

DISRIBUTION OF POINT LOADS ALONG A RETAINING WALL CAPPING BEAM – DESIGN NOTE

The proposed methodology for distribution of column loads along the capping beam of a retaining wall follows the work of Hov et al. (2010) who proposed the distribution presented in Figure 1. This work follows detailed measurement of pressure distributions in a deep basement in London and has been corroborated with finite element work carried out at Imperial College, London.

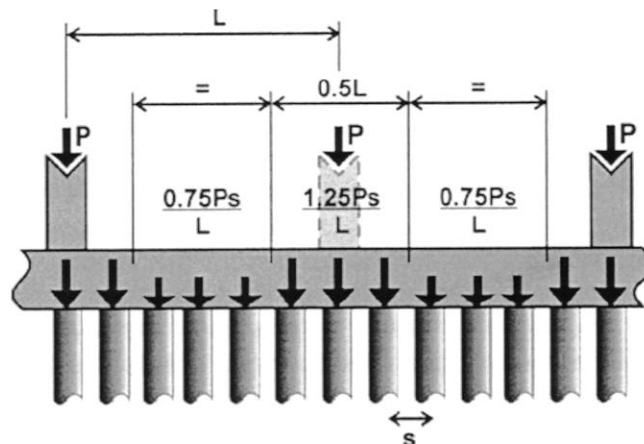


Figure 1 - Proposed load distribution

Where column load varies, the adjacent piles (i.e. designed for $0.75Ps/L$) should be designed for the higher column loading.

It follows subsequently, that based on general practice, load-carrying capacity of the wall is only taken below dredge level i.e. fully embedded part of the wall. This is because friction on the back of the wall in the active wedge of soil will be negated as the piles can settle relative to the soil.

The wall load-carrying capacity of the wall is then estimated as that of a deep strip footing where shaft and end-bearing component of the individual piles are calculated based on Figure 2. An end-bearing capacity factor of 7 is then typically applied to the end-bearing capacity (N_c) of the pile as opposed to the usual N_c value of 9 for individual circular piles.

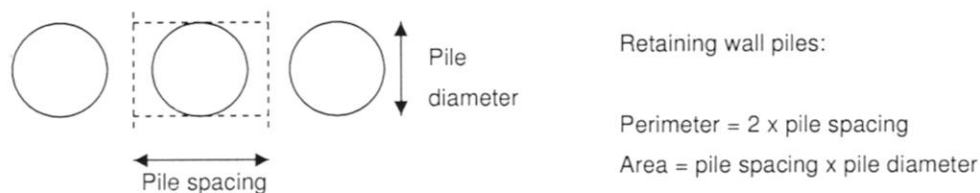


Figure 2 - Load carrying capacity of retaining wall piles