00-037

STORMWATER DETENTION ANALYSIS
MONTICELLO ESTATES PLAT FOUR
AUGUST 30, 2000

INTRODUCTION:

The purpose of this report is to analyze the effects of storm water on the five-acre lake located in Plat Four of Monticello Estates. The residents of the subdivision have requested the function of the basin be analyzed to determine the time required for the lake to return to normal pool following a storm event (see figure 1).

Storm water detention requirements for the City of O'Fallon are such that storage volume and outflow rates shall be proportioned to insure that the peak rate of runoff leaving the site under post-developed conditions is less than or equal to the peak rate of runoff leaving the site under pre-developed conditions for the required design storms. The required design storms are the 2, 15, 25, 50 and 100 year – 20 minute storms. A 2-year storm has a 50% chance of occurring in any given year. A 15-year has a 6.7% chance, a 25-year has a 4%, a 50-year has a 2% chance, and a 100-year has a 1% chance of occurring in any given year. The 20 minute storm indicates the duration of the storm, and is used as a standard in detention analysis.

The lake was analyzed using the 2, 15, 25, 50 and 100 year twenty minute storms to establish maximum water elevation for each storm. The results are as follows:

2 year - 20 minute storm	478.58
15 year – 20 minute storm	478.95
25 year – 20 minute storm	479.17
50 year – 20 minute storm	479.33
100 year – 20 minute storm	479.50

The normal pool level of the lake is 478.00, the emergency spillway is 481.50, and the top of berm elevation is 482.8. In comparing the elevations reached for each storm, the change in water elevation is a maximum of 1.5 feet. Also, the calculations show that the maximum water elevation is a foot below the spillway, as required by the City of O'Fallon.

Because the pipe draining the lake has a flap gate, preventing flow out of the basin as well as backwater into the basin in the event of a high creek water situation, additional calculations were performed. A 100 year – 20 minute storm was run as if the gate were closed. The maximum elevation reached was 479.51. Back to back 100 year storms were run with the gate closed, and the maximum elevation the lake reached was 480.85, still over a half foot from the emergency spillway.

These calculations are consistent with the report produced by Bax Engineering Co., Inc. in March of 1994. They indicate that the lake does not pose a flooding threat to the homes adjacent to it, and that it alleviates flooding down stream by detaining a large volume of water before releasing it into the creek downstream.

However, this is not the concern of the residents. The time required for the lake to return to normal pool elevation following a storm event is the purpose of this report. A 15 year – 20 minute storm (the size storm used to design storm sewer systems) requires approximately 11.5 days to pass through the lake. This is due to the size of the 5-acre lake relative to the size of the pipe draining the lake, eight inches in diameter. Although this time period does not violate O'Fallon City code, it does differ from common practice, which is to design a basin to drain within a maximum of 72 hours.

Hydraulics were run to determine what pipe configuration would allow the lake to drain within an acceptable time period. Three 12-inch pipes set at a slope of 1% will allow the lake to drain a 25-year storm in a period of 72 hours without exceeding the permitted release rate.

CALCULATIONS

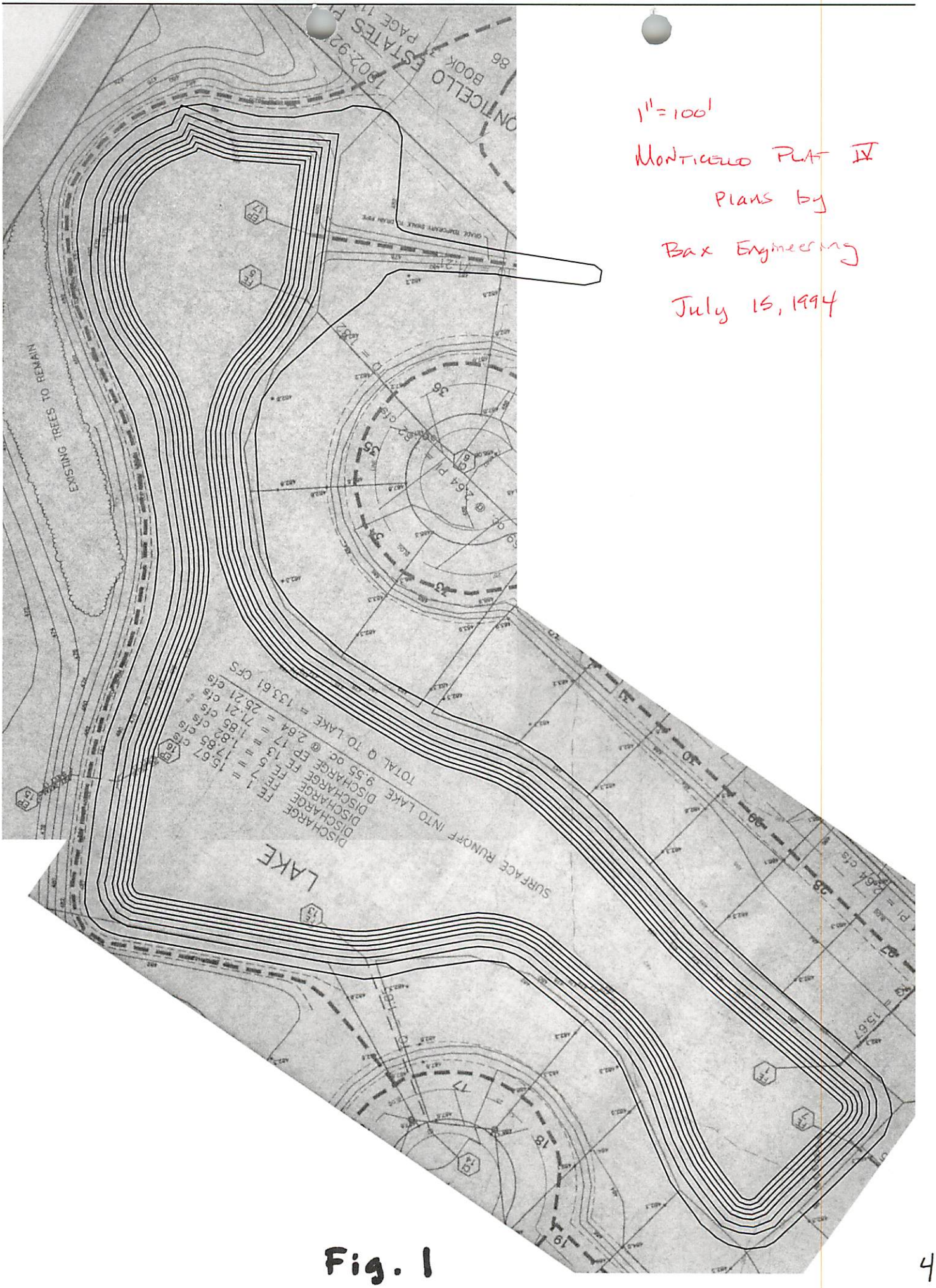

1"=100'
MONTICELLO PLAT IV
PLANS by
BAX ENGINEERING
JULY 15, 1994
EXISTING TREES TO REMAIN
LAKE
SURFACE RUNOFF INTO LAKE
TOTAL Q TO LAKE = 133.61 CFS
DISCHARGE FE 1 = 15.67 cfs
DISCHARGE FE 5 = 17.85 cfs
DISCHARGE FE 13 = 1.85 cfs
DISCHARGE FP 17 = 71.21 cfs
DISCHARGE @ 2.64 = 25.21 cfs
9.55 oc

Fig. 1

City of O'Fallon
100 North Main Street
O'Fallon, Missouri
636-240-2000

Project Name _____
Project No. _____
Description _____
Designed by _____
Checked by _____

AREA OF TRACT: 25.74 Ac

THIS BASIN WILL BE ANALYZED FOR A 25 YR - 20 MIN. STORM

PRE-DEV. P.I = 2.31 POST-DEV P.I = 3.26 cfs/Ac

25.74 Ac @ 2.31 = 59.46 cfs. 25.74 Ac @ 3.26 = 83.91 cfs.

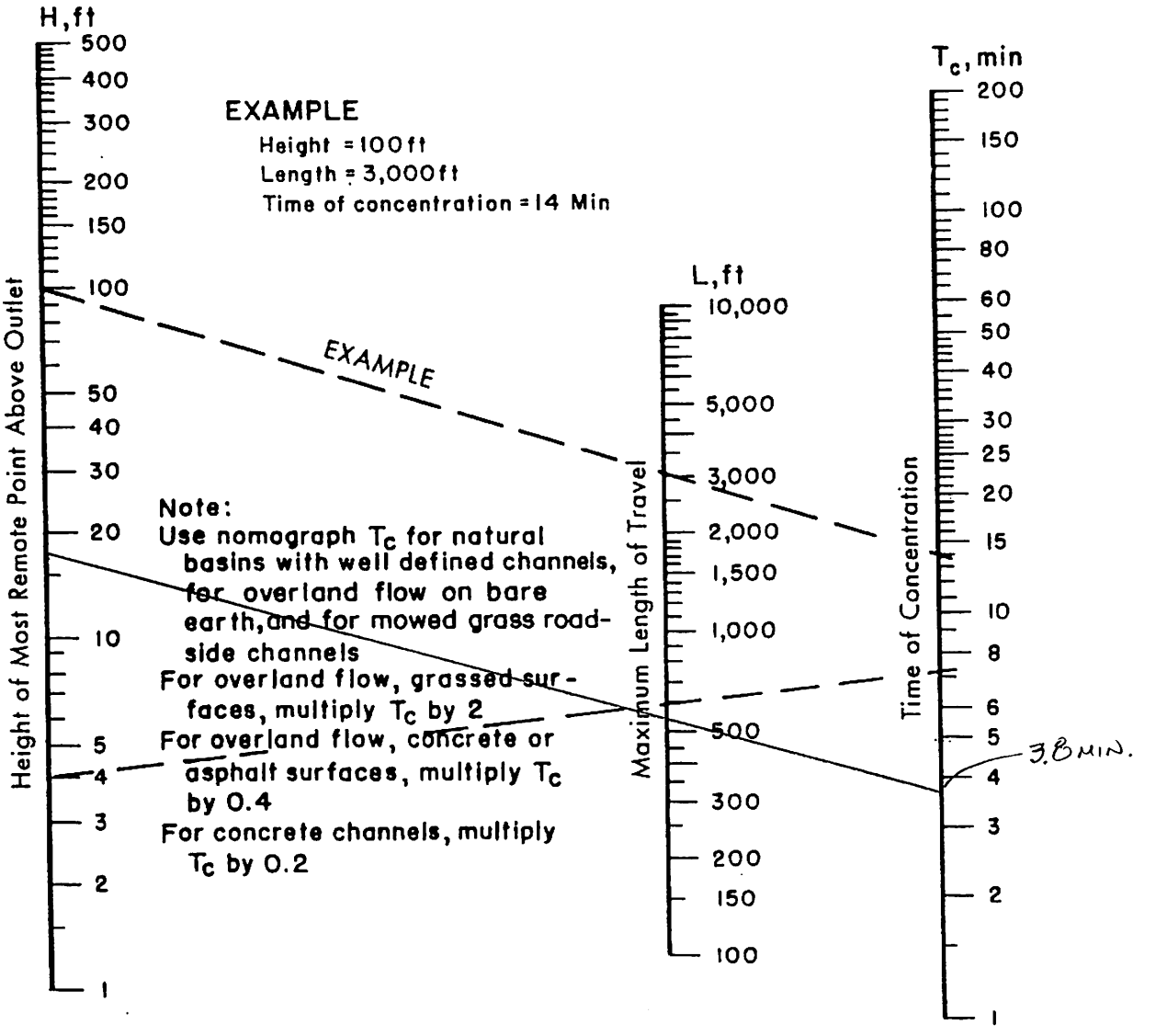
∴ REQ. ATTENUATION = 83.91 - 59.46 = 24.45 cfs.

FLOW TO BASIN: (25 YR)

ON SITE: 1.23 + .52 + .35 + .35 + 1.14 + 1.20 + 1.0 + .69 +
1.46 + 1.0 + 0.7 + 9.55 = 19.19 @ 3.26 = 62.56 cfs.

OFFSITE: 2.15 + 1.47 = 3.62 @ 2.58 = 9.34 cfs.
0.21 + 1.38 = 1.59 @ 3.26 = 5.18 cfs.
+ (FROM PRS PLANS 71.21 cfs x 1.18 = 84.03 cfs ← 25 yr. storm
15 yr. storm
161.11 cfs.

161.11 cfs - 24.45 cfs = 136.66 cfs = PERMITTED RELEASE RATE.



Based on study by P. Z. Kirpich,
Civil Engineering, Vol. 10, No. 6, June 1940, p. 362

1.28 MIN.

$T_C = 3.8\,\text{MIN.} + (536' @ 7\,\text{ft/sec}) = 5.08\,\text{MIN.} \therefore$ use 5 MIN.

1052 South Cloverleaf Drive
St. Peters, MO 63376-6445
314-928-5552 FAX 928-1718

MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

ELEVATION	AREA S.F.	VOLUME	CUM. VOLUME C.F.
478.00	159686		
		335745	335745
480.00	176059		
		394896	730641
482.00	218837		

2 year

```
*********************************************
*                                           *
*  PIPE OUTLET                              *
*  1  40 ft - 8 in pipe(s)                  *
*  UFL= 478  LFL= 478   n= .013             *
*                                           *
*********************************************
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MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

MIN	INFLOW CFM	STORAGE CF	OUTFLOW	NET DET.	ELEV.
1	977.76	977.76	0.00	977.76	478.01
2	1955.52	2933.28	0.01	2933.27	478.02
3	2933.28	5866.55	0.06	5866.49	478.03
4	3911.04	9777.53	0.19	9777.34	478.06
5	4888.80	14666.14	0.59	14665.55	478.09
6	4888.80	19554.35	1.23	19553.12	478.12
7	4888.80	24441.92	2.09	24439.83	478.15
8	4888.80	29328.63	3.39	29325.24	478.17
9	4888.80	34214.04	4.70	34209.34	478.20
10	4888.80	39098.14	6.49	39091.65	478.23
11	4888.80	43980.45	8.20	43972.25	478.26
12	4888.80	48861.05	10.06	48850.99	478.29
13	4888.80	53739.79	12.45	53727.34	478.32
14	4888.80	58616.14	14.62	58601.53	478.35
PIPE CONTROL BEGINS					
15	4888.80	63490.33	11.04	63479.29	478.38
16	4888.80	68368.10	18.62	68349.46	478.41
PIPE CONTROL ENDS					
17	4888.80	73238.26	22.21	73216.05	478.44
18	4888.80	78104.85	24.73	78080.12	478.47
19	4888.80	82968.93	27.76	82941.16	478.49
20	4888.80	87829.96	30.36	87799.60	478.52
21	3911.04	91710.64	32.94	91677.71	478.55
22	2933.28	94610.98	35.30	94575.68	478.56
23	1955.52	96531.21	37.05	96494.16	478.57
24	977.76	97471.92	37.79	97434.12	478.58
25	0.00	97434.12	38.30	97395.82	478.58

PEAK OUTFLOW= .24 CFS AT 14 MINUTES

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*********************************************
*                                           *
*  PIPE OUTLET                              *
*  1  40 ft - 8 in pipe(s)                  *
*  UFL= 478  LFL= 478   n= .013             *
*                                           *
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15 yr.

15 year

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*********************************************
*                                           *
*  PIPE OUTLET                              *
*  1  40 ft - 8 in pipe(s)                  *
*  UFL= 478  LFL= 478   n= .013             *
*                                           *
*********************************************
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MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

MIN	INFLOW CFM	STORAGE CF	OUTFLOW	NET DET.	ELEV.
1	1603.32	1603.32	0.00	1603.32	478.01
2	3206.64	4809.96	0.01	4809.95	478.03
3	4809.96	9619.91	0.12	9619.79	478.06
4	6413.28	16033.07	0.58	16032.49	478.10
5	8016.60	24049.09	1.43	24047.66	478.14
6	8016.60	32064.26	3.15	32061.11	478.19
7	8016.60	40077.71	5.73	40071.99	478.24
8	8016.60	48088.59	8.62	48079.97	478.29
9	8016.60	56096.57	11.98	56084.59	478.33
PIPE CONTROL BEGINS					
10	8016.60	64101.19	2.38	64098.81	478.38
11	8016.60	72115.41	19.37	72096.03	478.43
PIPE CONTROL ENDS					
12	8016.60	80112.63	24.13	80088.50	478.48
13	8016.60	88105.10	28.97	88076.12	478.52
14	8016.60	96092.72	33.45	96059.28	478.57
15	8016.60	104075.90	37.71	104038.20	478.62
16	8016.60	112054.80	41.54	112013.20	478.67
17	8016.60	120029.90	50.84	119979.00	478.71
18	8016.60	127995.60	54.33	127941.30	478.76
19	8016.60	135957.90	57.61	135900.30	478.81
20	8016.60	143916.90	60.71	143856.10	478.86
21	6413.28	150269.40	63.66	150205.80	478.89
22	4809.96	155015.70	65.92	154949.80	478.92
23	3206.64	158156.40	67.56	158088.90	478.94
24	1603.32	159692.20	68.62	159623.60	478.95
25	0.00	159623.60	69.14	159554.40	478.95

PEAK OUTFLOW= .2 CFS AT 9 MINUTES

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*********************************************
*                                           *
*  PIPE OUTLET                              *
*  1  40 ft - 8 in pipe(s)                  *
*  UFL= 478  LFL= 478   n= .013             *
*                                           *
*********************************************
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25 yr.

MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

MIN	INFLOW CFM	STORAGE CF	OUTFLOW	NET DET.	ELEV.

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*******************************************
*                                         *
*  PIPE OUTLET                            *
*  1  40 ft - 8 in pipe(s)                *
*  UFL= 478  LFL= 478   n= .013           *
*                                         *
*******************************************
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25 year

MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

MIN	INFLOW CFM	STORAGE CF	OUTFLOW	NET DET.	ELEV.
1	1979.88	1979.88	0.00	1979.88	478.01
2	3959.76	5939.64	0.03	5939.61	478.04
3	5939.64	11879.25	0.19	11879.06	478.07
4	7919.52	19798.58	0.87	19797.71	478.12
5	9899.40	29697.11	2.29	29694.83	478.18
6	9899.40	39594.23	4.99	39589.24	478.24
7	9899.40	49488.64	8.25	49480.39	478.29
8	9899.40	59379.79	12.53	59367.26	478.35
PIPE CONTROL BEGINS					
9	9899.40	69266.68	12.53	69254.13	478.41
PIPE CONTROL ENDS					
10	9899.40	79153.53	22.80	79130.75	478.47
11	9899.40	89030.14	28.37	89001.76	478.53
12	9899.40	98901.16	34.03	98867.12	478.59
13	9899.40	108766.50	38.95	108727.60	478.65
14	9899.40	118627.00	43.47	118583.50	478.71
15	9899.40	128482.90	53.73	128429.20	478.77
16	9899.40	138328.60	57.81	138270.80	478.82
17	9899.40	148170.20	61.61	148108.60	478.88
18	9899.40	158008.00	65.18	157942.80	478.94
19	9899.40	167842.20	68.57	167773.60	479.00
20	9899.40	177673.00	71.80	177601.20	479.06
21	7919.52	185520.70	74.89	185445.80	479.10
22	5939.64	191385.50	77.27	191308.20	479.14
23	3959.76	195268.00	79.00	195189.00	479.16
24	1979.88	197168.80	80.12	197088.70	479.17
25	0.00	197088.70	80.67	197008.10	479.17
26	0.00	197008.10	80.64	196927.40	479.17

PEAK OUTFLOW= 1.34 CFS AT 25 MINUTES

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*******************************************
*                                         *
*  PIPE OUTLET                            *
*  1  40 ft - 8 in pipe(s)                *
*  UFL= 478  LFL= 478   n= .013           *
*                                         *
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50 yr.

MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

MIN	INFLOW CFM	STORAGE CF	OUTFLOW	NET DET.	ELEV.
1	2241.00	2241.00	0.00	2241.00	478.01
2	4482.00	6723.00	0.03	6722.97	478.04
3	6723.00	13445.97	0.37	13445.70	478.09

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PEAK OUTFLOW= 1.34 CFS AT 25 MINUTES

50 year

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*********************************************
*                                           *
*  PIPE OUTLET                              *
*  1  40 ft - 8 in pipe(s)                  *
*  UFL= 478  LFL= 478   n= .013             *
*                                           *
*********************************************
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MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

MIN	INFLOW CFM	STORAGE CF	OUTFLOW	NET DET.	ELEV.
1	2241.00	2241.00	0.00	2241.00	478.01
2	4482.00	6723.00	0.03	6722.97	478.04
3	6723.00	13445.97	0.27	13445.70	478.08
4	8964.00	22409.70	1.05	22408.65	478.13
5	11205.00	33613.65	2.83	33610.82	478.20
6	11205.00	44815.82	6.15	44809.67	478.27
7	11205.00	56014.67	10.51	56004.16	478.33
PIPE CONTROL BEGINS					
8	11205.00	67209.16	1.46	67207.71	478.40
PIPE CONTROL ENDS					
9	11205.00	78412.71	21.58	78391.12	478.47
10	11205.00	89596.12	27.81	89568.30	478.53
11	11205.00	100773.30	34.13	100739.20	478.60
12	11205.00	111944.20	40.01	111904.10	478.67
13	11205.00	123109.10	44.38	123064.80	478.73
14	11205.00	134269.80	55.62	134214.10	478.80
15	11205.00	145419.10	60.07	145359.10	478.87
16	11205.00	156564.10	64.20	156499.90	478.93
17	11205.00	167704.90	68.09	167636.80	479.00
18	11205.00	178841.80	71.76	178770.10	479.06
19	11205.00	189975.10	75.25	189899.80	479.13
20	11205.00	201104.80	78.59	201026.20	479.20
21	8964.00	209990.20	81.78	209908.50	479.25
22	6723.00	216631.50	84.25	216547.20	479.29
23	4482.00	221029.20	86.05	220943.20	479.32
24	2241.00	223184.20	87.22	223096.90	479.33
25	0.00	223096.90	87.79	223009.10	479.33

PEAK OUTFLOW= .18 CFS AT 7 MINUTES

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*********************************************
*                                           *
*  PIPE OUTLET                              *
*  1  40 ft - 8 in pipe(s)                  *
*  UFL= 478  LFL= 478   n= .013             *
*                                           *
*********************************************
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100 yr.

MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

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16	11205.00	156364.10	64.20	156499.90	478.95
17	11205.00	167700.90	68.09	167636.80	479.00
18	11205.00	178841.80	71.76	178770.10	479.06
19	11205.00	189975.10	75.25	189899.80	479.13
20	11205.00	201104.80	78.59	201026.20	479.20
21	8964.00	209990.20	81.78	209908.50	479.25
22	6723.00	216631.50	84.25	216547.20	479.29
23	4482.00	221029.20	86.05	220943.20	479.32
24	2241.00	223184.20	87.22	223096.90	479.33
25	0.00	223096.90	87.79	223009.10	479.33

PEAK OUTFLOW= .18 CFS AT 7 MINUTES

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*********************************************
*                                           *
*  PIPE OUTLET                              *
*  1  40 ft - 8 in pipe(s)                  *
*  UFL= 478  LFL= 478   n= .013             *
*                                           *
*********************************************
```

100 year

MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

MIN	INFLOW CFM	STORAGE CF	OUTFLOW	NET DET.	ELEV.
1	2532.48	2532.48	0.00	2532.48	478.02
2	5064.96	7597.44	0.03	7597.41	478.05
3	7597.44	15194.85	0.36	15194.49	478.09
4	10129.92	25324.41	1.39	25323.02	478.15
5	12662.40	37985.42	3.68	37981.75	478.23
6	12662.40	50644.15	7.77	50636.38	478.30
7	12662.40	63298.78	13.05	63285.73	478.38
PIPE CONTROL BEGINS					
8	12662.40	75948.13	18.38	75929.75	478.45
PIPE CONTROL ENDS					
9	12662.40	88592.16	26.53	88565.62	478.53
10	12662.40	101228.00	33.54	101194.50	478.60
11	12662.40	113856.90	40.10	113816.80	478.68
12	12662.40	126479.20	51.65	126427.50	478.75
13	12662.40	139089.90	57.00	139032.90	478.83
14	12662.40	151695.40	61.89	151633.40	478.90
15	12662.40	164295.90	66.42	164229.40	478.98
16	12662.40	176891.80	70.65	176821.20	479.05
17	12662.40	189483.60	74.65	189408.90	479.13
18	12662.40	202071.30	78.44	201992.90	479.20
19	12662.40	214655.30	82.06	214573.20	479.28
20	12662.40	227235.60	85.52	227150.10	479.35
21	10129.92	237280.00	88.84	237191.20	479.41
22	7597.44	244788.60	91.41	244697.20	479.46
23	5064.96	249762.20	93.29	249668.90	479.49
24	2532.48	252201.30	94.51	252106.80	479.50
25	0.00	252106.80	95.10	252011.70	479.50
26	0.00	252011.70	95.08	251916.70	479.50

PEAK OUTFLOW= 1.58 CFS AT 25 MINUTES

MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

ELEVATION	AREA	VOLUME	CUM. VOLUME
478.00	159686		
		335745	335745
480.00	176059		
		394896	730641
482.00	218837		

100 year with pipe blocked

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*********************************************
*                                           *
*  PIPE OUTLET                              *
*  1  40 ft - 8 in pipe(s)                  *
*  UFL= 482.5  LFL= 482.5   n= .013         *
*                                           *
*********************************************
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MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	2532.48	2532.48	0.00	2532.48	478.02
2	5064.96	7597.44	0.00	7597.44	478.05
3	7597.44	15194.88	0.00	15194.88	478.09
4	10129.92	25324.80	0.00	25324.80	478.15
5	12662.40	37987.20	0.00	37987.20	478.23
6	12662.40	50649.60	0.00	50649.60	478.30
7	12662.40	63312.00	0.00	63312.00	478.38
8	12662.40	75974.40	0.00	75974.40	478.45
9	12662.40	88636.80	0.00	88636.80	478.53
10	12662.40	101299.20	0.00	101299.20	478.60
11	12662.40	113961.60	0.00	113961.60	478.68
12	12662.40	126624.00	0.00	126624.00	478.75
13	12662.40	139286.40	0.00	139286.40	478.83
14	12662.40	151948.90	0.00	151948.90	478.91
15	12662.40	164611.30	0.00	164611.30	478.98
16	12662.40	177273.70	0.00	177273.70	479.06
17	12662.40	189936.10	0.00	189936.10	479.13
18	12662.40	202598.50	0.00	202598.50	479.21
19	12662.40	215260.90	0.00	215260.90	479.28
20	12662.40	227923.30	0.00	227923.30	479.36
21	10129.92	238053.20	0.00	238053.20	479.42
22	7597.44	245650.70	0.00	245650.70	479.46
23	5064.96	250715.70	0.00	250715.70	479.49
24	2532.48	253248.10	0.00	253248.10	479.51
25	0.00	253248.10	0.00	253248.10	479.51
26	0.00	253248.10	0.00	253248.10	479.51
27	0.00	253248.10	0.00	253248.10	479.51
28	0.00	253248.10	0.00	253248.10	479.51
29	0.00	253248.10	0.00	253248.10	479.51
30	0.00	253248.10	0.00	253248.10	479.51
31	0.00	253248.10	0.00	253248.10	479.51
32	0.00	253248.10	0.00	253248.10	479.51
33	0.00	253248.10	0.00	253248.10	479.51
34	0.00	253248.10	0.00	253248.10	479.51
35	0.00	253248.10	0.00	253248.10	479.51
36	0.00	253248.10	0.00	253248.10	479.51
37	0.00	253248.10	0.00	253248.10	479.51

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With Him

Praised

36	0.00	253248.10	0.00	253248.10	479.51
37	0.00	253248.10	0.00	253248.10	479.51
38	0.00	253248.10	0.00	253248.10	479.51
39	0.00	253248.10	0.00	253248.10	479.51
40	0.00	253248.10	0.00	253248.10	479.51
41	0.00	253248.10	0.00	253248.10	479.51
42	0.00	253248.10	0.00	253248.10	479.51
43	0.00	253248.10	0.00	253248.10	479.51
44	0.00	253248.10	0.00	253248.10	479.51
45	0.00	253248.10	0.00	253248.10	479.51
46	0.00	253248.10	0.00	253248.10	479.51
47	0.00	253248.10	0.00	253248.10	479.51
48	0.00	253248.10	0.00	253248.10	479.51
49	0.00	253248.10	0.00	253248.10	479.51
50	0.00	253248.10	0.00	253248.10	479.51
51	0.00	253248.10	0.00	253248.10	479.51
52	0.00	253248.10	0.00	253248.10	479.51
53	0.00	253248.10	0.00	253248.10	479.51
54	0.00	253248.10	0.00	253248.10	479.51
55	0.00	253248.10	0.00	253248.10	479.51
56	0.00	253248.10	0.00	253248.10	479.51
57	0.00	253248.10	0.00	253248.10	479.51
58	0.00	253248.10	0.00	253248.10	479.51
59	0.00	253248.10	0.00	253248.10	479.51
60	0.00	253248.10	0.00	253248.10	479.51
61	0.00	253248.10	0.00	253248.10	479.51
62	0.00	253248.10	0.00	253248.10	479.51
63	0.00	253248.10	0.00	253248.10	479.51
64	0.00	253248.10	0.00	253248.10	479.51
65	0.00	253248.10	0.00	253248.10	479.51
66	0.00	253248.10	0.00	253248.10	479.51
67	0.00	253248.10	0.00	253248.10	479.51
68	0.00	253248.10	0.00	253248.10	479.51
69	0.00	253248.10	0.00	253248.10	479.51
70	0.00	253248.10	0.00	253248.10	479.51
71	0.00	253248.10	0.00	253248.10	479.51
72	0.00	253248.10	0.00	253248.10	479.51
73	0.00	253248.10	0.00	253248.10	479.51
74	0.00	253248.10	0.00	253248.10	479.51
75	0.00	253248.10	0.00	253248.10	479.51
76	0.00	253248.10	0.00	253248.10	479.51
77	0.00	253248.10	0.00	253248.10	479.51
78	0.00	253248.10	0.00	253248.10	479.51
79	0.00	253248.10	0.00	253248.10	479.51
80	0.00	253248.10	0.00	253248.10	479.51
81	0.00	253248.10	0.00	253248.10	479.51
82	0.00	253248.10	0.00	253248.10	479.51
83	0.00	253248.10	0.00	253248.10	479.51
84	0.00	253248.10	0.00	253248.10	479.51
85	0.00	253248.10	0.00	253248.10	479.51
86	0.00	253248.10	0.00	253248.10	479.51
87	0.00	253248.10	0.00	253248.10	479.51
88	0.00	253248.10	0.00	253248.10	479.51
89	0.00	253248.10	0.00	253248.10	479.51
90	0.00	253248.10	0.00	253248.10	479.51
91	0.00	253248.10	0.00	253248.10	479.51
92	0.00	253248.10	0.00	253248.10	479.51
93	0.00	253248.10	0.00	253248.10	479.51
94	0.00	253248.10	0.00	253248.10	479.51
95	0.00	253248.10	0.00	253248.10	479.51
96	0.00	253248.10	0.00	253248.10	479.51
97	0.00	253248.10	0.00	253248.10	479.51
98	0.00	253248.10	0.00	253248.10	479.51
99	0.00	253248.10	0.00	253248.10	479.51
%100	0.00	253248.10	0.00	253248.10	479.51

MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

ELEVATION	AREA	VOLUME	CUM. VOLUME
479.51	172048		
		85284	85284
480.00	176059		
		394896	480180
482.00	218837		

100 year with 100 year in basin and low flow pipe blocked

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*********************************************
*                                           *
*  PIPE OUTLET                              *
*  1  40 ft - 8 in pipe(s)                  *
*  UFL= 482  LFL= 482   n= .013             *
*                                           *
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MONTICELLO PLAT 4 8-22-00 SUBMITTAL DATE: 8-22-00

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	2532.48	2532.48	0.00	2532.48	479.52
2	5064.96	7597.44	0.00	7597.44	479.55
3	7597.44	15194.88	0.00	15194.88	479.60
4	10129.92	25324.80	0.00	25324.80	479.66
5	12662.40	37987.20	0.00	37987.20	479.73
6	12662.40	50649.60	0.00	50649.60	479.80
7	12662.40	63312.00	0.00	63312.00	479.87
8	12662.40	75974.40	0.00	75974.40	479.95
9	12662.40	88636.80	0.00	88636.80	480.02
10	12662.40	101299.20	0.00	101299.20	480.08
11	12662.40	113961.60	0.00	113961.60	480.15
12	12662.40	126624.00	0.00	126624.00	480.21
13	12662.40	139286.40	0.00	139286.40	480.27
14	12662.40	151948.90	0.00	151948.90	480.34
15	12662.40	164611.30	0.00	164611.30	480.40
16	12662.40	177273.70	0.00	177273.70	480.47
17	12662.40	189936.10	0.00	189936.10	480.53
18	12662.40	202598.50	0.00	202598.50	480.59
19	12662.40	215260.90	0.00	215260.90	480.66
20	12662.40	227923.30	0.00	227923.30	480.72
21	10129.92	238053.20	0.00	238053.20	480.77
22	7597.44	245650.70	0.00	245650.70	480.81
23	5064.96	250715.70	0.00	250715.70	480.84
24	2532.48	253248.10	0.00	253248.10	480.85
25	0.00	253248.10	0.00	253248.10	480.85
26	0.00	253248.10	0.00	253248.10	480.85
27	0.00	253248.10	0.00	253248.10	480.85
28	0.00	253248.10	0.00	253248.10	480.85
29	0.00	253248.10	0.00	253248.10	480.85
30	0.00	253248.10	0.00	253248.10	480.85
31	0.00	253248.10	0.00	253248.10	480.85
32	0.00	253248.10	0.00	253248.10	480.85
33	0.00	253248.10	0.00	253248.10	480.85
34	0.00	253248.10	0.00	253248.10	480.85
35	0.00	253248.10	0.00	253248.10	480.85
36	0.00	253248.10	0.00	253248.10	480.85
37	0.00	253248.10	0.00	253248.10	480.85
38	0.00	253248.10	0.00	253248.10	480.85

36	0.00	253248.10	0.00	253248.10	480.85
37	0.00	253248.10	0.00	253248.10	480.85
38	0.00	253248.10	0.00	253248.10	480.85
39	0.00	253248.10	0.00	253248.10	480.85
40	0.00	253248.10	0.00	253248.10	480.85
41	0.00	253248.10	0.00	253248.10	480.85
42	0.00	253248.10	0.00	253248.10	480.85
43	0.00	253248.10	0.00	253248.10	480.85
44	0.00	253248.10	0.00	253248.10	480.85
45	0.00	253248.10	0.00	253248.10	480.85
46	0.00	253248.10	0.00	253248.10	480.85
47	0.00	253248.10	0.00	253248.10	480.85
48	0.00	253248.10	0.00	253248.10	480.85
49	0.00	253248.10	0.00	253248.10	480.85
50	0.00	253248.10	0.00	253248.10	480.85
51	0.00	253248.10	0.00	253248.10	480.85
52	0.00	253248.10	0.00	253248.10	480.85
53	0.00	253248.10	0.00	253248.10	480.85
54	0.00	253248.10	0.00	253248.10	480.85
55	0.00	253248.10	0.00	253248.10	480.85
56	0.00	253248.10	0.00	253248.10	480.85
57	0.00	253248.10	0.00	253248.10	480.85
58	0.00	253248.10	0.00	253248.10	480.85
59	0.00	253248.10	0.00	253248.10	480.85
60	0.00	253248.10	0.00	253248.10	480.85
61	0.00	253248.10	0.00	253248.10	480.85
62	0.00	253248.10	0.00	253248.10	480.85
63	0.00	253248.10	0.00	253248.10	480.85
64	0.00	253248.10	0.00	253248.10	480.85
65	0.00	253248.10	0.00	253248.10	480.85
66	0.00	253248.10	0.00	253248.10	480.85
67	0.00	253248.10	0.00	253248.10	480.85
68	0.00	253248.10	0.00	253248.10	480.85
69	0.00	253248.10	0.00	253248.10	480.85
70	0.00	253248.10	0.00	253248.10	480.85
71	0.00	253248.10	0.00	253248.10	480.85
72	0.00	253248.10	0.00	253248.10	480.85
73	0.00	253248.10	0.00	253248.10	480.85
74	0.00	253248.10	0.00	253248.10	480.85
75	0.00	253248.10	0.00	253248.10	480.85
76	0.00	253248.10	0.00	253248.10	480.85
77	0.00	253248.10	0.00	253248.10	480.85
78	0.00	253248.10	0.00	253248.10	480.85
79	0.00	253248.10	0.00	253248.10	480.85
80	0.00	253248.10	0.00	253248.10	480.85
81	0.00	253248.10	0.00	253248.10	480.85
82	0.00	253248.10	0.00	253248.10	480.85
83	0.00	253248.10	0.00	253248.10	480.85
84	0.00	253248.10	0.00	253248.10	480.85
85	0.00	253248.10	0.00	253248.10	480.85
86	0.00	253248.10	0.00	253248.10	480.85
87	0.00	253248.10	0.00	253248.10	480.85
88	0.00	253248.10	0.00	253248.10	480.85
89	0.00	253248.10	0.00	253248.10	480.85
90	0.00	253248.10	0.00	253248.10	480.85
91	0.00	253248.10	0.00	253248.10	480.85
92	0.00	253248.10	0.00	253248.10	480.85
93	0.00	253248.10	0.00	253248.10	480.85
94	0.00	253248.10	0.00	253248.10	480.85
95	0.00	253248.10	0.00	253248.10	480.85
96	0.00	253248.10	0.00	253248.10	480.85
97	0.00	253248.10	0.00	253248.10	480.85
98	0.00	253248.10	0.00	253248.10	480.85
99	0.00	253248.10	0.00	253248.10	480.85
%100	0.00	253248.10	0.00	253248.10	480.85

MONTICELLO PLAT FOUR
DETENTION CALCULATIONS
8-24-00

EXISTING CONDITIONS
15 yr. STORM

TIME (min.)	INFLOW (cfm)	STORAGE (cf)	OUTFLOW (cfm)	NET DETENTION (cf)	ELEV.	VOLUME CHANGE (cf)	Q out (cfs)	OUTFLOW SUM (cfm)
					478.00			
1	1603.32	1603.32	0	1603.32	478.01	0.00955461		0.00
2	3206.64	4809.96	0.01	4809.95	478.03	0.01910916		0.01
3	4809.96	9619.91	0.12	9619.79	478.06	0.02866311		0.13
4	6413.28	16033.07	0.58	16032.49	478.10	0.03821498		0.71
5	8016.6	24049.09	1.43	24047.66	478.14	0.04776452		2.14
6	8016.6	32064.26	3.15	32061.11	478.19	0.04775427		5.29
7	8016.6	40077.71	5.73	40071.98	478.24	0.0477389		11.02
8	8016.6	48088.58	8.62	48079.96	478.29	0.04772168		19.64
9	8016.6	56096.56	11.98	56084.58	478.33	0.04770165		31.62
10	8016.6	64101.18	2.38	64098.80	478.38	0.04775886		34.00
11	8016.6	72115.40	19.37	72096.03	478.43	0.04765761		53.37
12	8016.6	80112.63	24.13	80088.50	478.48	0.04762925		77.50
13	8016.6	88105.10	28.97	88076.13	478.52	0.04760041		106.47
14	8016.6	96092.73	33.45	96059.28	478.57	0.04757371		139.92
15	8016.6	104075.88	37.71	104038.17	478.62	0.04754832		177.63
16	8016.6	112054.77	41.54	112013.23	478.67	0.0475255		219.17
17	8016.6	120029.83	50.84	119978.99	478.71	0.04747008		270.01
18	8016.6	127995.59	54.33	127941.26	478.76	0.04744928		324.34
19	8016.6	135957.86	57.61	135900.25	478.81	0.04742973		381.95
20	8016.6	143916.85	60.71	143856.14	478.86	0.04741126		442.66
21	6413.28	150269.42	63.66	150205.76	478.90	0.03783907		506.32
22	4809.96	155015.72	65.92	154949.80	478.92	0.02827099		572.24
23	3206.64	158156.44	67.56	158088.88	478.94	0.01870661		639.80
24	1603.32	159692.20	68.62	159623.58	478.95	0.00914568		708.42
25	0	159623.58	69.14	159554.44	478.95	-0.000412		777.56
26	0	159554.44	70.632	159483.81	478.95	-0.0004209	1.1772	848.19
27	0	159483.81	70.632	159413.18	478.95	-0.0004209	1.1772	918.82
28	0	159413.18	70.632	159342.54	478.95	-0.0004209	1.1772	989.46
29	0	159342.54	70.632	159271.91	478.95	-0.0004209	1.1772	1060.09
30	0	159271.91	70.632	159201.28	478.95	-0.0004209	1.1772	1130.72
40	0	158565.59	70.26	158495.33	478.94	-0.0004187	1.171	1836.67
50	0	157862.99	70.26	157792.73	478.94	-0.0004187	1.171	2539.27
60	0	157160.39	70.26	157090.13	478.94	-0.0004187	1.171	3241.87
70	0	156457.05	70.632	156386.42	478.93	-0.0004209	1.1772	3945.58
80	0	155750.73	70.632	155680.10	478.93	-0.0004209	1.1772	4651.90
90	0	155045.53	69.51	154976.02	478.92	-0.0004142	1.1585	5355.98
100	0	154350.43	69.51	154280.92	478.92	-0.0004142	1.1585	6051.08
110	0	153655.33	69.51	153585.82	478.92	-0.0004142	1.1585	6746.18
120	0	152963.25	69.132	152894.12	478.91	-0.000412	1.1522	7437.88
130	0	152271.93	69.132	152202.80	478.91	-0.000412	1.1522	8129.20
140	0	151582.15	68.748	151513.40	478.90	-0.0004097	1.1458	8818.60
150	0	150894.67	68.748	150825.92	478.90	-0.0004097	1.1458	9506.08
160	0	150207.19	68.748	150138.44	478.89	-0.0004097	1.1458	10193.56
170	0	149523.17	68.364	149454.80	478.89	-0.0004074	1.1394	10877.20
180	0	148839.53	68.364	148771.16	478.89	-0.0004074	1.1394	11560.84
190	0	148157.81	67.98	148089.83	478.88	-0.0004051	1.133	12242.17

MONTICELLO PLAT FOUR
DETENTION CALCULATIONS
8-24-00

TIME (min.)	INFLOW (cfm)	STORAGE (cf)	OUTFLOW (cfm)	NET DETENTION (cf)	ELEV.	VOLUME CHANGE (cf)	Q out (cfs)	OUTFLOW SUM (cfm)
200	0	147478.01	67.98	147410.03	478.88	-0.0004051	1.133	12921.97
210	0	146798.21	67.59	146730.62	478.87	-0.0004028	1.1265	13601.38
220	0	146122.31	67.59	146054.72	478.87	-0.0004028	1.1265	14277.28
230	0	145446.41	67.59	145378.82	478.87	-0.0004028	1.1265	14953.18
240	0	144772.43	67.206	144705.22	478.86	-0.0004005	1.1201	15626.78
250	0	144100.37	67.206	144033.16	478.86	-0.0004005	1.1201	16298.84
260	0	143428.31	66.81	143361.50	478.85	-0.0003981	1.1135	16970.50
270	0	142760.21	66.81	142693.40	478.85	-0.0003981	1.1135	17638.60
280	0	142092.11	66.81	142025.30	478.85	-0.0003981	1.1135	18306.70
290	0	141425.96	66.42	141359.54	478.84	-0.0003958	1.107	18972.46
300	0	140761.76	66.42	140695.34	478.84	-0.0003958	1.107	19636.66
400	0	134202.18	64.818	134137.37	478.80	-0.0003863	1.0803	26194.63
500	0	127841.76	61.9159308	127779.84	478.76	-0.000369	1.03193218	32552.16
600	0	121788.10	59.316891	121728.78	478.73	-0.0003535	0.98861485	38603.22
700	0	116050.69	55.6630482	115995.03	478.69	-0.0003317	0.92771747	44336.97
800	0	110656.33	51.0558992	110605.28	478.66	-0.0003043	0.85093165	49726.72
900	0	105921.24	43.7740516	105877.47	478.63	-0.0002609	0.72956753	54454.53
1000	0	101782.95	39.5060816	101743.45	478.61	-0.0002354	0.65843469	58588.55
1100	0	98107.91	33.8715267	98074.03	478.58	-0.0002018	0.56452544	62257.97
1200	0	94808.82	30.5690528	94778.25	478.56	-0.0001822	0.50948421	65553.75
1300	0	91820.69	29.0406002	91791.65	478.55	-0.0001731	0.48401	68540.35
1400	0	89078.83	26.2091417	89052.62	478.53	-0.0001562	0.43681903	71279.38
1500	0	86539.16	24.8986846	86514.26	478.52	-0.0001484	0.41497808	73817.74
1600	0	84195.94	22.4710628	84173.47	478.50	-0.0001339	0.37451771	76158.53
1700	0	82003.89	21.3475097	81982.54	478.49	-0.0001272	0.35579183	78349.46
1800	0	79944.93	20.2801342	79924.65	478.48	-0.0001209	0.33800224	80407.35
1900	0	78007.11	18.3028211	77988.80	478.46	-0.0001091	0.30504702	82343.20
2000	0	76185.06	17.3876801	76167.67	478.45	-0.0001036	0.28979467	84164.33
3000	0	62009.45	11.5353422	61997.91	478.37	-6.874E-05	0.1922557	98334.09
4000	0	52149.28	8.47953651	52140.80	478.31	-5.053E-05	0.14132561	108191.20
5000	0	44575.41	6.90663549	44568.50	478.27	-4.116E-05	0.11511059	115763.50
6000	0	38442.57	5.62549777	38436.95	478.23	-3.352E-05	0.0937583	121895.05
7000	0	33273.89	4.82316115	33269.07	478.20	-2.874E-05	0.08038602	127062.93
8000	0	28085.52	5.52945848	28079.99	478.17	-3.295E-05	0.09215764	132252.01
9000	0	23040.19	4.74081946	23035.45	478.14	-2.825E-05	0.07901366	137296.55
10000	0	18672.43	4.06466009	18668.37	478.11	-2.422E-05	0.06774433	141663.63
11000	0	14817.24	3.66835573	14813.58	478.09	-2.186E-05	0.06113926	145518.42
12000	0	11368.56	3.31069105	11365.25	478.07	-1.973E-05	0.05517818	148966.75
13000	0	8251.65	2.98789867	8248.66	478.05	-1.781E-05	0.04979831	152083.34
14000	0	5402.73	2.69657855	5400.04	478.03	-1.607E-05	0.04494298	154931.96
15000	0	2780.58	2.56174962	2778.02	478.02	-1.527E-05	0.04269583	157553.98
16000	0	358.91	2.31197903	356.60	478.00	-1.378E-05	0.03853298	159975.40
16154	**0**	**2.87**	**2.31197903**	**0.56**	**478.00**	**-1.378E-05**	**0.03853298**	**160331.44**
16155	**0**	**0.56**	**2.31197903**	**-1.75**	**478.00**	**-1.378E-05**	**0.03853298**	**160333.75**
16156	0	-1.75	2.31197903	-4.07	478.00	-1.378E-05	0.03853298	160336.07
16157	0	-4.07	2.31197903	-6.38	478.00	-1.378E-05	0.03853298	160338.38
16158	0	-6.38	2.31197903	-8.69	478.00	-1.378E-05	0.03853298	160340.69
16159	0	-8.69	2.31197903	-11.00	478.00	-1.378E-05	0.03853298	160343.00

MONTICELLO PLAT FOUR
DETENTION CALCULATIONS
8-24-00

TIME (min.)	INFLOW (cfm)	STORAGE (cf)	OUTFLOW (cfm)	NET DETENTION (cf)	ELEV.	VOLUME CHANGE (cf)	Q out (cfs)	OUTFLOW SUM (cfm)
16160	0	-11.00	2.31197903	-13.31	478.00	-1.378E-05	0.03853298	160345.31
16500	0	-797.08	2.31197903	-799.39	478.00	-1.378E-05	0.03853298	161131.39
16501	0	-799.39	2.31197903	-801.70	478.00	-1.378E-05	0.03853298	161133.70
16502	0	-801.70	2.31197903	-804.01	478.00	-1.378E-05	0.03853298	161136.01
16503	0	-804.01	2.31197903	-806.32	478.00	-1.378E-05	0.03853298	161138.32
16504	0	-806.32	2.31197903	-808.64	478.00	-1.378E-05	0.03853298	161140.64
16505	0	-808.64	2.31197903	-810.95	478.00	-1.378E-05	0.03853298	161142.95
16506	0	-810.95	2.31197903	-813.26	478.00	-1.378E-05	0.03853298	161145.26
16507	0	-813.26	2.31197903	-815.57	478.00	-1.378E-05	0.03853298	161147.57
16508	0	-815.57	2.31197903	-817.88	478.00	-1.378E-05	0.03853298	161149.88
16509	0	-817.88	2.31197903	-820.20	478.00	-1.378E-05	0.03853298	161152.20
16510	0	-820.20	2.31197903	-822.51	478.00	-1.378E-05	0.03853298	161154.51
16511	0	-822.51	2.31197903	-824.82	478.00	-1.378E-05	0.03853298	161156.82
16512	0	-824.82	2.31197903	-827.13	478.00	-1.378E-05	0.03853298	161159.13
16513	0	-827.13	2.31197903	-829.44	478.00	-1.378E-05	0.03853298	161161.44
16514	0	-829.44	2.31197903	-831.76	478.00	-1.378E-05	0.03853298	161163.76
16515	0	-831.76	2.31197903	-834.07	478.00	-1.378E-05	0.03853298	161166.07
16516	0	-834.07	2.31197903	-836.38	478.00	-1.378E-05	0.03853298	161168.38
16517	0	-836.38	2.31197903	-838.69	478.00	-1.378E-05	0.03853298	**161170.69**
	160332		**161170.691**					

BAX ENGINEERING

SHEET 1 of 2

Project: CROOKED CREEK ESTATES

Date: 3/22/94 Project No: 93-1896

Designed: S.O.K. Checked: _____

Rev. 7/18/94

STORM WATER DETENTION ANALYSIS

1.) AREA OF SITE = 25.74 A^c

2.) PRE-DEVELOPED P.I. FACTOR OF SITE: 2.31 C.F.S./A^c (25YR-20 MIN. STORM)
POST-DEVELOPED P.I. FACTOR OF SITE: 3.26 C.F.S./A^c (25 YR.-20 MIN. STORM)

3.) REQUIRED ATTENUATION = 25.74 A^c × (3.26 C.F.S./A^c − 2.31 C.F.S./A^c)
(25YR.-20 MIN. STORM) = 24.45 C.F.S. (ASSUMES FULL RESIDENTIAL DEVELOPMENT OF ENTIRE 25.74 A^c - CONSERVATIVE SINCE IT DOES NOT SEPERATE OUT COMMON GROUND AREAS)

4.) DETENTION BASIN VOLUMES:

ELEV.	AREA (AC.)	AVG. AREA (AC.)	INCREMENT DEPTH (FT.)	INCREMENT VOL. (AC-FT.)	TOTAL VOLUME (AC.-FT.)
478'	3.63				0
		3.81	2.0	7.62	
480'	3.99				7.62
		4.43	2.0	8.86	
482'	4.87				16.48

5.) FROM DRAINAGE AREA MAP OF PROJECT, FLOW TO BASIN IS:
$Q_{15/20}$ = 133.61 C.F.S.
∴ $Q_{25/20}$ = 133.61 C.F.S. × (1.15/1.1) × (1.18) = 164.83 C.F.S.
∴ $Q_{100/20}$ = 133.61 C.F.S. × (1.25/1.1) × (1.39) = 211.04 C.F.S.

6.) It is anticipated that due to the overall size of the lake/detention basin approximately 100% of the total 25 year-20 minute inflow to the basin as well as approximately 100% of the total 100 year-20 minute inflow to the basin may be detained with a minimal discharge through the outflow pipe which shall provide for the normal pool elevation at 478'.

STATE OF MISSOURI
SCOTT O. KOLKMEYER
NUMBER
E-24744
3/22/94
REGISTERED PROFESSIONAL ENGINEER

Rev. 7/18/94
Scott O. Kolkmeyer

221 Point West Blvd.
St. Charles, MO 63301

314-946-6588
FAX 947-9182

7.) Based on the "1800 rule" the volume required to detain the 25 yr.-20 min. storm inflow is:

Vol. = 164.83 c.f.s. × 1800 = 6.81 A^c-Ft. (provided at elevation 479.79)

The volume required to detain the 100 yr.-20 min storm inflow is:

Vol. = 211.04 c.f.s. × 1800 = 8.72 A^c-Ft. (provided at elevation 480.25)

8.) An 8 inch discharge pipe shall be installed with an upstream flowline at 478.0 to limit the normal pool elevation to 478.0. A flap gate will be installed to prohibit creek flow from backing up into the basin. The 25 year-20 min storm discharge and 100 year-20 min storm discharge is estimated as:

$Q_{25/20} = .6(a)\sqrt{2gh}$ $\quad a = 0.349$ Ft.^{2}

$= .6(0.349)\sqrt{2(32.2)2.12}$ $\quad h = (479.79 - 478.0) + (4/12) = 2.12$

$= 2.45$ c.f.s.

(Permitted release rate = 164.83 c.f.s. - 24.45 c.f.s. = 140.38 c.f.s. ✓)

Approximately 98.51 % of the total 25 yr.-20 min. inflow is detained. ($\frac{162.38}{164.83} = 0.985$

$Q_{100/20} = .6(a)\sqrt{2gh}$ $\quad a = 0.349$ Ft.^{2}

$= .6(.349)\sqrt{2(32.2)2.21}$ $\quad h = (480.25 - 478.0) + (4/12) = 2.58$

$= 2.58$ c.f.s.

Approximately 98.78% of the total 100yr.-20 min. inflow is detained. ($\frac{208.46}{211.04} = 0.987$

9.) The top of berm of the detention basin/lake is proposed at 482.8. The 100 year storm elevation assuming the discharge pipe blocked is 480.25. 2.55 feet of freeboard is provided when the discharge pipe is assumed blocked therefore an emergency spillway is not proposed.

221 Point West Blvd.
St. Charles, MO 63301

314-946-6588
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00-037 8-30-00 SUBMITTAL DATE: 8-30-00

ELEVATION	AREA	VOLUME	CUM. VOLUME
478.00	159686		
		335745	335745
480.00	176059		
		394896	730641
482.00	218837		

```
*********************************************
*                                           *
*  MULTIPLE PIPES                           *
*                                           *
*  PIPE 1  40 ft - 12 in pipe               *
*  UFL= 478  LFL= 477.6   n= .013           *
*                                           *
*  PIPE 2  40 ft - 12 in pipe               *
*  UFL= 478  LFL= 477.6   n= .013           *
*                                           *
*  PIPE 3  40 ft - 12 in pipe               *
*  UFL= 478  LFL= 477.6   n= .013           *
*                                           *
*********************************************
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25 year

3 - 12" Pipes

00-037 8-30-00 SUBMITTAL DATE: 8-30-00

MIN	INFLOW	STORAGE	OUTFLOW	NET DET.	ELEV.
1	1979.88	1979.88	0.00	1979.88	478.01
2	3959.76	5939.64	0.07	5939.57	478.04
3	5939.64	11879.21	0.92	11878.29	478.07
4	7919.52	19797.81	3.01	19794.80	478.12
5	9899.40	29694.20	8.58	29685.62	478.18
6	9899.40	39585.02	18.91	39566.11	478.24
7	9899.40	49465.51	32.92	49432.59	478.29
8	9899.40	59331.99	48.00	59283.99	478.35
9	9899.40	69183.40	68.14	69115.25	478.41
10	9899.40	79014.65	91.05	78923.60	478.47
11	9899.40	88823.00	116.39	88706.62	478.53
12	9899.40	98606.02	140.50	98465.52	478.59
13	9899.40	108364.90	169.18	108195.70	478.64
14	9899.40	118095.10	199.50	117895.60	478.70
15	9899.40	127795.00	230.22	127564.80	478.76
16	9899.40	137464.20	261.10	137203.10	478.82
17	9899.40	147102.60	291.51	146811.00	478.87
18	9899.40	156710.40	317.30	156393.10	478.93
19	9899.40	166292.60	343.75	165948.80	478.99
20	9899.40	175848.20	364.80	175483.40	479.05
21	7919.52	183402.90	511.06	182891.80	479.09
22	5939.64	188831.50	531.34	188300.10	479.12
23	3959.76	192259.90	545.65	191714.20	479.14
24	1979.88	193694.10	554.52	193139.60	479.15
25	0.00	193139.60	558.17	192581.40	479.15
26	0.00	192581.40	556.74	192024.70	479.14

PEAK OUTFLOW= 9.3 CFS AT 25 MINUTES

35 year

3 - 15" Pipes

1	0.00	1925B1.40	0.00	0.00
2	0.00	1931.19	558.17	19258I.40	479.15
3	0.00	1936.94	554.52	19313.84	479.14
4	0.00	1942.69	554.65	19368.49	479.13
5	0.00	1948.44	554.41	19423.14	479.12
6	0.00	1954.19	554.74	19477.88	479.11
7	0.00	1959.94	554.52	19532.40	479.10
8	0.00	1965.69	554.65	19587.05	479.09
9	0.00	1971.44	554.41	19641.70	479.08
10	0.00	1977.19	554.74	19696.44	479.07
11	0.00	1982.94	554.52	19751.09	479.06
12	0.00	1988.69	554.65	19805.74	479.05
13	0.00	1994.44	554.41	19860.39	479.04
14	0.00	2000.19	554.74	19915.13	479.03
15	0.00	2005.94	554.52	19969.65	479.02
16	0.00	2011.69	554.65	20024.30	479.01
17	0.00	2017.44	554.41	20078.95	479.00
18	0.00	2023.19	554.74	20133.69	478.99
19	0.00	2028.94	554.52	20188.21	478.98
20	0.00	2034.69	554.65	20242.86	478.97
21	0.00	2040.44	554.41	20297.51	478.96
22	0.00	2046.19	554.74	20352.25	478.95
23	0.00	2051.94	554.52	20406.77	478.94
24	0.00	2057.69	554.65	20461.42	478.93
25	0.00	2063.44	554.41	20516.07	478.92
26	0.00	2069.19	554.74	20570.81	478.91
27	0.00	2074.94	554.52	20625.33	478.90
28	0.00	2080.69	554.65	20679.98	478.89
29	0.00	2086.44	554.41	20734.63	478.88
30	0.00	2092.19	554.74	20789.37	478.87
31	0.00	2097.94	554.52	20843.89	478.86
32	0.00	2103.69	554.65	20898.54	478.85
33	0.00	2109.44	554.41	20953.19	478.84
34	0.00	2115.19	554.74	21007.93	478.83
35	0.00	2120.94	554.52	21062.45	478.82
36	0.00	2126.69	554.65	21117.10	478.81
37	0.00	2132.44	554.41	21171.75	478.80
38	0.00	2138.19	554.74	21226.49	478.79
39	0.00	2143.94	554.52	21281.01	478.78
40	0.00	2149.69	554.65	21335.66	478.77
41	0.00	2155.44	554.41	21390.31	478.76
42	0.00	2161.19	554.74	21445.05	478.75
43	0.00	2166.94	554.52	21499.57	478.74
44	0.00	2172.69	554.65	21554.22	478.73
45	0.00	2178.44	554.41	21608.87	478.72
46	0.00	2184.19	554.74	21663.61	478.71
47	0.00	2189.94	554.52	21718.13	478.70
48	0.00	2195.69	554.65	21772.78	478.69
49	0.00	2201.44	554.41	21827.43	478.68
50	0.00	2207.19	554.74	21882.17	478.67
51	0.00	2212.94	554.52	21936.69	478.66
52	0.00	2218.69	554.65	21991.34	478.65
53	0.00	2224.44	554.41	22045.99	478.64
54	0.00	2230.19	554.74	22100.73	478.63
55	0.00	2235.94	554.52	22155.25	478.62
56	0.00	2241.69	554.65	22209.90	478.61
57	0.00	2247.44	554.41	22264.55	478.60
58	0.00	2253.19	554.74	22319.29	478.59
59	0.00	2258.94	554.52	22373.81	478.58
60	0.00	2264.69	554.65	22428.46	478.57
61	0.00	2270.44	554.41	22483.11	478.56
62	0.00	2276.19	554.74	22537.85	478.55
63	0.00	2281.94	554.52	22592.37	478.54
64	0.00	2287.69	554.65	22647.02	478.53
65	0.00	2293.44	554.41	22701.67	478.52
66	0.00	2299.19	554.74	22756.41	478.51
67	0.00	2304.94	554.52	22810.93	478.50
68	0.00	2310.69	554.65	22865.58	478.49
69	0.00	2316.44	554.41	22920.23	478.48
70	0.00	2322.19	554.74	22974.97	478.47
71	0.00	2327.94	554.52	23029.49	478.46
72	0.00	2333.69	554.65	23084.14	478.45
73	0.00	2339.44	554.41	23138.79	478.44
74	0.00	2345.19	554.74	23193.53	478.43
75	0.00	2350.94	554.52	23248.05	478.42
76	0.00	2356.69	554.65	23302.70	478.41
77	0.00	2362.44	554.41	23357.35	478.40
78	0.00	2368.19	554.74	23412.09	478.39
79	0.00	2373.94	554.52	23466.61	478.38
80	0.00	2379.69	554.65	23521.26	478.37
81	0.00	2385.44	554.41	23575.91	478.36
82	0.00	2391.19	554.74	23630.65	478.35
83	0.00	2396.94	554.52	23685.17	478.34
84	0.00	2402.69	554.65	23739.82	478.33
85	0.00	2408.44	554.41	23794.47	478.32
86	0.00	2414.19	554.74	23849.21	478.31
87	0.00	2419.94	554.52	23903.73	478.30
88	0.00	2425.69	554.65	23958.38	478.29
89	0.00	2431.44	554.41	24013.03	478.28
90	0.00	2437.19	554.74	24067.77	478.27
91	0.00	2442.94	554.52	24122.29	478.26
92	0.00	2448.69	554.65	24176.94	478.25
93	0.00	2454.44	554.41	24231.59	478.24
94	0.00	2460.19	554.74	24286.33	478.23
95	0.00	2465.94	554.52	24340.85	478.22
96	0.00	2471.69	554.65	24395.50	478.21
97	0.00	2477.44	554.41	24450.15	478.20
98	0.00	2483.19	554.74	24504.89	478.19
99	0.00	2488.94	554.52	24559.41	478.18
100	0.00	2494.69	554.65	24614.06	478.17
101	0.00	2500.44	554.41	24668.71	478.16
102	0.00	2506.19	554.74	24723.45	478.15
103	0.00	2511.94	554.52	24777.97	478.14
104	0.00	2517.69	554.65	24832.62	478.13
105	0.00	2523.44	554.41	24887.27	478.12
106	0.00	2529.19	554.74	24942.01	478.11
107	0.00	2534.94	554.52	24996.53	478.10
108	0.00	2540.69	554.65	25051.18	478.09
109	0.00	2546.44	554.41	25105.83	478.08
110	0.00	2552.19	554.74	25160.57	478.07
111	0.00	2557.94	554.52	25215.09	478.06
112	0.00	2563.69	554.65	25269.74	478.05
113	0.00	2569.44	554.41	25324.39	478.04
114	0.00	2575.19	554.74	25379.13	478.03
115	0.00	2580.94	554.52	25433.65	478.02
116	0.00	2586.69	554.65	25488.30	478.01
117	0.00	2592.44	554.41	25542.95	478.00
118	0.00	2598.19	554.74	25597.69	477.99
119	0.00	2603.94	554.52	25652.21	477.98
120	0.00	2609.69	554.65	25706.86	477.97
121	0.00	2615.44	554.41	25761.51	477.96
122	0.00	2621.19	554.74	25816.25	477.95
123	0.00	2626.94	554.52	25870.77	477.94
124	0.00	2632.69	554.65	25925.42	477.93
125	0.00	2638.44	554.41	25980.07	477.92
126	0.00	2644.19	554.74	26034.81	477.91
127	0.00	2649.94	554.52	26089.33	477.90
128	0.00	2655.69	554.65	26143.98	477.89
129	0.00	2661.44	554.41	26198.63	477.88
130	0.00	2667.19	554.74	26253.37	477.87
131	0.00	2672.94	554.52	26307.89	477.86
132	0.00	2678.69	554.65	26362.54	477.85
133	0.00	2684.44	554.41	26417.19	477.84
134	0.00	2690.19	554.74	26471.93	477.83
135	0.00	2695.94	554.52	26526.45	477.82
136	0.00	2701.69	554.65	26581.10	477.81
137	0.00	2707.44	554.41	26635.75	477.80
138	0.00	2713.19	554.74	26690.49	477.79
139	0.00	2718.94	554.52	26745.01	477.78
140	0.00	2724.69	554.65	26799.66	477.77
141	0.00	2730.44	554.41	26854.31	477.76
142	0.00	2736.19	554.74	26909.05	477.75
143	0.00	2741.94	554.52	26963.57	477.74
144	0.00	2747.69	554.65	27018.22	477.73
145	0.00	2753.44	554.41	27072.87	477.72
146	0.00	2759.19	554.74	27127.61	477.71
147	0.00	2764.94	554.52	27182.13	477.70
148	0.00	2770.69	554.65	27236.78	477.69
149	0.00	2776.44	554.41	27291.43	477.68
150	0.00	2782.19	554.74	27346.17	477.67
151	0.00	2787.94	554.52	27400.69	477.66
152	0.00	2793.69	554.65	27455.34	477.65
153	0.00	2799.44	554.41	27509.99	477.64
154	0.00	2805.19	554.74	27564.73	477.63
155	0.00	2810.94	554.52	27619.25	477.62
156	0.00	2816.69	554.65	27673.90	477.61
157	0.00	2822.44	554.41	27728.55	477.60
158	0.00	2828.19	554.74	27783.29	477.59
159	0.00	2833.94	554.52	27837.81	477.58
160	0.00	2839.69	554.65	27892.46	477.57
161	0.00	2845.44	554.41	27947.11	477.56
162	0.00	2851.19	554.74	28001.85	477.55
163	0.00	2856.94	554.52	28056.37	477.54
164	0.00	2862.69	554.65	28111.02	477.53
165	0.00	2868.44	554.41	28165.67	477.52
166	0.00	2874.19	554.74	28220.41	477.51
167	0.00	2879.94	554.52	28274.93	477.50
168	0.00	2885.69	554.65	28329.58	477.49
169	0.00	2891.44	554.41	28384.23	477.48
170	0.00	2897.19	554.74	28438.97	477.47
171	0.00	2902.94	554.52	28493.49	477.46
172	0.00	2908.69	554.65	28548.14	477.45
173	0.00	2914.44	554.41	28602.79	477.44
174	0.00	2920.19	554.74	28657.53	477.43
175	0.00	2925.94	554.52	28712.05	477.42
176	0.00	2931.69	554.65	28766.70	477.41
177	0.00	2937.44	554.41	28821.35	477.40
178	0.00	2943.19	554.74	28876.09	477.39
179	0.00	2948.94	554.52	28930.61	477.38
180	0.00	2954.69	554.65	28985.26	477.37
181	0.00	2960.44	554.41	29039.91	477.36
182	0.00	2966.19	554.74	29094.65	477.35
183	0.00	2971.94	554.52	29149.17	477.34
184	0.00	2977.69	554.65	29203.82	477.33
185	0.00	2983.44	554.41	29258.47	477.32
186	0.00	2989.19	554.74	29313.21	477.31
187	0.00	2994.94	554.52	29367.73	477.30
188	0.00	3000.69	554.65	29422.38	477.29
189	0.00	3006.44	554.41	29477.03	477.28
190	0.00	3012.19	554.74	29531.77	477.27
191	0.00	3017.94	554.52	29586.29	477.26
192	0.00	3023.69	554.65	29640.94	477.25
193	0.00	3029.44	554.41	29695.59	477.24
194	0.00	3035.19	554.74	29750.33	477.23
195	0.00	3040.94	554.52	29804.85	477.22
196	0.00	3046.69	554.65	29859.50	477.21
197	0.00	3052.44	554.41	29914.15	477.20
198	0.00	3058.19	554.74	29968.89	477.19
199	0.00	3063.94	554.52	30023.41	477.18
200	0.00	3069.69	554.65	30078.06	477.17
201	0.00	3075.44	554.41	30132.71	477.16
202	0.00	3081.19	554.74	30187.45	477.15
203	0.00	3086.94	554.52	30241.97	477.14
204	0.00	3092.69	554.65	30296.62	477.13
205	0.00	3098.44	554.41	30351.27	477.12
206	0.00	3104.19	554.74	30406.01	477.11
207	0.00	3109.94	554.52	30460.53	477.10
208	0.00	3115.69	554.65	30515.18	477.09
209	0.00	3121.44	554.41	30569.83	477.08
210	0.00	3127.19	554.74	30624.57	477.07
211	0.00	3132.94	554.52	30679.09	477.06
212	0.00	3138.69	554.65	30733.74	477.05
213	0.00	3144.44	554.41	30788.39	477.04
214	0.00	3150.19	554.74	30843.13	477.03
215	0.00	3155.94	554.52	30897.65	477.02
216	0.00	3161.69	554.65	30952.30	477.01
217	0.00	3167.44	554.41	31006.95	477.00
218	0.00	3173.19	554.74	31061.69	476.99
219	0.00	3178.94	554.52	31116.21	476.98
220	0.00	3184.69	554.65	31170.86	476.97
221	0.00	3190.44	554.41	31225.51	476.96
222	0.00	3196.19	554.74	31280.25	476.95
223	0.00	3201.94	554.52	31334.77	476.94
224	0.00	3207.69	554.65	31389.42	476.93
225	0.00	3213.44	554.41	31444.07	476.92
226	0.00	3219.19	554.74	31498.81	476.91
227	0.00	3224.94	554.52	31553.33	476.90
228	0.00	3230.69	554.65	31607.98	476.89
229	0.00	3236.44	554.41	31662.63	476.88
230	0.00	3242.19	554.74	31717.37	476.87
231	0.00	3247.94	554.52	31771.89	476.86
232	0.00	3253.69	554.65	31826.54	476.85
233	0.00	3259.44	554.41	31881.19	476.84
234	0.00	3265.19	554.74	31935.93	476.83
235	0.00	3270.94	554.52	31990.45	476.82
236	0.00	3276.69	554.65	32045.10	476.81
237	0.00	3282.44	554.41	32099.75	476.80
238	0.00	3288.19	554.74	32154.49	476.79
239	0.00	3293.94	554.52	32209.01	476.78
240	0.00	3299.69	554.65	32263.66	476.77
241	0.00	3305.44	554.41	32318.31	476.76
242	0.00	3311.19	554.74	32373.05	476.75
243	0.00	3316.94	554.52	32427.57	476.74
244	0.00	3322.69	554.65	32482.22	476.73
245	0.00	3328.44	554.41	32536.87	476.72
246	0.00	3334.19	554.74	32591.61	476.71
247	0.00	3339.94	554.52	32646.13	476.70
248	0.00	3345.69	554.65	32700.78	476.69
249	0.00	3351.44	554.41	32755.43	476.68
250	0.00	3357.19	554.74	32810.17	476.67
251	0.00	3362.94	554.52	32864.69	476.66
252	0.00	3368.69	554.65	32919.34	476.65
253	0.00	3374.44	554.41	32973.99	476.64
254	0.00	3380.19	554.74	33028.73	476.63
255	0.00	3385.94	554.52	33083.25	476.62
256	0.00	3391.69	554.65	33137.90	476.61
257	0.00	3397.44	554.41	33192.55	476.60
258	0.00	3403.19	554.74	33247.29	476.59
259	0.00	3408.94	554.52	33301.81	476.58
260	0.00	3414.69	554.65	33356.46	476.57
261	0.00	3420.44	554.41	33411.11	476.56
262	0.00	3426.19	554.74	33465.85	476.55
263	0.00	3431.94	554.52	33520.37	476.54
264	0.00	3437.69	554.65	33575.02	476.53
265	0.00	3443.44	554.41	33629.67	476.52
266	0.00	3449.19	554.74	33684.41	476.51
267	0.00	3454.94	554.52	33738.93	476.50
268	0.00	3460.69	554.65	33793.58	476.49
269	0.00	3466.44	554.41	33848.23	476.48
270	0.00	3472.19	554.74	33902.97	476.47
271	0.00	3477.94	554.52	33957.49	476.46
272	0.00	3483.69	554.65	34012.14	476.45
273	0.00	3489.44	554.41	34066.79	476.44
274	0.00	3495.19	554.74	34121.53	476.43
275	0.00	3500.94	554.52	34176.05	476.42
276	0.00	3506.69	554.65	34230.70	476.41
277	0.00	3512.44	554.41	34285.35	476.40
278	0.00	3518.19	554.74	34340.09	476.39
279	0.00	3523.94	554.52	34394.61	476.38
280	0.00	3529.69	554.65	34449.26	476.37
281	0.00	3535.44	554.41	34503.91	476.36
282	0.00	3541.19	554.74	34558.65	476.35
283	0.00	3546.94	554.52	34613.17	476.34
284	0.00	3552.69	554.65	34667.82	476.33
285	0.00	3558.44	554.41	34722.47	476.32
286	0.00	3564.19	554.74	34777.21	476.31
287	0.00	3569.94	554.52	34831.73	476.30
288	0.00	3575.69	554.65	34886.38	476.29
289	0.00	3581.44	554.41	34941.03	476.28
290	0.00	3587.19	554.74	34995.77	476.27
291	0.00	3592.94	554.52	35050.29	476.26
292	0.00	3598.69	554.65	35104.94	476.25
293	0.00	3604.44	554.41	35159.59	476.24
294	0.00	3610.19	554.74	35214.33	476.23
295	0.00	3615.94	554.52	35268.85	476.22
296	0.00	3621.69	554.65	35323.50	476.21
297	0.00	3627.44	554.41	35378.15	476.20
298	0.00	3633.19	554.74	35432.89	476.19
299	0.00	3638.94	554.52	35487.41	476.18
300	0.00	3644.69	554.65	35542.06	476.17

PEAK FLOW = 0.0 CFS AT 25 MINUTES

MONTICELLO ESTATES PLAT FOUR
DETENTION CALCULATIONS
8-24-00

3-12" RCP PIPES @
1% SLOPE

TIME (min.)	INFLOW (cfm)	STORAGE (cf)	OUTFLOW (cfm)	NET DETENTION (cf)	ELEV.	VOLUME CHANGE (cf)	Q out (cfs)	OUTFLOW SUM (cfm)
					478.00			
1	1979.88	1979.88	0.07	1979.81	478.01	0.01179821		0.07
2	3959.76	5939.57	0.92	5938.65	478.04	0.02359178		0.99
3	5939.64	11878.29	3.01	11875.28	478.07	0.03537795		4.00
4	7919.52	19794.80	8.58	19786.22	478.12	0.04714339		12.58
5	9899.4	29685.62	18.91	29666.71	478.18	0.05888046		31.49
6	9899.4	39566.11	32.92	39533.19	478.24	0.05879697		64.41
7	9899.4	49432.59	48	49384.59	478.29	0.05870711		112.41
8	9899.4	59283.99	68.14	59215.85	478.35	0.05858709		180.55
9	9899.4	69115.25	91.05	69024.20	478.41	0.05845056		271.60
10	9899.4	78923.60	116.39	78807.21	478.47	0.05829955		387.99
11	9899.4	88706.61	140.5	88566.11	478.53	0.05815587		528.49
12	9899.4	98465.51	169.18	98296.33	478.59	0.05798496		697.67
13	9899.4	108195.73	199.5	107996.23	478.64	0.05780428		897.17
14	9899.4	117895.63	230.22	117665.41	478.70	0.05762121		1127.39
15	9899.4	127564.81	261.1	127303.71	478.76	0.05743719		1388.49
16	9899.4	137203.11	291.51	136911.60	478.82	0.05725596		1680.00
17	9899.4	146811.00	317.3	146493.70	478.87	0.05710228		1997.30
18	9899.4	156393.10	343.75	156049.35	478.93	0.05694465		2341.05
19	9899.4	165948.75	364.8	165583.95	478.99	0.05681921		2705.85
20	9899.4	175483.35	511.06	174972.29	479.04	0.05594761		3216.91
21	7919.52	182891.81	531.34	182360.47	479.09	0.04402812		3748.25
22	5939.64	188300.11	545.65	187754.46	479.12	0.03214422		4293.90
23	3959.76	191714.22	554.52	191159.70	479.14	0.02029273		4848.42
24	1979.88	193139.58	558.17	192581.41	479.15	0.00847235		5406.59
25	0	192581.41	556.74	192024.67	479.14	-0.0033178		5963.33
26	0	192024.67	553.413481	191471.26	479.14	-0.0032979	9.22355802	6516.74
27	0	191471.26	553.413481	190917.84	479.14	-0.0032979	9.22355802	7070.16
28	0	190917.84	553.413481	190364.43	479.13	-0.0032979	9.22355802	7623.57
29	0	190364.43	549.072918	189815.36	479.13	-0.0032721	9.1512153	8172.64
30	0	189815.36	549.072918	189266.28	479.13	-0.0032721	9.1512153	8721.72
31	0	189266.28	549.072918	188717.21	479.12	-0.0032721	9.1512153	9270.79
32	0	188717.21	544.697764	188172.51	479.12	-0.003246	9.07829607	9815.49
33	0	188172.51	544.697764	187627.82	479.12	-0.003246	9.07829607	10360.18
34	0	187627.82	544.697764	187083.12	479.11	-0.003246	9.07829607	10904.88
35	0	187083.12	540.287183	186542.83	479.11	-0.0032197	9.00478638	11445.17
36	0	186542.83	540.287183	186002.54	479.11	-0.0032197	9.00478638	11985.46
37	0	186002.54	540.287183	185462.26	479.11	-0.0032197	9.00478638	12525.74
38	0	185462.26	540.287183	184921.97	479.10	-0.0032197	9.00478638	13066.03
39	0	184921.97	535.840299	184386.13	479.10	-0.0031932	8.93067165	13601.87
40	0	184386.13	535.840299	183850.29	479.10	-0.0031932	8.93067165	14137.71
41	0	183850.29	535.840299	183314.45	479.09	-0.0031932	8.93067165	14673.55
42	0	183314.45	531.356202	182783.09	479.09	-0.0031665	8.8559367	15204.91
43	0	182783.09	531.356202	182251.74	479.09	-0.0031665	8.8559367	15736.26
44	0	182251.74	531.356202	181720.38	479.08	-0.0031665	8.8559367	16267.62
45	0	181720.38	526.83394	181193.55	479.08	-0.0031395	8.78056566	16794.45
46	0	181193.55	526.83394	180666.71	479.08	-0.0031395	8.78056566	17321.29

MONTICELLO ESTATES PLAT FOUR 3-12" RCP PIPES @
DETENTION CALCULATIONS 1% SLOPE
8-24-00

TIME (min.)	INFLOW (cfm)	STORAGE (cf)	OUTFLOW (cfm)	NET DETENTION (cf)	ELEV.	VOLUME CHANGE (cf)	Q out (cfs)	OUTFLOW SUM (cfm)
47	0	180666.71	526.83394	180139.88	479.07	-0.0031395	8.78056566	17848.12
48	0	180139.88	522.27252	179617.60	479.07	-0.0031124	8.704542	18370.40
49	0	179617.60	522.27252	179095.33	479.07	-0.0031124	8.704542	18892.67
50	0	179095.33	522.27252	178573.06	479.06	-0.0031124	8.704542	19414.94
51	0	178573.06	517.67091	178055.39	479.06	-0.0030849	8.6278485	19932.61
52	0	178055.39	517.67091	177537.72	479.06	-0.0030849	8.6278485	20450.28
53	0	177537.72	517.67091	177020.05	479.05	-0.0030849	8.6278485	20967.95
54	0	177020.05	513.028028	176507.02	479.05	-0.0030573	8.55046713	21480.98
55	0	176507.02	513.028028	175993.99	479.05	-0.0030573	8.55046713	21994.01
56	0	175993.99	513.028028	175480.96	479.05	-0.0030573	8.55046713	22507.04
57	0	175480.96	513.028028	174967.94	479.04	-0.0030573	8.55046713	23020.06
58	0	174967.94	508.342743	174459.59	479.04	-0.0030293	8.47237905	23528.41
59	0	174459.59	508.342743	173951.25	479.04	-0.0030293	8.47237905	24036.75
60	0	173951.25	508.342743	173442.91	479.03	-0.0030293	8.47237905	24545.09
61	0	173442.91	503.613871	172939.29	479.03	-0.0030012	8.39356452	25048.71
62	0	172939.29	503.613871	172435.68	479.03	-0.0030012	8.39356452	25552.32
63	0	172435.68	503.613871	171932.07	479.02	-0.0030012	8.39356452	26055.93
64	0	171932.07	498.840172	171433.23	479.02	-0.0029727	8.31400287	26554.77
65	0	171433.23	498.840172	170934.38	479.02	-0.0029727	8.31400287	27053.62
66	0	170934.38	498.840172	170435.54	479.02	-0.0029727	8.31400287	27552.46
67	0	170435.54	498.840172	169936.70	479.01	-0.0029727	8.31400287	28051.30
68	0	169936.70	494.020346	169442.68	479.01	-0.002944	8.23367244	28545.32
69	0	169442.68	494.020346	168948.66	479.01	-0.002944	8.23367244	29039.34
70	0	168948.66	494.020346	168454.64	479.00	-0.002944	8.23367244	29533.36
71	0	168454.64	489.153033	167965.49	479.00	-0.002915	8.15255055	30022.51
72	0	167965.49	489.153033	167476.34	479.00	-0.002915	8.15255055	30511.66
73	0	167476.34	489.153033	166987.18	479.00	-0.002915	8.15255055	31000.82
74	0	166987.18	489.153033	166498.03	478.99	-0.002915	8.15255055	31489.97
75	0	166498.03	668.215003	165829.82	478.99	-0.0039821	11.1369167	32158.18
76	0	165829.82	668.215003	165161.60	478.98	-0.0039821	11.1369167	32826.40
77	0	165161.60	677.662996	164483.94	478.98	-0.0040384	11.2943833	33504.06
78	0	164483.94	677.662996	163806.28	478.98	-0.0040384	11.2943833	34181.72
79	0	163806.28	677.662996	163128.61	478.97	-0.0040384	11.2943833	34859.39
80	0	163128.61	683.467448	162445.14	478.97	-0.004073	11.3911241	35542.86
81	0	162445.14	683.467448	161761.68	478.96	-0.004073	11.3911241	36226.32
82	0	161761.68	687.077032	161074.60	478.96	-0.0040945	11.4512839	36913.40
83	0	161074.60	687.077032	160387.52	478.96	-0.0040945	11.4512839	37600.48
84	0	160387.52	687.077032	159700.45	478.95	-0.0040945	11.4512839	38287.55
85	0	159700.45	689.091377	159011.35	478.95	-0.0041065	11.4848563	38976.65
86	0	159011.35	689.091377	158322.26	478.94	-0.0041065	11.4848563	39665.74
87	0	158322.26	689.83843	157632.43	478.94	-0.0041109	11.4973072	40355.57
88	0	157632.43	689.83843	156942.59	478.94	-0.0041109	11.4973072	41045.41
89	0	156942.59	689.83843	156252.75	478.93	-0.0041109	11.4973072	41735.25
90	0	156252.75	689.525892	155563.22	478.93	-0.0041091	11.4920982	42424.78
91	0	155563.22	689.525892	154873.70	478.92	-0.0041091	11.4920982	43114.30
92	0	154873.70	688.29811	154185.40	478.92	-0.0041018	11.4716352	43802.60
93	0	154185.40	688.29811	153497.10	478.91	-0.0041018	11.4716352	44490.90
94	0	153497.10	686.262082	152810.84	478.91	-0.0040896	11.4377014	45177.16

MONTICELLO ESTATES PLAT FOUR — 3-12" RCP PIPES @
DETENTION CALCULATIONS — 1% SLOPE
8-24-00

TIME (min.)	INFLOW (cfm)	STORAGE (cf)	OUTFLOW (cfm)	NET DETENTION (cf)	ELEV.	VOLUME CHANGE (cf)	Q out (cfs)	OUTFLOW SUM (cfm)
95	0	152810.84	686.262082	152124.58	478.91	-0.0040896	11.4377014	45863.42
96	0	152124.58	686.262082	151438.31	478.90	-0.0040896	11.4377014	46549.69
97	0	151438.31	683.500993	150754.81	478.90	-0.0040732	11.3916832	47233.19
98	0	150754.81	683.500993	150071.31	478.89	-0.0040732	11.3916832	47916.69
99	0	150071.31	680.081935	149391.23	478.89	-0.0040528	11.3346989	48596.77
100	0	149391.23	680.081935	148711.15	478.89	-0.0040528	11.3346989	49276.85
200	0	95056.77	397.749715	94659.02	478.56	-0.0023703	6.62916192	103328.98
300	0	65979.85	206.301789	65773.55	478.39	-0.0012294	3.43836315	132214.45
400	0	49829.54	125.587489	49703.95	478.30	-0.0007484	2.09312481	148284.05
500	0	39901.48	81.0029466	39820.48	478.24	-0.0004827	1.35004911	158167.52
600	0	33273.90	56.1599082	33217.74	478.20	-0.0003347	0.93599847	164770.26
700	0	28558.49	40.3279308	28518.16	478.17	-0.0002403	0.67213218	169469.84
800	0	25031.32	31.1734098	25000.15	478.15	-0.0001858	0.51955683	172987.85
900	0	22291.02	23.173623	22267.85	478.13	-0.0001381	0.38622705	175720.15
1000	0	20126.71	19.6143966	20107.09	478.12	-0.0001169	0.32690661	177880.91
2000	0	10419.44	4.5425448	10414.90	478.06	-2.707E-05	0.07570908	187573.10
3000	0	7182.09	1.9110024	7180.17	478.04	-1.139E-05	0.03185004	190807.83
4000	0	5548.27	1.0310472	5547.24	478.03	-6.144E-06	0.01718412	192440.76
4100	0	5445.16	1.0310472	5444.13	478.03	-6.144E-06	0.01718412	192543.87
4200	0	5342.06	1.0310472	5341.03	478.03	-6.144E-06	0.01718412	192646.97
4300	0	5238.95	1.0310472	5237.92	478.03	-6.144E-06	0.01718412	192750.08
4301	0	5237.92	1.0310472	5236.89	478.03	-6.144E-06	0.01718412	192751.11
4302	0	5236.89	1.0310472	5235.86	478.03	-6.144E-06	0.01718412	192752.14
4303	0	5235.86	1.0310472	5234.83	478.03	-6.144E-06	0.01718412	192753.17
4304	0	5234.83	1.0310472	5233.80	478.03	-6.144E-06	0.01718412	192754.20
4305	0	5233.80	1.0310472	5232.77	478.03	-6.144E-06	0.01718412	192755.23
4306	0	5232.77	1.0310472	5231.74	478.03	-6.144E-06	0.01718412	192756.26
4307	0	5231.74	1.0310472	5230.71	478.03	-6.144E-06	0.01718412	192757.29
4308	0	5230.71	1.0310472	5229.68	478.03	-6.144E-06	0.01718412	192758.32
4309	0	5229.68	1.0310472	5228.64	478.03	-6.144E-06	0.01718412	192759.36
4310	0	5228.64	1.0310472	5227.61	478.03	-6.144E-06	0.01718412	192760.39
4311	0	5227.61	1.0310472	5226.58	478.03	-6.144E-06	0.01718412	192761.42
4312	0	5226.58	1.0310472	5225.55	478.03	-6.144E-06	0.01718412	192762.45
4313	0	5225.55	1.0310472	5224.52	478.03	-6.144E-06	0.01718412	192763.48
4314	0	5224.52	1.0310472	5223.49	478.03	-6.144E-06	0.01718412	192764.51
4315	0	5223.49	1.0310472	5222.46	478.03	-6.144E-06	0.01718412	192765.54
4316	0	5222.46	1.0310472	5221.43	478.03	-6.144E-06	0.01718412	192766.57
4317	0	5221.43	1.0310472	5220.40	478.03	-6.144E-06	0.01718412	192767.60
4318	0	5220.40	1.0310472	5219.36	478.03	-6.144E-06	0.01718412	192768.64
4319	0	5219.36	1.0310472	5218.33	478.03	-6.144E-06	0.01718412	192769.67
4320	0	5218.33	1.0310472	5217.30	478.03	-6.144E-06	0.01718412	192770.70
	197988		192770.697					