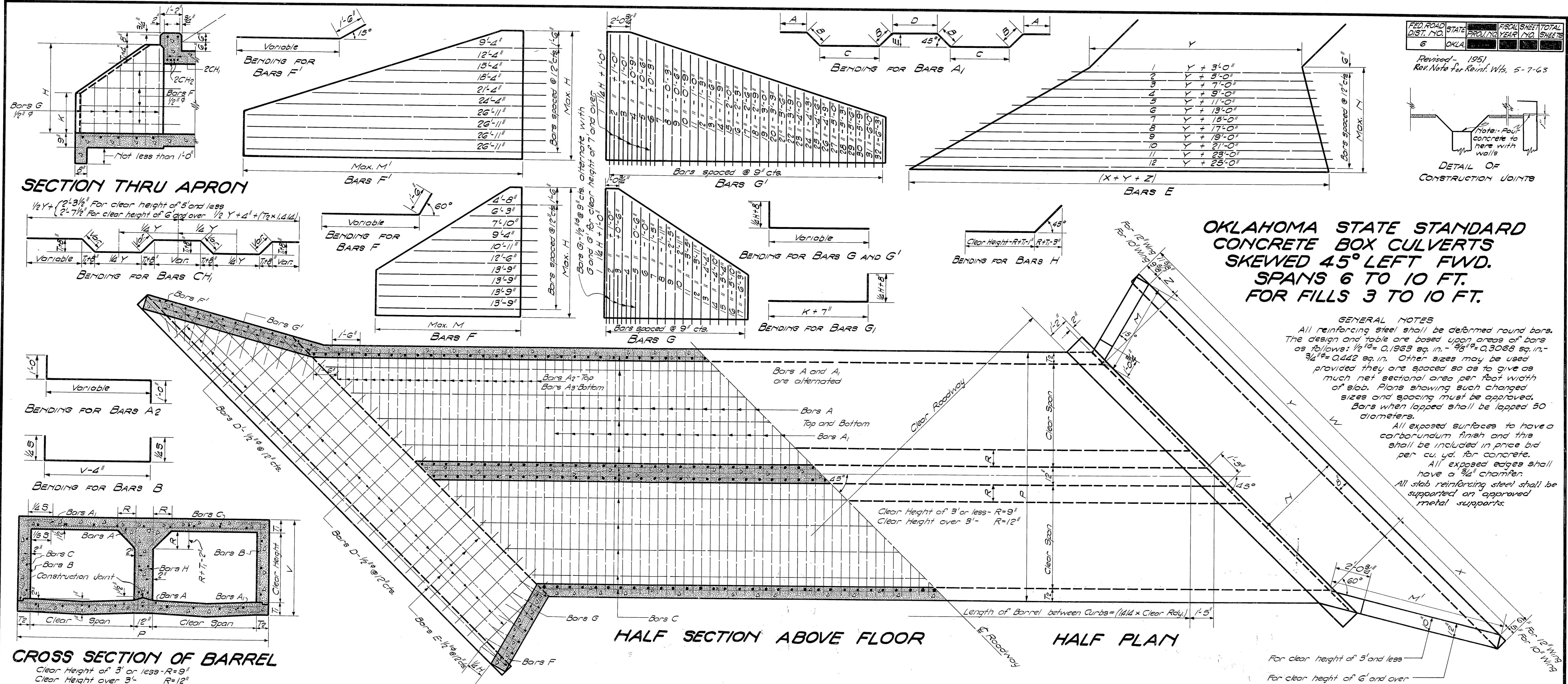


Revised - 1951  
Rev. Note for Reinf. Wts. 5-7-63



**OKLAHOMA STATE STANDARD  
CONCRETE BOX CULVERTS  
SKEWED 45° LEFT FWD.  
SPANS 6 TO 10 FT.  
FOR FILLS 3 TO 10 FT.**

**GENERAL NOTES**  
All reinforcing steel shall be deformed round bars. The design and table are based upon areas of bars as follows: 1/2" = 0.1963 sq. in. - 3/8" = 0.3068 sq. in. - 3/4" = 0.4242 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 50 diameters.  
All exposed surfaces to have a carborundum finish and this shall be included in price bid per cu. yd. for concrete.  
All exposed edges shall have a 3/4" chamfer.  
All slab reinforcing steel shall be supported on approved metal supports.

**CROSS SECTION OF BARREL**  
Clear Height of 3' or less - R=9"  
Clear Height over 3' - R=12"

**HALF SECTION ABOVE FLOOR**

**HALF PLAN**

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																		
		T <sub>1</sub>	T <sub>2</sub>	V	P	Area of Opening	BARS A AND A <sub>1</sub>	BARS A <sub>2</sub> AND A <sub>3</sub>	BARS B	BARS C	BARS M	H	K	M	M'	N	W	X	Y	Z	BARS D	BARS D'	BARS E	BARS F	BARS F'	BARS G	BARS G'		BARS G''	Reinf. bars same size as A bars	Reinf. bars same size as B bars	Concrete in one curb-in-wall cu. yds. per foot of depth	Concrete in one curb cu. yds. per foot	Steel Lbs.	Steel Lbs.												
1	2'-0"	24	9"	6"	3'-6"	14'-0"	3/8"	13'-8"	14'-2"	11/8"	7"	3-7"	2-7"	5"	48	15-3-9"	8-3-9"	6'-2"	26	3'-8-1/2"	0.947	94.94	3-1"	1-11"	2-10"	3-6"	2'-9"	2-1/2"	1-9/8"	18-2-1/2"	19	3-2"	3	2-4'-2"	2	2-8'-6"	4	2.51	144	24-1"	19-9"	1.78	185	0.62	61.6	5926	1
2	3'-0"	36	9"	8"	4'-6"	14'-4"	"	14'-0"	14'-8"	1-3/8"	7"	3-7"	2-7"	5"	48	15-3-9"	8-3-9"	7'-2"	30	4'-8-3/4"	1.076	107.70	4-1"	2'-2"	4-0-3/8"	7-9-3/4"	3-10"	2-7-1/2"	1-10-1/2"	19	4'-4"	5	4-0-3/8"	4	3.87	222	24'-4"	20'-0"	1.80	188	0.68	71.76	6525	2			
3	4'-0"	48	9"	8"	5'-6"	14'-4"	"	14'-2"	14'-8"	1-3/8"	7"	3-7"	2-7"	5"	48	15-3-9"	8-3-9"	8'-2"	30	5'-10"	1.179	106.56	5-1"	2'-4"	5-2-3/8"	10-1"	5-0-1/2"	2-8-3/4"	1-14-1/2"	19	5'-8"	7	4-0-3/8"	5	5.45	308	24'-4"	20'-0"	1.80	188	0.78	80.85	6917	3			
4	5'-0"	60	9"	10"	6'-6"	14'-8"	"	14'-2"	15'-0"	1-5/8"	7"	3-7"	2-7"	5"	48	15-3-9"	8-3-9"	9'-2"	34	6'-10"	1.346	119.41	6-1"	2'-7"	6-5-1/8"	12-5"	6-2-1/2"	3-7-0-1/2"	10-9"	1-1-8"	19	6'-8"	9	4-0-3/8"	6	7.25	409	24'-4"	20'-0"	1.82	190	0.79	94.04	7563	4		
5	6'-0"	72	9"	10"	7'-6"	14'-8"	"	14'-2"	15'-0"	1-5/8"	7"	3-7"	2-7"	5"	48	15-3-9"	8-3-9"	10'-2"	38	7'-4"	1.444	120.66	7-1"	2'-10"	7-7-3/8"	14'-3-1/2"	7-4-1/2"	3-4-3/8"	12-8-1/2"	11-11-3/8"	19	7'-9"	11	4-0-3/8"	7	10.07	525	24'-0"	20'-5"	1.85	193	0.85	105.37	8162	5		
6	8'-0"	96	12"	8"	5'-0"	18'-4"	3/4"	18'-0"	19'-1"	1-5/8"	11/4"	4-9-1/2"	2'-10"	8"	58	15-3-9"	8-3-9"	8'-8"	32	5'-2"	1.638	151.19	4-4"	2'-5"	4-0-3/8"	7-9-3/4"	3-10"	2-8-3/4"	1-14-1/2"	20	4'-4"	5	4-0-3/8"	4	4.57	261	30'-4"	25'-8"	2.26	339	0.82	105.69	9518	6			
7	4'-0"	64	12"	8"	6'-0"	18'-4"	"	18'-0"	19'-1"	1-5/8"	11/4"	4-9-1/2"	2'-10"	8"	58	15-3-9"	8-3-9"	9'-8"	36	6'-5"	1.741	157.69	5-4"	2'-8"	3-2-3/8"	10-1"	5-0-1/2"	3-8-3/4"	1-14-1/2"	20	5'-6"	7	4-0-3/8"	5	6.35	358	30'-4"	25'-8"	2.26	339	0.87	115.18	10086	7			
8	5'-0"	80	12"	10"	7'-0"	18'-8"	"	18'-4"	19'-5"	1-7/8"	11/4"	4-9-1/2"	2'-10"	8"	58	15-3-9"	8-3-9"	10'-8"	40	7'-5"	1.913	165.91	6'-2"	2'-11"	6-5-1/8"	12'-5"	6-2-1/2"	3-7-0-1/2"	10-9"	1-1-8"	20	6'-8"	9	4-0-3/8"	6	8.39	469	30'-4"	25'-10"	2.29	342	0.93	129.14	10778	8		
9	7'-0"	112	12"	10"	8'-0"	18'-8"	"	18'-4"	19'-5"	1-7/8"	11/4"	4-9-1/2"	2'-10"	8"	58	15-3-9"	8-3-9"	11'-8"	40	8'-5"	2.012	169.53	7'-4"	3-1"	7-7-3/8"	14'-8-1/2"	7-4-1/2"	4-0-3/8"	12-8-1/2"	11-11-3/8"	19	7'-9"	11	4-0-3/8"	7	11.42	595	30'-8"	26'-1"	2.32	345	0.99	140.95	11241	9		
10	8'-0"	128	12"	11"	10'-0"	18'-8"	"	18'-4"	19'-7"	1-7/8"	11/4"	4-9-1/2"	2'-10"	8"	58	15-3-9"	8-3-9"	12'-8"	44	9'-5"	2.111	175.88	8'-4"	3-4"	8-9-3/8"	17'-0"	8'-6"	4-2-3/8"	14-8-3/8"	12-8-1/2"	11-11-3/8"	19	8'-9"	13	4-0-3/8"	9	14.10	903	30'-8"	26'-1"	2.32	345	1.05	152.03	12220	10	
12	6'-0"	120	14"	10"	8'-5"	22'-8"	3/4"	22'-4"	23'-9"	1-9/8"	1-1/2"	6'-0"	3'-3"	10-1/2"	94	23-3-1/2"	13'-11"	13'-8"	46	8'-11"	2.272	183.16	9'-4"	3'-7"	10'-0-1/2"	19'-4"	9'-8"	4-4-0-1/8"	16'-3-1/2"	1-11-3/8"	20	10'-11"	15	4-0-3/8"	10	16.99	1091	30'-0"	26'-4"	2.33	348	1.11	167.05	13017	11		
13	7'-0"	140	14"	10"	9'-5"	22'-8"	"	22'-4"	23'-9"	1-9/8"	1-1/2"	6'-0"	3'-3"	10-1/2"	94	23-3-1/2"	13'-11"	14'-11"	50	9'-11"	2.757	245.62	8'-6"	3'-6"	8-9-3/8"	17'-0"	8'-6"	4-8-3/8"	14-8-3/8"	12-8-1/2"	11-11-3/8"	19	11'-9"	16	4-0-3/8"	11	12.74	655	36'-0"	31'-9"	2.78	417	1.19	192.33	16375	12	
14	8'-0"	160	14"	11"	10'-5"	22'-8"	"	22'-4"	23'-11"	1-11/8"	1-1/2"	6'-0"	3'-3"	10-1/2"	94	23-3-1/2"	13'-11"	15'-11"	50	10'-11"	2.920	250.46	9'-6"	3'-9"	10'-0-1/2"	19'-4"	9'-8"	5-0'-6"	16'-3-1/2"	1-11-3/8"	20	12'-9"	17	4-0-3/8"	12	15.61	984	36'-0"	31'-9"	2.78	419	1.25	207.88	17037	14		
15	9'-0"	180	14"	12"	11'-5"	23'-0"	"	22'-8"	24'-11"	1-11/8"	1-1/2"	6'-0"	3'-3"	10-1/2"	94	23-3-1/2"	13'-11"	16'-11"	54	11'-11"	3.096	258.03	10'-6"	4'-0"	11-4-3/8"	21'-8"	10'-0"	5-2'-0"	18'-9-1/2"	1-11-3/8"	20	12'-9"	18	4-0-3/8"	13	17.06	1376	37'-1"	32'-0"	2.80	420	1.30	224.65	17867	15		
16	10'-0"	200	14"	12"	12'-5"	23'-0"	"	22'-8"	24'-11"	1-11/8"	1-1/2"	6'-0"	3'-3"	10-1/2"	94	23-3-1/2"	13'-11"	17'-11"	58	12'-11"	3.207	264.37	11'-6"	4'-3"	12-4-3/8"	23'-11"	11'-11"	5-5'-1/2"	20'-8-1/2"	1-11-3/8"	20	13'-9"	18	4-0-3/8"	12	25.58	1600	37'-1"	32'-0"	2.80	420	1.36	238.08	18679	16		

Quantities shown for reinforcing steel shall be reduced by 1 1/2% (0.15) to comply with approved C.R.S.I. weights per foot for reinforcing bars.

**DESIGN DATA**  
Dead Load 1000 Lbs.  
Live Load none  
Impact none

Drawn by T. F. T. Feb. 1955  
Checked by U. M. R. Feb. 12, 1955