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

Paul Cotter
REGISTERED CIVIL ENGINEER

July 1, 2002
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Paul Cotter
No. C34509
Exp. 9-30-03
CIVIL
STATE OF CALIFORNIA

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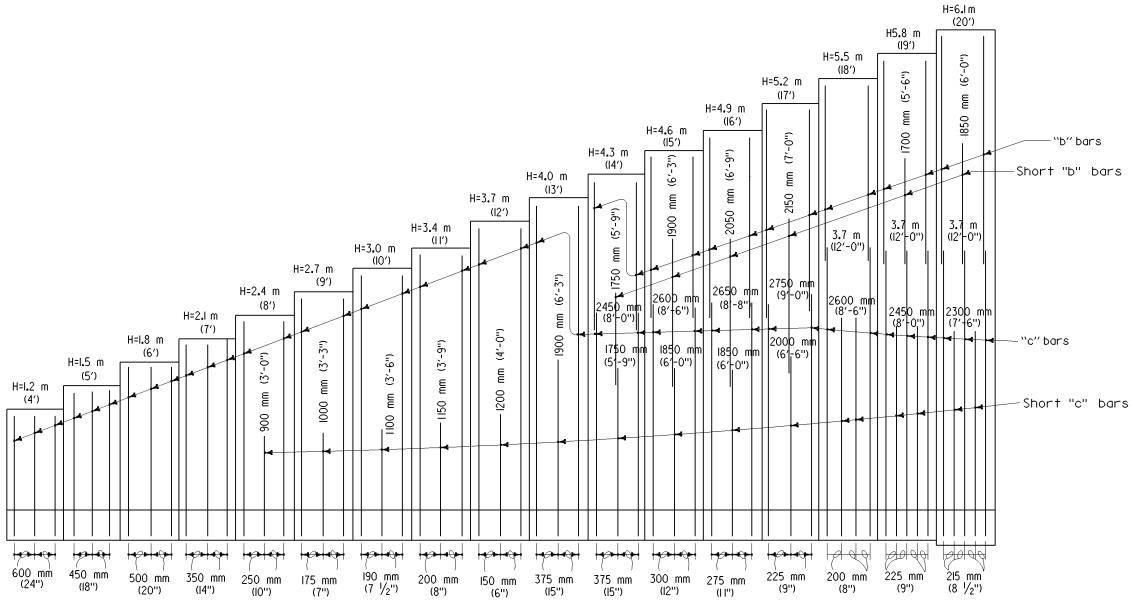

REINFORCED CONCRETE WINGWALLS

Design "H"	1.2 m (4')	1.5 m (5')	1.8 m (6')	2.1 m (7')	2.4 m (8')	2.7 m (9')	3.0 m (10')	3.4 m (11')	3.7 m (12')	4.0 m (13')	4.3 m (14')	4.6 m (15')	4.9 m (16')	5.2 m (17')	5.5 m (18')	5.8 m (19')	6.1 m (20')
W	965 mm (3'-2")	1120 mm (3'-8")	1270 mm (4'-2")	1420 mm (4'-8")	1575 mm (5'-2")	1730 mm (5'-8")	1880 mm (6'-2")	2030 mm (6'-8")	2185 mm (7'-2")	2335 mm (7'-8")	2440 mm (8'-0")	2640 mm (8'-8")	2845 mm (9'-4")	3050 mm (10'-0")	3250 mm (10'-8")	3455 mm (11'-4")	3660 mm (12'-0")
C	305 mm (1'-0")	355 mm (1'-2")	405 mm (1'-4")	455 mm (1'-6")	510 mm (1'-8")	560 mm (1'-10")	610 mm (2'-0")	660 mm (2'-2")	710 mm (2'-4")	760 mm (2'-6")	815 mm (2'-8")	915 mm (3'-0")	1015 mm (3'-4")	1120 mm (3'-8")	1220 mm (4'-0")	1320 mm (4'-4")	1425 mm (4'-8")
B	660 mm (2'-2")	765 mm (2'-6")	865 mm (2'-10")	965 mm (3'-2")	1065 mm (3'-6")	1170 mm (3'-10")	1270 mm (4'-2")	1370 mm (4'-6")	1475 mm (4'-10")	1575 mm (5'-2")	1625 mm (5'-4")	1725 mm (5'-8")	1830 mm (6'-0")	1930 mm (6'-4")	2030 mm (6'-8")	2135 mm (7'-0")	2235 mm (7'-4")
F	355 mm (1'-2")																405 mm (1'-4")
Batter	None										4:100 (1/2:12)						
S	305 mm (1'-0")									470 mm (1'-6 1/2")	480 mm (1'-7")	490 mm (1'-7 1/2")	500 mm (1'-8")	520 mm (1'-8 1/2")	530 mm (1'-9")	550 mm (1'-9 1/2")	560 mm (1'-10")
"b" bars	None										#16M (#5) @ 375 mm (15")	#16M (#5) @ 300 mm (12")	#16M (#5) @ 275 mm (11")	#16M (#5) @ 225 mm (9")	#19M (#6) @ 600 mm (24")	#19M (#6) @ 450 mm (18")	#22M (#7) @ 430 mm (17")
"c" bars	#13M (#4) @ 600 mm (24")	#13M #4) @ 450 mm (18")	#16M (#5) @ 500 mm (20")	#16M (#5) @ 350 mm (14")	#16M (#5) @ 250 mm (10")	#16M (#5) @ 175 mm (7")	#19M (#6) @ 190 mm (7 1/2")	#22M (#7) @ 200 mm (8")	#22M (#7) @ 150 mm (6")	#29M (#9) @ 375 mm (15")	#32M (#10) @ 375 mm (15")	#32M (#10) @ 300 mm (12")	#32M (#10) @ 275 mm (11")	#32M (#10) @ 225 mm (9")	#32M (#10) @ 200 mm (8")	#36M (#11) @ 225 mm (9")	#36M (#11) @ 215 mm (8 1/2")
"d" bars	#13M (#4) @ 600 mm (24")	#13M #4) @ 450 mm (18")	#16M (#5) @ 500 mm (20")	#16M (#5) @ 350 mm (14")	#16M (#5) @ 250 mm (10")	#19M (#6) @ 350 mm (14")	#22M (#7) @ 380 mm (15")	#25M (#8) @ 400 mm (16")	#22M (#7) @ 300 mm (12")	#25M (#8) @ 375 mm (15")	#29M (#9) @ 375 mm (15")	#29M (#9) @ 300 mm (12")	#29M (#9) @ 275 mm (11")	#29M (#9) @ 225 mm (9")	#29M (#9) @ 200 mm (8")	#32M (#10) @ 225 mm (9")	#32M (#10) @ 215 mm (8 1/2")
Conc m^3/m (cy/lf)	0.80 (0.32)	0.95 (0.38)	1.10 (0.44)	1.23 (0.49)	1.38 (0.55)	1.53 (0.61)	1.68 (0.67)	1.83 (0.73)	1.98 (0.79)	2.56 (1.02)	2.76 (1.10)	2.96 (1.18)	3.16 (1.26)	3.41 (1.36)	3.64 (1.45)	3.89 (1.55)	4.31 (1.72)
Reinf kg/m (lb/lf)	19 (13)	24 (16)	28 (19)	37 (25)	45 (30)	55 (37)	73 (49)	92 (62)	113 (76)	109 (73)	134 (90)	155 (104)	183 (123)	210 (141)	253 (170)	281 (189)	307 (206)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PIPE CULVERT HEADWALLS, ENDWALLS AND WINGWALLS TYPE A, B AND C

These "Standard Plans for Construction of Local Streets and Roads" contain units in two systems of measurement: International System of Units (SI or "metric") and United States Standard Measures shown in the parentheses ( ). The measurements expressed in the two systems are not necessarily equal or interchangeable. See the "Foreword" at the beginning of this publication.

NO SCALE

D90B

2002 DUAL UNITS STD PLAN D90B