



# NRCS Method Peak Flow Form SW-004

## Project Information

Project Location: \_\_\_\_\_

Parcel Identification Number(s): \_\_\_\_\_

Check One:  Pre-Development       Post-Development

## Calculations

### **Runoff Curve Number and Runoff**

#### 1. Runoff Curve Number (CN)

Soil Type	Cover Description	CN (Table 2-6)	Area (acres)	CN*A
<b>Totals</b>				

$$CN_{\text{Weighted}} = \frac{SCN * A}{SA} = \underline{\hspace{2cm}}$$

Use CN =

#### 2. Runoff

Frequency. . . . . Yr  
 Rainfall, P (24-hour) (Use Table 2-7).. . . . . In  
 Runoff, Q. . . . . In

Storm #1	Storm #2	Storm #3

## Time of Concentration (T<sub>c</sub>)

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments

### Sheet flow (Applicable to T<sub>c</sub> only)

	Segment ID	Pre	Post	
1.	Surface description			
2.	Manning's roughness coeff., n (Table 2-9)			
3.	Flow Length, L (total L ≤ 300 ft)	ft		
4.	24-hr rainfall, P	in		
5.	Land Slope, s	ft / ft		
6.	$T_1 = 0.42(nL)^{0.8} / P_2^{0.5} s^{0.4}$	min		
			+	
				=
				<input type="text"/>

### Shallow concentrated flow

	Segment ID			
7.	Surface Description: paved (P) or unpaved (U)?			
8.	Flow Length, L	ft		
9.	Watercourse slope, s	ft / ft		
10.	Average velocity, V (Table 2-8)	ft / sec		
11.	$T_1 = L / V$	min		
			+	
				=
				<input type="text"/>

### Channel flow

	Segment ID			
	Pipe (P) or Channel (C)?			
	If pipe, enter D (in):			
	If channel, enter bottom width:			
	If channel, enter side slopes (x:1):			
12.	Cross sectional flow area, a	sq ft		
13.	Wetted perimeter, w <sub>p</sub>	ft		
14.	Hydraulic radius, r = a / w <sub>p</sub>	ft		
15.	Channel slope, s	ft / ft		
16.	Manning's roughness coeff., n			
17.	$V = 1.49 r^{0.67} s^{0.5} / n$	ft / sec		
18.	Flow length, L	ft		
19.	$T_1 = L / 60V$	min		
20.	Watershed or subarea T <sub>c</sub> or T <sub>t</sub> (add T <sub>t</sub> in steps 6, 11, 19)		+	
				=
				<input type="text"/>
				min <input type="text"/>

# Graphical Peak Discharge

1. Data:

Drainage Area,  $A_m$  = \_\_\_\_\_ sq mi (acres/640)  
 Runoff Curve Number, CN = \_\_\_\_\_ (From Runoff Curve Number Worksheet)  
 Time of Concentration,  $T_c$  = \_\_\_\_\_ hr (From Time of Concentration Worksheet)  
 Rainfall Distribution = Type III

Pond and swamp areas spread throughout watershed = \_\_\_\_\_ % of  $A_m$  ( \_\_\_\_\_ acres covered)

2. Frequency ..... yr

3. Rainfall, P (24-hour) ..... in

4. Initial abstraction,  $I_a$  ..... in  
 (Use CN)

5. Compute  $I_a/P$  .....

6. Unit peak discharge,  $q_u$  ..... csm/in  
 (use  $T_c$  and  $I_a/P$  with Figure 2-9)

7. Runoff, Q ..... in  
 (From Runoff Curve Number Worksheet)

8. Pond and swamp adjustment factor,  $F_p$  .....  
 (Use Table 2-10)

9. Peak discharge,  $Q_p$  ..... cfs  
 (Where  $Q_p = q_u A_m Q F_p$ )

Storm #1	Storm #2	Storm #3
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 Applicant

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 Date