

# MODIFIED RATIONAL METHOD DETENTION BASIN DESIGN

PROJECT: Dobbs Elementary School 25 YR

February 14, 2017

Runoff Coefficient C = 0.65  
 Drainage Area - A = 9.76 acres  
 Time of Concentration - tc = 10 minutes  
 Maximum Outflow Rate - Q = 40.9 cfs (42.9-2.0)

Duration (minutes)	Intensity (inches/hr)	Depth (inches)	Inflow Discharge Q=CiA	Inflow Volume Cu. Ft.	Outflow Duration (minutes)	Outflow Volume Cu. Ft.	Storage Volume Cu. Ft.
10	8.30	1.38	52.7	31,593	20	24,540	7,053
15	7.50	1.88	47.6	42,822	25	30,675	12,147
20	6.60	2.20	41.9	50,244	30	36,810	13,434
30	5.50	2.75	34.9	62,806	40	49,080	13,726
40	4.60	3.07	29.2	70,038	50	61,350	8,688
50	4.00	3.33	25.4	76,128	60	73,620	2,508
60	3.50	3.50	22.2	79,934	70	85,890	(5,956)
70	3.30	3.85	20.9	87,928	80	98,160	(10,232)
80	3.10	4.13	19.7	94,399	90	110,430	(16,031)
90	2.90	4.35	18.4	99,347	100	122,700	(23,353)
100	2.70	4.50	17.1	102,773	110	134,970	(32,197)
110	2.50	4.58	15.9	104,676	120	147,240	(42,564)
Required Storage Volume						13,726	cubic feet
						0.32	acre-feet