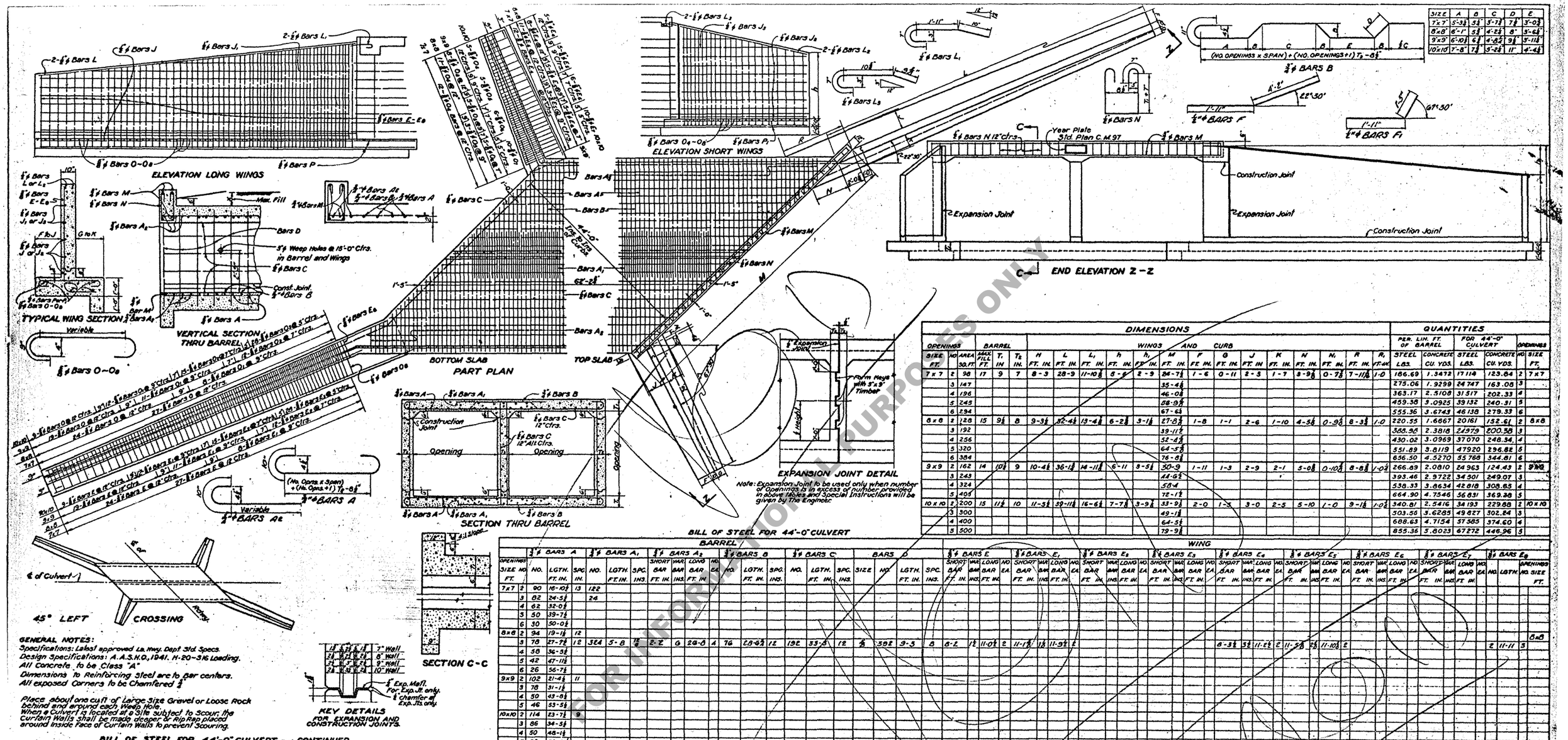

SIZE	A	B	C	D	E
7x7	5'-3½	5½	3'-7½	7½	3'-0½
8x8	6'-1"	5½	4'-2½	8"	3'-6½
9x9	6'-10½	6½	4'-8½	9½	3'-11½
10x10	7'-8"	7½	5'-2½	11"	4'-4½

(NO. OPENINGS x SPAN) + (NO. OPENINGS + 1) T_B - 8½"

GENERAL NOTES:

Specifications: Latest approved La. Hwy. Dept. Std. Specs.
Design Specifications: A.A.S.H.O., 1941. H-20-S16 Loading.
All Concrete to be Class "A"
Dimensions to Reinforcing Steel are to bar centers.
All exposed Corners to be Chamfered ¾"

Place about one cuft. of Large Size Gravel or Loose Rock behind and around each Weep Hole.
When a Culvert is located at a Site subject to Scour, the Curtain Walls shall be made deeper or Rip Rap placed around inside Face of Curtain Walls to prevent Scouring.

BILL OF STEEL FOR 44'-0" CULVERT — CONTINUED

BILL OF STEEL FOR 44'-0" CULVERT

OPENINGS SIZE FT.	NO.	BARREL AREA SQ. FT.	BARREL MAX. FILL FT.	BARREL T_1 IN.	BARREL T_2 IN.	DIMENSIONS H FT. IN.	L FT. IN.	L_1 FT. IN.	h FT. IN.	h_1 FT. IN.	M FT. IN.	F FT. IN.	G FT. IN.	J FT. IN.	K FT. IN.	N FT. IN.	N_1 FT. IN.	R FT. IN.	R_1 FT. IN.	QUANTITIES PER LIN. FT. OF BARREL STEEL LBS.	CONCRETE CU. YDS.	FOR 44'-0" CULVERT STEEL LBS.	CONCRETE CU. YDS.	OPENINGS NO.	SIZE FT.
7x7	2	98	17	9	7	8-3	28-9	11-10½	6-6	2-9	24-7½	1-6	0-11	2-3	1-7	3-9½	0-7½	7-11½	1-0	186.69	1.3472	17114	123.64	2	7x7
	3	147									35-4½									275.06	1.9299	24747	163.06	3	
	4	196									46-0½									363.17	2.5108	31517	202.33	4	
	5	245									56-9½									459.38	3.0925	39132	240.31	5	
	6	294									67-6½									555.36	3.6743	46138	279.33	6	
8x8	2	128	15	9½	8	9-3½	32-4½	13-4½	6-2½	3-1½	27-8½	1-8	1-1	2-6	1-10	4-5½	0-9½	8-3½	1-0	220.55	1.6667	20161	152.61	2	8x8
	3	192									39-11½									365.96	2.3818	24979	200.38	3	
	4	256									52-4½									430.02	3.0969	37070	248.34	4	
	5	320									64-5½									531.89	3.8119	47920	296.82	5	
	6	384									76-8½									636.50	4.5270	55768	344.81	6	
9x9	2	162	14	10½	9	10-4½	36-1½	14-11½	6-11	3-5½	30-9	1-11	1-3	2-9	2-1	5-0½	0-10½	8-8½	1-0½	266.89	2.0810	24963	124.43	2	9x9
	3	243									44-0½									393.46	2.9722	34501	249.07	3	
	4	324									58-4									538.33	3.8634	42018	308.85	4	
	5	405									72-1½									664.90	4.7546	56831	369.38	5	
10x10	2	200	15	11½	10	11-5½	39-11½	16-6½	7-7½	3-9½	33-9½	2-0	1-5	3-0	2-5	5-10	1-0	9-1½	1-0½	340.81	2.5416	34193	229.88	2	10x10
	3	300									49-1½									503.56	3.6285	49827	302.84	3	
	4	400									64-5½									688.63	4.7154	57585	374.60	4	
	5	500									79-9½									855.36	5.8023	67272	446.96	5	

BARREL

OPENINGS SIZE FT.	NO.	½" BARS A NO.	LGTH. FT. IN.	SPC. IN.	½" BARS A_1 NO.	LGTH. FT. IN.	SPC. INS.	½" BARS A_2 SHORT BAR FT. IN.	VAR. BAR INS.	LONG BAR FT. IN.	NO. EA.	½" BARS B NO.	LGTH. FT. IN.	SPC. INS.	½" BARS C NO.	LGTH. FT. IN.	SPC. INS.	BARS D SIZE	NO.	LGTH. FT. IN.	SPC. INS.
7x7	2	90	16-10½	13	122																
	3	82	24-5½		24																
	4	62	32-0½																		
	5	50	39-7½																		
	6	30	50-0½																		
8x8	2	94	19-1½	12																	
	3	78	27-7½	12	324	5-8	1/16	2-2	6	26-8	4	76	28-6½	12	192	33-3	12	1/8	592	9-3	8
	4	58	36-5½																		
	5	42	47-1½																		
	6	26	56-7½																		
9x9	2	102	21-4½	11																	
	3	78	31-1½																		
	4	50	43-8½																		
	5	46	53-5½																		
10x10	2	114	23-7½	9																	
	3	86	34-5½																		
	4	50	48-1½																		
	5	26	59-1½																		

WING

OPENINGS SIZE FT.	NO.	½" BARS E NO.	LGTH. FT. IN.	½" BARS E_1 NO.	LGTH. FT. IN.	½" BARS E_2 NO.	LGTH. FT. IN.	½" BARS E_3 NO.	LGTH. FT. IN.	½" BARS E_4 NO.	LGTH. FT. IN.	½" BARS E_5 NO.	LGTH. FT. IN.	½" BARS E_6 NO.	LGTH. FT. IN.	½" BARS E_7 NO.	LGTH. FT. IN.	½" BARS E_8 NO.	LGTH.	OPENINGS NO.	SIZE FT.
7x7	2																				
	3																				
	4																				
	5																				
	6																				
8x8	2																				8x8
	3	592	9-3	8	8-2	1½	11-0½	2	11-1½	1½	11-5½	2									
	4																				
	5																				
	6																				
9x9	2									8-3½	3½	11-2½	2	11-3½	2½	11-10½	2			2	11-11
	3																				
	4																				
	5																				
10x10	2																				
	3																				
	4																				
	5																				

WINGS

OPENINGS SIZE FT.	NO.	½" BARS F NO.	LGTH. FT. IN.	½" BARS F_1 NO.	LGTH. FT. IN.	½" BARS J NO.	LGTH. FT. IN.	½" BARS J_1 SHORT BAR FT. IN.	VAR. BAR FT. IN.	LONG BAR FT. IN.	NO. EA.	½" BARS J_2 NO.	LGTH. FT. IN.	½" BARS J_3 SHORT BAR FT. IN.	VAR. BAR FT. IN.	LONG BAR FT. IN.	NO. EA.	½" BARS L NO.	LGTH. FT. IN.	½" BARS L_1 NO.	LGTH. FT. IN.	½" BARS L_2 NO.	LGTH. FT. IN.	½" BARS L_3 NO.	LGTH. FT. IN.
7x7																									
8x8	3	18	6-1	18	3-2	12	28-0½	7-5	8-9½	27-0½	2	12	11-8½	2-6½	4-2½	10-11½	2	4	29-2½	4	5-4	4	12-1	4	2-5
9x9																									
10x10																									

PARAPET

OPENINGS SIZE FT.	NO.	½" BARS M NO.	LGTH. FT. IN.	½" BARS N NO.	LGTH. FT. IN.
7x7					
8x8	10	38-8	82	4-7½	
9x9					
10x10					

WINGS

OPENINGS SIZE FT.	NO.	½" BARS O SHORT BAR FT. IN.	VAR. BAR INS.	LONG BAR FT. IN.	NO. EA.	½" BARS O_1 SHORT BAR FT. IN.	VAR. BAR INS.	LONG BAR FT. IN.	NO. EA.	½" BARS O_2 SHORT BAR FT. IN.	VAR. BAR INS.	LONG BAR FT. IN.	NO. EA.	½" BARS O_3 SHORT BAR FT. IN.	VAR. BAR INS.	LONG BAR FT. IN.	NO. EA.	½" BARS O_4 SHORT BAR FT. IN.	VAR. BAR INS.	LONG BAR FT. IN.	NO. EA.	½" BARS O_5 SHORT BAR FT. IN.	VAR. BAR INS.	LONG BAR FT. IN.	NO. EA.	½" BARS O_6 SHORT BAR FT. IN.	VAR. BAR INS.	LONG BAR FT. IN.	NO. EA.	½" BARS O_7 SHORT BAR FT. IN.	VAR. BAR INS.	LONG BAR FT. IN.	NO. EA.	½" BARS O_8 LGTH. FT. IN.	NO.	½" BARS P LGTH. FT. IN.	NO.	½" BARS P_1 LGTH. FT. IN.	NO.	OPENINGS SIZE FT.
7x7																																									
8x8	10	4-5½	1/8	5-5½	2	5-6	1/2	5-5½	2									1-5½	1/8	5-5½	2	5-6½	1/8	5-8½	2									2	5-10	10	38-4	10	13-9	3	8x8
9x9																																									
10x10																																									

SIZE	BAR	VARIATION HORZ.	VERT.	TOTAL	BAR	VARIATION HORZ.	VERT.	TOTAL	VAR.
7x7	E	3/16	1¼	1 9/16	E_6	11/16	2 7/8	3 9/16	
8x8	F	¾	1 1/8	1¼	E_7	11/16	2 13/16	3½	
	E_1	1/8	1 1/16	1⅛	E_8	1/2	2 7/8	2 7/8	
	E	1/4	1 1/8	1 1/8	E_1	11/16	2 7/8	3 9/16	
	E_2	3/16	1 3/16	1 7/8	E_2	1/2	2 3/8	2 3/8	
	E_3	1/8	3/4	7/8	E_3	7/16	1 7/8	2 3/8	
	E	5/16	1 3/16	1 1/2	E_4	3/4	2 13/16	3 9/16	
	E_1	1/4	7/8	1⅛	E_5	9/16	2 1/8	2 11/16	
	E_2	3/16	11/16	7/8	E_6	7/8	1 3/8	2 1/16	
	E_3	7/8	1/2	3/8	E_7	9/16	1 3/16	1½	
10x10									

STANDARD PLAN
MULTIPLE OPENINGS
REINFORCED CONCRETE BOX CULVERTS
7x7 ~ 8x8 ~ 9x9 ~ 10x10
45° CROSSING 4:1 SLOPE

DATED 19

STATE OF LOUISIANA
DEPARTMENT OF HIGHWAYS

DESIGNED | DETAILED | TRACED | CHECKED | CHECKED | CHECKED

BRIDGE DESIGN SECTION

FOR INFORMATIONAL PURPOSES ONLY