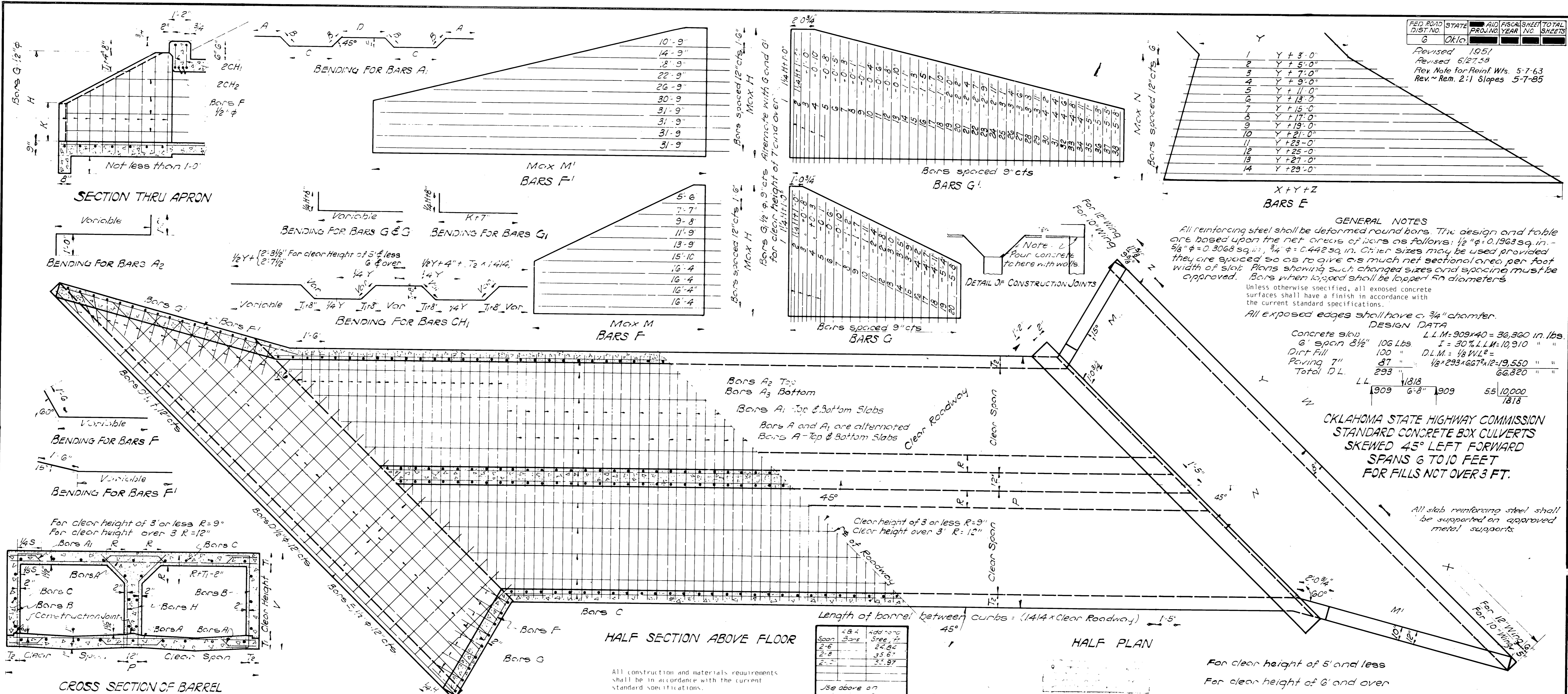


FED. ROAD DIST. NO. 6 STATE OKLA. AID FISCAL YEAR 1951 SHEET NO. 1 TOTAL SHEETS 22

Revised 1951
 Revised 6/27/58
 Rev. Note for Reinf. Wts. 5-7-63
 Rev. Rem. 2:1 Slopes 5-7-85



GENERAL NOTES
 All reinforcing steel shall be deformed round bars. The design and table are based upon the net areas of bars as follows: 1/2" φ = 0.1963 sq. in. - 5/8" φ = 0.3068 sq. in., 3/4" φ = 0.4422 sq. in. Other sizes may be used provided they are spaced so as to give as much net sectional area per foot width of slab. Plans showing such changed sizes and spacing must be approved. Bars when lapped shall be lapped 5d diameters. Unless otherwise specified, all exposed concrete surfaces shall have a finish in accordance with the current standard specifications. All exposed edges shall have a 3/4" chamfer.

DESIGN DATA

Concrete slab	6" span 8 1/2"	106 Lbs	L.L.M. = 909 x 40 = 36,360 in. lbs
Dirt Fill	100"	D.L.M. = 1/8 W.L.E =	
Paving 7"	87"	1/8 x 293 x 667 x 12 = 19,550	
Total D.L.	293"		66,820

LL 1818
 1909 6'-8" 909 55 10,000 1818

**OKLAHOMA STATE HIGHWAY COMMISSION
 STANDARD CONCRETE BOX CULVERTS
 SKEWED 45° LEFT FORWARD
 SPANS 6 TO 10 FEET
 FOR FILLS NOT OVER 3 FT.**

DESIGN NO.	WATERWAY	BARREL OF CULVERT										TWO WINGS AND ONE APRON										TWO CURBS		TOTAL QUANTITIES		DESIGN NO.																							
		DIMENSIONS					REINFORCING STEEL					DIMENSIONS					REINFORCING STEEL					QUANTITIES	QUANTITIES																										
		T1	T2	V	P	Size and Spacing	A	A1	A2	A3	BARS B BENT	BARS C	BARS H	H	K	M	M'	N	W	X	Y	Z	BARS D	BARS D'	BARS E		BARS F	BARS F'	BARS G	BARS G'	BARS G1	Steel Lbs.	Concrete Cu Yds.	Steel Lbs.	Concrete Cu Yds.	Steel Lbs.	Concrete Cu Yds.												
1	2-0	24	8 1/2	6	3'-5"	14-0	5/8 φ 12"	13'-8"	14'-3"	1-2	6/4	3-7	2-8	4/2	5/8 φ 12"	44	18-0	13-0	12-6	9-6	8-4	7-7	26	1/2 φ 9"	3-7	89.83	0.903	3-0 1/2	1-8	3-11 3/8	7-8	3-10	27-3	6-7 1/2	18-4 1/2	1-0 3/4	19-4-3"	5-4-3/4"	4	200	3.54	24-0	19-9	185	1.78	0.673	5,528	58.73	1
2	2-6	30	8 1/2	6	3-11	14-0	5/8 φ 12"	13-8"	14-3"	1-2	6/4	3-7	2-8	4/2	5/8 φ 12"	44	18-0	13-0	12-6	9-6	8-4	7-7	26	1/2 φ 9"	4-1	91.64	0.945	3-6 1/2	1-10	4-7 1/2	8-11 1/2	4-5 3/4	28-6 1/2	7-9 1/2	1-2 3/8	19-4-11"	6-4-9 1/2"	5	246	4.36	24-0	19-9	185	1.78	0.705	5,716	62.42	2	
3	3-0	36	8 1/2	6	4-5	14-4	5/8 φ 12"	14-0"	14-7"	1-4	6/4	3-7	2-8	4/2	5/8 φ 12"	44	18-0	13-0	12-6	9-6	8-4	7-7	30	1/2 φ 9"	4-7	97.48	1.032	4-3 1/2	2-0	5-3 3/8	10-3	5-1 1/2	29-10 1/2	8-10 1/2	1-4 1/2	19-5-7"	7-5-3/4"	5	248	5.20	24-3	20-0	188	1.80	0.737	6,124	63.13	3	
4	4-0	48	8 1/2	6	5-5	14-4	5/8 φ 12"	14-0"	14-7"	1-4	6/4	3-7	2-8	4/2	5/8 φ 12"	44	18-0	13-0	12-6	9-6	8-4	7-7	30	1/2 φ 9"	5-9	101.41	1.135	5-0 1/2	2-4	6-7 3/4	12-0	6-5	32-5 1/2	11-7 1/2	1-8 1/2	19-6-10"	9-6-3/4"	7	414	7.15	24-3	20-0	188	1.80	0.801	6,589	73.69	4	
5	5-0	60	8 1/2	6	5-5	14-8	5/8 φ 12"	14-4"	14-11"	1-6	6/4	3-7	2-8	4/2	5/8 φ 12"	44	18-0	13-0	12-6	9-6	8-4	7-7	34	1/2 φ 9"	6-9	109.06	1.300	6-0 1/2	2-9	7-1-1/2	13-1/2	7-3 1/2	34-13 1/2	13-2 1/2	2-0 1/2	19-8-11"	11-7-3/4"	8	529	9.26	24-6	20-2	190	1.82	0.862	7,237	91.90	5	
6	6-0	72	8 1/2	6	5-5	14-8	5/8 φ 12"	14-4"	14-11"	1-6	6/4	3-7	2-8	4/2	5/8 φ 12"	44	18-0	13-0	12-6	9-6	8-4	7-7	38	1/2 φ 9"	7-9	115.40	1.399	7-0 1/2	3-1	8-3 1/4	17-1 1/2	8-1 1/2	37-3 1/2	15-6 1/2	2-4 1/2	19-9-5"	13-9-1/2"	9	664	12.74	24-10	20-5	198	1.85	0.933	7,858	104.37	6	
7	2-6	40	10	8	4-2	18-4	3/4 φ 12"	18-0"	18-10"	1-7 1/2	6/4	3-7	2-8	4/2	5/8 φ 12"	54	18-0	13-0	12-6	9-6	8-4	7-10	32	1/2 φ 9"	4-5	139.93	1.368	3-8	1-11	4-9 1/2	9-3	4-7 1/2	34-3 1/2	13-2 1/2	2-4 1/2	20-0-12"	12-6-5 1/2"	5	306	5.25	30-1	25-8	339	2.26	0.852	8,628	87.97	7	
8	4-0	64	10	8	5-8	18-4	3/4 φ 12"	18-0"	18-10"	1-7 1/2	6/4	3-7	2-8	4/2	5/8 φ 12"	54	18-0	13-0	12-6	9-6	8-4	7-10	32	1/2 φ 9"	4-5	139.93	1.368	3-8	1-11	4-9 1/2	9-3	4-7 1/2	34-3 1/2	13-2 1/2	2-4 1/2	20-0-12"	12-6-5 1/2"	5	340	6.25	30-1	25-8	339	2.26	0.884	8,792	92.34	8	
9	5-0	80	10	8	5-8	18-8	3/4 φ 12"	18-4"	18-10"	1-7 1/2	6/4	3-7	2-8	4/2	5/8 φ 12"	54	18-0	13-0	12-6	9-6	8-4	7-10	40	1/2 φ 9"	7-0	148.24	1.514	5-2	2-5	6-9 1/2	13-1 1/2	6-3 1/2	43-13 1/2	11-4 1/2	1-9 1/2	20-7-0"	9-6-3/4"	7	480	8.43	30-1	25-8	339	2.26	0.948	9,428	102.37	9	
10	6-0	96	10	8	5-8	18-8	3/4 φ 12"	18-4"	18-10"	1-7 1/2	6/4	3-7	2-8	4/2	5/8 φ 12"	54	18-0	13-0	12-6	9-6	8-4	7-10	40	1/2 φ 9"	7-0	148.24	1.514	5-2	2-5	6-9 1/2	13-1 1/2	6-3 1/2	43-13 1/2	11-4 1/2	1-9 1/2	20-7-0"	9-6-3/4"	7	606	10.78	30-4	25-10	342	2.29	1.008	10,122	116.20	10	
11	7-0	112	10	8	5-8	18-8	3/4 φ 12"	18-4"	18-10"	1-7 1/2	6/4	3-7	2-8	4/2	5/8 φ 12"	54	18-0	13-0	12-6	9-6	8-4	7-10	44	1/2 φ 9"	8-0	159.95	1.781	7-2	3-2	8-4 1/2	15-1 1/2	7-9 1/2	47-13 1/2	13-6 1/2	2-5 1/2	20-10-10"	10-6-3/4"	9	748	14.48	30-8	26-1	345	2.32	1.078	10,608	129.14	11	
12	8-0	128	10	8	5-8	18-10	3/4 φ 12"	18-6"	18-10"	1-7 1/2	6/4	3-7	2-8	4/2	5/8 φ 12"	54	18-0	13-0	12-6	9-6	8-4	7-10	44	1/2 φ 9"	8-0	159.95	1.781	7-2	3-2	8-4 1/2	15-1 1/2	7-9 1/2	47-13 1/2	13-6 1/2	2-5 1/2	20-10-10"	10-6-3/4"	9	884	17.74	30-8	26-1	345	2.32	1.143	11,718	141.11	12	
13	2-6	50	11	8	4-4	22-4	3/4 φ 12"	22-0"	23-0	1-11	10	6-0	3-10	7	3/4 φ 12"	80	18-0	13-0	12-6	9-6	8-4	7-10	48	1/2 φ 9"	10-0	173.51	2.039	9-2	3-10	10-3 1/2	23-3 1/2	11-7 1/2	48-3 1/2	20-1 1/2	3-1 1/2	20-12-11"	18-11-3/4"	12	1,149	17.74	30-8	26-1	345	2.32	1.143	11,718	141.11	12	
14	4-0	60	11	8	4-4	22-4	3/4 φ 12"	22-0"	23-0	1-11	10	6-0	3-10	7	3/4 φ 12"	80	18-0	13-0	12-6	9-6	8-4	7-10	48	1/2 φ 9"	10-0	173.51	2.039	9-2	3-10	10-3 1/2	23-3 1/2	11-7 1/2	48-3 1/2	20-1 1/2	3-1 1/2	20-12-11"	18-11-3/4"	12	1,329	21.07	30-10	28-4	348	2.39	1.204	12,513	156.44	13	
15	5-0	80	11	8	4-4	22-4	3/4 φ 12"	22-0"	23-0	1-11	10	6-0	3-10	7	3/4 φ 12"	80	18-0	13-0	12-6	9-6	8-4	7-10	54	1/2 φ 9"	11-0	187.26	2.174	3-9	3-11	11-3 1/2	24-3 1/2	12-3 1/2	51-3 1/2	21-3 1/2	3-3 1/2	21-12-11"	19-11-3/4"	13	1,514	26.21	35-11	31-3	409	2.73	1.291	12,729	162.27	14	
16	6-0	100	11	8	4-4	22-4	3/4 φ 12"	22-0"	23-0	1-11	10	6-0	3-10	7	3/4 φ 12"	80	18-0	13-0	12-6	9-6	8-4	7-10	54	1/2 φ 9"	11-0	187.26	2.174	3-9	3-11	11-3 1/2	24-3 1/2	12-3 1/2	51-3 1/2	21-3 1/2	3-3 1/2	21-12-11"	19-11-3/4"	13	1,700	31.55	35-11	31-3	409	2.73	1.366	13,584	174.31	15	
17	7-0	120	11	8	4-4	22-8	3/4 φ 12"	22-4"	23-4	1-11	10	6-0	3-10	7	3/4 φ 12"	80	18-0	13-0	12-6	9-6	8-4	7-10	60	1/2 φ 9"	12-0	201.36	2.376	6-3	2-10	8-2 1/2	15-0 1/2	7-11 1/2	46-9 1/2	13-9	2-7 1/2	31-3-4"	11-7-3/4"	14	1,886	36.88	36-11	31-5	417	2.79	1.431	14,439	186.56	16	
18	8-0	140	11	8	4-4	22-8	3/4 φ 12"	22-4"	23-4	1-11	10	6-0	3-10	7	3/4 φ 12"	80	18-0	13-0	12-6	9-6	8-4	7-10	60	1/2 φ 9"	12-0	201.36	2.376	6-3	2-10	8-2 1/2	15-0 1/2	7-11 1/2	46-9 1/2	13-9	2-7 1/2	31-3-4"	11-7-3/4"	14	2,072	42.11	36-11	31-5	417	2.79	1.506	15,294	198.69	17	
19	9-0	160	11	8	4-4	22-8	3/4 φ 12"	22-4"	23-4	1-11	10	6-0	3-10	7	3/4 φ 12"	80	18-0	13-0	12-6	9-6	8-4	7-10	60	1/2 φ 9"	12-0	201.36	2.376	6-3	2-10	8-2 1/2	15-0 1/2	7-11 1/2	46-9 1/2	13-9	2-7 1/2	31-3-4"	11-7-3/4"	14	2,258	47.34	36-11	31-5	417	2.79	1.581	16,149	210.82	18	
20	10-0	180	11	8	4-4	22-8	3/4 φ 12"	22-4"	23-4	1-11	10	6-0	3-10	7	3/4 φ 12"	80	18-0	13-0	12-6	9-6	8-4	7-10	60	1/2 φ 9"	12-0	201.36	2.376	6-3	2-10	8-2 1/2	15-0 1/2	7-11 1/2	46-9 1/2	13-9	2-7 1/2	31-3-4"	11-7-3/4"	14	2,444	52.57	36-11	31-5	417	2.79	1.656	17,004	222.95	19	
21	2-6	50	11	8	4-4	22-8	3/4 φ 12"	22-4"	23-4	1-11	10	6-0	3-10	7	3/4 φ 12"	80	18-0	13-0	12-6	9-6	8-4	7-10	54	1/2 φ 9"	11-0	187.26	2.174	3-9	3-11	11-3 1/2	24-3 1/2	12-3 1/2	51-3 1/2	21-3 1/2	3-3 1/2	21-12-11"	19-11-3/4"	13	1,637	27.18	36-8	32-0	418	2.80	1.411	13,212	139.63	21	
22	4-0	60	11	8	4-4	22-8	3/4 φ 12"	22-4"	23-4	1-11	10	6-0	3-10	7	3/4 φ 12"	80	18-0	13-0	12-6	9-6	8-4	7-10	54	1/2 φ 9"	11-0	187.26	2.174	3-9	3-11	11-3 1/2	24-3 1/2	12-3 1/2	51-3 1/2	21-3 1/2	3-3 1/2	21-12-11"	19-11-3/4"	13	1,823	32.41	36-9	32-0	418	2.80	1.475	14,067	151.76	22	

Designed by H.X.W. & D.I.M.
 Drawn by J.M.B. and L.T.D. June 1931
 Checked by D.S.M. and L.T.D.
 Retrawn by G.M. and L.W.L. June 1936
 Checked by N.C.