I. HYDROLOGIC CRITERIA

A. STANDARD OF DESIGN

The standard of design is expressed as the return frequency of the design flow. Return frequency is the average interval of time between the occurrence of flows of a given magnitude or greater. The term "return frequency," symbolized by t_r, does not imply that floods will occur at regular intervals but, rather, that for a sufficiently long period of N years, one might expect approximately N/t_r occurrences of flow equal to or greater than the design flow.

The following return frequencies are considered the minimum acceptable within the Critical Area of Merced County for the listed facilities.

Facility	Storm Frequency
Storm Drainage Collection Facilities	10-year
Cross Culverts	10-year or capacity of channel, whichever is greater
Storage Facilities (detention basin, etc.)	10- and 50-year

B. PEAK FLOW RATE

The Rational Method shall be used to determine the peak flow rate. This equation is:

$$Q = C I A \qquad (E-1)$$

where Q = peak flow rate in cubic feet per second.

C = coefficient of runoff having a value between 0.0 and 1.0 depending on surface characteristics.

I = the average intensity of rainfall in inches per hour for a duration equal to the critical time, usually the time of concentration.

A = the tributary area in acres corresponding to the critical time above.

The procedures for determining the values of C, A and I are given in the following sections.

1. Runoff Coefficient, C

The runoff coefficient is a factor used in the Rational Method to predict peak rates of discharge. It is dependent upon the land use, soil type, antecedent precipitation and intensity of rainfall. Table A-1 shows the basic coefficient, C, to be used for various types of surfaces. Where a tributary area contains more than one type of surface, the value of C should

ENGINEERING DEPARTMENT	CITY OF MERCED, CALIF.

STORM DRAIN DESIGN	SD-13

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