



- NOTES:**
- "H" MAY BE REDUCED UNTIL "X" REACHES A MINIMUM OF 4" WHERE ENDWALL WOULD PROTRUDE ABOVE SHOULDER LINE. IN NO CASE SHALL TOP OF ENDWALL PROJECT ABOVE FILL SLOPE, DITCH SLOPE, OR SHOULDER.
  - THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
  - ALL CAST IN PLACE CONCRETE TO BE CLASS A3. FOR PRECAST SEE SHEET 101.02.
  - THIS STANDARD TO BE USED WITH STRAIGHT CROSSINGS AND ALL SKEWS(0° TO 45°).
  - HEADWALL TO BE BEVELED IN ALL AREAS EXCEPT WHERE A CONFLICT WITH INVERT OR WINGWALLS OCCUR
  - BEVEL EDGE IS REQUIRED ON THE HEADWALL AT THE INLET END OF THE CULVERT (WHERE THE FLOW ENTERS THE CULVERT).
  - HEADWALL AT THE OUTLET END OF THE CULVERT MAY BE EITHER SQUARE EDGE OR BEVEL EDGE.
  - ON SHALLOW FILLS, WHERE ENDWALLS ARE 1' OR LESS BELOW SHOULDER LINE, THE TOP OF THE ENDWALL SHALL BE CONSTRUCTED PARALLEL TO THE GRADE OF THE ROAD.
  - 3/4" CHAMFER MAY BE PROVIDED ON ALL EDGES AT MANUFACTURER'S OPTION.

EW-1

**ENDWALL FOR CIRCULAR PIPE**

	DIAMETER OF PIPE CULVERT					
	12"	15"	18"	21" OR 24"	27" OR 30"	33" OR 36"
A	0'-6"	0'-8"	0'-9"	0'-11"	1'-0"	1'-0"
B	0'-11"	1'-1"	1'-3"	1'-6"	1'-9"	2'-0"
C	1'-4"	1'-7"	1'-9"	2'-2"	2'-6"	2'-9"
D	1'-0"	1'-3"	1'-6"	2'-0"	2'-6"	3'-0"
F	0'-6"	0'-8"	0'-8"	0'-9"	0'-9"	0'-9"
H	2'-3"	2'-11"	3'-2"	3'-9"	4'-3"	4'-9"
L	4'-0"	5'-0"	6'-0"	8'-0"	10'-0"	12'-0"
a	0'-1 1/4"	0'-1 3/4"	0'-2"	0'-2 1/2"	0'-3 1/4"	0'-3 3/4"
b	0'-1"	0'-1 1/4"	0'-1 1/2"	0'-2"	0'-2 1/2"	0'-3"
CUBIC YARDS OF CONCRETE						
CONC. PIPE	0.241	0.492	0.697	1.319	2.067	2.947
C.M. PIPE	0.257	0.521	0.739	1.398	2.198	3.145

EW-1A

**ENDWALL FOR ELLIPTICAL PIPE**

	SIZE OF ELLIPTICAL PIPE CULVERT (SPAN x RISE)							
	23"x14"	30"x19"	34"x22"	38"x24"	42"x27"	45"x29"	49"x32"	53"x34"
A	0'-8"	0'-9"	0'-10"	0'-11"	0'-11"	1'-0"	1'-0"	1'-0"
B	1'-2"	1'-5"	1'-6"	1'-8"	1'-9"	1'-10"	1'-11"	1'-11"
C	1'-8"	1'-11"	2'-1"	2'-4"	2'-5"	2'-7"	2'-8"	2'-9"
D	1'-2"	1'-7"	1'-10"	2'-0"	2'-3"	2'-5"	2'-8"	2'-10"
F	0'-8"	0'-8"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"	0'-9"
H	2'-10"	3'-3"	3'-7"	3'-9"	4'-0"	4'-2"	4'-5"	4'-7"
L	5'-5"	7'-2"	8'-6"	9'-2"	10'-2"	10'-11"	12'-1"	12'-11"
S	1'-11"	2'-6"	2'-10"	3'-2"	3'-6"	3'-9"	4'-1"	4'-5"
a	0'-2 1/2"	0'-3 1/4"	0'-3 1/2"	0'-4"	0'-4 1/2"	0'-4 3/4"	0'-5"	0'-5 1/2"
b	0'-2"	0'-2 1/2"	0'-2 3/4"	0'-3"	0'-3 1/2"	0'-3 3/4"	0'-4"	0'-4 1/2"
CUBIC YARDS OF CONCRETE								
CONC. PIPE	0.502	0.855	1.236	1.500	1.811	2.101	2.512	2.801

SPECIFICATION REFERENCE

105  
302

**STANDARD ENDWALL FOR PIPE CULVERTS**  
12" - 36" CIRCULAR AND 23" x 14" - 53" x 34" ELLIPTICAL PIPES

VIRGINIA DEPARTMENT OF TRANSPORTATION

**VDOT**

ROAD AND BRIDGE STANDARDS

REVISION DATE

SHEET 1 OF 1

101.01