STANDARD NO. 2328

CLEAR SPAN	CLEAR HEIGHT	DESIGN 1																		CLEAR SPAN	CLEAR HEIGHT	DESIGN 2																		CLEAR SPAN	CLEAR HEIGHT
		CU. YDS. CLASS A CONCRETE									LBS. BAR REINFORCING STEEL											CU. YDS. CLASS A CONCRETE									LBS. BAR REINFORCING STEEL										
		SINGLE			DOUBLE			TRIPLE			SINGLE			DOUBLE			TRIPLE					SINGLE			DOUBLE			TRIPLE			SINGLE			DOUBLE			TRIPLE				
		75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°			75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°		
4′	5′	13.45	14.56	17.75							452	586	746							4′	5′	13.54	14.66	17.89							452	596	755							4′	5′
3′	2′	6.11	6.54	8.22							189	250	333							3′	2′	6.11	6.54	8.22							189	250	333							3′	2′
	2′-6″	7.30	7.79	9.61	8.58	9.18	11.30	9.86	10.58	12.97	228	294	379	290	434	570	324	545	647		2′-6″	7.30	7.79	9.61	8.58	9.18	11.30	9.86	10.58	12.97	228	294	379	290	434	570	324	545	647		2′-6″
	3′	8.37	8.88	10.98	9.67	10.28	12.69	10.97	11.70	14.40	270	346	432	313	437	614	356	530	700		3′	8.37	8.88	10.98	9.67	10.28	12.69	10.97	11.70	14.40	270	346	432	313	437	614	356	530	700		3′
4′	2′-6″	7.69	8.25	10.14	9.23	9.91	12.16	10.84	11.66	14.29	239	333	424	291	460	616	344	589	799	4′	2′-6″	7.69	8.25	10.14	9.23	9.91	12.16	10.84	11.66	14.29	239	333	424	291	460	616	344	589	799	4′	2′-6″
	3′	8.77	9.33	11.52	10.33	11.02	13.56	11.96	12.79	15.71	281	382	490	333	503	719	386	632	852		3′	8.77	9.33	11.52	10.33	11.02	13.56	11.96	12.79	15.71	281	382	490	333	503	719	386	632	852		3′
	4′	10.87	11.65	14.32	12.60	13.54	16.61	14.36	15.48	18.96	359	470	595	414	568	771	468	735	969		4′	10.87	11.65	14.32	12.60	13.54	16.61	14.36	15.48	18.96	359	470	595	414	568	771	468	735	969		4′
5′	2′-6″	8.06	8.64	10.64	9.94	10.69	13.12	11.89	12.81	15.70	250	385	506	313	521	692	376	684	909	5′	2′-6″	8.06	8.64	10.64	10.03	10.81	13.28	12.00	12.97	15.91	250	385	506	314	542	711	378	702	941	5′	2′-6″
	3′	9.14	9.73	12.02	11.04	11.79	14.52	13.00	13.94	17.12	292	427	559	355	563	745	418	726	962		3′	9.14	9.73	12.02	11.13	11.92	14.69	13.12	14.11	17.34	292	427	559	356	584	764	420	743	994		3′
	4′	11.24	12.06	14.82	13.36	14.39	17.66	15.49	16.74	20.51	370	511	657	435	650	842	501	757	1064		4′	11.24	12.06	14.82	13.36	14.39	17.66	15.49	16.74	20.51	370	511	657	435	671	866	501	834	1100		4′
	5′	13.79	14.94	18.21	15.97	17.33	21.12	18.14	19.73	24.04	462	619	786	529	761	972	596	921	1195		5′	13.88	15.04	18.35	15.97	17.33	21.12	18.14	19.73	24.04	462	629	795	529	780	996	596	944	1231		5′
6′	3′	9.53	10.18	12.58	11.87	12.74	15.69	14.24	15.33	18.86	301	486	636	377	655	857	452	856	1136	6′	3′	9.57	10.23	12.65	11.98	12.88	15.88	14.38	15.53	19.12	303	509	666	379	691	908	455	908	1214	6′	3′
	4′	11.62	12.48	15.34	14.03	15.12	18.57	16.50	17.85	21.86	380	568	734	456	739	931	533	936	1218		4′	11.66	12.53	15.41	14.15	15.28	18.78	16.66	18.06	22.13	381	592	763	458	785	1000	535	1005	1335		4′
	5′	14.22	15.42	18.82	16.74	18.19	22.49	19.86	21.01	25.62	480	678	865	557	853	1091	635	1058	1376		5′	14.32	15.55	18.98	16.87	18.36	22.71	20.03	21.24	25.91	481	702	895	560	898	1160	638	1120	1473		5′
	6′	16.93	18.26	22.22	19.51	21.08	25.65	22.13	23.97	29.16	583	798	1003	661	963	1244	740	1170	1531		6′	17.11	18.47	22.48	19.65	21.27	25.88	22.31	24.21	29.47	584	812	1047	663	1009	1314	742	1232	1627		6′

STANDARD NO. 2329

CLEAR SPAN	CLEAR HEIGHT	DESIGN 1																		CLEAR SPAN	CLEAR HEIGHT	DESIGN 2																		CLEAR SPAN	CLEAR HEIGHT
		CU. YDS. CLASS A CONCRETE									LBS. BAR REINFORCING STEEL											CU. YDS. CLASS A CONCRETE									LBS. BAR REINFORCING STEEL										
		SINGLE			DOUBLE			TRIPLE			SINGLE			DOUBLE			TRIPLE					SINGLE			DOUBLE			TRIPLE			SINGLE			DOUBLE			TRIPLE				
		75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°			75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°		
7′	4′	12.61	13.97	17.03	15.37	17.04	20.08	18.22	20.22	24.68	632	808	1051	765	1053	1391	899	1324	1773	7′	4′	12.83	14.22	17.33	15.76	17.47	21.33	18.79	20.83	25.39	640	839	1094	769	1069	1406	904	1348	1810	7′	4′
	5′	15.23	16.77	20.31	18.04	19.90	24.16	20.96	23.15	28.13	720	923	1215	854	1122	1481	989	1365	1939		5′	15.46	17.03	20.63	18.59	20.53	24.93	21.64	23.94	29.07	721	954	1258	858	1195	1599	994	1484	2004		5′
	6′	17.80	19.59	23.65	20.67	22.78	27.58	23.65	26.10	31.63	856	1087	1379	991	1334	1721	1126	1607	2105		6′	18.05	19.87	23.99	21.25	23.45	28.39	24.37	26.93	32.63	857	1118	1422	994	1358	1763	1131	1650	2169		6′
	7′	23.02	25.16	30.50	26.05	28.54	34.65	29.13	31.97	38.84	1073	1318	1664	1211	1569	2009	1348	1844	2395		7′	23.50	25.72	31.16	26.89	29.52	35.81	30.09	33.11	40.18	1075	1351	1708	1214	1595	2052	1354	1887	2459		7′
8′	4′	13.21	14.49	17.88	16.40	18.05	22.24	19.65	21.69	26.68	623	901	1183	774	1215	1621	925	1563	2107	8′	4′	13.51	14.83	18.29	16.82	18.53	22.82	20.22	22.33	27.47	625	952	1266	778	1219	1625	931	1569	2121	8′	4′
	5′	15.82	17.51	21.21	19.07	21.13	25.65	22.39	24.84	30.18	744	1033	1330	896	1363	1783	1047	1712	2278		5′	16.14	17.87	21.65	19.77	21.93	26.62	23.27	25.85	31.40	753	1099	1428	902	1379	1819	1056	1752	2326		5′
	6′	18.70	20.62	24.83	22.00	24.31	29.34	25.38	28.08	33.95	891	1213	1535	1052	1528	1975	1205	1879	2471		6′	19.04	21.01	25.29	22.74	25.16	30.37	26.31	29.14	35.24	902	1264	1619	1058	1545	2011	1214	1918	2519		6′
	7′	23.76	26.05	31.50	27.08	29.74	36.04	30.52	33.59	40.74	1102	1433	1813	1254	1745	2245	1408	2096	2741		7′	24.30	26.67	32.25	28.07	30.91	37.42	31.70	34.97	42.37	1103	1481	1891	1260	1761	2283	1417	2136	2792		7′
	8′	28.52	31.15	37.48	32.17	35.23	42.48	35.88	39.36	47.53	2980	3512	4141	3137	3835	4605	3294	4200	5118		8′	28.95	31.64	38.06	32.91	36.10	43.50	36.77	40.39	48.76	2982	3563	4240	3141	3870	4668	3300	4258	5212		8′
9′	4′	14.09	15.57	19.04	17.67	19.57	23.95	21.34	23.65	28.95	653	1021	1328	821	1409	1873	989	1839	2476	9′	4′	14.41	15.93	19.48	18.25	20.21	24.74	22.13	24.53	30.03	655	1083	1428	828	1436	1916	999	1880	2544	9′	4′
	5′	16.39	18.17	21.97	20.03	22.23	26.95	23.76	26.39	32.04	767	1152	1480	936	1541	2012	1105	1972	2616		5′	16.73	18.55	22.43	20.75	23.08	27.98	24.69	27.47	33.36	770	1215	1566	943	1569	2048	1115	2013	2684		5′
	6′	19.43	21.26	25.90	23.11	25.37	30.95	26.91	29.61	36.13	926	1313	1689	1096	1703	2222	1266	2135	2827		6′	19.83	21.72	26.45	23.90	26.27	32.04	27.90	30.74	37.51	930	1377	1777	1103	1731	2258	1276	2176	2896		6′
	7′	24.50	26.67	32.56	28.24	30.84	37.68	32.10	35.14	42.94	1140	1532	1961	1311	1923	2496	1485	2371	3121		7′	25.16	27.42	33.46	29.42	32.20	39.30	33.53	36.79	44.91	1144	1596	2049	1318	1971	2571	1492	2438	3229		7′
	8′	29.28	31.82	38.69	33.32	36.33	44.21	37.44	40.93	49.85	2321	2864	3578	2495	3248	4091	2670	3688	4715		8′	29.74	32.33	39.31	34.23	37.39	45.47	38.57	42.23	51.40	2323	2911	3636	2500	3294	4172	2677	3762	4832		8′
	9′	35.63	38.94	45.80	39.73	43.52	51.41	43.93	48.21	57.16	3593	4334	5101	3769	4719	5657	3944	5106	6286		9′	36.47	39.94	46.94	40.84	44.85	52.92	45.25	49.77	58.96	3597	4383	5202	3773	4765	5740	3951	5238	6406		9′
	10′	40.05	44.02	51.30	44.22	48.68	57.01	48.50	53.45	62.86	4026	4921	5777	4202	5311	6292	4378	5749	6918		10′	41.41	45.30	52.75	45.93	50.78	59.35	50.46	55.83	65.55	4029	4970	5836	4209	5355	6377	4388	5831	7045		10′

STANDARD NO. 2330

CLEAR SPAN	CLEAR HEIGHT	DESIGN 1																		CLEAR SPAN	CLEAR HEIGHT	DESIGN 2																		CLEAR SPAN	CLEAR HEIGHT
		CU. YDS. CLASS A CONCRETE									LBS. BAR REINFORCING STEEL											CU. YDS. CLASS A CONCRETE									LBS. BAR REINFORCING STEEL										
		SINGLE			DOUBLE			TRIPLE			SINGLE			DOUBLE			TRIPLE					SINGLE			DOUBLE			TRIPLE			SINGLE			DOUBLE			TRIPLE				
		75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°			75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°	75°	60°	45°		
10′	4′	15.79	17.44	20.69	19.62	21.62	25.93	23.72	26.20	31.54	713	1177	1477	903	1527	1889	1089	2005	2485	10′	4′	16.19	17.89	21.23	20.26	22.33	26.78	24.59	27.17	32.70	714	1237	1567	908	1639	2070	1097	2175	2769	10′	4′
	5′	18.53	20.38	24.47	22.39	24.66	29.73	26.55	29.31	35.43	868	1322	1654	1058	1673	2066	1246	2151	2663		5′	1895	20.85	25.03	23.04	25.39	30.61	27.43	30.29	36.62	872	1382	1743	1063	1785	2248	1253	2321	2948		5′
	6′	21.50	23.39	28.09	25.38	27.70	33.39	29.61	32.42	39.17	998	1470	1840	1189	1822	2254	1378	2301	2852		6′	22.11	24.09	28.92	26.22	28.66	34.55	30.68	33.64	40.65	1002	1551	1969	1194	1935	2435	1385	2472	3136		6′
	7′	26.40	28.65	34.39	30.34	33.02	39.78	34.68	37.87	45.71	1203	1713	2152	1396	2066	2567	1585	2547	3166		7′	27.14	29.49	35.39	31.22	34.02	40.98	35.79	39.12	47.23	1207	1794	2281	1400	2197	2748	1593	2717	3450		7′
	8′	35.24	38.61	45.80	39.13	42.92	51.14	43.69	48.03	57.38	2513	3195	3834	2707	3537	4230	2899	4026	4841		8′	35.78	39.21	46.51	39.90	43.79	52.18	44.70	49.15	58.74	2516	3260	3933	2711	3650	4421	2906	4197	5129		8′
	9′	40.43	43.91	52.73	44.28	48.19	58.02	48.92	53.38	64.36	2857	3482	4319	3051	3824	4714	3244	4314	5325		9′	41.29	44.89	53.88	45.42	49.49	59.56	50.35	54.99	66.28	2861	3547	4419	3059	3939	4907	3255	4489	5617		9′
	10′	46.53	50.20	60.18	50.48	54.59	65.61	55.24	59.93	72.12	3842	4577	5533	4037	4921	5929	4231	5421	6542		10′	47.81	51.71	61.88	51.77	56.11	67.34	56.77	61.71	74.18	3846	4642	5634	4045	5066	6162	4242	5627	6902		10′
	11′	53.34	58.10	68.92	57.10	62.26	74.10	61.94	67.67	80.72	4423	5261	6284	4619	5606	6681	4814	6098	7294		11′	54.55	59.54	70.53	58.60	64.02	76.12	63.72	69.75	83.12	4426	5327	6384	4626	5752	6914	4825	6313	7654		11′
	12′	60.41	65.95	77.73	64.08	70.00	82.83	69.00	75.50	89.55	5806	6803	8089	6001	7149	8487	6199	7642	9101		12′	61.86	67.70	79.69	65.82	72.09	85.20	71.02	77.90	92.30	5809	6869	8189	6011	7295	8719	6210	7857	9416		12′

BOX CULVERT REQUIREMENTS:

MINIMUM FILL HEIGHT FROM TOP OF CULVERT TO BOTTOM OF BASE WITHIN TRAVELWAY SHALL BE 12 INCHES.

MAXIMUM POUR LENGTH SHALL NOT EXCEED 30 FEET ALONG THE LENGTH OF THE CULVERT.

TRANSVERSE CONSTRUCTION JOINTS SHALL BE PLACED IN THE BARREL, NORMAL TO THE CENTERLINE OF CULVERT, AT THE OUTSIDE SHOULDER BREAK POINTS. LONGITUDINAL BARREL REINFORCING STEEL SHALL NOT BE CONTINUOUS THROUGH THESE JOINTS, PROVIDED THAT THE JOINTS ARE MORE THAN 15 FEET FROM THE BARREL ENDS.
WHEN TRANSVERSE CONSTRUCTION JOINTS OCCUR WITHIN 15 FEET OF THE BARREL ENDS OR WITHIN THE LIMITS OF THE PAVEMENT, THE LONGITUDINAL BARREL REINFORCING SHALL THEN BE CONTINOUS THROUGH SUCH JOINTS. THE MINIMUM LENGTH OF LAP SPLICE FOR LONGITUDINAL REINFORCING SHALL BE 24 INCHES.

TRANSVERSE CONSTRUCTION JOINTS PLACED AT ANY OTHER LOCATION NOT SPECIFIED ABOVE SHALL BE FORMED WITH NO LONGITUDINAL REINFORCING STEEL PASSING THROUGH THE JOINTS.

REVISION	BY	DATE
ADDED REQUIREMENT NOTE		11-5-01
ADD 4′ x 5′ REM. 2′ x 2′		2-26-80

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

STANDARD

REINFORCED CONCRETE BOX CULVERTS
WINGWALLS & PARAPETS QUANTITIES
SINGLE 3′X2′ TO TRIPLE 10′X12′
FOR 75°, 60° AND 45° SKEWS

NO SCALE — JANUARY 1974

R.M.U.

DESIGNED E.L.S.
DRAWN V.W.
TRACED V.W.
CHECKED A.J.H.

(SUBMITTED) STATE ROAD & AIRPORT DESIGN ENGINEER
(APPROVED) CHIEF ENGINEER

NUMBER 2331

41-016