

SPECIFICATIONS

REFERENCES TO THE STANDARD SPECIFICATIONS ARE TO THE 2019 EDITION OF THE KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WITH CURRENT SUPPLEMENTAL SPECIFICATIONS. REFERENCES TO AASHTO SPECIFICATIONS ARE TO THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9th EDITION WITH INTERIM REVISIONS.

DESIGN LOAD

THIS STRUCTURE IS DESIGNED FOR HL-93 LIVE LOAD INCREASED 25%.

WEIGHT OF FILL MATERIAL

THE ASSUMED WEIGHT OF FILL MATERIAL IS 120 LBS PER CUBIC FOOT.

DESIGN STRESSES

$F_y = 60,000 \text{ psi}$
 $f'_c = 3,500 \text{ psi}$

CONCRETE

CLASS "A" CONCRETE SHALL BE USED THROUGHOUT.

REINFORCEMENT

DIMENSIONS SHOWN FROM THE FACE OF CONCRETE TO BARS ARE CLEAR DISTANCES UNLESS OTHERWISE SHOWN. SPACING OF BARS IS FROM CENTER TO CENTER.

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.

GENERAL NOTES

BONDING NEW CONCRETE TO OLD CONCRETE

ALL NEW CONCRETE SHALL BE BONDED TO THE OLD CONCRETE WITH A TYPE V EPOXY RESIN SYSTEM CONFORMING TO SECTION 511 AND 826 OF THE SPECIFICATIONS. THE COST OF THIS WORK, INCLUDING ALL LABOR, TOOLS, AND MATERIALS IS TO BE INCIDENTAL TO THE UNIT PRICE BID FOR CLASS "A" CONCRETE.

WELDED WIRE FABRIC

WELDED WIRE FABRIC SHALL CONFORM TO SECTION 811 OF THE SPECIFICATIONS. THE COSTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CLASS "A" CONCRETE. APPROXIMATE QUANTITY, 17 S.Y., WWF6x6-D7XD7. REINFORCING BARS #4 AT 12" IN EACH DIRECTION MAY BE USED IN LIEU OF THE WELDED WIRE FABRIC.

SAWCUTTING CONCRETE

SAWCUT BARREL TO A DEPTH OF 1" PRIOR TO REMOVING EXISTING CONCRETE. COST SHALL BE INCLUDED IN THE UNIT BID FOR REMOVE CONCRETE MASONRY.

BEVELED EDGES

ALL EXPOSED EDGES SHALL BE BEVELED 3/4" UNLESS OTHERWISE NOTED.

CONSTRUCTION JOINTS

VERTICAL CONSTRUCTION JOINTS, IF REQUIRED, SHALL BE LOCATED IN THE FIELD, EXCEPT THAT NO JOINT SHALL BE LOCATED IN THE BARREL WITHIN 6' OF THE ENDS OF THE CULVERT. PLACE THE JOINT PERPENDICULAR TO THE BARREL USING EITHER LAP SPLICES OR MECHANICAL COUPLERS CAPABLE OF TRANSFERRING AT LEAST 125% OF THE YIELD STRENGTH OF THE "E" BARS, AT NO ADDITIONAL COST TO THE DEPARTMENT.

BEFORE YOU DIG

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIREMENTS AND CONFORMANCE WITH THE UNDERGROUND FACILITY DAMAGE PREVENTION ACT OF 1994. THE CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING ANY UTILITIES ON THIS PROJECT. ALL UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO CONSTRUCTION. THE CONTRACTOR IS ADVISED TO CALL (800) 752-6007 A MINIMUM OF TWO WORKING DAYS PRIOR TO EXCAVATION FOR INFORMATION ON THE LOCATION OF SOME BUT NOT NECESSARILY ALL UNDERGROUND UTILITIES.

SECTION ALONG CULVERT

8'x5' RCBC EXTENSION ~ 43°26'48" SKEW RT.
28'-0" NEW CONSTRUCTION @ INLET ~ 2:1 MAX. FILL SLOPES
53'-0" SHOULDERS ~ 45'-0" ROADWAY ~ KY HL-93 LOADING
9'-0" MAXIMUM FILL HEIGHT ~ YIELDING FOUNDATION

STRUCTURE EXCAVATION

STRUCTURE EXCAVATION SHALL BE PAID IN ACCORDANCE WITH SECTION 206 OF THE SPECIFICATIONS. COFFERDAMS, DEWATERING, SHEETING OR SHORING THAT MAY BE NECESSARY FOR CONSTRUCTION OF ANY PHASE OF WORK BUT WHICH NO PAY ITEM IS INCLUDED IN THE CONTRACT FOR THAT ITEM SHALL BE INCIDENTAL TO THE LUMP SUM BID FOR FOUNDATION PREPARATION.

GEOTECHNICAL

SEE GEOTECHNICAL REPORT S-114-2003 (FOR ADJACENT 66° CMP).

ANY BEDROCK OR BOULDERS ENCOUNTERED WITHIN 2 FEET BELOW THE BOTTOM OF THE CULVERT SLAB MUST BE EXCAVATED AND BACKFILLED WITH PROPERLY COMPACTED SOIL TO THE BASE OF THE SLAB.

FOOTING PRESSURE

FOUNDATION MATERIALS FOR WING FOOTINGS ARE REQUIRED TO RESIST A SERVICE LIMIT STATE MAXIMUM BEARING PRESSURE OF 2.5 KSF ON SOIL.

ESTIMATE OF QUANTITIES

BID ITEM CODE	08100	08150	08003	02403
BID ITEM	CONCRETE-CLASS A	STEEL REINFORCEMENT	FOUNDATION PREPARATION	REMOVE CONCRETE MASONRY
UNIT	CUYD	LB	LS	CUYD
RCBC TOTALS	45.6	4005	1	17.5

REFERENCES

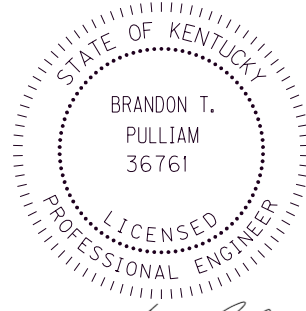
STANDARD DRAWINGS

BGX-006-CE STENCILS FOR STRUCTURES
BGX-012-CE GEOTECHNICAL LEGEND

EXISTING CULVERT

EXISTING CULVERT DWG.# 14992

PLANS PREPARED BY:



Brandon Pulliam, PE
KY No. 36761



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



USER: bpulliam

REVISION

DATE



PREPARED BY
**HMB PROFESSIONAL
ENGINEERS, INC.**

DATE: 12/30/2021

DESIGNED BY: B. PULLIAM

DETAILED BY: B. PULLIAM

CHECKED BY

B. REID

B. REID

8' x 5' RCBC STA. 46+86.46

CROSSING
DITCH

ROUTE

KY-224

ITEM NO.

4-20001

SHEET NO.
S1

COUNTY OF

GRAYSON

DRAWING NUMBER
28465

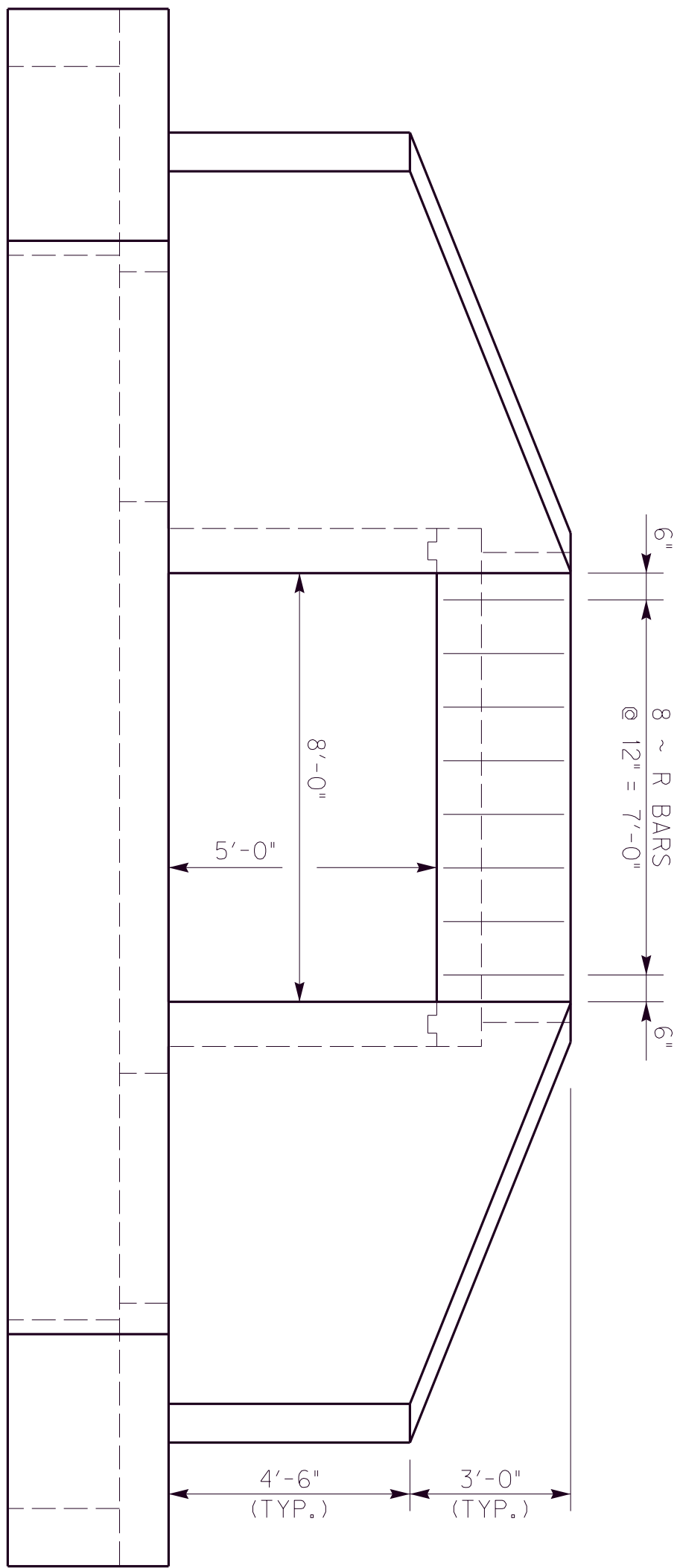
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DATE PLOTTED: 1/6/2022

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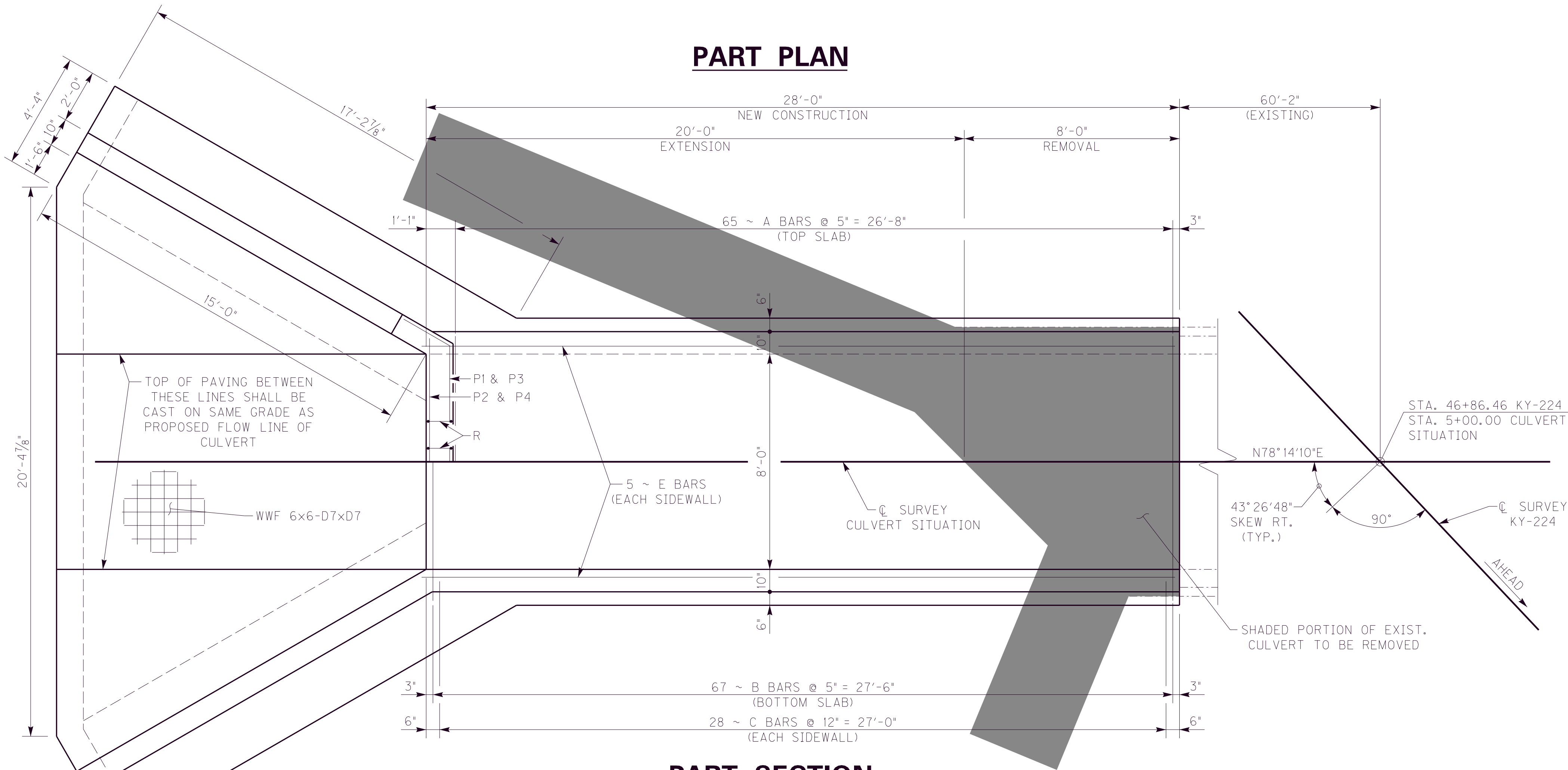
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END ELEVATION



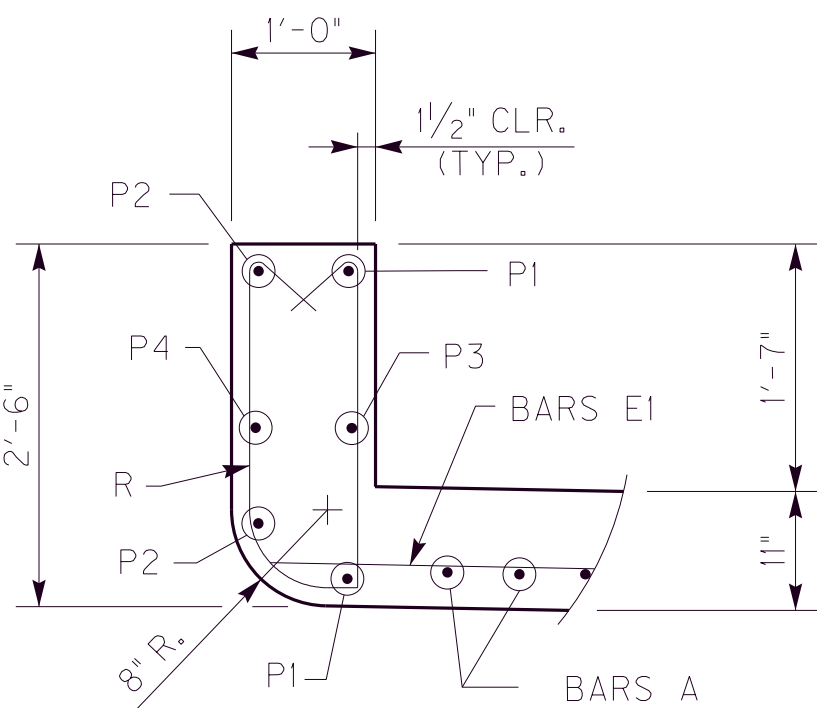
TOP OF WING FOOTINGS TO BE CAST LEVEL AT OUTLET ELEVATION

PART PLAN

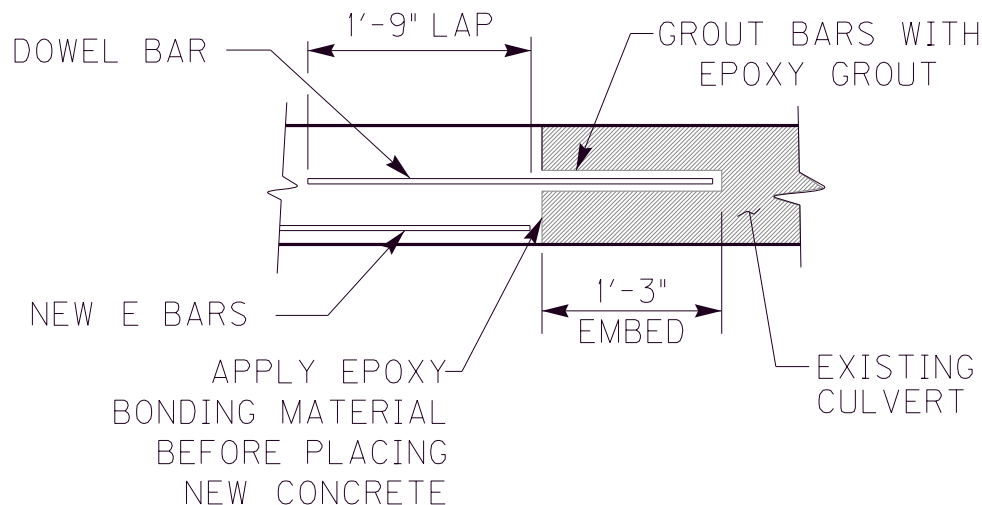


PART SECTION

NOTE: CONTRACTOR MAY CLEAN AND STRAIGHTEN EXISTING E BAR REINFORCING TO LAP (1'-9") TO NEW E BARS OR HE MAY DRILL AND GROUT DOWEL BARS INTO THE EXISTING CULVERT AT NO EXTRA EXPENSE TO THE CABINET.

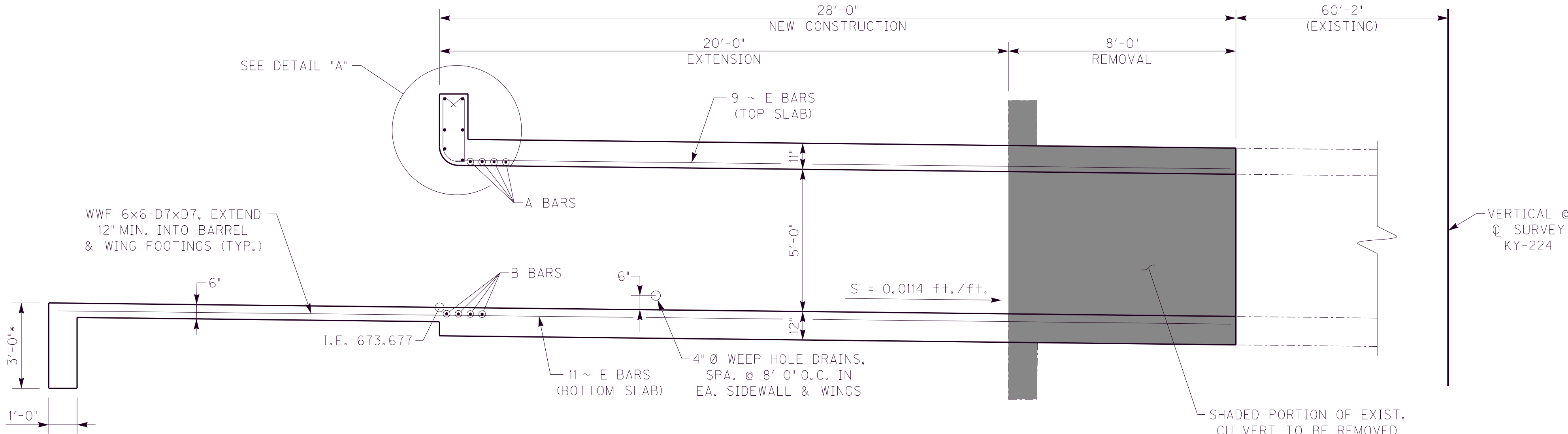


DETAIL "A"



DOWEL DETAILS

(IF USED)



SECTION ALONG CULVERT



COMMONWEALTH OF KENTUCKY
DEPARTMENT OF HIGHWAYS



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ITEM NO.

4-20001

SHEET NO.

S2

COUNTY OF

GRAYSON

DRAWING NUMBER

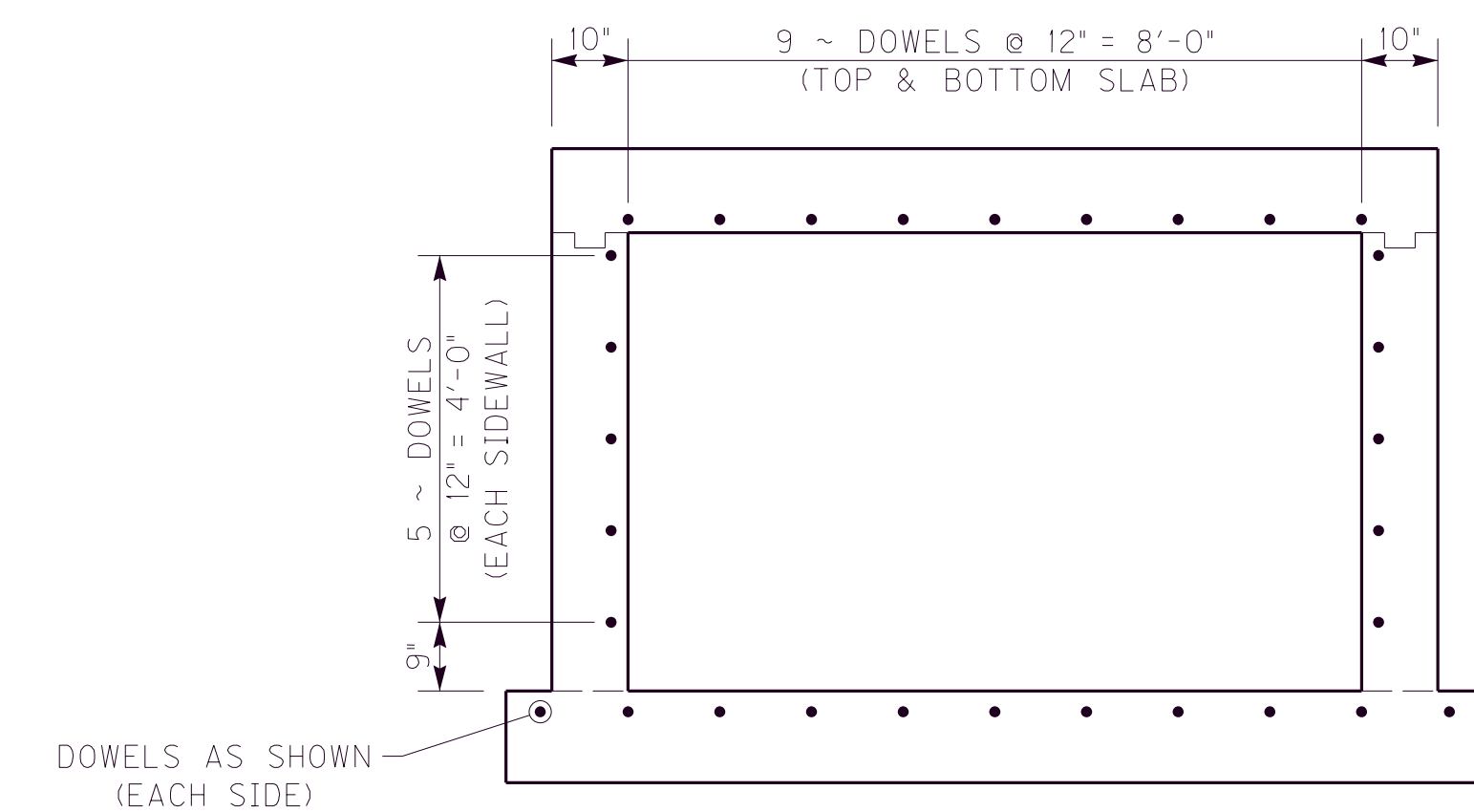
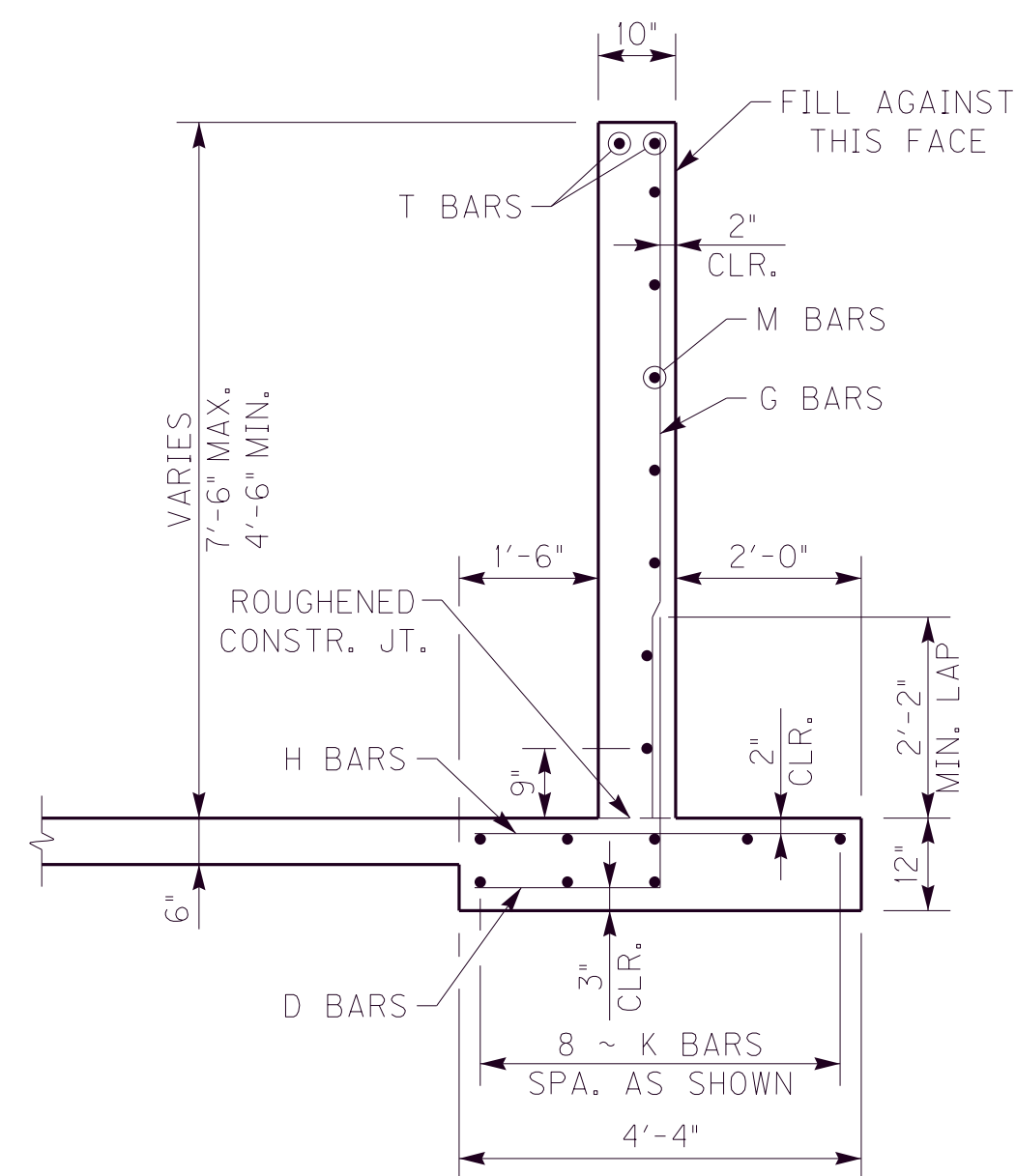
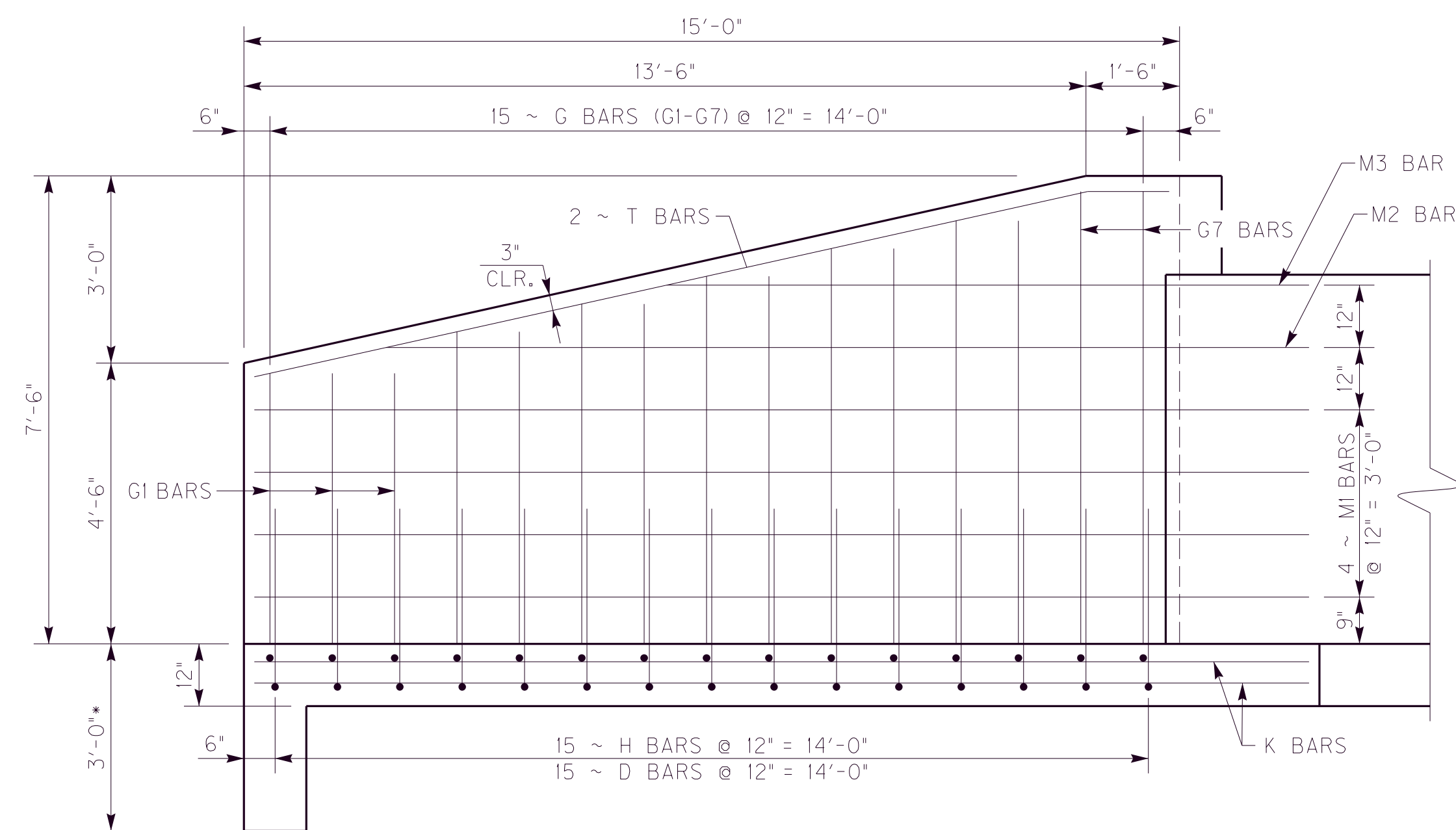
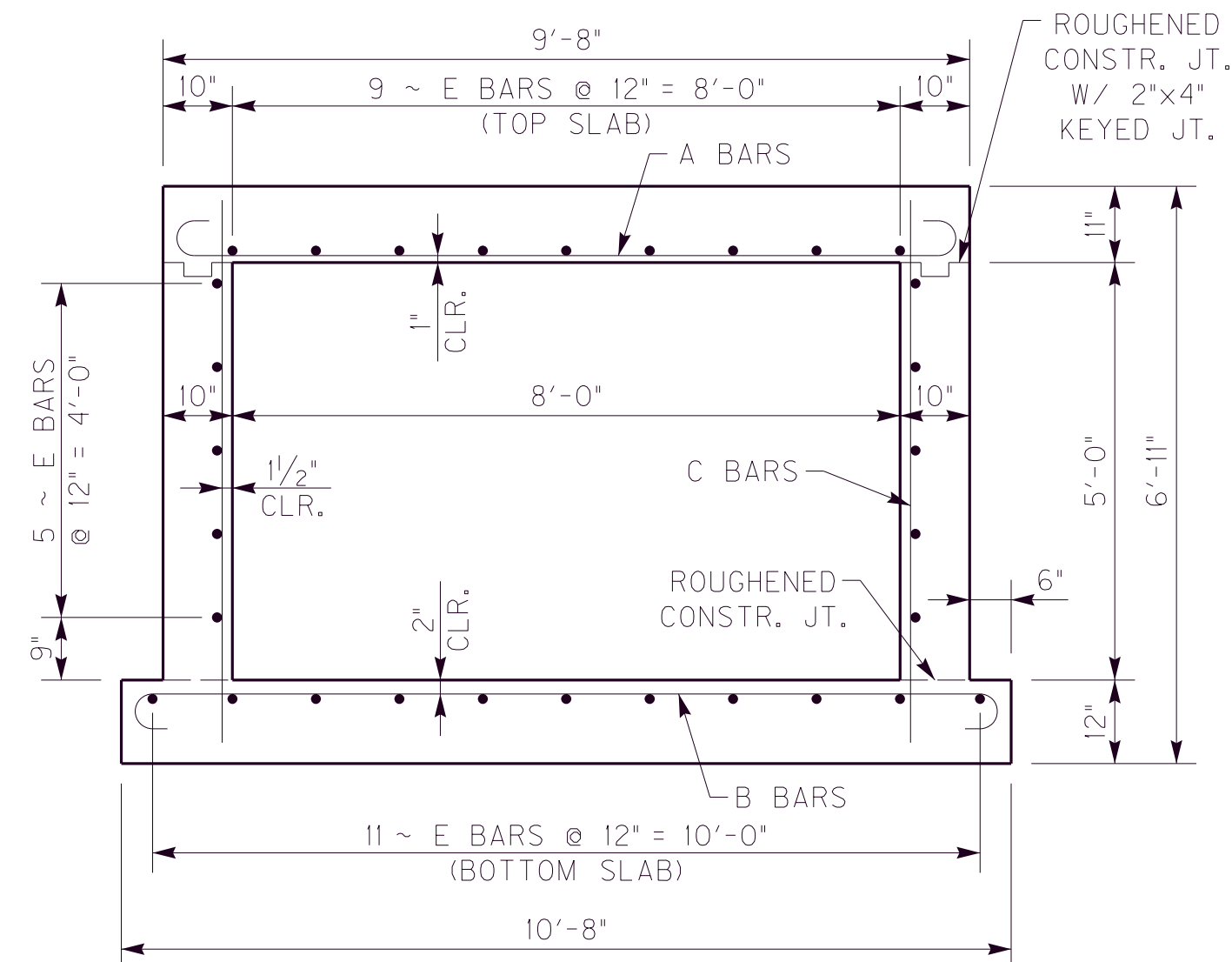
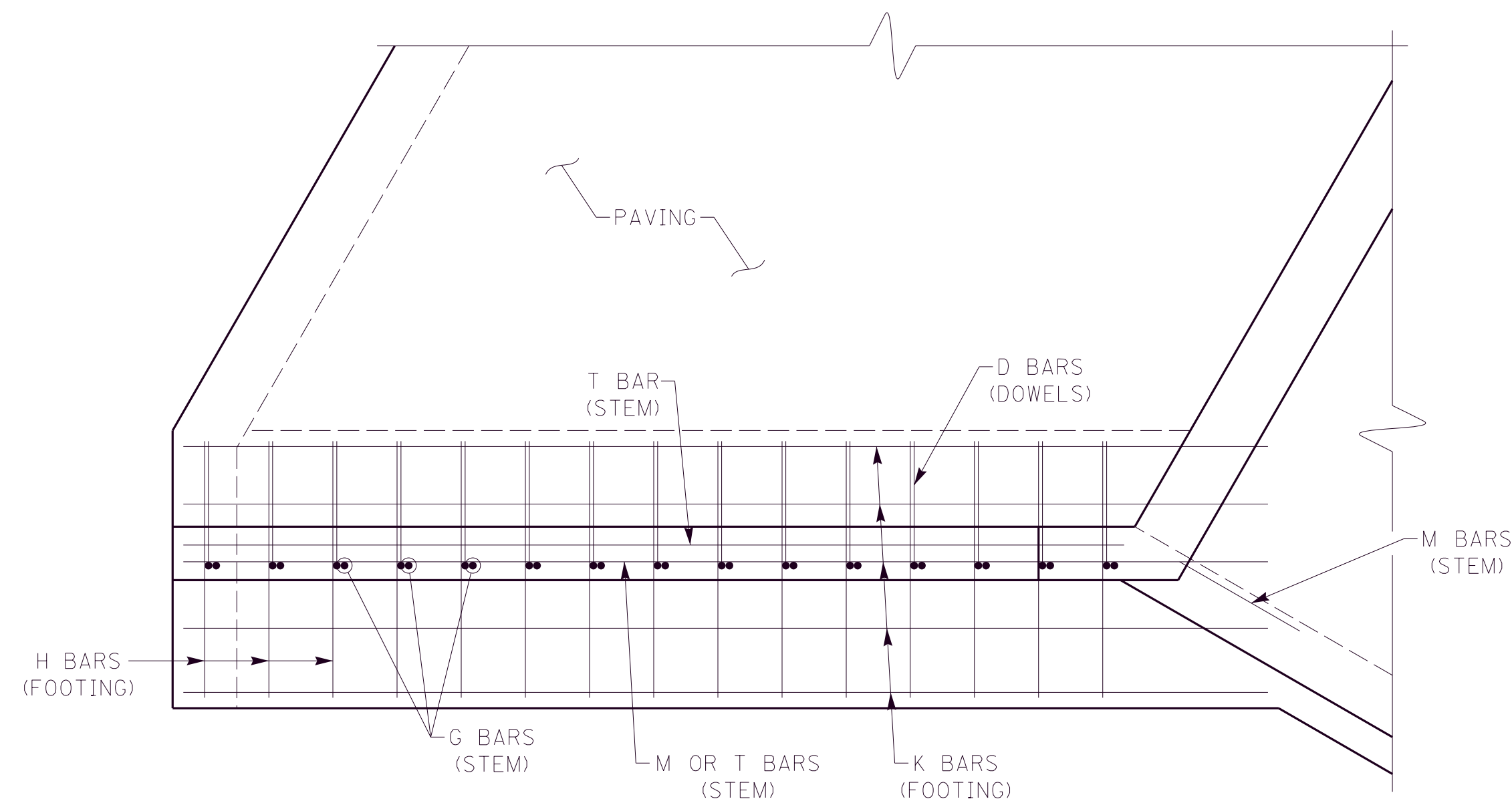
28465

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BILL OF REINFORCEMENT														
MARK	TYPE	NO.	SIZE	LENGTH		LOCATION	A		B		C		D	
				FT	IN		FT	IN	FT	IN	FT	IN		
A	(1)	65	#5	10	7	TOP SLAB	8	11	0	10	0	5	9	4
B	(1)	67	#5	11	7	BOTTOM SLAB	9	11	0	10	0	5	10	4
C	STR	56	#5	7	4	SIDEWALLS								
D	(5)	30	#5	5	0	WING DOWELS	3	0	2	0				
E	STR	30	#5	28	0	BARREL LONGITUDINAL								
G1	STR	6	#5	4	4	WING STEM VERTICAL								
G2	STR	4	#5	5	0	WING STEM VERTICAL								
G3	STR	4	#5	5	5	WING STEM VERTICAL								
G4	STR	4	#5	5	10	WING STEM VERTICAL								
G5	STR	4	#5	6	4	WING STEM VERTICAL								
G6	STR	4	#5	6	9	WING STEM VERTICAL								
G7	STR	4	#5	7	3	WING STEM VERTICAL								
H	STR	30	#5	4	0	WING FOOTING TRANSVERSE								
K	STR	16	#5	16	11	WING FOOTING LONGITUDINAL								
M1	(8)	8	#5	17	8	WING STEM LONGITUDINAL	15	6	2	2	1	10 1/2	1	1
M2	(8)	2	#5	15	7	WING STEM LONGITUDINAL	13	5	2	2	1	10 1/2	1	1
M3	(8)	2	#5	11	1	WING STEM LONGITUDINAL	8	11	2	2	1	10 1/2	1	1
P1	(6)	2	#6	12	6	PARAPET								
P2	STR	2	#6	9	2	PARAPET								
P3	(6)	1	#5	12	6	PARAPET								
P4	STR	1	#5	9	2	PARAPET								
R	(11)	8	#5	5	11	PARAPET								
T	(8)	4	#6	15	0	WING STEM TOP	13	8	1	4	1	3 1/4	0	3 3/8

BAR TYPES

NOTE: BARS WITH SUBSCRIPT (S)
ARE CONSIDERED STIRRUP BARS
FOR BEND DIAMETERS

