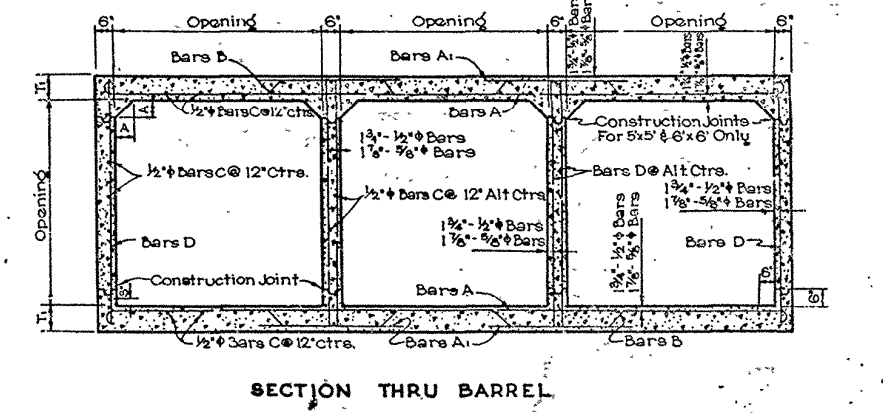
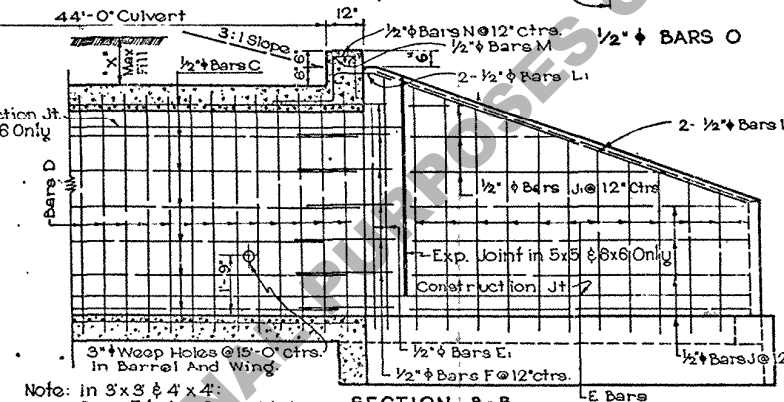
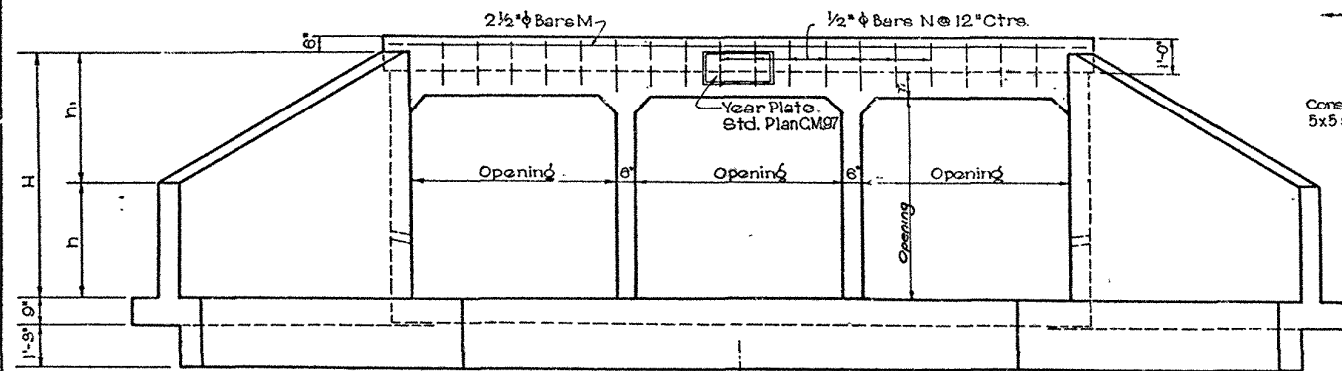
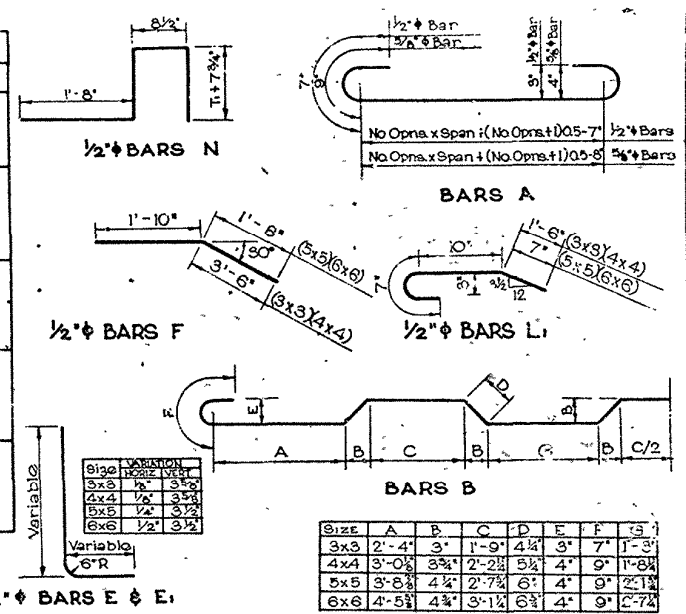


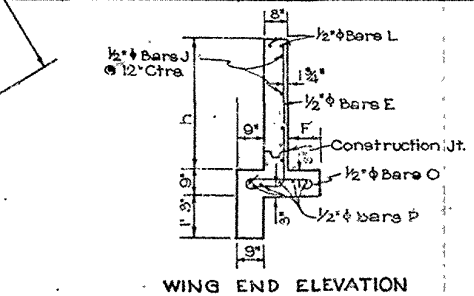
BILL OF STEEL FOR 44'-0" CULVERT

OPENINGS	BARREL REINFORCEMENT																								WINGS AND CURBS REINFORCEMENT																								OPENINGS
	BARS A		BARS A1		BARS B		1/2" BARS C		BARS D		1/2" BARS E		1/2" BARS F		1/2" BARS J		1/2" BARS L		1/2" BARS M		1/2" BARS N		1/2" BARS O		1/2" BARS P		SIZE FEET																						
	No	SIZE	No	SIZE	No	SIZE	No	SIZE	No	SIZE	No	SIZE	No	SIZE	No	SIZE	No	SIZE	No	SIZE	No	SIZE	No	SIZE	No	SIZE		No	SIZE																				
3x3	2	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	2	3x3																			
	3	1/2" 138	8	1/2" 138	8	1/2" 138	8	1/2" 138	8	1/2" 138	8	1/2" 138	8	1/2" 138	8	1/2" 138	8	1/2" 138	8	1/2" 138	8	1/2" 138	8	1/2" 138	8	1/2" 138	8	1/2" 138	3	3x3																			
	4	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	8	1/2" 136	4	3x3																			
4x4	2	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	2	4x4																			
	3	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	3	4x4																			
	4	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	10	1/2" 90	4	4x4																			
5x5	2	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	2	5x5																			
	3	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	3	5x5																			
	4	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	11	1/2" 98	4	5x5																			
6x6	2	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	2	6x6																			
	3	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	3	6x6																			
	4	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	10	1/2" 108	4	6x6																			



Note: in 3'x3' & 4'x4' Bars F to Lap Bars J & J1. Bars L to Lap Bars L1.

OPENINGS	SIZE	NO.	DIMENSIONS																QUANTITIES						OPENINGS		
			MAX. FILL		BARREL		WINGS AND CURBS														PER LIN. FT. BARREL		FOR 44'-0" CULVERT				
			IN	FT	T	A	H	D	S	L	h	h1	M	W	P	L1	C	C1	F	K	J	STEEL	CONCRETE	STEEL		CONCRETE	NO
3x3	2	18	4	25	6 1/2	3	4-0 1/2	6-6	3-9	7-6	1-10 1/2	2-2	8-0 1/2	14-0	1 1/8	5 3/4	7-1 3/8	5 3/8	9	0-10	0-10	67.05	0.4722	3559	27.99	2	3x3
	3	27	4	25	6 1/2	3	4-0 1/2	6-6	3-9	7-6	1-10 1/2	2-2	15-0 1/2	21-0	1 1/8	5 3/4	7-1 3/8	5 3/8	9	0-10	0-10	133.01	0.8689	6669	47.32	4	3x3
	4	36	4	25	6 1/2	3	4-0 1/2	6-6	3-9	7-6	1-10 1/2	2-2	15-0 1/2	21-0	1 1/8	5 3/4	7-1 3/8	5 3/8	9	0-10	0-10	133.01	0.8689	6669	47.32	4	3x3
	5	45	4	25	6 1/2	3	4-0 1/2	6-6	3-9	7-6	1-10 1/2	2-2	18-6 1/2	24-6	1 1/8	5 3/4	7-1 3/8	5 3/8	9	0-10	0-10	165.99	1.0672	8227	56.96	5	3x3
4x4	2	32	28	21	7 1/2	4	5-1 1/2	8-3	4-9 1/2	9-6 1/2	2-4 1/2	2-8 1/2	10-0 1/2	18-0 1/4	1 1/8	5 3/4	9-1 1/8	5 3/8	9	0-10	1-6	91.70	0.6703	4863	39.87	2	4x4
	3	48	28	21	7 1/2	4	5-1 1/2	8-3	4-9 1/2	9-6 1/2	2-4 1/2	2-8 1/2	14-6 1/2	22-0 1/4	1 1/8	5 3/4	9-1 1/8	5 3/8	9	0-10	1-6	135.45	0.9568	6921	53.69	3	4x4
	4	64	28	21	7 1/2	4	5-1 1/2	8-3	4-9 1/2	9-6 1/2	2-4 1/2	2-8 1/2	19-0 1/2	27-0 1/4	1 1/8	5 3/4	9-1 1/8	5 3/8	9	0-10	1-6	179.20	1.2133	8973	67.55	4	4x4
	5	80	28	21	7 1/2	4	5-1 1/2	8-3	4-9 1/2	9-6 1/2	2-4 1/2	2-8 1/2	23-6 1/2	31-6 1/4	1 1/8	5 3/4	9-1 1/8	5 3/8	9	0-10	1-6	222.95	1.5298	11032	81.39	5	4x4
5x5	2	50	20	19	8	5	6-2	9-11 1/2	5-8 3/4	11-5 1/2	2-10 3/8	3-3 3/8	12-0 1/2	21-11 1/2	3 3/8	6 7/8	11-0 7/8	6 3/8	9	1-0	1-10	122.46	0.8586	6410	51.54	2	5x5
	3	75	20	19	8	5	6-2	9-11 1/2	5-8 3/4	11-5 1/2	2-10 3/8	3-3 3/8	17-6 1/2	27-5 1/2	3 3/8	6 7/8	11-0 7/8	6 3/8	9	1-0	1-10	180.13	1.2292	9114	69.39	3	5x5
	4	100	20	19	8	5	6-2	9-11 1/2	5-8 3/4	11-5 1/2	2-10 3/8	3-3 3/8	23-0 1/2	32-11 1/2	3 3/8	6 7/8	11-0 7/8	6 3/8	9	1-0	1-10	237.80	1.5996	11910	87.24	4	5x5
	5	125	20	19	8	5	6-2	9-11 1/2	5-8 3/4	11-5 1/2	2-10 3/8	3-3 3/8	28-6 1/2	38-5 1/2	3 3/8	6 7/8	11-0 7/8	6 3/8	9	1-0	1-10	295.44	1.9705	14514	105.10	5	5x5
6x6	2	72	15	14	8 1/2	6	7-2 1/2	11-7	6-8 1/4	13-4 1/2	3-4 1/8	3-10 3/8	14-0 1/2	25-10 1/2	8 1/8	9 1/4	12-11 1/8	8 3/4	11	1-4	2-3	154.04	1.0602	8063	64.57	2	6x6
	3	108	15	14	8 1/2	6	7-2 1/2	11-7	6-8 1/4	13-4 1/2	3-4 1/8	3-10 3/8	20-6 1/2	32-4 1/2	8 1/8	9 1/4	12-11 1/8	8 3/4	11	1-4	2-3	226.35	1.5216	11181	85.77	3	6x6
	4	144	15	14	8 1/2	6	7-2 1/2	11-7	6-8 1/4	13-4 1/2	3-4 1/8	3-10 3/8	27-0 1/2	39-10 1/2	8 1/8	9 1/4	12-11 1/8	8 3/4	11	1-4	2-3	298.04	1.9830	14830	108.94	4	6x6
	5	180	15	14	8 1/2	6	7-2 1/2	11-7	6-8 1/4	13-4 1/2	3-4 1/8	3-10 3/8	33-6 1/2	45-4 1/2	8 1/8	9 1/4	12-11 1/8	8 3/4	11	1-4	2-3	371.33	2.4444	18223	139.11	5	6x6
6	216	15	14	8 1/2	6	7-2 1/2	11-7	6-8 1/4	13-4 1/2	3-4 1/8	3-10 3/8	40-0 1/2	51-10 1/2	8 1/8	9 1/4	12-11 1/8	8 3/4	11	1-4	2-3	444.02	2.9059	21604	153.28	6	6x6	



GENERAL NOTES:  
 Construction Spec. Latest Approved La. Hwy. Dept. Std. Specs.  
 Design Specifications: A.A.C.P. 1953 as Amended to Dec. 31, 1955.  
 Live Load: H-20-S16-44 (Modified)  
 Dimensions to Reinforcing Steel are to Bar Centers.  
 All Exposed Corners to be Chamfered 2" unless otherwise noted.  
 All concrete to be Class A.  
 Place about 2 cu. ft. of Large size Gravel or Loose Rock behind & around each Weep Hole.  
 Reinforcement shall be Intermediate or Hard Grade A S.T.M. A15 or Rail Steel A.S.T.M. A16 conforming to A.S.T.M. A305.  
 For Details of Expansion & Construction Joints, See Std. Plan C.H. 49.

Barrel Sections Taken From Std. Plan I.C.C. 8-20

STANDARD PLAN  
 MULTIPLE OPENINGS  
 REINFORCED CONCRETE BOX CULVERTS  
 3'x3', 4'x4', 5'x5', 6'x6'  
 3:1 SLOPE

DATE: Sept. 1957

STATE OF LOUISIANA  
 DEPARTMENT OF HIGHWAYS

DESIGNED	CHECKED	DATE	BY
DATE	DESCRIPTION	DATE	BY
REVISIONS			

BRIDGE DESIGN SECTION