ESTATES/VILLAS AT HIGHGROVE
BASIN #1

DISK FILE: J:\DATA\9802036\BASIN1 .VOL
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)
465.00	100.00	100	0	0	0
466.00	12,554.00	12,554	13,774	4,591	4,591
468.00	16,488.00	16,488	43,429	28,953	33,544
470.00	20,896.00	20,896	55,946	37,297	70,841

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

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1, Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

ESTATES/VILLAS AT HIGHGROVE
BASIN #1

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

Elevation (ft)	Q (cfs)	Contributing Structures
465.00	0.0	1
465.20	0.2	1
465.40	0.6	1
465.60	1.1	1
465.80	1.6	1
465.83	1.7	1
466.00	2.1	1
466.20	2.5	1
466.40	2.9	1
466.60	3.2	1
466.80	3.5	1
467.00	3.7	1
467.20	4.0	1
467.40	4.2	1
467.60	4.4	1
467.80	4.6	1
468.00	4.8	1
468.20	5.0	1
468.40	5.2	1
468.50	5.3	2 +1
468.60	6.6	2 +1
468.80	11.8	2 +1
469.00	19.3	2 +1
469.20	28.4	2 +1
469.40	38.9	2 +1
469.50	45.8	3 +1
469.60	49.7	3 +1
469.80	56.6	3 +1
470.00	62.6	3 +1

ESTATES/VILLAS AT HIGHGROVE
BASIN #1

Outlet Structure File: J:\DATA\9802036\BASIN1 .STR
Planimeter Input File: J:\DATA\9802036\BASIN1 .VOL
Rating Table Output File: J:\DATA\9802036\BASIN1 .PND

Min. Elev.(ft) = 465 Max. Elev.(ft) = 470 Incr.(ft) = .2

Additional elevations (ft) to be included in table:
465.83 468.5 469.5

SYSTEM CONNECTIVITY

Structure	No.	Q Table	Q Table
ORIFICE	3	->	3
WEIR-VR	2	->	2
CULVERT-CR	1	->	1

ESTATES/VILLAS AT HIGHGROVE
BASIN #1
>>>>>> Structure No. 3 <<<<<<
(Input Data)

ORIFICE
Orifice - Based on Area and Datum Elevation

E1 elev.(ft)?	469.5
E2 elev.(ft)?	470.001
Orifice coeff.?	.6
Invert elev.(ft)?	468.5
Datum elev.(ft)?	469
Orifice area (sq ft)?	11.67

ESTATES/VILLAS AT HIGHGROVE
BASIN #1
>>>>>> Structure No. 2 <<<<<<
(Input Data)

WEIR-VR
Weir - Vertical Rectangular

E1 elev.(ft)?	468.5
E2 elev.(ft)?	469.5
Weir coefficient?	3.3
Weir elev.(ft)?	468.5
Length (ft)?	11.67
Contracted/Suppressed (C/S)?	S

ESTATES/VILLAS AT HIGHGROVE
BASIN #1
>>>>>> Structure No. 1 <<<<<<
(Input Data)

CULVERT-CR
Circular Culvert (With Inlet Control)

E1 elev.(ft)?	465
E2 elev.(ft)?	470.001
Diam. (ft)?	.83
Inv. el.(ft)?	465
Slope (ft/ft)?	.177
T1 ratio?	
T2 ratio?	
K Coeff.?	.0045
M Coeff.?	2
c Coeff.?	.0317
Y Coeff.?	.69
Form 1 or 2?	1
Slope factor?	-.5

----INITIAL CONDITIONS----
Elevation = 465.00 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)
465.00	0.0	0	0.0	0.0
465.20	0.2	88	2.9	3.1
465.40	0.6	426	14.2	14.8
465.60	1.1	1,177	39.2	40.3
465.80	1.6	2,510	83.7	85.3
465.83	1.7	2,770	92.3	94.0
466.00	2.1	4,592	153.1	155.2
466.20	2.5	7,139	238.0	240.5
466.40	2.9	9,761	325.4	328.3
466.60	3.2	12,459	415.3	418.5
466.80	3.5	15,232	507.7	511.2
467.00	3.7	18,084	602.8	606.5
467.20	4.0	21,015	700.5	704.5
467.40	4.2	24,025	800.8	805.0
467.60	4.4	27,116	903.9	908.3
467.80	4.6	30,288	1009.6	1014.2
468.00	4.8	33,544	1118.1	1122.9
468.20	5.0	36,884	1229.4	1234.4
468.40	5.2	40,307	1343.5	1348.7
468.50	5.3	42,050	1401.7	1407.0
468.60	6.6	43,815	1460.5	1467.1
468.80	11.8	47,409	1580.3	1592.1
469.00	19.3	51,091	1703.0	1722.3
469.20	28.4	54,861	1828.7	1857.1
469.40	38.9	58,719	1957.3	1996.2
469.50	45.8	60,683	2022.7	2068.5
469.60	49.7	62,668	2088.9	2138.6
469.80	56.6	66,708	2223.6	2280.2
470.00	62.6	70,841	2361.4	2424.0

Time increment (t) = 1.0 min.

Return Freq: 2 years
* ESTATES/VILLAS AT HIGHGROVE *
* BASIN #1 *

Pond File: J:\DATA\9802036\BASIN1 .PND
Inflow Hydrograph: J:\DATA\9802036\B1-2YR .HYD
Outflow Hydrograph: J:\DATA\9802036\2YR-B1 .HYD

INFLOW HYDROGRAPH / ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1.0	15.07	-----	0.0	0.0	0.00	465.00
2.0	15.07	30.1	28.3	30.1	0.90	465.52
3.0	15.07	30.1	55.9	58.5	1.30	465.68
4.0	15.07	30.1	82.8	86.0	1.61	465.80
5.0	15.07	30.1	109.3	112.9	1.82	465.88
6.0	15.07	30.1	135.4	139.4	2.00	465.96
7.0	15.07	30.1	161.3	165.6	2.15	466.02
8.0	15.07	30.1	186.9	191.4	2.27	466.09
9.0	15.07	30.1	212.2	217.0	2.39	466.15
10.0	15.07	30.1	237.4	242.4	2.51	466.20
11.0	15.07	30.1	262.3	267.5	2.62	466.26
12.0	15.07	30.1	286.9	292.4	2.74	466.32
13.0	15.07	30.1	311.4	317.1	2.85	466.37
14.0	15.07	30.1	335.6	341.5	2.94	466.43
15.0	15.07	30.1	359.7	365.8	3.02	466.48
16.0	15.07	30.1	383.6	389.8	3.10	466.54
17.0	15.07	30.1	407.4	413.8	3.18	466.59
18.0	15.07	30.1	431.0	437.5	3.26	466.64
19.0	15.07	30.1	454.5	461.2	3.34	466.69
20.0	15.07	30.1	477.8	484.6	3.41	466.74
21.0	0.00	15.1	486.0	492.9	3.44	466.76
22.0	0.00	0.0	479.2	486.0	3.42	466.75
23.0	0.00	0.0	472.4	479.2	3.40	466.73
24.0	0.00	0.0	465.6	472.4	3.37	466.72
25.0	0.00	0.0	458.9	465.6	3.35	466.70
26.0	0.00	0.0	452.2	458.9	3.33	466.69
27.0	0.00	0.0	445.6	452.2	3.31	466.67
28.0	0.00	0.0	439.1	445.6	3.29	466.66
29.0	0.00	0.0	432.5	439.1	3.27	466.64
30.0	0.00	0.0	426.0	432.5	3.25	466.63
31.0	0.00	0.0	419.6	426.0	3.22	466.62
32.0	0.00	0.0	413.2	419.6	3.20	466.60

SUMMARY OF ROUTING COMPUTATIONS
Starting Pond W.S. Elevation = 465.00 ft

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

Peak Inflow = 15.07 cfs
Peak Outflow = 3.44 cfs
Peak Elevation = 466.76 ft

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

Initial Storage = 0 cu-ft
Peak Storage From Storm = 14,683 cu-ft
Total Storage in Pond = 14,683 cu-ft

Warning: Inflow hydrograph truncated on left side.

BLOCKED LOW FLOW
Return Freq: 100 years
* ESTATES/VILLAS AT HIGHGROVE *
* BASIN #1 *

Pond File: J:\DATA\9802036\BASIN1BL.PND
Inflow Hydrograph: J:\DATA\9802036\B1-100YR.HYD
Outflow Hydrograph: J:\DATA\9802036\BLOCKED .HYD

INFLOW HYDROGRAPH / ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1.0	38.98	-----	1401.7	1401.7	0.00	468.50
2.0	38.98	78.0	1475.8	1479.6	1.93	468.63
3.0	38.98	78.0	1543.8	1553.7	4.96	468.75
4.0	38.98	78.0	1605.2	1621.8	8.27	468.85
5.0	38.98	78.0	1659.7	1683.2	11.72	468.95
6.0	38.98	78.0	1707.7	1737.7	15.01	469.03
7.0	38.98	78.0	1749.2	1785.6	18.21	469.10
8.0	38.98	78.0	1785.2	1827.2	20.99	469.16
9.0	38.98	78.0	1816.2	1863.2	23.48	469.22
10.0	38.98	78.0	1842.6	1894.2	25.78	469.26
11.0	38.98	78.0	1865.1	1920.6	27.74	469.30
12.0	38.98	78.0	1884.2	1943.0	29.40	469.33
13.0	38.98	78.0	1900.6	1962.2	30.82	469.36
14.0	38.98	78.0	1914.4	1978.5	32.03	469.38
15.0	38.98	78.0	1926.2	1992.4	33.11	469.40
16.0	38.98	78.0	1935.7	2004.2	34.21	469.42
17.0	38.98	78.0	1943.5	2013.7	35.11	469.43
18.0	38.98	78.0	1949.7	2021.4	35.84	469.44
19.0	38.98	78.0	1954.8	2027.7	36.43	469.45
20.0	38.98	78.0	1959.0	2032.8	36.91	469.46
21.0	0.00	39.0	1930.7	1998.0	33.63	469.41
22.0	0.00	0.0	1873.7	1930.7	28.49	469.31
23.0	0.00	0.0	1825.2	1873.7	24.26	469.23
24.0	0.00	0.0	1783.5	1825.2	20.86	469.16
25.0	0.00	0.0	1747.4	1783.5	18.07	469.10
26.0	0.00	0.0	1716.0	1747.4	15.65	469.05
27.0	0.00	0.0	1688.9	1716.0	13.57	469.00
28.0	0.00	0.0	1664.8	1688.9	12.04	468.96
29.0	0.00	0.0	1643.4	1664.8	10.69	468.92
30.0	0.00	0.0	1624.5	1643.4	9.49	468.89
31.0	0.00	0.0	1607.6	1624.5	8.43	468.86
32.0	0.00	0.0	1592.6	1607.6	7.48	468.83

SUMMARY OF ROUTING COMPUTATIONS
Starting Pond W.S. Elevation = 468.50 ft

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

Peak Inflow = 38.98 cfs
Peak Outflow = 36.91 cfs
Peak Elevation = 469.46 ft

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

Initial Storage = 42,050 cu-ft
Peak Storage From Storm = 17,827 cu-ft
Total Storage in Pond = 59,877 cu-ft

Warning: Inflow hydrograph truncated on left side.

Return Freq: 15 years
* ESTATES/VILLAS AT HIGHGROVE *
* BASIN #1 *

Pond File: J:\DATA\9802036\BASIN1 .PND
Inflow Hydrograph: J:\DATA\9802036\B1-15YR .HYD
Outflow Hydrograph: J:\DATA\9802036\15YR-B1 .HYD

INFLOW HYDROGRAPH / ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1.0	24.68	-----	0.0	0.0	0.00	465.00
2.0	24.68	49.4	47.0	49.4	1.20	465.64
3.0	24.68	49.4	92.9	96.3	1.71	465.84
4.0	24.68	49.4	138.2	142.2	2.02	465.96
5.0	24.68	49.4	183.1	187.6	2.25	466.08
6.0	24.68	49.4	227.5	232.4	2.46	466.18
7.0	24.68	49.4	271.5	276.9	2.67	466.28
8.0	24.68	49.4	315.2	320.9	2.87	466.38
9.0	24.68	49.4	358.5	364.5	3.02	466.48
10.0	24.68	49.4	401.5	407.8	3.16	466.58
11.0	24.68	49.4	444.3	450.9	3.30	466.67
12.0	24.68	49.4	486.7	493.6	3.44	466.76
13.0	24.68	49.4	529.0	536.1	3.55	466.85
14.0	24.68	49.4	571.1	578.4	3.64	466.94
15.0	24.68	49.4	612.9	620.4	3.74	467.03
16.0	24.68	49.4	654.6	662.3	3.87	467.11
17.0	24.68	49.4	695.9	703.9	4.00	467.20
18.0	24.68	49.4	737.1	745.3	4.08	467.28
19.0	24.68	49.4	778.2	786.5	4.16	467.36
20.0	24.68	49.4	819.0	827.5	4.24	467.44
21.0	0.00	24.7	835.2	843.7	4.27	467.47
22.0	0.00	0.0	826.6	835.2	4.26	467.46
23.0	0.00	0.0	818.2	826.6	4.24	467.44
24.0	0.00	0.0	809.7	818.2	4.23	467.43
25.0	0.00	0.0	801.3	809.7	4.21	467.41
26.0	0.00	0.0	792.9	801.3	4.19	467.39
27.0	0.00	0.0	784.6	792.9	4.18	467.38
28.0	0.00	0.0	776.2	784.6	4.16	467.36
29.0	0.00	0.0	768.0	776.2	4.14	467.34
30.0	0.00	0.0	759.7	768.0	4.13	467.33
31.0	0.00	0.0	751.5	759.7	4.11	467.31
32.0	0.00	0.0	743.3	751.5	4.09	467.29

SUMMARY OF ROUTING COMPUTATIONS
Starting Pond W.S. Elevation = 465.00 ft

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

Peak Inflow = 24.68 cfs
Peak Outflow = 4.27 cfs
Peak Elevation = 467.47 ft

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

Initial Storage = 0 cu-ft
Peak Storage From Storm = 25,183 cu-ft
Total Storage in Pond = 25,183 cu-ft

Warning: Inflow hydrograph truncated on left side.

Return Freq: 25 years
* ESTATES/VILLAS AT HIGHGROVE *
* BASIN #1 *

Pond File: J:\DATA\9802036\BASIN1 .PND
Inflow Hydrograph: J:\DATA\9802036\B1-25YR .HYD
Outflow Hydrograph: J:\DATA\9802036\25YR-B1 .HYD

INFLOW HYDROGRAPH / ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1.0	30.48	-----	0.0	0.0	0.00	465.00
2.0	30.48	61.0	58.3	61.0	1.33	465.69
3.0	30.48	61.0	115.5	119.3	1.87	465.90
4.0	30.48	61.0	172.1	176.5	2.20	466.05
5.0	30.48	61.0	228.1	233.1	2.47	466.18
6.0	30.48	61.0	283.6	289.1	2.72	466.31
7.0	30.48	61.0	338.7	344.6	2.95	466.44
8.0	30.48	61.0	393.4	399.6	3.14	466.56
9.0	30.48	61.0	447.7	454.3	3.32	466.68
10.0	30.48	61.0	501.7	508.7	3.49	466.79
11.0	30.48	61.0	555.4	562.6	3.61	466.91
12.0	30.48	61.0	608.9	616.4	3.73	467.02
13.0	30.48	61.0	662.1	669.9	3.89	467.13
14.0	30.48	61.0	715.0	723.1	4.04	467.24
15.0	30.48	61.0	767.7	775.9	4.14	467.34
16.0	30.48	61.0	820.1	828.6	4.25	467.45
17.0	30.48	61.0	872.4	881.1	4.35	467.55
18.0	30.48	61.0	924.5	933.4	4.45	467.65
19.0	30.48	61.0	976.3	985.4	4.55	467.75
20.0	30.48	61.0	1028.0	1037.3	4.64	467.84
21.0	0.00	30.5	1049.1	1058.5	4.68	467.88
22.0	0.00	0.0	1039.8	1049.1	4.66	467.86
23.0	0.00	0.0	1030.5	1039.8	4.65	467.85
24.0	0.00	0.0	1021.2	1030.5	4.63	467.83
25.0	0.00	0.0	1012.0	1021.2	4.61	467.81
26.0	0.00	0.0	1002.8	1012.0	4.60	467.80
27.0	0.00	0.0	993.7	1002.8	4.58	467.78
28.0	0.00	0.0	984.5	993.7	4.56	467.76
29.0	0.00	0.0	975.4	984.5	4.54	467.74
30.0	0.00	0.0	966.4	975.4	4.53	467.73
31.0	0.00	0.0	957.4	966.4	4.51	467.71
32.0	0.00	0.0	948.4	957.4	4.49	467.69

SUMMARY OF ROUTING COMPUTATIONS
Starting Pond W.S. Elevation = 465.00 ft

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

Peak Inflow = 30.48 cfs
Peak Outflow = 4.68 cfs
Peak Elevation = 467.88 ft

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

Initial Storage = 0 cu-ft
Peak Storage From Storm = 31,614 cu-ft
Total Storage in Pond = 31,614 cu-ft

Warning: Inflow hydrograph truncated on left side.

Return Freq: 100 years
* ESTATES/VILLAS AT HIGHGROVE *
* BASIN #1 *

Pond File: J:\DATA\9802036\BASIN1 .PND
Inflow Hydrograph: J:\DATA\9802036\B1-100YR.HYD
Outflow Hydrograph: J:\DATA\9802036\100YR-B1.HYD

INFLOW HYDROGRAPH / ROUTING COMPUTATIONS

TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
1.0	38.98	-----	0.0	0.0	0.00	465.00
2.0	38.98	78.0	74.9	78.0	1.52	465.77
3.0	38.98	78.0	148.7	152.9	2.09	465.99
4.0	38.98	78.0	221.8	226.7	2.44	466.17
5.0	38.98	78.0	294.2	299.8	2.77	466.34
6.0	38.98	78.0	366.1	372.2	3.05	466.50
7.0	38.98	78.0	437.5	444.0	3.28	466.66
8.0	38.98	78.0	508.4	515.4	3.51	466.81
9.0	38.98	78.0	579.1	586.4	3.66	466.96
10.0	38.98	78.0	649.3	657.0	3.85	467.10
11.0	38.98	78.0	719.2	727.3	4.05	467.25
12.0	38.98	78.0	788.8	797.2	4.18	467.38
13.0	38.98	78.0	858.1	866.7	4.32	467.52
14.0	38.98	78.0	927.2	936.1	4.45	467.65
15.0	38.98	78.0	996.0	1005.1	4.58	467.78
16.0	38.98	78.0	1064.5	1073.9	4.71	467.91
17.0	38.98	78.0	1132.8	1142.5	4.83	468.03
18.0	38.98	78.0	1200.8	1210.7	4.96	468.16
19.0	38.98	78.0	1268.6	1278.8	5.08	468.28
20.0	38.98	78.0	1336.2	1346.6	5.20	468.40
21.0	0.00	39.0	1364.7	1375.2	5.25	468.45
22.0	0.00	0.0	1354.2	1364.7	5.23	468.43
23.0	0.00	0.0	1343.8	1354.2	5.21	468.41
24.0	0.00	0.0	1333.4	1343.8	5.19	468.39
25.0	0.00	0.0	1323.1	1333.4	5.17	468.37
26.0	0.00	0.0	1312.8	1323.1	5.16	468.36
27.0	0.00	0.0	1302.5	1312.8	5.14	468.34
28.0	0.00	0.0	1292.3	1302.5	5.12	468.32
29.0	0.00	0.0	1282.1	1292.3	5.10	468.30
30.0	0.00	0.0	1271.9	1282.1	5.08	468.28
31.0	0.00	0.0	1261.8	1271.9	5.07	468.27
32.0	0.00	0.0	1251.7	1261.8	5.05	468.25

SUMMARY OF ROUTING COMPUTATIONS
Starting Pond W.S. Elevation = 465.00 ft

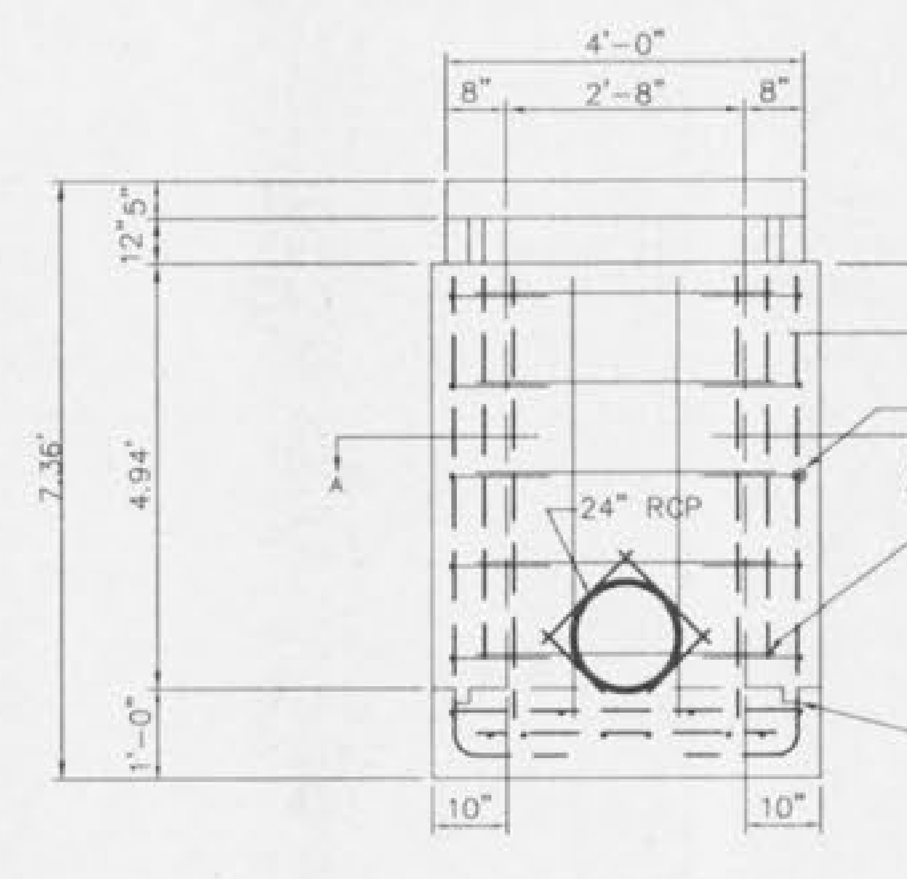
***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 38.98 cfs
Peak Outflow = 5.25 cfs
Peak Elevation = 468.45 ft

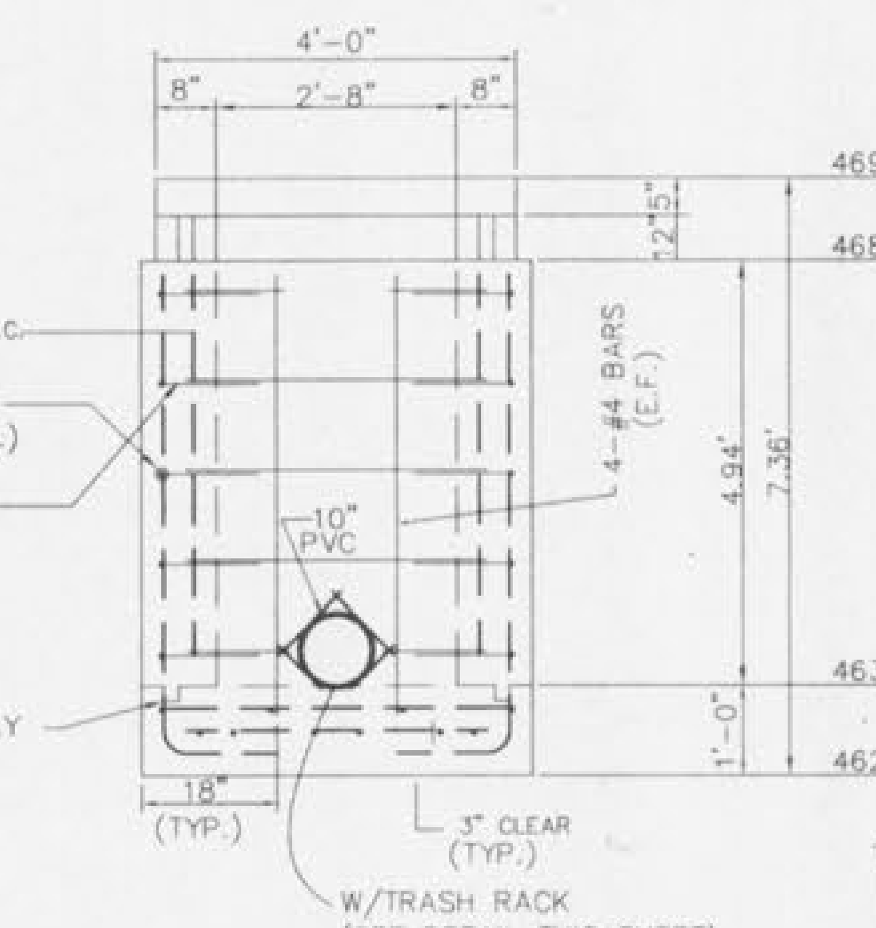
***** Summary of Approximate Peak Storage *****

Initial Storage = 0 cu-ft
Peak Storage From Storm = 41,098 cu-ft
Total Storage in Pond = 41,098 cu-ft

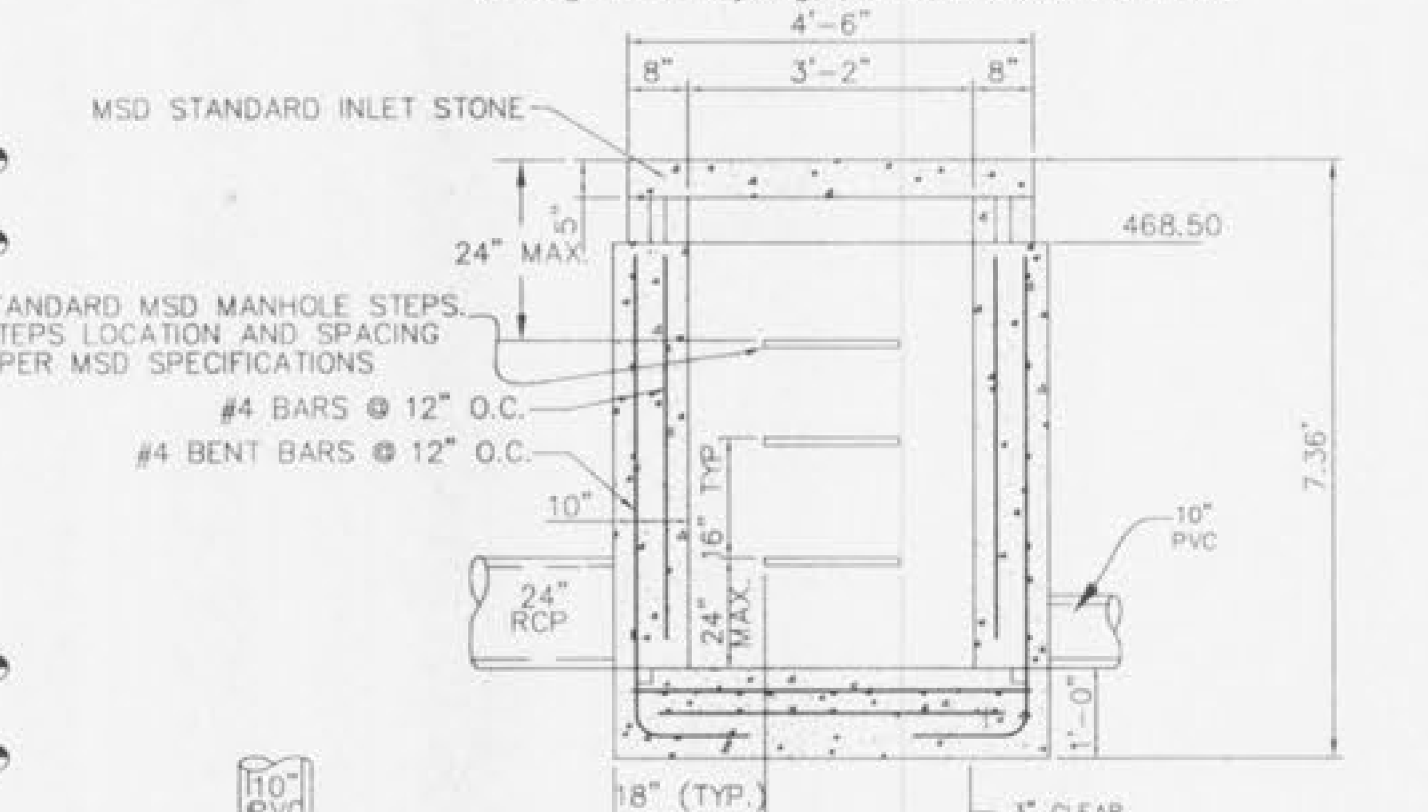
Warning: Inflow hydrograph truncated on left side.



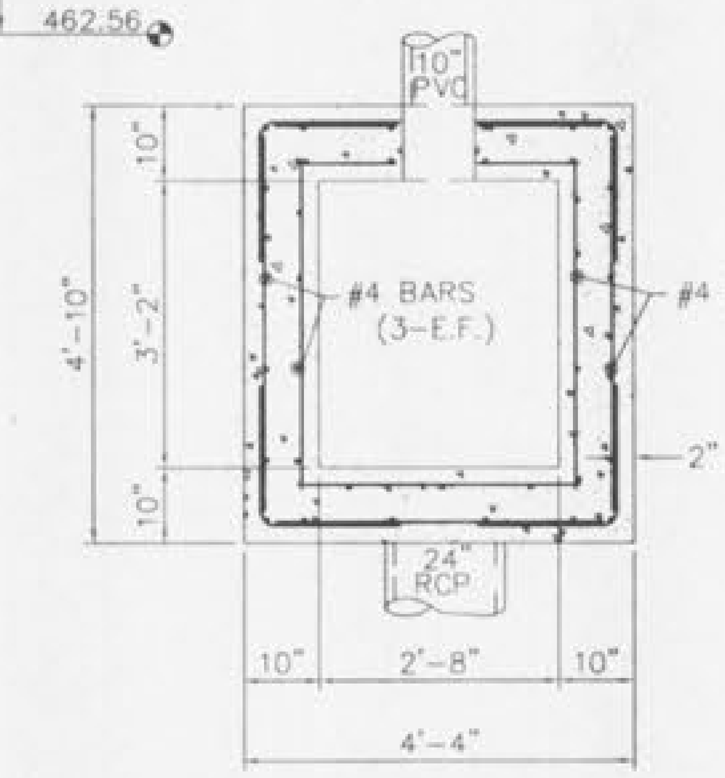
OUTFALL STRUCTURE 159
REAR ELEVATION
(OUTSIDE FACE STEEL SHOWN)
(NOT TO SCALE)



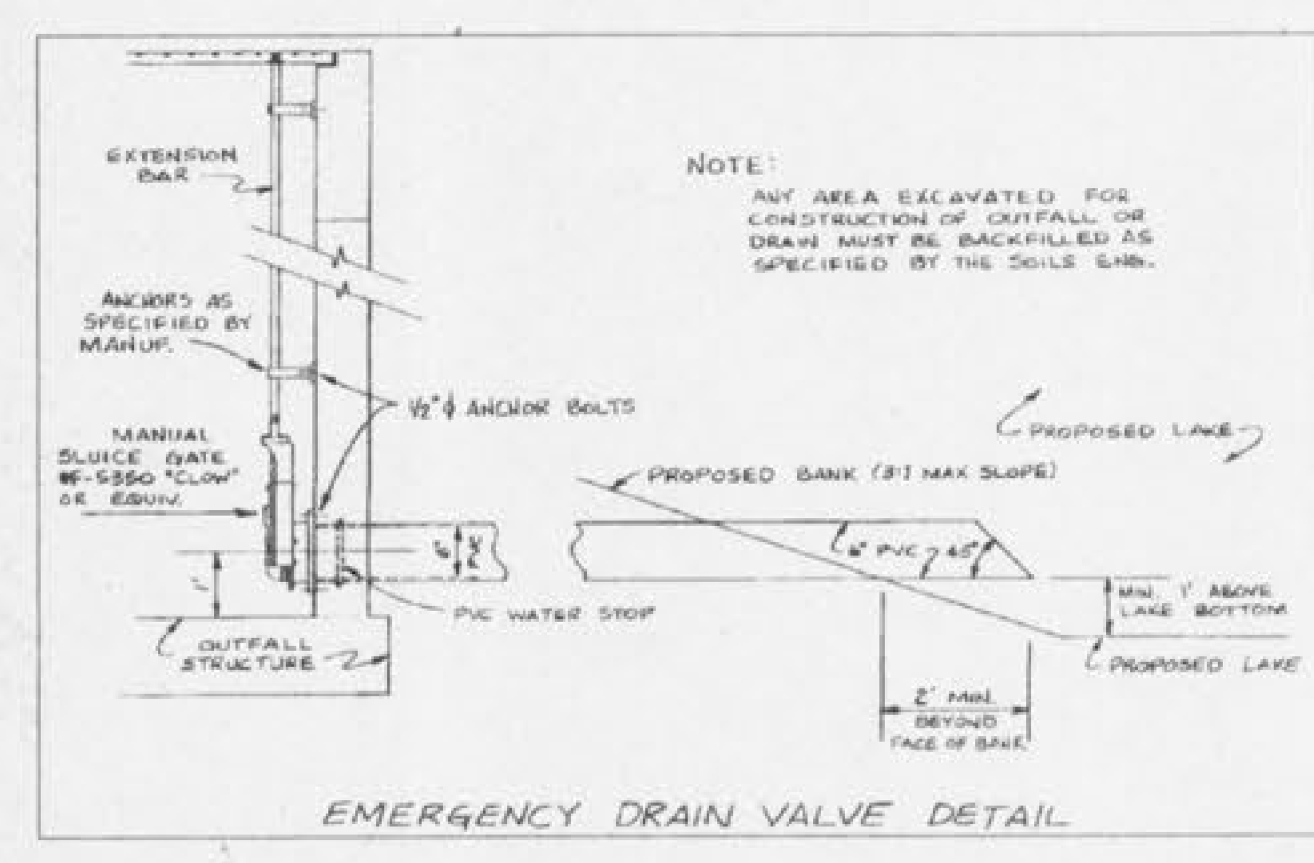
OUTFALL STRUCTURE 159
FRONT ELEVATION
(OUTSIDE FACE STEEL SHOWN)
(NOT TO SCALE)



OUTFALL STRUCTURE 159
SIDE VIEW
(NOT TO SCALE)



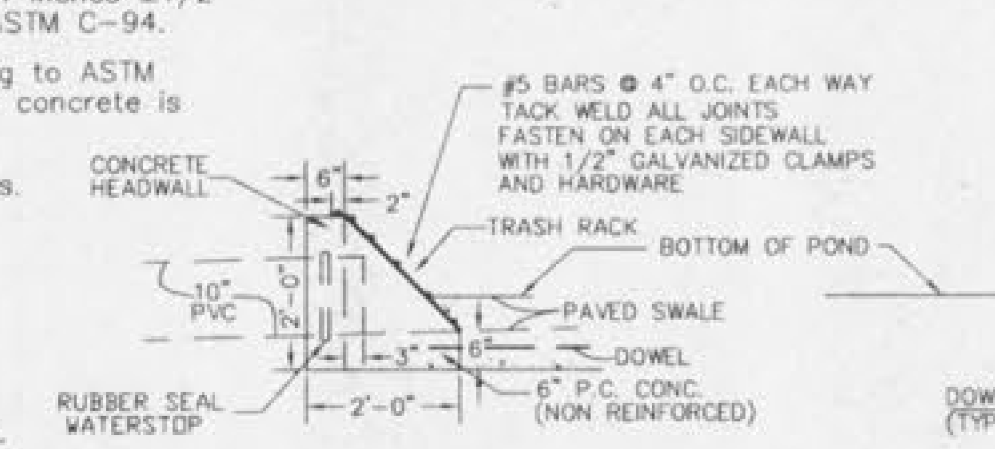
OUTFALL STRUCTURE 159
SECTION A-A
(NOT TO SCALE)



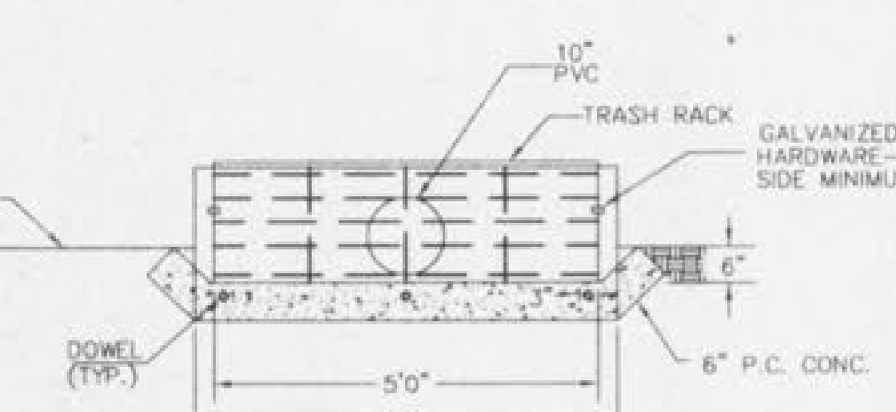
EMERGENCY DRAIN VALVE DETAIL

CONSTRUCTION NOTES:

1. Concrete for the structure shall be "air entrained" and contain at least 6 sack Class "A" Portland Cement per cubic yard. The concrete shall be placed at a slump of 4 inches ±1/2 inch. The concrete shall be proportioned and transported in accordance with ASTM C-94.
2. Reinforcing steel shall conform to ASTM C-615-60 with deformations conforming to ASTM A-305 and shall have a minimum cover of 2 inches except for 3 inches where concrete is poured against earth.
3. Laps and/or splices in reinforcing steel shall be a minimum of 30 bar diameters.
4. Keyed joints shown are to be 2-inch by 2-inch keyed construction joints.
5. Fy = 60,000 psi.
6. Fc = 3,500 psi.
7. All exposed edges to have a 3/4-inch Chamfer.
8. Contractor to provide for bypass of stormwater during construction of structure.
9. Soil density tests shall be obtained by the soils engineer at selected intervals to insure compliance with soils specifications.
10. All soil specifications shall be directed by soils engineer.
11. Note: 2" clear (typ.) to closest rebar to concrete surface.



SIDE VIEW



FRONT VIEW

TRASH RACK/HEADWALL/CONCRETE SWALE DESIGN
(NOT TO SCALE)

DETENTION SUMMARY

Project Name: ESTATES/VILLAS AT HIGHGROVE
Project No.: 98-02-036
Site Acreage: 93.10 ac. = 28.45 acres tributary to predeveloped West watershed (to be detained by Basin 1)
49.05 acres tributary to predeveloped East watershed (to be detained by Basin 2)
15.60 acres tributary to predeveloped North watershed (to be detained by Basin 3)

Design Period: 20 Minutes

Return Frequency (years)	Undeveloped P.I. Factor (5% Impervious)	Developed P.I. Factor (Single-Family)	Developed P.I. Factor (Multi-Family)	Developed P.I. Factor (100% impervious)
2	1.15	1.61	1.74	2.39
15	1.87	2.64	2.80	3.85
25	2.31	3.26	3.46	4.75
100	2.95	4.17	4.42	6.08

BASIN #1
Acreage to the Basin = 7.72 ac. on-site (Single-Family)
2.30 ac. on-site (undisturbed)

Direct Runoff from West Watershed: 4.06ac. on-site (Single-Family)
2.85ac. on-site (Multi-Family)
15.12ac. on-site (undisturbed)

Return Frequency (Years)	Inflow to Basin (cfs)	Allowable Outflow from W. Watershed (cfs)	Direct Runoff (cfs)	Allowable Outflow from Basin 1 (cfs)	Designed Outflow from Basin 1 (cfs)
2	15.07	32.72	28.88	3.83	3.44
15	24.68	53.20	46.97	6.23	4.27
25	30.48	65.72	58.02	7.70	4.68
100	38.98	83.93	74.13	9.80	5.25

Designed outflows and volumes shown are to be considered a model of the detention basin performance only. The actual outflows and volumes of the as-built condition may vary due to construction tolerances. In no event should the maximum as-built outflow exceed the maximum allowable outflow for the 25 year 20 minute storm for each basin. The minimum as-built volume shall store the 25 year 20 minute storm and provide 1' of freeboard on the 100 year 20 minute storm with a blocked low flow condition. The allowable outflow calculations for the 2, 15, and 100 year, 20 minute storms are shown for informational purposes only.

ISSUE	REMARKS/DATE
1	12/30/98 SUBMITAL TO CITY OF O'FALLON
2	01/21/99 DEVELOPER REV.
3	03/01/99 PER CITY OF O'OFALLON COMMENTS

PREPARED FOR:
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PREPARED BY:
the STERLING CO.
5055 NEW BAUMGARTNER ROAD
ST. LOUIS, MISSOURI 63129
ENGINEERS, SURVEYORS AND PLANNERS
(314)-487-0440, FAX 487-8944

DRAWN: KK
DESIGNED:
CHECKED:

PROJECT: ESTATES/VILLAS AT HIGHGROVE

SHEET TITLE: DETENTION DETAILS/CALC.'S BASIN 1

NO. 98 02 036
M.S.D. P#
SHEET 28 OF 33
DIGITAL FILE LOCATION SERVER=STERLING-1 K:\CADD\D\9802036\20360ET.DWG

BASE MAP

12/24/98