D. SMALL DEVELOPED DRAINAGE AREA METHOD

D-1. Application

This method is a further simplification of the Modified Rational Method, applicable only to developed areas with total drainage areas of 10 acres or less. Runoff coefficients are generalized into two categories, Group A and Group B, and the rainfall zones are I, J, K, L, and M. The rainfall frequencies are limited to the Department's 50-Year, 25-Year, and 10-Year Frequency Design Storms.

The peak flow rate developed from this method tends to be larger than the flow rate developed from the Modified Rational or Rational Method for the same area. Also, this method does not produce a hydrograph. You may therefore prefer to use one of the other methods; however, this method is a much simpler procedure for finding peak runoff rates when the private engineer does not need to use the other, more detailed, methods.

D-2. Developing Input Data for the Small Developed Area Method

Use the following procedure for developing the input data for calculating peak Q's with the Small Developed Area Method:

(1) Outline the drainage area boundaries on a scaled topographic map and measure the area in acres.

(2) Determine the predominant soil type and the rainfall zone for the area from the maps in Appendix A.

(3) Determine if the project should be designed for the Capital Flood or the Urban Flood, as described by the Level of Protection policies in Section 2.

D-3. Finding the Peak Runoff Rate
(See the example in Appendix L)

Follow these steps using the tables in Appendix M to determine the peak runoff rate:

(1) From the soil type at your site, determine which group, A or B, applies to your project. The "Runoff Coefficient Curve Number," RC, is the same as the soil type number.

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(2) From the Runoff Coefficient Group, find the peak Capital Flood flow rate for your rainfall zone and the drainage area size closest to yours. Interpolate to find the flow for your drainage area. This is the peak flow at the outlet.

(3) If your project requires protection from an Urban Flood, multiply the peak Capital Flood flow rate by the appropriate factor shown in the table. Multiply the Capital Flood flow rate by the 10-year flood factor to get the drain flow rate.