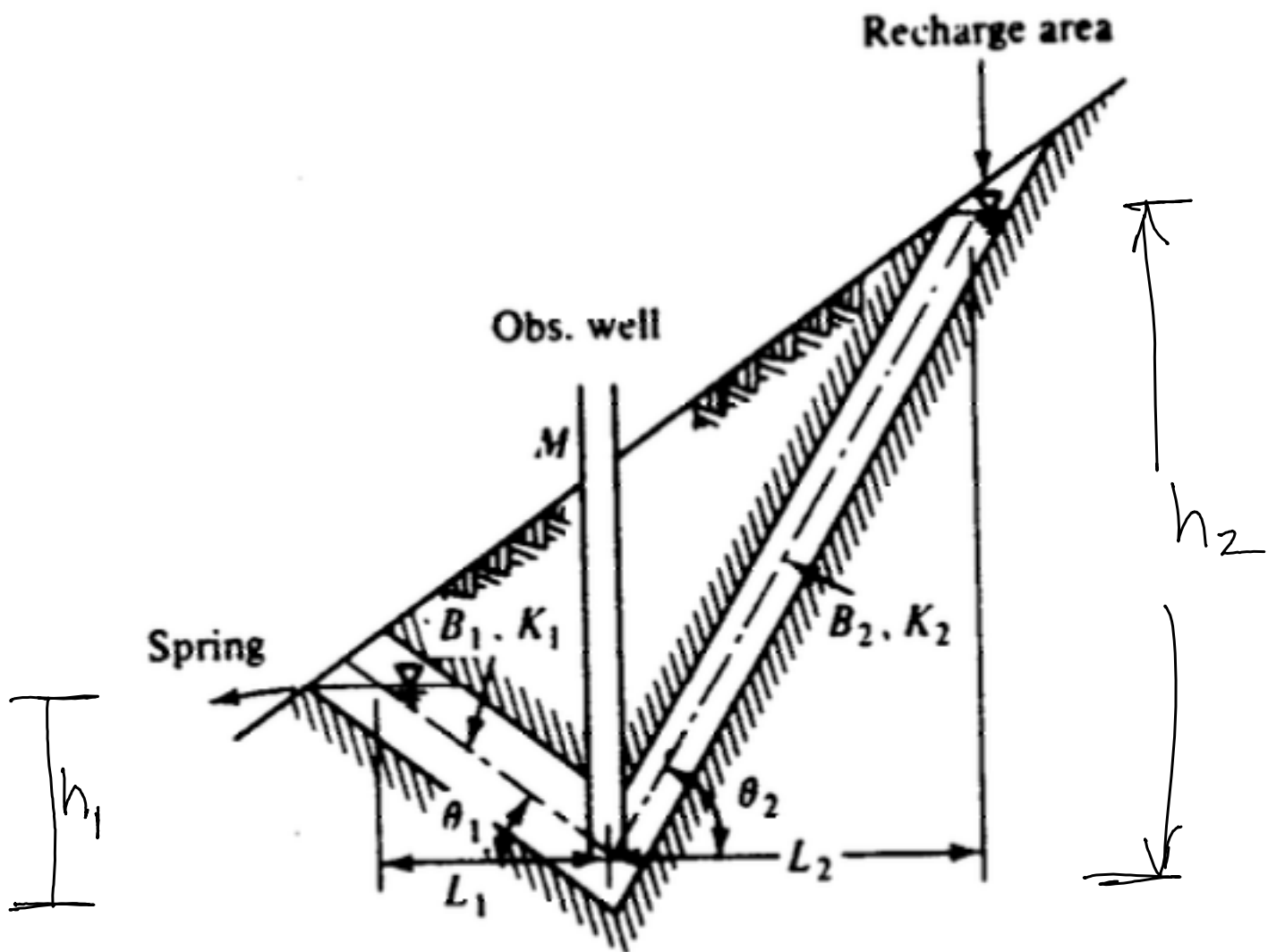


DETERMINE

- 1) PIEZOMETRIC HEAD AT (M)
- 2) SPECIFY CONDITIONS FOR WELL TO BECOME ARTESIAN



TRIGONOMETRY

$$h_1 = L_1 \tan \theta_1$$

$$h_2 = L_2 \tan \theta_2$$

DARCY'S LAW

$$\frac{h_2 - h_w}{\frac{L_2}{\cos \theta_2}} B_2 K_2 = \frac{h_w - h_1}{\frac{L_1}{\cos \theta_1}} B_1 K_1$$

$$\frac{h_2 - h_w}{\frac{L_2}{\cos \theta_2}} B_2 K_2 = \frac{h_w - h_1}{\frac{L_1}{\cos \theta_1}} B_1 K_1$$

$$\text{LET: } A = \frac{B_2 K_2}{\frac{L_2}{\cos \theta_2}} \quad B = \frac{B_1 K_1}{\frac{L_1}{\cos \theta_1}}$$

$$(h_2 - h_w)A = (h_w - h_1)B$$

$$h_2 A - h_w A = h_w B - h_1 B$$

$$h_2 A + h_1 B = h_w B + h_w A$$

$$h_w = \frac{h_2 A + h_1 B}{A + B}$$

$$= h_2 \frac{B_2 K_2}{\frac{L_2}{\cos \theta_2}} + h_1 \frac{B_1 K_1}{\frac{L_1}{\cos \theta_1}}$$

$$\frac{B_2 K_2}{\frac{L_2}{\cos \theta_2}} + \frac{B_1 K_1}{\frac{L_1}{\cos \theta_1}}$$

A BIT OF A MESS BUT THE HEAD IN WELL IS GIVEN BY FORMULA

APPROXIMATE LAND SURF.

$$z_m = h_1 + L_1 \left(\frac{h_2 - h_1}{L_1 + L_2} \right)$$

WELL FLOWS WHEN

$$h_w \geq z_m$$