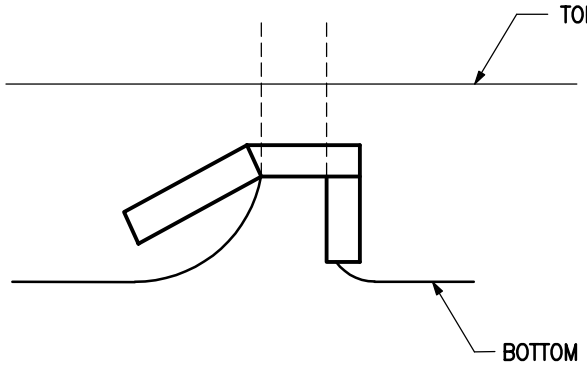
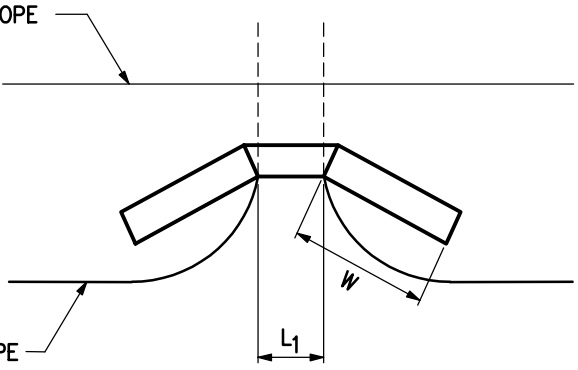
CASE 1

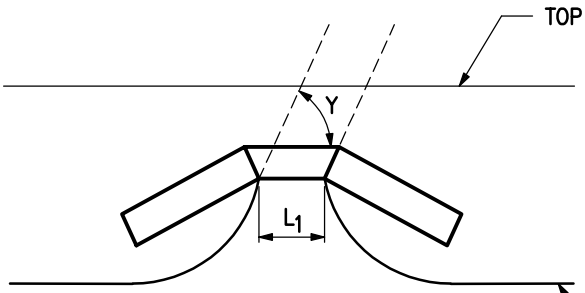


CASE 2



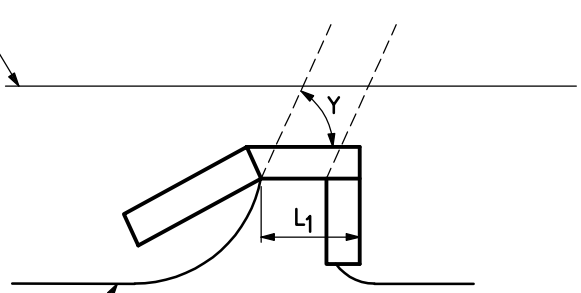
$L_1 = D$

CASE 3



$L_1 = \frac{D}{\text{SIN } Y}$

CASE 4



$L_1 = \frac{D}{\text{SIN } Y} + A$

NOTES:

CASE 1. THIS CONDITION IS COVERED BY THE STANDARD TYPE 'F' ENDWALL.

CASE 2. WHEN A WATER COURSE IS PERPENDICULAR OR ASKEW TO THE CENTERLINE, AND THE SIDE DITCH DRAINAGE IS IN BOTH DIRECTIONS AND IT IS MORE ECONOMICAL OR BETTER PRACTICE TO PLACE THE PIPE AT RIGHT ANGLES TO THE CENTERLINE, THE 'F' ENDWALL CAN BE USED BY MAKING THE SHORTER WING EQUAL IN LENGTH AND ANGLE TO THE LONGER WING.

CASE 3. WHEN THE DRAINAGE CONDITIONS ARE SIMILAR TO CASE 2 BUT IT IS DESIRED TO PLACE THE PIPE ASKEW, THE 'F' ENDWALL CAN BE USED. THE WINGS WILL BE PLACED THE SAME AS CASE 2, BUT THE LENGTH OF THE HEADWALL WILL BE INCREASED DUE TO THE INCREASED AREA OF THE PIPE.

CASE 4. WHEN A PIPE IS PLACED ASKEW TO FOLLOW THE NATURAL WATER COURSE AND THE SIDE DITCH DRAINAGE IS IN ONE DIRECTION, THE 'F' ENDWALL WILL BE USED WITH THE EXCEPTION THAT THE HEADWALL WILL BE LENGTHENED DUE TO THE INCREASE AREA OF THE PIPE.

CITY OF BALTIMORE 1797	APPROVED : HEAD, BUREAU OF WATER AND WASTEWATER DIRECTOR, DEPARTMENT OF PUBLIC WORKS	CITY OF BALTIMORE DEPARTMENT OF PUBLIC WORKS BUREAU OF WATER AND WASTEWATER	ISSUED	REVISED	REVISED
			3 / 2008		
		STANDARD TYPE 'F' ENDWALL MODIFICATIONS	STANDARD NO. BC 358.91		
			SCALE : NONE	SHEET 1 OF 1	