SPAN, S		4′						5′								6′								7′								8′							
HEIGHT, H		2′		3′		4′		2′		3′		4′		5′		3′		4′		5′		6′		3′		4′		5′		6′		4′		5′		6′		7′	
MAXIMUM EARTH COVER		10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′
Conc ROOF	T_1	7″	7½″	7″	7½″	7″	7½″	7½″	8″	7½″	8″	7½″	8″	7½″	8″	8″	9″	8″	9″	8″	9″	8″	9″	8″	10″	8″	10″	8″	10″	10½″	8½″	10½″	8½″	10½″	8½″	11½″	8½″	11½″	8½″	11½″
Conc WALLS	T_2	6″	6″	6½″	6½″	7″	7½″	6″	6″	6½″	6½″	7″	7″	6½″	8″	7″	7″	7″	7″	7½″	8″	8″	9½″	6½″	7″	6½″	7½″	7″	7″	8″	7½″	9½″	8½″	11″	6½″	7½″	7″	8½″	7½″	9½″
Conc INVERT	T_3	7″	7½″	7″	7½″	7″	7½″	7½″	8″	7½″	8″	7½″	8″	7½″	8″	8″	9″	8″	9″	8″	9½″	8″	9½″	8″	10½″	8″	10½″	8″	10½″	10½″	8″	10½″	8½″	10½″	8½″	11½″	8½″	11½″	8½″	12″
Reinf SPACING		7″	6″	7″	6″	7″	6″	8½″	6″	8½″	5½″	8″	5½″	8″	5″	7½″	5″	7½″	5″	7″	5″	7″	4½″	6″	4½″	6″	4½″	6″	5½″	6″	5½″	6″	5½″	5″	5½″	5″	6″	4½″	5½″	4½″
Reinf "a" SIZE BAR		#6	#6	#6	#6	#6	#6	#7	#7	#7	#7	#7	#7	#7	#6	#7	#6	#7	#6	#7	#6	#7	#6	#7	#6	#7	#6	#7	#6	#7	#7	#7	#7	#7	#7	#7	#7	#7	#7	#7	#7
Reinf "e" SIZE BAR		#4	#4	#5	#6	#5	#6	#4	#4	#5	#5	#5	#6	#6	#6	#4	#5	#6	#6	#6	#6	#7	#6	#4	#4	#5	#5	#6	#7	#7	#7	#7	#7	#5	#6	#6	#6	#7	#6	#7	#7
QUANTITIES CONCRETE	CF/LF	7.8	8.3	9.2	9.6	10.7	11.6	9.5	10.0	10.9	11.4	12.4	12.9	14.1	15.1	13.1	14.3	14.2	15.4	15.9	18.0	17.8	21.2	14.0	17.5	15.1	19.1	16.7	21.3	18.8	24.5	21.8	28.3	17.2	22.7	18.8	25.1	20.6	28.3	23.3	32.1
QUANTITIES REINFORCEMENT	LB/LF	47.7	51.1	57.8	71.4	63.5	80.8	57.8	73.7	66.6	92.5	83.0	111	101	114	77.6	94.7	96.6	114	110	126	132	152	102	106	115	124	134	166	160	181	173	196	135	166	156	177	184	208	197
*** SOIL PRESSURE (ksf)		2.4	4.5	2.4	4.5	2.5	4.6	2.4	4.5	2.4	4.5	2.5	4.6	2.5	4.6	2.4	4.6	2.5	4.6	2.5	4.6	2.5	4.7	2.4	4.6	2.4	4.6	2.5	4.7	2.5	4.7	2.6	4.8	2.4	4.6	2.5	4.7	2.5	4.7	2.6	4.8

SPAN, S		10′						12′							14′								
HEIGHT, H		5′	6′		7′		8′		9′		10′	6′		7′		8′		9′		10′		11′	12′
MAXIMUM EARTH COVER		10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′	10′	20′
Conc ROOF	T_1	9½″	12″	9½″	12″	9½″	12″	9½″	12″	9½″	12″	9½″	12″	10½″	14½″	10½″	14½″	10½″	14½″	10½″	14½″	10½″	14½″	10½″	14½″	10½″	14½″	10½″	14½″	10½″	14½″	12″	16½″	12″	16½″	12″	16½″	12″	16½″	12″	16½″
Conc WALLS	T_2	8½″	8½″	8½″	9½″	9″	10½″	9″	12″	10″	13½″	11″	15″	9″	10½″	9″	10½″	9½″	12″	10″	13½″	11″	15″	12½″	16½″	13½″	18″	9½″	11″	9½″	12″	10″	13½″	11½″	15″	12½″	16½″	13½″	18″	15″	19½″
Conc INVERT	T_3	10″	12½″	10″	12½″	10″	12½″	10″	13″	10″	13″	11″	14½″	11″	15″	11″	15″	11″	15″	11½″	15½″	11½″	15½″	11½″	15½″	11½″	15½″	12½″	17″	12½″	17″	12½″	17½″	12½″	17½″	12½″	17½″	13″	17½″	13″	18″
Reinf SPACING		11″	12″	12″	12″	11″	11″	10″	11″	10″	10″	11″	10″	9″	10″	9″	10″	9″	10″	8″	10″	8″	10″	10″	9″	9″	8″	10″	9″	10″	9″	10″	8″	10″	8″	9″	8″	8″	10″	10″	10″	10″
Reinf **"a" SIZE BAR		#7	#8	#7	#8	#7	#7	#6	#7	#6	#7	#7	#7	#6	#7	#6	#7	#6	#7	#6	#7	#6	#7	#7	#7	#6	#6	#7	#8	#7	#8	#7	#7	#7	#7	#7	#7	#6	#8	#7	#7
Reinf "b" SIZE BAR		#7	#7	#6	#7	#6	#7	#6	#7	#6	#7	#7	#7	#6	#7	#6	#7	#6	#7	#6	#8	#7	#8	#7	#8	#6	#7	#7	#7	#7	#7	#7	#7	#8	#7	#8	#7	#7	#8	#7	#8
Reinf "b" DIMENSION "B" ft-inch		2-11	2-11	2-11	3-0	2-11	3-9	2-11	3-9	2-11	3-9	2-11	3-9	3-1	3-2	3-9	3-9	3-9	3-9	3-7	3-9	3-7	4-4	3-7	4-4	4-4	4-4	4-4	2-9	4-2	3-4	4-4	3-4	4-6	3-5	4-6	3-6	4-6	3-6	4-6	3-6
Reinf "b" DIMENSION "Bw" ft-inch		4-10	5-0	4-10	5-0	4-10	5-0	4-10	5-0	4-10	5-0	4-7	4-7	6-0	5-10	6-2	6-7	6-2	6-7	4-11	4-11	4-11	4-11	4-11	4-11	4-11	4-4	4-4	6-5	7-0	7-0	8-4	7-0	8-4	6-0	6-0	6-0	6-0	6-0	5-0	6-0
Reinf "c" SIZE BAR #		#6	#7	#6	#7	#6	#7	#6	#7	#7	#7	#7	#7	#6	#7	#6	#7	#6	#7	#6	#7	#6	#7	#7	#7	#7	#7	#7	#7	#7	#7	#7	#7	#7	#7	#7	#7	#7	#7	#8	#8
Reinf "c" DIMENSION "C" ft-inch		3-4	3-6	7-4	4-8	7-7	4-8	8-2	4-8	7-7	5-2	7-7	5-11	4-4	3-10	8-1	5-7	8-1	5-7	8-1	5-7	8-1	5-7	8-1	6-4	8-1	6-10	4-3	4-2	6-9	6-9	5-10	5-10	6-0	6-4	8-11	6-4	8-11	7-0	8-11	7-7
Reinf *"e" SIZE BAR		#4	#4	#4	#5	#6	#6	#6	#7	#7	#7	#8	#8	#4	#4	#4	#4	#4	#5	#4	#5	#5	#5	#6	#6	#6	#6	#4	#4	#4	#4	#4	#4	#5	#5	#5	#5	#5	#6	#7	#7
QUANTITIES CONCRETE	CF/LF	25.1	30.4	27.1	33.1	29.2	36.2	30.7	41	34	45.8	37.6	51	33.2	43.7	34.7	46.1	37	50.4	39.5	55.3	43.7	60.6	48.7	67.1	53.1	73.5	42.9	57	44.5	60.7	47	65.6	51.7	71.8	55.8	77.7	60.9	84.2	66.9
QUANTITIES REINFORCEMENT	LB/LF	271	296	278	333	341	366	359	406	428	469	487	530	322	371	379	417	390	449	430	477	499	500	527	610	530	614	413	529	467	595	467	608	526	632	633	651	630	717	688
*** SOIL PRESSURE (ksf)		3.7	4.7	3.8	4.7	3.8	4.8	3.8	4.8	3.9	4.9	3.9	5.0	3.6	4.8	3.6	4.8	3.6	4.9	3.6	4.9	3.7	5.0	3.7	5.0	3.8	5.1	3.4	4.9	3.5	4.9	3.5	4.9	3.5	5.0	3.6	5.1	3.6	5.1	3.7	5.2

"d" BARS, FOR EARTH COVERS UP TO AND INCLUDING 10′-0″								
SPAN	4′	5′	6′	7′	8′	10′	12′	14′
NUMBER	7	8	9	10	11	12	15	20

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

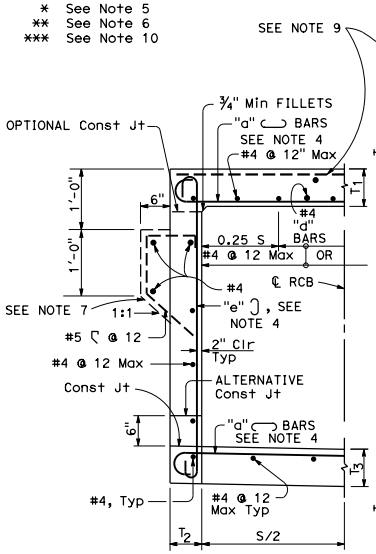
October 30, 2015

PLANS APPROVAL DATE

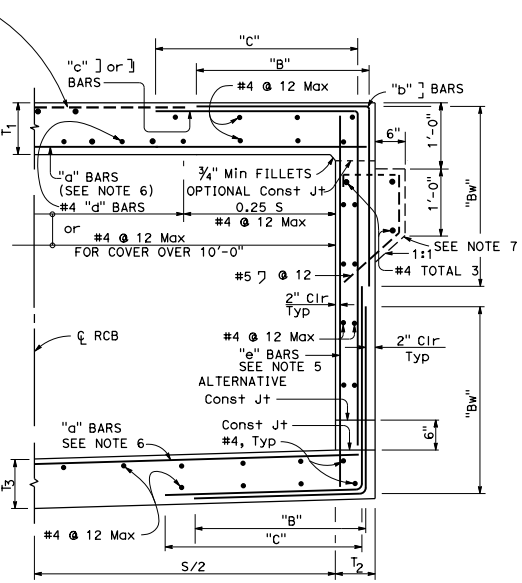
Carl M. Duan No. C59976 Exp. 6-30-16 CIVIL STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEER

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

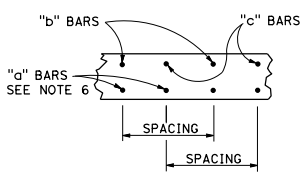
* See Note 5
** See Note 6
*** See Note 10



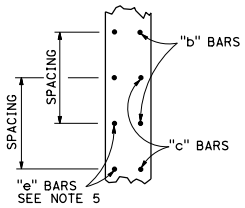
TYPICAL SECTION
SPANS 4′ THRU 8′



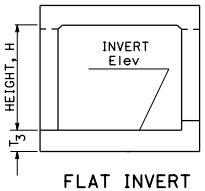
TYPICAL SECTION
SPANS 10′ THRU 14′



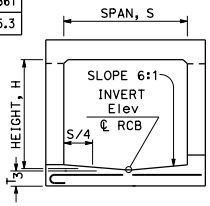
ROOF SECTION
SPANS 10′ THRU 14′
INVERT SIMILAR



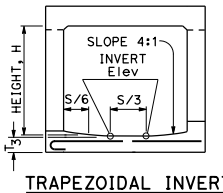
WALL SECTION
SPANS 10′ THRU 14′



FLAT INVERT

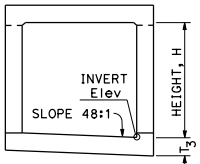


V INVERT



TRAPEZOIDAL INVERT

ALTERNATIVE INVERTS



SLOPED INVERT

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 permissible to eliminate the 180° hooks on every other bar.
5. "e" bars are at half spacing (spans 10′ - 14′ only).
6. "a" bars are at half spacing (spans 10′ - 14′ only).
7. Provide paving notch when top is exposed and when pavement is concrete, and adjust quantities.
8. For design and details not shown, see Standard Plan D82.
9. For exposed top, provide #4 @ 12 each way, lap "c" bars 2′-0″ or use full span length.
10. Soil pressures shown are factored per AASHTO LRFD and include soil weight of fill over box, self weight of box and live load where applicable.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CAST-IN-PLACE REINFORCED CONCRETE SINGLE BOX CULVERT

NO SCALE

D80

2015 STANDARD PLAN D80

9-22-15