

Problem

- The dry mass of a sample of aggregates is 1982.0 g. The mass in a saturated, surface dry condition is 2006.7 g. The net volume of the aggregate is 734.4 cm³. Find the apparent specific gravity, the bulk specific gravity, and the percentage absorption.

Date:

$$M_D = 1982g$$

$$M_{SSD} = 2006.7g$$

$$\delta_w = 1g/cm^3$$

$$V_N = 734.4 cm^3$$

$$G_A = ?$$

$$G_B = ?$$

$$\% \text{ absorption} = ?$$

یانی جذب کیے بغیر

یانی کے ساتھ مگر سطح پر نہ لپو۔

Sol:

$$\Rightarrow G_A = \frac{\delta_s}{\delta_w} = \frac{M_D/V_N}{\delta_w} = \frac{1982/734.4}{1} = 2.699$$

$$\Rightarrow G_B = \frac{\delta_s}{\delta_w} = \frac{M_D/V_B}{\delta_w} = \frac{1982/759.1}{1} = 2.611$$

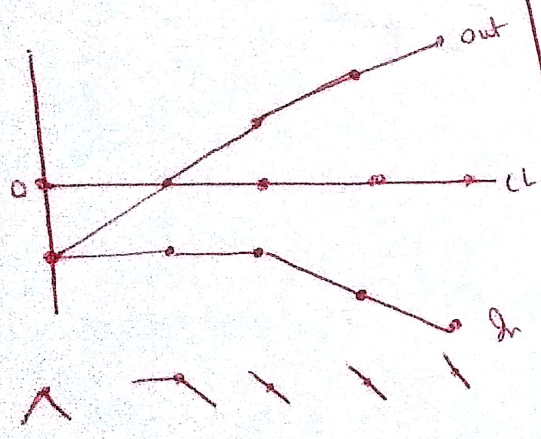
$$V_B = V_N + V_{\text{water}}$$

$$= 734.4 + 24.7 = 759.1 cm^3$$

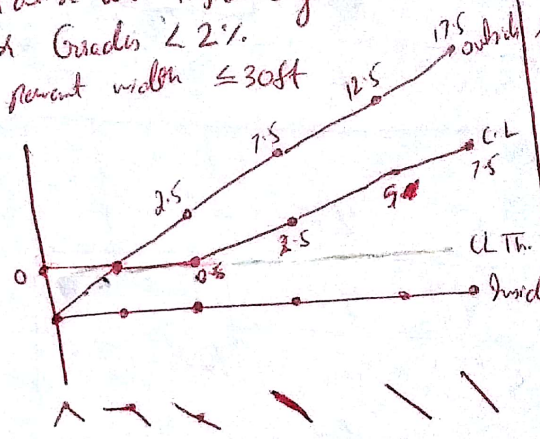
$$V_{\text{water}} = \frac{M_w}{\delta_w} = \frac{2006.7 - 1982}{1} = 24.7 cm^3$$

$$\Rightarrow \% \text{ absorption} = \frac{M_w}{M_D} \times 100 = \frac{24.7}{1982} \times 100 = 1.25\%$$

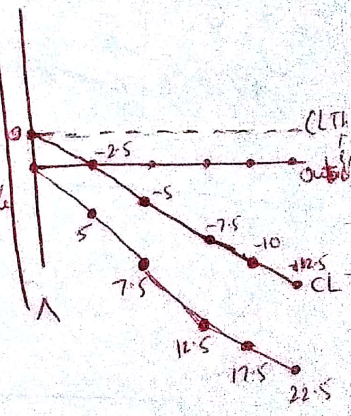
Rotation about CL



* Rotation abt inside edge
 * for Grades $\leq 2\%$
 for pavement width ≤ 30 ft



Rotation abt outside edge
 for pavement width > 40 ft



last 3 points same

Problem:

Data:

$$t_r = 0.5 \text{ s}$$

$$G = -0.04$$

$$V = 35 \text{ mph} = 15.64 \text{ m/s}$$

$$\text{Given SSD} = 125 \text{ ft} = 38.1 \text{ m}$$

a) Dry pavement, can stop? $a = 14.8 \text{ ft/s}^2 = 4.51 \text{ m/s}^2$

b) Wet " can stop? $a = 11.2 \text{ ft/s}^2 = 3.41 \text{ m/s}^2$

Solution

$$\text{SSD} = \frac{V^2}{(2a \pm G)} + Vt_r$$

$$\begin{aligned} \text{a) } \text{SSD} &= \frac{15.64^2}{2(4.51) - 0.04} + 15.64(0.5) \\ &= 35.06 \text{ m} \end{aligned}$$

Yes he can stop

$$\begin{aligned} \text{b) } &= \frac{15.64^2}{2(3.41) - 0.04} + 15.64(0.5) \\ &= 43.8 \text{ m} \end{aligned}$$

No he cannot stop