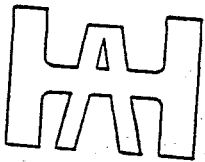


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The New Legends Golf Course
Massillon, Ohio

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Project Legends Golf Course - Massillon Calculated By BAK Date 4/14/00
Description DETENTION CALCULATIONS Checked By JDS Date 4/26/00
Pre-Development Runoff Sheet _____ of _____

Areas	Acres	Coeff.	T_c	T_2	T_0	T_{00}
#1	61.1 ac.	0.3	27.1 min.	2.11	2.99	4.39
#2	27.4 ac.	0.3	use 27.1 min.	2.11	2.99	4.39
#3	33.0 ac.	0.3	27.8 min.	2.08	2.95	4.33
#4	8.2 ac.	0.3	use 27.8 min.	2.08	2.95	4.33
Total:	129.7 ac.					

Allowable Outflow from Detention Basin #1

- Use 10 year flow for 58.5 ac. and 2 year flow for 2.6 ac.

$$Q_{OUT} = (0.3)(2.99)(58.5) + (0.3)(2.11)(2.6) = \underline{54.1 \text{ cfs}}$$

$$Q_{100} = (0.3)(4.39)(61.1) = 80.5 \text{ cfs}$$

Allowable Outflow from Detention Basin #2

- Use 10 year flow for 15.2 ac and 2 year flow from 12.2 ac.
Add allowable outflow from Det. Basin #1.

$$Q_{OUT} = (0.3)(2.99)(15.2) + (0.3)(2.11)(12.2) + 54.1 \text{ cfs} = \underline{75.5 \text{ cfs}}$$

$$Q_{100} = (0.3)(4.39)(27.4) + 80.5 = 116.6 \text{ cfs}$$

Allowable Outflow from Detention Basin #3 (includes Area #3 & #4)

- Use 10 year flow from 23.9 ac and 2 year flow from 17.3 ac.
Add allowable outflow from Det. Basin #2

$$Q_{OUT} = (0.3)(2.95)(23.9) + (0.3)(2.08)(17.3) + 75.5 = \underline{107.4 \text{ cfs}}$$

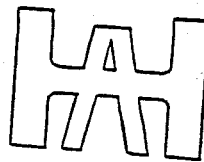
$$Q_{100} = (0.3)(4.12)(41.2) + 116.6 = 170.1 \text{ cfs}$$



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E-MAIL postmaster@hammontree-engineers.com



Project

Legends Golf Course-Massillon

Calculated By

BAK

Date

4/12/00

Description

Pre-Development Runoff Times of Concentration

Checked By

JD S

Date

4/26/00

Sheet

of

Area #1

- Overland Flow

- L=300' S=7.8% C=0.3 $T_c=15.2 \text{ min}$

- Shallow Conc. Flow

- L=2000' S=3.1% V=2.8 ft/s $T_c=11.9 \text{ min}$

$T_c=27.1 \text{ min}$

Area #2

- Overland Flow

- L=300' S=11.8% C=0.3 $T_c=13.7 \text{ min}$

- Shallow Conc. Flow

- L=1500' S=3.73% V=3.1 ft/s $T_c=8.1 \text{ min}$

$T_c=21.8 \text{ min}$

Area #3

- Overland Flow

- L=300' S=9.8% C=0.3 $T_c=14.2 \text{ min}$

- Shallow Conc. Flow

- L=2200' S=2.82% V=2.7 ft/s $T_c=13.6 \text{ min}$

$T_c=27.8 \text{ min}$

OVERLAND FLOW CHART

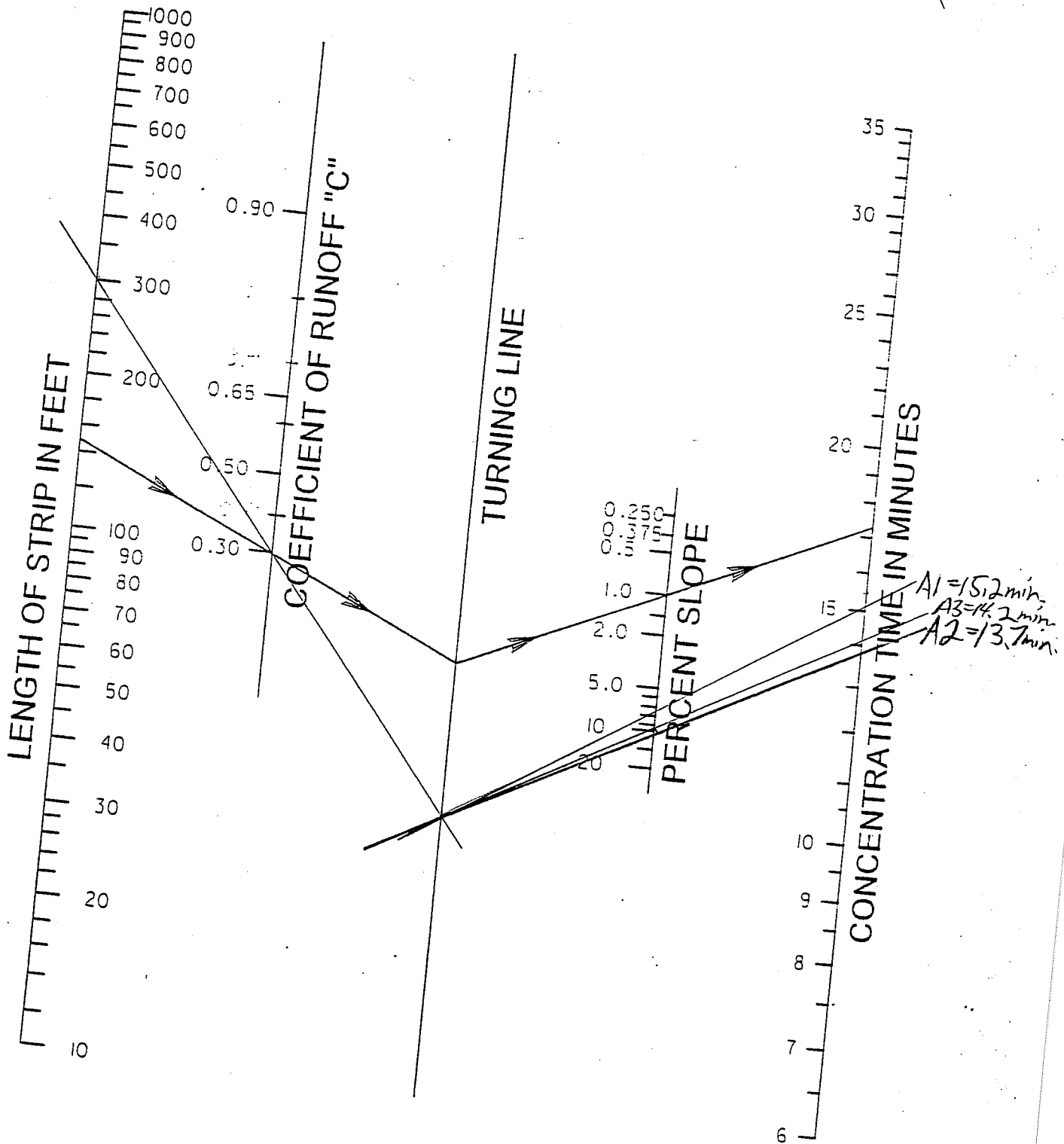
Revised July, 1999

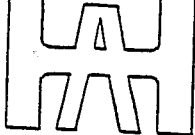
1101-1

REFERENCE SECTION

1101.2.2

Legends Golf Course - Massillon

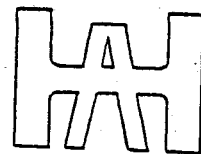


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E-MAIL postmaster@hammontree-engineers.comProject Legends Golf Course - MassillonCalculated By BAKDate 4/14/00Description Post-Development RunoffChecked By JDSDate 4/26/00

Sheet _____ of _____

Areas	Acres	Coef.	T_c	T_{10}	T_{100}
#1	61.1 ac.	0.31	27.1 min.	2.99	4.39
#2	35.8 ac.	0.37	18.0 min.	3.80	5.68
#3	26.5 ac.	0.43	20.8 min.	3.50	5.20
#4	6.4 ac.	0.30	use 20.8	3.50	5.20
Total:	129.8 ac.	0.35			

Inflow to Detention Basin #1

$$Q_{IN} = (0.31)(2.99)(61.1) = \underline{56.6 \text{ cfs}}$$

$$Q_{100} = (0.31)(4.39)(61.1) = 83.2 \text{ cfs}$$

Inflow to Detention Basin #2

- Use Area #2 plus outflow hydrograph from area #1

$$Q_{IN} = (0.37)(3.80)(35.8) = \underline{50.3 \text{ cfs}} +$$

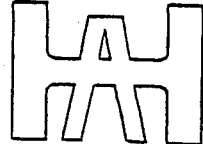
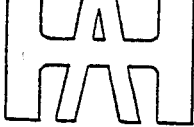
$$Q_{100} = (0.37)(5.68)(35.8) = 75.2 \text{ cfs}$$

Inflow to Detention Basin #3

- Use Area #3 + 4 plus outflow hydrograph from area #2

$$Q_{IN} = (0.40)(3.50)(32.9) = \underline{46.1 \text{ cfs}} +$$

$$Q_{100} = (0.40)(5.20)(32.9) = 68.4 \text{ cfs} +$$



Project Legends Golf Course - Massillon Calculated By BAK Date 4/14/00
Description Post-Development Time of Conc. Checked By _____ Date _____
Sheet _____ of _____

Area 1 - $T_c(\text{pre}) = T_c(\text{post})$

Area 2 -

- Overland Flow

- $L=300'$ $S=11.8\%$ $C=0.3$ $T_f=13.7\text{min.}$

- Shallow Conc. Flow

- $L=400'$ $S=5.5\%$ $V=3.8\text{ft/s}$ $T_f=1.8\text{min.}$

- Pipe Flow

- $L=1200'$ $S \approx 2\%$ $V \approx 8\text{ft/s}$ $T_f=2.5\text{min.}$

$T_c = 18.0\text{min}$

Area 3 -

- Overland Flow

- $L=300'$ $S=9.8\%$ $C=0.3$ $T_f=14.2\text{min}$

- Shallow Conc. Flow

- $L=650'$ $S=3.85\%$ $V=3.1\text{ft/s}$ $T_f=3.5\text{min.}$

- Pipe Flow

- $L=1500'$ $S \approx 2\%$ $V \approx 8\text{ft/s}$ $T_f=3.1\text{min.}$

$T_c = 20.8\text{min.}$

Quick TR-55 Ver.5.46 S/N:
Executed: 16:25:35 04-26-2000

```
*****  
*****  
*  
*  
*  
MODIFIED RATIONAL METHOD  
---- Grand Summary For All Storm Frequencies ----  
*  
*  
*****  
*****
```

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE - DETENTION BASIN #1
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

Area = 61.10 acres

Tc = 27.10 minutes

```
.....series.....fc = 27.10 minutes
```

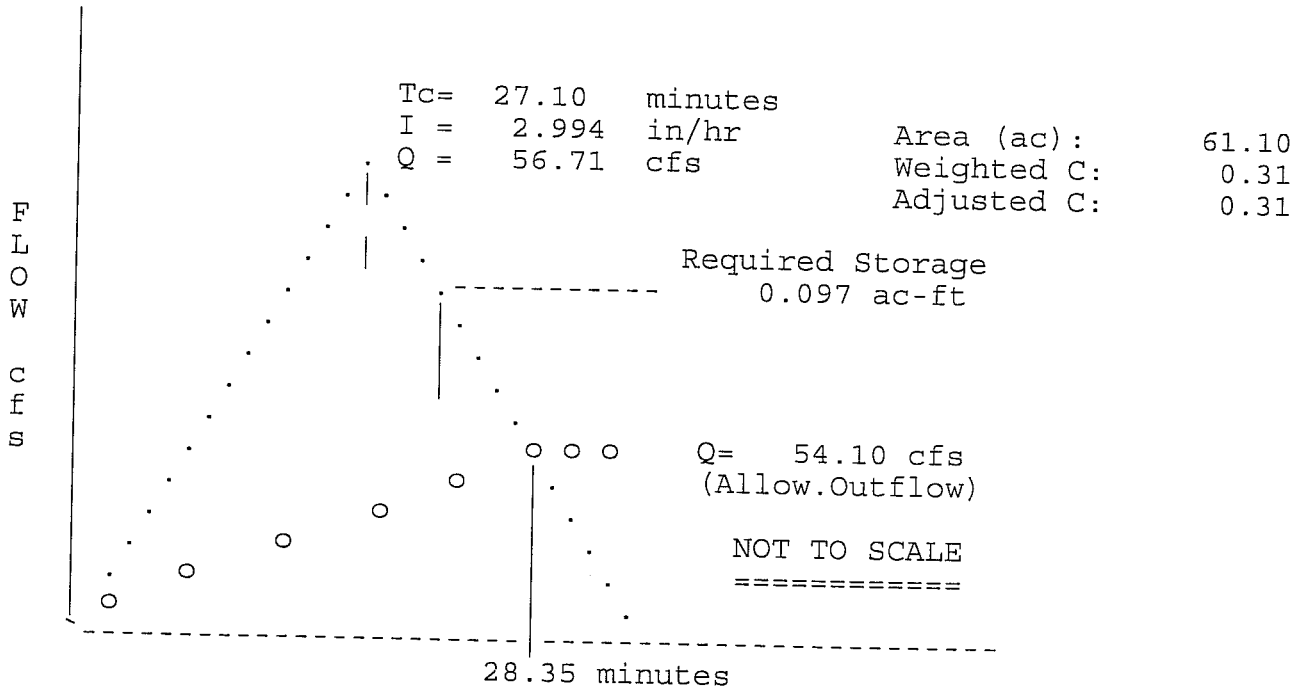
Frequency (years)	Adjusted 'C'	Duration minutes	Intens. in/hr	Qpeak cfs	Allowable cfs	VOLUMES	
						Inflow (ac-ft)	Storage (ac-ft)
10	0.310	27	2.994	56.71	54.10	2.117	0.097
100	0.310	27	4.392	83.19	80.50	3.105	0.100

MODIFIED RATIONAL METHOD
 ---- Graphical Summary for Maximum Required Storage ----

LEGENDS GOLF COURSE - DETENTION BASIN #)
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

```

*****
*
* RETURN FREQUENCY: 10 yr          Allowable Outflow: 54.10 cfs
* 'C' Adjustment: 1.000          Required Storage: 0.097 ac-ft
*
* STORM DURATION = Tc for Max.Storage
*
* Peak Inflow: 56.71 cfs          Inflow .HYD stored: LEGMASAA.HYD
*****
  
```



Quick TR-55 Ver.5.46 S/N:
Executed: 16:25:35 04-26-2000

LEGENDS GOLF COURSE
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

**** Modified Rational Hydrograph ****

Weighted C = 0.310 Area= 61.100 acres Tc = 27.10 minutes

Adjusted C = 0.310 Td= 27.10 min. I= 2.99 in/hr Qp= 56.71 cfs

RETURN FREQUENCY: 10 year storm Adj.factor = 1.00
Output file: LEGMASAA.HYD

HYDROGRAPH FOR MAXIMUM STORAGE
For the 10 Year Storm

Time Hours	Time increment = 0.017 Hours						
	Time on left represents time for first Q in each row.						
0.002	0.21	2.30	4.39	6.49	8.58	10.67	12.76
0.118	14.86	16.95	19.04	21.14	23.23	25.32	27.41
0.235	29.51	31.60	33.69	35.78	37.88	39.97	42.06
0.352	44.15	46.25	48.34	50.43	52.52	54.62	56.71
0.468	54.62	52.52	50.43	48.34	46.25	44.15	42.06
0.585	39.97	37.88	35.78	33.69	31.60	29.51	27.41
0.702	25.32	23.23	21.14	19.04	16.95	14.86	12.76
0.818	10.67	8.58	6.49	4.39	2.30	0.21	

LEGENDS GOLF COURSE
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

* * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * *

$$Q = \text{adj} * C * I * A$$

Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
 adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 10 years
 'C' adjustment, k = 1
 Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
=====								
UNDEVELOPED	0.310	61.10						
			27.10	0.310	0.310	2.994	61.10	56.71

Quick TR-55 Ver.5.46 S/N:
Executed: 16:25:35 04-26-2000

MODIFIED RATIONAL METHOD
---- Summary for Single Storm Frequency ----

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

RETURN FREQUENCY: 10 yr 'C' Adjustment = 1.000 Allowable Q = 54.10 cfs

Hydrograph file duration= 27.10 minutes

Hydrograph file: LEGMASAA.HYD

Tc = 27.10 minutes
:.....

Weighted 'C'	Adjusted 'C'	Duration minutes	Intens. in/hr	Areas acres	Qpeak cfs	VOLUMES	
						Inflow (ac-ft)	Storage (ac-ft)

0.310	0.310	27	2.994	61.10	56.71	2.117	0.097
-------	-------	----	-------	-------	-------	-------	-------

***** Storage Maximum *****

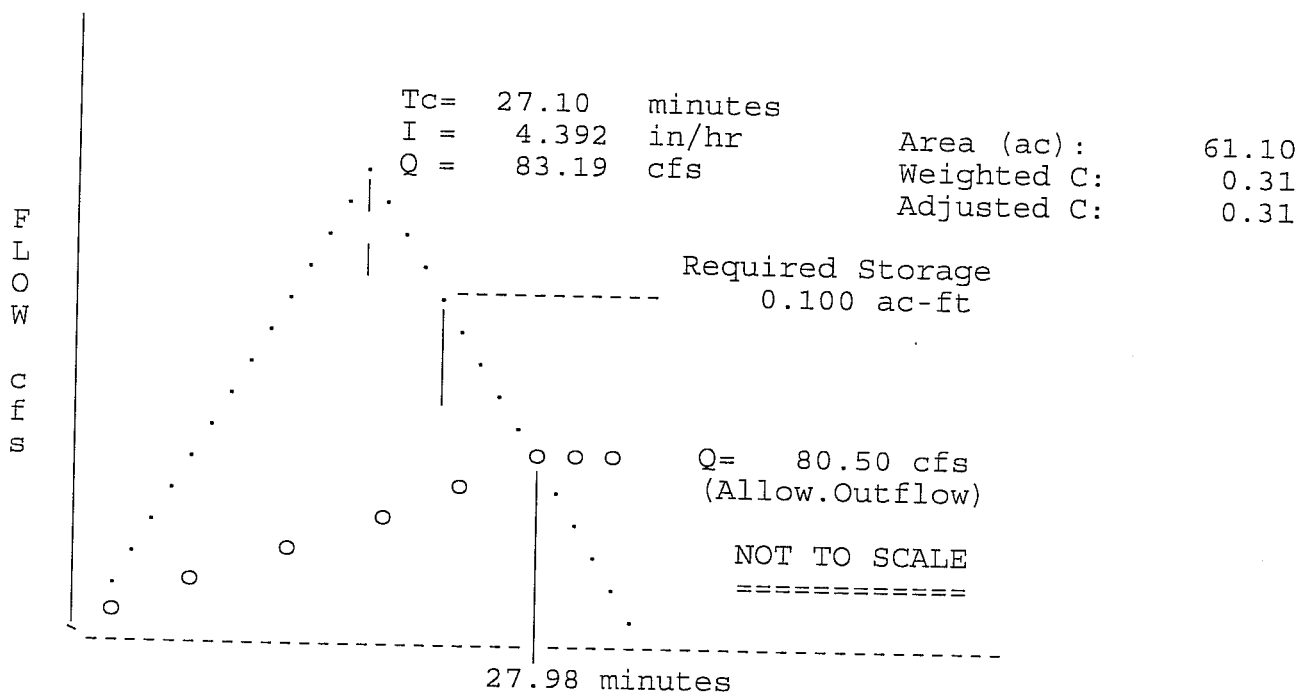
0.310	0.310	30	2.820	61.10	53.41	Qpeak < Qallow	
-------	-------	----	-------	-------	-------	----------------	--

Quick TR-55 Ver.5.46 S/N:
Executed: 16:25:35 04-26-2000

MODIFIED RATIONAL METHOD
---- Graphical Summary for Maximum Required Storage ----

LEGENDS GOLF COURSE - Detention Basin #)
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

```
*****
*
* RETURN FREQUENCY: 100 yr      Allowable Outflow: 80.50 cfs
* 'C' Adjustment: 1.000      Required Storage: 0.100 ac-ft
*
* STORM DURATION = Tc for Max.Storage
*-----
* Peak Inflow: 83.19 cfs      Inflow .HYD stored: LEGMAAAA.HYD
*****
```



Quick TR-55 Ver.5.46 S/N:
Executed: 16:25:35 04-26-2000

LEGENDS GOLF COURSE
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

**** Modified Rational Hydrograph ****

Weighted C = 0.310 Area= 61.100 acres Tc = 27.10 minutes

Adjusted C = 0.310 Td= 27.10 min. I= 4.39 in/hr Qp= 83.19 cfs

RETURN FREQUENCY: 100 year storm Adj.factor = 1.00

Output file: LEGMAAAA.HYD

HYDROGRAPH FOR MAXIMUM STORAGE
For the 100 Year Storm

Time Hours	Time increment = 0.017 Hours Time on left represents time for first Q in each row.						
0.002	0.31	3.38	6.45	9.52	12.59	15.66	18.73
0.118	21.79	24.86	27.93	31.00	34.07	37.14	40.21
0.235	43.28	46.35	49.42	52.49	55.56	58.63	61.70
0.352	64.77	67.84	70.91	73.98	77.05	80.12	83.19
0.468	80.12	77.05	73.98	70.91	67.84	64.77	61.70
0.585	58.63	55.56	52.49	49.42	46.35	43.28	40.21
0.702	37.14	34.07	31.00	27.93	24.86	21.79	18.73
0.818	15.66	12.59	9.52	6.45	3.38	0.31	

LEGENDS GOLF COURSE
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

* * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * *

$$Q = \text{adj} * C * I * A$$

Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
 adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
 'C' adjustment, k = 1
 Adj. 'C' = Wtd. 'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
UNDEVELOPED	0.310	61.10						
			27.10	0.310	0.310	4.392	61.10	83.19

Quick TR-55 Ver.5.46 S/N:
Executed: 16:25:35 04-26-2000

MODIFIED RATIONAL METHOD
---- Summary for Single Storm Frequency ----

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

RETURN FREQUENCY: 100 yr 'C' Adjustment = 1.000 Allowable Q = 80.50 cfs

Hydrograph file duration= 27.10 minutes

Hydrograph file: LEGMAAAA.HYD

Tc = 27.10 minutes

.....

Weighted 'C'	Adjusted 'C'	Duration minutes	Intens. in/hr	Areas acres	Qpeak cfs	VOLUMES	
						Inflow (ac-ft)	Storage (ac-ft)

0.310	0.310	27	4.392	61.10	83.19	3.105	0.100
-------	-------	----	-------	-------	-------	-------	-------

***** Storage Maximum *****

0.310	0.310	30	4.140	61.10	78.42	Qpeak < Qallow	
-------	-------	----	-------	-------	-------	----------------	--

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #1

CALCULATED 04-26-2000 16:20:00
DISK FILE: j:\pondpack\LEGMASL1.VOL

Planimeter scale: 1 inch = 50 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	* Volume (cubic-ft)	Volume Sum (cubic-ft)
1,040.50	4.26	10,650	0	0	0
1,041.00	4.94	12,350	34,469	5,745	5,745
1,042.00	6.44	16,100	42,551	14,184	19,928
1,043.00	7.92	19,800	53,754	17,918	37,847

$$IA = (\text{sq.rt}(\text{Area1}) + ((\text{Ei}-\text{E1})/(\text{E2}-\text{E1})) * (\text{sq.rt}(\text{Area2}) - \text{sq.rt}(\text{Area1})))^2$$

where: E1, E2 = Closest two elevations with planimeter data
Ei = Elevation at which to interpolate area
Area1, Area2 = Areas computed for E1, E2, respectively
IA = Interpolated area for Ei

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

$$\text{Volume} = (1/3) * (\text{EL2}-\text{EL1}) * (\text{Area1} + \text{Area2} + \text{sq.rt.}(\text{Area1} * \text{Area2}))$$

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

Outlet Structure File: LEGMASL1.STR

POND-2 Version: 5.17

S/N:

Date Executed:

Time Executed:

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #1

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

Elevation (ft)	Q (cfs)	Contributing Structures
-----	-----	-----
1040.50	0.0	1
1040.70	2.7	1
1040.90	7.6	1
1041.10	13.9	1
1041.30	21.5	1
1041.50	30.0	1
1041.70	39.4	1
1041.90	49.7	1
1042.10	60.7	1
1042.30	72.5	1
1042.50	84.9	1
1042.70	97.9	1
1042.85	108.1	1
1042.90	111.5	1
1042.95	115.0	1
1043.00	118.6	1

Outlet Structure File: LEGMASL1.STR

POND-2 Version: 5.17

S/N:

Date Executed:

Time Executed:

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #1

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

WEIR-XY

Weir - Defined by X, Y Coordinates

E1 (ft) = 1040.5 E2 (ft) = 1043.001

X dist.(ft)	Y elev.(ft)
-------------	-------------

0	1043
0	1040.5
10	1040.5
10	1043

Outlet Structure File: LEGMASL1.STR

POND-2 Version: 5.17

S/N:

Date Executed:

Time Executed:

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #1

Outflow Rating Table for Structure #1
WEIR-XY Weir - Defined by X, Y Coordinates

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation	Messages
-----	-----	-----	-----
1040.50	0.0	E = Y min= 1040.5	
1040.70	2.7	W(ft)=10.0	Max. D(ft)=.2
1040.90	7.6	W(ft)=10.0	Max. D(ft)=.4
1041.10	13.9	W(ft)=10.0	Max. D(ft)=.6
1041.30	21.5	W(ft)=10.0	Max. D(ft)=.8
1041.50	30.0	W(ft)=10.0	Max. D(ft)=1.0
1041.70	39.4	W(ft)=10.0	Max. D(ft)=1.2
1041.90	49.7	W(ft)=10.0	Max. D(ft)=1.4
1042.10	60.7	W(ft)=10.0	Max. D(ft)=1.6
1042.30	72.5	W(ft)=10.0	Max. D(ft)=1.8
1042.50	84.9	W(ft)=10.0	Max. D(ft)=2.0
1042.70	97.9	W(ft)=10.0	Max. D(ft)=2.2
1042.85	108.1	W(ft)=10.0	Max. D(ft)=2.35
1042.90	111.5	W(ft)=10.0	Max. D(ft)=2.4
1042.95	115.0	W(ft)=10.0	Max. D(ft)=2.45
1043.00	118.6	W(ft)=10.0	Max. D(ft)=2.5

```

*****
*
* LEGENDS GOLF COURSE
* CITY OF MASSILLON
* DETENTION BASIN #1
*
*
*****

```

Inflow Hydrograph: j:\pondpack\LEGMASAA.HYD

Rating Table file: j:\pondpack\LEGMASL1.PND

----INITIAL CONDITIONS----

Elevation = 1040.50 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 + 0 (cfs)
1040.50	0.0	0	0.0	0.0
1040.70	2.7	2,195	73.2	75.9
1040.90	7.6	4,528	150.9	158.5
1041.10	13.9	6,997	233.2	247.1
1041.30	21.5	9,610	320.3	341.8
1041.50	30.0	12,368	412.2	442.2
1041.70	39.4	15,275	509.1	548.5
1041.90	49.7	18,339	611.2	660.9
1042.10	60.7	21,556	718.4	779.1
1042.30	72.5	24,919	830.5	903.0
1042.50	84.9	28,425	947.3	1032.2
1042.70	97.9	32,079	1069.1	1167.0
1042.85	108.1	34,919	1163.7	1271.8
1042.90	111.5	35,886	1196.0	1307.5
1042.95	115.0	36,860	1228.4	1343.4
1043.00	118.6	37,847	1261.3	1379.9

Time increment (t) = 0.017 hrs.

Pond File: j:\pondpack\LEGMA SL1.PND
 Inflow Hydrograph: j:\pondpack\LEGMA SAA.HYD
 Outflow Hydrograph: j:\pondpack\LEGMA SAB.HYD

INFLOW HYDROGRAPH

ROUTING COMPUTATIONS

TIME (hrs)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - 0 (cfs)	2S/t + 0 (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.002	0.21	-----	0.0	0.0	0.00	1040.50
0.018	2.30	2.5	2.3	2.5	0.09	1040.51
0.035	4.39	6.7	8.4	9.0	0.32	1040.52
0.052	6.49	10.9	17.9	19.3	0.69	1040.55
0.068	8.58	15.1	30.6	33.0	1.17	1040.59
0.085	10.67	19.3	46.3	49.9	1.77	1040.63
0.102	12.76	23.4	64.8	69.7	2.48	1040.68
0.118	14.86	27.6	85.0	92.4	3.68	1040.74
0.135	16.95	31.8	106.6	116.8	5.13	1040.80
0.152	19.04	36.0	129.3	142.6	6.66	1040.86
0.168	21.14	40.2	152.7	169.4	8.38	1040.92
0.185	23.23	44.4	176.4	197.1	10.34	1040.99
0.202	25.32	48.6	200.3	224.9	12.32	1041.05
0.218	27.41	52.7	224.3	253.0	14.37	1041.11
0.235	29.51	56.9	247.9	281.2	16.64	1041.17
0.252	31.60	61.1	271.3	309.0	18.87	1041.23
0.268	33.69	65.3	294.4	336.6	21.08	1041.29
0.285	35.78	69.5	317.1	363.9	23.37	1041.34
0.302	37.88	73.7	339.5	390.8	25.65	1041.40
0.318	39.97	77.8	361.5	417.3	27.90	1041.45
0.335	42.06	82.0	383.3	443.6	30.12	1041.50
0.352	44.15	86.2	404.7	469.5	32.42	1041.55
0.368	46.25	90.4	425.7	495.1	34.68	1041.60
0.385	48.34	94.6	446.5	520.3	36.91	1041.65
0.402	50.43	98.8	467.0	545.3	39.12	1041.69
0.418	52.52	103.0	487.2	570.0	41.37	1041.74
0.435	54.62	107.1	507.2	594.4	43.61	1041.78
0.452	56.71	111.3	526.9	618.5	45.82	1041.82
0.468	54.62	111.3	543.0	638.2	47.62	1041.86
0.485	52.52	107.1	552.7	650.1	48.71	1041.88
0.502	50.43	103.0	557.2	655.6	49.22	1041.89
0.518	48.34	98.8	557.5	656.0	49.25	1041.89
0.535	46.25	94.6	554.3	652.0	48.89	1041.88
0.552	44.15	90.4	548.2	644.7	48.21	1041.87
0.568	42.06	86.2	539.9	634.4	47.28	1041.85
0.585	39.97	82.0	529.7	621.9	46.13	1041.83
0.602	37.88	77.8	517.9	607.5	44.81	1041.81
0.618	35.78	73.7	504.9	591.5	43.35	1041.78
0.635	33.69	69.5	490.8	574.3	41.77	1041.75
0.652	31.60	65.3	475.9	556.1	40.10	1041.71
0.668	29.51	61.1	460.2	537.0	38.38	1041.68
0.685	27.41	56.9	443.9	517.1	36.63	1041.64
0.702	25.32	52.7	427.0	496.6	34.81	1041.60
0.718	23.23	48.6	409.6	475.5	32.95	1041.56
0.735	21.14	44.4	391.9	454.0	31.05	1041.52

Pond File: j:\pondpack\LEGMASL1.PND
 Inflow Hydrograph: j:\pondpack\LEGMASAA.HYD
 Outflow Hydrograph: j:\pondpack\LEGMASAB.HYD

INFLOW HYDROGRAPH

ROUTING COMPUTATIONS

TIME (hrs)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - 0 (cfs)	2S/t + 0 (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.752	19.04	40.2	373.8	432.1	29.15	1041.48
0.768	16.95	36.0	355.3	409.8	27.26	1041.44
0.785	14.86	31.8	336.4	387.1	25.34	1041.39
0.802	12.76	27.6	317.3	364.0	23.38	1041.34
0.818	10.67	23.4	297.9	340.7	21.41	1041.30
0.835	8.58	19.3	278.1	317.1	19.52	1041.25
0.852	6.49	15.1	258.0	293.1	17.60	1041.20
0.869	4.39	10.9	237.5	268.8	15.65	1041.15
0.885	2.30	6.7	216.8	244.2	13.70	1041.09
0.902	0.21	2.5	195.5	219.3	11.93	1041.04

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

Pond File: j:\pondpack\LEGMASL1.PND
Inflow Hydrograph: j:\pondpack\LEGMASAA.HYD
Outflow Hydrograph: j:\pondpack\LEGMASAB.HYD

Starting Pond W.S. Elevation = 1040.50 ft

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

Peak Inflow	=	56.71 cfs
Peak Outflow	=	49.25 cfs
Peak Elevation	=	1041.89 ft

< 54.1 cfs = max. allowable outflow

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

Initial Storage	=	0 cu-ft
Peak Storage From Storm	=	18,205 cu-ft

Total Storage in Pond	=	18,205 cu-ft

Warning: Inflow hydrograph truncated on left side.
Warning: Inflow hydrograph truncated on right side.

POND-2 Version: 5.17 S/N:

10 YEAR

Page 5

Return Freq: 10 years

Pond File: j:\pondpack\LEGMA SL1.PND

Inflow Hydrograph: j:\pondpack\LEGMA SAA.HYD

Outflow Hydrograph: j:\pondpack\LEGMA SAB.HYD

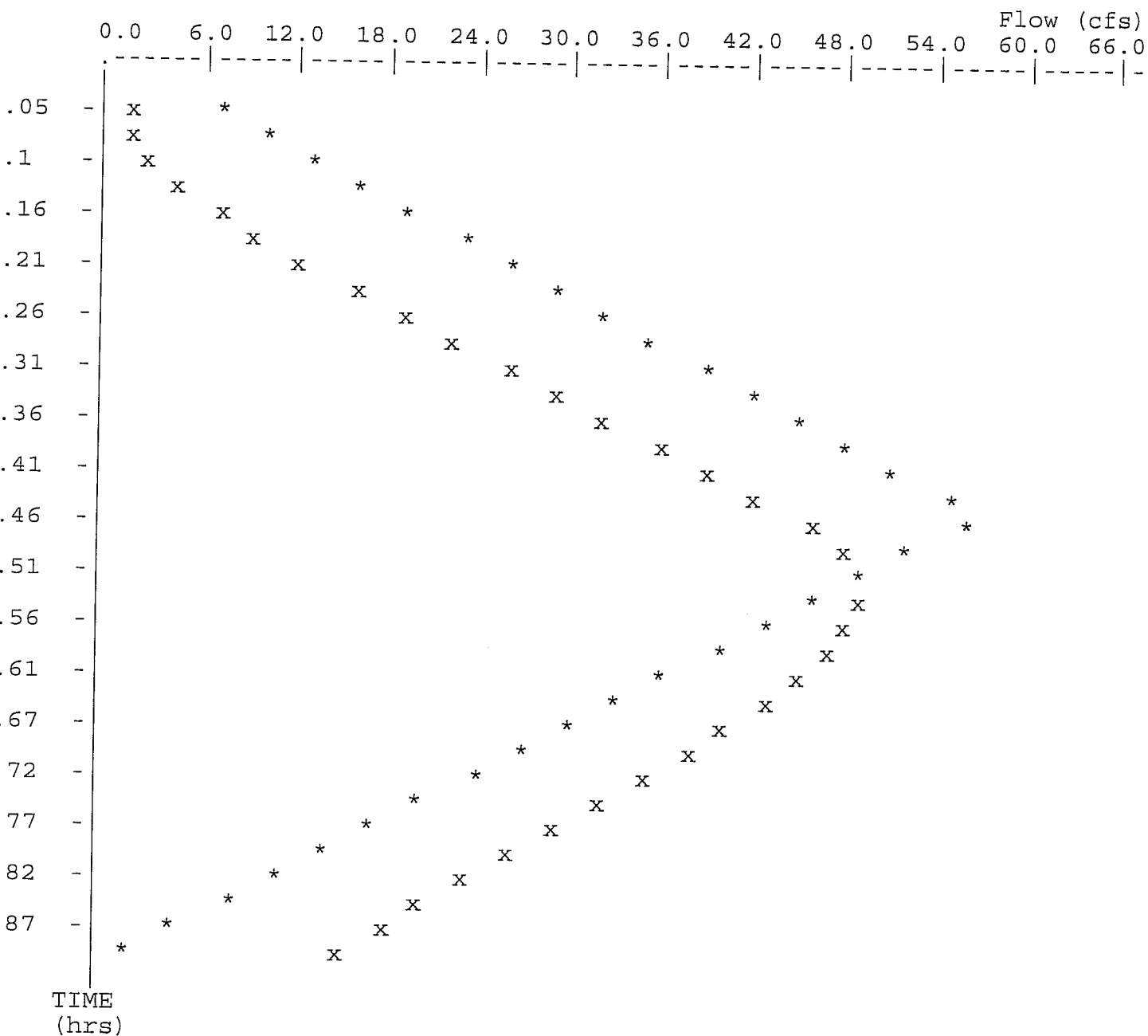
Peak Inflow = 56.71 cfs

Peak Outflow = 49.25 cfs

Peak Elevation = 1041.89 ft

EXECUTED: 04-27-2000

07:50:59



x File: j:\pondpack\LEGMA SAB.HYD Qmax = 49.3 cfs

* File: j:\pondpack\LEGMA SAA.HYD Qmax = 56.7 cfs


```

*****
*
* LEGENDS GOLF COURSE
* CITY OF MASSILLON
* DETENTION BASIN #1
*
*
*****

```

Inflow Hydrograph: j:\pondpack\LEGMAAAA.HYD

Rating Table file: j:\pondpack\LEGMASL1.PND

----INITIAL CONDITIONS----

Elevation = 1040.50 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 + 0 (cfs)
1040.50	0.0	0	0.0	0.0
1040.70	2.7	2,195	73.2	75.9
1040.90	7.6	4,528	150.9	158.5
1041.10	13.9	6,997	233.2	247.1
1041.30	21.5	9,610	320.3	341.8
1041.50	30.0	12,368	412.2	442.2
1041.70	39.4	15,275	509.1	548.5
1041.90	49.7	18,339	611.2	660.9
1042.10	60.7	21,556	718.4	779.1
1042.30	72.5	24,919	830.5	903.0
1042.50	84.9	28,425	947.3	1032.2
1042.70	97.9	32,079	1069.1	1167.0
1042.85	108.1	34,919	1163.7	1271.8
1042.90	111.5	35,886	1196.0	1307.5
1042.95	115.0	36,860	1228.4	1343.4
1043.00	118.6	37,847	1261.3	1379.9

Time increment (t) = 0.017 hrs.

Pond File: j:\pondpack\LEGMA SL1.PND
 Inflow Hydrograph: j:\pondpack\LEGMAAAA.HYD
 Outflow Hydrograph: j:\pondpack\LEGMAAAB.HYD

INFLOW HYDROGRAPH

ROUTING COMPUTATIONS

TIME (hrs)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.002	0.31	-----	0.0	0.0	0.00	1040.50
0.018	3.38	3.7	3.4	3.7	0.13	1040.51
0.035	6.45	9.8	12.3	13.3	0.47	1040.53
0.052	9.52	16.0	26.3	28.3	1.01	1040.57
0.068	12.59	22.1	44.9	48.4	1.72	1040.63
0.085	15.66	28.3	68.0	73.2	2.60	1040.69
0.102	18.73	34.4	93.8	102.4	4.27	1040.76
0.118	21.79	40.5	122.0	134.3	6.17	1040.84
0.135	24.86	46.7	152.0	168.7	8.32	1040.92
0.152	27.93	52.8	183.0	204.8	10.89	1041.00
0.168	31.00	58.9	214.9	241.9	13.53	1041.09
0.185	34.07	65.1	246.9	279.9	16.54	1041.17
0.202	37.14	71.2	278.9	318.1	19.60	1041.25
0.218	40.21	77.3	310.8	356.2	22.72	1041.33
0.235	43.28	83.5	342.4	394.3	25.94	1041.40
0.252	46.35	89.6	373.7	432.0	29.14	1041.48
0.268	49.42	95.8	404.7	469.5	32.42	1041.55
0.285	52.49	101.9	435.2	506.6	35.70	1041.62
0.302	55.56	108.1	465.4	543.2	38.94	1041.69
0.318	58.63	114.2	495.1	579.6	42.25	1041.76
0.335	61.70	120.3	524.3	615.4	45.53	1041.82
0.352	64.77	126.5	553.2	650.8	48.78	1041.88
0.368	67.84	132.6	581.8	685.9	52.02	1041.94
0.385	70.91	138.8	610.0	720.6	55.25	1042.00
0.402	73.98	144.9	638.0	754.9	58.45	1042.06
0.418	77.05	151.0	665.8	789.1	61.65	1042.12
0.435	80.12	157.2	693.2	822.9	64.88	1042.17
0.452	83.19	163.3	720.3	856.5	68.07	1042.22
0.468	80.12	163.3	742.3	883.6	70.66	1042.27
0.485	77.05	157.2	755.2	899.5	72.17	1042.29
0.502	73.98	151.0	760.6	906.2	72.81	1042.30
0.518	70.91	144.9	760.0	905.5	72.74	1042.30
0.535	67.84	138.8	754.5	898.7	72.10	1042.29
0.552	64.77	132.6	745.2	887.1	70.99	1042.27
0.568	61.70	126.5	732.6	871.6	69.52	1042.25
0.585	58.63	120.3	717.5	852.9	67.73	1042.22
0.602	55.56	114.2	700.2	831.7	65.71	1042.18
0.618	52.49	108.1	681.3	808.3	63.48	1042.15
0.635	49.42	101.9	661.0	783.2	61.10	1042.11
0.652	46.35	95.8	639.6	756.8	58.63	1042.06
0.668	43.28	89.6	617.1	729.2	56.06	1042.02
0.685	40.21	83.5	593.8	700.6	53.39	1041.97
0.702	37.14	77.3	569.8	671.1	50.65	1041.92
0.718	34.07	71.2	545.3	641.0	47.88	1041.86
0.735	31.00	65.1	520.2	610.3	45.07	1041.81

Pond File: j:\pondpack\LEGMA SL1.PND
 Inflow Hydrograph: j:\pondpack\LEGMAAAA.HYD
 Outflow Hydrograph: j:\pondpack\LEGMAAAB.HYD

INFLOW HYDROGRAPH

ROUTING COMPUTATIONS

TIME (hrs)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.752	27.93	58.9	494.7	579.1	42.21	1041.75
0.768	24.86	52.8	468.9	547.5	39.31	1041.70
0.785	21.79	46.7	442.5	515.5	36.49	1041.64
0.802	18.73	40.5	415.8	483.1	33.62	1041.58
0.818	15.66	34.4	388.8	450.2	30.71	1041.52
0.835	12.59	28.3	361.3	417.1	27.87	1041.45
0.852	9.52	22.1	333.4	383.4	25.03	1041.38
0.869	6.45	16.0	305.1	349.3	22.14	1041.32
0.885	3.38	9.8	276.2	314.9	19.34	1041.24
0.902	0.31	3.7	246.8	279.9	16.53	1041.17

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

Pond File: j:\pondpack\LEGMASL1.PND
 Inflow Hydrograph: j:\pondpack\LEGMAAAA.HYD
 Outflow Hydrograph: j:\pondpack\LEGMAAAB.HYD

Starting Pond W.S. Elevation = 1040.50 ft

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

Peak Inflow	=	83.19 cfs	
Peak Outflow	=	72.81 cfs	< 80.5 cfs = max. allowable Outflow
Peak Elevation	=	1042.30 ft	

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

Initial Storage	=	0 cu-ft
Peak Storage From Storm	=	25,005 cu-ft

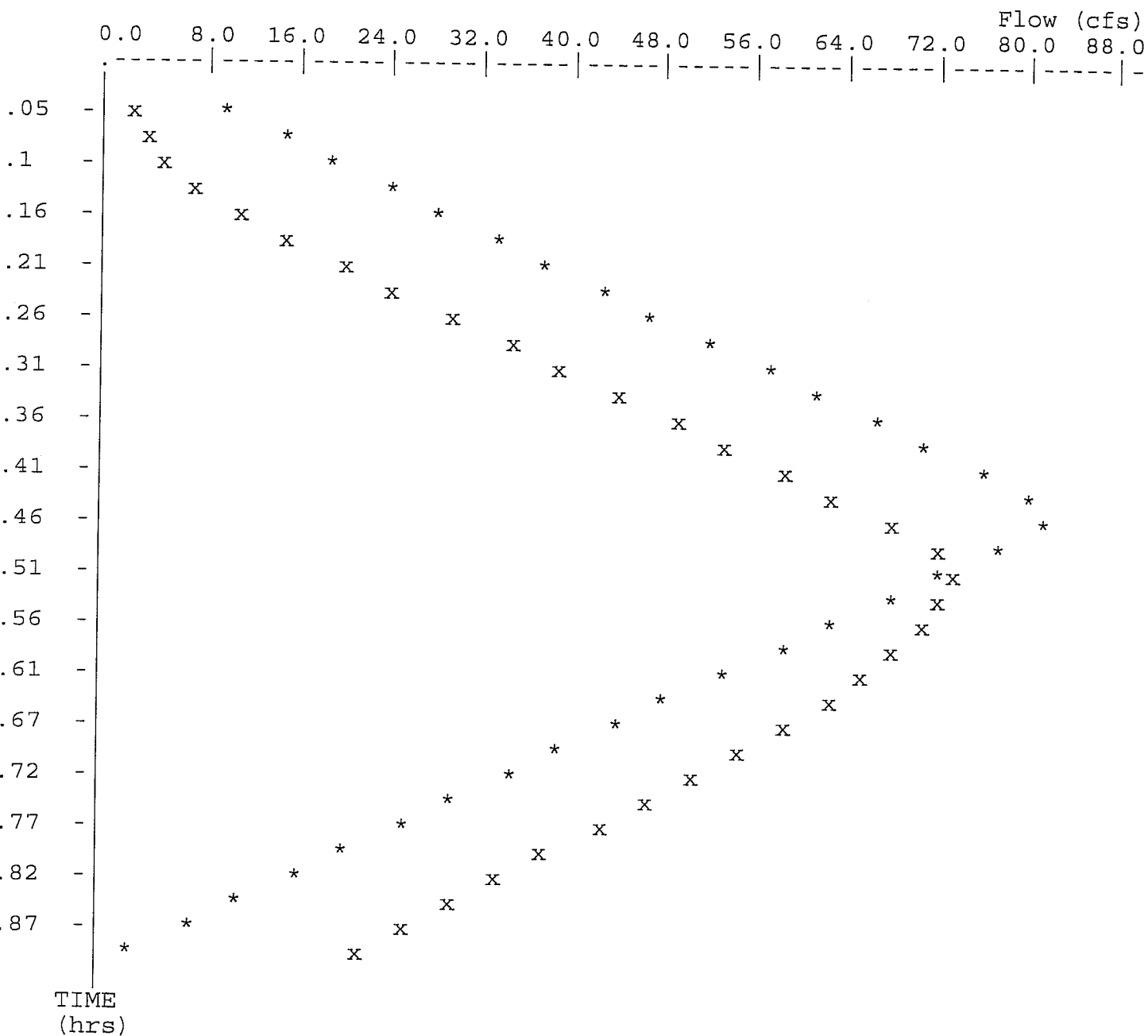
Total Storage in Pond	=	25,005 cu-ft

Warning: Inflow hydrograph truncated on left side.
 Warning: Inflow hydrograph truncated on right side.

Pond File: j:\pondpack\LEGMASL1.PND
 Inflow Hydrograph: j:\pondpack\LEGMAAAA.HYD
 Outflow Hydrograph: j:\pondpack\LEGMAAAB.HYD

Peak Inflow = 83.19 cfs
 Peak Outflow = 72.81 cfs
 Peak Elevation = 1042.30 ft

EXECUTED: 04-27-2000
 07:50:59



x File: j:\pondpack\LEGMAAAB.HYD Qmax = 72.8 cfs
 * File: j:\pondpack\LEGMAAAA.HYD Qmax = 83.2 cfs

Quick TR-55 Ver.5.46 S/N:
Executed: 16:28:09 04-26-2000

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*****  
*****  
*  
*  
*  
MODIFIED RATIONAL METHOD  
---- Grand Summary For All Storm Frequencies ----  
*  
*  
*****  
*****
```

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE - DETENTION BASIN #2
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

Area = 35.80 acres

Tc = 18.00 minutes

[illegible]

VOLUMES

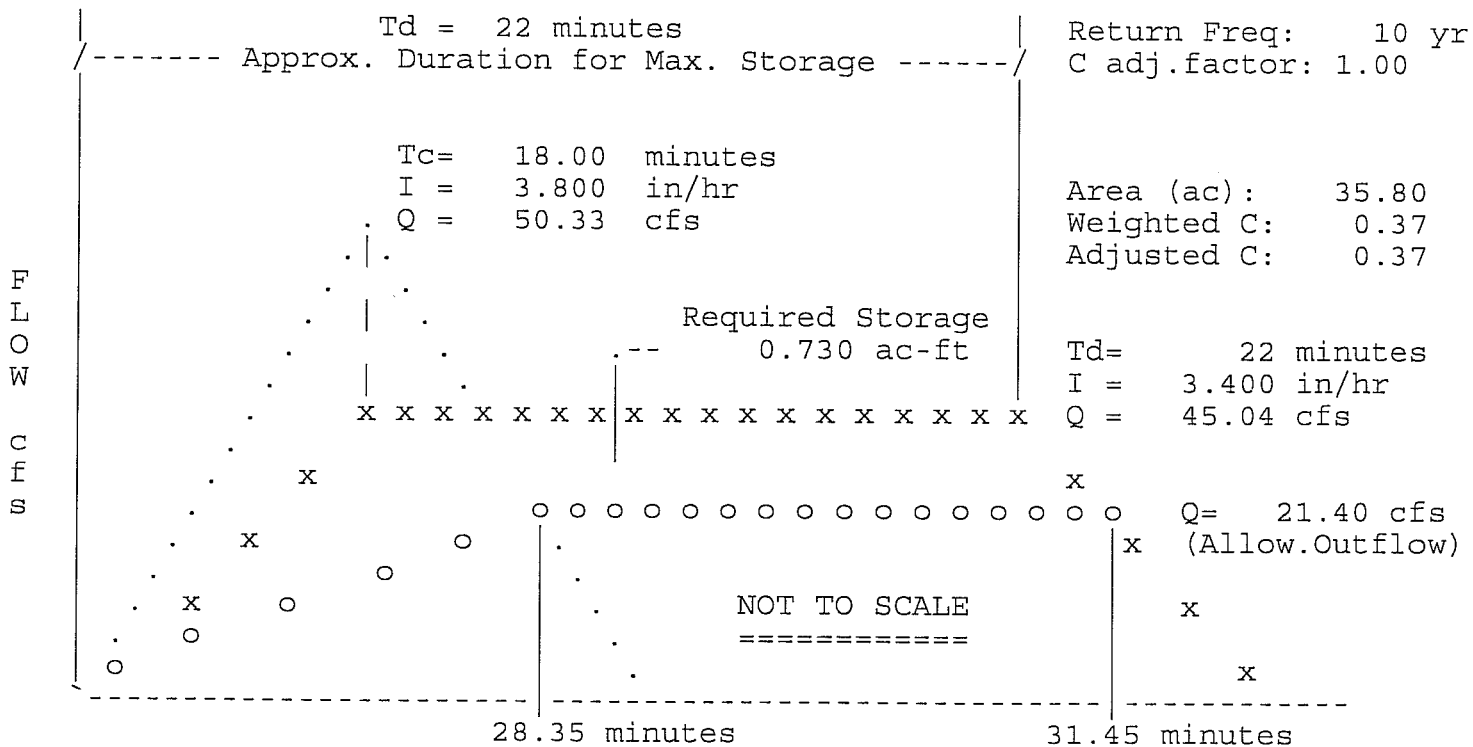
Frequency (years)	Adjusted 'C'	Duration minutes	Intens. in/hr	Qpeak cfs	Allowable cfs	VOLUMES	
						Inflow (ac-ft)	Storage (ac-ft)
10	0.370	22	3.400	45.04	21.40	1.365	0.730
100	0.370	18	5.680	75.24	36.10	1.865	0.970

MODIFIED RATIONAL METHOD
 ---- Graphical Summary for Maximum Required Storage ----

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE - DETENTION BASIN #2
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

```
*****
* RETURN FREQUENCY: 10 yr      Allowable Outflow: 21.40 cfs  *
* 'C' Adjustment: 1.000      Required Storage: 0.730 ac-ft  *
*-----*
* Peak Inflow: 45.04 cfs      Inflow .HYD stored: LEGMASBB.HYD *
*****
```



Quick TR-55 Ver.5.46 S/N:
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LEGENDS GOLF COURSE - DETENTION BASIN #2
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

**** Modified Rational Hydrograph ****
Weighted C = 0.370 Area= 35.800 acres Tc = 18.00 minutes
Adjusted C = 0.370 Td= 22.00 min. I= 3.40 in/hr Qp= 45.04 cfs
RETURN FREQUENCY: 10 year storm Adj.factor = 1.00
Output file: LEGMASBB.HYD

HYDROGRAPH FOR MAXIMUM STORAGE
For the 10 Year Storm

Time Hours	Time increment = 0.017 Hours						
	Time on left represents time for first Q in each row.						
0.000	0.00	2.50	5.00	7.51	10.01	12.51	15.01
0.117	17.51	20.02	22.52	25.02	27.52	30.02	32.53
0.233	35.03	37.53	40.03	42.53	45.04	45.04	45.04
0.350	45.04	45.04	42.53	40.03	37.53	35.03	32.53
0.467	30.02	27.52	25.02	22.52	20.02	17.51	15.01
0.583	12.51	10.01	7.51	5.00	2.50	0.00	

LEGENDS GOLF COURSE - DETENTION BASIN #2
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

* * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * *

$$Q = \text{adj} * C * I * A$$

Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
 adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 10 years
 'C' adjustment, k = 1
 Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
PART. DEV.	0.370	35.80						
			18.00	0.370	0.370	3.800	35.80	50.33

Quick TR-55 Ver.5.46 S/N:
 Executed: 16:28:09 04-26-2000

MODIFIED RATIONAL METHOD
 ---- Summary for Single Storm Frequency ----

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE - DETENTION BASIN #2
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

RETURN FREQUENCY: 10 yr 'C' Adjustment = 1.000 Allowable Q = 21.40 cfs

Hydrograph file duration= 22.00 minutes
 Hydrograph file: LEGMASBB.HYD

Tc = 18.00 minutes

						VOLUMES	
Weighted 'C'	Adjusted 'C'	Duration minutes	Intens. in/hr	Areas acres	Qpeak cfs	Inflow (ac-ft)	Storage (ac-ft)
0.370	0.370	18	3.800	35.80	50.33	1.248	0.717
0.370	0.370	20	3.580	35.80	47.42	1.306	0.724

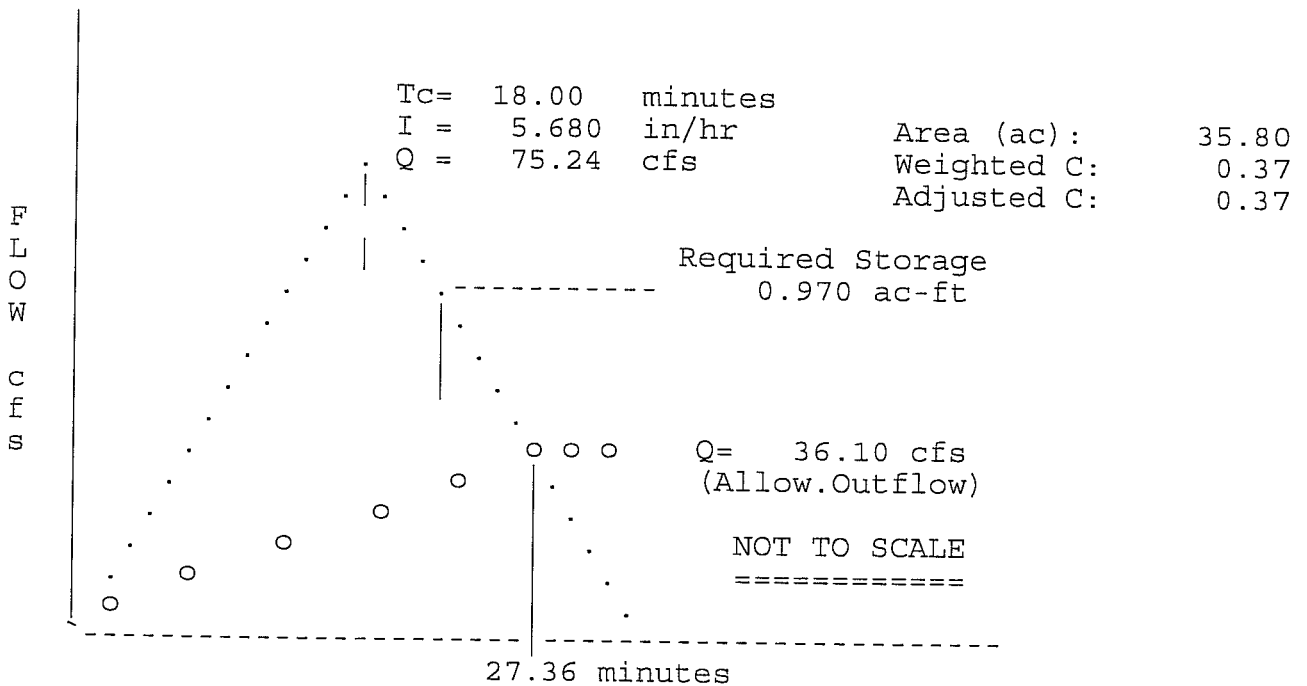
***** Storage Maximum
 0.370 0.370 22 3.400 35.80 45.04 | 1.365 0.730

0.370	0.370	30	2.820	35.80	37.35	1.544	0.698
0.370	0.370	40	2.320	35.80	30.73	1.693	0.586
0.370	0.370	50	1.980	35.80	26.23	1.806	0.436
0.370	0.370	60	1.720	35.80	22.78	1.883	0.251
0.370	0.370	120	1.000	35.80	13.25	Qpeak < Qallow	

MODIFIED RATIONAL METHOD
---- Graphical Summary for Maximum Required Storage ----

LEGENDS GOLF COURSE - DETENTION BASIN #2
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

```
*****
*
* RETURN FREQUENCY: 100 yr      Allowable Outflow: 36.10 cfs
* 'C' Adjustment: 1.000        Required Storage: 0.970 ac-ft
*
* STORM DURATION = Tc for Max.Storage
*
* Peak Inflow: 75.24 cfs      Inflow .HYD stored: LEGMABBB.HYD
*****
```



Quick TR-55 Ver.5.46 S/N:
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LEGENDS GOLF COURSE - DETENTION BASIN #2
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

**** Modified Rational Hydrograph ****

Weighted C = 0.370 Area= 35.800 acres Tc = 18.00 minutes

Adjusted C = 0.370 Td= 18.00 min. I= 5.68 in/hr Qp= 75.24 cfs

RETURN FREQUENCY: 100 year storm Adj.factor = 1.00

Output file: LEGMABBB.HYD

HYDROGRAPH FOR MAXIMUM STORAGE
For the 100 Year Storm

Time Hours	Time increment = 0.017 Hours						
	Time on left represents time for first Q in each row.						
0.000	0.00	4.18	8.36	12.54	16.72	20.90	25.08
0.117	29.26	33.44	37.62	41.80	45.98	50.16	54.34
0.233	58.52	62.70	66.88	71.06	75.24	71.06	66.88
0.350	62.70	58.52	54.34	50.16	45.98	41.80	37.62
0.467	33.44	29.26	25.08	20.90	16.72	12.54	8.36
0.583	4.18	0.00					

LEGENDS GOLF COURSE - DETENTION BASIN #2
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

* * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * *

$$Q = \text{adj} * C * I * A$$

Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
 adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
 'C' adjustment, k = 1
 Adj. 'C' = Wtd.'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
PART. DEV.	0.370	35.80						
			18.00	0.370	0.370	5.680	35.80	75.24

Quick TR-55 Ver.5.46 S/N:
 Executed: 16:28:09 04-26-2000

MODIFIED RATIONAL METHOD
 ---- Summary for Single Storm Frequency ----

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE - DETENTION BASIN #2
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

RETURN FREQUENCY: 100 yr 'C' Adjustment = 1.000 Allowable Q = 36.10 cfs

Hydrograph file duration= 18.00 minutes
 Hydrograph file: LEGMABBB.HYD

Tc = 18.00 minutes

						VOLUMES	
Weighted 'C'	Adjusted 'C'	Duration minutes	Intens. in/hr	Areas acres	Qpeak cfs	Inflow (ac-ft)	Storage (ac-ft)

***** Storage Maximum							
0.370	0.370	18	5.680	35.80	75.24	1.865	0.970

0.370	0.370	20	5.320	35.80	70.47	1.941	0.961
0.370	0.370	30	4.140	35.80	54.84	2.266	0.854
0.370	0.370	40	3.380	35.80	44.77	2.467	0.624
0.370	0.370	50	2.900	35.80	38.41	2.646	0.365
0.370	0.370	60	2.540	35.80	33.64	Qpeak < Qallow	

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #2

CALCULATED 04-26-2000 16:21:14
DISK FILE: j:\pondpack\LEGMASL2.VOL

Planimeter scale: 1 inch = 50 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (sq.ft)	A1+A2+sq ^r (A1*A2) (sq.ft)	* Volume (cubic-ft)	Volume Sum (cubic-ft)
1,036.50	11.67	29,175	0	0	0
1,037.00	12.31	30,775	89,914	14,986	14,986
1,038.00	14.33	35,825	99,804	33,268	48,254
1,039.00	15.94	39,850	113,459	37,820	86,073
1,040.00	18.50	46,250	129,031	43,010	129,084

$$IA = (\text{sq.rt}(\text{Area1}) + ((E_i - E_1) / (E_2 - E_1)) * (\text{sq.rt}(\text{Area2}) - \text{sq.rt}(\text{Area1})))^2$$

where: E1, E2 = Closest two elevations with planimeter data
Ei = Elevation at which to interpolate area
Area1, Area2 = Areas computed for E1, E2, respectively
IA = Interpolated area for Ei

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

$$\text{Volume} = (1/3) * (EL2 - EL1) * (\text{Area1} + \text{Area2} + \text{sq.rt.}(\text{Area1} * \text{Area2}))$$

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

Outlet Structure File: LEGMASL2.STR

POND-2 Version: 5.17

S/N:

Date Executed:

Time Executed:

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #2

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

Elevation (ft)	Q (cfs)	Contributing Structures
-----	-----	-----
1036.50	0.0	1
1036.70	1.3	1
1036.90	3.8	1
1037.10	7.0	1
1037.30	10.7	1
1037.50	15.0	1
1037.70	19.7	1
1037.90	24.8	1
1038.10	30.4	1
1038.30	36.2	1
1038.50	42.4	1
1038.70	48.9	1
1038.90	55.8	1
1039.10	62.9	1
1039.30	70.3	1
1039.50	77.9	1
1039.70	85.9	1
1039.85	92.0	1
1039.90	94.0	1
1039.95	96.1	1
1040.00	98.2	1

Outlet Structure File: LEGMASL2.STR

POND-2 Version: 5.17

S/N:

Date Executed:

Time Executed:

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #2

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

WEIR-XY

Weir - Defined by X, Y Coordinates

E1 (ft) = 1036.5 E2 (ft) = 1040.001

X dist.(ft)	Y elev.(ft)
-----	-----
0	1040
0	1036.5
5	1036.5
5	1040

Outlet Structure File: LEGMASL2.STR

POND-2 Version: 5.17

S/N:

Date Executed:

Time Executed:

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #2

Outflow Rating Table for Structure #1
WEIR-XY Weir - Defined by X, Y Coordinates

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation	Messages
-----	-----	-----	-----
1036.50	0.0	E = Y min= 1036.5	
1036.70	1.3	W(ft)=5.0	Max. D(ft)=.2
1036.90	3.8	W(ft)=5.0	Max. D(ft)=.4
1037.10	7.0	W(ft)=5.0	Max. D(ft)=.6
1037.30	10.7	W(ft)=5.0	Max. D(ft)=.8
1037.50	15.0	W(ft)=5.0	Max. D(ft)=1.0
1037.70	19.7	W(ft)=5.0	Max. D(ft)=1.2
1037.90	24.8	W(ft)=5.0	Max. D(ft)=1.4
1038.10	30.4	W(ft)=5.0	Max. D(ft)=1.6
1038.30	36.2	W(ft)=5.0	Max. D(ft)=1.8
1038.50	42.4	W(ft)=5.0	Max. D(ft)=2.0
1038.70	48.9	W(ft)=5.0	Max. D(ft)=2.2
1038.90	55.8	W(ft)=5.0	Max. D(ft)=2.4
1039.10	62.9	W(ft)=5.0	Max. D(ft)=2.6
1039.30	70.3	W(ft)=5.0	Max. D(ft)=2.8
1039.50	77.9	W(ft)=5.0	Max. D(ft)=3.0
1039.70	85.9	W(ft)=5.0	Max. D(ft)=3.2
1039.85	92.0	W(ft)=5.0	Max. D(ft)=3.35
1039.90	94.0	W(ft)=5.0	Max. D(ft)=3.4
1039.95	96.1	W(ft)=5.0	Max. D(ft)=3.45
1040.00	98.2	W(ft)=5.0	Max. D(ft)=3.5

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*****
*
* LEGENDS GOLF COURSE
* CITY OF MASSILLON
* DETENTION BASIN #2
*
*
*****

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Inflow Hydrograph: j:\pondpack\LEGMASL2.HYD

Rating Table file: j:\pondpack\LEGMASL2.PND

----INITIAL CONDITIONS----

Elevation = 1036.50 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 + 0 (cfs)
1036.50	0.0	0	0.0	0.0
1036.70	1.3	5,897	65.5	66.8
1036.90	3.8	11,925	132.5	136.3
1037.10	7.0	18,087	201.0	208.0
1037.30	10.7	24,440	271.6	282.3
1037.50	15.0	30,989	344.3	359.3
1037.70	19.7	37,739	419.3	439.0
1037.90	24.8	44,698	496.6	521.4
1038.10	30.4	51,855	576.2	606.6
1038.30	36.2	59,180	657.6	693.8
1038.50	42.4	66,660	740.7	783.1
1038.70	48.9	74,302	825.6	874.5
1038.90	55.8	82,110	912.3	968.1
1039.10	62.9	90,088	1001.0	1063.9
1039.30	70.3	98,310	1092.3	1162.6
1039.50	77.9	106,779	1186.4	1264.3
1039.70	85.9	115,503	1283.4	1369.3
1039.85	92.0	122,219	1358.0	1450.0
1039.90	94.0	124,493	1383.3	1477.3
1039.95	96.1	126,777	1408.6	1504.7
1040.00	98.2	129,084	1434.3	1532.5

Time increment (t) = 0.050 hrs.

Pond File: j:\pondpack\LEGMASL2.PND
 Inflow Hydrograph: j:\pondpack\LEGMASL2.HYD
 Outflow Hydrograph: j:\pondpack\LEGMASBC.HYD

INFLOW HYDROGRAPH

ROUTING COMPUTATIONS

TIME (hrs)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.000	0.00	-----	0.0	0.0	0.00	1036.50
0.050	8.13	8.1	7.8	8.1	0.16	1036.52
0.100	17.32	25.5	32.0	33.3	0.65	1036.60
0.150	28.73	46.1	74.6	78.0	1.70	1036.73
0.200	41.64	70.4	136.6	145.0	4.19	1036.92
0.250	55.47	97.1	217.2	233.7	8.28	1037.17
0.300	69.61	125.1	314.1	342.2	14.05	1037.46
0.350	76.24	145.9	418.0	460.0	21.00	1037.75
0.400	77.86	154.1	515.8	572.1	28.13	1038.02
0.450	76.93	154.8	601.3	670.6	34.66	1038.25
0.500	73.90	150.8	671.6	752.1	40.25	1038.43
0.550	66.26	140.2	722.9	811.8	44.44	1038.56
0.600	55.93	122.2	751.5	845.1	46.81	1038.64
0.650	44.09	100.0	757.0	851.5	47.27	1038.65
0.700	36.52	80.6	745.0	837.6	46.28	1038.62
0.750	31.05	67.6	723.6	812.6	44.50	1038.56
0.800	25.45	56.5	695.7	780.1	42.19	1038.49
0.850	19.74	45.2	661.9	740.9	39.47	1038.41
0.900	14.04	33.8	623.1	695.7	36.34	1038.30
0.950	0.00	14.0	572.2	637.1	32.43	1038.17
1.000	0.00	0.0	516.0	572.2	28.14	1038.02
1.050	0.00	0.0	467.0	516.0	24.46	1037.89
1.100	0.00	0.0	424.2	467.0	21.43	1037.77
1.150	0.00	0.0	386.5	424.2	18.82	1037.66
1.200	0.00	0.0	353.3	386.5	16.60	1037.57
1.250	0.00	0.0	324.0	353.3	14.66	1037.48
1.300	0.00	0.0	297.9	324.0	13.03	1037.41
1.350	0.00	0.0	274.8	297.9	11.57	1037.34
1.400	0.00	0.0	254.1	274.8	10.33	1037.28
1.450	0.00	0.0	235.5	254.1	9.30	1037.22
1.500	0.00	0.0	218.8	235.5	8.37	1037.17
1.550	0.00	0.0	203.7	218.8	7.54	1037.13
1.600	0.00	0.0	190.1	203.7	6.81	1037.09
1.650	0.00	0.0	177.7	190.1	6.20	1037.05
1.700	0.00	0.0	166.4	177.7	5.65	1037.02
1.750	0.00	0.0	156.1	166.4	5.14	1036.98
1.800	0.00	0.0	146.7	156.1	4.68	1036.96
1.850	0.00	0.0	138.2	146.7	4.27	1036.93
1.900	0.00	0.0	130.4	138.2	3.88	1036.91
1.950	0.00	0.0	123.3	130.4	3.59	1036.88
2.000	0.00	0.0	116.6	123.3	3.33	1036.86

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

Pond File: j:\pondpack\LEGMASL2.PND
Inflow Hydrograph: j:\pondpack\LEGMASL2.HYD
Outflow Hydrograph: j:\pondpack\LEGMASBC.HYD

Starting Pond W.S. Elevation = 1036.50 ft

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

Peak Inflow	=	77.86 cfs
Peak Outflow	=	47.27 cfs < 75.5 cfs
Peak Elevation	=	1038.65 ft

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

Initial Storage	=	0 cu-ft
Peak Storage From Storm	=	72,378 cu-ft

Total Storage in Pond	=	72,378 cu-ft

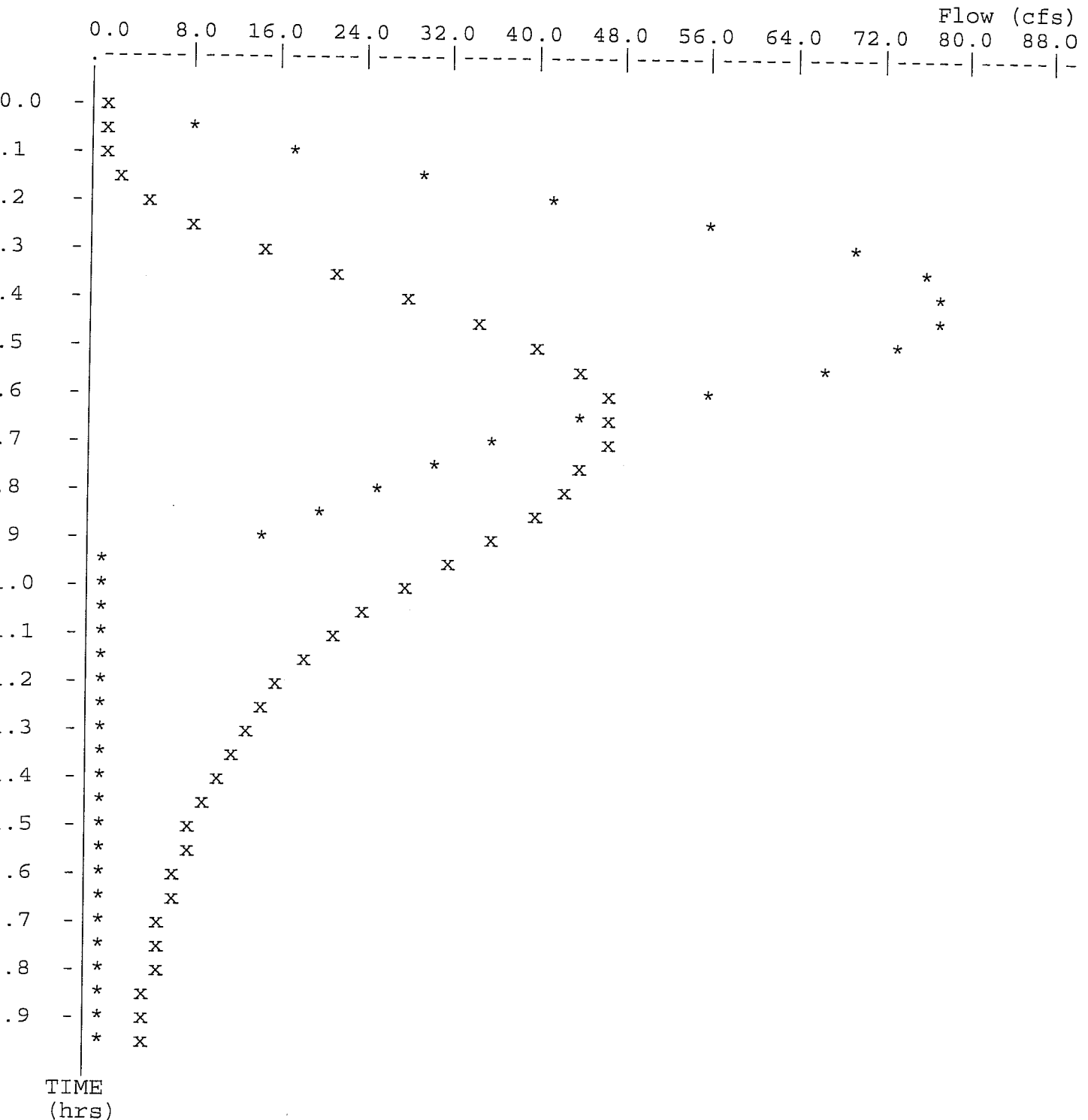
10 YEAR

Pond File: j:\pondpack\LEGMA2.PND
 Inflow Hydrograph: j:\pondpack\LEGMA2.HYD
 Outflow Hydrograph: j:\pondpack\LEGMA2BC.HYD

EXECUTED: 04-27-2000

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Peak Inflow = 77.86 cfs
 Peak Outflow = 47.27 cfs
 Peak Elevation = 1038.65 ft



x File: j:\pondpack\LEGMASBC.HYD Qmax = 47.3 cfs

```

*****
*
* LEGENDS GOLF COURSE
* CITY OF MASSILLON
* DETENTION BASIN #2
*
*
*****

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Inflow Hydrograph: j:\pondpack\LEGMAS22.HYD
Rating Table file: j:\pondpack\LEGMASL2.PND

----INITIAL CONDITIONS----

Elevation = 1036.50 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 + 0 (cfs)
1036.50	0.0	0	0.0	0.0
1036.70	1.3	5,897	65.5	66.8
1036.90	3.8	11,925	132.5	136.3
1037.10	7.0	18,087	201.0	208.0
1037.30	10.7	24,440	271.6	282.3
1037.50	15.0	30,989	344.3	359.3
1037.70	19.7	37,739	419.3	439.0
1037.90	24.8	44,698	496.6	521.4
1038.10	30.4	51,855	576.2	606.6
1038.30	36.2	59,180	657.6	693.8
1038.50	42.4	66,660	740.7	783.1
1038.70	48.9	74,302	825.6	874.5
1038.90	55.8	82,110	912.3	968.1
1039.10	62.9	90,088	1001.0	1063.9
1039.30	70.3	98,310	1092.3	1162.6
1039.50	77.9	106,779	1186.4	1264.3
1039.70	85.9	115,503	1283.4	1369.3
1039.85	92.0	122,219	1358.0	1450.0
1039.90	94.0	124,493	1383.3	1477.3
1039.95	96.1	126,777	1408.6	1504.7
1040.00	98.2	129,084	1434.3	1532.5

Time increment (t) = 0.050 hrs.

Pond File: j:\pondpack\LEGMASL2.PND
 Inflow Hydrograph: j:\pondpack\LEGMAS22.HYD
 Outflow Hydrograph: j:\pondpack\LEGMABBC.HYD

INFLOW HYDROGRAPH

ROUTING COMPUTATIONS

TIME (hrs)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.000	0.00	----	0.0	0.0	0.00	1036.50
0.050	13.45	13.5	12.9	13.5	0.26	1036.54
0.100	28.95	42.4	53.2	55.3	1.08	1036.67
0.150	47.75	76.7	122.7	129.9	3.57	1036.88
0.200	68.67	116.4	222.0	239.2	8.55	1037.18
0.250	90.51	159.2	348.6	381.2	16.29	1037.55
0.300	112.64	203.2	498.2	551.8	26.80	1037.97
0.350	109.78	222.4	644.5	720.6	38.06	1038.36
0.400	106.75	216.5	765.1	861.0	47.94	1038.67
0.450	103.65	210.4	862.8	975.5	56.35	1038.92
0.500	97.46	201.1	938.1	1063.9	62.91	1039.10
0.550	84.41	181.9	985.8	1120.0	67.11	1039.21
0.600	67.40	151.8	1000.8	1137.6	68.42	1039.25
0.650	60.81	128.2	993.4	1129.0	67.78	1039.23
0.700	53.23	114.0	975.1	1107.5	66.17	1039.19
0.750	45.07	98.3	946.2	1073.4	63.61	1039.12
0.800	36.66	81.7	907.5	1027.9	60.23	1039.02
0.850	28.20	64.9	860.1	972.3	56.11	1038.91
0.900	19.83	48.0	805.4	908.1	51.38	1038.77
0.950	0.00	19.8	734.4	825.2	45.40	1038.59
1.000	0.00	0.0	656.4	734.4	39.02	1038.39
1.050	0.00	0.0	588.9	656.4	33.71	1038.21
1.100	0.00	0.0	530.5	588.9	29.24	1038.06
1.150	0.00	0.0	479.7	530.5	25.39	1037.92
1.200	0.00	0.0	435.2	479.7	22.22	1037.80
1.250	0.00	0.0	396.3	435.2	19.48	1037.69
1.300	0.00	0.0	361.9	396.3	17.18	1037.59
1.350	0.00	0.0	331.6	361.9	15.15	1037.51
1.400	0.00	0.0	304.7	331.6	13.45	1037.43
1.450	0.00	0.0	280.8	304.7	11.95	1037.36
1.500	0.00	0.0	259.5	280.8	10.63	1037.30
1.550	0.00	0.0	240.4	259.5	9.57	1037.24
1.600	0.00	0.0	223.2	240.4	8.62	1037.19
1.650	0.00	0.0	207.7	223.2	7.76	1037.14
1.700	0.00	0.0	193.7	207.7	6.99	1037.10
1.750	0.00	0.0	181.0	193.7	6.36	1037.06
1.800	0.00	0.0	169.4	181.0	5.79	1037.02
1.850	0.00	0.0	158.8	169.4	5.28	1036.99
1.900	0.00	0.0	149.2	158.8	4.81	1036.96
1.950	0.00	0.0	140.5	149.2	4.38	1036.94
2.000	0.00	0.0	132.5	140.5	3.99	1036.91

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

Pond File: j:\pondpack\LEGMASL2.PND
Inflow Hydrograph: j:\pondpack\LEGMAS22.HYD
Outflow Hydrograph: j:\pondpack\LEGMABBC.HYD

Starting Pond W.S. Elevation = 1036.50 ft

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

Peak Inflow	=	112.64 cfs	
Peak Outflow	=	68.42 cfs	< 116 cfs = max. allowed
Peak Elevation	=	1039.25 ft	

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

Initial Storage	=	0 cu-ft
Peak Storage From Storm	=	96,224 cu-ft

Total Storage in Pond	=	96,224 cu-ft

100 YEAR

Pond File: j:\pondpack\LEGMASL2.PND

Inflow Hydrograph: j:\pondpack\LEGMAS22.HYD

Outflow Hydrograph: j:\pondpack\LEGMABBC.HYD

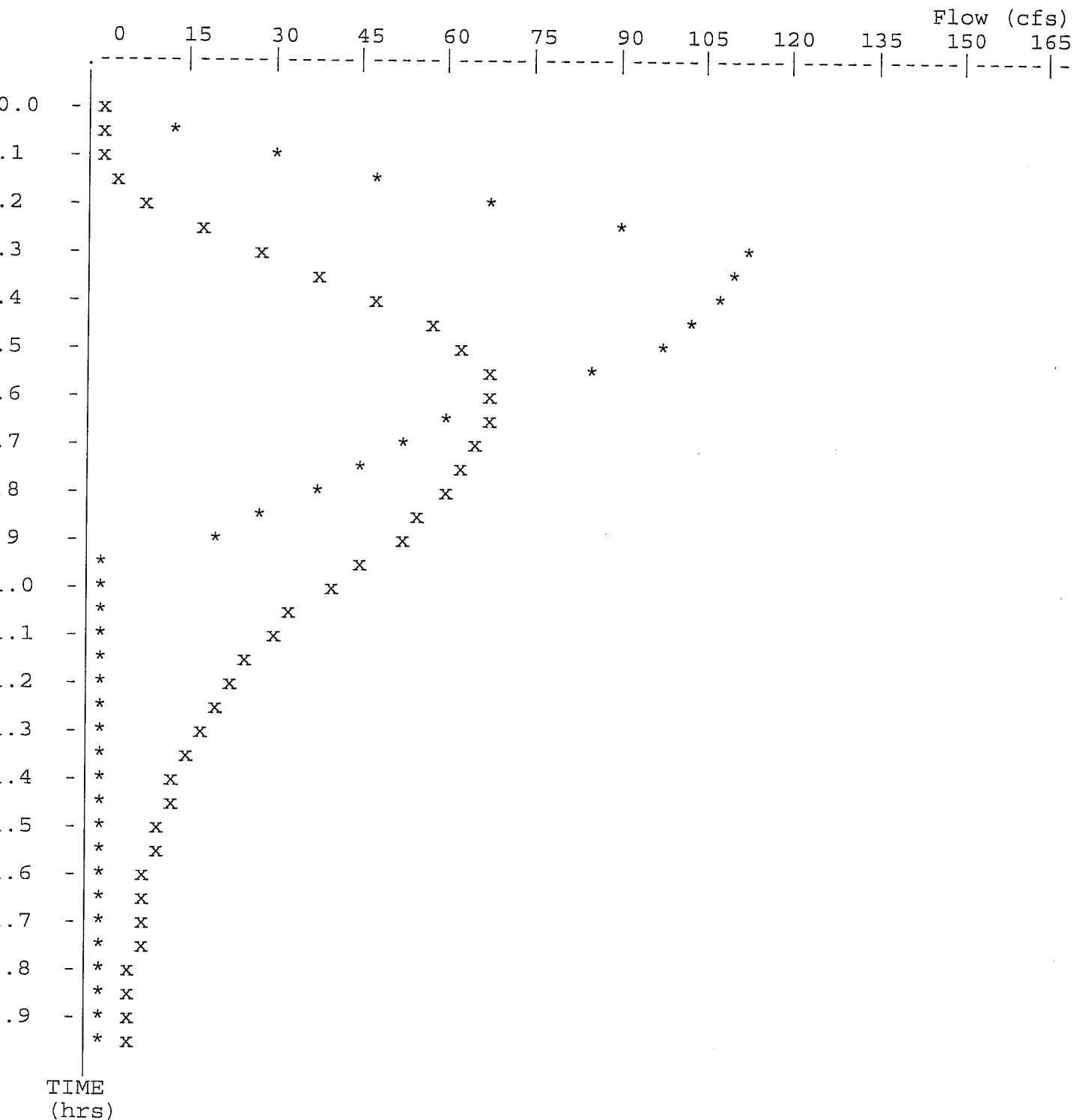
EXECUTED: 04-27-2000

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Peak Inflow = 112.64 cfs

Peak Outflow = 68.42 cfs

Peak Elevation = 1039.25 ft



x File: j:\pondpack\LEGMABBC.HYD Qmax = 68.4 cfs

```
*****  
*****  
*  
*  
*  
*  
MODIFIED RATIONAL METHOD  
---- Grand Summary For All Storm Frequencies ----  
*  
*  
*****  
*****
```

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE - DETENTION BASIN #3
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

Area = 32.90 acres

Tc = 20.80 minutes

```
.....IC =      20.80 minutes
```

Frequency (years)	Adjusted 'C'	Duration minutes	Intens. in/hr	Qpeak cfs	Allowable cfs	VOLUMES	
						Inflow (ac-ft)	Storage (ac-ft)
10	0.400	21	3.480	45.80	31.90	1.325	0.404
100	0.400	21	5.180	68.17	53.50	1.972	0.428

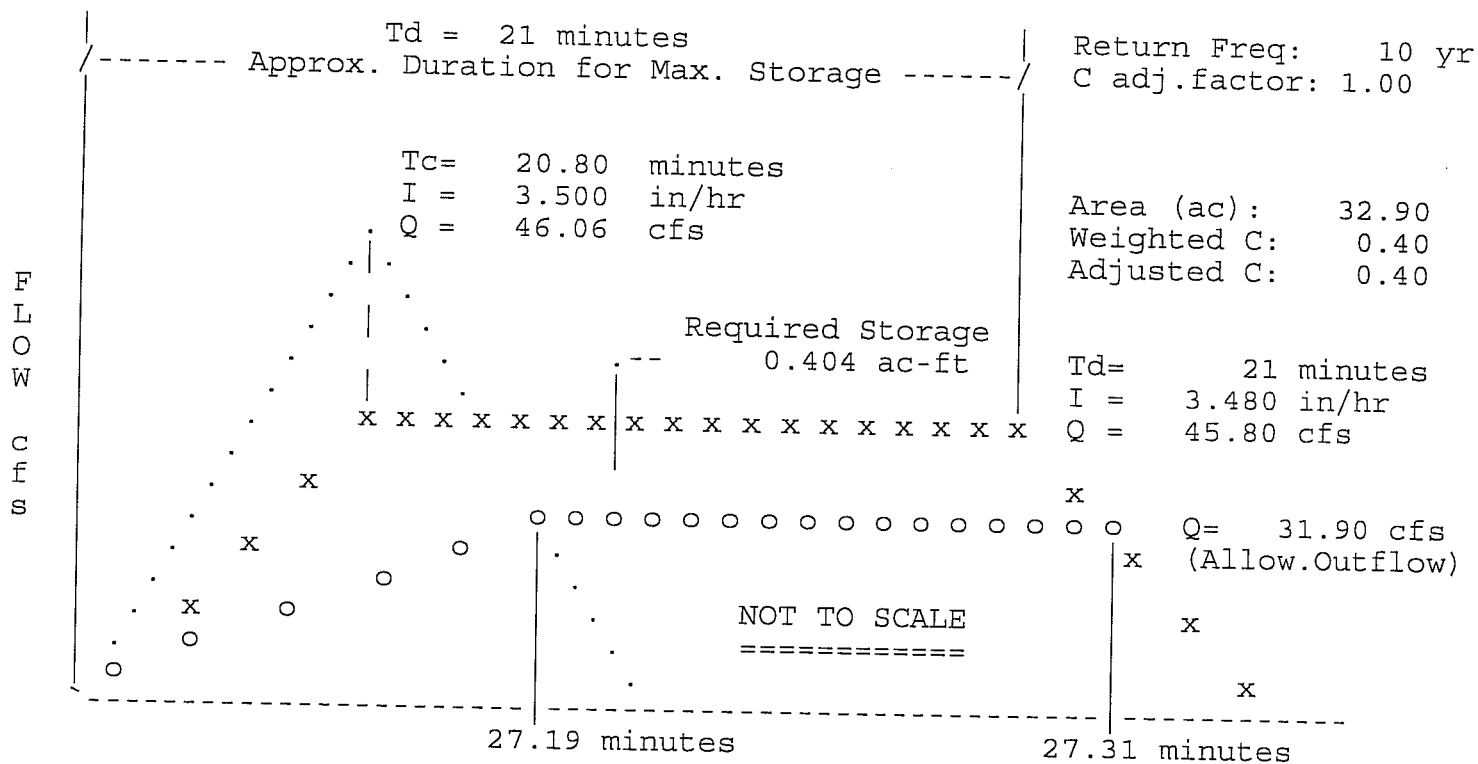
MODIFIED RATIONAL METHOD
 ---- Graphical Summary for Maximum Required Storage ----

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE - DETENTION BASIN #3
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

```

*****
* RETURN FREQUENCY: 10 yr      | Allowable Outflow: 31.90 cfs *
* 'C' Adjustment: 1.000      | Required Storage: 0.404 ac-ft *
*-----*
* Peak Inflow: 45.80 cfs      | Inflow .HYD stored: LEGMASCC.HYD *
*****
  
```



LEGENDS GOLF COURSE - DETENTION BASIN #3
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

* * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * *

$$Q = \text{adj} * C * I * A$$

Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
 adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 10 years
 'C' adjustment, k = 1
 Adj. 'C' = Wtd. 'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
PART. DEV.	0.400	32.90						
			20.80	0.400	0.400	3.500	32.90	46.06

Quick TR-55 Ver.5.46 S/N:
Executed: 16:28:36 04-26-2000

LEGENDS GOLF COURSE - DETENTION BASIN #3
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

**** Modified Rational Hydrograph ****

Weighted C = 0.400 Area= 32.900 acres Tc = 20.80 minutes

Adjusted C = 0.400 Td= 21.00 min. I= 3.48 in/hr Qp= 45.80 cfs

RETURN FREQUENCY: 10 year storm Adj.factor = 1.00
Output file: LEGMASCC.HYD

HYDROGRAPH FOR MAXIMUM STORAGE
For the 10 Year Storm

Time Hours	Time increment = 0.017 Hours Time on left represents time for first Q in each row.						
0.013	1.76	3.96	6.16	8.37	10.57	12.77	14.97
0.130	17.17	19.38	21.58	23.78	25.98	28.18	30.38
0.247	32.59	34.79	36.99	39.19	41.39	43.60	45.80
0.363	44.04	41.83	39.63	37.43	35.23	33.03	30.82
0.480	28.62	26.42	24.22	22.02	19.82	17.61	15.41
0.597	13.21	11.01	8.81	6.61	4.40	2.20	0.00

Quick TR-55 Ver.5.46 S/N:
Executed: 16:28:36 04-26-2000

MODIFIED RATIONAL METHOD
---- Summary for Single Storm Frequency ----

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE - DETENTION BASIN #3
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

RETURN FREQUENCY: 10 yr 'C' Adjustment = 1.000 Allowable Q = 31.90 cfs

Hydrograph file duration= 21.00 minutes

Hydrograph file: LEGMASCC.HYD

Tc = 20.80 minutes

```
.....IC =      20.80 minutes
```

VOLUMES

Weighted 'C'	Adjusted 'C'	Duration minutes	Intens. in/hr	Areas acres	Qpeak cfs	VOLUMES	
						Inflow (ac-ft)	Storage (ac-ft)
0.400	0.400	21	3.500	32.90	46.06	1.320	0.406

```
***** Storage Maximum
0.400      0.400      21      3.480      32.90      45.80 |      1.325      0.404
*****
```

0.400	0.400	30	2.820	32.90	37.11	1.534	0.292
0.400	0.400	40	2.320	32.90	30.53	Qpeak < Qallow	

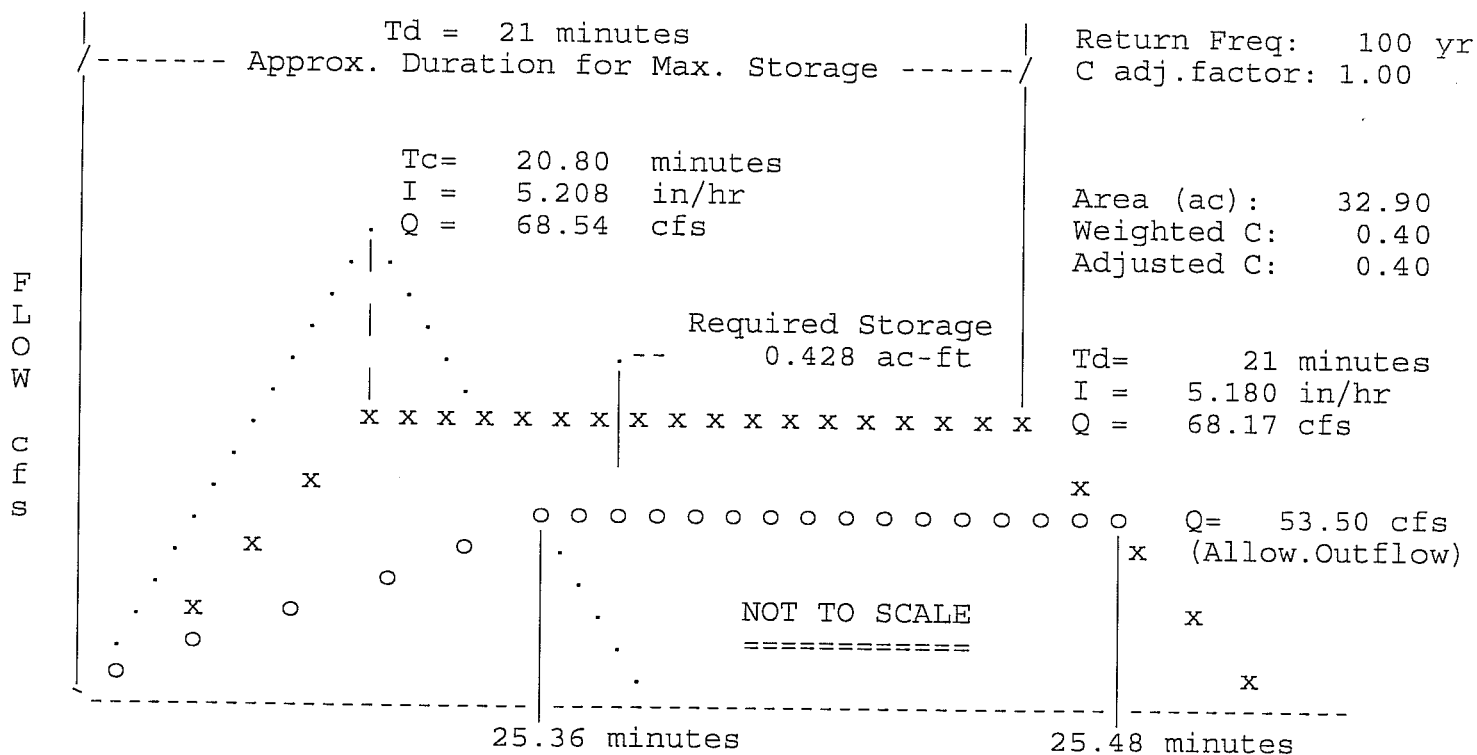
MODIFIED RATIONAL METHOD
 ---- Graphical Summary for Maximum Required Storage ----

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE - DETENTION BASIN #3
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

```

*****
* RETURN FREQUENCY: 100 yr      Allowable Outflow: 53.50 cfs  *
* 'C' Adjustment: 1.000        Required Storage: 0.428 ac-ft *
*-----*
* Peak Inflow: 68.17 cfs      Inflow .HYD stored: LEGMACCC.HYD *
*****
  
```



Quick TR-55 Ver.5.46 S/N:
Executed: 16:28:36 04-26-2000

LEGENDS GOLF COURSE - DETENTION BASIN #3
CITY OF MASSILLON
INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

**** Modified Rational Hydrograph ****
Weighted C = 0.400 Area= 32.900 acres Tc = 20.80 minutes
Adjusted C = 0.400 Td= 21.00 min. I= 5.18 in/hr Qp= 68.17 cfs
RETURN FREQUENCY: 100 year storm Adj.factor = 1.00
Output file: LEGMACCC.HYD

HYDROGRAPH FOR MAXIMUM STORAGE
For the 100 Year Storm

Time Hours	Time increment = 0.017 Hours Time on left represents time for first Q in each row.						
0.013	2.62	5.90	9.18	12.45	15.73	19.01	22.29
0.130	25.56	28.84	32.12	35.40	38.67	41.95	45.23
0.247	48.50	51.78	55.06	58.34	61.61	64.89	68.17
0.363	65.55	62.27	58.99	55.71	52.44	49.16	45.88
0.480	42.61	39.33	36.05	32.77	29.50	26.22	22.94
0.597	19.66	16.39	13.11	9.83	6.55	3.28	0.00

LEGENDS GOLF COURSE - DETENTION BASIN #3
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

* * * * * SUMMARY OF RATIONAL METHOD PEAK DISCHARGES * * * * *

$$Q = \text{adj} * C * I * A$$

Where: Q=cfs, C=Weighted Runoff Coefficient, I=in/hour, A=acres
 adj = 'C' adjustment factor for each return frequency

RETURN FREQUENCY = 100 years
 'C' adjustment, k = 1
 Adj. 'C' = Wtd. 'C' x 1

Subarea Descr.	Runoff 'C'	Area acres	Tc (min)	Wtd. 'C'	Adj. 'C'	I in/hr	Total acres	Peak Q (cfs)
PART. DEV.	0.400	32.90	20.80	0.400	0.400	5.208	32.90	68.54

Quick TR-55 Ver.5.46 S/N:
 Executed: 16:28:36 04-26-2000

MODIFIED RATIONAL METHOD
 ---- Summary for Single Storm Frequency ----

First peak outflow point assumed to occur at Tc hydrograph recession leg.

LEGENDS GOLF COURSE - DETENTION BASIN #3
 CITY OF MASSILLON
 INFLOW HYDROGRAPHS FOR THE 10 & 100 YEAR STORMS

RETURN FREQUENCY: 100 yr 'C' Adjustment = 1.000 Allowable Q = 53.50 cfs

Hydrograph file duration= 21.00 minutes
 Hydrograph file: LEGMACCC.HYD

Tc = 20.80 minutes

						VOLUMES	
Weighted 'C'	Adjusted 'C'	Duration minutes	Intens. in/hr	Areas acres	Qpeak cfs	Inflow (ac-ft)	Storage (ac-ft)
0.400	0.400	21	5.208	32.90	68.54	1.964	0.431
*****						Storage Maximum	
0.400	0.400	21	5.180	32.90	68.17	1.972	0.428

0.400	0.400	30	4.140	32.90	54.48	2.251	0.195
0.400	0.400	40	3.380	32.90	44.48	Qpeak < Qallow	

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #3

CALCULATED 04-26-2000 16:23:27
DISK FILE: j:\pondpack\LEGMASL3.VOL

Planimeter scale: 1 inch = 50 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (sq.ft)	A1+A2+sq ² (A1*A2) (sq.ft)	* Volume (cubic-ft)	Volume Sum (cubic-ft)
1,035.50	14.28	35,700	0	0	0
1,036.00	15.75	39,375	112,568	18,761	18,761
1,037.00	22.14	55,350	141,409	47,136	65,898

$$IA = (\text{sq.rt}(\text{Area1}) + ((E_i - E_1) / (E_2 - E_1)) * (\text{sq.rt}(\text{Area2}) - \text{sq.rt}(\text{Area1})))^2$$

where: E1, E2 = Closest two elevations with planimeter data
E_i = Elevation at which to interpolate area
Area1, Area2 = Areas computed for E1, E2, respectively
IA = Interpolated area for E_i

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

$$\text{Volume} = (1/3) * (EL2 - EL1) * (\text{Area1} + \text{Area2} + \text{sq.rt.}(\text{Area1} * \text{Area2}))$$

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

Outlet Structure File: LEGMASL3.STR

POND-2 Version: 5.17

S/N:

Date Executed:

Time Executed:

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #3

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

Elevation (ft)	Q (cfs)	Contributing Structures
-----	-----	-----
1035.50	0.0	1
1035.60	1.9	1
1035.70	5.4	1
1035.80	9.9	1
1035.90	15.2	1
1036.00	21.2	1
1036.10	27.9	1
1036.20	35.1	1
1036.30	42.9	1
1036.40	51.2	1
1036.50	60.0	1
1036.60	69.2	1
1036.70	78.9	1
1036.80	88.9	1
1036.85	94.1	1
1036.90	99.4	1
1036.95	104.8	1
1037.00	110.2	1

Outlet Structure File: LEGMASL3.STR

POND-2 Version: 5.17

S/N:

Date Executed:

Time Executed:

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #3

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

WEIR-XY

Weir - Defined by X, Y Coordinates

E1 (ft) = 1035.5 E2 (ft) = 1037.001

X dist.(ft)	Y elev.(ft)
-----	-----
0	1037
0	1035.5
20	1035.5
20	1037

Outlet Structure File: LEGMASL3.STR

POND-2 Version: 5.17

S/N:

Date Executed:

Time Executed:

LEGENDS GOLF COURSE
CITY OF MASSILLON
DETENTION BASIN #3

Outflow Rating Table for Structure #1
WEIR-XY Weir - Defined by X, Y Coordinates

***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation	Messages
1035.50	0.0	E = Y min= 1035.5	
1035.60	1.9	W(ft)=20.0	Max. D(ft)=.1
1035.70	5.4	W(ft)=20.0	Max. D(ft)=.2
1035.80	9.9	W(ft)=20.0	Max. D(ft)=.3
1035.90	15.2	W(ft)=20.0	Max. D(ft)=.4
1036.00	21.2	W(ft)=20.0	Max. D(ft)=.5
1036.10	27.9	W(ft)=20.0	Max. D(ft)=.6
1036.20	35.1	W(ft)=20.0	Max. D(ft)=.7
1036.30	42.9	W(ft)=20.0	Max. D(ft)=.8
1036.40	51.2	W(ft)=20.0	Max. D(ft)=.9
1036.50	60.0	W(ft)=20.0	Max. D(ft)=1.0
1036.60	69.2	W(ft)=20.0	Max. D(ft)=1.1
1036.70	78.9	W(ft)=20.0	Max. D(ft)=1.2
1036.80	88.9	W(ft)=20.0	Max. D(ft)=1.3
1036.85	94.1	W(ft)=20.0	Max. D(ft)=1.35
1036.90	99.4	W(ft)=20.0	Max. D(ft)=1.4
1036.95	104.8	W(ft)=20.0	Max. D(ft)=1.45
1037.00	110.2	W(ft)=20.0	Max. D(ft)=1.5

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*****
*
* LEGENDS GOLF COURSE
* CITY OF MASSILLON
* DETENTION BASIN #3
*
*
*****

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Inflow Hydrograph: j:\pondpack\LEGMASL3.HYD

Rating Table file: j:\pondpack\LEGMASL3.PND

----INITIAL CONDITIONS----

Elevation = 1035.50 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 + 0 (cfs)
1035.50	0.0	0	0.0	0.0
1035.60	1.9	3,605	40.1	42.0
1035.70	5.4	7,282	80.9	86.3
1035.80	9.9	11,038	122.6	132.5
1035.90	15.2	14,862	165.1	180.3
1036.00	21.2	18,761	208.5	229.7
1036.10	27.9	22,771	253.0	280.9
1036.20	35.1	26,930	299.2	334.3
1036.30	42.9	31,246	347.2	390.1
1036.40	51.2	35,711	396.8	448.0
1036.50	60.0	40,333	448.1	508.1
1036.60	69.2	45,114	501.3	570.5
1036.70	78.9	50,058	556.2	635.1
1036.80	88.9	55,173	613.0	701.9
1036.85	94.1	57,787	642.1	736.2
1036.90	99.4	60,450	671.7	771.1
1036.95	104.8	63,149	701.7	806.5
1037.00	110.2	65,898	732.2	842.4

Time increment (t) = 0.050 hrs.

Pond File: j:\pondpack\LEGMA3.L3.PND
 Inflow Hydrograph: j:\pondpack\LEGMA3.L3.HYD
 Outflow Hydrograph: j:\pondpack\LEGMA3.L3.SCD.HYD

INFLOW HYDROGRAPH

ROUTING COMPUTATIONS

TIME (hrs)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - 0 (cfs)	2S/t + 0 (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.000	0.00	-----	0.0	0.0	0.00	1035.50
0.050	6.76	6.8	6.1	6.8	0.31	1035.52
0.100	13.86	20.6	24.3	26.8	1.21	1035.56
0.150	21.52	35.4	53.1	59.7	3.30	1035.64
0.200	30.61	52.1	90.8	105.2	7.24	1035.74
0.250	41.30	71.9	136.2	162.7	13.24	1035.86
0.300	53.67	95.0	188.4	231.2	21.40	1036.00
0.350	66.45	120.1	245.3	308.5	31.62	1036.15
0.400	67.33	133.8	296.3	379.0	41.35	1036.28
0.450	67.26	134.6	333.4	430.9	48.75	1036.37
0.500	66.24	133.5	359.0	466.9	53.97	1036.43
0.550	63.83	130.1	374.6	489.0	57.21	1036.47
0.600	59.60	123.4	381.0	498.1	58.53	1036.48
0.650	53.45	113.1	378.2	494.1	57.94	1036.48
0.700	46.28	99.7	366.8	477.9	55.58	1036.45
0.750	44.50	90.8	352.3	457.5	52.60	1036.42
0.800	42.19	86.7	339.2	439.0	49.92	1036.38
0.850	39.47	81.7	326.2	420.9	47.31	1036.35
0.900	36.34	75.8	312.8	402.0	44.62	1036.32
0.950	32.43	68.8	298.2	381.6	41.71	1036.28
1.000	28.14	60.6	281.7	358.7	38.51	1036.24
1.050	24.46	52.6	264.1	334.3	35.10	1036.20
1.100	21.43	45.9	246.4	310.0	31.82	1036.15
1.150	18.82	40.3	229.3	286.6	28.67	1036.11
1.200	16.60	35.4	213.1	264.7	25.78	1036.07
1.250	14.66	31.3	198.1	244.4	23.13	1036.03
1.300	13.03	27.7	184.4	225.8	20.73	1035.99
1.350	11.57	24.6	171.6	209.0	18.68	1035.96
1.400	10.33	21.9	159.9	193.5	16.80	1035.93
1.450	9.30	19.6	149.3	179.5	15.11	1035.90
1.500	8.37	17.7	139.5	167.0	13.72	1035.87
1.550	7.54	15.9	130.6	155.4	12.44	1035.85
1.600	6.81	14.4	122.4	144.9	11.27	1035.83
1.650	6.20	13.0	115.0	135.4	10.22	1035.81
1.700	5.65	11.9	108.1	126.8	9.34	1035.79
1.750	5.14	10.8	101.8	118.9	8.57	1035.77
1.800	4.68	9.8	95.9	111.6	7.86	1035.75
1.850	4.27	8.9	90.4	104.8	7.20	1035.74
1.900	3.88	8.1	85.4	98.6	6.59	1035.73
1.950	3.59	7.5	80.8	92.8	6.04	1035.71
2.000	3.33	6.9	76.6	87.7	5.53	1035.70

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

Pond File: j:\pondpack\LEGMASL3.PND
Inflow Hydrograph: j:\pondpack\LEGMASL3.HYD
Outflow Hydrograph: j:\pondpack\LEGMASCD.HYD

Starting Pond W.S. Elevation = 1035.50 ft

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

Peak Inflow	=	67.33 cfs
Peak Outflow	=	58.53 cfs < 07.4 cfs
Peak Elevation	=	1036.48 ft

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

Initial Storage	=	0 cu-ft
Peak Storage From Storm	=	39,560 cu-ft

Total Storage in Pond	=	39,560 cu-ft

Warning: Inflow hydrograph truncated on right side.

POND-2 Version: 5.17 S/N:

10 YEAR

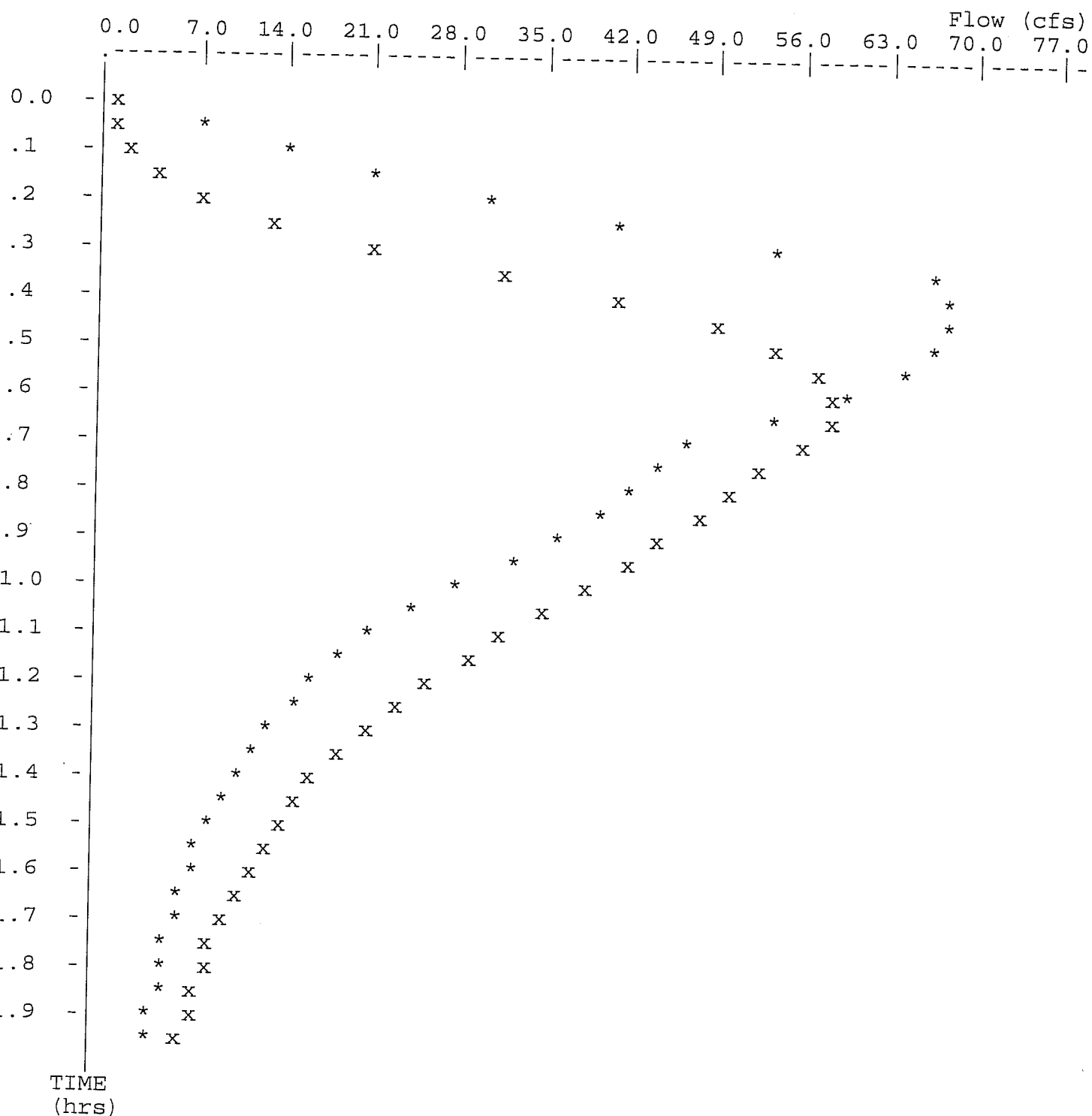
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Return Freq: 10 years

Pond File: j:\pondpack\LEGMASL3.PND
Inflow Hydrograph: j:\pondpack\LEGMASL3.HYD
Outflow Hydrograph: j:\pondpack\LEGMASCD.HYD

Peak Inflow = 67.33 cfs
Peak Outflow = 58.53 cfs
Peak Elevation = 1036.48 ft

EXECUTED: 04-27-2000
07:53:13



* File: j:\pondpack\LEGMASL3.HYD Qmax = 67.3 cfs

68

x File: j:\pondpack\LEGMASSD.HYD Qmax = 58.5 cfs

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*****
*
* LEGENDS GOLF COURSE
* CITY OF MASSILLON
* DETENTION BASIN #3
*
*
*****

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Inflow Hydrograph: j:\pondpack\LEGMAS33.HYD

Rating Table file: j:\pondpack\LEGMASL3.PND

----INITIAL CONDITIONS----

Elevation = 1035.50 ft

Outflow = 0.00 cfs

Storage = 0 cu-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (cu-ft)
1035.50	0.0	0
1035.60	1.9	3,605
1035.70	5.4	7,282
1035.80	9.9	11,038
1035.90	15.2	14,862
1036.00	21.2	18,761
1036.10	27.9	22,771
1036.20	35.1	26,930
1036.30	42.9	31,246
1036.40	51.2	35,711
1036.50	60.0	40,333
1036.60	69.2	45,114
1036.70	78.9	50,058
1036.80	88.9	55,173
1036.85	94.1	57,787
1036.90	99.4	60,450
1036.95	104.8	63,149
1037.00	110.2	65,898

INTERMEDIATE ROUTING
COMPUTATIONS

2S/t (cfs)	2S/t + 0 (cfs)
0.0	0.0
40.1	42.0
80.9	86.3
122.6	132.5
165.1	180.3
208.5	229.7
253.0	280.9
299.2	334.3
347.2	390.1
396.8	448.0
448.1	508.1
501.3	570.5
556.2	635.1
613.0	701.9
642.1	736.2
671.7	771.1
701.7	806.5
732.2	842.4

Time increment (t) = 0.050 hrs.

Pond File: j:\pondpack\LEGMA3.L3.PND
 Inflow Hydrograph: j:\pondpack\LEGMA33.HYD
 Outflow Hydrograph: j:\pondpack\LEGMA33.CCD.HYD

INFLOW HYDROGRAPH

ROUTING COMPUTATIONS

TIME (hrs)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - 0 (cfs)	2S/t + 0 (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.000	0.00	-----	0.0	0.0	0.00	1035.50
0.050	10.09	10.1	9.2	10.1	0.46	1035.52
0.100	20.74	30.8	36.4	40.0	1.81	1035.60
0.150	33.06	53.8	78.6	90.2	5.78	1035.71
0.200	47.87	80.9	133.8	159.6	12.90	1035.86
0.250	65.44	113.3	200.1	247.1	23.48	1036.03
0.300	85.78	151.2	276.4	351.3	37.48	1036.23
0.350	105.72	191.5	359.7	467.9	54.11	1036.43
0.400	106.29	212.0	432.9	571.7	69.38	1036.60
0.450	104.87	211.2	483.6	644.1	80.24	1036.71
0.500	101.60	206.5	515.8	690.1	87.12	1036.78
0.550	95.97	197.6	532.1	713.4	90.64	1036.82
0.600	87.45	183.4	533.6	715.5	90.96	1036.82
0.650	76.98	164.4	521.4	698.0	88.32	1036.79
0.700	66.17	143.2	497.9	664.5	83.31	1036.74
0.750	63.61	129.8	472.1	627.7	77.79	1036.69
0.800	60.23	123.8	449.9	596.0	73.03	1036.64
0.850	56.11	116.3	429.1	566.3	68.58	1036.59
0.900	51.38	107.5	408.2	536.6	64.20	1036.55
0.950	45.40	96.8	385.9	505.0	59.54	1036.49
1.000	39.02	84.4	361.4	470.3	54.47	1036.44
1.050	33.71	72.7	335.7	434.1	49.21	1036.38
1.100	29.24	63.0	310.4	398.6	44.13	1036.31
1.150	25.39	54.6	286.2	365.0	39.39	1036.26
1.200	22.22	47.6	263.8	333.8	35.03	1036.20
1.250	19.48	41.7	243.0	305.5	31.21	1036.15
1.300	17.18	36.7	224.2	279.7	27.74	1036.10
1.350	15.15	32.3	207.1	256.6	24.72	1036.05
1.400	13.45	28.6	191.7	235.7	21.99	1036.01
1.450	11.95	25.4	177.8	217.1	19.68	1035.97
1.500	10.63	22.6	165.1	200.4	17.64	1035.94
1.550	9.57	20.2	153.7	185.3	15.80	1035.91
1.600	8.62	18.2	143.4	171.9	14.26	1035.88
1.650	7.76	16.4	133.9	159.7	12.92	1035.86
1.700	6.99	14.8	125.3	148.7	11.69	1035.83
1.750	6.36	13.4	117.5	138.6	10.58	1035.81
1.800	5.79	12.2	110.4	129.6	9.62	1035.79
1.850	5.28	11.1	103.8	121.5	8.82	1035.78
1.900	4.81	10.1	97.7	113.9	8.09	1035.76
1.950	4.38	9.2	92.1	106.9	7.41	1035.74
2.000	3.99	8.4	86.9	100.5	6.78	1035.73

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

Pond File: j:\pondpack\LEGMASL3.PND
Inflow Hydrograph: j:\pondpack\LEGMAS33.HYD
Outflow Hydrograph: j:\pondpack\LEGMACCD.HYD

Starting Pond W.S. Elevation = 1035.50 ft

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

Peak Inflow	=	106.29 cfs
Peak Outflow	=	90.96 cfs < 170 cfs
Peak Elevation	=	1036.82 ft

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

Initial Storage	=	0 cu-ft
Peak Storage From Storm	=	56,210 cu-ft

Total Storage in Pond	=	56,210 cu-ft

Warning: Inflow hydrograph truncated on right side.

POND-2 Version: 5.17 S/N:

100 YEAR

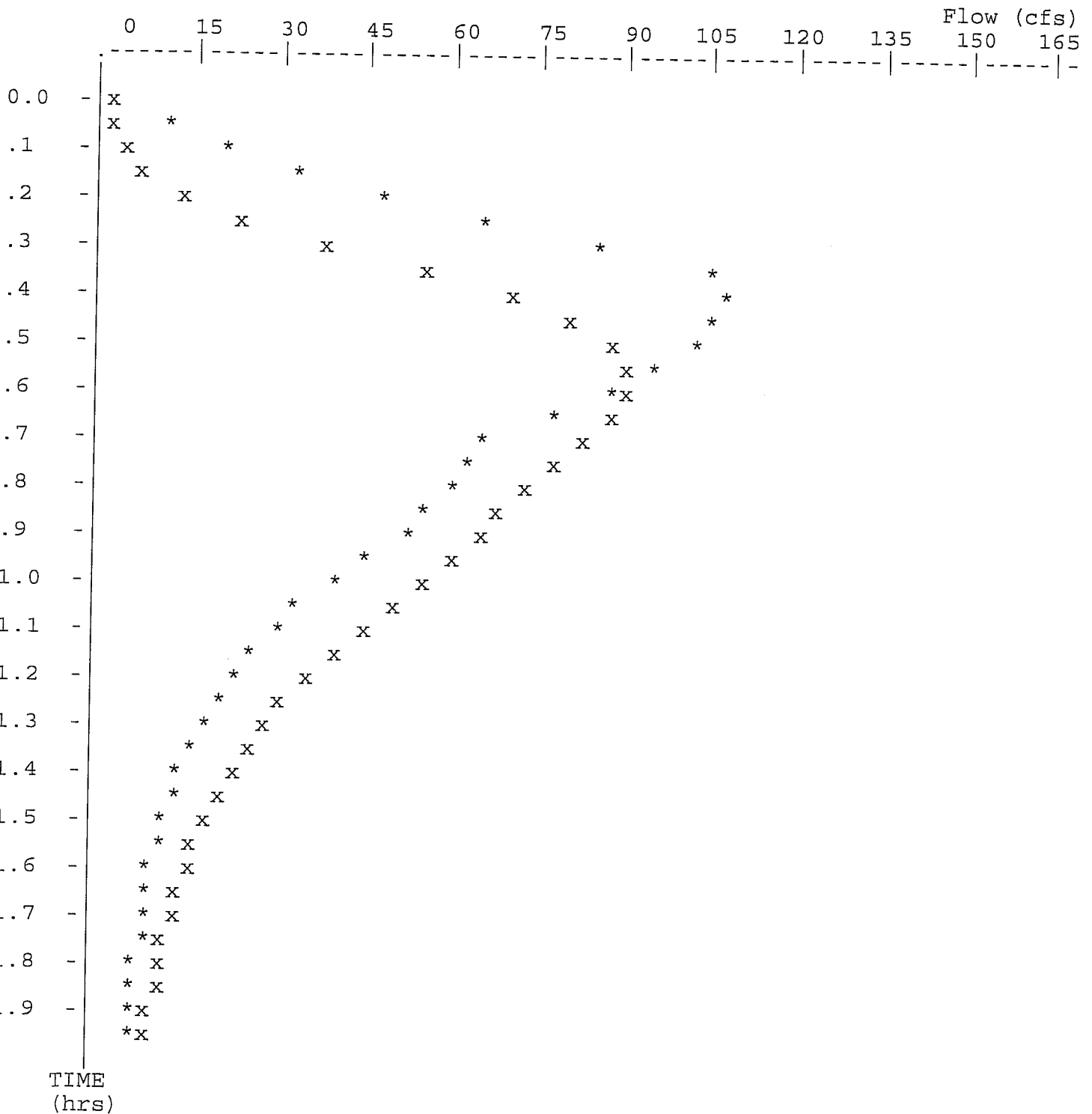
Page 4

Return Freq: 10 years

Pond File: j:\pondpack\LEGMASL3.PND
Inflow Hydrograph: j:\pondpack\LEGMAS33.HYD
Outflow Hydrograph: j:\pondpack\LEGMACCD.HYD

Peak Inflow = 106.29 cfs
Peak Outflow = 90.96 cfs
Peak Elevation = 1036.82 ft

EXECUTED: 04-27-2000
07:53:13



* File: j:\pondpack\LEGMAS33.HYD Qmax = 106.3 cfs

x File: j:\pondpack\LEGMACCD.HYD Qmax = 91.0 cfs