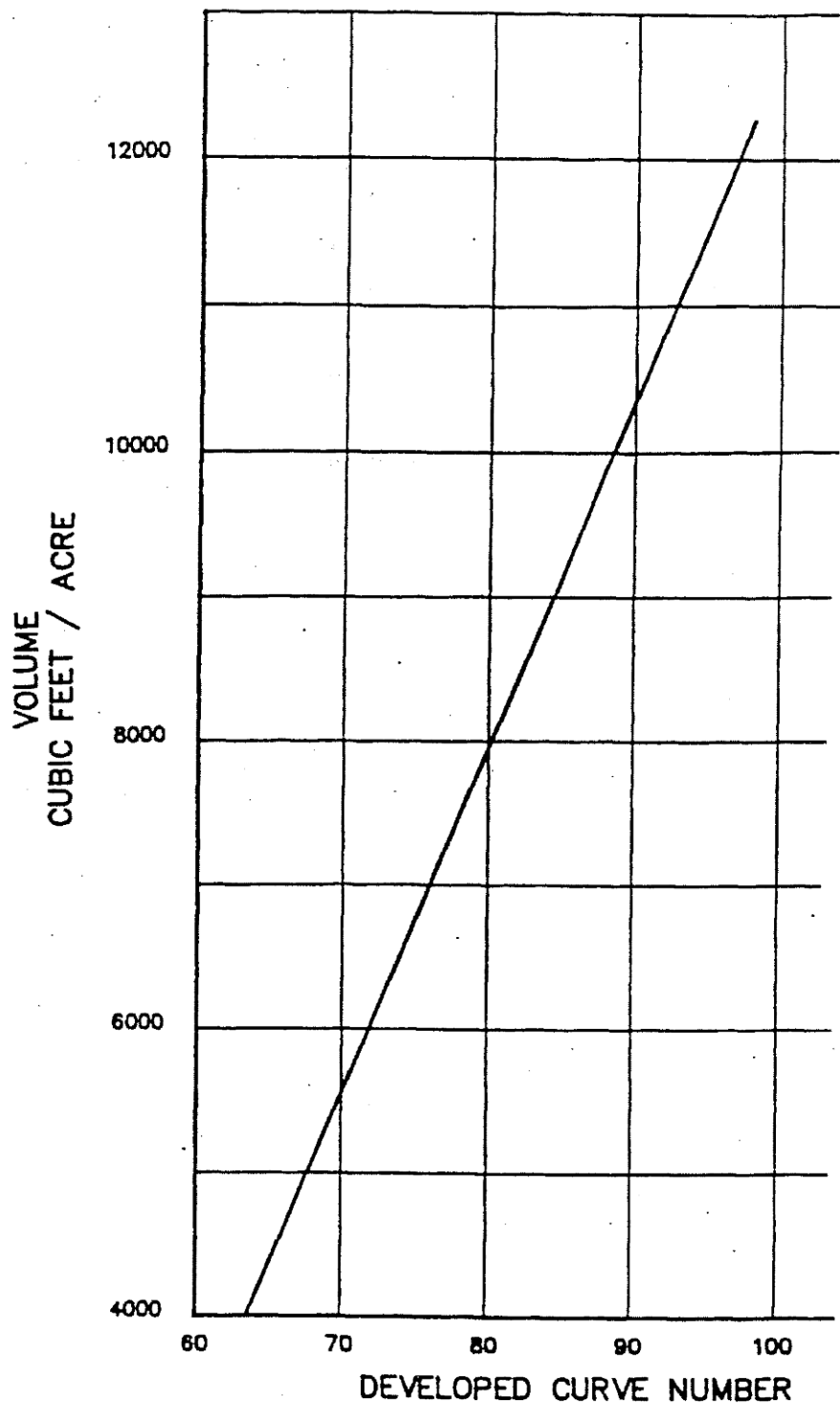


5602.2 Runoff Coefficients: Runoff Coefficients relative to development and land use shall have the following values:

<u>LAND USE/ZONING</u>	<u>AVERAGE PERCENT IMPERVIOUS</u>	<u>AVERAGE PERCENT PERVIOUS</u>	<u>RATIONAL METHOD "C"</u>	<u>S.C.S. CURVE NUMBER</u>
a. Business				
Downtown Area	95	5	0.87	96
Neighborhood Areas	85	15	0.81	94
b. Residential				
Single-Family Areas	35	65	0.51	83
Multi-Family Areas	60	40	0.66	88
Churches & Schools	75	25	0.75	92
c. Industrial				
Light Areas	60	40	0.66	88
Heavy Areas	80	20	0.78	93
Parks, Cemeteries	10	90	0.36	77
Railroad Yard Areas	25	75	0.45	80
d. Undeveloped Areas				
Permanent Unimproved Areas Greenbelts, etc.	0	100	0.3	75
e. All Surfaces				
Impervious: asphalt concrete, roofs, etc.	100	0	0.9	98
Turfed	0	100	0.3	75
Wet detention basins	100	0	0.9	98

Land areas not zoned; but whose future land use is defined by an adopted land use plan, shall be assigned runoff coefficients for the land use indicated by such plan. Undeveloped areas designated as agricultural or those for which no specific future land use is indicated shall be assigned a minimum of 35 percent impervious surface for purposes of the design of storm drainage systems. (C = 0.51, CN = 83)

As an alternative to the above coefficients; and for areas not listed above (planned building groups, shopping centers, trailer parks, etc.) a composite runoff coefficient based on the actual percentages of pervious and impervious surfaces shall be used.



STORM WATER DETENTION
VOLUME REQUIREMENT
(SIMPLIFIED OPTION)

NOTES:

1. For Release Rates - See Section 5606.4.B.
2. The developed curve number for the site is to be determined in accordance with TR-55 "Urban Hydrology for Small Watersheds."

SIMPLIFIED VOLUME CHART
FOR DETENTION FACILITIES

FIG. 11

- b. Missouri Department of Natural Resources: Rules and regulations of the Dam and Reservoir Safety Council shall apply to those Missouri structures classified as dams thereunder.
 - c. Kansas State Board of Agriculture: Regulations of the Water Resources Division shall apply.
- B. Release Rate:** The maximum release rate from any development for the 100-year and more frequent storms shall not exceed 1.8 c.f.s. per tributary acre. When areas outside the development are also tributary, their inflow hydrograph(s) may be added to the above maximum release rate to determine the total maximum release rate. If the downstream conditions dictate a lower release rate, then the above release rates do not govern.
- C. Detention Basin Size:** For purposes of evaluation, projects will be classified in two categories according to the acreage of tributary area.
1. Less than 10 acres: Volume of detention for projects having 10 acres or less tributary to the detention facility may be evaluated using either the "Simplified Volume" Figure 11 or by the more precise methods set forth in Section 5606.4.C.2.
 2. Over 10 acres: For projects of more than 10 acres tributary area the owners/engineers may utilize methodology outlined in Technical Release No. 55 "Urban Hydrology for Small Watersheds," June, 1986. A Type 2 rainfall distribution shall be the required storm hydrograph. Hydrologic simulation models shall be based on not less than Antecedent Moisture Condition II. Detention storage shall be based upon the allowable release rate during the 100-year storm with the development in place.
- D. Principal Spillways:** The principal spillway shall be designed to meet the following requirements:
1. The principal spillway shall be designed to function without requiring attendance or operation of any kind or requiring use of equipment or tools, or any mechanical devices.
 2. All discharge from the detention facility when inflow is equal to or less than the 100-year inflow shall be via the principal spillway(s).
 3. The design shall allow for discharge of at least 80 percent of the detention storage volume within 24 hours after the peak or center of mass of the inflow has entered the detention basin.
 4. The design discharge rate via the principal spillway shall continuously increase with increasing head and shall have hydraulic characteristics similar to weirs, orifices or pipes.