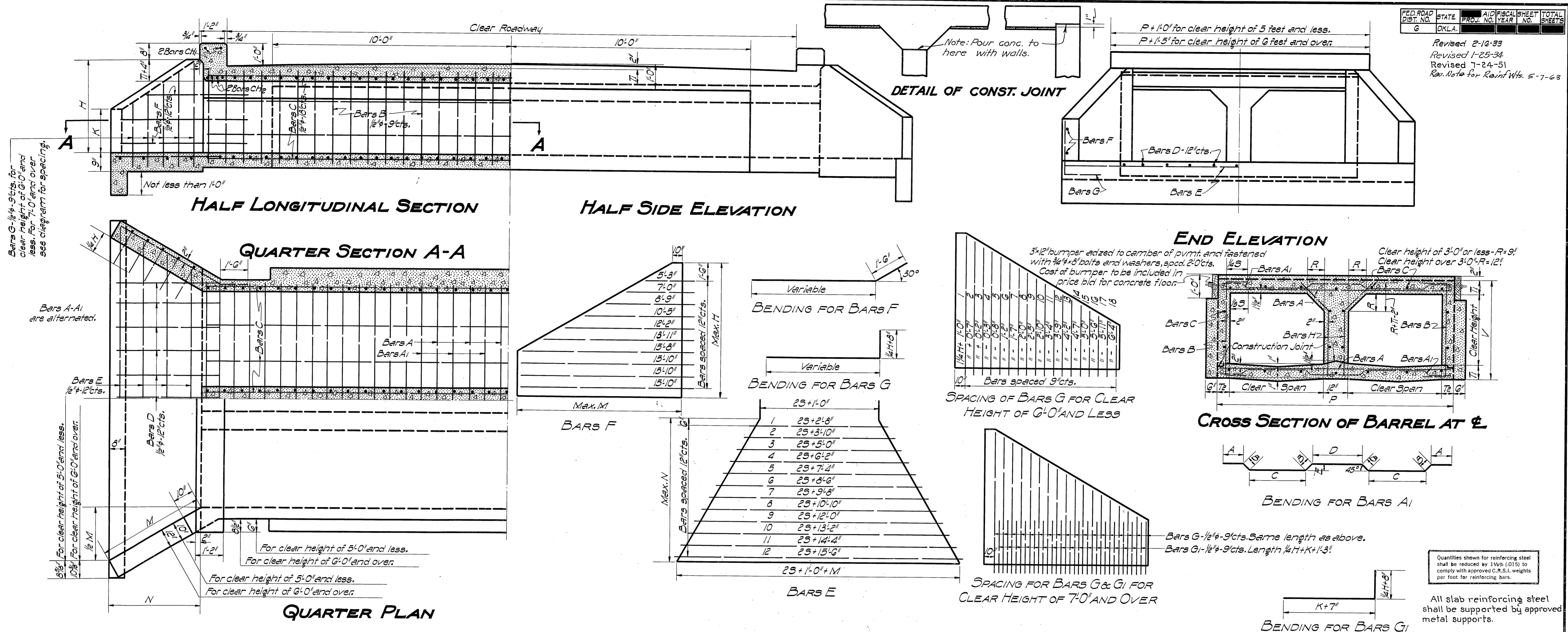


FED. ROAD DIST. NO.	STATE	PROJ. NO.	YEAR	SHEET NO.	TOTAL SHEETS
6	OKLA.				

Revised 2-16-33  
 Revised 1-25-34  
 Revised 7-24-51  
 Rev. Note for Reinf. Wts. 5-7-63



Quantities shown for reinforcing steel shall be reduced by 1 1/2% (10%) to comply with approved C.S.I. weights per foot for reinforcing bars.

All slab reinforcing steel shall be supported by approved metal supports.

**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" = 0.153 sq. in. - 3/8" = 0.300 sq. in. - 1/4" = 0.442 sq. in. Other sizes may be used provided they are spaced so as to give us 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 this shall be included in the price bid per cu yd for concrete.  
 \*Note: The weight of the CH1 & CH2 bars is included in the weight of the TOTAL QUANTITIES for 30' Roadway.

DESIGN NO.	WATERWAY	BARREL OF CULVERT										TWO WINGS AND ONE APRON										TOTAL QUANTITIES			TWO CURBS		Design No.																				
		DIMENSIONS					REINFORCING STEEL					QUANTITIES					DIMENSIONS					REINFORCING STEEL						30' ROADWAY			Reinf. Steel same size as A Bars.																
		Clear Span	Clear Height	Area of Opening	T1	T2	V	P	Bars A Size & Spacing	Bars Ai Size & Spacing	Bars B Size & Spacing	Bars C Size & Spacing	Bars H Size & Spacing	Steel per Lin. Ft. Class A Concrete	Class A Concrete per Lin. Ft. Cu Yds.	Class A Concrete per Lin. Ft. Cu Yds.	H	K	M	N	Bars D No. Length	Bars E No. Length	Bars F No. Length	Bars G No. Length	Bars Gi No. Length	Reinf. Steel Lbs.		1/2" Cu Yds.	Class A Concrete in Two Curbs Cu. Yds.	Class A Concrete in Two Aprons Cu. Yds.	Class A Concrete in Two Slab Seats Cu. Yds.	Steel Lbs.	Concrete Cu. Yds.	Concrete Cu. Yds.	CH1	CH2											
1	2'-0"	24	3 1/2"	6"	3'-5"	14'-0"	3/8-13"	13'-8"	3/8-13"	14'-3"	1'-2"	6/4"	3'-7"	2'-8"	4 1/2"	1/2-9"	0"	1/2-18"	26	1/2-9"	3'-7"	69.83	.530	.425	3'-0 1/2"	1'-8"	3'-2"	2'-9"	15	3'-2"	3	2	5'-2"	2	5'-2"	8	101	1.76	1.22	0.435	1.91	3197	23.45	14.70	14'-8"	13'-8"	1
2	2'-0"	30	3 1/2"	6"	3'-11"	14'-0"	"	13'-8"	"	14'-3"	1'-2"	6/4"	3'-7"	2'-8"	4 1/2"	"	0'-7"	"	26	"	4'-1"	91.64	.573	.425	3'-0 1/2"	1'-10"	3'-10"	3'-4"	15	3'-9"	3	2	5'-3"	4	5'-10"	10	125	2.24	1.22	0.451	2.28	3302	26.00	14.70	14'-8"	13'-8"	2
3	3'-0"	36	3 1/2"	8"	4'-5"	14'-4"	"	14'-0"	"	14'-7"	1'-4"	6/4"	3'-7"	2'-8"	4 1/2"	"	7'-1"	"	30	"	4'-7"	97.48	.636	.435	4'-0 1/2"	1'-11"	4'-0"	3'-10 1/2"	15	4'-4"	4	2	5'-3"	4	6'-0"	10	149	2.70	1.25	0.468	2.65	3540	29.98	15.05	15'-0"	14'-0"	3
4	4'-0"	48	3 1/2"	8"	5'-5"	14'-4"	"	14'-0"	"	14'-7"	1'-4"	6/4"	3'-7"	2'-8"	4 1/2"	"	8'-1"	"	30	"	5'-9"	101.41	.759	.435	5'-0 1/2"	2'-1"	5'-10"	5'-0 1/2"	15	5'-0"	5	4	Var.	4	7'-10"	14	209	3.81	1.25	0.501	3.40	4786	36.31	15.05	15'-0"	14'-0"	4
5	5'-0"	60	3 1/2"	10"	6'-5"	14'-8"	"	14'-4"	"	14'-11"	1'-6"	6/4"	3'-7"	2'-8"	4 1/2"	"	9'-1"	"	34	"	6'-9"	109.06	.916	.445	6'-0 1/2"	2'-5"	7'-2"	6'-2 1/2"	15	6'-8"	6	6	Var.	4	9'-2"	18	277	5.07	1.27	0.534	4.14	4170	44.60	15.39	15'-4"	14'-4"	5
6	6'-0"	72	3 1/2"	10"	7'-5"	14'-8"	"	14'-4"	"	14'-11"	1'-6"	6/4"	3'-7"	2'-8"	4 1/2"	"	10'-1"	"	33	"	7'-9"	115.40	1.014	.445	7'-0 1/2"	2'-8"	8'-0"	7'-4 1/2"	15	7'-9"	7	6	Var.	6	10'-0"	22	351	7.08	1.30	0.574	4.88	4523	52.64	15.42	15'-9"	14'-4"	6
7	2'-0"	40	10"	8"	4'-2"	18'-4"	"	18'-0"	"	18'-4"	1'-4"	1/2-14"	18'-0"	1'-4"	1/2-9"	"	7'-10"	1/2-18"	32	1/2-9"	4'-5"	139.93	.803	.641	3'-8"	1'-11"	3'-10"	3'-4"	19	3'-9"	3	2	5'-3"	4	5'-10"	10	144	2.60	1.57	0.550	2.47	4991	34.47	21.94	19'-0"	18'-0"	7
8	3'-0"	48	10"	8"	4'-8"	18'-4"	"	18'-0"	"	18'-10"	1'-7 1/2"	8/16"	4'-9 1/2"	3'-2 1/2"	6"	"	8'-4"	"	32	"	4'-11"	141.74	.846	.641	4'-2"	2'-1"	4'-0"	3'-10 1/2"	19	4'-4"	4	2	5'-3"	4	6'-0"	10	173	3.18	1.57	0.567	2.84	5447	43.99	21.94	19'-0"	18'-0"	8
9	4'-0"	64	10"	8"	5'-8"	18'-4"	"	18'-0"	"	18'-10"	1'-7 1/2"	8/16"	4'-9 1/2"	3'-2 1/2"	6"	"	9'-4"	"	36	"	6'-0"	148.24	.949	.641	5'-2"	2'-3"	5'-10"	5'-0 1/2"	19	5'-6"	5	4	Var.	4	7'-10"	14	239	4.42	1.57	0.600	3.58	5447	43.99	21.94	19'-0"	18'-0"	9
10	5'-0"	80	10"	10"	6'-8"	18'-8"	"	18'-4"	"	19'-2"	1'-9 1/2"	8/16"	4'-9 1/2"	3'-2 1/2"	6"	"	10'-4"	"	40	"	7'-0"	156.32	1.107	.653	6'-2"	2'-6"	7'-2"	6'-2 1/2"	19	6'-8"	6	6	Var.	4	9'-2"	18	313	5.81	1.59	0.633	4.32	5857	52.63	22.33	19'-4"	18'-4"	10
11	6'-0"	96	10"	10"	7'-8"	18'-8"	"	18'-4"	"	19'-2"	1'-9 1/2"	8/16"	4'-9 1/2"	3'-2 1/2"	6"	"	11'-4"	"	40	"	8'-0"	159.95	1.206	.653	7'-2"	2'-9"	8'-0"	7'-4 1/2"	19	7'-9"	7	6	Var.	6	10'-0"	22	394	7.97	1.62	0.673	5.06	6138	60.94	22.36	19'-9"	18'-4"	11
12	7'-0"	112	10"	10"	8'-8"	18'-8"	"	18'-4"	"	19'-2"	1'-9 1/2"	8/16"	4'-9 1/2"	3'-2 1/2"	6"	"	12'-4"	"	44	"	9'-0"	166.29	1.305	.653	8'-2"	3'-0"	9'-10"	8'-6"	19	8'-11"	9	6	Var.	6	11'-10"	26	477	9.16	1.62	0.706	5.80	6763	65.63	22.36	19'-9"	18'-4"	12
13	8'-0"	128	10"	11"	9'-8"	18'-10"	"	18'-6"	"	19'-4"	1'-10 1/2"	8/16"	4'-9 1/2"	3'-2 1/2"	6"	"	13'-4"	"	48	"	10'-0"	173.51	1.458	.659	9'-2"	3'-2"	11'-2"	9'-8"	19	10'-11"	10	6	Var.	6	13'-2"	28	578	11.80	1.63	0.739	6.54	7222	78.27	22.56	19'-11"	18'-6"	13
14	2'-0"	50	11"	8"	4'-4"	22'-4"	3/4-12"	22'-0"	3/4-12"	23'-0"	1'-11"	10"	6'-0"	3'-10"	7"	1/2-9"	9'-0"	1/2-18"	33	1/2-9"	4'-7"	187.26	.995	.850	3'-9"	2'-0"	3'-10"	3'-4"	23	3'-9"	3	2	5'-3"	4	5'-10"	10	163	2.99	1.90	0.649	2.59	6592	41.71	28.92	23'-0"	22'-0"	14
15	3'-0"	60	11"	8"	4'-10"	22'-4"	"	22'-0"	"	23'-0"	1'-11"	10"	6'-0"	3'-10"	7"	"	9'-6"	"	33	"	5'-1"	189.08	1.038	.850	4'-3"	2'-2"	4'-6"	3'-10 1/2"	23	4'-4"	4	2	5'-3"	4	6'-0"	10	196	3.63	1.90	0.665	2.96	6717	44.77	28.92	23'-0"	22'-0"	15
16	4'-0"	80	11"	8"	5'-10"	22'-4"	"	22'-0"	"	23'-0"	1'-11"	10"	6'-0"	3'-10"	7"	"	10'-6"	"	42	"	6'-3"	195.73	1.141	.850	5'-3"	2'-4"	5'-10"	5'-0 1/2"	23	5'-6"	5	4	Var.	4	7'-10"	14	269	5.01	1.90	0.698	3.70	7075	51.63	28.92	23'-0"	22'-0"	16
17	5'-0"	100	11"	10"	6'-10"	22'-8"	"	22'-4"	"	23'-4"	2'-1"	10"	6'-0"	3'-10"	7"	"	11'-6"	"	42	"	7'-3"	201.38	1.300	.863	6'-3"	2'-7"	7'-2"	6'-2 1/2"	23	6'-8"	6	6	Var.	4	9'-2"	18	349	6.53	1.93	0.731	4.44	7420	60.56	29.35	23'-4"	22'-4"	17
18	6'-0"	120	11"	10"	7'-10"	22'-8"	"	22'-4"	"	23'-4"	2'-1"	10"	6'-0"	3'-10"	7"	"	13'-6"	"	50	"	8'-3"	207.72	1.399	.863	7'-3"	2'-10"	8'-6"	7'-4 1/2"	23	7'-9"	7	6	Var.	6	10'-0"	22	436	8.83	1.96	0.771	5.19	7799	63.16	29.38	23'-9"	22'-4"	18
19	7'-0"	140	11"	10"	8'-10"	22'-8"	"	22'-4"	"	23'-4"	2'-1"	10"	6'-0"	3'-10"	7"	"	15'-6"	"	58	"	9'-3"	214.07	1.496	.863	8'-3"	3'-1"	9'-10"	8'-6"	23	8'-11"	9	6	Var.	6	11'-10"	26	577	10.83	1.96	0.804	5.93	8444	77.13	29.38	23'-9"	22'-4"	19
20	8'-0"	160	11"	11"	9'-10"	22'-10"	"	22'-6"	"	23'-6"	2'-2"	10"	6'-0"	3'-10"	7"	"	14'-6"	"	50	"	10'-3"	218.71	1.632	.863	9'-3"	3'-3"	11'-2"	9'-8"	23	10'-11"	10	10	Var.	6	13'-2"	28	776	12.95	1.97	0.837	6.67	8833	87.11	29.60	23'-11"	22'-6"	20
21	9'-0"	180	11"	12"	10'-10"	23'-0"	"	22'-8"	"	23'-8"	2'-3"	10"	6'-0"	3'-10"	7"	"	15'-6"	"	54	"	11'-3"	226.07	1.818	.876	10'-3"	3'-6"	12'-6"	10'-10"	24	11'-3"	11	12	Var.	6	14'-0"	32	924	15.26	1.98	0.871	7.41	9366	93.65	29.81	24'-1"	22'-8"	21
22	10'-0"	200	11"	12"	11'-10"	23'-0"	"	22'-8"	"	23'-8"	2'-3"	10"	6'-0"	3'-10"	7"	"	16'-6"	"	58	"	12'-3"	232.42	1.929	.876	11'-3"	3'-9"	13'-10"	11'-11"	24	12'-5"	12	14	Var.	6	15'-10"	36	1064	17.73	1.98	0.903	8.15	9849	107.14	29.81	24'-7"	22'-8"	22

18#	Conc. Slab 6" Span 8 1/2"	106 lbs.
	Crown 2"	25 lbs.
	Total DL	131 lbs.
11#	L.L.M. = 309 + 40 1/2 = 36, 530 in. lbs.	
	I = 30" L.L.	10, 920 in. lbs.
	DL M = 1/2 W L^2 / 8 = 48 x 11^2 / 8 = 8, 850 in. lbs.	
	Total DL & I Moment	56, 420 in. lbs.

All exposed edges shall have 3/4" chamfer.

**OKLAHOMA STATE HIGHWAY COMM. STANDARD CONCRETE BOX CULVERTS SPANS 6 TO 10 FT. FOR FINISHED GRADE**