SPAN (mm)	1220						1520							
HEIGHT (mm)	610		915		1220		610		915		1220		1520	
Maximum Earth Cover (m)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Conc: Roof T_1 (mm)	180	180	180	180	180	180	190	190	190	190	190	190	190	190
Conc: Walls T_2 (mm)	150	150	150	150	150	165	150	150	150	150	150	180	165	190
Conc: Invert T_3 (mm)	150	150	150	150	150	165	165	180	165	180	165	180	165	180
Reinf: Spacing (mm)	175	175	175	175	175	175	215	150	215	140	215	140	215	140
Reinf: "a" Size Bar #	19	19	19	19	19	19	22	19	22	19	22	19	22	19
Reinf: "e" Size Bar #	13	13	13	16	16	19	13	13	13	13	16	16	19	19
Quantities: Concrete m^3/m	0.69	0.69	0.78	0.78	0.87	0.94	0.83	0.85	0.93	0.95	1.02	1.11	1.16	1.27
Quantities: Reinforcement kg/m	71	71	74	82	86	100	86	89	86	101	100	121	122	156

SPAN (mm)	1830								2135									
HEIGHT (mm)	915		1220		1520		1830		915		1220		1520		1830		2135	
Maximum Earth Cover (m)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Conc: Roof T_1 (mm)	205	205	205	205	205	205	205	205	205	230	205	230	205	230	215	230	215	230
Conc: Walls T_2 (mm)	150	150	150	180	165	190	180	215	150	150	150	180	165	190	180	215	205	240
Conc: Invert T_3 (mm)	180	205	180	205	180	205	180	205	205	230	205	230	205	230	205	230	205	230
Reinf: Spacing (mm)	190	125	190	125	190	125	190	115	165	125	165	115	165	140	165	140	165	140
Reinf: "a" Size Bar #	22	19	22	19	22	19	22	19	22	19	22	19	22	22	22	22	22	22
Reinf: "e" Size Bar #	13	13	16	16	19	19	22	19	13	13	16	16	19	19	19	22	22	22
Quantities: Concrete m^3/m	1.09	1.14	1.18	1.32	1.32	1.48	1.48	1.70	1.27	1.38	1.36	1.56	1.50	1.72	1.68	1.95	1.92	2.21
Quantities: Reinforcement kg/m	104	121	122	143	144	179	185	220	140	140	156	176	180	219	193	263	238	286

SPAN (mm)	2440									
HEIGHT (mm)	1220		1520		1830		2135		2440	
Maximum Earth Cover (m)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Conc: Roof T_1 (mm)	215	240	215	240	215	255	215	255	215	255
Conc: Walls T_2 (mm)	150	180	165	190	180	215	205	240	215	270
Conc: Invert T_3 (mm)	205	240	205	255	205	255	205	255	205	255
Reinf: Spacing (mm)	150	125	150	125	150	115	150	125	150	115
Reinf: "a" Size Bar #	22	22	22	22	22	22	22	22	22	22
Reinf: "e" Size Bar #	16	16	16	19	19	19	19	22	22	22
Quantities: Concrete m^3/m	1.52	1.77	1.66	1.96	1.81	2.24	2.05	2.50	2.24	2.80
Quantities: Reinforcement kg/m	183	225	195	254	204	295	238	320	286	375

SPAN (mm)	3050											
HEIGHT (mm)	1520		1830		2135		2440		2745		3050	
Maximum Earth Cover (m)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Conc: Roof T_1 (mm)	205	270	205	270	205	270	205	270	205	270	215	280
Conc: Walls T_2 (mm)	205	205	205	230	205	230	205	255	215	290	240	320
Conc: Invert T_3 (mm)	205	280	205	280	205	280	205	280	205	280	215	280
Reinforcement: Spacing (mm)	325	300	300	300	275	275	250	275	275	250	275	250
Reinforcement: **"a" Size Bar #	19	22	19	22	19	22	19	22	19	19	19	19
Reinforcement: "b" Size Bar #	19	22	19	22	19	22	19	22	19	19	22	22
Reinforcement: "b" Dimension "B" (mm)	900	900	900	925	900	1150	900	1150	900	1150	900	1150
Reinforcement: "b" Dimension "Bw" (mm)	1475	1525	1475	1525	1475	1525	1475	1525	1475	1525	1400	1400
Reinforcement: "c" Size Bar #	19	22	19	22	19	22	19	22	22	22	22	22
Reinforcement: "c" Dimension "C" (mm)	1025	1025	2250	1425	2325	1425	2500	1425	2325	1425	2325	1425
Reinforcement: *"e" Size Bar #	13	13	13	13	13	13	13	13	13	13	16	16
Quantities: Concrete m^3/m	2.01	2.50	2.14	2.74	2.26	2.88	2.38	3.17	2.58	3.50	2.98	3.93
Quantities: Reinforcement kg/m	284	397	347	424	387	484	446	504	467	487	536	555

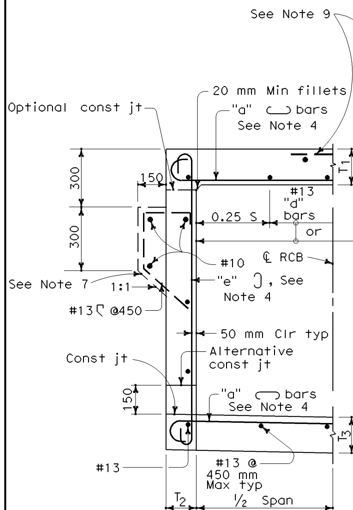
SPAN (mm)	3660													
HEIGHT (mm)	1830		2135		2440		2745		3050		3350		3660	
Maximum Earth Cover (m)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Conc: Roof T_1 (mm)	215	305	215	305	215	305	215	305	215	305	240	305	240	305
Conc: Walls T_2 (mm)	205	255	215	270	215	270	215	290	230	320	270	345	290	380
Conc: Invert T_3 (mm)	215	320	230	320	230	320	230	320	230	320	240	330	255	330
Reinforcement: Spacing (mm)	225	250	225	250	225	250	200	250	200	250	250	225	225	200
Reinforcement: **"a" Size Bar #	19	22	19	22	19	22	19	22	19	22	19	19	19	19
Reinforcement: "b" Size Bar #	19	22	19	22	19	22	19	22	19	22	22	22	19	22
Reinforcement: "b" Dimension "B" (mm)	950	975	1150	1150	1150	1150	1100	1150	1100	1325	1100	1325	1325	1325
Reinforcement: "b" Dimension "Bw" (mm)	1850	1800	1900	2025	1900	2025	1500	1500	1500	1500	1500	1500	1325	1325
Reinforcement: "c" Size Bar #	19	22	19	22	19	22	19	22	19	22	22	22	22	22
Reinforcement: "c" Dimension "C" (mm)	1325	1100	2475	1700	2475	1700	2475	1700	2475	1700	2475	1700	2475	1700
Reinforcement: *"e" Size Bar #	13	13	13	13	13	13	13	13	13	13	16	16	16	16
Quantities: Concrete m^3/m	2.49	3.50	2.72	3.73	2.81	3.89	3.00	4.22	3.21	4.63	3.78	5.04	4.22	5.56
Quantities: Reinforcement kg/m	439	539	525	609	543	625	598	615	618	631	655	701	696	795

SPAN (mm)	4270															
HEIGHT (mm)	2135		2440		2745		3050		3350		3660		3960		4270	
Maximum Earth Cover (m)	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
Conc: Roof T_1 (mm)	240	355	240	355	240	355	240	355	255	355	255	355	270	355	280	355
Conc: Walls T_2 (mm)	240	280	240	290	240	290	255	320	270	355	290	380	320	420	345	445
Conc: Invert T_3 (mm)	255	370	255	370	255	370	255	370	270	370	270	380	280	380	290	380
Reinforcement: Spacing (mm)	250	225	250	225	250	200	250	200	250	200	200	250	250	250	250	225
Reinforcement: **"a" Size Bar #	22	22	22	22	22	22	22	22	22	22	19	22	19	22	19	22
Reinforcement: "b" Size Bar #	19	22	22	22	22	22	22	22	22	22	19	25	22	25	22	25
Reinforcement: "b" Dimension "B" (mm)	850	1275	1025	1325	1025	1375	1025	1375	1075	1375	1075	1375	1075	1375	1450	1850
Reinforcement: "b" Dimension "Bw" (mm)	1975	2150	2150	2550	2150	2550	1850	1850	1850	1850	1850	1850	1525	1850	1375	1850
Reinforcement: "c" Size Bar #	22	22	22	22	22	22	22	22	22	22	22	25	25	25	25	25
Reinforcement: "c" Dimension "C" (mm)	1225	1275	2075	2075	1800	1800	1850	1950	2725	1950	2725	1950	2725	1950	2725	1950
Reinforcement: *"e" Size Bar #	13	13	13	13	13	13	13	13	13	13	13	16	19	19	19	19
Quantities: Concrete m^3/m	3.36	4.73	3.51	4.93	3.67	5.10	3.89	5.45	4.26	5.95	4.64	6.46	5.17	7.04	5.72	7.55
Quantities: Reinforcement kg/m	557	701	668	777	663	874	668	863	732	887	799	900	839	943	899	1130

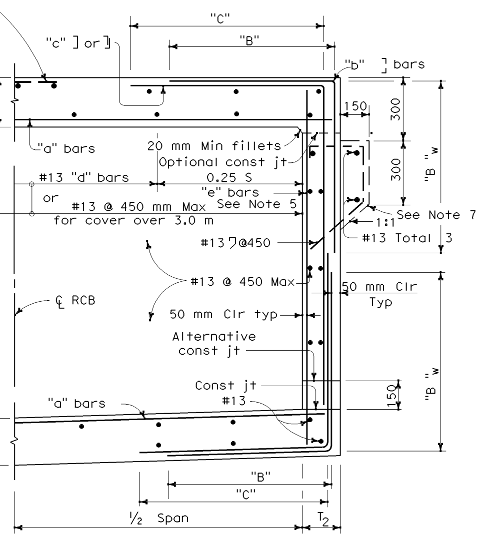
* See Note 5
** See Note 6

"d" bars, for earth covers up to and including 3.0 m

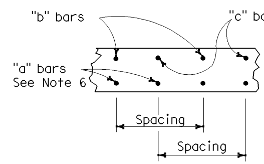
Span (mm)	1220	1520	1830	2135	2440	3050	3660	4270
Number	7	8	9	10	11	12	15	20



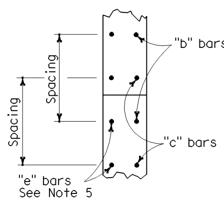
TYPICAL SECTION
SPANS 1220 mm THRU 2440 mm



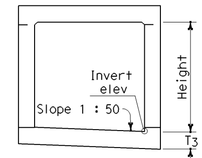
TYPICAL SECTION
SPANS 3050 mm THRU 4270 mm



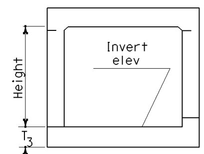
ROOF SECTION
SPANS 3050 mm THRU 4270 mm
INVERT SIMILAR



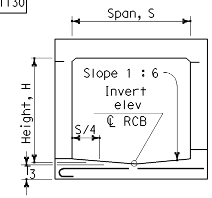
WALL SECTION
SPANS 3050 mm THRU 4270 mm



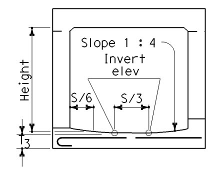
SLOPED INVERT



FLAT INVERT



V INVERT



TRAPEZOIDAL INVERT

ALTERNATIVE INVERTS

NOTES

1. For boxes with span or height less than any of those shown in table, use next greater size box concrete dimensions and reinforcement. Make necessary changes in bar lengths and quantities.
2. Quantities are approximate and for design purposes only.
3. For boxes with span or height or cover greater than those shown in tables, a special design is required.
4. It is permissable to eliminate the 180° hooks on every other bar.
5. "e" bars are at half spacing (spans 3050 mm - 4270 mm only).
6. "a" bars are at half spacing (spans 3050 mm - 4270 mm only).
7. Provide paving notch when top is exposed and when pavement is portland cement concrete, and adjust quantities.
8. For design and details not shown, see Standard Plan D82.
9. For exposed top, provide #13 @ 450 mm each way (600 mm lap "c" bars or full span and adjust).

Caltrans Metric

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Dallas J. Forester
REGISTERED CIVIL ENGINEER

July 1, 2004
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Dallas Forester
No. C37765
Exp. 12-31-04
CIVIL
STATE OF CALIFORNIA

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2004 Std PLAN D80

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CAST-IN-PLACE REINFORCED CONCRETE SINGLE BOX CULVERT

NO SCALE

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

D80

04-20-04