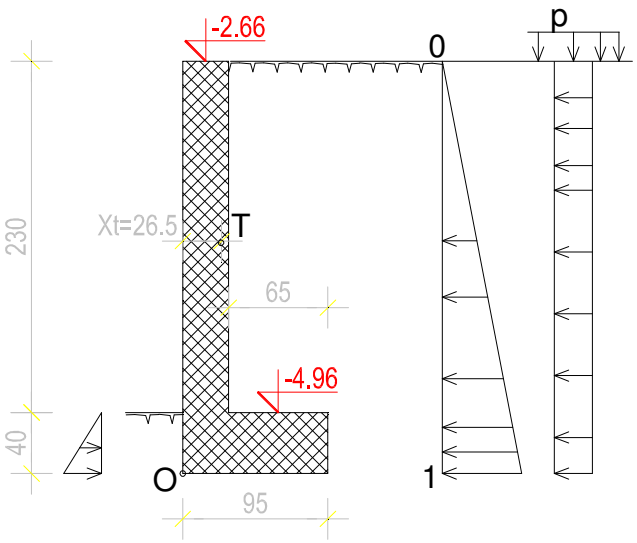
Potporni zid




Parametri tla: $\gamma=19kN/m^3$ $\varphi=22°$ $c=17kN/m^2$

Aktivan pritisak tla: $K_a=tg^2(45-\varphi/2)=0.455$

$e_0$ = 19.0 x 0 x 0.455 – 2 x 17.0 x $\sqrt{k_a}$ = -22.9 kN/m$^2$

$e_{1g}$= 19.0 x 1.00 x 0.455 – 2 x 17.0 x 0.675 = -14.3 kN/m$^2$

u daljem proračunu se zanemaruje kohezija tla c.

Stalno opterećenje

$e_0$ = 19.0 x 0 x 0.455 = 0.0 kN/m$^2$

$e_{1g}$= 19.0 x 2.70 x 0.455 = 23.3 kN/m$^2$

Korisno opterećenje p=5kN/m$^2$

ep= 5.0 x 0.455 ≈ 2.3 kN/m$^2$

Pritisak tla u stanju mirovanja sa strane stepeništa:

p= γ x h x (1-sinφ)

$p_0$ = = 0.0 kN/m$^2$

$p_1$ = 19.0 x 0.4 x (1-0.375) = 4.8 kN/m$^2$

sloj na temeljnoj stopi:

g=2.3x19.0=43.7kN/m$^2$

Provera sigurnosti na obrtanje:

$\Sigma M_o$

Momenat obrtanja: $M_o$=23.3 x 2.7 x ½ x 2.7/3 + 2.3 x 2.7 x 2.7/2
$M_o$=28.31+8.38=36.7 kNm/m

Težina potpornog zida: G=10.7$m^2$ x 25kN/$m^3$ =267.5 kN/m

Momenat vraćanja: $M_v$=G x $X_T$ + g x 0.65 x 0.625 + 0.5 x $p_1$ x0.$4^2$/3

$M_v$= 267.5 x 0.265 + 43.7 x 0.65 x 0.625 +
+ 0.5 x 4.8 x 0.$4^2$/3 =
=70.9 + 17.8 + 0.13= 88.8 kNm/m

Fs=88.8/36.7=2.42>2

Provera sigurnosti na klizanje:

F=2.7x23.3x0.5 + 2.3x2.7 – 0.5x4.8x0.4 = 36.7kN/m

G=267.5 + 43.7x0.65=295.9kN/m

Fs=295.9xtg(22)/36.7=3.26>1.5

Usvajanje armature:

Mmax=1.65x(19x2.3x0.455x2.3x0.5x2.3/3 + 2.3x2.3x2.3/2)=3900kNcm

Aa=3900/(25x40)=3.9$cm^2$

Usvaja se ±RØ10/15 RA400/500

Podeona armatura RØ8/30 RA400/500