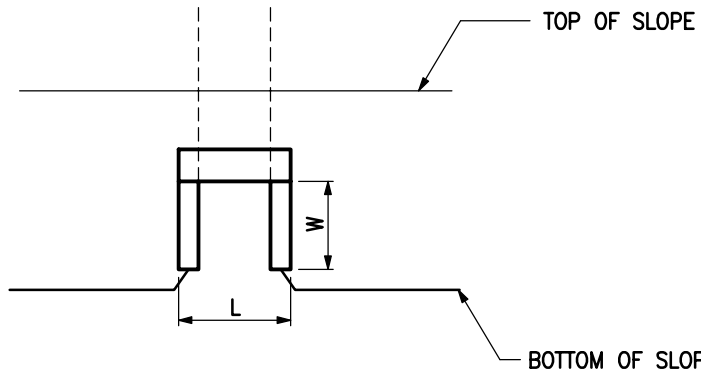
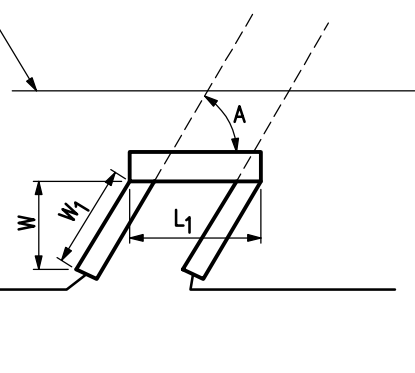


CASE 1



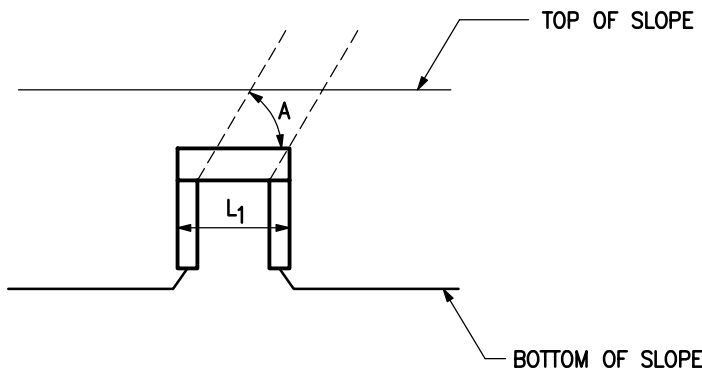
CASE 2



$$L_1 = \frac{D + 2K_1}{\sin A}$$

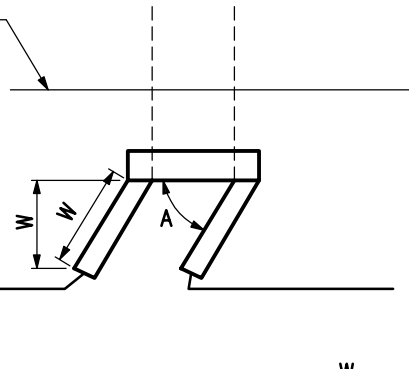
$$W_1 = \frac{W}{\sin A}$$

CASE 3



$$L_1 = \frac{D}{\sin A} + 2K_1$$

CASE 4



$$W_1 = \frac{W}{\sin A}$$

$$A = 60^\circ \text{ TO } 90^\circ$$

## NOTES:

- CASE 1. THIS CONDITION IS COVERED BY THE STANDARD TYPE 'G' ENDWALL.
- CASE 2. WHEN A PIPE IS TO BE PLACED ASKEW TO FOLLOW THE NATURAL WATER COURSE, THE STANDARD 'G' ENDWALL SHOULD BE MODIFIED BY LENGTHENING THE HEADWALL TO ALLOW FOR THE INCREASED AREA OF THE PIPE DUE TO THE ASKEW AND THE WINGS LENGTHENED TO CARE FOR THE SLOPE.
- CASE 3. WHEN IT IS NOT PRACTICAL TO PLACE THE ENDWALL ON THE OUTLET END IN LINE WITH THE ENDWALL ON THE INLET END, IT IS NECESSARY TO ASKEW THE PIPE. THIS REQUIRES THE LENGTHENING OF THE HEADWALL ONLY TO ALLOW FOR THE INCREASED AREA OF THE PIPE DUE TO THE ASKEW. THE LENGTH OF THE WINGS ARE STANDARD.
- CASE 4. WHEN A WATER COURSE IS ASKEW AND IT IS MORE ECONOMICAL OR BETTER PRACTICE TO PLACE THE PIPE AT RIGHT ANGLES TO THE CENTER LINE AND RECUT THE OUTLET, THE 'G' ENDWALL CAN BE USED BY PLACING THE WINGS PARALLEL TO THE COURSE AND LENGTHENING THE WINGWALLS ONLY, THE HEADWALL REMAINS STANDARD.



APPROVED :

*[Signature]*  
 HEAD, BUREAU OF WATER AND WASTEWATER  
*[Signature]*  
 DIRECTOR, DEPARTMENT OF PUBLIC WORKS

CITY OF BALTIMORE  
 DEPARTMENT OF PUBLIC WORKS  
 BUREAU OF WATER AND WASTEWATER

STANDARD TYPE 'G' ENDWALL  
 MODIFICATIONS

ISSUED

REVISED

REVISED

3 / 2008

STANDARD NO.  
 BC 360.91

SCALE : NONE

SHEET 1 OF 1