The University of Iowa
Department of Civil & Environmental Engineering
SOIL MECHANICS 53:030
Supplement to Assignment #6

Fall 2002 Instructor: C.C. Swan

Problem:

Steady state seepage is occuring in the soil profile shown in Figure 1. Note the standpipes inserted at points B and C.

a. How high (h) is the water standing in the standpipe located at C?
b. Compute the magnitude of the hydraulic gradient in the sand layer.
c. Compute the vertical effective stress at point A in the sand layer.
d. How high would the water have to stand in the standpipe at B to cause a quick (boiling) condition in the silty sand layer?

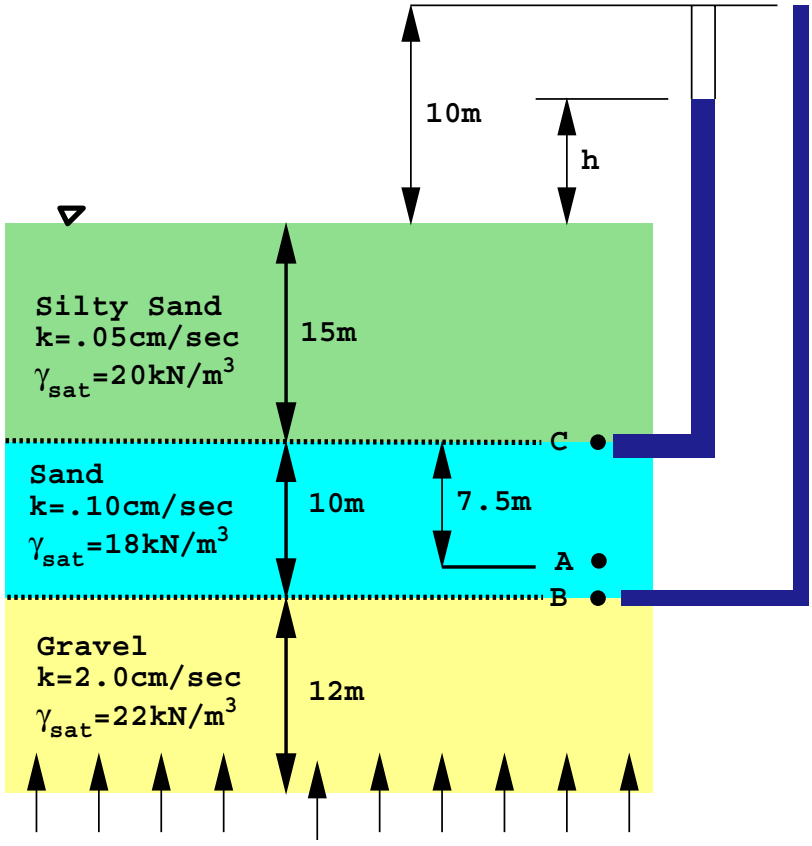

Figure 1. Uniform upward seepage in a multi-layered soil deposit.