

Floodwater Storage Design Information Sheet

Use this form to calculate the quantity of water exiting from a pond. It will indicate the effectiveness of a particular size of pond in reducing the peak flow associated with an upstream watershed. Follow all of the instructions on this form and on all of the associated figures.

1. Watershed area	_____ ha	_____ ac
2. Average grade of watershed	_____ %	
3. Runoff curve number from Tables 2.2 – 2.4	_____	
4. Peak flow from watershed for a 25-year storm from Table 2.5-M to 2.11-M (2.5-I to 2.11-I)	_____ m ³ /s	_____ ft ³ /s
5. Obtain one-day rainfall for the watershed location from Table G.1	_____ mm	_____ in.
6. Obtain the depth of runoff (V _r) from Table G.2-M (G.2-I)	_____ mm	_____ in.
7. Calculate the ponding volume available	_____ m ³	_____ ft ³
8. Calculate the equivalent depth of storage over the entire watershed $V_s = \frac{\text{pond volume} \times 1,000}{\text{hectares} \times 10,000} = \text{_____ mm}$ $V_s = \frac{\text{pond volume} \times 12}{\text{acres} \times 43,560} = \frac{\text{_____} \times 12}{\text{_____} \times 43,560} = \text{_____ in.}$	_____ mm	_____ in.
9. Refer to Figure G.3 to decide which chart to use Table G.3 or Table G.4-M (G.4-I) <p style="text-align: center;">Choose one Table G.3 or Table G.4-M (G.4-I)</p>		

If Table G.3 is used, divide V_s by V_r (i.e. divide answer in Step 8 above by the answer in Step 6)

$$\frac{V_s}{V_r} = \text{_____} = \text{_____}$$

Using Table G.3, read the first decimal place of V_s/V_r on the left side and the second decimal place across the top. Obtain the answer where the two lines intersect:

Answer:

Multiply this answer by the peak flow in step 4 (above) to obtain the peak pond outflow.

$$\text{_____} \times \text{_____} = \text{_____ m}^3/\text{s (ft}^3/\text{s)}$$

If Table G.4-M (G.4-I) is used, read V_s along the top of the chart and V_r along the left side to obtain discharge:

Answer: _____ m³/s/ha (ft³/s/ac)

Multiply the answer (above) by the number of hectares (acres) in the watershed to obtain the peak pond outflow.

$$\text{_____} \times \text{_____} = \text{_____ m}^3/\text{s (ft}^3/\text{s)}$$