

COMPUTATION SHEET FOR CONSOLIDATION SETTLEMENT

Layer Geometry				Layer Stresses			Material Properties				Settlement (see eqns below), S
Depth to Top of Layer	Depth to Bottom of Layer	Depth to Center of Layer	Layer Thickness, H	Initial Effective Stress, P ₀	Stress Change, ΔP	Final Effective Stress, P _f	Preconsol- idation Pressure, P _c	Initial Void Ratio, e ₀	Re- compression Index, C _r	Virgin Compression Index, C _c	
Total Settlement =											

$$S = \frac{C_c}{1 + e_0} H \log \frac{P_f}{P_0} \quad \text{for } P_0 = P_c < P_f$$

$$S = \frac{C_r}{1 + e_0} H \log \frac{P_f}{P_0} \quad \text{for } P_0 < P_f < P_c$$

$$S = \frac{C_r}{1 + e_0} H \log \frac{P_c}{P_0} + \frac{C_c}{1 + e_0} H \log \frac{P_f}{P_c} \quad \text{for } P_0 < P_c < P_f$$