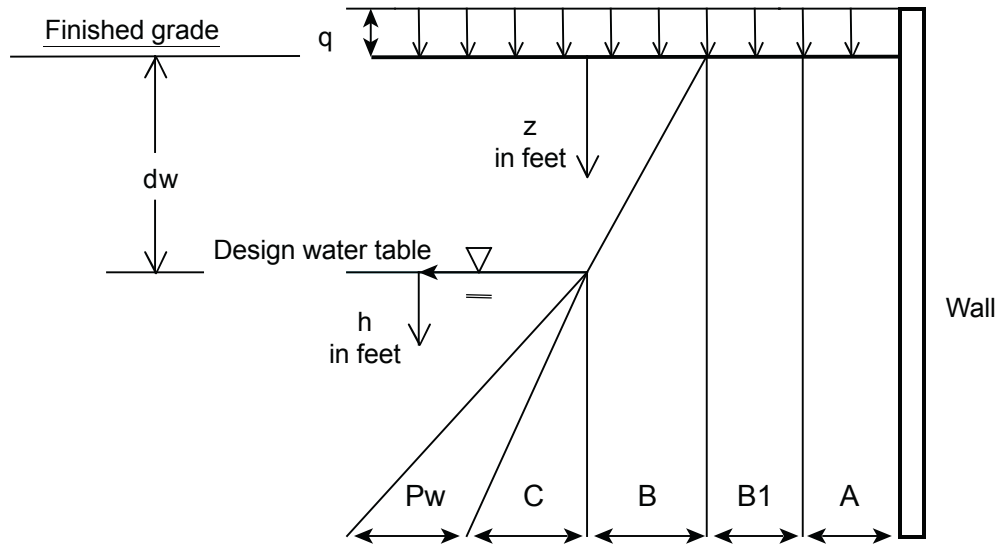


Passive earth pressure on 1-foot wide vertical strip



$A = 1.58 (q)$ = Effect of uniform full coverage surface surcharge

$B1 = 2952 \text{ psf}$ = Passive earth pressure at ground surface due to soil cohesion

$B = 188 (z)$ = Passive earth pressure above water table

$C = 89.5 (h)$ = Passive earth pressure increment below water table

$P_w = 62.4 (h)$ = Hydrostatic pressure increment

$P_p = A + B1 + B$ = Passive lateral earth pressure above water table ($z \leq dw$)

$P_p = A + B1 + 188 dw + 89.5 (z - dw)$ = Passive lateral earth pressure below water table ($z > dw$) (P_w not included)

Conditions on information:

- Units of pressure = lbs/ft²
- Backfill of sandy silt and silty sand native site soil compacted to 95% MDD by ASTM D698
- No factors included
- $\gamma_s = 119 \text{ lbs/ft}^3$ saturated unit weight of backfill above water table
- $\gamma = 56.6 \text{ lbs/ft}^3$ = submerged soil density
- $\phi_{cu} = 13 \text{ deg}$ = angle of internal friction of soil (CU test-freshly remolded saturated, total stress)
- $K_p = 1.58$ = Coefficient of passive earth pressure due to ϕ_{cu} (Rankine equation)
- $C_{cu} = 1174 \text{ psf}$ = shear strength intercept of soil (total stress, saturated CU test)
- Plane strain conditions (corner adjustment factors not included)
- Dynamic soil pressure not included

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Passive Lateral Pressure on
Nuclear Island

FIGURE 2.5.4-256

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