REVISED – 03-10-00 CITY & DCSD COMMENTS
REVISED – 04-07-00 CITY COMMENTS
REVISED – 04-25-00 CITY COMMENTS

DETENTION BASIN B

AVONDALE HEIGHTS

Phase Four – Plat Five

January 2000 97-7230M

ACREAGE:

ON-SITE	6.17 ac
OFF-SITE	4.66 ac
	10.83 ac TOTAL

RUNOFF:

2yr storm	10.83 ac x 1.61 = 17.44 cfs
15yr storm	10.83 ac x 2.64 = 28.33 cfs
25yr storm	10.83 ac x 3.26 = 34.98 cfs
100yr storm	10.83 ac x 4.17 = 44.74 cfs

ATTENUATION:

2yr storm	6.17 ac x (1.61 – 1.15) = 2.84 cfs	
	10.83 ac x (1.61 – 1.15) = 4.98 cfs	
15yr storm	6.17 ac x (2.64 – 1.87) = 4.75 cfs	
	10.83 ac x (2.64 – 1.87) = 8.34 cfs	
25yr storm	6.17 ac x (3.26 – 2.31) = 5.86 cfs	(required)
	10.83 ac x (3.26 – 2.31) = 10.29 cfs	
100yr storm	6.17 ac x (4.17 – 2.95) = 7.53 cfs	
	10.83 ac x (4.17 – 2.95) = 13.21 cfs	

****
AVONDALE HEIGHTS - PLAT FIVE
DETENTION ANALYSIS
BASIN B
****

Planimeter scale: 1 inch = 1 ft.

Elevation (ft)	Planimeter (sq. in.)	Area (sq. ft)	A1+A2+sqr(A1*A2) (sq. ft)	* Volume (cubic-ft)	Volume Sum (cubic-ft)
495.00	0.00	0	0	0	0
496.00	5,300.01	5,300	5,300	1,767	1,767
498.00	7,676.73	7,677	19,355	12,904	14,670
500.00	10,220.10	10,220	26,754	17,836	32,507
502.00	12,922.03	12,922	34,634	23,089	55,596

* Incremental volume computed by the Conic Method for Reservoir Volumes.

***** COMPOSITE OUTFLOW SUMMARY ****

Elevation (ft)	Q (cfs)	Contributing Structures
495.00	0.0	1
495.20	0.3	1
495.40	0.8	1
495.60	1.4	1
495.80	2.1	1
496.00	3.0	1
496.20	3.9	1
496.40	5.0	1
496.60	6.1	1
496.80	7.2	1
497.00	8.5	1
497.20	9.8	1
497.40	11.2	1
497.60	12.2	2
497.80	12.9	2
498.00	13.6	2
498.20	14.3	2
498.40	14.9	2
498.60	15.5	2
498.80	16.1	2
499.00	16.7	2
499.20	17.2	2
499.40	19.8	2 +3
499.60	25.5	2 +3
499.80	33.0	2 +3
500.00	42.0	2 +3
500.20	52.1	2 +3
500.40	63.3	2 +3
500.60	75.5	2 +3
500.80	88.6	2 +3
501.00	102.5	2 +3
501.20	117.2	2 +3
501.40	132.7	2 +3
501.60	148.8	2 +3
501.80	165.6	2 +3
502.00	183.1	2 +3

Min. Elev.(ft) = 495 Max. Elev.(ft) = 502 Incr.(ft) = .2

****
SYSTEM CONNECTIVITY
****

Structure	No.	Q Table	Q Table
WEIR-VR	1		-> 1
ORIFICE	2	T 1	-> A
WEIR-VR	3		-> 3

>>>>>> Structure No. 1 <<<<<<
(Input Data)

WEIR-VR
Weir - Vertical Rectangular

E1 elev.(ft)?	495
E2 elev.(ft)?	502.001
Weir coefficient?	3
Weir elev.(ft)?	495
Length (ft)?	1
Contracted/Suppressed (C/S)?	S

>>>>>> Structure No. 2 <<<<<<
(Input Data)

ORIFICE
Orifice - Based on Area and Datum Elevation

E1 elev.(ft)?	497
E2 elev.(ft)?	502.001
Orifice coeff.?	.6
Invert elev.(ft)?	495
Datum elev.(ft) ?	496
Orifice area (sq.ft)?	2

>>>>>> Structure No. 3 <<<<<<
(Input Data)

WEIR-VR
Weir - Vertical Rectangular

E1 elev.(ft)?	499.25
E2 elev.(ft)?	502.001
Weir coefficient?	3
Weir elev.(ft)?	499.25
Length (ft)?	11.66
Contracted/Suppressed (C/S)?	S

****
AVONDALE HEIGHTS - PLAT FIVE
DETENTION ANALYSIS
BASIN B

2 YEAR STORM
****

----INITIAL CONDITIONS----
Elevation = 495.00 ft
Outflow = 0.00 cfs
Storage = 0 cu-ft

GIVEN POND DATA / INTERMEDIATE ROUTING COMPUTATIONS

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
495.00	0.0	0	0.0	0.0
495.20	0.3	14	0.5	0.8
495.40	0.8	113	3.8	4.6
495.60	1.4	382	12.7	14.1
495.80	2.1	904	30.1	32.2
496.00	3.0	1,767	58.9	61.9
496.20	3.9	2,848	94.9	98.8
496.40	5.0	3,974	132.5	137.5
496.60	6.1	5,145	171.5	177.6
496.80	7.2	6,361	212.0	219.2
497.00	8.5	7,624	254.1	262.6
497.20	9.8	8,935	297.8	307.6
497.40	11.2	10,294	343.1	354.3
497.60	12.2	11,702	390.1	402.3
497.80	12.9	13,161	438.7	451.6
498.00	13.6	14,670	489.0	502.6
498.20	14.3	16,230	541.0	555.3
498.40	14.9	17,837	594.5	609.4
498.60	15.5	19,492	649.7	665.2
498.80	16.1	21,197	706.6	722.7
499.00	16.7	22,953	765.1	781.8
499.20	17.2	24,759	825.3	842.5
499.40	19.8	26,616	887.2	907.0
499.60	25.5	28,527	950.9	976.4
499.80	33.0	30,489	1016.3	1049.3
500.00	42.0	32,507	1083.6	1125.6
500.20	52.1	34,576	1152.5	1204.6
500.40	63.3	36,697	1223.2	1286.5
500.60	75.5	38,870	1295.7	1371.2
500.80	88.6	41,096	1369.9	1458.5
501.00	102.5	43,376	1445.9	1548.4
501.20	117.2	45,709	1523.6	1640.8
501.40	132.7	48,097	1603.2	1735.9
501.60	148.8	50,541	1684.7	1833.5
501.80	165.6	53,040	1768.0	1933.6
502.00	183.1	55,596	1853.2	2036.3

Time increment (t) = 1.0 min.

INFLOW HYDROGRAPH / ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	495.00
1.0	3.46	3.5	2.2	3.5	0.65	495.34
2.0	5.18	8.6	8.4	10.8	1.19	495.53
3.0	8.64	13.8	18.8	22.2	1.71	495.69
4.0	12.10	20.7	34.9	39.5	2.32	495.85
5.0	13.82	25.9	54.9	60.8	2.97	495.99
6.0	17.28	31.1	78.8	86.0	3.59	496.13
7.0	17.28	34.6	104.7	113.4	4.31	496.28
8.0	17.28	34.6	129.2	139.3	5.05	496.41
9.0	17.28	34.6	152.3	163.8	5.72	496.53
10.0	17.28	34.6	174.2	186.9	6.35	496.64
11.0	17.28	34.6	194.9	208.8	6.92	496.75
12.0	17.28	34.6	214.5	229.5	7.51	496.85
13.0	17.28	34.6	232.8	249.0	8.09	496.94
14.0	17.28	34.6	250.1	267.4	8.64	497.02
15.0	17.28	34.6	266.4	284.7	9.14	497.10
16.0	17.28	34.6	281.7	301.0	9.61	497.17
17.0	17.28	34.6	296.2	316.3	10.06	497.24
18.0	17.28	34.6	309.8	330.7	10.49	497.30
19.0	17.28	34.6	322.5	344.3	10.90	497.36
20.0	17.28	34.6	334.6	357.1	11.26	497.41
21.0	13.82	31.1	342.8	365.7	11.44	497.45
22.0	12.10	25.9	345.7	368.7	11.50	497.46
23.0	8.64	20.7	343.5	366.5	11.45	497.45
24.0	5.18	13.8	334.8	357.4	11.26	497.41
25.0	3.46	8.6	321.7	343.5	10.87	497.35
26.0	0.00	3.5	304.5	325.2	10.33	497.28
27.0	0.00	0.0	285.1	304.5	9.71	497.19
28.0	0.00	0.0	266.8	285.1	9.15	497.10
29.0	0.00	0.0	249.6	266.8	8.62	497.02
30.0	0.00	0.0	233.4	249.6	8.11	496.94
31.0	0.00	0.0	218.1	233.4	7.62	496.87
32.0	0.00	0.0	203.8	218.1	7.17	496.79
33.0	0.00	0.0	190.2	203.8	6.79	496.73
34.0	0.00	0.0	177.3	190.2	6.43	496.66
35.0	0.00	0.0	165.1	177.3	6.09	496.60
36.0	0.00	0.0	153.6	165.1	5.76	496.54
37.0	0.00	0.0	142.7	153.6	5.44	496.48
38.0	0.00	0.0	132.4	142.7	5.14	496.43
39.0	0.00	0.0	122.7	132.4	4.86	496.37
40.0	0.00	0.0	113.6	122.7	4.58	496.32
41.0	0.00	0.0	104.9	113.6	4.32	496.28
42.0	0.00	0.0	96.8	104.9	4.07	496.23
43.0	0.00	0.0	89.1	96.8	3.85	496.19
44.0	0.00	0.0	81.8	89.1	3.66	496.15
45.0	0.00	0.0	74.8	81.8	3.48	496.11
46.0	0.00	0.0	68.2	74.8	3.31	496.07
47.0	0.00	0.0	61.9	68.2	3.15	496.03
48.0	0.00	0.0	55.9	61.9	3.00	496.00
49.0	0.00	0.0	50.2	55.9	2.88	495.96
50.0	0.00	0.0	44.9	50.2	2.65	495.92
51.0	0.00	0.0	40.0	44.9	2.49	495.89
52.0	0.00	0.0	35.3	40.0	2.33	495.85
53.0	0.00	0.0	30.9	35.3	2.19	495.82
54.0	0.00	0.0	26.8	30.9	2.05	495.79
55.0	0.00	0.0	23.0	26.8	1.89	495.74
56.0	0.00	0.0	19.5	23.0	1.74	495.70
57.0	0.00	0.0	16.3	19.5	1.61	495.66
58.0	0.00	0.0	13.4	16.3	1.49	495.62
59.0	0.00	0.0	10.7	13.4	1.35	495.58
60.0	0.00	0.0	8.3	10.7	1.18	495.53

****************** SUMMARY OF ROUTING COMPUTATIONS ******************

Starting Pond W.S. Elevation = 495.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 17.28 cfs
Peak Outflow = 11.50 cfs
Peak Elevation = 497.46 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0 cu-ft
Peak Storage From Storm = 10,716 cu-ft
Total Storage in Pond = 10,716 cu-ft

17.28 – 11.50 = 5.78 cfs
Required Attenuation: 4.98 cfs

****
AVONDALE HEIGHTS - PLAT FIVE
DETENTION ANALYSIS
BASIN B

15 YEAR STORM
****

----INITIAL CONDITIONS----
Elevation = 495.00 ft
Outflow = 0.00 cfs
Storage = 0 cu-ft

GIVEN POND DATA / INTERMEDIATE ROUTING COMPUTATIONS

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
495.00	0.0	0	0.0	0.0
495.20	0.3	14	0.5	0.8
495.40	0.8	113	3.8	4.6
495.60	1.4	382	12.7	14.1
495.80	2.1	904	30.1	32.2
496.00	3.0	1,767	58.9	61.9
496.20	3.9	2,848	94.9	98.8
496.40	5.0	3,974	132.5	137.5
496.60	6.1	5,145	171.5	177.6
496.80	7.2	6,361	212.0	219.2
497.00	8.5	7,624	254.1	262.6
497.20	9.8	8,935	297.8	307.6
497.40	11.2	10,294	343.1	354.3
497.60	12.2	11,702	390.1	402.3
497.80	12.9	13,161	438.7	451.6
498.00	13.6	14,670	489.0	502.6
498.20	14.3	16,230	541.0	555.3
498.40	14.9	17,837	594.5	609.4
498.60	15.5	19,492	649.7	665.2
498.80	16.1	21,197	706.6	722.7
499.00	16.7	22,953	765.1	781.8
499.20	17.2	24,759	825.3	842.5
499.40	19.8	26,616	887.2	907.0
499.60	25.5	28,527	950.9	976.4
499.80	33.0	30,489	1016.3	1049.3
500.00	42.0	32,507	1083.6	1125.6
500.20	52.1	34,576	1152.5	1204.6
500.40	63.3	36,697	1223.2	1286.5
500.60	75.5	38,870	1295.7	1371.2
500.80	88.6	41,096	1369.9	1458.5
501.00	102.5	43,376	1445.9	1548.4
501.20	117.2	45,709	1523.6	1640.8
501.40	132.7	48,097	1603.2	1735.9
501.60	148.8	50,541	1684.7	1833.5
501.80	165.6	53,040	1768.0	1933.6
502.00	183.1	55,596	1853.2	2036.3

Time increment (t) = 1.0 min.

INFLOW HYDROGRAPH / ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	495.00
1.0	8.50	8.5	6.4	8.5	1.05	495.48
2.0	19.83	28.3	30.4	34.7	2.18	495.82
3.0	28.33	48.2	71.7	78.5	3.41	496.09
4.0	28.33	56.7	118.9	128.4	4.74	496.35
5.0	28.33	56.7	163.5	175.6	6.04	496.59
6.0	28.33	56.7	205.7	220.1	7.23	496.80
7.0	28.33	56.7	245.4	262.3	8.49	497.00
8.0	28.33	56.7	282.7	302.0	9.64	497.18
9.0	28.33	56.7	317.9	339.4	10.75	497.34
10.0	28.33	56.7	351.3	374.6	11.62	497.48
11.0	28.33	56.7	383.4	408.0	12.28	497.62
12.0	28.33	56.7	414.6	440.1	12.74	497.75
13.0	28.33	56.7	444.9	471.3	13.17	497.88
14.0	28.33	56.7	474.4	501.6	13.59	498.00
15.0	28.33	56.7	503.1	531.1	13.98	498.11
16.0	28.33	56.7	531.1	559.8	14.35	498.22
17.0	28.33	56.7	558.4	587.7	14.66	498.32
18.0	28.33	56.7	585.2	615.1	14.96	498.42
19.0	28.33	56.7	611.3	641.8	15.25	498.52
20.0	28.33	56.7	636.9	668.0	15.53	498.61
21.0	19.83	48.2	653.7	685.1	15.71	498.67
22.0	8.50	28.3	650.6	682.0	15.68	498.66
23.0	0.00	8.5	628.3	659.1	15.43	498.58
24.0	0.00	0.0	598.1	628.3	15.10	498.47
25.0	0.00	0.0	568.5	598.1	14.77	498.36
26.0	0.00	0.0	539.6	568.5	14.45	498.25
27.0	0.00	0.0	511.4	539.6	14.09	498.14
28.0	0.00	0.0	484.0	511.4	13.72	498.03
29.0	0.00	0.0	457.3	484.0	13.34	497.93
30.0	0.00	0.0	431.4	457.3	12.98	497.82
31.0	0.00	0.0	406.1	431.4	12.61	497.72
32.0	0.00	0.0	381.6	406.1	12.25	497.62
33.0	0.00	0.0	358.1	381.6	11.77	497.51
34.0	0.00	0.0	335.5	358.1	11.28	497.42
35.0	0.00	0.0	314.3	335.5	10.64	497.32
36.0	0.00	0.0	294.3	314.3	10.00	497.23
37.0	0.00	0.0	275.4	294.3	9.41	497.14
38.0	0.00	0.0	257.7	275.4	8.87	497.06
39.0	0.00	0.0	241.0	257.7	8.35	496.98
40.0	0.00	0.0	225.3	241.0	7.85	496.90
41.0	0.00	0.0	210.5	225.3	7.38	496.83
42.0	0.00	0.0	196.6	210.5	6.97	496.76
43.0	0.00	0.0	183.4	196.6	6.60	496.69
44.0	0.00	0.0	170.9	183.4	6.25	496.63
45.0	0.00	0.0	159.0	170.9	5.92	496.57
46.0	0.00	0.0	147.9	159.0	5.59	496.51
47.0	0.00	0.0	137.3	147.9	5.29	496.45
48.0	0.00	0.0	127.3	137.3	5.00	496.40
49.0	0.00	0.0	117.9	127.3	4.71	496.35
50.0	0.00	0.0	109.0	117.9	4.44	496.30
51.0	0.00	0.0	100.6	109.0	4.19	496.25
52.0	0.00	0.0	92.7	100.6	3.95	496.21
53.0	0.00	0.0	85.2	92.7	3.75	496.17
54.0	0.00	0.0	78.1	85.2	3.57	496.13
55.0	0.00	0.0	71.3	78.1	3.39	496.09
56.0	0.00	0.0	64.8	71.3	3.23	496.05
57.0	0.00	0.0	58.7	64.8	3.07	496.02
58.0	0.00	0.0	52.9	58.7	2.90	495.98
59.0	0.00	0.0	47.4	52.9	2.73	495.94
60.0	0.00	0.0	42.3	47.4	2.56	495.90

****************** SUMMARY OF ROUTING COMPUTATIONS ******************

Starting Pond W.S. Elevation = 495.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 28.33 cfs
Peak Outflow = 15.71 cfs
Peak Elevation = 498.67 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0 cu-ft
Peak Storage From Storm = 20,081 cu-ft
Total Storage in Pond = 20,081 cu-ft

28.33 – 15.71 = 12.62 cfs
Required Attenuation: 8.34 cfs

****
AVONDALE HEIGHTS - PLAT FIVE
DETENTION ANALYSIS
BASIN B

25 YEAR STORM
****

----INITIAL CONDITIONS----
Elevation = 495.00 ft
Outflow = 0.00 cfs
Storage = 0 cu-ft

GIVEN POND DATA / INTERMEDIATE ROUTING COMPUTATIONS

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
495.00	0.0	0	0.0	0.0
495.20	0.3	14	0.5	0.8
495.40	0.8	113	3.8	4.6
495.60	1.4	382	12.7	14.1
495.80	2.1	904	30.1	32.2
496.00	3.0	1,767	58.9	61.9
496.20	3.9	2,848	94.9	98.8
496.40	5.0	3,974	132.5	137.5
496.60	6.1	5,145	171.5	177.6
496.80	7.2	6,361	212.0	219.2
497.00	8.5	7,624	254.1	262.6
497.20	9.8	8,935	297.8	307.6
497.40	11.2	10,294	343.1	354.3
497.60	12.2	11,702	390.1	402.3
497.80	12.9	13,161	438.7	451.6
498.00	13.6	14,670	489.0	502.6
498.20	14.3	16,230	541.0	555.3
498.40	14.9	17,837	594.5	609.4
498.60	15.5	19,492	649.7	665.2
498.80	16.1	21,197	706.6	722.7
499.00	16.7	22,953	765.1	781.8
499.20	17.2	24,759	825.3	842.5
499.40	19.8	26,616	887.2	907.0
499.60	25.5	28,527	950.9	976.4
499.80	33.0	30,489	1016.3	1049.3
500.00	42.0	32,507	1083.6	1125.6
500.20	52.1	34,576	1152.5	1204.6
500.40	63.3	36,697	1223.2	1286.5
500.60	75.5	38,870	1295.7	1371.2
500.80	88.6	41,096	1369.9	1458.5
501.00	102.5	43,376	1445.9	1548.4
501.20	117.2	45,709	1523.6	1640.8
501.40	132.7	48,097	1603.2	1735.9
501.60	148.8	50,541	1684.7	1833.5
501.80	165.6	53,040	1768.0	1933.6
502.00	183.1	55,596	1853.2	2036.3

Time increment (t) = 1.0 min.

INFLOW HYDROGRAPH / ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	495.00
1.0	10.49	10.5	8.1	10.5	1.17	495.52
2.0	24.49	35.0	38.3	43.1	2.43	495.87
3.0	34.98	59.5	90.0	97.7	3.87	496.19
4.0	34.98	70.0	148.7	159.9	5.62	496.51
5.0	34.98	70.0	204.3	218.7	7.19	496.80
6.0	34.98	70.0	256.6	274.3	8.84	497.05
7.0	34.98	70.0	305.8	326.6	10.37	497.28
8.0	34.98	70.0	352.5	375.8	11.65	497.49
9.0	34.98	70.0	397.5	422.4	12.49	497.68
10.0	34.98	70.0	441.2	467.4	13.12	497.86
11.0	34.98	70.0	483.7	511.2	13.71	498.03
12.0	34.98	70.0	525.1	553.7	14.28	498.19
13.0	34.98	70.0	565.6	595.1	14.74	498.35
14.0	34.98	70.0	605.2	635.6	15.18	498.49
15.0	34.98	70.0	644.0	675.2	15.60	498.63
16.0	34.98	70.0	681.9	713.9	16.01	498.77
17.0	34.98	70.0	719.1	751.9	16.40	498.90
18.0	34.98	70.0	755.5	789.0	16.76	499.02
19.0	34.98	70.0	791.4	825.5	17.06	499.14
20.0	34.98	70.0	825.4	861.3	17.96	499.26
21.0	24.49	59.5	847.1	884.9	18.91	499.33
22.0	10.49	35.0	844.4	882.0	18.79	499.32
23.0	0.00	10.5	819.5	854.9	17.70	499.24
24.0	0.00	0.0	785.5	819.5	17.01	499.12
25.0	0.00	0.0	752.0	785.5	16.73	499.01
26.0	0.00	0.0	719.3	752.0	16.40	498.90
27.0	0.00	0.0	687.1	719.3	16.06	498.79
28.0	0.00	0.0	655.7	687.1	15.73	498.68
29.0	0.00	0.0	624.9	655.7	15.40	498.57
30.0	0.00	0.0	594.7	624.9	15.07	498.46
31.0	0.00	0.0	565.3	594.7	14.74	498.35
32.0	0.00	0.0	536.4	565.3	14.41	498.24
33.0	0.00	0.0	508.3	536.4	14.05	498.13
34.0	0.00	0.0	481.0	508.3	13.68	498.02
35.0	0.00	0.0	454.4	481.0	13.30	497.92
36.0	0.00	0.0	428.5	454.4	12.94	497.81
37.0	0.00	0.0	403.4	428.5	12.57	497.71
38.0	0.00	0.0	378.9	403.4	12.22	497.60
39.0	0.00	0.0	355.5	378.9	11.71	497.50
40.0	0.00	0.0	333.1	355.5	11.22	497.40
41.0	0.00	0.0	311.9	333.1	10.56	497.31
42.0	0.00	0.0	292.1	311.9	9.93	497.22
43.0	0.00	0.0	273.4	292.1	9.35	497.13
44.0	0.00	0.0	255.8	273.4	8.81	497.05
45.0	0.00	0.0	239.2	255.8	8.29	496.97
46.0	0.00	0.0	223.6	239.2	7.80	496.89
47.0	0.00	0.0	208.9	223.6	7.33	496.82
48.0	0.00	0.0	195.1	208.9	6.93	496.75
49.0	0.00	0.0	181.9	195.1	6.56	496.68
50.0	0.00	0.0	169.5	181.9	6.21	496.62
51.0	0.00	0.0	157.7	169.5	5.88	496.56
52.0	0.00	0.0	146.6	157.7	5.56	496.50
53.0	0.00	0.0	136.1	146.6	5.25	496.45
54.0	0.00	0.0	126.2	136.1	4.96	496.39
55.0	0.00	0.0	116.9	126.2	4.68	496.34
56.0	0.00	0.0	108.0	116.9	4.41	496.29
57.0	0.00	0.0	99.7	108.0	4.16	496.25
58.0	0.00	0.0	91.9	99.7	3.92	496.20
59.0	0.00	0.0	84.4	91.9	3.73	496.16
60.0	0.00	0.0	77.3	84.4	3.55	496.12

****************** SUMMARY OF ROUTING COMPUTATIONS ******************

Starting Pond W.S. Elevation = 495.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 34.98 cfs
Peak Outflow = 18.91 cfs
Peak Elevation = 499.33 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0 cu-ft
Peak Storage From Storm = 25,979 cu-ft
Total Storage in Pond = 25,979 cu-ft

34.98 – 18.91 = 16.07 cfs
Required Attenuation: 10.29 cfs

****
AVONDALE HEIGHTS - PLAT FIVE
DETENTION ANALYSIS
BASIN B

100 YEAR STORM
****

----INITIAL CONDITIONS----
Elevation = 495.00 ft
Outflow = 0.00 cfs
Storage = 0 cu-ft

GIVEN POND DATA / INTERMEDIATE ROUTING COMPUTATIONS

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)	2S/t (cfs)	2S/t + O (cfs)
495.00	0.0	0	0.0	0.0
495.20	0.3	14	0.5	0.8
495.40	0.8	113	3.8	4.6
495.60	1.4	382	12.7	14.1
495.80	2.1	904	30.1	32.2
496.00	3.0	1,767	58.9	61.9
496.20	3.9	2,848	94.9	98.8
496.40	5.0	3,974	132.5	137.5
496.60	6.1	5,145	171.5	177.6
496.80	7.2	6,361	212.0	219.2
497.00	8.5	7,624	254.1	262.6
497.20	9.8	8,935	297.8	307.6
497.40	11.2	10,294	343.1	354.3
497.60	12.2	11,702	390.1	402.3
497.80	12.9	13,161	438.7	451.6
498.00	13.6	14,670	489.0	502.6
498.20	14.3	16,230	541.0	555.3
498.40	14.9	17,837	594.5	609.4
498.60	15.5	19,492	649.7	665.2
498.80	16.1	21,197	706.6	722.7
499.00	16.7	22,953	765.1	781.8
499.20	17.2	24,759	825.3	842.5
499.40	19.8	26,616	887.2	907.0
499.60	25.5	28,527	950.9	976.4
499.80	33.0	30,489	1016.3	1049.3
500.00	42.0	32,507	1083.6	1125.6
500.20	52.1	34,576	1152.5	1204.6
500.40	63.3	36,697	1223.2	1286.5
500.60	75.5	38,870	1295.7	1371.2
500.80	88.6	41,096	1369.9	1458.5
501.00	102.5	43,376	1445.9	1548.4
501.20	117.2	45,709	1523.6	1640.8
501.40	132.7	48,097	1603.2	1735.9
501.60	148.8	50,541	1684.7	1833.5
501.80	165.6	53,040	1768.0	1933.6
502.00	183.1	55,596	1853.2	2036.3

Time increment (t) = 1.0 min.

INFLOW HYDROGRAPH / ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	0.00	-----	0.0	0.0	0.00	495.00
1.0	13.42	13.4	10.7	13.4	1.36	495.59
2.0	31.32	44.7	49.8	55.4	2.80	495.96
3.0	44.74	76.1	116.6	125.9	4.67	496.34
4.0	44.74	89.5	192.3	206.0	6.85	496.74
5.0	44.74	89.5	263.7	281.8	9.05	497.09
6.0	44.74	89.5	330.9	353.2	11.17	497.40
7.0	44.74	89.5	395.4	420.3	12.46	497.67
8.0	44.74	89.5	458.2	484.9	13.36	497.93
9.0	44.74	89.5	519.3	547.7	14.20	498.17
10.0	44.74	89.5	579.0	608.6	14.89	498.40
11.0	44.74	89.5	637.4	668.4	15.53	498.61
12.0	44.74	89.5	694.6	726.9	16.14	498.81
13.0	44.74	89.5	750.6	784.1	16.72	499.01
14.0	44.74	89.5	805.7	840.1	17.18	499.19
15.0	44.74	89.5	856.6	895.2	19.32	499.36
16.0	44.74	89.5	900.0	946.0	23.01	499.51
17.0	44.74	89.5	935.8	989.5	26.85	499.64
18.0	44.74	89.5	964.2	1025.3	30.53	499.73
19.0	44.74	89.5	986.7	1053.7	33.52	499.81
20.0	44.74	89.5	1003.8	1076.2	36.17	499.87
21.0	31.32	76.1	1006.7	1079.9	36.61	499.88
22.0	13.42	44.7	984.9	1051.4	33.25	499.81
23.0	0.00	13.4	942.8	998.3	27.76	499.66
24.0	0.00	0.0	897.3	942.8	22.74	499.50
25.0	0.00	0.0	858.5	897.3	19.41	499.37
26.0	0.00	0.0	822.8	858.5	17.85	499.25
27.0	0.00	0.0	788.7	822.8	17.04	499.14
28.0	0.00	0.0	755.2	788.7	16.76	499.02
29.0	0.00	0.0	722.4	755.2	16.43	498.91
30.0	0.00	0.0	690.2	722.4	16.10	498.80
31.0	0.00	0.0	658.7	690.2	15.76	498.69
32.0	0.00	0.0	627.8	658.7	15.43	498.58
33.0	0.00	0.0	597.6	627.8	15.10	498.47
34.0	0.00	0.0	568.1	597.6	14.77	498.36
35.0	0.00	0.0	539.2	568.1	14.44	498.25
36.0	0.00	0.0	511.0	539.2	14.09	498.14
37.0	0.00	0.0	483.6	511.0	13.71	498.03
38.0	0.00	0.0	456.9	483.6	13.34	497.93
39.0	0.00	0.0	431.0	456.9	12.97	497.82
40.0	0.00	0.0	405.7	431.0	12.61	497.72
41.0	0.00	0.0	381.2	405.7	12.25	497.61
42.0	0.00	0.0	357.7	381.2	11.76	497.51
43.0	0.00	0.0	335.2	357.7	11.27	497.41
44.0	0.00	0.0	313.9	335.2	10.63	497.32
45.0	0.00	0.0	294.0	313.9	9.99	497.23
46.0	0.00	0.0	275.1	294.0	9.40	497.14
47.0	0.00	0.0	257.4	275.1	8.86	497.06
48.0	0.00	0.0	240.7	257.4	8.34	496.98
49.0	0.00	0.0	225.0	240.7	7.84	496.90
50.0	0.00	0.0	210.3	225.0	7.37	496.83
51.0	0.00	0.0	196.4	210.3	6.96	496.76
52.0	0.00	0.0	183.2	196.4	6.60	496.69
53.0	0.00	0.0	170.7	183.2	6.25	496.63
54.0	0.00	0.0	158.9	170.7	5.91	496.57
55.0	0.00	0.0	147.7	158.9	5.59	496.51
56.0	0.00	0.0	137.1	147.7	5.28	496.45
57.0	0.00	0.0	127.1	137.1	4.99	496.40
58.0	0.00	0.0	117.7	127.1	4.71	496.35
59.0	0.00	0.0	108.9	117.7	4.44	496.30
60.0	0.00	0.0	100.5	108.9	4.19	496.25

****************** SUMMARY OF ROUTING COMPUTATIONS ******************

Starting Pond W.S. Elevation = 495.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 44.74 cfs
Peak Outflow = 36.61 cfs
Peak Elevation = 499.88 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0 cu-ft
Peak Storage From Storm = 31,298 cu-ft
Total Storage in Pond = 31,298 cu-ft

44.74 – 36.61 = 8.1 cfs
Required Attenuation: 13.21 cfs

BLOCK CHECK:

Q = 44.74 cfs

H = [44.74/3(11.67)]^2/3 = 1.18 ft.

FREEBOARD = 502 – (499.25 + 1.18) = 1.57 ft