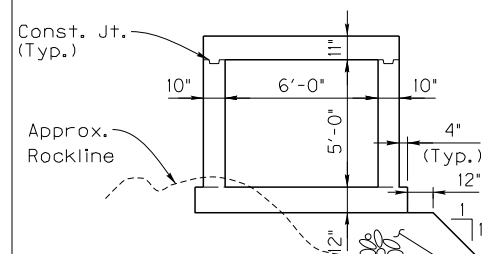
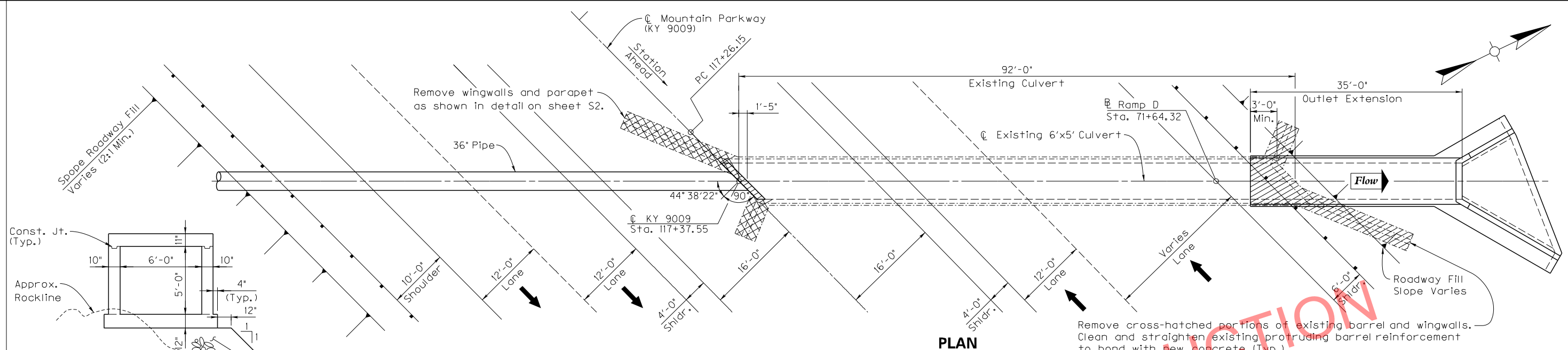


FILE NAME: I:\LEX\PRJ\000008298\DESIGN\STRUCTURES\FINAL DESIGN\MP\_CULVERT\_EXT - 6x5 e 117+38.DGN\S27085\_001.DGN  
 USER: demitson  
 DATE PLOTTED: June 30, 2016  
 E-SHEET NAME:  
 MicroStation v8.11.9.459



**SECTION THROUGH BARREL**

If solid rock is not encountered at the bottom of footing elevation, replace soil as shown with Granular embankment, meeting the requirements of Std. Spec. Section 805. This material shall be incidental to the lump sum bid for Foundation Preparation.

**PLAN**  
 Single 6'-0" x 5'-0" RCBC  
 35'-0" Outlet End Extension  
 44° 38' 22" Skew RT ~ KY HL-93 Loading ~ Variable Fill Slopes  
 Fill Height 4.9'  
 Non-Yielding Foundation

Remove cross-hatched portions of existing barrel and wingwalls. Clean and straighten existing protruding barrel reinforcement to bond with new concrete (Typ.).

**GENERAL NOTES**

**SPECIFICATIONS:** References to the Specifications are to the current 2012 of Kentucky Department of Highways Standard Specifications For Road and Bridge Construction including any current Supplemental Specifications. All references to the AASHTO Specifications are to the sixth edition of the AASHTO LRFD Bridge Design Specifications.

**DESIGN LOAD:** This structure is designed for KY HL-93 live load. The ky-93 live load is arrived at by increasing the standard design truck and lane loads by 25%.

**CONCRETE:** Use Concrete, Class "A" throughout.

**DESIGN STRESSES:**  
 FOR CLASS "A" CONCRETE: F<sub>C</sub> = 3500 PSI  
 FOR STEEL REINFORCEMENT: F<sub>Y</sub> = 60000 PSI

**WEIGHT OF FILL MATERIAL:** The assumed weight of fill material is 120 PSF.

**BEVELED EDGES:** Bevel all exposed edges 3/4", unless otherwise noted.

**FOOTING PRESSURE:** Foundation materials for wing footings are required to resist a maximum bearing pressure of 2,400 psf at the AASHTO Service I limit state.

**SAWCUTTING EXISTING CONCRETE:** Prior to the removal of the existing concrete masonry, cut the surface with a concrete saw to a depth of one inch to facilitate a neat line. The cost of cutting concrete shall be included in the unit price bid Remove Concrete Masonry.

**EXISTING REINFORCING STEEL:** Existing horizontal reinforcing steel in the portion of the barrel to be removed shall be cleaned and straightened in order to bond with new concrete. The cost of cleaning and straightening existing reinforcing steel shall be incidental to the unit price bid for Remove Concrete Masonry.

**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.

**TEMPORARY SHORING:** Temporary sheeting, shoring, cofferdams, and/or a dewatering method may be required for installation of the culvert and footings. Solid rock excavation will be required for installation of the culvert barrel and wingwall spread footing. Payment for this work shall be included in the lump sum bid for Foundation Preparation.

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

**CONSTRUCTION JOINTS:** If construction joints are required, locate the construction joint in the field. Place the joint perpendicular to the barrel using either couplers, mechanical splices, or lap splices for the E Bars. Ensure couplers or mechanical splices are capable of transferring 125% of the design yield strength of the bar. Include the cost of couplers, mechanical splices, or additional rebar for lap splices in the bid for steel reinforcement. No construction joint in the barrel is to be located within 6 ft. of the end the culvert.

**FLOWLINE REINFORCEMENT:** Construct the 6-inch paved flowline using #4 steel reinforcement at 18-inch centers in each direction or 6"x6"-D7xD7 welded wire steel fabric. Extend the bars a minimum of 12 inches into wing footing and/or the bottom slab. Include the cost of this reinforcement in the bid for Class "A" Concrete.

**BEFORE YOU DIG:** The contractor can call 1-800-752-6007 toll free a minimum of 2 business days prior to excavation for information on the location of existing utilities. Also, see utility plans.

**BONDING TO EXISTING CONCRETE USING STRUCTURAL ADHESIVES:** Bond proposed plastic concrete to existing hardened concrete in all locations using a Type V Epoxy Resin or other approved Structural Adhesive as prescribed in section 826 of the specifications. Follow the manufacturer's recommended application instructions. This work and material is incidental to the unit price bid for Class "A" Concrete.

**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.

ESTIMATE OF QUANTITIES			
BID CODE	ITEM	QUANTITY	UNIT
8100	Class "A" Concrete	47.7	C. Y.
8150	Reinforcement	3228	LB.
8003	Foundation Preparation	1	L.S.
8002	Structure Excavation, (Solid Rock)	9	C. Y.
2403	Remove Concrete Masonry	6	C. Y.

INDEX OF SHEETS	
Sheet No.	Description
S1	Layout & General Notes
S2	Inlet Details
S3	Outlet Details
S4	Wing Details
S5	Bill of Reinforcement
S6	Subsurface Data

STANDARD DRAWINGS	
BCX-006-10	Stencils for Structures
BCX-012-02	Geotechnical Legend

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

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

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

COUNTY  
**WOLFE-MORGAN**

ROUTE KY 9009	CROSSING DRAINAGE DITCH STA. 117+37.55
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**LAYOUT & GENERAL NOTES**

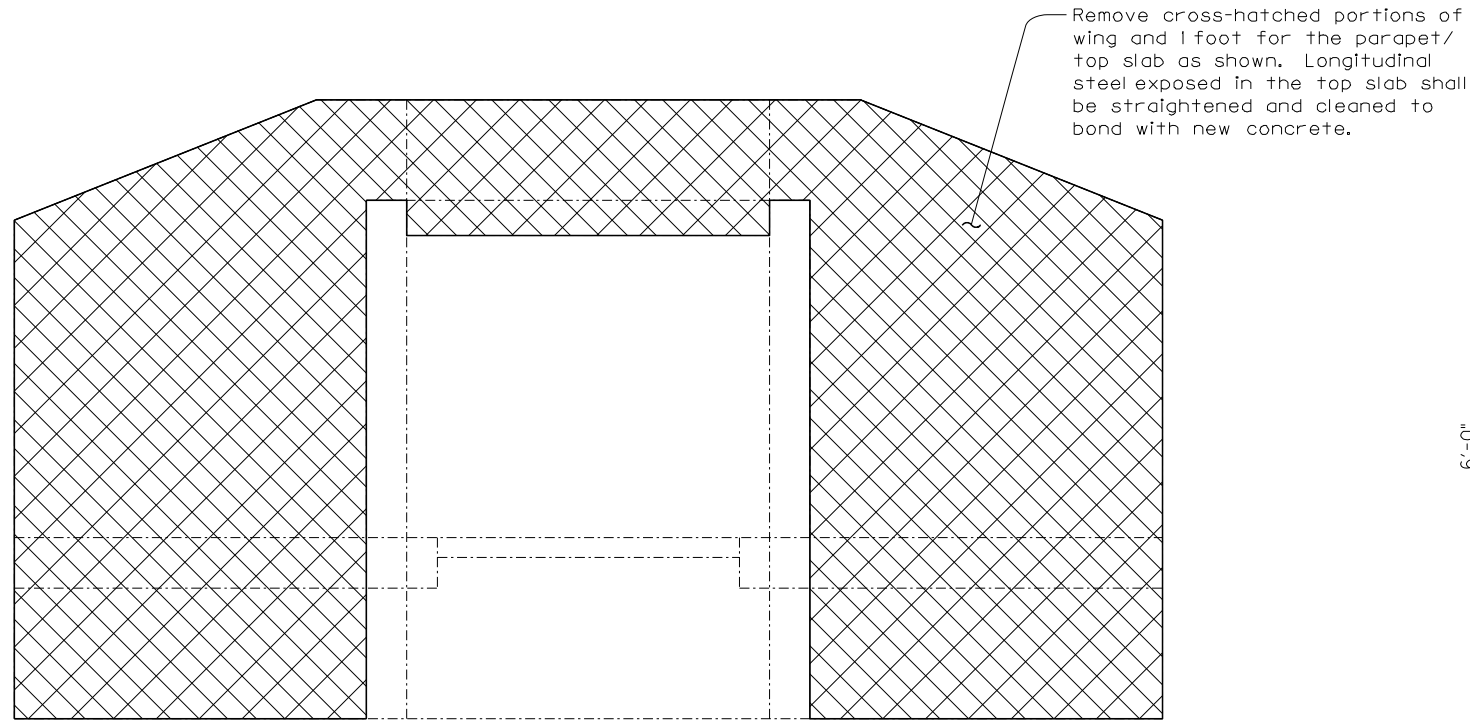
ITEM NUMBER <b>10-126.70</b>	PREPARED BY <b>LOCHNER</b> H. W. LOCHNER, INC. LEXINGTON, KENTUCKY	SHEET NO. <b>S1</b> DRAWING NO. <b>27085</b>
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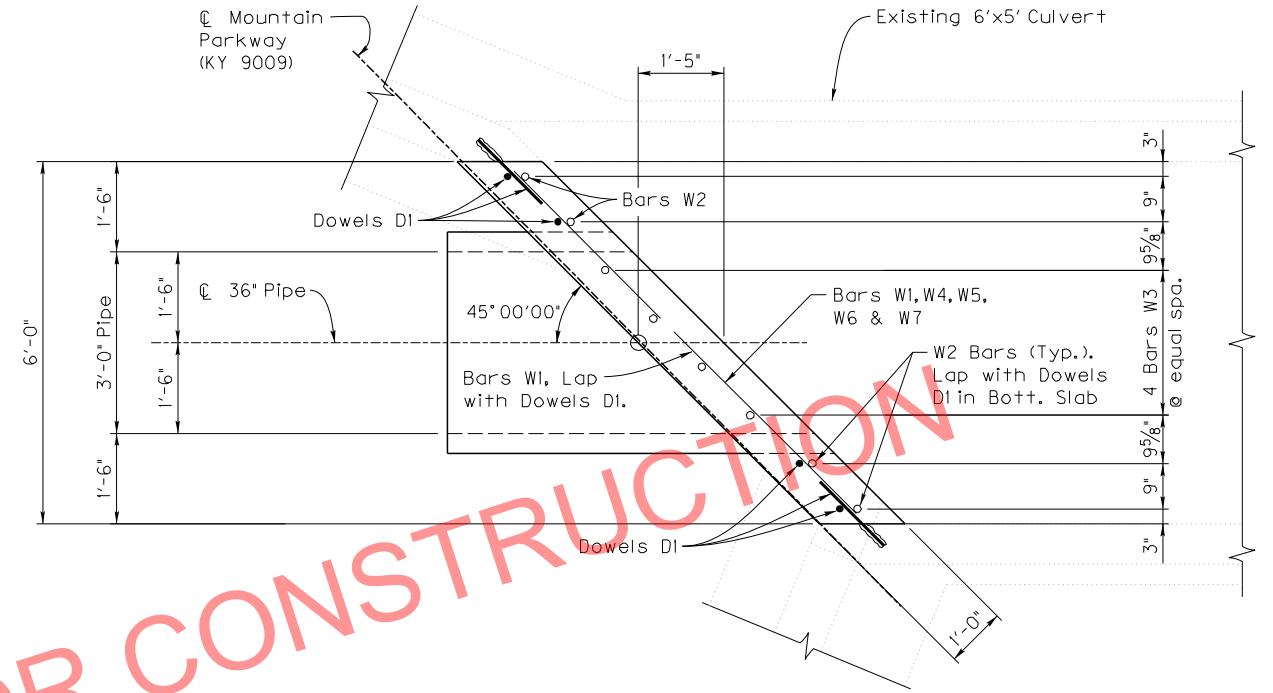
USER: dsmithson  
DATE PLOTTED: June 30, 2016

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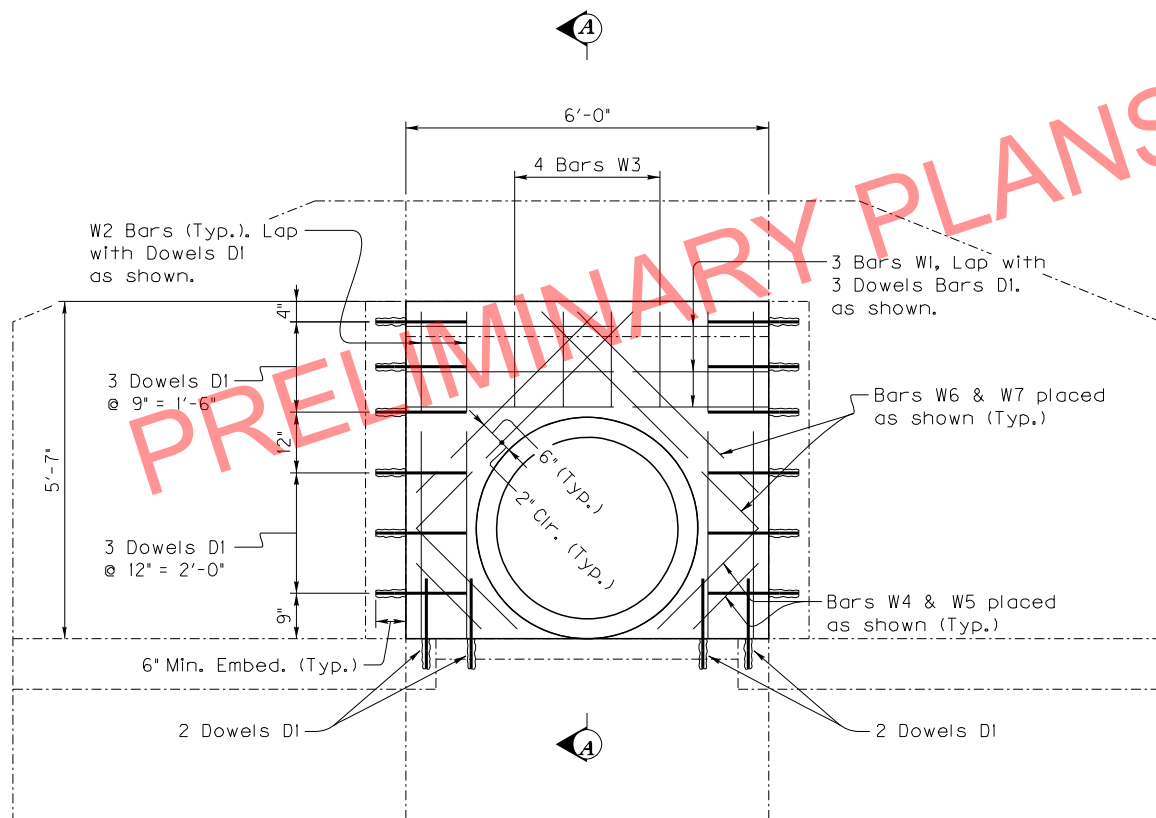
MicroStation v8.11.9.459



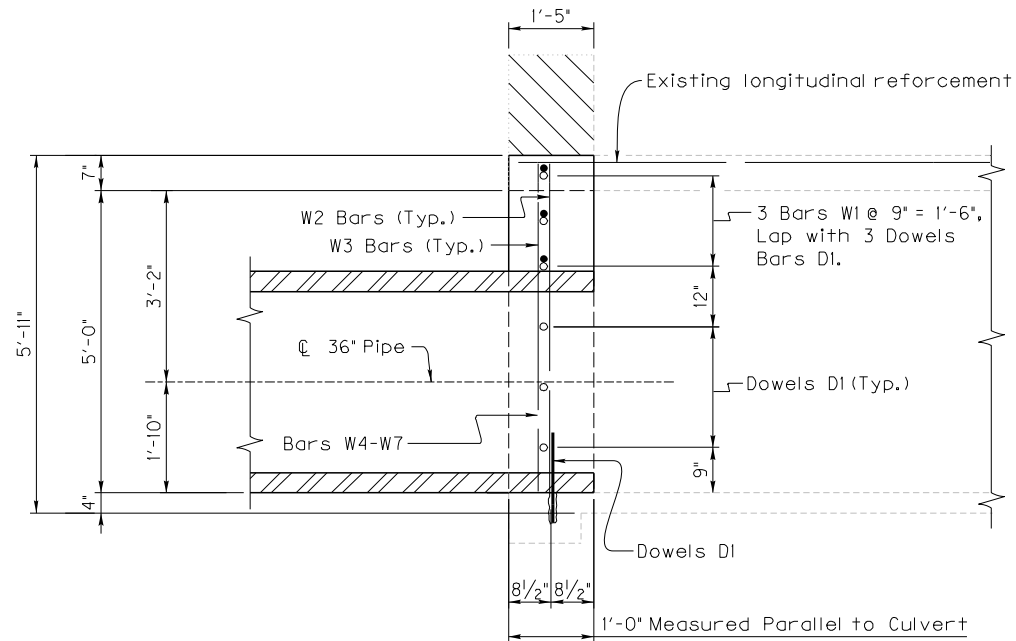
**EXISTING CONCRETE REMOVAL LIMITS**



**INLET PLAN**



**INLET ELEVATION**



**SECTION AA**

PRELIMINARY PLANS NOT FOR CONSTRUCTION

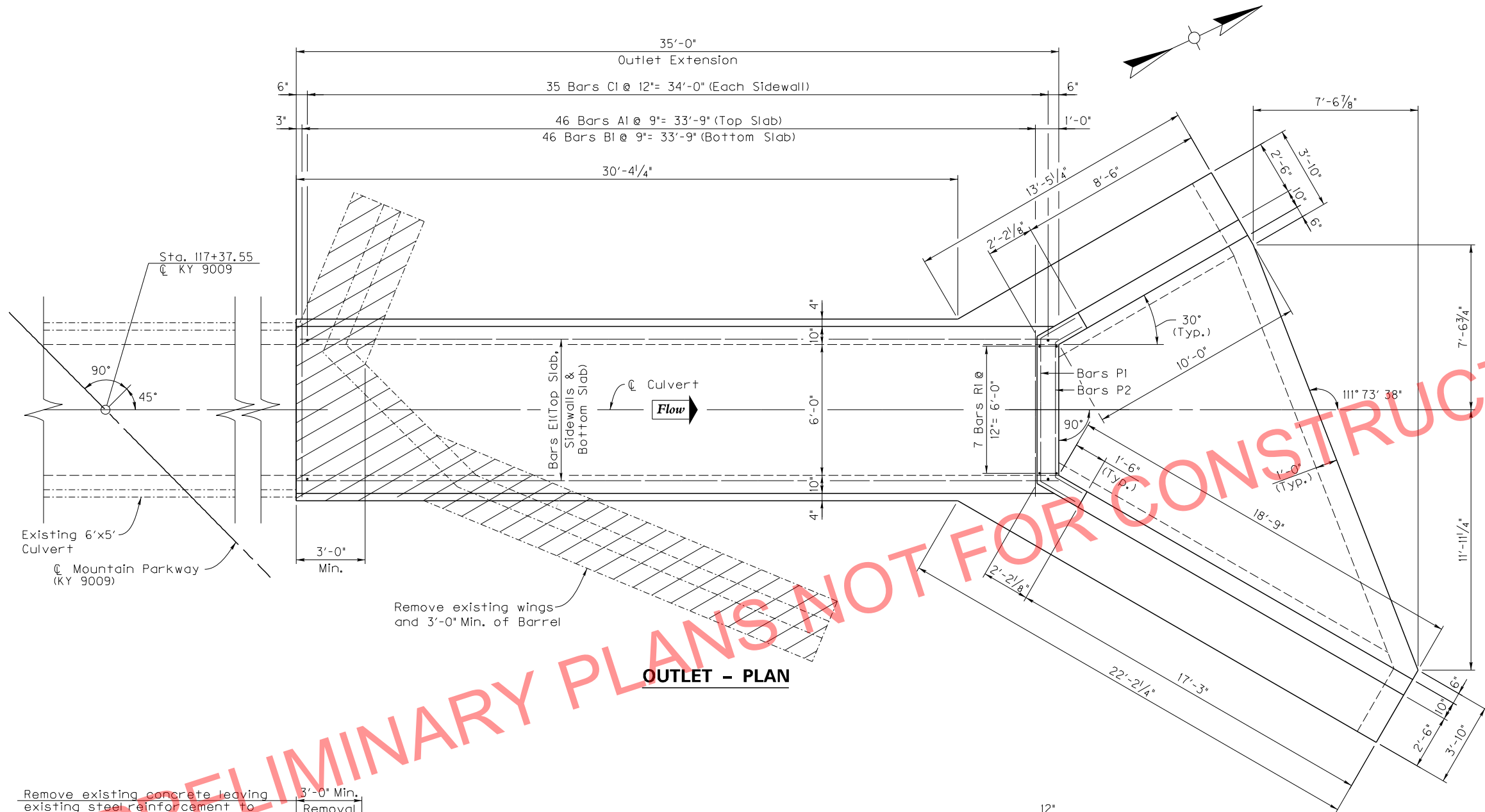
REVISION		DATE
DATE: June, 2016	DESIGNED BY: B.C. REID	CHECKED BY: W.D. BURTON
DETAILED BY: D.M. SMITHSON		B.C. REID
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
<b>WOLFE-MORGAN</b>		
ROUTE KY 9009	CROSSING DRAINAGE DITCH STA. 117+37.55	
<b>INLET DETAILS</b>		
ITEM NUMBER <b>10-126.70</b>		PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY
		SHEET NO. <b>S2</b> DRAWING NO. <b>27085</b>

FILE NAME: I:\LEX\PRJ\00008298\DESIGN\STRUCTURES\FINAL DESIGN\MP\_CULVERT\_EXT - 6x5 e 117+38\DN\S27085\_003.DGN

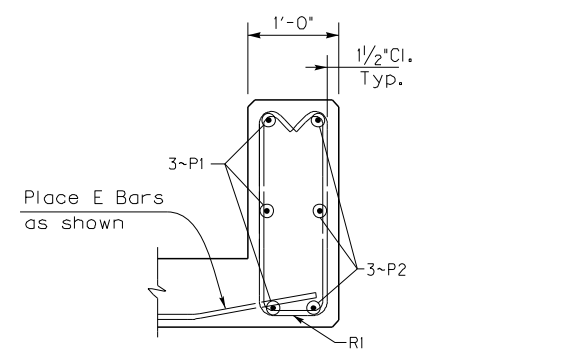
USER: dsmithson  
DATE PLOTTED: June 30, 2016

E-SHEET NAME:

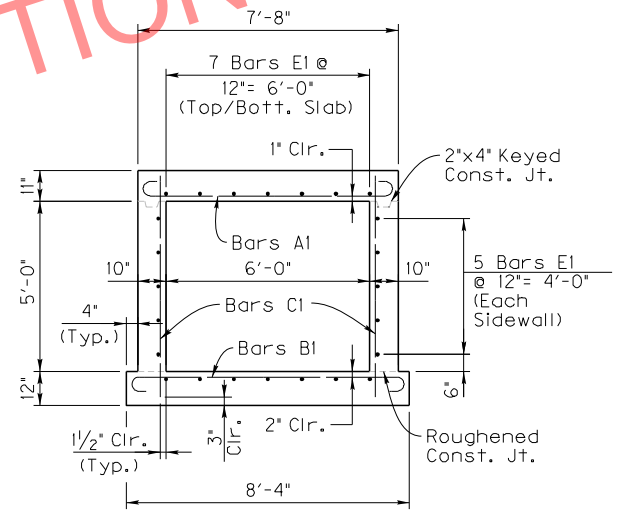
MicroStation v8.11.9.459



**OUTLET - PLAN**

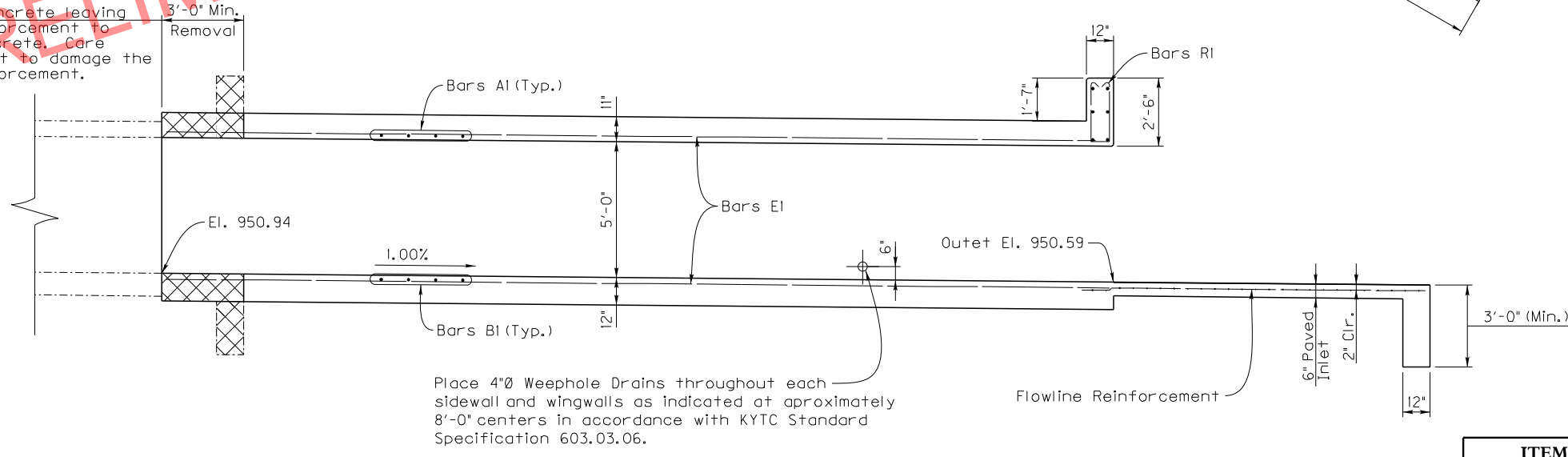


**PARAPET DETAILS**  
~Normal to Parapet~



**SECTION THRU BARREL**

Remove existing concrete leaving existing steel reinforcement to bond with new concrete. Care should be taken not to damage the existing steel reinforcement.



**SECTION ON C**

PRELIMINARY PLANS NOT FOR CONSTRUCTION

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

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

COUNTY  
**WOLFE-MORGAN**

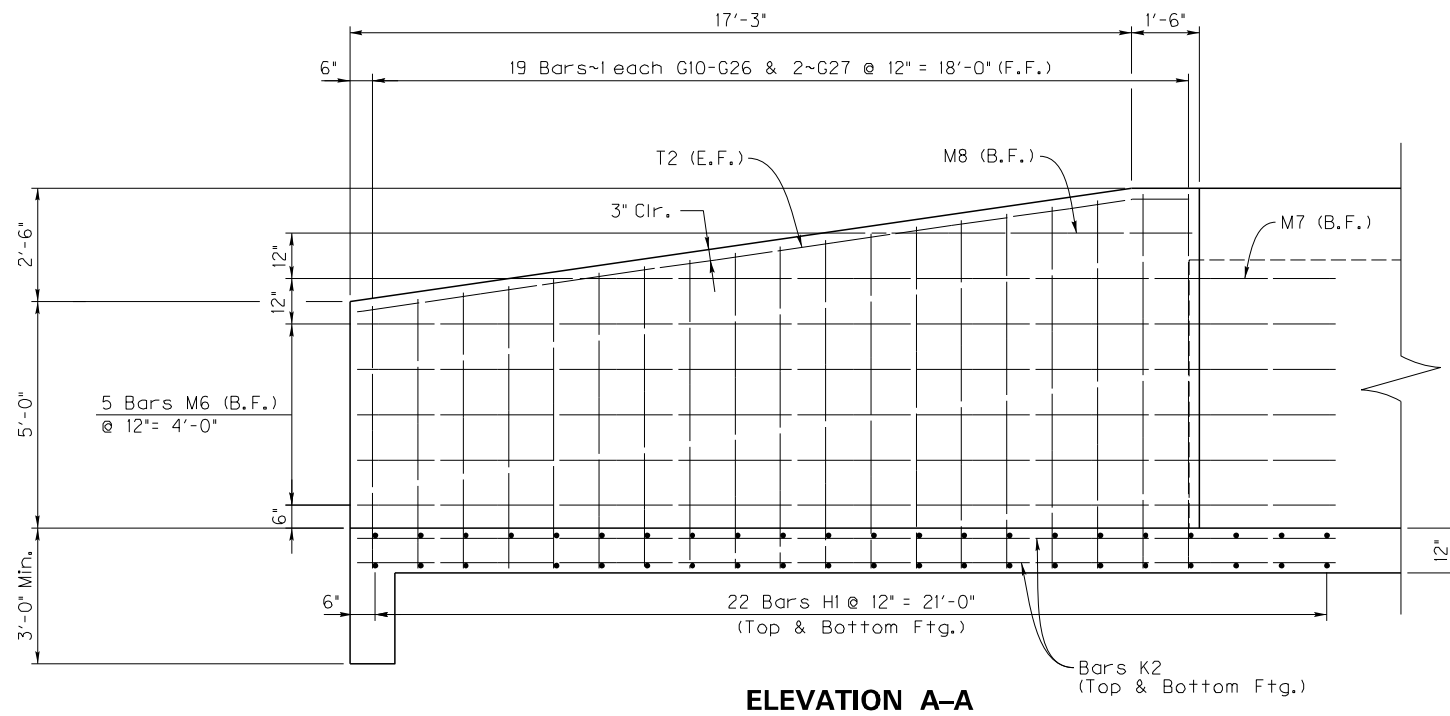
ROUTE <b>KY 9009</b>	CROSSING <b>DRAINAGE DITCH 117 + 37.55</b>
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**OUTLET DETAILS**

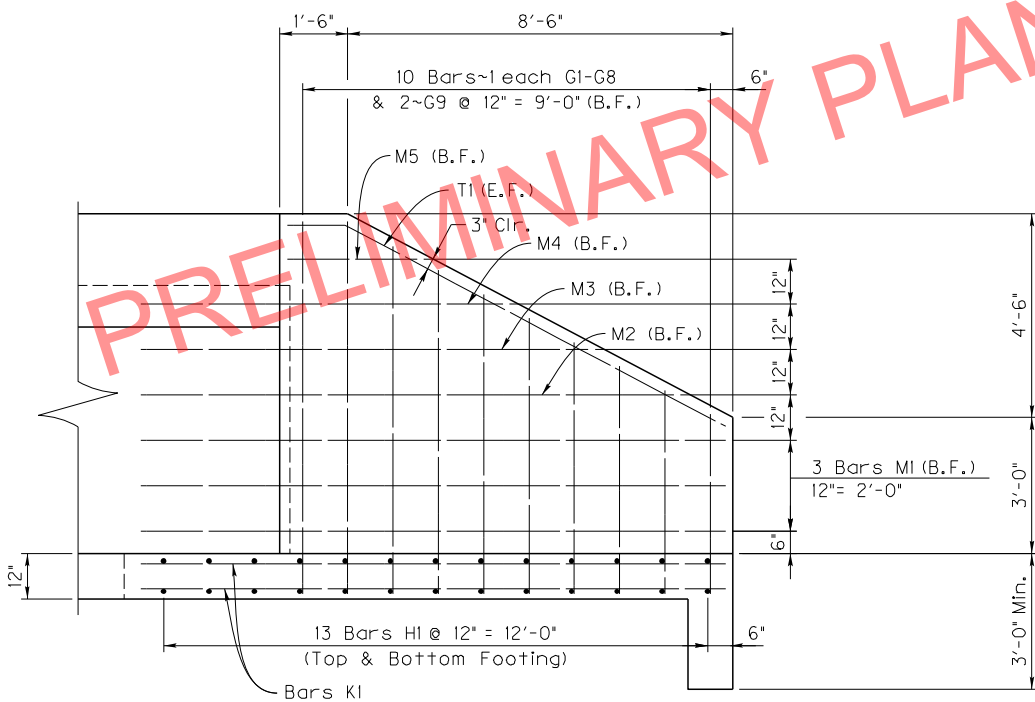
PREPARED BY  
**LOCHNER**  
H.W. LOCHNER, INC.  
LEXINGTON, KENTUCKY

SHEET NO.  
**S3**  
DRAWING NO.  
**27085**

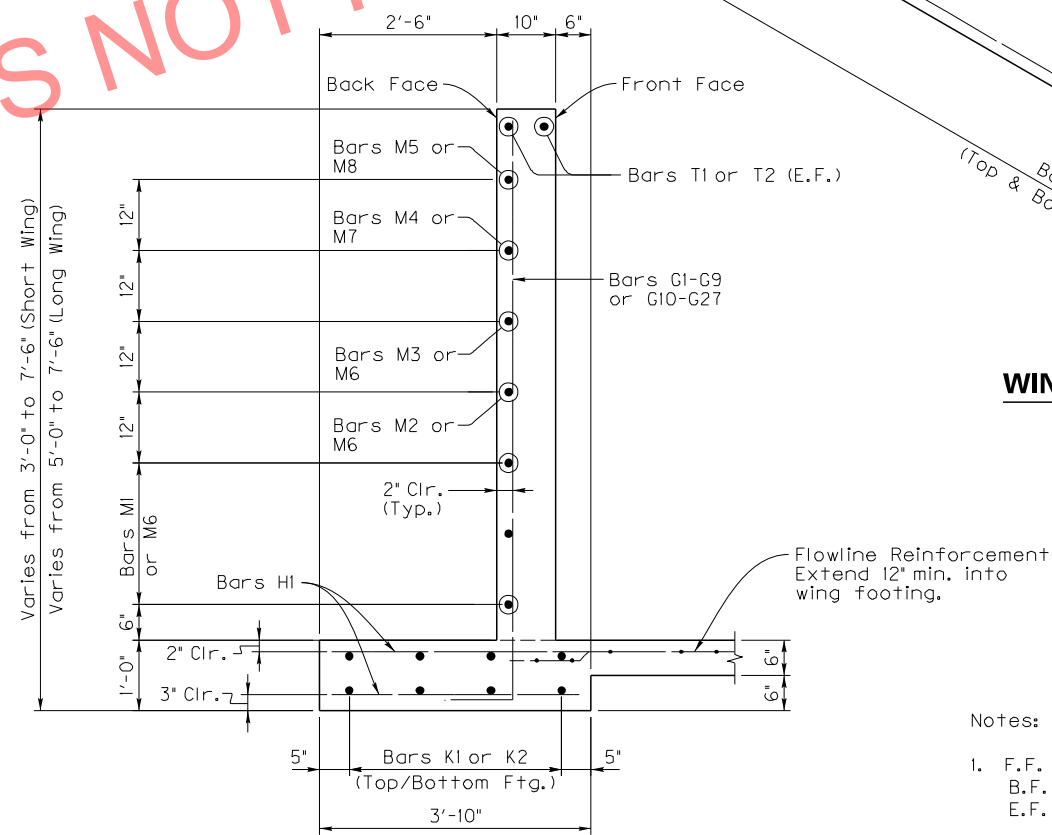
ITEM NUMBER	10-126.70
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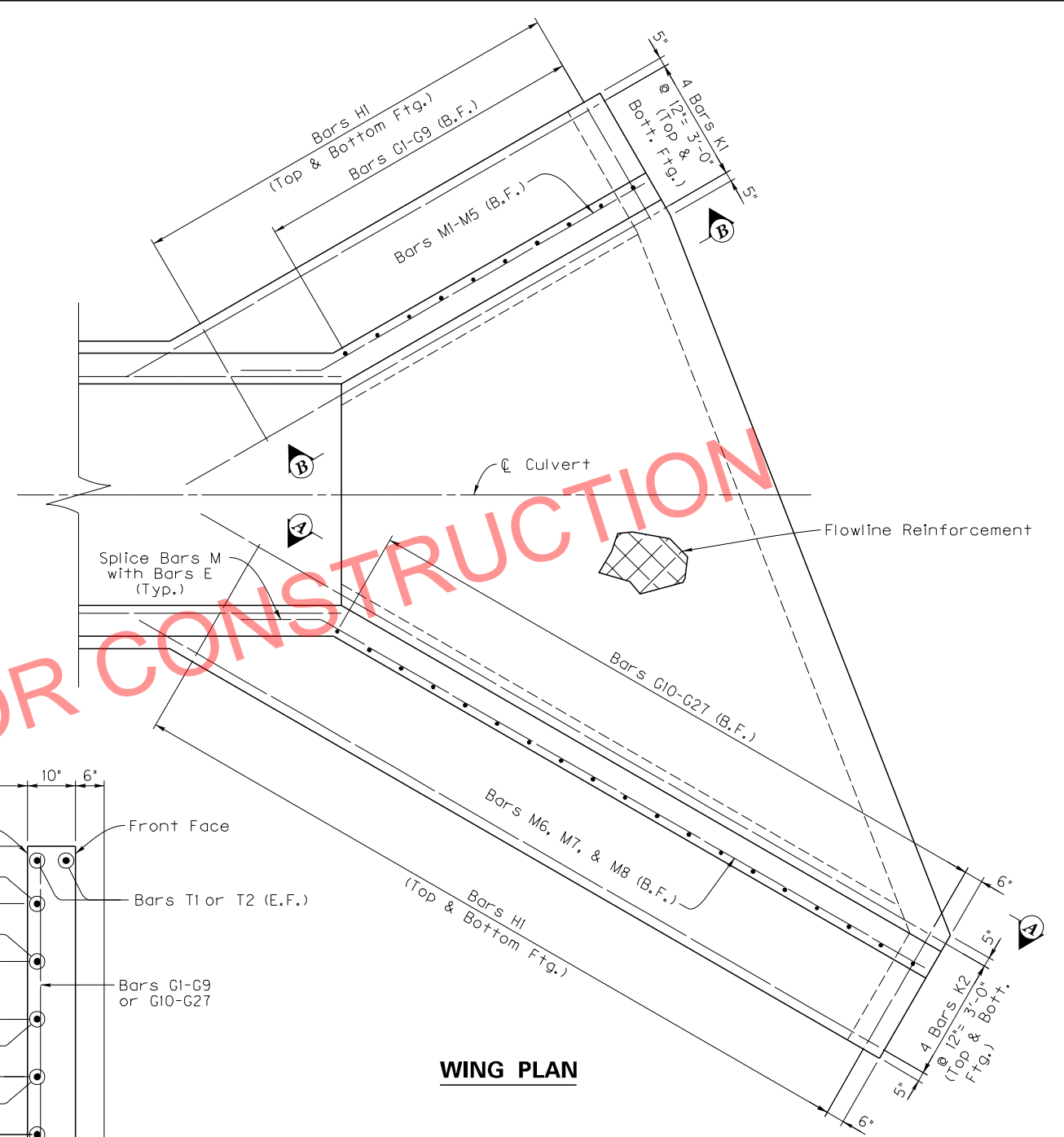
**ELEVATION A-A**



**ELEVATION B-B**



**SECTION THRU WING**



**WING PLAN**

- Notes:
- 1. F.F. = Front Face
  - B.F. = Back Face
  - E.F. = Each Face

REVISION		DATE
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
COUNTY <b>WOLFE-MORGAN</b>		
ROUTE KY 9009	CROSSING DRAINAGE DITCH 117 + 37.55	
<b>WING DETAILS</b>		
ITEM NUMBER	PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	SHEET NO. S4 DRAWING NO. 27085
10-126.70		



**BILL OF REINFORCEMENT - OUTLET**

MARK	TYPE	SIZE	NO.	LENGTH		LOCATION	A		B		C		D	
				FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
A1	1	5	46	8	7	Top Slab	6	11	0	10	0	5	7	4
B1	1	5	46	9	3	Bottom Slab	7	7	0	10	0	5	8	0
C1	Str.	5	70	6	6	Sidewalls								
E1	Str.	4	24	34	8	Outlet Barrel								
G1	5	5	1	4	9	Short Wingwall	3	11	0	10				
G2	5	5	1	5	4	Short Wingwall	4	6	0	10				
G3	5	5	1	5	10	Short Wingwall	5	0	0	10				
G4	5	5	1	6	4	Short Wingwall	5	6	0	10				
G5	5	5	1	6	11	Short Wingwall	6	1	0	10				
G6	5	5	1	7	5	Short Wingwall	6	7	0	10				
G7	5	5	1	7	11	Short Wingwall	7	1	0	10				
G8	5	5	1	8	6	Short Wingwall	7	8	0	10				
G9	5	5	2	9	0	Short Wingwall	8	2	0	10				
G10	5	5	1	6	6	Long Wingwall	5	8	0	10				
G11	5	5	1	6	8	Long Wingwall	5	10	0	10				
G12	5	5	1	6	10	Long Wingwall	6	0	0	10				
G13	5	5	1	6	11	Long Wingwall	6	1	0	10				
G14	5	5	1	7	1	Long Wingwall	6	3	0	10				
G15	5	5	1	7	3	Long Wingwall	6	5	0	10				
G16	5	5	1	7	5	Long Wingwall	6	7	0	10				
G17	5	5	1	7	6	Long Wingwall	6	8	0	10				
G18	5	5	1	7	8	Long Wingwall	6	10	0	10				
G19	5	5	1	7	10	Long Wingwall	7	0	0	10				
G20	5	5	1	8	0	Long Wingwall	7	2	0	10				
G21	5	5	1	8	1	Long Wingwall	7	3	0	10				
G22	5	5	1	8	3	Long Wingwall	7	5	0	10				
G23	5	5	1	8	5	Long Wingwall	7	7	0	10				
G24	5	5	1	8	6	Long Wingwall	7	8	0	10				
G25	5	5	1	8	8	Long Wingwall	7	10	0	10				
G26	5	5	1	8	10	Long Wingwall	8	0	0	10				
G27	5	5	2	9	0	Long Wingwall	8	2	0	10				

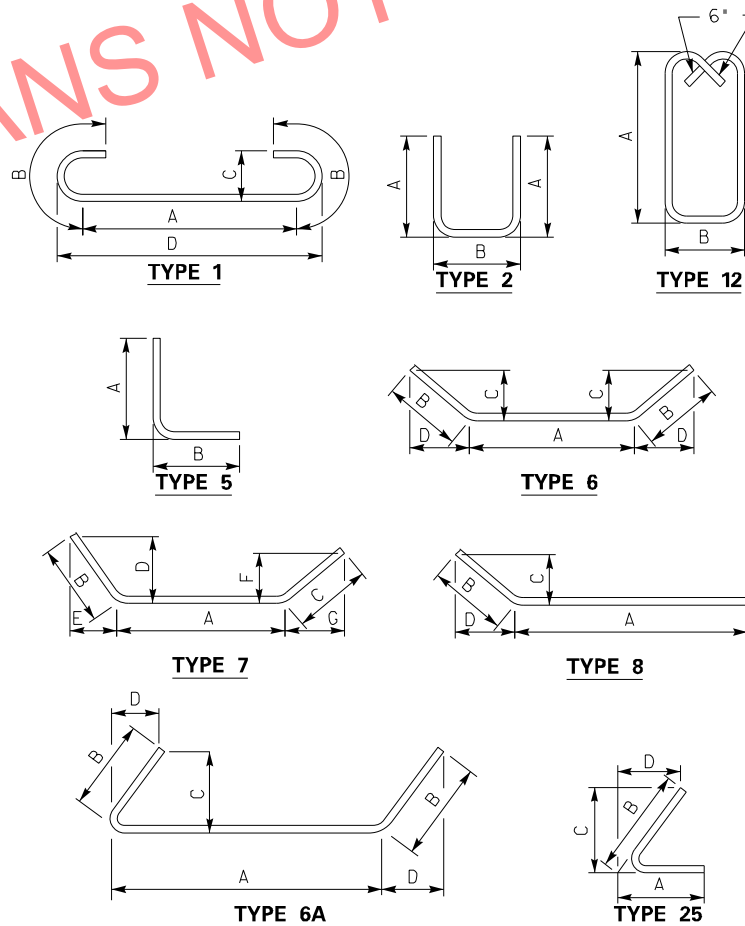
**BILL OF REINFORCEMENT - OUTLET**

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H1	Str.	5	70	3	6	Wing Footing														
K1	Str.	5	8	14	10	Wing Footing														
K2	Str.	5	8	23	2	Wing Footing														
M1	8	5	1	12	2	Short Wingwall														
M2	8	5	3	10	9	Short Wingwall	10	5	1	9	0	10 1/2	1	6 1/8						
M3	8	5	1	8	11	Short Wingwall	9	0	1	9	0	10 1/2	1	6 1/8						
M4	8	5	1	7	0	Short Wingwall	7	2	1	9	0	10 1/2	1	6 1/8						
M5	Str.	5	1	2	10	Short Wingwall	5	3	1	9	0	10 1/2	1	6 1/8						
M6	8	5	2	20	11	Long Wingwall														
M7	8	5	5	15	10	Long Wingwall	19	2	1	9	0	10 1/2	1	6 1/8						
M8	Str.	5	1	7	0	Long Wingwall	14	1	1	9	0	10 1/2	1	6 1/8						
P1	6	6	3	10	4	Parapet	6	6	1	11	1	7 1/8	0	11 1/2						
P2	6	6	3	9	0	Parapet	6	2	1	5	1	2 3/4	0	8 1/2						
R1	12s	5	7	6	0	Parapet	2	2	0	8										
T1	8	6	2	10	9	Short Wingwall	9	6	1	3	0	7	1	1 1/4						
T2	8	6	2	18	6	Long Wingwall	17	3	1	3	0	2 1/8	1	2 7/8						

**BILL OF REINFORCEMENT - INLET**

MARK	TYPE	SIZE	NO.	LENGTH		LOCATION	A		B		C		D	
				FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.		
W1	Str.	5	3	8	0	Inlet Wall								
W2	Str.	5	4	5	5	Inlet Wall								
W3	Str.	5	4	1	6	Inlet Wall								
W4	Str.	5	2	2	4	Inlet Wall								
W5	Str.	5	2	4	3	Inlet Wall								
W6	Str.	5	2	5	1	Inlet Wall								
W7	Str.	5	2	4	3	Inlet Wall								
D1	Str.	5	16	1	6	Dowels								

PRELIMINARY PLANS NOT FOR CONSTRUCTION



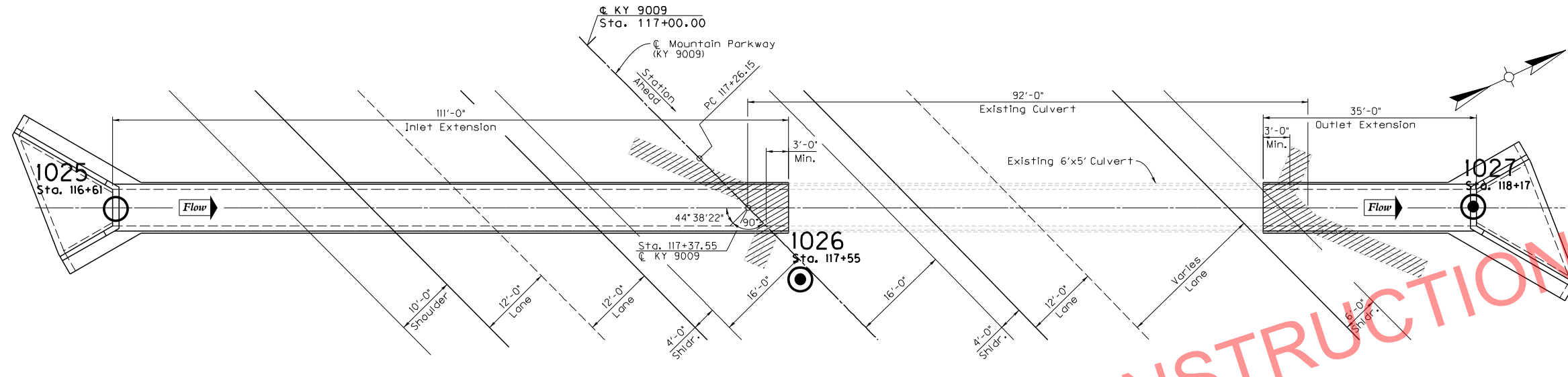
Notes:

- Reinforcing Bars designated by suffix (s) shall be considered a stirrup for purposes of bend diameter.

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 KY 9009	CROSSING DRAINAGE DITCH STA. 117+37.55	
<b>BILL OF REINFORCEMENT</b>		
ITEM NUMBER	PREPARED BY <b>LOCHNER</b> H.W. LOCHNER, INC. LEXINGTON, KENTUCKY	SHEET NO. <b>S5</b> DRAWING NO. <b>27085</b>
10-126.70		

# SUBSURFACE DATA

Plan Scale 1" = 20'



● CORE BORING ○ SOUNDING

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

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

Hole No.	Station	Offset	Elev.	Notes
1025	116+61.00	75.0' Rt.	958.95	
1026	117+55.00	5.0' Rt.	958.86	
1027	118+17.00	80.0' Lt.	952.58	

W.L.	LI	SDI (JS)	Notes
23		N=3	A-2-4(0), SM, S+C=100(93+7)
22		N=7	
28		N=52/0.70'	
70	97	(6)	(954.75 - 954.15) Weathered sandstone, silt, mica, light gray tan, planar partings
93	100		(954.15 - 949.75) Shale, fine grains, mica, dark to light gray, planar partings
15			A-2-4(0), SC-SM, S+C=100(86+14)
15		N=10, A-2-4(0), SM, S+C=100(88+12)	
16		N=2	
55	84	(3)	(952.86 - 951.06) Weathered siltstone, fine grains, mica, light gray to tan, planar partings
57	97		(951.06 - 950.36) Coal
			(950.36 - 947.86) Shale, fine grains, light gray to medium gray, planar partings

Top of rock elev. = 954.75  
Base of weathered rock elev. = 954.15

Top of rock elev. = 952.86  
Base of weathered rock elev. = 950.36

R  
(950.08)

PRELIMINARY PLANS NOT FOR CONSTRUCTION

FILE NAME: I:\LEX\PR\A00008298\DESIGN\STRUCTURES\FINAL DESIGN\VP\_CULVERT\_EXT - 6x5 @ 117+38.DGN\S27085\_006.DGN

USER: dsmitthson  
DATE PLOTTED: June 30, 2016

E-SHEET NAME:

MicroStation v8.11.9.459

**SHEET 1 OF 1**

**S-019-2014**

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>		
<b>WOLFE-MORGAN</b>		
ROUTE KY 9009	CROSSING Culvert Station 117+37.55	
<b>SUBSURFACE DATA</b>		
PREPARED BY		SHEET NO.
K.S. WARE & ASSOCIATES, LLC		S6
		DRAWING NO.
		27085