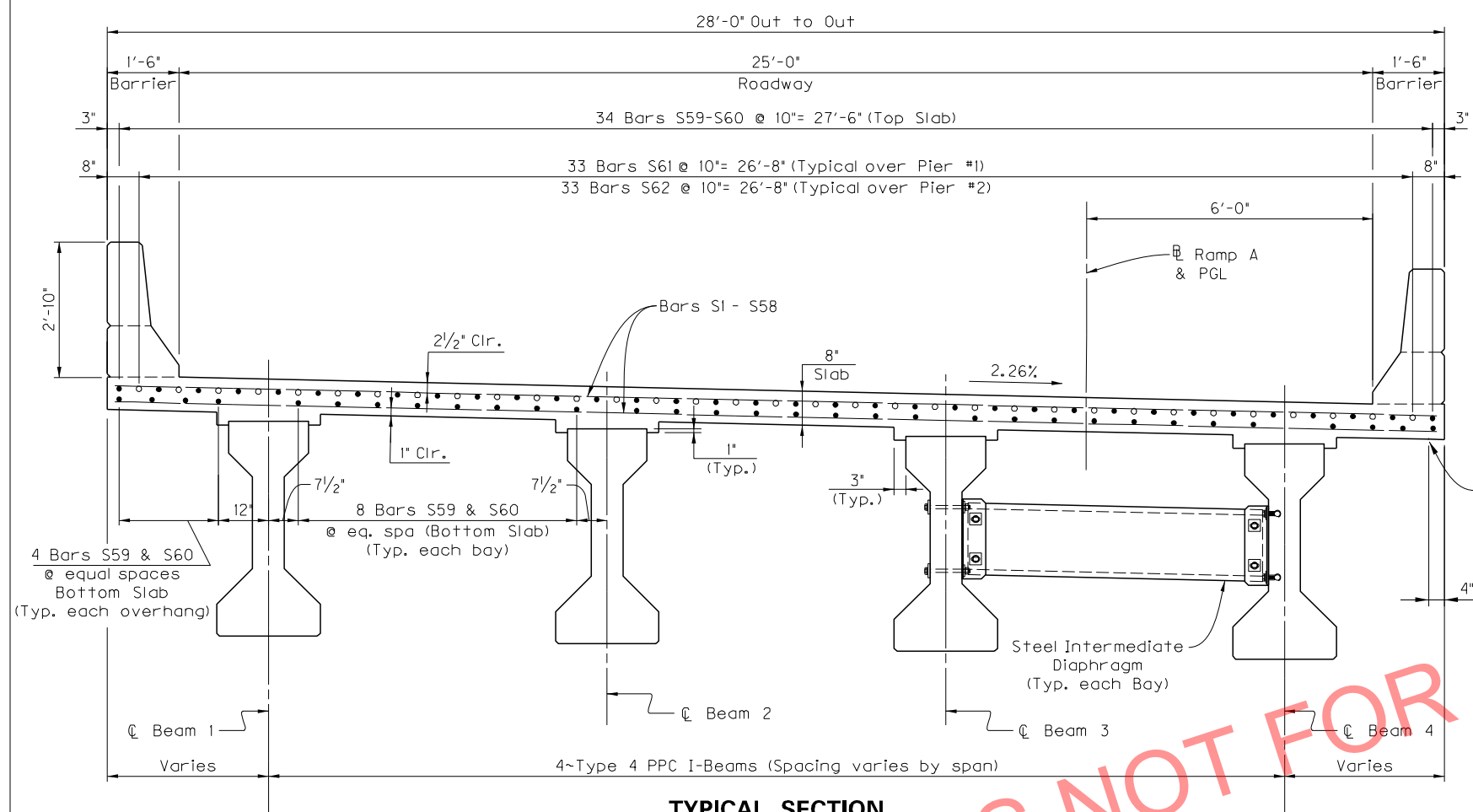
REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	B.C. REID	
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
COUNTY <b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>SUPERSTRUCTURE (2 OF 4)</b>		
PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		SHEET NO. <b>S22</b> DRAWING NO. <b>27081</b>

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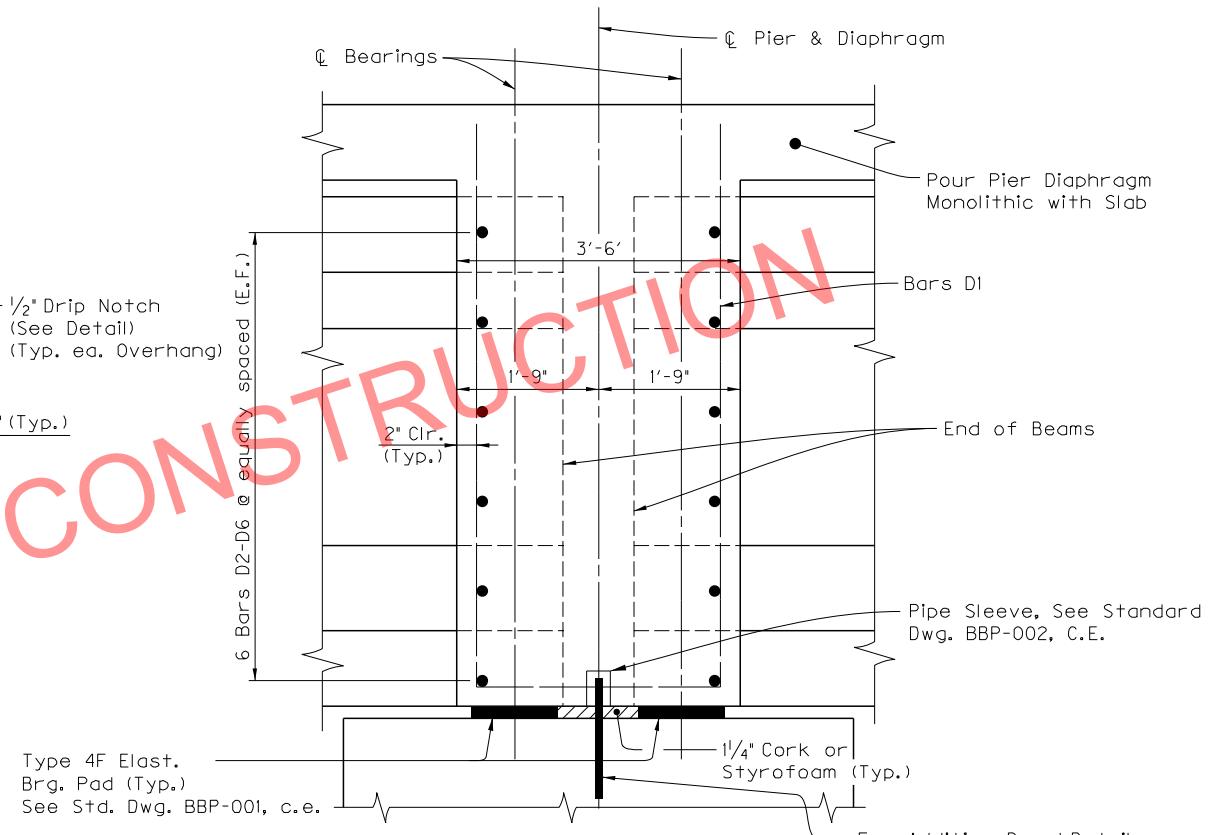
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DATE PLOTTED: October 11, 2016

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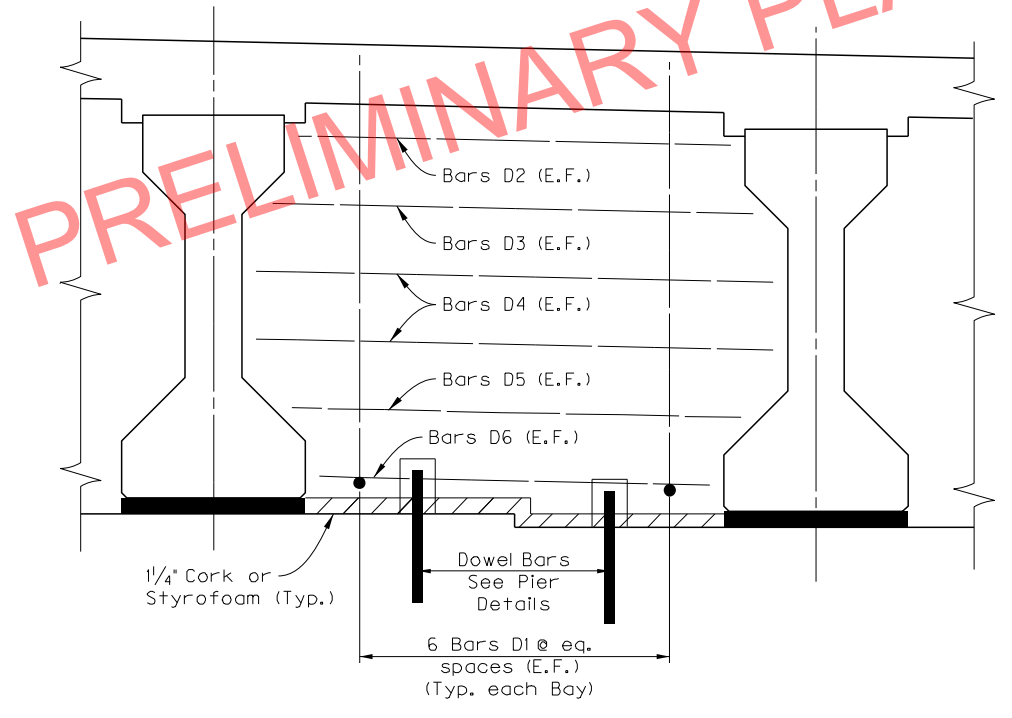
MicroStation v8.11.9.714



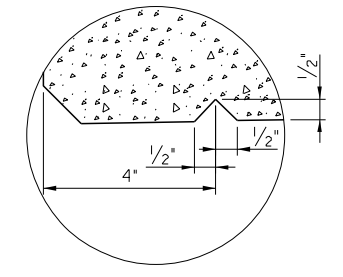
**TYPICAL SECTION**



**PIER DIAPHRAGM - SECTION**  
Perpendicular to  $\phi$  Pier



**PIER DIAPHRAGM - ELEVATION**



**DRIP NOTCH**

- NOTES:
- 1.) Place diaphragm stirrup bars parallel to beams.
  - 2.) Regardless of slab pouring method, diaphragm stirrup bars should project up into the slab.

ITEM NUMBER	10-126.70
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REVISION		DATE
DATE: June, 2016	DESIGNED BY: B.C. REID	CHECKED BY: W.D. BURTON
DESIGNED BY: B.C. REID		W.D. BURTON
DETAILED BY: W.R. ABBOTT		B.C. REID
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
<b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>SUPERSTRUCTURE (3 OF 4)</b>		
PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		SHEET NO. <b>S23</b> DRAWING NO. <b>27081</b>

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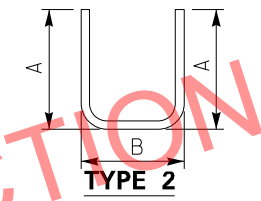
USER: dsmitthson  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.459

MARK	TYPE	SIZE	NO.	LENGTH		LOCATION	a		b		c		d	
				FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.		
S1e	Str.	5	2	3	10	Top Slab								
S2e	Str.	5	2	5	5	Top Slab								
S3e	Str.	5	2	6	11	Top Slab								
S4e	Str.	5	2	8	5	Top Slab								
S5e	Str.	5	2	10	0	Top Slab								
S6e	Str.	5	2	11	6	Top Slab								
S7e	Str.	5	2	13	0	Top Slab								
S8e	Str.	5	2	14	7	Top Slab								
S9e	Str.	5	2	16	1	Top Slab								
S10e	Str.	5	2	17	7	Top Slab								
S11e	Str.	5	2	19	2	Top Slab								
S12e	Str.	5	2	20	8	Top Slab								
S13e	Str.	5	2	22	2	Top Slab								
S14e	Str.	5	2	23	8	Top Slab								
S15e	Str.	5	2	25	2	Top Slab								
S16e	Str.	5	2	26	8	Top Slab								
S17e	Str.	5	2	4	4	Bottom Slab								
S18e	Str.	5	2	6	6	Bottom Slab								
S19e	Str.	5	2	8	7	Bottom Slab								
S20e	Str.	5	2	10	9	Bottom Slab								
S21e	Str.	5	2	12	11	Bottom Slab								
S22e	Str.	5	2	15	0	Bottom Slab								
S23e	Str.	5	2	17	2	Bottom Slab								
S24e	Str.	5	2	19	3	Bottom Slab								
S25e	Str.	5	2	21	5	Bottom Slab								
S26e	Str.	5	2	23	7	Bottom Slab								
S27e	Str.	5	2	25	8	Bottom Slab								
S28e	Str.	5	896	27	8	Top & Bottom Slab								
S29e	Str.	5	2	26	9	Top Slab								
S30e	Str.	5	2	25	5	Top Slab								
S31e	Str.	5	2	24	0	Top Slab								
S32e	Str.	5	2	22	1	Top Slab								
S33e	Str.	5	2	21	2	Top Slab								
S34e	Str.	5	2	19	10	Top Slab								
S35e	Str.	5	2	18	5	Top Slab								
S36e	Str.	5	2	17	0	Top Slab								
S37e	Str.	5	2	15	8	Top Slab								
S38e	Str.	5	2	14	3	Top Slab								
S39e	Str.	5	2	12	10	Top Slab								
S40e	Str.	5	2	11	5	Top Slab								
S41e	Str.	5	2	10	1	Top Slab								
S42e	Str.	5	2	8	8	Top Slab								
S43e	Str.	5	2	7	3	Top Slab								
S44e	Str.	5	2	5	11	Top Slab								
S45e	Str.	5	2	4	6	Top Slab								
S46e	Str.	5	2	3	2	Top Slab								
S47e	Str.	5	2	25	10	Bottom Slab								
S48e	Str.	5	2	23	11	Bottom Slab								
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S52e	Str.	5	2	16	1	Bottom Slab								
S53e	Str.	5	2	14	2	Bottom Slab								
S54e	Str.	5	2	12	3	Bottom Slab								
S55e	Str.	5	2	10	4	Bottom Slab								
S56e	Str.	5	2	8	4	Bottom Slab								
S57e	Str.	5	2	6	5	Bottom Slab								
S58e	Str.	5	2	4	6	Bottom Slab								
S59e	Str.	5	132	32	6	Top & Bottom Slab								
S60e	Str.	5	189	60	0	Top & Bottom Slab								
S61e	Str.	9	33	28	0	Over Pier #1								
S62e	Str.	7	33	26	0	Over Pier #2								
S63e	Str.	6	20	10	0	Acute Corners								

MARK	TYPE	SIZE	NO.	LENGTH		LOCATION	a		b		c		d	
				FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.		
D1e	2s	5	36	13	0	Pier Diaphragm	4	11	3	2				
D2e	Str.	5	12	5	1	Pier Diaphragm								
D3e	Str.	5	12	5	8	Pier Diaphragm								
D4e	Str.	5	24	6	1	Pier Diaphragm								
D5e	Str.	5	12	5	3	Pier Diaphragm								
D6e	Str.	5	12	4	7	Pier Diaphragm								



PRELIMINARY PLANS NOT FOR CONSTRUCTION

NOTE:  
All Reinforcing Bars are Epoxy Coated.

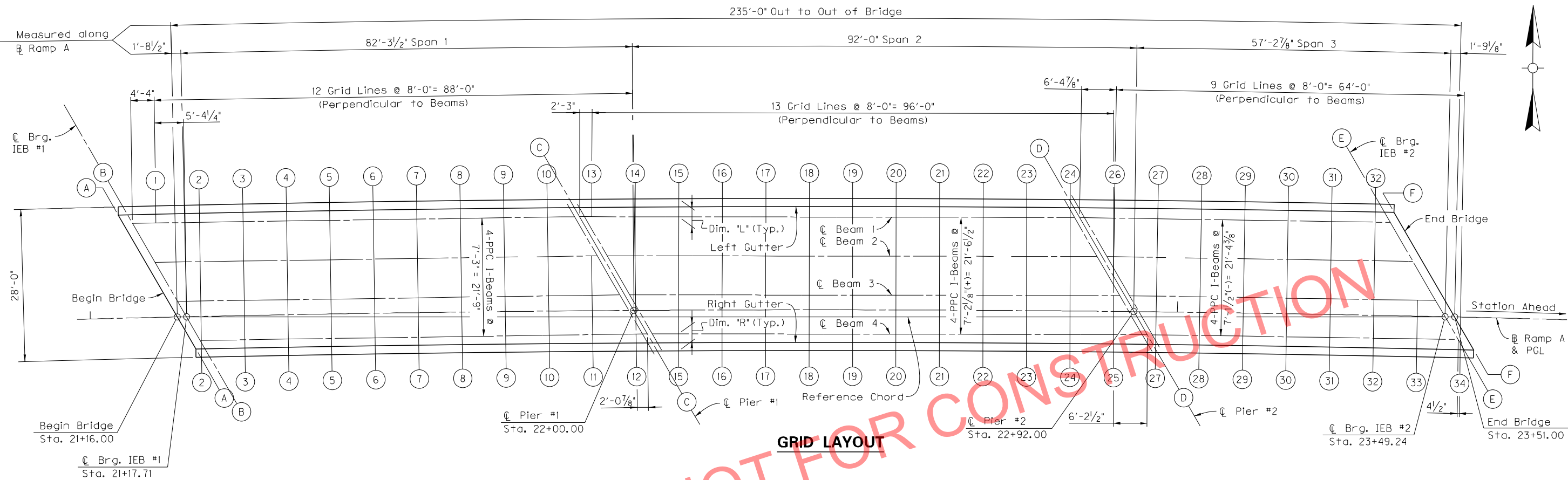
REVISION		DATE
DATE: June, 2016		CHECKED BY
DESIGNED BY: B.C. REID		W.D. BURTON
DETAILED BY: W.R. ABBOTT		B.C. REID
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
<b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>SUPERSTRUCTURE (4 OF 4)</b>		
ITEM NUMBER	PREPARED BY <b>LOCHNER</b>	SHEET NO. <b>S24</b>
<b>10-126.70</b>	H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	DRAWING NO. <b>27081</b>

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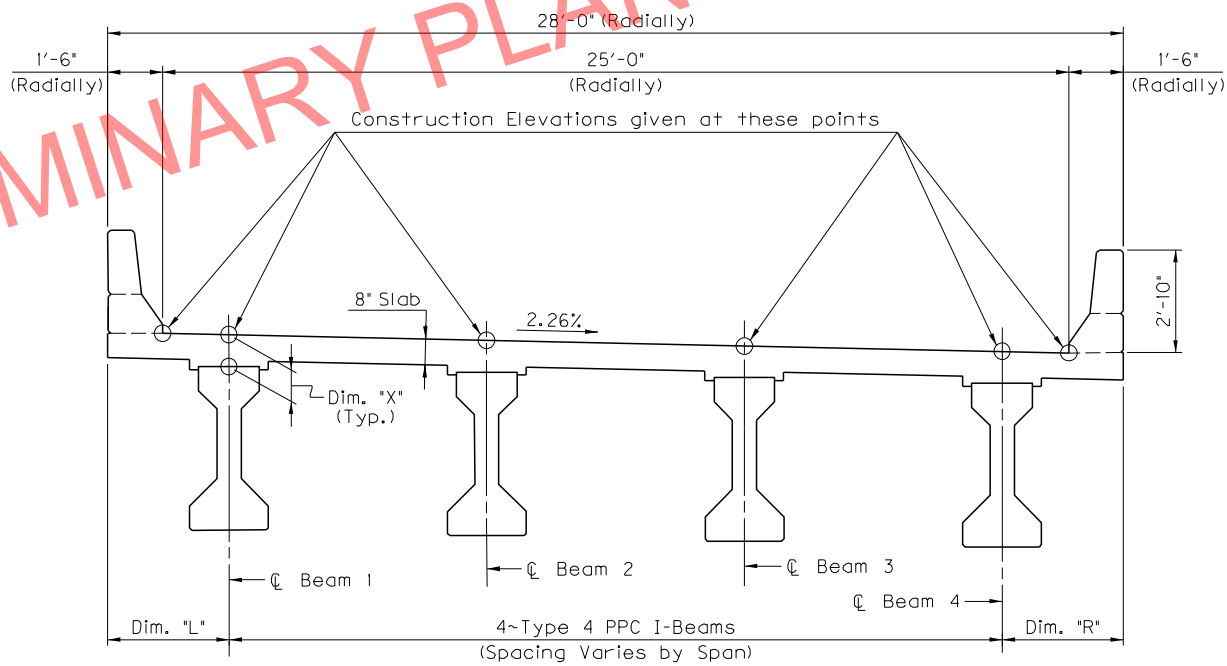
USER: breid  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.714



PRELIMINARY PLANS NOT FOR CONSTRUCTION



REVISION		DATE
DATE: June, 2016		CHECKED BY
DESIGNED BY: B.C. REID		W.D. BURTON
DETAILED BY: W.R. ABBOTT		W.D. BURTON
<b>Commonwealth of Kentucky</b>		
<b>DEPARTMENT OF HIGHWAYS</b>		
COUNTY		
<b>WOLFE-MORGAN</b>		
ROUTE	CROSSING	
<b>RAMP A</b>	<b>RED RIVER</b>	
<b>CONSTRUCTION ELEVATIONS</b>		
PREPARED BY		SHEET NO.
<b>LOCHNER</b>		<b>S25</b>
H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		DRAWING NO.
		<b>27081</b>

ITEM NUMBER
<b>10-126.70</b>

FILE NAME: I:\LEX\PR\A00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27081\27081.026.DGN

USER: breid  
DATE PLOTTED: October 11, 2016

E-SHEET NAME:

MicroStation v8.11.9.714

CONSTRUCTION ELEVATIONS																
LOCATION	Dim. "L" (Ft.)	Left Gutter	C Beam 1			C Beam 2			C Beam 3			C Beam 4			Right Gutter	Dim. "R" (Ft.)
			Const. Elev.	Top of Beam	Dim. "X"	Const. Elev.	Top of Beam	Dim. "X"	Const. Elev.	Top of Beam	Dim. "X"	Const. Elev.	Top of Beam	Dim. "X"		
Skew Line AA	--	963.766	963.719			963.499			963.277			963.054			963.005	--
Skew Line BB	--	963.742	963.695			963.474			963.251			963.028			962.979	--
Skew Line CC	--	962.341	962.285			962.038			961.789			961.540			961.482	--
Skew Line DD	--	960.418	960.356			960.106			959.856			959.605			959.542	--
Skew Line EE	--	959.219	959.154			958.903			958.652			958.401			958.335	--
Skew Line FF	--	959.182	959.117			958.867			958.616			958.364			958.298	--
Grid Line 1	3.112	963.681	963.643			--			--			--			--	--
Grid Line 2	3.170	963.580	963.541			963.369			963.198			--			--	3.080
Grid Line 3	3.217	963.473	963.432			963.262			963.092			962.920			962.883	3.033
Grid Line 4	3.252	963.356	963.316			963.147			962.978			962.808			962.773	2.998
Grid Line 5	3.275	963.230	963.190			963.024			962.856			962.688			962.654	2.976
Grid Line 6	3.285	963.093	963.053			962.890			962.725			962.560			962.526	2.965
Grid Line 7	3.283	962.947	962.908			962.747			962.584			962.421			962.388	2.967
Grid Line 8	3.269	962.791	962.752			962.594			962.433			962.272			962.239	2.981
Grid Line 9	3.243	962.626	962.587			962.430			962.273			962.114			962.081	3.007
Grid Line 10	3.205	962.453	962.416			962.260			962.103			961.946			961.912	3.045
Grid Line 11	--	--	--			962.083			961.927			961.770			961.736	3.096
Grid Line 12	--	--	--			--			--			961.588			961.551	3.158
Grid Line 13	3.191	962.285	962.244			--			--			--			--	--
Grid Line 14	3.261	962.143	962.101			961.928			961.754			--			--	--
Grid Line 15	3.318	961.996	961.953			961.782			961.608			961.436			961.397	3.136
Grid Line 16	3.364	961.846	961.802			961.632			961.460			961.289			961.251	3.090
Grid Line 17	3.397	961.690	961.646			961.479			961.309			961.139			961.102	3.057
Grid Line 18	3.418	961.527	961.484			961.320			961.153			960.986			960.951	3.036
Grid Line 19	3.428	961.359	961.316			961.155			960.990			960.827			960.792	3.026
Grid Line 20	3.424	961.184	961.141			960.983			960.822			960.662			960.627	3.030
Grid Line 21	3.409	961.003	960.961			960.805			960.647			960.490			960.456	3.045
Grid Line 22	3.382	960.816	960.775			960.622			960.466			960.312			960.278	3.072
Grid Line 23	3.343	960.626	960.586			960.434			960.281			960.128			960.094	3.112
Grid Line 24	3.291	960.435	960.396			960.244			960.092			959.941			959.906	3.164
Grid Line 25	--	--	--			--			959.901			959.750			959.714	3.228
Grid Line 26	3.317	960.268	960.226			960.063			--			--			--	--
Grid Line 27	3.354	960.104	960.062			959.900			959.737			959.573			959.532	3.279
Grid Line 28	3.379	959.939	959.897			959.735			959.573			959.410			959.369	3.254
Grid Line 29	3.392	959.772	959.730			959.569			959.407			959.245			959.205	3.241
Grid Line 30	3.393	959.602	959.560			959.400			959.240			959.079			959.039	3.240
Grid Line 31	3.382	959.430	959.388			959.229			959.070			958.909			958.870	3.251
Grid Line 32	3.359	959.256	959.215			959.056			958.898			958.738			958.698	3.275
Grid Line 33	--	--	--			--			958.724			958.566			958.525	3.310
Grid Line 34	--	--	--			--			--			--			958.351	3.358

PRELIMINARY PLANS NOT FOR CONSTRUCTION

**NOTES FOR ELEVATIONS TAKEN ON PRESTRESSED CONCRETE BEAMS**

Take elevations on top of beam at points indicated by the grid layout. The beam elevations are to be read to three decimals and entered into table 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 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 and unsightly fascia beams.

For setting templates, measure Dimension "X" above top of beam 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 or slab or when taking the "Top of Beam" elevations.

Construct barriers to roadway grade. Do NOT add camber to the barrier.

Note to Engineer: 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. If the measured camber is greater than the "Maximum Allowable Camber" the Contractor will be responsible for any necessary adjustments to assure a minimum slab thickness of 8 inches as shown in the plans. This work will be considered incidental to the completion of the structure and must have the approval of the Engineer.

ITEM NUMBER	PREPARED BY	SHEET NO.
10-126.70	<b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	<b>S26</b> DRAWING NO. <b>27081</b>

REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	B.C. REID	

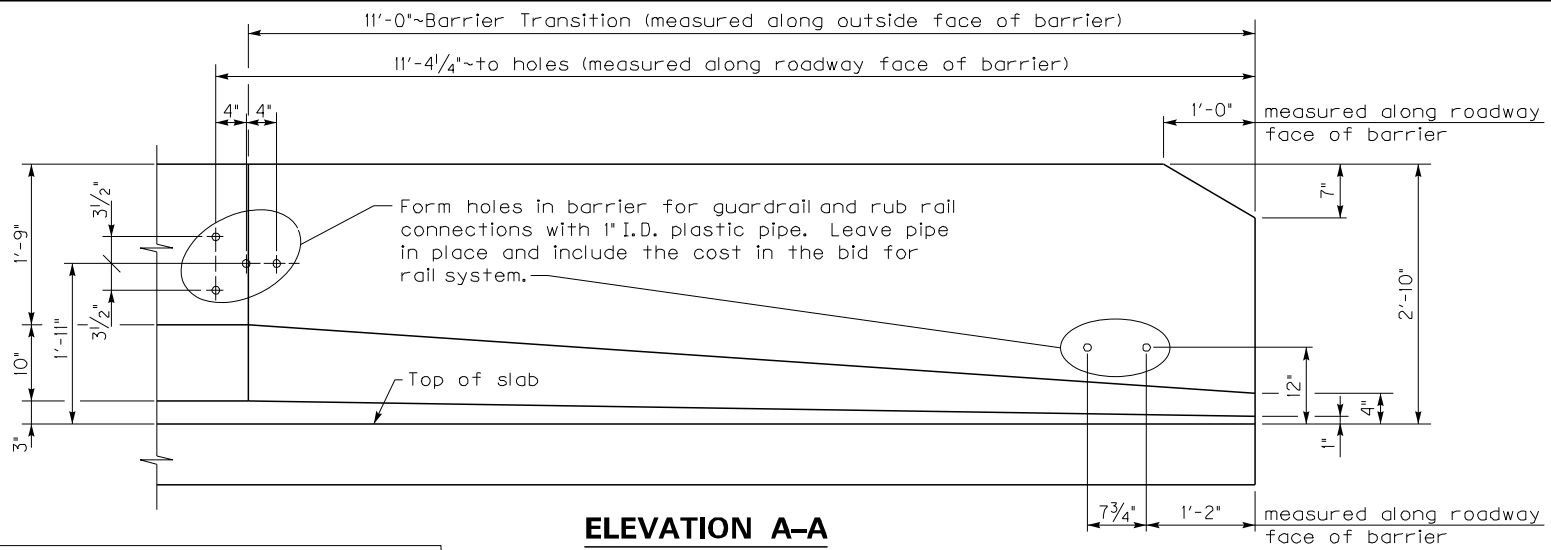
**Commonwealth of Kentucky**  
**DEPARTMENT OF HIGHWAYS**

COUNTY  
**WOLFE-MORGAN**

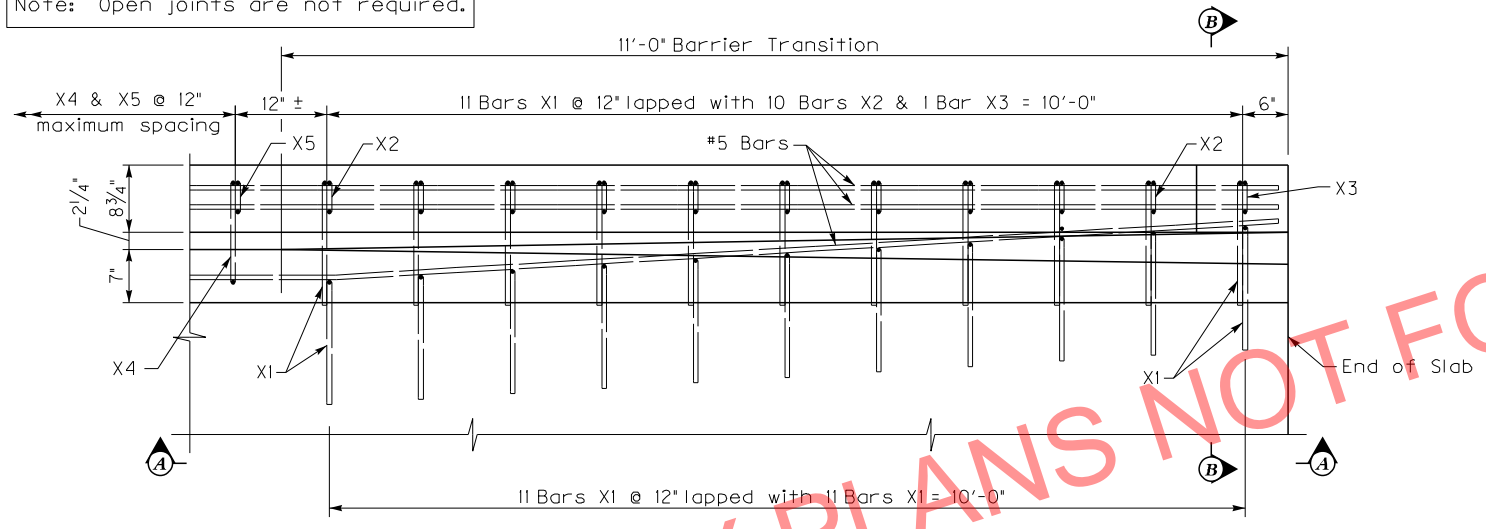
ROUTE CROSSING  
**RAMP A RED RIVER**

**CONSTRUCTION ELEVATIONS**

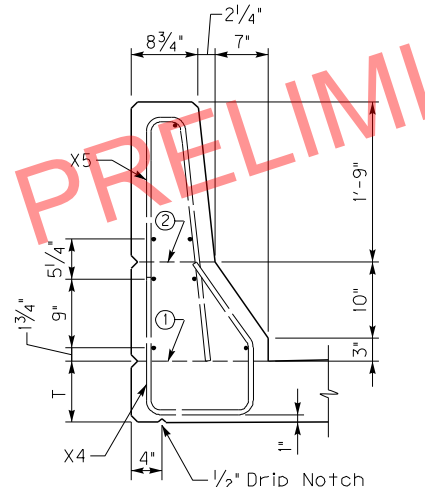




Note: Open joints are not required.

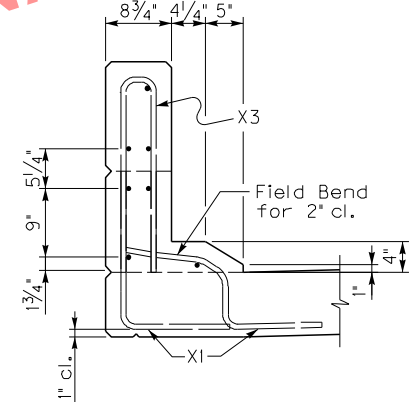


PLAN OF BARRIER TRANSITION

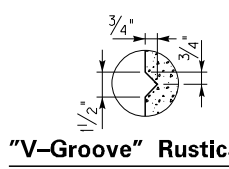


TYPICAL BARRIER SECTION

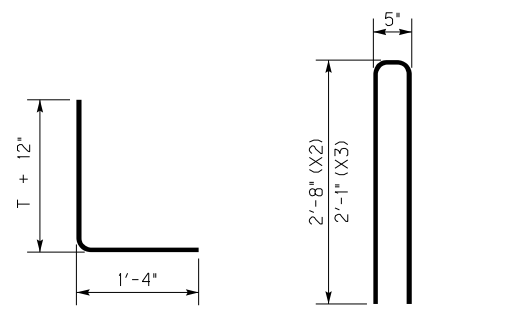
- ① Mandatory roughened construction joint. Concrete above this joint is to be placed after slab has been properly cured and included in the bid for Rail System, Type 3.
- ② Permissible construction joint. "V-Groove" rustication joint is required if construction joint is used. 1/4" Open Joints are not required.



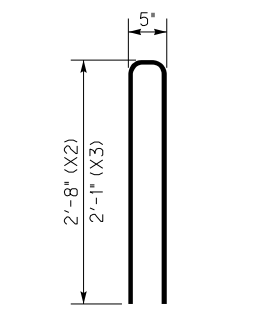
SECTION B-B



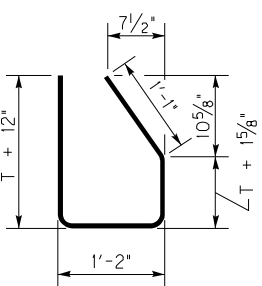
"V-Groove" Rustication



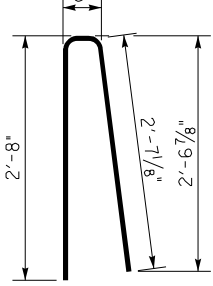
X1(e) Bars #5 Bar



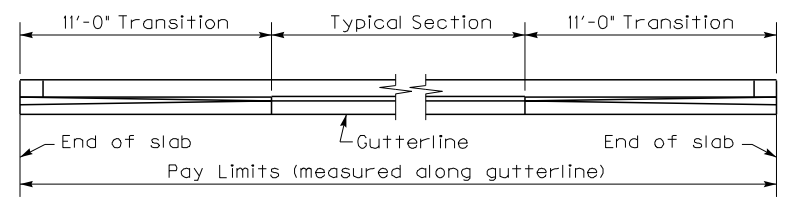
X2(e) & X3(e) Bars #5 Bar



X4(e) Bars #5 Bar

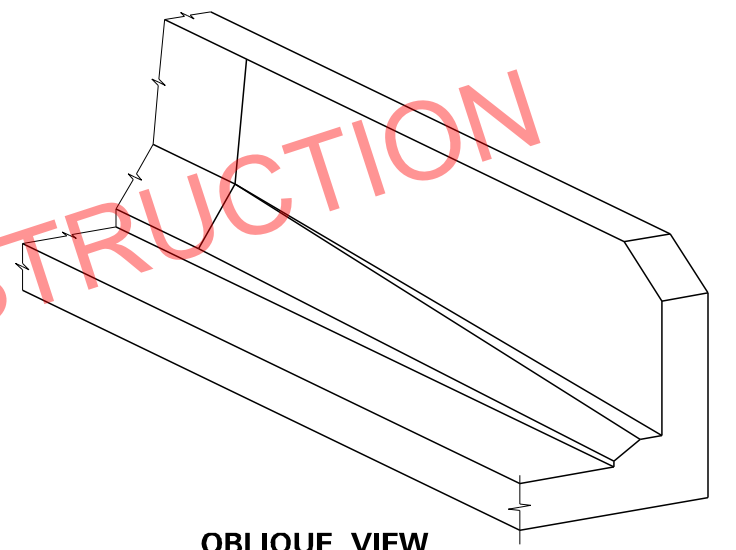


X5(e) Bars #5 Bar



PLAN OF BARRIER

Note: X1 & X3 Bars at end of slab may be adjusted to maintain 2" minimum clearance on curved and skewed end bridges.



OBLIQUE VIEW

General Notes

CONCRETE: Use Class AA Concrete throughout.

OPTIONAL WELDED WIRE REINFORCEMENT:

As the contractor's option, deformed welded wire reinforcement (WWR) in accordance with ASTM A497 and epoxy coated in accordance with ASTM A884 may be used in place of stirrup bars X2, X3, and X5 as well as the straight or longitudinal reinforcement attached to these stirrups. Use size D31 wire for both stirrups and straight reinforcement. Locate and space the wire reinforcement the same as the conventional reinforcement except lower the top straight bar at least 2 1/2' away from the bend in the stirrup. Use a minimum 2'-8" lap for the straight reinforcement between sheets of WWR.

MEASUREMENT: The linear foot bid for the barrier is measured along the roadway gutterline. Include all reinforcement shown and all concrete above the top of slab in the bid item for Rail System Type 3.

REINFORCEMENT: All reinforcement shown on this sheet is to be epoxy coated. Use stirrup bend diameters for all bent bars. Straight reinforcement is to be Size #5 and lapped 2'-2" when necessary.

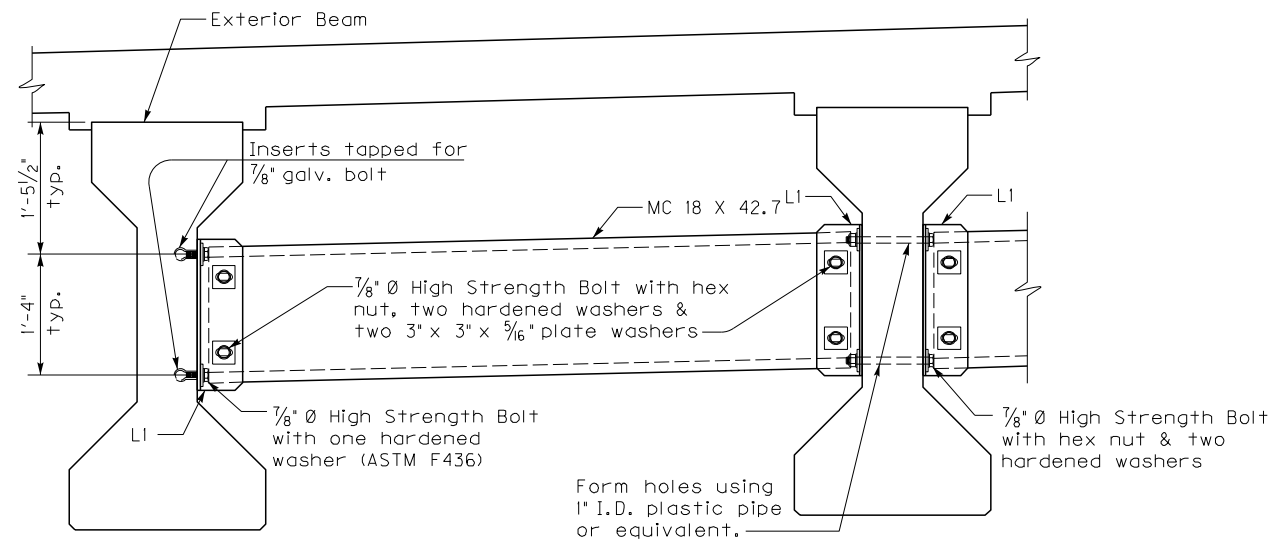
REVISION		DATE
DATE: June, 2016		CHECKED BY
DESIGNED BY: B.C REID		W.D. BURTON
DETAILED BY: W.R. ABBOTT		W.D. BURTON
<b>Commonwealth of Kentucky</b> DEPARTMENT OF HIGHWAYS		
COUNTY <b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>RAIL SYSTEM TYPE 3</b>		
ITEM NUMBER	PREPARED BY <b>LOCHNER</b>	SHEET NO. <b>S27</b>
<b>10-126.70</b>	H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	DRAWING NO. <b>27081</b>

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\STAGE II FINAL SUBMITTAL\27081\27081.028.DGN

USER: dsmitthson  
DATE PLOTTED: October 11, 2016

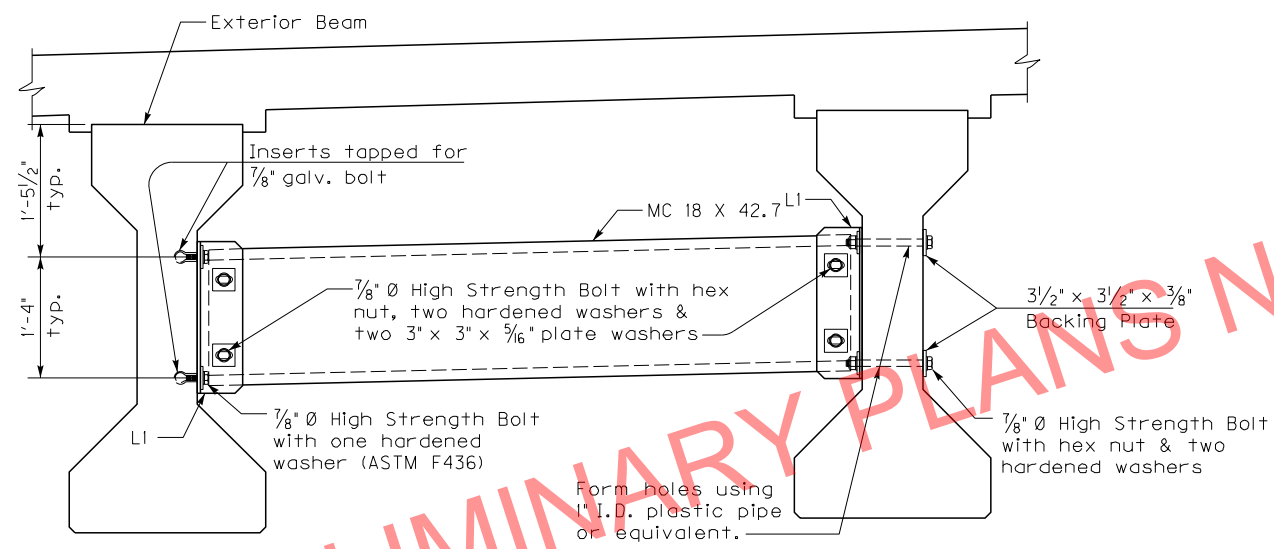
E-SHEET NAME:

MicroStation v8.11.9.459



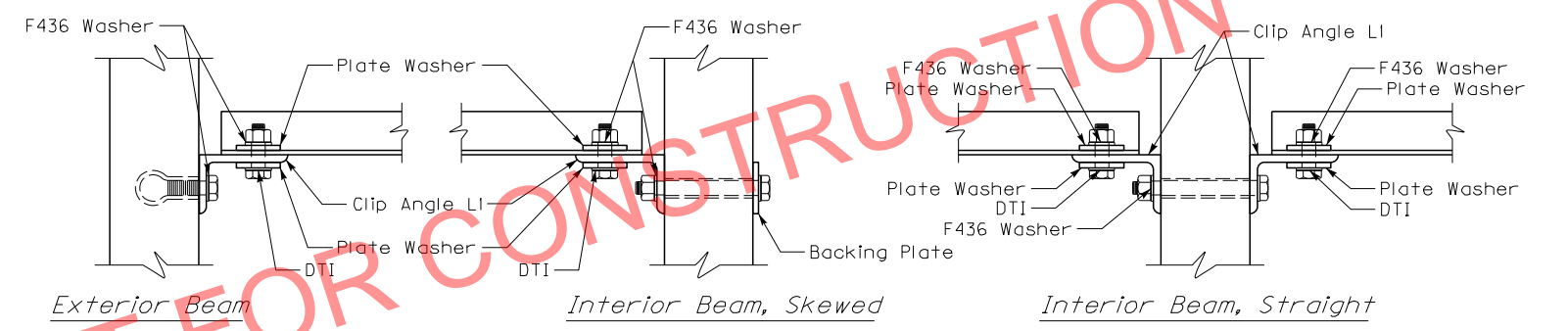
**INTERMEDIATE DIAPHRAGM**

~Typical for 0° Skew PCI, Type 4 Beams~

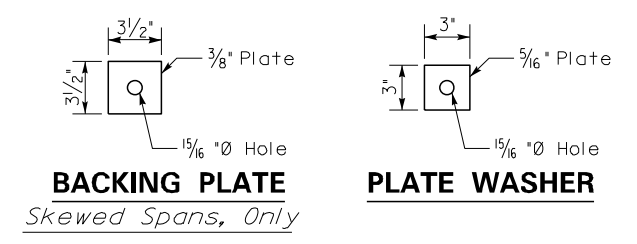


**INTERMEDIATE DIAPHRAGM**

~Typical for Skewed PCI, Type 4 Beams~



**CONNECTION DETAILS**



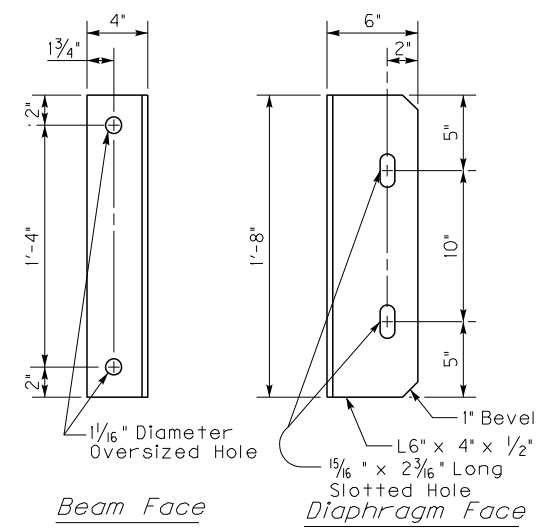
**Diaphragm Notes**

**CONNECTIONS:** Ensure all bolted connections are ASTM A325, 7/8 inch diameter high strength bolts, nuts, and washers, mechanically zinc coated in accordance with AASHTO M298, for Class 50. Install all high strength bolted field connections using "direct tension indicators" (DTI's) in accordance with the Standard Specifications and ASTM F959. Ensure all DTI's are mechanically zinc coated. Show installation details of the DTI's on the shop plans. Place DTI's under the bolt head. ASTM A449 bolts may be used in lieu of A325 for the bolts carried through the girder webs only.

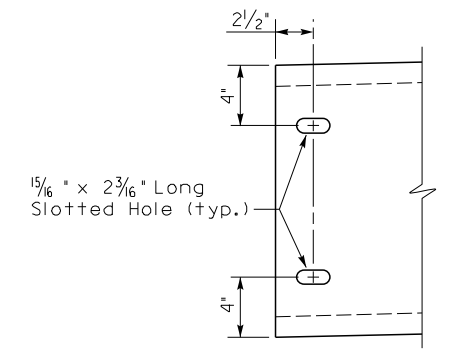
**STRUCTURAL STEEL:** Ensure plates, angles, and channels conform to ASTM A36 or A572 and galvanized after fabrication.

**SHOP DRAWINGS:** Show the location of all inserts and holes on the precast beam shop drawings. Submit shop drawings for the steel diaphragms to the Bridge Consultant for approval.

**DIAPHRAGMS:** Erect the diaphragms the same day that the precast beams are placed on the substructure. Include the cost of all materials and labor required to fabricate and erect the diaphragms in the bid for Precast Beams.



**CLIP ANGLE - L1**



**CHANNEL END**

ITEM NUMBER	10-126.70
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REVISION		DATE
DATE: June, 2016	CHECKED BY	
DESIGNED BY: B.C. REID	W.D. BURTON	
DETAILED BY: W.R. ABBOTT	W.D. BURTON	
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
<b>WOLFE-MORGAN</b>		
ROUTE <b>RAMP A</b>	CROSSING <b>RED RIVER</b>	
<b>STEEL DIAPHRAGMS</b>		
PREPARED BY <b>LOCHNER</b>		SHEET NO. <b>S28</b>
H.W. LOCHNER, INC. LEXINGTON, KENTUCKY		DRAWING NO. <b>27081</b>