

PERTEMUAN – 2/16

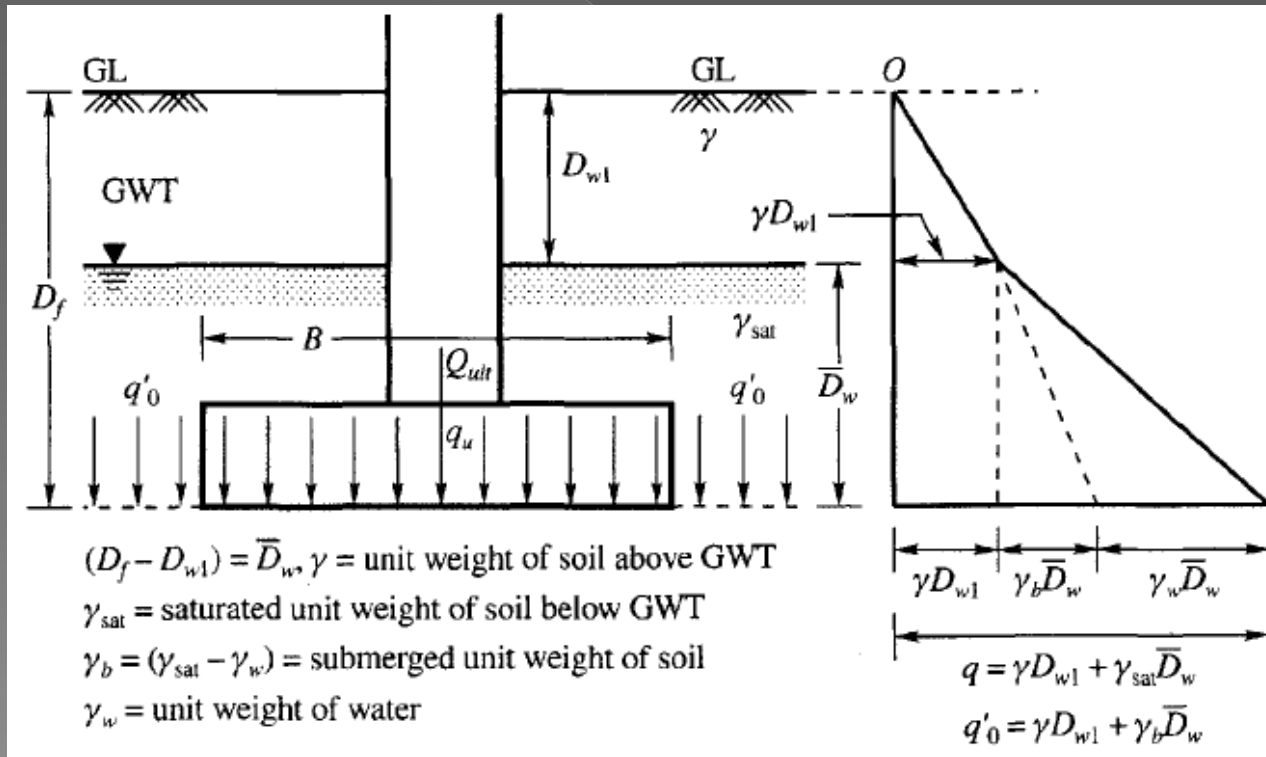
DAYA DUKUNG TANAH DAN
KAPASITAS DUKUNG PONDASI

ISTILAH-ISTILAH

(a) Total Overburden Pressure q_o

q_o is the intensity of total overburden pressure due to the weight of both soil and water at the base level of the foundation.

$$q_o = \gamma D_{wl} + \gamma_{sat} \bar{D}_w \quad (12.1)$$



ISTILAH-ISTILAH

(b) Effective Overburden Pressure q'_0

q'_0 is the effective overburden pressure at the base level of the foundation.

$$q'_0 = \gamma D_{w1} + \gamma_b \bar{D}_w$$

when $\bar{D}_w = 0$, $q'_0 = \gamma D_{w1} = \gamma D_f$.

(c) The Ultimate Bearing Capacity of Soil, q_u

q_u is the maximum bearing capacity of soil at which the soil fails by shear.

(d) The Net Ultimate Bearing Capacity, q_{nu}

q_{nu} is the bearing capacity in excess of the effective overburden pressure q'_0 , expressed as

$$q_{nu} = q_u - q'_0$$

ISTILAH-ISTILAH

(e) Allowable Bearing Pressure, q_a

q_a is expressed as

$$q_a = \frac{q_u}{F_s}$$

where F_s = factor of safety.

Untuk pondasi dangkal, faktor keamanan (FK, F_s , FoS) = 2.5 – 4
Biasanya diambil sebesar 3

KRITERIA KERUNTUHAN

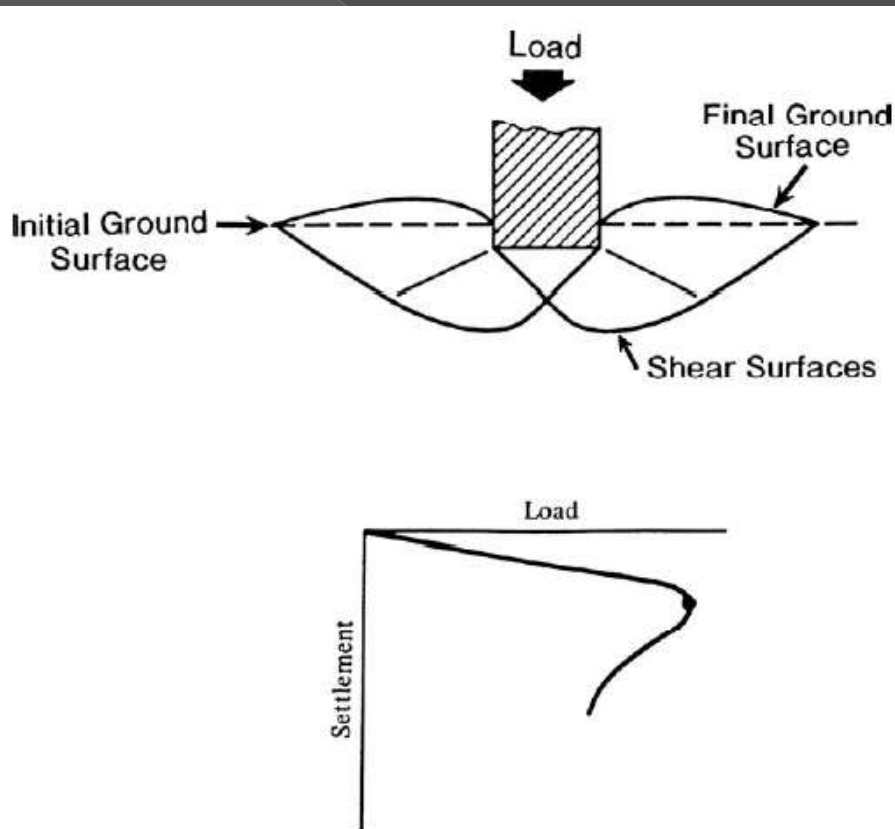


FIGURE 6.1 General shear foundation failure. (After Vesic, 1963.)

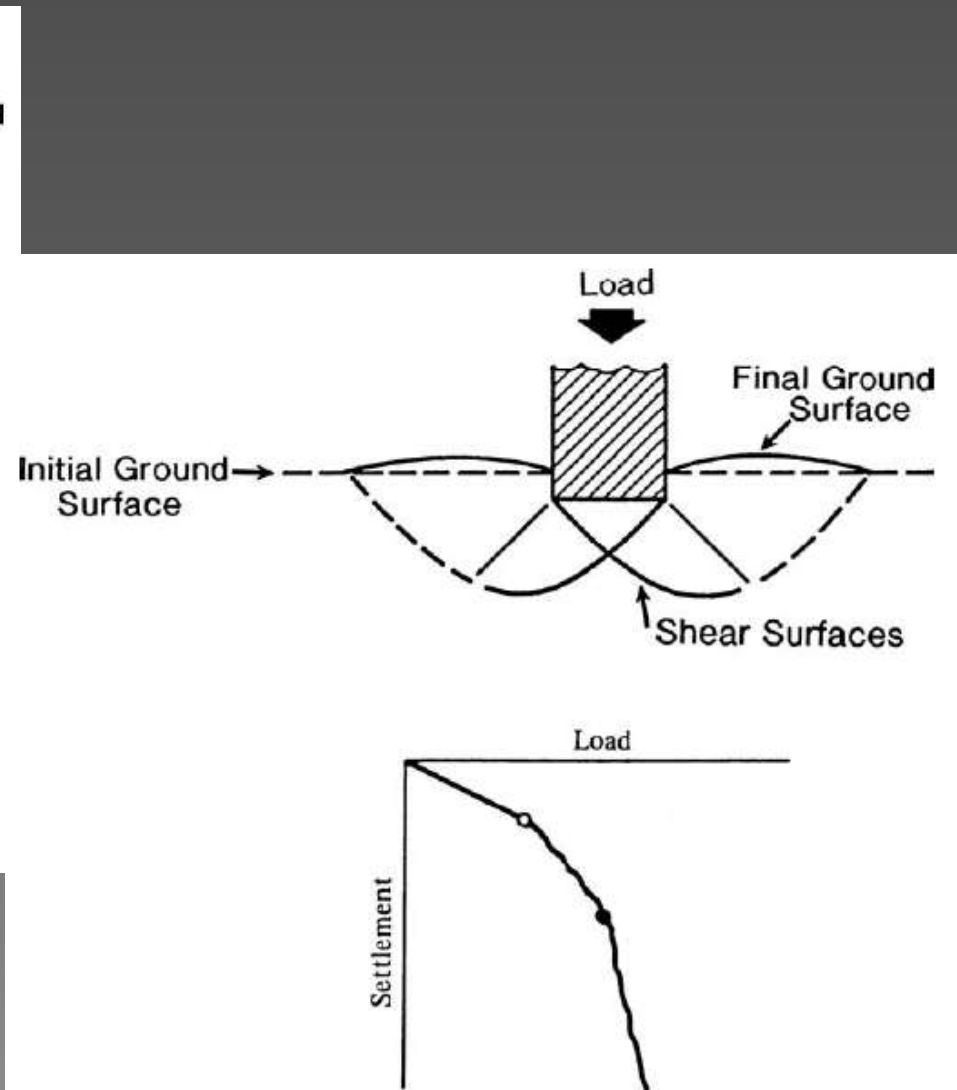


FIGURE 6.2 Local shear foundation failure. (After Vesic, 1963.)

KRITERIA KERUNTUHAN

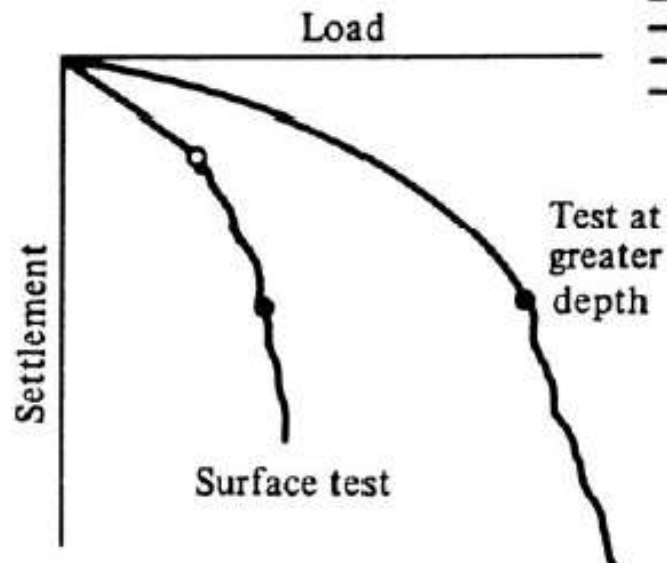
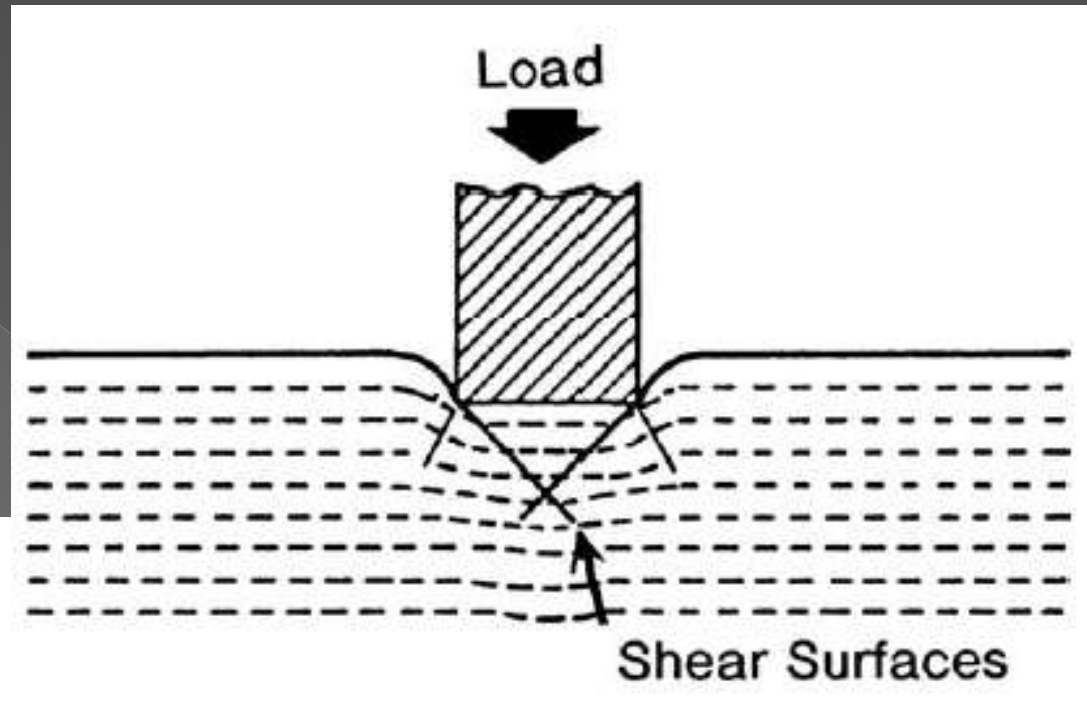


FIGURE 6.3 Punching shear foundation failure. (After Vesic, 1963.)

KRITERIA KERUNTUHAN

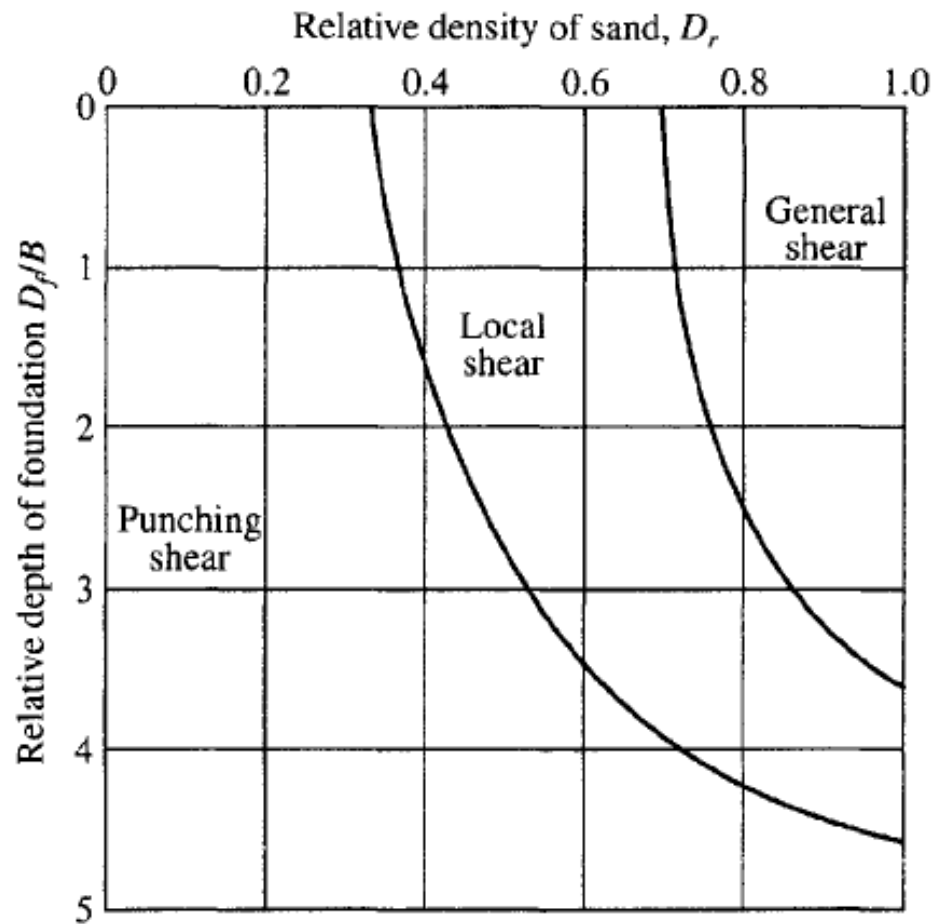


Figure 12.5 Modes of failure of model footings in sand (after Vesic, 1963)