

Discussion No. 16 – Storm Drainage Systems

Example Questions

Solution

1. Determine the number of roof drains required for ideal drainage for a roof area that is 200 ft x 1500 ft located in Reno, Nevada. Round drain number up to the next whole number.

- A. Use the handout **Roof Drain to Roof Area Sizing Schedule**

Calculate the Roof Area

$$\text{Area} = 200 \text{ ft} \times 1500 \text{ ft} = 300,000 \text{ ft}^2$$

$$\text{Rainfall} = \underline{2 \text{ inches per hour}}$$

Calculate the number of 5" Roof Drains

$$\text{No. of Drains} = 300,000 \text{ ft}^2 / 17\,300 = 17.3 = 18 \text{ drains}$$

Calculate the Number of 8" Roof Drains

$$\text{No. of Drains} = 300,000 \text{ ft}^2 / 58\,000 = 5.17 = 6 \text{ drains}$$

- B. Use **2016 CPC Appendix D – Table D 101.1 and Table 1101.12**

$$\text{Rainfall} = \underline{1.2 \text{ inches per hour}}$$

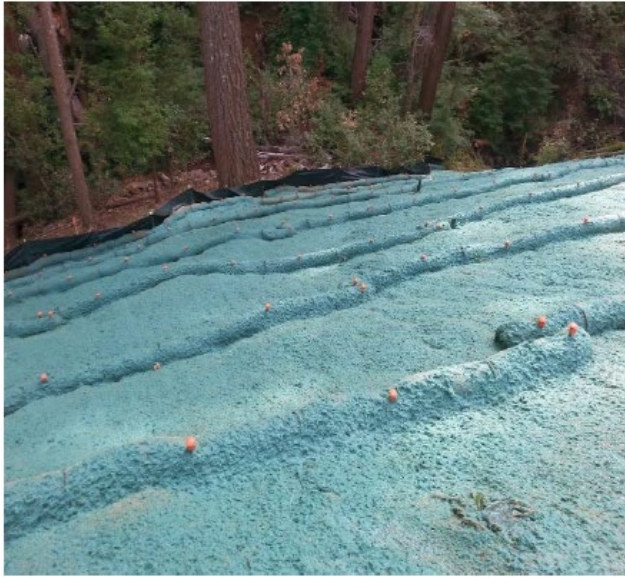
Calculate the number of 5" Roof Drains

$$\text{No. of Drains} = 300,000 \text{ ft}^2 / 34\,600/1.2 = 10.4 = 11 \text{ drains}$$

Calculate the Number of 8" Roof Drains

$$\text{No. of Drains} = 300,000 \text{ ft}^2 / 116\,000/1.2 = 3.1 = 4 \text{ drains}$$

2. For the BMP shown below answer the following:



What is the BMP called? Hydraulic Mulch

What BMP objectives does it address?

Soil Stabilization

Wind Erosion Control



What is the Standard Symbol used on site drawings? _____

3. For the BMP shown below answer the following:

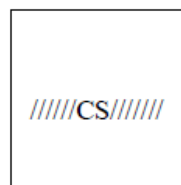


What is the BMP called? Compost Socks

What BMP objectives does it address?

Soil Stabilization

Sediment Control



What is the Standard Symbol used on site drawings? _____

4. Using the Web site www.usclimatedata.com complete the following:

City	Happy Camp
State	California
Total Annual Rainfall (inches)	51.41 inches
Average per month (inches)	4.3 inches
Highest Month (inches)	9.17

If rainfall is collected from a 5500 square foot roof determine the following:
Average Volume of Runoff that can be Captured

$$V = 5500 \text{ ft}^2 \times 4.3 \text{ inches} \times 1 \text{ ft} / 12 \text{ inches} \times 0.9 \times 7.5 \text{ gal} / \text{ft}^3$$
$$V = 13,303 \text{ gallons}$$

Highest Month Volume of Runoff that can be captured

$$V = 5500 \text{ ft}^2 \times 9.17 \text{ inches} \times 1 \text{ ft} / 12 \text{ inches} \times 0.9 \times 7.5 \text{ gal} / \text{ft}^3$$
$$V = 28,370 \text{ gallons}$$