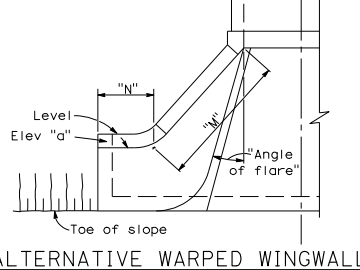
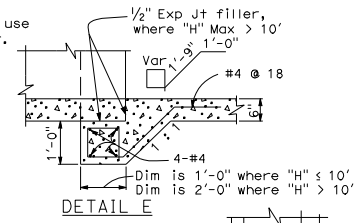
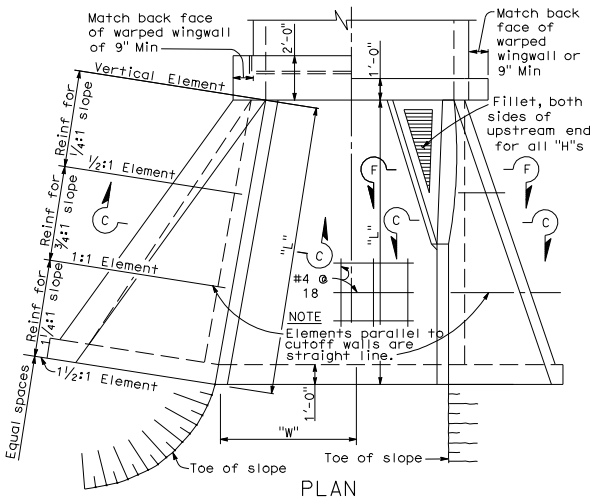


**NOTE:** PART LONGITUDINAL SECTION

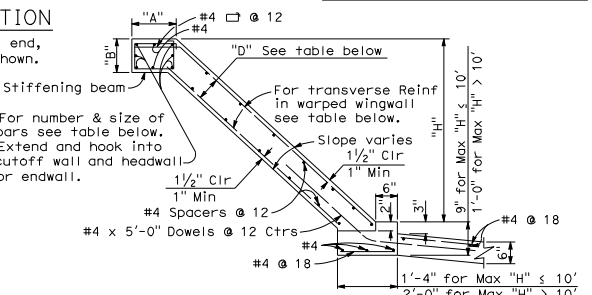
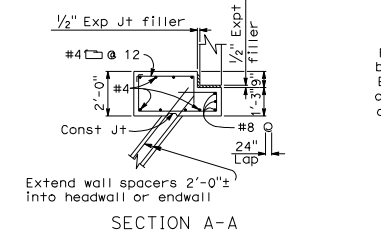
RCP shown. Metal pipe similar except eliminate the expansion joint and use hook bolts @ 1'-7" ± spacing. Size and length provided by manufacturer.



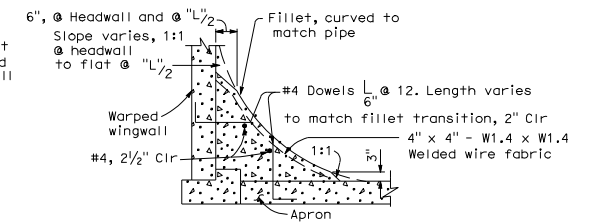
Use where additional protection to toe of embankment is required. If at upstream end, fillet is not shown.

**END ELEVATION**

If at upstream end, fillet is not shown. SECTION A-A and SECTION B-B show reinforcement details and wall spacer extensions.



Where abrasion is anticipated, increase apron thickness to 7" minimum to provide 2" minimum reinforcement coverage.



Element Slope	WALL DIMENSIONS AND REINFORCING							STIFFENING BEAM DIMENSIONS AND REINFORCING										
	"H" or less	8'	10'	12'	14'	16'	18'	20'	"H" Max	12'	14'	16'	18'	20'	25'	30'	35'	40' or more
1/4:1	Front face Reinf	#4 @ 12	#4 @ 7	#5 @ 7	#5 @ 5	#6 @ 6	#7 @ 7	#7 @ 6	6'	No beam. Place 2-#6 in each face along top of wall.								
	Rear face Reinf	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	8'									
3/4:1	Front face Reinf	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 10	#4 @ 8	#4 @ 6	10'									
	Rear face Reinf	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 10	#4 @ 7	#4 @ 6	#5 @ 8	12'									
1 1/4:1	Front face Reinf	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	14'									
	Rear face Reinf	#4 @ 8	#4 @ 8	#4 @ 5	#5 @ 6	#6 @ 7	#6 @ 6	#7 @ 6	16'									
"D" at Cutoff Wall	6"	6"	6"	7 1/2"	8"	9 1/2"	11"	18"										
"D" at Culvert	6"	6"	6"	8"	9 1/2"	11"	1'-1"	20"										

**NOTES:** Walls designed for 2'-0" surcharge; earth density = 120 LB/CF; equivalent fluid pressure = 36 LB/CF. Vary "D" of warped wall uniformly from that at cutoff wall to that at headwall or endwall, for maximum "H" > 12'-0". Dimensions "L", "W", "H", "M", "N", Elevation "a", Angle of flare", and end "Slope" (as apply) are shown on the plans.

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

**Dallas Forester**  
REGISTERED CIVIL ENGINEER  
No. C3765  
Exp. 12-31-06  
STATE OF CALIFORNIA

May 1, 2006  
PLANS APPROVAL DATE  
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**STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
PIPE CULVERT  
HEADWALLS, ENDWALLS  
AND WARPED WINGWALLS**

NO SCALE