

**NOTE:**

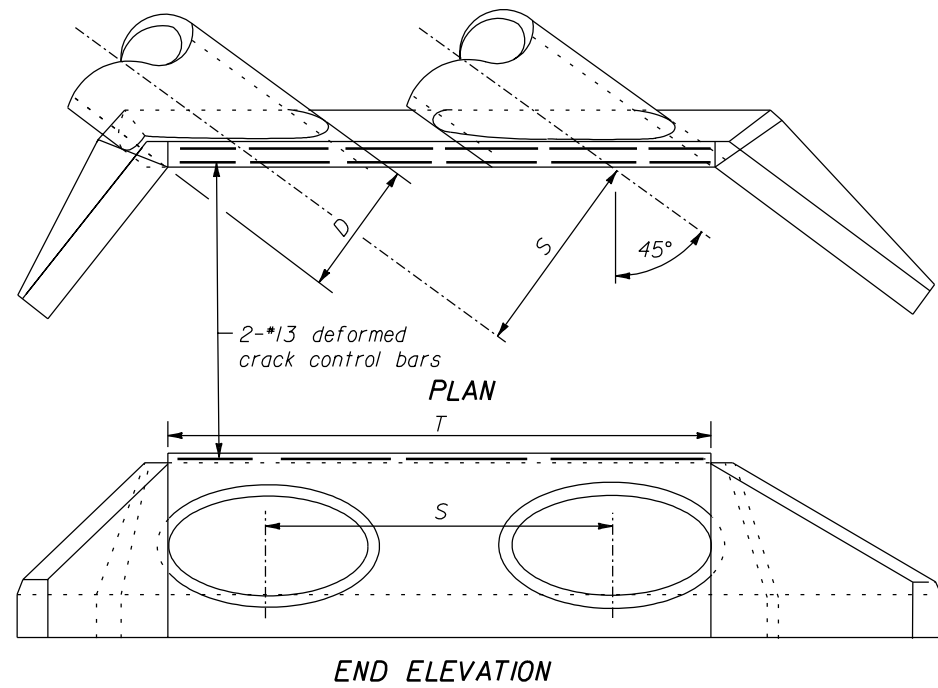
- Dimensions not labeled are in millimeters.
- Use the 30° skew detail for skews 15° to 37° 30', use the 45° skew detail for skews 37° 30' to 45°.
- On shallow fill, where headwall is 600 mm or less below shoulder line construct the headwall parallel to line and grade of the shoulder.
- Chamfer all exposed corners 20 mm.
- Do not allow top of wingwall to project above fill slope, ditch slope, or shoulder.
- Bevel required at inlet only.
- Concrete quantities as shown will be used as the basis for final payment for wingwalls constructed according to this Standard.
- For dimensions not shown See Standard M601-5.

**DIMENSIONS AND QUANTITIES FOR WINGWALL**

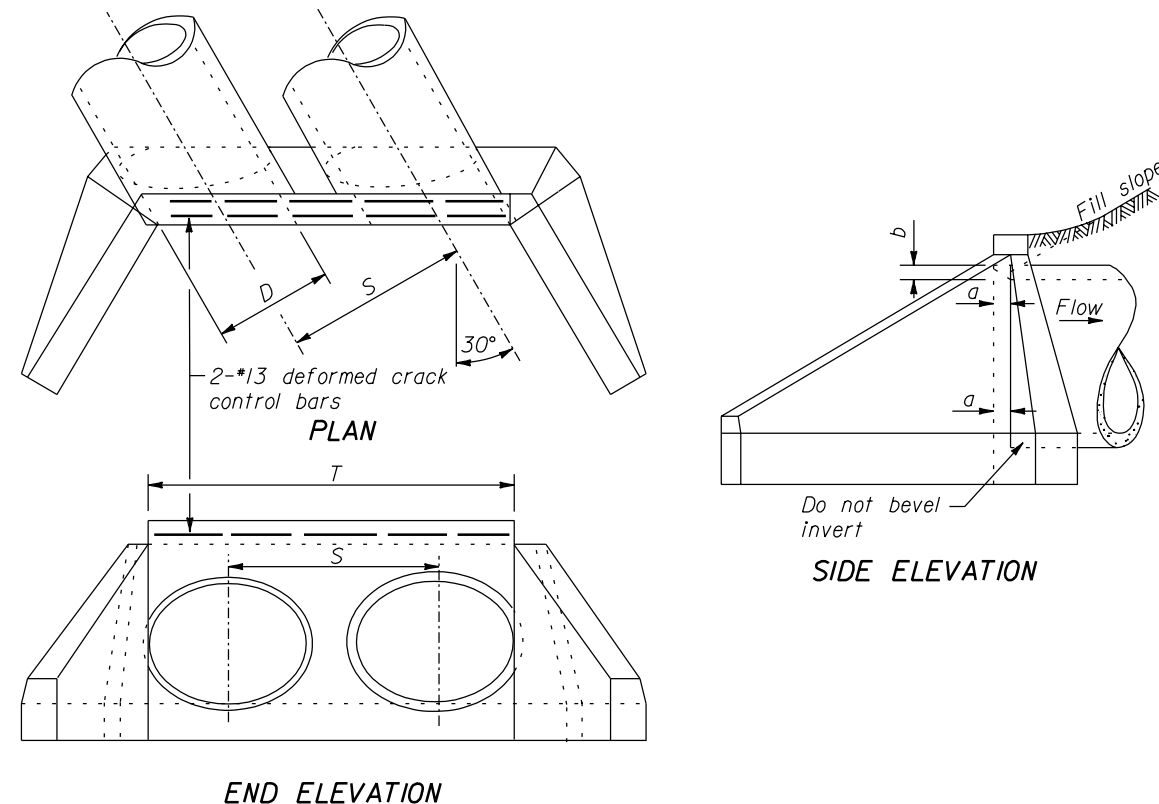
DIAMETER D OF PIPE	S	T	V	a	b	FILL SLOPE 1:1.5		FILL SLOPE 1:2	
						m <sup>3</sup> CONC. DOUBLE ENDWALL	m <sup>3</sup> CONC. Per addn. pipe	m <sup>3</sup> CONC. DOUBLE ENDWALL	m <sup>3</sup> CONC. Per addn. pipe
<b>FOR CONCRETE PIPE</b>									
1050	1830	2110	3345	140	90	3.898	1.122	4.403	1.108
1200	2085	2405	3815	150	100	4.813	1.404	5.451	1.387
1350	2335	2700	4285	175	115	6.209	1.817	7.048	1.797
1500	2590	2990	4750	190	125	7.817	2.294	8.899	2.272
1650	2845	3285	5220	215	140	9.682	2.851	11.048	2.824
1800	3100	3580	5690	230	150	11.802	3.480	13.494	3.450
1950	3350	3870	6160	255	165	14.189	4.191	16.255	4.158
2100	3605	4165	6630	265	175	16.882	4.998	19.382	4.960
<b>FOR CORRUGATED METAL PIPE</b>									
1050	1615	1865	3095	140	90	4.101	1.119	4.603	1.105
1200	1840	2125	3535	150	100	5.094	1.414	5.730	1.397
1350	2070	2390	3975	175	115	6.680	1.842	7.440	1.821
1500	2300	2655	4415	190	125	8.354	2.344	9.434	2.320
1650	2525	2920	4855	215	140	10.387	2.926	11.739	2.888
1800	2755	3180	5295	230	150	12.742	3.622	14.400	3.562
1950	2985	3445	5735	255	165	15.342	4.353	17.402	4.317
2100	3215	3710	6175	265	175	18.314	5.216	20.807	5.176
<b>FOR CONCRETE PIPE</b>									
1050	1830	2590	4095	140	90	4.610	1.375	5.214	1.358
1200	2085	2945	4670	150	100	5.691	1.722	6.483	1.701
1350	2335	3305	5245	175	115	7.356	2.224	8.371	2.200
1500	2590	3665	5820	190	125	9.270	2.811	10.654	2.783
1650	2845	4025	6395	215	140	11.471	3.488	13.111	3.456
1800	3100	4380	6970	230	150	13.981	4.261	16.020	4.223
1950	3350	4740	7545	255	165	16.813	5.134	19.303	5.093
2100	3605	5100	8120	265	175	19.999	6.123	23.005	6.076
<b>FOR CORRUGATED METAL PIPE</b>									
1050	1615	2280	3790	140	90	4.840	1.368	5.442	1.351
1200	1840	2595	4340	150	100	6.014	1.729	6.805	1.710
1350	2070	2925	4865	175	115	7.816	2.255	8.812	2.230
1500	2300	3250	5405	190	125	9.896	2.871	11.277	2.842
1650	2525	3575	5945	215	140	12.302	3.586	13.942	3.552
1800	2755	3900	6485	230	150	15.054	4.406	17.086	4.367
1950	2985	4220	7025	255	165	18.164	5.332	20.645	5.288
2100	3215	4545	7565	265	175	21.673	6.384	24.668	6.334

30° SKEW

45° SKEW



END ELEVATION



END ELEVATION

Do not bevel  
invert

SIDE ELEVATION

16 NOV 2000  
f:\standrow\metric\mst60108.dgn

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
FEDERAL LANDS HIGHWAY

**METRIC STANDARD**

**CONCRETE WINGWALLS  
FOR MULTIPLE SKEW  
1050 TO 2100 mm CULVERTS**

STANDARD APPROVED FOR USE 3/1996 REVISED: 5/1997	STANDARD <b>M601-8</b>
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