ENCE 4340 Foundation Engineering Fall 2011 Homework # 3 (due: 10-3-2011)

Problem #1: Refer to Figure 7.10. Given : H = 22ft; $\gamma = 115\,pcf$; $\phi' = 25^0$; c' = 250 psf; and $\alpha = 10^0$

Calculate the Rankine active force per unit length of the wall after the occurence of tensile crack

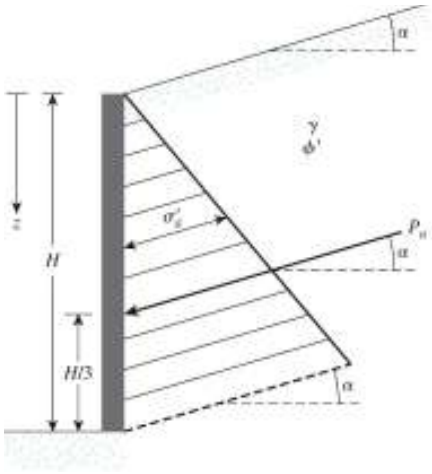

Figure 7.10 Notations for active pressure—Eqs. (7.19), (7.20), (7.21)

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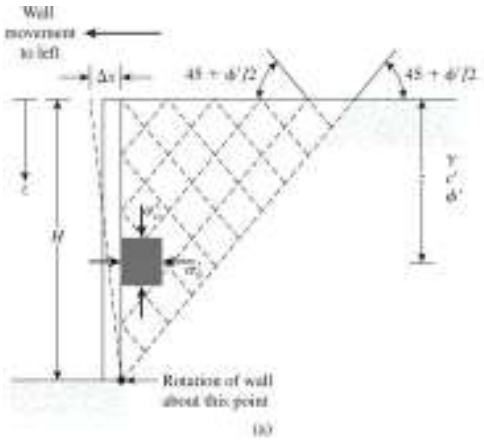

Problem #2 : Given the height of the retaining wall, H is 21 ft; the backfill is a saturated clay with $\phi = 0^0$; c = 630 psf; $\gamma_{sat} = 113$pcf.

(a) Determine the Rankine passive pressure distribution diagram behind the wall.

(b) Estimate the Rankine passive force per foot length of the wall and also the location of the resultant.