



Design No.	Clear Span Feet	Clear Height Feet	BARREL OF CULVERT										TWO WINGS				ONE APRON				TWO CURBS				TOTAL QUANTITIES							
			Dimensions				Reinforcing Steel				Quantities		Dimensions		Reinforcing Steel		Quantities		Steel		30' Roadway		36' Roadway		Design No.							
			T ₁	T ₂	V	P	Size & Spacing	Length	Size & Spacing	Length	Size & Spacing	No.	Steel Lbs.	Concrete Cu Yds.	H	K	M	N	Bars D Length	Bars E Length	Bars F Length	Bars G Length	Class A Conc.	Class A Conc.		Steel	Class A Conc.					
1	2	2.0	8	8	3-0	3-0	1/2" x 8"	3'-8"	1/2" x 18"	8	19.34	0.185	2'-10"	1'-5"	4'-2"	3'-7 1/2"	4'-0"	4	4'-6"	4'-10"	69.1/8	.188	31	3'-8"	2'-8"	77	774	897	890	10.08	1	
2	2	2.0	8.0	8	3-0	4-0	1/2" x 8"	3'-8"	1/2" x 18"	8	22.97	0.222	2'-10"	1'-5"	4'-2"	3'-7 1/2"	5'-4"	4	4'-6"	4'-10"	75.128	.272	20	4'-8"	3'-8"	23	908	1049	1046	11.82	2	
3	3	2.5	8	8	3-0	4-0	1/2" x 8"	3'-8"	1/2" x 18"	8	23.88	0.241	3'-4"	1'-7"	4'-1"	4'-3"	5'-4"	4	4'-6"	4'-10"	87.166	.291	20	4'-8"	3'-8"	23	961	1189	1104	13.34	3	
4	4	3.0	8.0	8	4-0	4-0	1/2" x 8"	3'-8"	1/2" x 18"	10	26.14	0.259	3'-10"	1'-9"	5'-7"	4'-0"	5'-5"	5	4'-6"	4'-10"	117.205	.247	40	4'-8"	3'-8"	23	1093	1328	1250	14.83	4	
5	5	2.5	8.0	7	3-2	5-0	1/2" x 8"	4'-8"	1/2" x 18"	10	30.40	0.290	2'-11"	1'-5"	4'-3"	3'-8"	6'-4"	4	4'-6"	4'-10"	81.143	.239	28	5'-8"	4'-8"	24	1179	1310	1361	14.84	5	
6	6	3.0	10.0	7	3-2	5-0	1/2" x 8"	4'-8"	1/2" x 18"	10	31.31	0.308	3'-5"	1'-7"	5'-0"	4'-4"	6'-4"	4	4'-6"	4'-10"	84.183	.258	28	5'-8"	4'-8"	24	1234	1452	1422	16.38	6	
7	7	3.0	12.0	7	3-2	5-0	1/2" x 8"	4'-8"	1/2" x 18"	12	33.58	0.327	3'-11"	1'-9"	5'-9"	4'-11"	6'-5"	5	4'-6"	4'-10"	128.228	.276	28	5'-8"	4'-8"	24	1371	1605	1572	18.02	7	
8	8	4.0	16.0	7	3-2	5-0	1/2" x 8"	4'-8"	1/2" x 18"	12	36.45	0.428	4'-11"	2'-2"	7'-2"	6'-2"	6'-8"	6	4'-6"	4'-10"	179.323	.311	50	6'-0"	5'-0"	27	1571	2128	1790	23.84	8	
9	9	2.0	10.0	7	3-2	5-0	1/2" x 8"	4'-8"	1/2" x 18"	12	37.20	0.352	2'-11"	1'-5"	4'-4"	3'-9"	7'-4"	4	4'-6"	4'-10"	92.157	.266	56	6'-8"	5'-8"	32	1426	1549	1630	17.61	9	
10	10	3.0	15.0	7	3-2	5-0	1/2" x 8"	4'-8"	1/2" x 18"	14	40.38	0.389	3'-11"	1'-10"	5'-10"	5'-0"	7'-3"	5	4'-6"	4'-10"	138.247	.303	56	6'-8"	5'-8"	32	1620	1855	1862	20.89	10	
11	11	4.0	20.0	7	3-2	5-0	1/2" x 8"	4'-8"	1/2" x 18"	14	43.32	0.450	4'-11"	2'-2"	7'-3"	6'-3"	7'-6"	6	4'-6"	4'-10"	188.346	.338	58	7'-0"	6'-0"	35	1817	2386	2077	26.80	11	
12	12	5.0	25.0	7	3-2	5-0	1/2" x 8"	4'-8"	1/2" x 18"	16	47.62	0.517	5'-0"	2'-6"	8'-9"	7'-7"	7'-8"	8	4'-6"	4'-10"	262.487	.375	61	7'-4"	6'-4"	38	2106	3044	2392	34.75	12	
13	13	7.0	35.0	7	3-2	5-0	1/2" x 8"	4'-8"	1/2" x 18"	18	52.60	0.741	7'-11"	3'-3"	11'-8"	10'-11"	7'-10"	10	4'-6"	4'-10"	318.616	.454	64	7'-8"	6'-8"	40	2483	3783	2762	38.47	13	
14	14	2.0	12.0	8	3-5	7-0	1/2" x 8"	6'-8"	1/2" x 18"	12	45.28	0.441	3'-0"	1'-6"	4'-5"	3'-10"	8'-4"	3	4'-6"	4'-10"	99.174	.293	64	7'-8"	6'-8"	40	1708	1882	1980	21.47	14	
15	15	3.0	18.0	8	3-5	7-0	1/2" x 8"	6'-8"	1/2" x 18"	14	49.76	0.533	4'-0"	1'-10"	5'-11"	5'-5"	8'-5"	5	4'-6"	4'-10"	149.204	.330	67	8'-0"	7'-0"	64	1954	2367	2253	26.85	15	
16	16	4.0	24.0	8	3-5	7-0	1/2" x 8"	6'-8"	1/2" x 18"	14	51.57	0.582	5'-0"	2'-2"	7'-5"	6'-5"	8'-6"	10	4'-6"	4'-10"	205.375	.367	67	8'-0"	7'-0"	64	2154	2752	2434	31.02	16	
17	17	5.0	30.0	8	3-5	7-0	1/2" x 8"	6'-8"	1/2" x 18"	16	56.04	0.711	6'-0"	2'-7"	8'-10"	7'-11"	8'-1"	12	4'-6"	4'-10"	283.438	.402	69	8'-4"	7'-4"	68	2425	3220	2762	38.47	17	
18	18	6.0	36.0	8	3-5	7-0	1/2" x 8"	6'-8"	1/2" x 18"	18	59.22	0.772	7'-0"	2'-10"	10'-4"	8'-11"	8'-9"	14	4'-6"	4'-10"	359.719	.428	72	8'-8"	7'-4"	68	2681	4050	3036	45.33	18	
19	19	3.0	24.0	10	8	4-8	9-4	3/4" x 7"	9'-0"	1/2" x 18"	18	74.24	0.724	4'-2"	1'-11"	6'-1"	5'-3 1/2"	10'-5"	8	4'-6"	4'-10"	188.306	.383	63	10'-0"	9'-0"	118	2824	3089	3269	35.23	19
20	20	4.0	32.0	10	8	4-8	9-4	3/4" x 7"	9'-0"	1/2" x 18"	18	78.06	0.773	5'-2"	2'-3"	7'-1"	6'-3 1/2"	10'-7"	7	4'-6"	4'-10"	239.426	.421	63	10'-0"	9'-0"	118	3028	3493	3484	39.50	20
21	21	5.0	40.0	10	8	4-8	9-4	3/4" x 7"	9'-0"	1/2" x 18"	20	80.96	0.905	6'-2"	2'-7"	9'-0"	7'-9 1/2"	10'-8"	8	4'-6"	4'-10"	308.556	.455	65	10'-4"	9'-4"	120	3329	4184	3814	47.27	21
22	22	6.0	48.0	10	8	4-8	9-4	3/4" x 7"	9'-0"	1/2" x 18"	22	84.14	0.967	7'-2"	3'-0"	10'-6"	9'-1"	10'-9"	9	4'-6"	4'-10"	369.790	.499	65	10'-9"	9'-4"	122	3592	4862	4097	54.43	22
23	23	7.0	56.0	10	8	4-8	9-4	3/4" x 7"	9'-0"	1/2" x 18"	22	85.95	1.028	8'-2"	3'-4"	12'-0"	10'-4"	10'-10"	10	4'-6"	4'-10"	607.985	.536	68	10'-9"	9'-4"	122	4086	5455	4502	60.71	23
24	24	8.0	64.0	10	8	4-8	9-4	3/4" x 7"	9'-0"	1/2" x 18"	24	12.99	1.150	9'-2"	3'-9"	13'-5"	11'-11"	12'-1"	12	4'-6"	4'-10"	750.119	.571	85	10'-9"	9'-6"	124	4502	6237	5024	69.57	24
25	25	3.0	30.0	11	8	4-10	11-4	3/4" x 6"	11'-0"	1/2" x 18"	20	97.70	0.917	4'-3"	1'-11"	6'-3"	5'-5"	12'-5"	10	4'-6"	4'-10"	163.348	.437	69	12'-0"	11'-0"	140	3632	3816	4219	43.67	25
26	26	4.0	40.0	11	8	4-10	11-4	3/4" x 6"	11'-0"	1/2" x 18"	20	99.32	0.967	5'-3"	2'-3"	7'-8"	6'-7 1/2"	12'-7"	7	4'-6"	4'-10"	200.471	.472	69	12'-0"	11'-0"	140	3845	4229	4442	45.10	26
27	27	5.0	50.0	11	8	4-10	11-4	3/4" x 6"	11'-0"	1/2" x 18"	22	104.71	1.101	6'-3"	2'-8"	9'-2"	7'-11"	12'-8"	8	4'-6"	4'-10"	333.077	.509	1.02	12'-0"	11'-0"	142	4151	4961	4789	53.22	27
28	28	6.0	60.0	11	8	4-10	11-4	3/4" x 6"	11'-0"	1/2" x 18"	24	107.89	1.123	7'-3"	3'-0"	10'-7"	9'-2"	12'-9"	9	4'-6"	4'-10"	417.852	.531	1.05	12'-5"	11'-4"	146	4432	5631	5080	63.38	28
29	29	7.0	70.0	11	8	4-10	11-4	3/4" x 6"	11'-0"	1/2" x 18"	24	109.70	1.264	8'-3"	3'-4"	12'-10"	10'-11"	12'-10"	11	4'-6"	4'-10"	508.105	.588	1.05	12'-9"	11'-4"	146	4964	6246	5623	69.82	29
30	30	8.0	80.0	11	8	4-10	11-4	3/4" x 6"	11'-0"	1/2" x 18"	28	113.89	1.347	9'-3"	3'-9"	13'-7"	11'-9"	12'-12"	12	4'-6"	4'-10"	647.744	.625	1.06	12'-11"	11'-6"	148	5368	7097	6032	79.06	30
31	31	9.0	90.0	11	8	4-10	11-4	3/4" x 6"	11'-0"	1/2" x 18"	28	118.08	1.482	10'-3"	4'-1"	15'-0"	13'-0"	13'-5"	13	4'-6"	4'-10"	387.711	.660	1.07	13'-1"	11'-8"	150	5825	8001	6533	88.91	31
32	32	10.0	100.0	11	8	4-10	11-4	3/4" x 6"	11'-0"	1/2" x 18"	28	119.89	1.536	11'-3"	4'-6"	16'-4"	14'-3"	14'-9"	14	4'-6"	4'-10"	428.777	.697	1.07	13'-7"	11'-8"	150	6202	8279	6922	97.13	32

GENERAL NOTES
 All reinforcing steel shall be deformed round bars. The design and table are based upon net areas of bars as follows: 1/2" φ = 0.1963 sq. in. - 5/8" φ = 0.3068 sq. in. - 3/4" φ = 0.442 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. All exposed concrete surfaces shall have a carborundum finish and shall be included in price bid per cubic yard for concrete. All exposed edges shall have 3/4" chamfer.

Concrete Slab 6" span 8 1/2" 108 LL1
 Dirt Fill 100 " L.L.M. = 909 x 40 = 36,360 in. Lbs.
 Paving 7" 87 " I = 30% LL = 10,910 " "
 Total D.L. 293 Lbs. D.L.M. = 1/2 WL² = 1/2 x 293 x 6.67² x 12 = 19,550 " "
 10,000 ÷ 3.5 = 2,857

REVISIONS		RECORD		OKLAHOMA STATE HIGHWAY COMMISSION	
NO.	DESCRIPTION	BY	DATE	ITEM	DATE
1	Rev. No. H-20 3/16-5				
2	State Job No. 17020(07)				

OKLAHOMA STATE HIGHWAY COMMISSION
 OKLAHOMA CITY, OKLA.

STANDARD CONCRETE BOX CULVERTS SPANS 2 TO 10 FT. FOR FILLS NOT OVER 3 FT.