WEST 70 COMMERCE CENTER
STORMWATER ROUTING
OF
EXISTING DETENTION BASIN
WITH MODIFICATIONS

PREPARED BY:

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432 N. New Ballas Road
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DATE: DECEMBER 1, 1995

PROJECT NO.: 95-946

A DESIGN STUDY WAS COMPILED BY STOCK & ASSOCIATES FOR MODIFICATIONS TO THE EXISTING DETENTION BASIN SERVING THE WEST 70 COMMERCE CENTER AT THE INTERSECTION OF INTERSTATE 70 AND HIGHWAY 79 IN THE CITY OF O'FALLON.

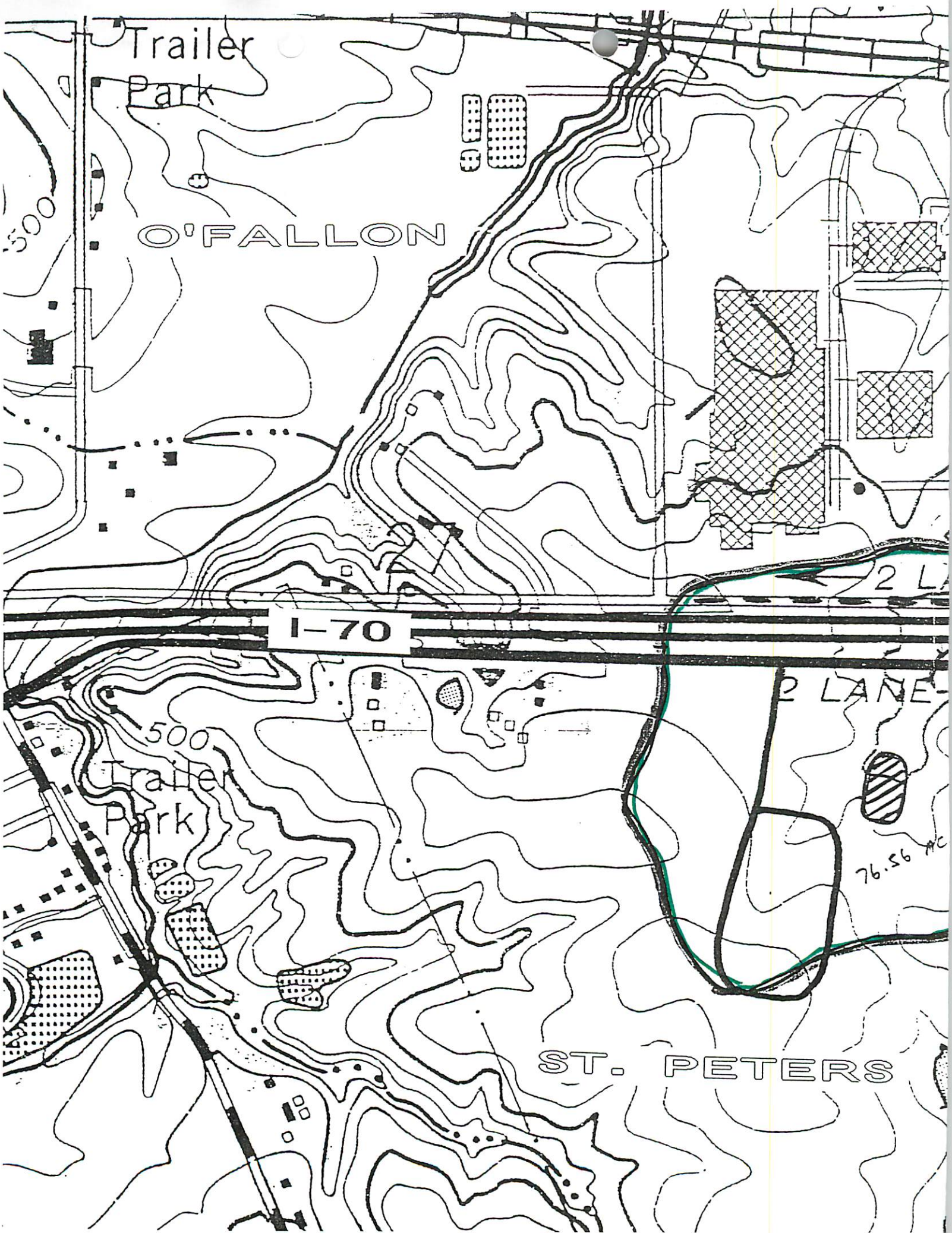
THE EXISTING BASIN'S TOP OF BERM ELEVATION WAS RAISED ONE (1) FOOT AND THE EXISTING OUTFALL STRUCTURE'S WEIR OPENINGS WERE INCREASED FROM 2'-0" IN HEIGHT TO 2'-6" IN HEIGHT.

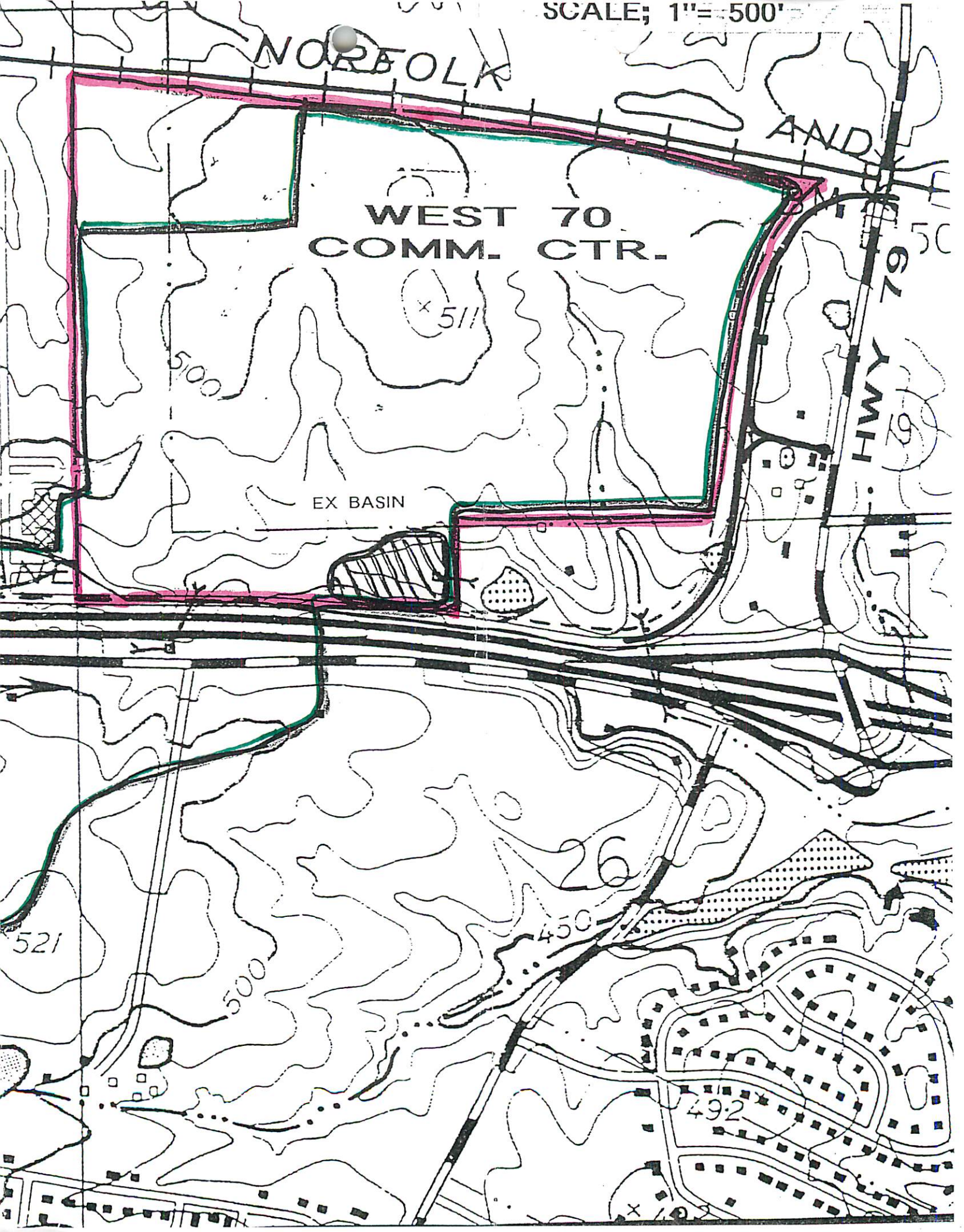
THE TRIBUTARY DRAINAGE AREAS CONTRIBUTING STORMWATER TO THE BASIN WAS DETERMINED FROM U.S.G.S. MAPS AND AS-BUILT CONSTRUCTION PLANS FOR THE SITE. THE DRAINAGE TO THE BASIN COVERS APPROXIMATELY 196 ACRES, OF WHICH 181 ACRES IS ZONED COMMERCIAL AND 14 ACRES ZONED NON-URBAN. THE AREA HAS ROUGHLY 122 ACRES ON THE NORTH SIDE OF INTERSTATE 70 AND 74 ACRES ON THE SOUTH SIDE OF INTERSTATE 70. REFER TO THE DRAINAGE AREA PLAN FOR THE OVERALL AREA.

STORMWATER RUNOFF TO THE BASIN WAS DEVELOPED USING THE SOIL CONSERVATION SERVICE METHOD. A HYDROGRAPH WAS DEVELOPED FOR THE DRAINAGE AREA BASED ON THE TIME OF CONCENTRATION TO THE BASIN AND THE LAND USAGE FOR A 25 YEAR - 24 HOUR STORM AS REQUIRED BY THE CITY OF O'FALLON. THE HYDROGRAPH DEVELOPED A PEAK RUNOFF OF 923 c.f.s. TO THE BASIN. ALLOWABLE DISCHARGE FROM THE BASIN WAS CALCULATED USING PREDEVELOPED AND OFFSITE TRIBUTARY AREAS MULTIPLIED BY CORRESPONDING P.I. FACTORS TO GENERATE FLOWS. THE CALCULATION METHOD OF PREDEVELOPED FLOWS WAS THE SAME METHOD USED IN THE ORIGINAL BASIN'S DESIGN.

USING THE PONDPACK STORMWATER ROUTING PROGRAM TO ROUTE THE FLOW THROUGH THE MODIFIED BASIN OVERFLOW STRUCTURE, THE PROGRAM DETERMINED THAT THE BASIN IS CAPABLE OF HANDLING THE PEAK FLOW FROM A FULLY DEVELOPED AREA. THE PROGRAM INDICATED THAT STORMWATER COMING INTO THE BASIN WOULD FLOW TO WITHIN 0.44' BELOW THE TOP OF THE BASIN'S BERM.

GRAPHS FOR THE INFLOW HYDROGRAPH AND DETENTION BASIN ROUTING CAN BE FOUND IN THE FOLLOWING PAGES OF THIS REPORT.


Trailer
Park
O'FALLON
I-70
500
Trailer
Park
ST. PETERS


SCALE; 1"= 500'
NORFOLK
AND
WEST 70
COMM. CTR.
511
500
EX BASIN
HWY
79
521
500
450
26
492

HYDROS 2.0 Hydrologic Model - WEST 70 COMMERCE CENTER EX BASIN ROUTING

Based on SCS hydrologic procedures

The following data are stored in file - WEST70.DAT

Subwatershed number 1

Area =	195.8	ACRES	
85% Elevation =	520	FEET	
10% Elevation =	472	FEET	
Length =	3625	FEET	
Slope =	1.8	%	
Impervious =	154	ACRES	79%
Channelized =	3500	FEET	97%
Curve number =	94		

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HYDROS 2.0 Hydrologic Model --WEST 70 COMMERCE CENTER EX BASIN ROUTING

Calculations based on SCS hydrologic procedures using rainfall
distribution curve - Type II

January 1990

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Design storm being used for this analysis is the 25 year storm.

24 hour rainfall is 5.76 inches soil moisture conditions are average

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Following are the results of the hydrologic calculations for sub-watershed 1

Watershed Lag is - 0.394 hours.
Time of Concentration is - 0.656 hours.
The Lag Factor to adjust for impervious area is - 0.772
The Lag Factor to adjust for channel improvement - 0.720
The adjusted Watershed Lag is - 0.219 hours.
The adjusted Time of Concentration is - 0.365 hours.

The program is using seven incremental hydrographs and the time increment of excess rainfall duration is - 0.088 hours.

The peak discharge from sub-watershed 1 is - 923 c.f.s.

Following is the hydrograph from sub-watershed 1

Time (hours)	Ordinates (c.f.s.)	Volume (c.f.)	Time (hours)	Ordinates (c.f.s.)	Volume (c.f.)
0.000	29	9,214	2.627	305	121,094
0.088	32	9,616	2.714	185	77,243
0.175	33	10,224	2.802	138	50,911
0.263	35	10,658	2.890	120	40,510
0.350	36	11,141	2.977	105	35,456
0.438	38	11,671	3.065	95	31,576
0.525	40	12,253	3.152	87	28,663
0.613	42	12,883	3.240	81	26,454
0.700	44	13,551	3.327	76	24,717
0.788	46	14,262	3.415	72	23,254
0.876	49	15,035	3.502	68	21,968
0.963	52	15,900	3.590	64	20,837
1.051	55	16,868	3.678	61	19,827
1.138	59	17,927	3.765	59	18,907
1.226	62	19,065	3.853	56	18,055
1.313	67	20,330	3.940	54	17,259
1.401	72	21,827	4.028	51	16,517
1.489	78	23,658	4.115	49	15,824
1.576	86	25,847	4.203	47	15,168
1.664	94	28,330	4.291	45	14,551
1.751	109	31,994	4.378	44	13,989
1.839	148	40,458	4.466	42	13,506
1.926	228	59,248	4.553	41	13,110
2.014	376	95,152	4.641	40	12,789
2.101	609	155,197	4.728	39	12,522
2.189	826	226,258	4.816	39	12,289
2.277	923	275,764	4.903	38	12,071
2.364	822	275,009	4.991	37	11,856
2.452	640	230,395	5.079	37	11,640
2.539	464	173,989	5.166	36	11,425

Total Volume 2,647,712 cubic feet
Total Volume 60.78 acre-feet

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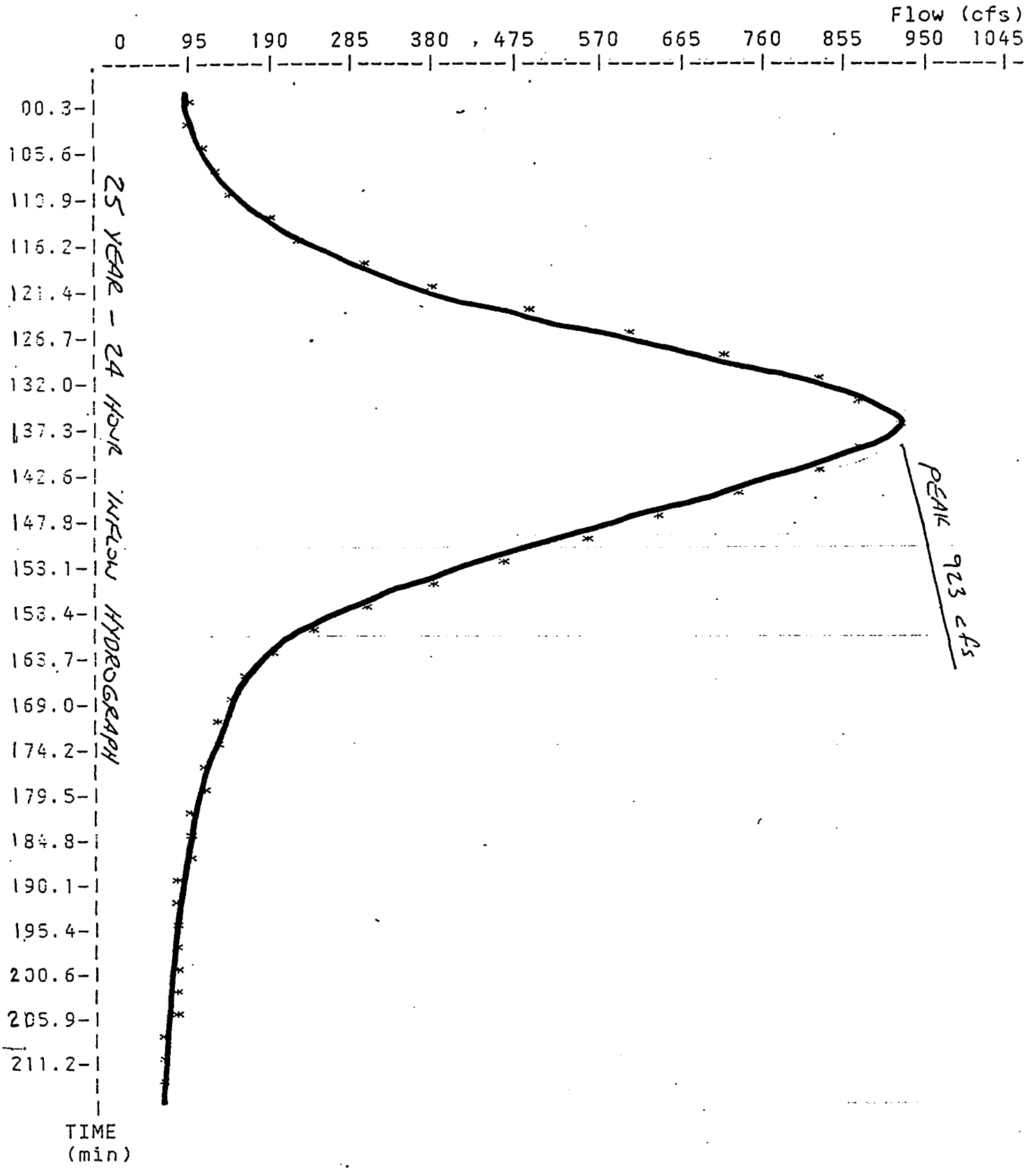
POND-2 Version: 5.17 S/N:
Plotted: 11-03-1995



* File: 95946-25.HYD Qmax = 923.0 cfs

Detention Calculations (25-Year Storm)

Total Watershed Area: Onsite: 119.24 Ac.
Offsite: 76.56 Ac.
195.80 Acres

Total Developed Q: 923 c.f.s. (computed using S.C.S. method)

Predeveloped Q:
Onsite: 119.24 Ac. x 2.31 c.f.s./Ac. = 275.44 c.f.s.
Offsite: 62.56 Ac. x 4.75 c.f.s./Ac. = 297.16 c.f.s.
14.00 Ac. x 2.31 c.f.s./Ac. = 32.34 c.f.s.

Allowable Discharge from basin:

Predeveloped:	275.44 c.f.s.
Offsite:	+329.50 c.f.s.
Bypass:	- 0 c.f.s.
	604.94 c.f.s.

POND-2 Version: 5.17 S/N:

>>>>> HYDROGRAPH PRINTOUT <<<<<

11-30-1995 09:53:42

Hydrograph file: 95946-25.HYD

HYDROGRAPH ORDINATES (cfs)
Time increment = 5.28 Minutes
Time on left represents time for first Q in each row.

Time Minutes							
0.00	29.00	32.00	33.00	35.00	36.00	38.00	40.00
36.96	42.00	44.00	46.00	49.00	52.00	55.00	59.00
73.92	62.00	67.00	72.00	78.00	86.00	94.00	109.00
110.88	148.00	228.00	376.00	609.00	826.00	923.00	822.00
147.84	640.00	464.00	305.00	185.00	138.00	120.00	105.00
184.80	95.00	87.00	81.00	76.00	72.00	68.00	64.00
221.76	61.00	59.00	56.00	54.00	51.00	49.00	47.00
258.72	45.00	44.00	42.00	41.00	40.00	39.00	39.00
295.68	38.00	37.00	37.00	36.00			

POND-2 Version: 5.17
S/N:

WEST 70 COMMERCE CENTER
EXISTING DETENTION BASIN
STORAGE VOLUME

CALCULATED 11-30-1995 09:54:24
DISK FILE: 95946-25.VOL

Planimeter scale: 1 inch = 30 ft.

Elevation (ft)	Planimeter (sq.in.)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	* Volume (cubic-ft)	Volume Sum (cubic-ft)
464.00	28.91	26,019	0	0	0
466.00	78.07	70,263	139,039	92,693	92,693
468.00	86.80	78,120	222,470	148,314	241,006
470.00	96.61	86,949	247,485	164,990	405,997
472.00	106.10	95,490	273,558	182,372	588,369
474.10	119.30	107,370	304,116	212,882	801,251
		Elevations With Areas Interpolated From The Closest Two Planimeter Readings			
465.00	-----	45,449	105,856	35,285	35,285

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

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.

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

Outlet Structure File: 95946-25.STR

POND-2 Version: 5.17 S/N:
Date Executed: Time Executed:

****
WEST 70 COMMERCE CENTER
EXISTING DETENTION BASIN
OUTFALL STRUCTURE

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

Elevation (ft)	Q (cfs)	Contributing Structures
464.00	0.0	1
464.50	9.9	1
465.00	27.9	1
465.50	51.1	3 +2
466.00	79.0	1
466.50	112.9	3 +2
467.00	148.0	3 +2
467.50	168.1	1
468.00	185.9	1
468.50	201.5	1
469.00	217.1	1
469.50	230.7	1
470.00	244.3	1
470.50	256.6	1
471.00	278.1	1
471.50	379.3	1
472.00	515.0	3 +2
472.50	541.7	3 +2
473.00	567.6	3 +2
473.50	592.0	3 +2
474.00	614.9	3 +2

Outlet Structure File: 95946-25.STR

POND-2 Version: 5.17 S/N:
Date Executed: Time Executed:

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WEST 70 COMMERCE CENTER
EXISTING DETENTION BASIN
OUTFALL STRUCTURE

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Outlet Structure File: 95946-25.STR
Planimeter Input File: 95946-25.VOL
Rating Table Output File: 95946-25.PND

Min. Elev.(ft) = 464 Max. Elev.(ft) = 474 Incr.(ft) = .5

Additional elevations (ft) to be included in table:
* *

****
SYSTEM CONNECTIVITY
****

Structure	No.	Q Table		Q Table
CULVERT-CR	3		->	3
CULVERT-CR	2	+ 3	->	B
TABLE	1	? B	->	A

Outflow rating table summary was stored in file:
95946-25.PND

Outlet Structure File: 95946-25.STR

POND-2 Version: 5.17 S/N:
Date Executed: Time Executed:

****
WEST 70 COMMERCE CENTER
EXISTING DETENTION BASIN
OUTFALL STRUCTURE

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

CULVERT-CR
Circular Culvert (With Inlet Control)

E1 elev.(ft)?	463.67
E2 elev.(ft)?	474.001
Diam. (ft)?	5.5
Inv. el.(ft)?	463.67
Slope (ft/ft)?	.01
T1 ratio?	
T2 ratio?	
K Coeff.?	.0098
M Coeff.?	2
c Coeff.?	.0398
Y Coeff.?	0.67
Form 1 or 2?	1
Slope factor?	-0.5

Outlet Structure File: 95946-25.STR

POND-2 Version: 5.17 S/N:
Date Executed: Time Executed:

****
WEST 70 COMMERCE CENTER
EXISTING DETENTION BASIN
OUTFALL STRUCTURE

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

CULVERT-CR
Circular Culvert (With Inlet Control)

E1 elev.(ft)?	463.67
E2 elev.(ft)?	474.001
Diam. (ft)?	5.5
Inv. el.(ft)?	463.67
Slope (ft/ft)?	.01
T1 ratio?	
T2 ratio?	
K Coeff.?	.0098
M Coeff.?	2
c Coeff.?	.0398
Y Coeff.?	0.67
Form 1 or 2?	1
Slope factor?	-0.5

Outlet Structure File: 95946-25.STR

POND-2 Version: 5.17 S/N:
Date Executed: Time Executed:

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WEST 70 COMMERCE CENTER
EXISTING DETENTION BASIN
OUTFALL STRUCTURE

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

TABLE
Input your own rating table.
E1 (ft) =464 E2 (ft) =474

Constant (ft) added to each elevation was:

Elev. (ft)	Q (cfs)
464	0
464.5	9.88
465	27.94
466	79.02
467	148.29
467.5	168.15
468	185.89
469	217.08
470	244.31
470.87	265.75
471	278.08
471.5	379.25
472	529.08
472.5	713.88
473	927.58
474	1428.02

Outlet Structure File: 95946-25.STR

POND-2 Version: 5.17 S/N:
Date Executed: Time Executed:

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WEST 70 COMMERCE CENTER
EXISTING DETENTION BASIN
OUTFALL STRUCTURE

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Outflow Rating Table for Structure #3
CULVERT-CR Circular Culvert (With Inlet Control)

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

Elevation (ft)	Q (cfs)	Computation Messages		
464.00	1.0	Equ.1: HW =.33	dc=.271	Ac=.435
464.50	5.7	Equ.1: HW =.83	dc=.636	Ac=1.528
465.00	14.1	Equ.1: HW =1.33	dc=1.006	Ac=2.975
465.50	25.6	Equ.1: HW =1.83	dc=1.362	Ac=4.584
466.00	39.7	Equ.1: HW =2.33	dc=1.708	Ac=6.29
466.50	56.5	Equ.1: HW =2.83	dc=2.051	Ac=8.075
467.00	74.0	Equ.1: HW =3.33	dc=2.361	Ac=9.747
467.50	93.1	Equ.1: HW =3.83	dc=2.662	Ac=11.394
468.00	113.7	Equ.1: HW =4.33	dc=2.956	Ac=13.009
468.50	133.5	Equ.1: HW =4.83	dc=3.215	Ac=14.424
469.00	154.1	Equ.1: HW =5.33	dc=3.464	Ac=15.764
469.50	174.0	Equ.1: HW =5.83	dc=3.688	Ac=16.937
470.00	193.8	Equ.1: HW =6.33	dc=3.897	Ac=17.998
470.50	211.5	Transition: HW =6.83		
471.00	228.1	Submerged: HW =7.33		
471.50	243.4	Submerged: HW =7.83		
472.00	257.5	Submerged: HW =8.33		
472.50	270.8	Submerged: HW =8.830		
473.00	283.8	Submerged: HW =9.330		
473.50	296.0	Submerged: HW =9.830		
474.00	307.5	Submerged: HW =10.33		

Used Unsubmerged Equ. Form (1) for elev. less than 470.02 ft
Used Submerged Equation for elevations greater than 470.83 ft
HW=Headwater (ft) dc=Critical depth (ft) Ac=Area (sq.ft) at dc

Transition flows interpolated from the following values:

E1=470.02 ft; Q1=195.01 cfs; Dc=3.91 ft; E2=470.83 ft; Q2=222.87 cfs

Outlet Structure File: 95946-25.STR

POND-2 Version: 5.17 S/N:
Date Executed: Time Executed:

****
WEST 70 COMMERCE CENTER
EXISTING DETENTION BASIN
OUTFALL STRUCTURE

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Outflow Rating Table for Structure #2
CULVERT-CR Circular Culvert (With Inlet Control)

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

Elevation (ft)	Q (cfs)	Computation Messages		
464.00	1.0	Equ.1: HW =.33	dc=.271	Ac=.435
464.50	5.7	Equ.1: HW =.83	dc=.636	Ac=1.528
465.00	14.1	Equ.1: HW =1.33	dc=1.006	Ac=2.975
465.50	25.6	Equ.1: HW =1.83	dc=1.362	Ac=4.584
466.00	39.7	Equ.1: HW =2.33	dc=1.708	Ac=6.29
466.50	56.5	Equ.1: HW =2.83	dc=2.051	Ac=8.075
467.00	74.0	Equ.1: HW =3.33	dc=2.361	Ac=9.747
467.50	93.1	Equ.1: HW =3.83	dc=2.662	Ac=11.394
468.00	113.7	Equ.1: HW =4.33	dc=2.956	Ac=13.009
468.50	133.5	Equ.1: HW =4.83	dc=3.215	Ac=14.424
469.00	154.1	Equ.1: HW =5.33	dc=3.464	Ac=15.764
469.50	174.0	Equ.1: HW =5.83	dc=3.688	Ac=16.937
470.00	193.8	Equ.1: HW =6.33	dc=3.897	Ac=17.998
470.50	211.5	Transition: HW =6.83		
471.00	228.1	Submerged: HW =7.33		
471.50	243.4	Submerged: HW =7.83		
472.00	257.5	Submerged: HW =8.33		
472.50	270.8	Submerged: HW =8.830		
473.00	283.8	Submerged: HW =9.330		
473.50	296.0	Submerged: HW =9.830		
474.00	307.5	Submerged: HW =10.33		

Used Unsubmerged Equ. Form (1) for elev. less than 470.02 ft
Used Submerged Equation for elevations greater than 470.83 ft
HW=Headwater (ft) dc=Critical depth (ft) Ac=Area (sq.ft) at dc

Transition flows interpolated from the following values:

E1=470.02 ft; Q1=195.01 cfs; Dc=3.91 ft; E2=470.83 ft; Q2=222.87 cfs

Outlet Structure File: 95946-25.STR

POND-2 Version: 5.17 S/N:
Date Executed: Time Executed:

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WEST 70 COMMERCE CENTER
EXISTING DETENTION BASIN
OUTFALL STRUCTURE

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Outflow Rating Table for Structure #1
TABLE Input your own rating table.

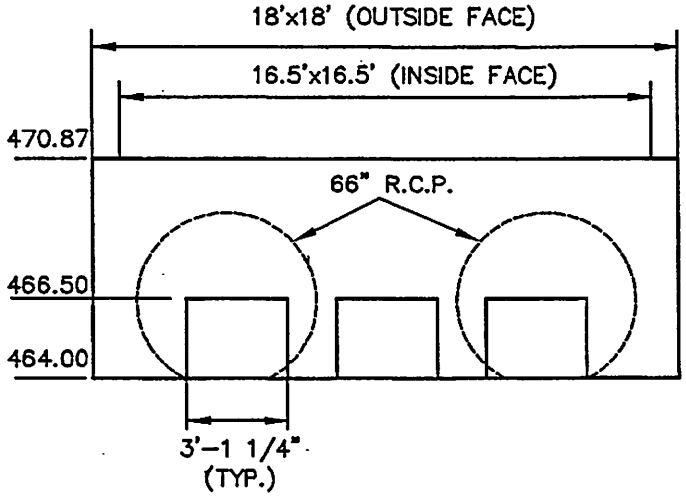
Elevation (ft)	Q (cfs)	Computation Messages
464.00	0.0	
464.50	9.9	
465.00	27.9	
465.50	53.5	Interpolated from input table
466.00	79.0	
466.50	113.7	Interpolated from input table
467.00	148.3	
467.50	168.1	
468.00	185.9	
468.50	201.5	Interpolated from input table
469.00	217.1	
469.50	230.7	Interpolated from input table
470.00	244.3	
470.50	256.6	Interpolated from input table
471.00	278.1	
471.50	379.3	
472.00	529.1	
472.50	713.9	
473.00	927.6	
473.50	1177.8	Interpolated from input table
474.00	0.0	E = or > E2=474

Weir $Q = CLH^{3/2}$ $C = 3.0$

Orifice $Q = CA\sqrt{2gh}$ $C=0.60$

Elevation	Q
464.00	0
464.50	9.88
465.00	27.94
465.50	51.32
466.00	79.02
467.00	148.29
467.50	168.15
468.00	185.89
469.00	217.08
470.00	244.31
470.87	265.75

Elevation	Q Weir	Q Orifice	Total Q
471.00	9.28	268.80	278.08
471.50	99.00	280.25	379.25
472.00	237.84	291.24	529.08
472.50	412.05	301.83	713.88
473.00	615.51	312.07	927.58
473.50	844.50	321.98	1166.48
474.00	1096.43	331.59	1428.02



$A = 3.104 \times 2.5$
$= 7.76 \text{ ft.}^2$

Outlet Structure File: 95946-25.STR

POND-2 Version: 5.17 S/N:
Date Executed: Time Executed:

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WEST 70 COMMERCE CENTER
EXISTING DETENTION BASIN
OUTFALL STRUCTURE

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Outflow Rating Table B
Table B = 3 + 2

Elevation (ft)	Q (cfs)	Contributing Structures
464.00	2.1	3 +2
464.50	11.4	3 +2
465.00	28.2	3 +2
465.50	51.1	3 +2
466.00	79.3	3 +2
466.50	112.9	3 +2
467.00	148.0	3 +2
467.50	186.2	3 +2
468.00	227.4	3 +2
468.50	267.0	3 +2
469.00	308.2	3 +2
469.50	347.9	3 +2
470.00	387.6	3 +2
470.50	423.0	3 +2
471.00	456.2	3 +2
471.50	486.8	3 +2
472.00	515.0	3 +2
472.50	541.7	3 +2
473.00	567.6	3 +2
473.50	592.0	3 +2
474.00	614.9	3 +2

Outlet Structure File: 95946-25.STR

POND-2 Version: 5.17 S/N:
Date Executed: Time Executed:

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WEST 70 COMMERCE CENTER
EXISTING DETENTION BASIN
OUTFALL STRUCTURE

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Outflow Rating Table A
Table A = B ? 1

Elevation (ft)	Q (cfs)	Contributing Structures
464.00	0.0	1
464.50	9.9	1
465.00	27.9	1
465.50	51.1	3 +2
466.00	79.0	1
466.50	112.9	3 +2
467.00	148.0	3 +2
467.50	168.1	1
468.00	185.9	1
468.50	201.5	1
469.00	217.1	1
469.50	230.7	1
470.00	244.3	1
470.50	256.6	1
471.00	278.1	1
471.50	379.3	1
472.00	515.0	3 +2
472.50	541.7	3 +2
473.00	567.6	3 +2
473.50	592.0	3 +2
474.00	614.9	3 +2

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* WEST 70 COMMERCE CENTER *
* EXISTING DETENTION BASIN *
* OUTFALL STRUCTURE *
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Inflow Hydrograph: 95946-25.HYD
Rating Table file: 95946-25.PND

----INITIAL CONDITIONS----
Elevation = 464.00 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)
464.00	0.0	0	0.0	0.0
464.50	9.9	15,214	96.0	105.9
465.00	27.9	35,285	222.8	250.7
465.50	51.1	60,887	384.4	435.5
466.00	79.0	92,693	585.2	664.2
466.50	112.9	128,305	810.0	922.9
467.00	148.0	164,885	1040.9	1188.9
467.50	168.1	202,448	1278.1	1446.2
468.00	185.9	241,007	1521.5	1707.4
468.50	201.5	280,606	1771.5	1973.0
469.00	217.1	321,294	2028.4	2245.5
469.50	230.7	363,086	2292.2	2522.9
470.00	244.3	405,997	2563.1	2807.4
470.50	256.6	449,994	2840.9	3097.5
471.00	278.1	495,048	3125.3	3403.4
471.50	379.3	541,168	3416.5	3795.8
472.00	515.0	588,369	3714.4	4229.4
472.50	541.7	636,804	4020.2	4561.9
473.00	567.6	686,631	4334.8	4902.4
473.50	592.0	737,871	4658.3	5250.3
474.00	614.9	790,542	4990.8	5605.7

Time increment (t) = 5.3 min.

POND-2 Version: 5.17 S/N:
EXECUTED: 11-30-1995 09:56:47

Pond File: 95946-25.PND
Inflow Hydrograph: 95946-25.HYD
Outflow Hydrograph: OUT .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
0.0	29.00	-----	0.0	0.0	0.00	464.00
5.3	32.00	61.0	49.6	61.0	5.70	464.29
10.6	33.00	65.0	92.6	114.6	10.98	464.53
15.8	35.00	68.0	127.2	160.6	16.70	464.69
21.1	36.00	71.0	155.5	198.2	21.38	464.82
26.4	38.00	74.0	178.9	229.5	25.27	464.93
31.7	40.00	78.0	199.6	256.9	28.69	465.02
37.0	42.00	82.0	218.0	281.6	31.78	465.08
42.2	44.00	86.0	234.8	304.0	34.60	465.14
47.5	46.00	90.0	250.4	324.8	37.21	465.20
52.8	49.00	95.0	265.8	345.4	39.79	465.26
58.1	52.00	101.0	281.9	366.8	42.48	465.31
63.4	55.00	107.0	298.4	388.9	45.25	465.37
68.6	59.00	114.0	316.0	412.4	48.20	465.44
73.9	62.00	121.0	334.4	437.0	51.28	465.50
79.2	67.00	129.0	354.4	463.4	54.51	465.56
84.5	72.00	139.0	377.1	493.4	58.16	465.63
89.8	78.00	150.0	402.5	527.1	62.27	465.70
95.0	86.00	164.0	432.4	566.5	67.09	465.79
100.3	94.00	180.0	467.0	612.4	72.68	465.89
105.6	109.00	203.0	510.5	670.0	79.76	466.01
110.9	148.00	257.0	582.4	767.5	92.53	466.20
116.2	228.00	376.0	723.2	958.4	117.58	466.57
121.4	376.00	604.0	1009.6	1327.2	158.81	467.27
126.7	609.00	985.0	1589.1	1994.6	202.74	468.54
132.0	826.00	1435.0	2517.2	3024.1	253.49	470.37
137.3	923.00	1749.0	3230.3	4266.2	517.95	472.06
142.6	822.00	1745.0	3829.8	4975.3	572.71	473.10
147.8	640.00	1462.0	4102.5	5291.8	594.68	473.56
153.1	464.00	1104.0	4028.6	5206.5	588.93	473.44
158.4	305.00	769.0	3678.4	4797.6	559.63	472.85
163.7	185.00	490.0	3176.6	4168.4	495.89	471.93
169.0	138.00	323.0	2893.8	3499.6	302.91	471.12
174.2	120.00	258.0	2630.9	3151.8	260.42	470.59
179.5	105.00	225.0	2363.2	2855.9	246.36	470.08
184.8	95.00	200.0	2098.0	2563.2	232.63	469.57
190.1	87.00	182.0	1842.4	2280.0	218.79	469.06
195.4	81.00	168.0	1603.1	2010.4	203.64	468.57
200.6	76.00	157.0	1382.1	1760.1	189.00	468.10
205.9	72.00	148.0	1182.5	1530.1	173.82	467.66
211.2	68.00	140.0	1005.6	1322.5	158.43	467.26
216.5	64.00	132.0	855.2	1137.6	141.23	466.90
221.8	61.00	125.0	739.2	980.2	120.45	466.61
227.0	59.00	120.0	650.1	859.2	104.56	466.38
232.3	56.00	115.0	580.7	765.1	92.23	466.20

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Outflow Hydrograph: OUT .HYD

INFLOW HYDROGRAPH		ROUTING COMPUTATIONS				
TIME (min)	INFLOW (cfs)	I1+I2 (cfs)	2S/t - O (cfs)	2S/t + O (cfs)	OUTFLOW (cfs)	ELEVATION (ft)
237.6	54.00	110.0	525.7	690.7	82.47	466.05
242.9	51.00	105.0	480.9	630.7	74.92	465.93
248.2	49.00	100.0	443.2	580.9	68.84	465.82
253.4	47.00	96.0	411.7	539.2	63.75	465.73
258.7	45.00	92.0	384.9	503.7	59.42	465.65
264.0	44.00	89.0	362.3	473.9	55.78	465.58
269.3	42.00	86.0	343.0	448.3	52.66	465.53
274.6	41.00	83.0	326.2	426.0	49.91	465.47
279.8	40.00	81.0	312.1	407.2	47.54	465.42
285.1	39.00	79.0	300.0	391.1	45.52	465.38
290.4	39.00	78.0	290.3	378.0	43.89	465.34
295.7	38.00	77.0	282.2	367.3	42.53	465.32
301.0	37.00	75.0	274.6	357.2	41.27	465.29
306.2	37.00	74.0	268.2	348.6	40.20	465.27
311.5	36.00	73.0	262.7	341.2	39.27	465.25

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

Pond File: 95946-25.PND
Inflow Hydrograph: 95946-25.HYD
Outflow Hydrograph: OUT .HYD

Starting Pond W.S. Elevation = 464.00 ft

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

Peak Inflow	=	923.00 cfs
Peak Outflow	=	594.68 cfs
Peak Elevation	=	473.56 ft

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

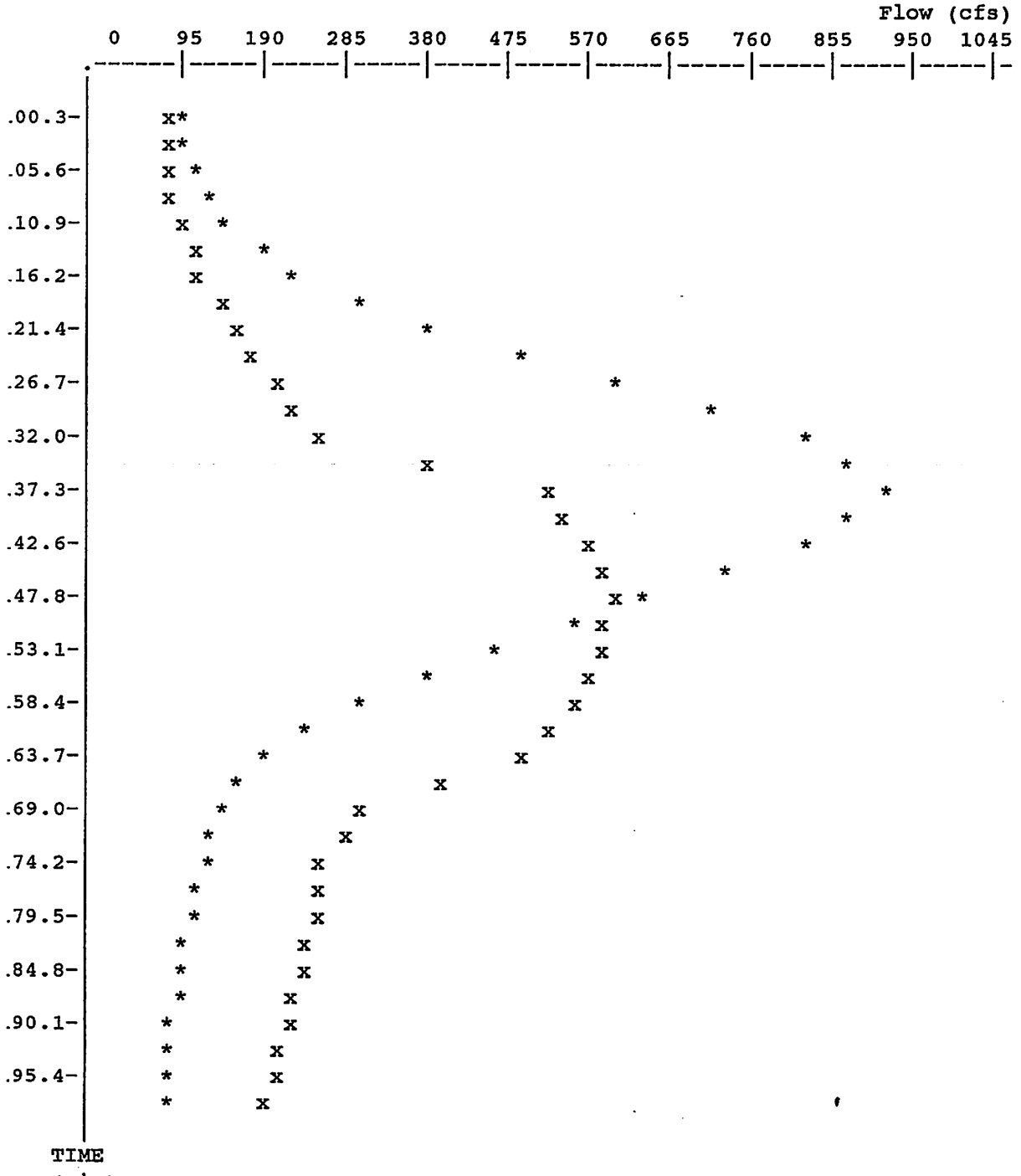
Initial Storage	=	0 cu-ft
Peak Storage From Storm	=	744,030 cu-ft
Total Storage in Pond	=	744,030 cu-ft

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

Pond File: 95946-25.PND
Inflow Hydrograph: 95946-25.HYD
Outflow Hydrograph: OUT .HYD

EXECUTED: 11-30-1995
09:56:47

Peak Inflow = 923.00 cfs
Peak Outflow = 594.68 cfs
Peak Elevation = 473.56 ft



* File: 95946-25.HYD Qmax = 923.0 cfs
x File: OUT .HYD Qmax = 594.7 cfs