

Osnovni parametri tla

$$\gamma_d = \frac{\gamma}{1+w}; \quad \gamma = \frac{G_s(1+w)}{1+e} \gamma_w; \quad \gamma_z = (1+w_z)\gamma_d; \quad \gamma_z = \frac{G_s+e}{1+e} \gamma_w \quad (\text{za } S_r=1)$$
$$w_z = \left(\frac{1}{\gamma_d} - \frac{1}{\gamma_s}\right)\gamma_w; \quad e = \frac{\gamma_s - \gamma_d}{\gamma_d}; \quad n = \frac{\gamma_s - \gamma_d}{\gamma_s}; \quad S_r = \frac{w \cdot G_s}{e}$$

Filtracija

$$q = k H \frac{N_f}{N_e}$$

$$i_{cr} = \gamma' / \gamma_w$$

$$F_s = \frac{i_{cr}}{i_e}$$

Stišljivost tla

$$p'_0 + \Delta\sigma'_z \leq p'_c \quad \Delta\varepsilon_z = \frac{C_r}{1+e_0} \log \frac{p'_0 + \Delta\sigma'_z}{p'_0}$$
$$p'_0 + \Delta\sigma'_z > p'_c \quad \Delta\varepsilon_z = \frac{C_r}{1+e_0} \log \frac{p'_c}{p'_0} + \frac{C_c}{1+e_0} \log \frac{p'_0 + \Delta\sigma'_z}{p'_c}$$
$$C = 1.5 \frac{q_c}{p'_o} \quad \Delta\varepsilon_z = \frac{1}{C} \ln \left(\frac{p'_0 + \Delta\sigma'_z}{p'_0} \right)$$

Konsolidacija tla

$$c_v = \frac{k M_v}{\gamma_w}$$

$$T_v = \frac{c_v t}{H_{dr}^2}$$

$$\text{za } U < 0.6 \text{ tj. } U < 60\% \quad T_v = (\pi/4)U^2 \quad \rightarrow \quad U = \sqrt{\frac{4T_v}{\pi}}$$

$$\text{za } U \geq 0.6 \text{ tj. } U > 60\% \quad T_v = -0.9332 \log(1-U) - 0.0851 \quad \rightarrow \quad U = 1 - 10^{-(T_v + 0.0851)/0.933}$$

$$U=60\% \quad \rightarrow \quad T_v=0.287$$

$$U=50\% \quad \rightarrow \quad T_v=0.197$$

$$U=90\% \quad \rightarrow \quad T_v=0.848$$

$$t > t_g : \quad s(t) = s_c(t \rightarrow \infty) \cdot U \left(t - \frac{t_g}{2} \right)$$

$$t < t_g : \quad s(t) = s_c(t \rightarrow \infty) \cdot U \left(\frac{t}{2} \right) \cdot \frac{t}{t_g}$$