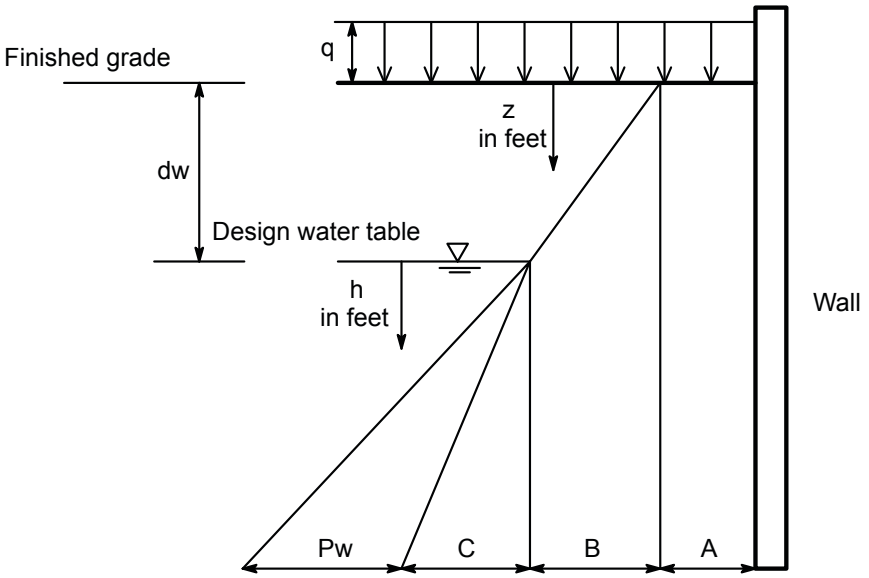
Active Earth Pressure on 1-ft Wide Vertical Strip



$A = K_a (q)$ = Effect of uniform full coverage surface surcharge
$B = K_a \gamma_s (z)$ = Active earth pressure above water table
$C = K_a \gamma' (h)$ = Active earth pressure increment below water table
$Pw = 62.4 (h)$ = Hydrostatic pressure increment
$H = A + B$ = Static lateral earth pressure above water table ($z < dw$)
$H = A + K_a \gamma_s (dw) + K_a \gamma' (z - dw)$ = Static lateral earth pressure below water table ($z > dw$) (Pw not included)

Conditions on information:

- Units of pressure, psf
- Backfill of granular material compacted to 96% maximum dry density by ASTM D1557
- γ_s = saturated unit weight of granular backfill above water table, pcf
- γ' = submerged unit weight of granular backfill, pcf
- φ = 35 degrees = angle of internal friction of soil
- $K_a = \tan^2 (45 - \varphi/2)$ = Active earth pressure coefficient of soil
- Plane strain conditions (corner adjustment factors not included)
- Dynamic soil pressure not included
- Compaction-induced residual pressure not included

USCS Type	γ_s	γ'	K_a
GW	150	87.6	0.271
GP	142	79.6	0.271
SW	136	73.6	0.271

WLS COL 2.5-13

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Static Lateral Active
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FIGURE 2.5.4-255a Rev 7