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**FILE**  
*plat*  
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# LETTER OF TRANSMITTAL

TO: Jim Weber  
Sedgwick County Public Works  
ATTENTION: \_\_\_\_\_  
COPIES TO: \_\_\_\_\_

PROJECT NO.: 36-99371-4799  
PROJECT: Prairie Crossroads United Methodist Church Addition  
DATE: Sept. 14, 1999  
FROM: Karen Rand  
REFERENCE: Drainage Plan Revision

WE ARE SENDING YOU:  Attached  Under separate cover via \_\_\_\_\_ the following items:  
 Shop drawings  Prints  Plans  Samples  Specifications  
 Copy of letter  Change order  AutoCAD Drawing Files - Version 14 on 3.5" diskette(s)

COPIES	DATE	NO.	DESCRIPTION
2	9/14/99		Revised Drainage Plan for Prairie Crossroads United Methodist Church
1			Figure 9 from City of Derby Stormwater Management Criteria

THESE ARE TRANSMITTED as checked below:

- For approval  Approved as submitted  Resubmit \_\_\_\_\_ copies for approval
- For your use  Approved as noted  Submit \_\_\_\_\_ copies for distribution
- As requested  Returned for corrections  Return \_\_\_\_\_ corrected prints
- For review and comment  \_\_\_\_\_
- FOR BIDS DUE \_\_\_\_\_  PRINTS RETURNED AFTER LOAN TO US

REMARKS:

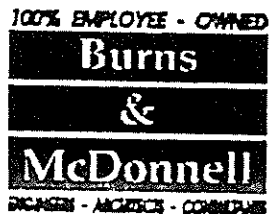
COPY TO FILE

SIGNED Karen Rand

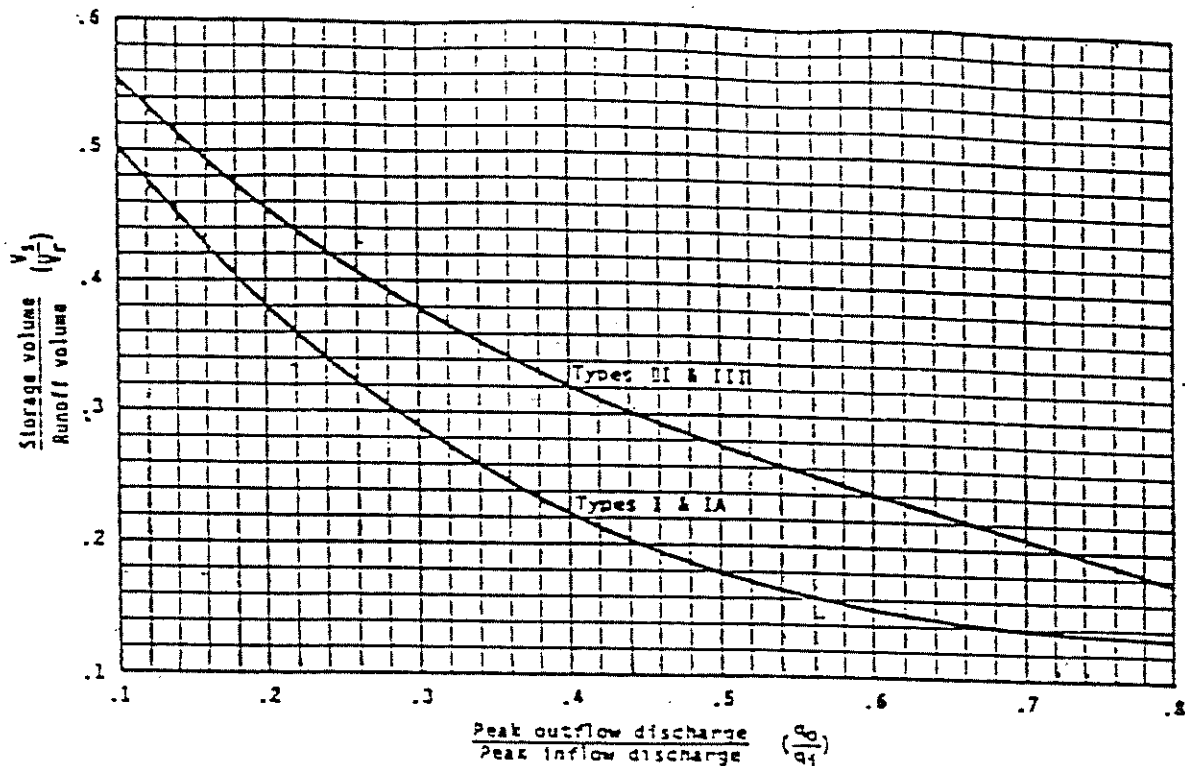
If enclosures are not as noted, kindly notify us at once.

DERBY, KANSAS

# STORMWATER MANAGEMENT CRITERIA



FEBRUARY 1994



**EQUATIONS**

S = (1000/CN)-10.0 where:  
 CN - SCS Curve Number from  
 Table A

Q = (P-0.2S)^2/(P+.8S) where:  
 Q - Runoff in inches  
 P - 24 hour rainfall in inches  
 Table B

VR = (Q/12)\*A\*43,560 where:  
 VR - Cu. Ft. Inflow to detention  
 A - Acres tributary to detention

Qi - Peak CFS inflow to detention  
 Calculated by either:  
 \* Rational Method  
 \* Hydrograph routing

Qr - Peak CFS disch. from detention  
 Criteria Max. (CFS/Trib. Acre)  
 \* 1.2 CFS - 2 year  
 \* 1.5 CFS - 10 year  
 \* 2.0 CFS - 100 year

**EXAMPLE FOR 10 YEAR STORAGE**

A = 8.0 Acres  
 CN = 90 (C=.65)  
 Qr = 8\*1.5 = 12 CFS  
 Tc = 15.0 min. (i = 5.21)  
 P = 5.04"  
 Qr/Qi = (12/27) = 0.44

Qi = (.65\*8.0\*5.21) = 27 CFS  
 S = (1000/90)-10 = 1.11  
 Q = 3.92" (24 hour runoff)  
 VR = (3.92/12)\*8\*43560 =  
 = 113,716 Cu.Ft.

FROM GRAPH, TYPE II STORM: Vs/Vr = 0.3  
 Vs Required = 0.3\*113,716 = 34,114 cu. ft. = 0.78 acre ft.



CITY OF DERBY, KANSAS  
 STORMWATER MANAGEMENT CRITERIA

SIMPLIFIED DETENTION STORAGE  
 ROUTING (BASINS LESS THAN  
 10 ACRES TRIBUTARY)

FIGURE 9