



NOTE:

1. This detail applies for normal crossings and skewers up to 15°.
2. On shallow fill where headwall is 2-feet or less below shoulder line, construct the headwall parallel to line and grade of the shoulder.
3. Do not allow top of wingwall to project above fill slope, ditch slope or shoulder.
4. Concrete shall conform to Section 601. Chamfer all exposed edges 3/4" and finish all exposed surfaces with a Class 1 ordinary surface finish. Joint filler shall conform to AASHTO M213 and shall be subsidiary to concrete quantity.
5. Bell end of concrete pipe may replace bevel at inlet headwall.
6. Quantities shown in table are for one headwall and two wingwalls and are based on CMP. Concrete and steel quantities shown will be used as basis for final payment for headwall/wingwalls constructed according to this standard.
7. Reinforcing steel clearance is 2 inches unless shown otherwise.
8. Anchor bolts shall conform to ASTM A307. Galvanize bolts and nuts to conform to ASTM A153. Anchor bolts shall be subsidiary to reinforcing steel quantity.

		D (Diameter of pipe culvert)							
		42"	48"	54"	60"	66"	72"	78"	84"
1V:1.5H fill slope	A	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"
	B	5'-11 1/2"	6'-5 1/2"	6'-11 1/2"	7'-5 1/2"	7'-11 1/2"	8'-5 1/2"	8'-11 1/2"	9'-5 1/2"
	C	6'-7 3/4"	7'-1 3/4"	7'-7 3/4"	8'-1 3/4"	8'-7 3/4"	9'-1 3/4"	9'-7 3/4"	10'-1 3/4"
	E	3'-10 1/2"	4'-3 3/4"	4'-9"	5'-2 1/4"	5'-7 1/4"	6'-0 3/4"	6'-5 3/4"	6'-11"
	F	6'-8 3/4"	7'-5 3/4"	8'-2 1/2"	8'-11 3/4"	9'-8 1/2"	10'-5 3/4"	11'-2 3/4"	12'-0"
	G	7'-9"	8'-7 1/2"	9'-6"	10'-4 1/2"	11'-2 3/4"	12'-1 1/4"	12'-11 1/2"	13'-10 1/4"
	Conc. (CUYD)	8.0	9.0	10.1	11.1	12.2	13.4	14.5	15.8
Steel (LB)	651	738	818	878	977	1040	1152	1249	
1V:2H fill slope	A	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"
	B	5'-11 1/2"	6'-5 1/2"	6'-11 1/2"	7'-5 1/2"	7'-11 1/2"	8'-5 1/2"	8'-11 1/2"	9'-5 1/2"
	C	6'-7 3/4"	7'-1 3/4"	7'-7 3/4"	8'-1 3/4"	8'-7 3/4"	9'-1 3/4"	9'-7 3/4"	10'-1 3/4"
	E	5'-2"	5'-9"	6'-3 3/4"	6'-11"	7'-5 3/4"	8'-0 3/4"	8'-7 3/4"	9'-2 3/4"
	F	8'-11 1/2"	9'-11 3/4"	10'-11 1/2"	11'-11 3/4"	12'-11 1/2"	13'-11 3/4"	14'-11 1/2"	15'-11 3/4"
	G	10'-4"	11'-6 1/4"	12'-7 3/4"	13'-10"	14'-11 1/2"	16'-1 3/4"	17'-3 3/4"	18'-5 1/2"
	Conc. (CUYD)	10.0	11.3	12.6	14.0	15.4	16.9	18.3	19.9
Steel (LB)	798	911	1001	1104	1206	1315	1417	1554	

Abbreviations:
 f.f. = Fill face
 o.f. = Other face
 b.f. = Both faces

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

**FLH STANDARD
 CONCRETE HEADWALL/WINGWALL
 FOR SINGLE NORMAL
 42" TO 84" PIPE CULVERT**

STANDARD APPROVED FOR USE 6/2005
 REVISED: STANDARD 601-5

NO SCALE