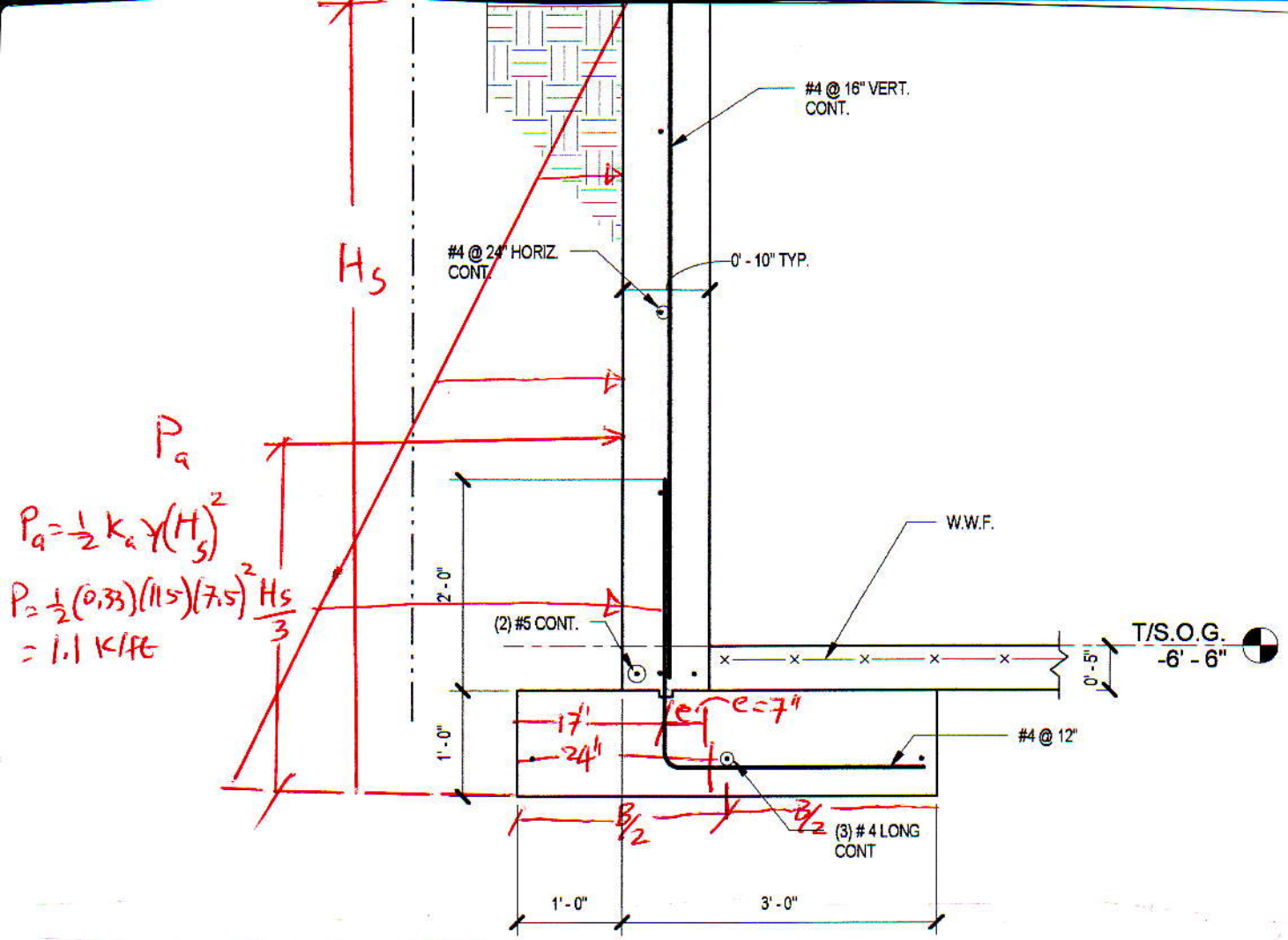


H_s

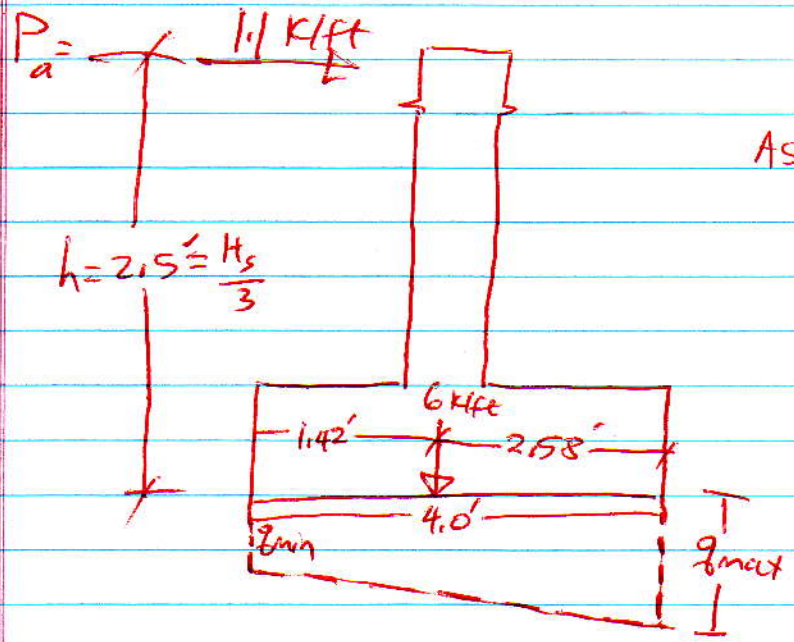
P_a

$P_a = \frac{1}{2} k_a \gamma (H_s)^2$

$P = \frac{1}{2}(0.33)(115)(7.5)^2 \frac{H_s}{3}$

$= 1.1$ K/ft

$$P_a = \frac{1}{2}(K_a)(\gamma)(H_{soil})^2 = \frac{1}{2}(0.33)(115)(7.5')^2 = 1.1 \text{ K/ft}$$



Assumptions

$K_a = 0.33$

$\gamma_m = 115$ pcf

$$q_{max} = \frac{6 \text{ K/ft}}{4.0' \times 1.0'} + \frac{1.1 \text{ K/ft}(2.5')}{\frac{(4)^2 \times 1.0'}{6}}$$

$q_{max} = 1.5 \text{ ksf} + 1.03 \text{ ksf} = 2.53 \text{ ksf} < q_{allow}$?

$q_{min} = 1.5 \text{ ksf} - 1.03 \text{ ksf} = 0.47 \text{ ksf} > 0$ OK