

MODIFIED RATIONAL METHOD DETENTION BASIN DESIGN

PROJECT: Dobbs Elementary School 50 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 = 44.4 cfs (46.6-2.2)

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	9.00	1.50	57.1	34,258	20	26,640	7,618
15	8.10	2.03	51.4	46,248	25	33,300	12,948
20	7.50	2.50	47.6	57,096	30	39,960	17,136
30	6.10	3.05	38.7	69,657	40	53,280	16,377
40	5.20	3.47	33.0	79,173	50	66,600	12,573
50	4.50	3.75	28.5	85,644	60	79,920	5,724
60	3.90	3.90	24.7	89,070	70	93,240	(4,170)
70	3.70	4.32	23.5	98,586	80	106,560	(7,974)
80	3.50	4.67	22.2	106,579	90	119,880	(13,301)
90	3.30	4.95	20.9	113,050	100	133,200	(20,150)
100	3.00	5.00	19.0	114,192	110	146,520	(32,328)
110	2.90	5.32	18.4	121,424	120	159,840	(38,416)
Required Storage Volume						17,136	cubic feet
						0.39	acre-feet