

Final Drainage Plan
Fawn Grove at Sunset Lakes
Wichita, KS
January 7, 2004

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Engineering, Surveying, Land Planning

Final Drainage Plan Fawn Grove at Sunset Lakes Addition

January, 2004

General Information: Fawn Grove at Sunset Lakes is situated south of the Kansas Turnpike along the west side of Greenwich Road in Wichita, Kansas. The site is currently being used for pasture, and drains into two major basins, generally divided to the east and west.

Existing Condition: The area being developed is crossed along the east side by an existing pond/drainage channel which carries discharge from an existing 5' x 10' RCBC under the Kansas Turnpike. This upstream area totals approximately 590 acres in size, and is predominantly consists of type D Hydrologic Group soils (SCS Soil Survey of Sedgwick County, Kansas).

Larger rainfall events from this upstream basin exceed the capacity of the RCBC under the Turnpike, causing localized ponding on properties north of the KTA, which in effect, creates an upstream detention pond. An analysis of this upstream basin follows, using the following parameters:

Upstream KTA Drainage Area:

Drainage area = 590 acres = 0.922 square miles

Time of Concentration (Tc): Use velocity method (SCS), total drainage path length equals approximately 9500 feet to the RCBC under the KTA.

Overland sheet flow, use 200 feet at 1.0% slope, $V = 0.09$ f/s = 37 minutes

Grassed Waterway, use 500 feet at 1.0% slope, $V = 0.35$ f/s = 23 minutes

Balance, 8800 feet, use channel flow at 3.0 f/s = 49 minutes;

Resulting in an upstream Tc of 109 minutes. This seems reasonable given the size of the upstream basin.

Ground cover is primarily grass, with some impervious area. For open areas, use an SCS runoff factor of 80 (pasture, good condition, type D soils). From the inspection of the aerial photos upstream, assume a percentage of impervious area at 15 percent.

To HEC1 with the data: (KTA.hcl)

RUNOFF SUMMARY

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	FLOW IN CUBIC FEET PER SECOND			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				TIME IN HOURS, AREA IN SQUARE MILES					
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	EXIST	1171.	12.92	441.	141.	141.	0.92		

As mentioned above, the basin north of the KTA will detain storm water runoff to an elevation of 1344.0 before it can run under the KTA Bridge over Greenwich Road.

To estimate the performance of the KTA culvert in a large storm event, the following design variables are used in the Pipeworks Culvert Analysis Program, LDD by AutoDesk:

Length of culvert = 200 feet, USFL = 1336.8, DSFL = 1335.3, 45 degree wingwalls, concrete box, 10' x 5' in size. The performance curve generated by this analysis is found on the drainage plan map.

Since the RCBC acts as a control structure for an upstream pond, determine the area of possible water impoundment upstream. From the USGS quad sheet of the area, the following areas are approximated:

@ 1336.8	1 acre
@1340.0	5.7 acres
@1350.0	66 acres

These are not exact representations of the upstream area, however, they are likely conservative given the amount of upstream channel capacity and (limited) detention provided upstream.

Rating of the RCBC yields the following stage-discharge information:

@1337.53	20 cfs
@1339.20	113 cfs
@1340.86	235 cfs
@1342.53	368 cfs
@1344.2	505 cfs

The basin upstream of the RCBC can pond to a maximum elevation of 1344 before spilling downstream. The HEC1 program is utilized to model the "pond" upstream of the KTA box, the results of which are as follows:

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	FLOW IN CUBIC FEET PER SECOND TIME IN HOURS, AREA IN SQUARE MILES			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				AVERAGE FLOW FOR MAXIMUM PERIOD					
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	EXIST	1171.	12.92	441.	141.	141.	0.92		
ROUTED TO	POND	541.	14.08	419.	140.	140.	0.92	1344.64 14.08	

The model indicates a maximum RCBC discharge of 541 cfs at an elevation of 1344.64. We know that the basin will overspill at the 1344 elevation range, so the maximum box flow of 541 cfs is conservative, and will be used for sizing a downstream box culvert.

Local Flow – East Basin

The next step in the basin analysis is to determine the runoff from the east basin of the plat of Fawn Grove at Sunset Place, add it to the outflow hydrograph from the KTA box, and route the new hydrograph that is generated through the existing Fawn Grove pond.

To determine the effect of development of the site on the total storm water sewer discharge, the model will be run twice, once with the Fawn Grove area in the undeveloped condition, and one with the developed condition.

Localized East Area From Fawn Grove (and adjacent ground): 44 acres to existing pond = 0.0344 square miles. In the undeveloped condition, the time of concentration will equal 20 minutes, with an SCS runoff number of 80 (pasture, type D soil, good condition).

In the developed condition, the area will remain the same, 44 acres; with 22 acres being developed with an SCS curve number of 90, resulting in a weighted curve number of 85. A time of concentration of 15 minutes will be used for the developed condition.

The existing pond along Greenwich Road drains to the south, and is controlled by a concrete weir structure. The routing parameters for the pond are as follows:

Stage - Storage/ Stage Discharge Information: The top of berm elevation of the pond is 1337, with an impounded acreage of 4.9. The static pool elevation, 1335.1, contains 3.8 acres. The concrete weir controlling the pond has a bottom elevation of 1335.10, and a top of weir notch elevation of 1336.9. The width of the weir is 40 feet. Using the weir equation, $Q = CLH^{1.5}$, yields the following:

@1334.10	0 cfs
@1335.5	30 cfs
@1336	102 cfs
@1336.5	199 cfs
@1336.9	290 cfs

Starting at the 1337 elevation, the pond can overspill over a great width. The overspill area is not on the property being platted as Fawn Grove, and cannot be controlled with the drainage on this plat. However, by the time stormwater flow reached an elevation of 1338, a great, wide weir flow situation occurs, and it is doubtful that this elevation would be exceeded in any storm event that is controlled by this pond.

Pond Routing with Pre and Post Developed Areas

Pond routing with this information in the pre-developed condition results in the following:

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	FLOW IN CUBIC FEET PER SECOND TIME IN HOURS, AREA IN SQUARE MILES			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				AVERAGE FLOW FOR MAXIMUM PERIOD					
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	EXIST	1171.	12.92	441.	141.	141.	0.92		
ROUTED TO	POND	541.	14.08	419.	140.	140.	0.92	1344.64	14.08
HYDROGRAPH AT	ADD	98.	12.08	16.	5.	5.	0.03		
2 COMBINED AT	COMB	548.	14.08	429.	145.	145.	0.96		
ROUTED TO	POND2	545.	14.33	427.	143.	143.	0.96	1338.02	14.33

Note that this model only utilized the notched concrete weir for analysis, and that an extrapolated flow rate through the weir, without the benefit of overland flow from the pond, results in a 100-year elevation of 1338.02, so the assumption of 1338.0 as a 100-year storm elevation is valid, at a discharge rate of 545 cfs.

The same model is now run with the developed east basin to compare the effect of development. The results are (ktad.hc1, ktad.out):

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	FLOW IN CUBIC FEET PER SECOND TIME IN HOURS, AREA IN SQUARE MILES			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				AVERAGE FLOW FOR MAXIMUM PERIOD					
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	EXIST	1171.	12.92	441.	141.	141.	0.92		
ROUTED TO	POND	541.	14.08	419.	140.	140.	0.92	1344.64	14.08
HYDROGRAPH AT	ADD	114.	12.00	17.	6.	6.	0.03		
2 COMBINED AT	COMB	548.	14.08	429.	145.	145.	0.96		
ROUTED TO	POND2	545.	14.33	427.	144.	144.	0.96	1338.02	14.33

*** NORMAL END OF HEC-1 ***

Results - East Basin

Note that the COMB runoff amount of peak flow is the same for both the developed and undeveloped condition, resulting from the difference in the time to peak for each discharge hydrograph. The localized flow peaks far before the large upstream KTA basin, utilizing the channel capacity early in the storm. Any effort to detain the localized storm water runoff would likely add to the peak flow of the channel downstream of the pond in a storm event.

For the portions of Fawn Grove at Sunset Place abutting the existing pond, the minimum pad shall be set at 1339.0 MSL. No additional detention storage is necessary for the east basin of the plat. Interior drainage systems and sizes are indicated on the attached drainage plan, with hydraulic grade line reports for each pipe run included with this report.

New Box Culvert under Fawn Grove Street

This RCBC will need to handle the peak discharge from the KTA box culvert, or 541 cfs. The preferred headwater elevation will be 1338.0. The top of roadway elevation in this area will be 1342 (approximately), with no roadway overtopping allowed. The new box culvert will extend to the natural ground below the pond. This configuration would allow a 4' high box to be utilized. The USFL will be 1334.34, and DSFL will be 1334.00.

Utilizing LDD Hydrology Package, several box culvert configurations were evaluated. A double 10' x 4' RCBC was selected, with the following hydraulic parameters:

Culvert Calculator

Entered Data:

Shape	Rectangular
Number of Barrels	2
Solving for	Headwater
Chart Number	2
Scale Number	2
Chart Description	CORRUGATED METAL PIPE CULVERT
Scale Description	MITERED TO CONFORM TO SLOPE
Overtopping	Off
Flowrate	550.0000 cfs
Manning's n	0.0130
Roadway Elevation	1341.0000 ft
Inlet Elevation	1334.3400 ft
Outlet Elevation	1334.0000 ft
Height	48.0000 in
Width	120.0000 in
Length	70.0000 ft
Entrance Loss	0.5000
Tailwater	1.2838 ft

Computed Results:

Headwater	1339.2339 ft outlet Control
Slope	0.0049 ft/ft
Velocity	9.6002 fps

Messages:

Outlet head > Inlet head.
 Computing Outlet Control headwater.
 Outlet not submerged.
 Normal Depth: 29.5273 in
 Critical Depth: 34.3744 in
 Normal depth <= critical depth.
 Flow is supercritical.
 Since culvert is supercritical no profile generated.
 Depth = critical depth.
 Headwater: 1339.2339 ft

DIS-CHARGE Flow cfs	HEAD-WATER ELEV. ft	INLET CONTROL DEPTH ft	OUTLET CONTROL DEPTH ft	FLOW TYPE	NORMAL DEPTH in	CRITICAL DEPTH in	OUTLET		TAILWATER	
							VEL. fps	DEPTH ft	VEL. fps	DEPTH ft
50.00	1335.83	1.44	1.49	NA	9.60	34.37	5.44	0.80	2.06	0.47
100.00	1336.77	2.32	2.43	NA	14.99	34.37	6.85	1.25	2.68	0.71
150.00	1337.56	3.08	3.22	NA	19.58	34.37	7.84	1.63	3.12	0.90
200.00	1338.27	3.77	3.93	NA	23.75	34.37	8.63	1.98	3.46	1.06
250.00	1338.92	4.43	4.58	NA	27.65	34.37	9.30	2.30	3.75	1.21
300.00	1339.83	5.49	5.20	NA	31.36	36.43	11.48	2.61	4.01	1.35
350.00	1340.90	6.56	5.77	NA	34.93	40.37	12.02	2.91	4.23	1.48
400.00	1340.67	0.00	6.33	NA	38.39	40.37	10.88	3.20	4.44	1.60

West Basin – Fawn Grove at Sunset Lakes

Undeveloped Basin Condition:

In the undeveloped condition, a total of 30.0 Acres of area sheds to an existing pond situated in the southwest corner of the plat. This pond is partially located on the subject property; however, a new detention basin will be constructed which will not be attached to the existing pond.

The existing basin will be evaluated with a time of concentration of 20 minutes, with an SCS Curve Number of 84 (pasture, type D soil, good condition) to determine the pre-developed 100-year storm peak discharge.

This model of the basin produces a maximum, existing condition runoff of 134 cfs, which will be the target outflow from a new detention pond. See results below: (Clint.hc1, Clint.out)

RUNOFF SUMMARY

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	FLOW IN CUBIC FEET PER SECOND TIME IN HOURS, AREA IN SQUARE MILES			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				AVERAGE FLOW FOR MAXIMUM PERIOD					
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	EXIST	134.	12.08	22.	7.	7.	0.05		

From the drainage plan calculations, a total of 28.7 acres drains to this pond in the developed condition. A time of concentration of 15 minutes will be used in the post-developed runoff conditions, with an SCS Curve Number of 90.

For the new detention pond, calculate the width of weir necessary to pass 134 cfs at 2.0 feet of operational head:

$Q = CLH^{1.5}$, where $C = 3.0$ (sharp crested weir), $Q = 134$ cfs, and $H = 2.0$ feet; Solving for L results in a 16-foot wide weir. Rating this weir, and adding the stage/storage information from the drainage plan yields:

Elevation	Storage (Acres)	Discharge (cfs)
1346 (Static Pool)	1.96	0
1346.5	-	17
1347	2.14	48
1347.5	-	88
1348	2.77	136
1348.5	-	190
1349	3.45	249

Results from HEC-1 routing of the pond:

RUNOFF SUMMARY

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	FLOW IN CUBIC FEET PER SECOND TIME IN HOURS, AREA IN SQUARE MILES			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				AVERAGE FLOW FOR MAXIMUM PERIOD					
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	EXIST	134.	12.08	22.	7.	7.	0.05		
HYDROGRAPH AT	DEVEL	157.	12.00	24.	8.	8.	0.04		
ROUTED TO	POND	108.	12.17	24.	8.	8.	0.04	1347.71 12.17	

The pond can over-detain the flow from a pre-developed peak of 134 cfs, to a post-developed peak of 108 cfs. This detention pond ultimately discharges to the same branch of Spring Creek, as does the east pond, through a much longer route (see the USGS Quad Sheet map). This will provide effective upstream detention on the branch, given the basin's location within the watershed.

Lots platted around the west detention pond shall have a minimum opening elevation of 1349.0.

Storm Water Sewer System Design:

Design for the storm water sewer systems to serve this site utilize the following parameters:

Time of Concentration = 15 minutes (City of Wichita Minimum)

Runoff factors are for Type D Hydrologic Soils, ¼ acre lot size, per City of Wichita Interim Drainage and Storm Water Sewer Policy.

The rainfall intensity values are per said Attachment A, said drainage policy.

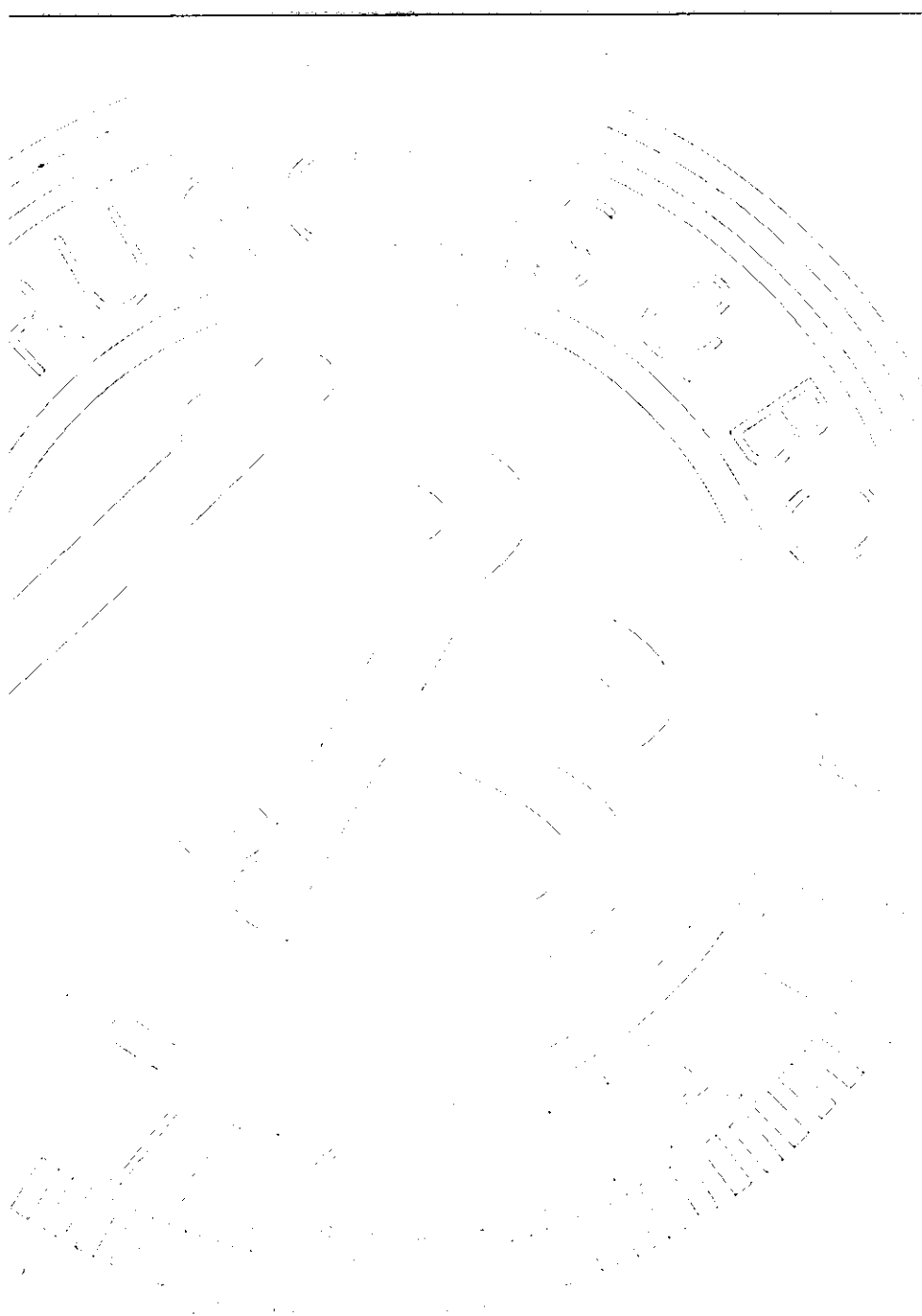
Each storm water sewer system has been modeled with StormCad (Hastead Methods) to determine the 100-year hydraulic grade line. In some instances, overspill to adjacent ponds is allowable for 100-year storm relief, although the systems are designed not to need this overspill.

Calculations for localized runoff for the plat are as tabulated below:

Basin	Description	Area (acres)	Tc (min)	C2	C100	I2 (in/hr.)	I100 (in/hr.)	Q2 (cfs)	Q100 (cfs)
A1	Rear Yard	1.3	15	0.4	0.7	3.83	7.37	2.0	6.7
A2	Lots & Street	4.5	15	0.5	0.76	3.83	7.37	8.6	25.2
B1	Rear Yard	4.6	15	0.5	0.76	3.83	7.37	8.8	25.8
B2	Lots & Street	2.7	15	0.5	0.76	3.83	7.37	5.2	15.1
C1	Lots & Street	7.5	15	0.5	0.76	3.83	7.37	14.4	42.0
C2	Bypass to System D	2.1	15	0.4	0.7	3.83	7.37	3.2	10.8
D1	Rear Yard	0.55	15	0.5	0.76	3.83	7.37	1.1	3.1
D2	Rear Yard	0.24	15	0.5	0.76	3.83	7.37	0.5	1.3
D3	Lots & Street	0.32	15	0.5	0.76	3.83	7.37	0.6	1.8
D4	Rear Yard	1.1	15	0.5	0.76	3.83	7.37	2.1	6.2
E1	Lots & Street	8.7	15	0.5	0.76	3.83	7.37	16.7	48.7
E2	Bypass to System D	2.4	15	0.4	0.7	3.83	7.37	3.7	12.4
E3	Rear Yard	0.8	15	0.4	0.7	3.83	7.37	1.2	4.1
F	Rear Yard	6	15	0.4	0.7	3.83	7.37	9.2	31.0

Please note that system D collects a small amount of bypass runoff from basins C and E. These values are tabulated as C2 and E2 on the table above. The inlets (L = 5.0') at these locations can collect 2.0 cfs each in a 100-year rainfall event, and the system totals for systems C and E have been adjusted to reflect this.

The following pages contain the hydraulic performance calculations for each of the storm water sewer systems (A through E), along with a hydraulic profile for each system. Where multiple pipes are utilized, it is so noted on the documentation.



**STORM WATER SEWER SYSTEM
HYDRAULIC PROFILES**

**FAWN GROVE AT SUNSET LAKES
100-YEAR STORM EVENT**

Hydraulic Performance Tabulation for Storm Water Sewer Systems, Fawn Grove at Sunset Lakes

Series A Storm Water Sewer System

Pipe	Up Node	Dn Node	Length (ft)	Size	Cap (cfs)	V avg (ft/s)	Up Invert (ft)	Dn Invert (ft)	S (ft/ft)	Q (cfs)
P-5	I-3	J-2	100.00	18 inch	7.43	3.79	1,347.30	1,346.80	0.005000	6.70
P-4	J-2	I-2	23.00	18 inch	9.79	3.79	1,346.70	1,346.50	0.008696	6.70
P-3	I-2	I-1	40.00	36 inch	66.69	2.89	1,346.40	1,346.00	0.010000	19.30
P-2	I-1	J-1	201.00	36 inch	47.04	4.55	1,345.90	1,344.90	0.004975	31.90
P-1	J-1	Outlet	200.00	36 inch	47.16	4.51	1,344.90	1,343.90	0.005000	31.90

Series B Storm Water Sewer System

Pipe	Up Node	Dn Node	Length (ft)	Size	Cap (cfs)	V avg (ft/s)	Up Invert (ft)	Dn Invert (ft)	S (ft/ft)	Q (cfs)
P-3	I-3	I-2	65.00	18 inch	9.21	3.79	1,346.80	1,346.30	0.007692	6.70
P-2	I-2	I-1	40.00	15 inch	16.78	6.68	1,346.30	1,346.00	0.007500	24.60
P-1	I-1	Outlet	150.00	36 inch	42.18	5.23	1,344.25	1,343.65	0.004000	37.00

Series C Storm Water Sewer System

Pipe	Up Node	Dn Node	Length (ft)	Size	Cap (cfs)	V avg (ft/s)	Up Invert (ft)	Dn Invert (ft)	S (ft/ft)	Q (cfs)
P-2	I-2	I-1	40.00	15 inch	27.97	3.10	1,346.30	1,346.00	0.007500	19.00
P-1	I-1	Outlet	140.00	36 inch	47.16	5.38	1,344.25	1,343.55	0.005000	38.00

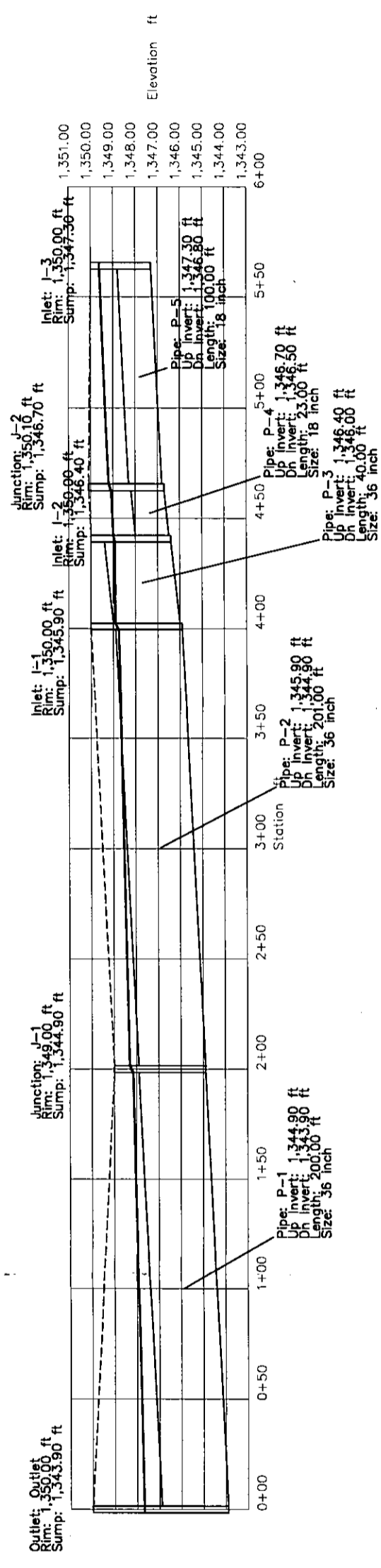
Note: Hydraulic Performance determined using StormCad Software (Haestad Methods), and is based upon the 100 year runoff event.

Series D Storm Water Sewer System

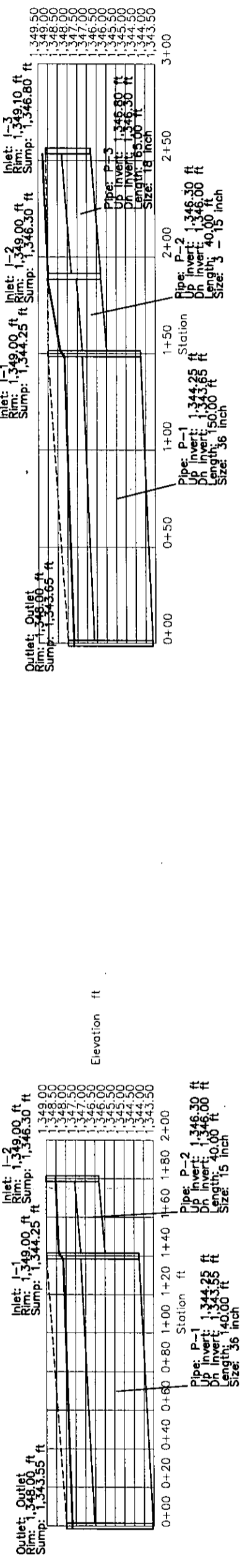
Pipe	Up Node	Dn Node	Length (ft)	Size	Cap (cfs)	V avg (ft/s)	Up Invert (ft)	Dn Invert (ft)	S (ft/ft)	Q (cfs)
P-9	I-7	I-6	40.00	15 inch	9.69	2.94	1,346.00	1,345.10	0.022500	2.00
P-8	I-6	I-11	116.00	15 inch	14.69	4.01	1,345.00	1,339.00	0.051724	4.00
P-11	I-9	I-8	40.00	15 inch	9.69	2.94	1,347.00	1,346.10	0.022500	2.00
P-10	I-8	I-4	116.00	15 inch	10.56	4.01	1,346.00	1,342.90	0.026724	4.00
P-7	I-5	I-4	200.00	15 inch	5.78	2.53	1,343.50	1,341.90	0.008000	3.10
P-6	I-4	I-3	141.00	18 inch	7.91	4.75	1,341.60	1,340.80	0.005674	8.40
P-5	I-3	I-2	40.00	18 inch	10.50	5.09	1,340.70	1,340.30	0.010000	9.00
P-4	I-2	I-11	152.00	18 inch	12.92	5.43	1,340.30	1,338.00	0.015132	9.60
P-3	I-11	J-1	270.00	24 inch	16.29	5.60	1,337.90	1,336.50	0.005185	17.60
P-2	J-1	I-1	278.00	24 inch	16.05	5.60	1,336.40	1,335.00	0.005036	17.60
P-1	I-1	Outlet	200.00	36 inch	44.74	3.32	1,334.90	1,334.00	0.004500	23.50

Series E Storm Water Sewer System

Pipe	Up Node	Dn Node	Length (ft)	Size	Cap (cfs)	V avg (ft/s)	Up Invert (ft)	Dn Invert (ft)	S (ft/ft)	Q (cfs)
P-3	I-3	I-2	40.00	24 inch	25.29	8.09	1,340.20	1,339.70	0.012500	22.20
P-2	I-2	I-1	132.00	36 inch	113.16	7.20	1,338.60	1,334.80	0.028788	44.50
P-1	I-1	Outlet	192.00	36 inch	40.27	6.93	1,334.70	1,334.00	0.003646	49.00



SYSTEM A PROFILE



SYSTEM B PROFILE

SYSTEM C PROFILE

**FAWN GROVE AT SUNSET LAKES
SWS PROFILES**

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DESIGN	CMB	DATE	01/05/04
DRAWN	CMB	PROJECT NUMBER	Fawn Grove SWS Profiles
REVIEW	CMB		
UTILITY			



APPENDIX A

APPENDIX A

HEC-1 MODEL OF EXISTING KTA BOX CULVERT AND
UPSTREAM BASIN

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	CLINT MILLER PLAT AT RTA AND GREENWICH									
2	ID	UPSTREAM BASIN TO RTA BOX CULVERT									
3	ID	EXISTING BASIN RUN AS POND WITH RTA BOX									
4	ID										
5	IT	5	289								
6	IN	30									
7	IO	1									
8	KK	EXIST									
9	PB	7.8									
10	PC	0	0.5	1.0	1.5	2.2	2.8	3.5	4.1	4.7	5.5
11	PC	6.3	7.2	7.9	8.8	9.8	10.9	12	13.3	14.7	16.3
12	PC	18	20.4	23.5	28.3	66.3	73.5	77.2	79.9	82	83.8
13	PC	85.3	86.7	87.9	89.1	90	90.9	91.8	92.7	93.5	94.4
14	PC	95.3	96	96.7	97.3	97.8	98.3	99	99.5	100	
15	BS	0.922									
16	UD	1.09									
17	LS	0	80	15							
18	KK	POND									
19	RS	1	ELEV	1336.8							
20	SA	1	5.7	66							
21	SE	1336.8	1340	1350							
22	SQ	1	20	113	235	368	505				
23	SE	1336.8	1337.53	1339.20	1340.86	1342.53	1344.2				
24	KK	ADDUNDEVELOPED EAST AREA									
25	BA	0.0344									
26	UD	0.20									
27	LS	0	80	0							
28	KK	COMB									
29	HC	2									
30	KK	POND2									
31	RS	1	ELEV	1335.10							
32	SA	9.8	4.9								
33	SE	1335.1	1337								
34	SG	1	30	102	169	290					
35	SE	1335.10	1335.5	1336	1336.5	1336.9					
36	ZZ										

FLOOD HYDROGRAPH PACKAGE (HEC-3)
MAY 1991
VERSION 4.0.1E
RUN DATE 10/01/2003 TIME 11:33:58
U.S. ARMY CORPS OF ENGINEERS
HYDROLOGIC ENGINEERING CENTER
609 SECOND STREET
DAVIS, CALIFORNIA 95616
(916) 756-1104

CLINT MILLER PLAT AT KTA AND GREENWICH
UPSTREAM BASIN TO KTA BOX CULVERT
EXISTING BASIN RUN AS POND WITH KTA BOX

7 IO OUTPUT CONTROL VARIABLES
IPRNT 1 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE
IT HYDROGRAPH TIME DATA
IDATE 1 5 MINUTES IN COMPUTATION INTERVAL
ITIME 0000 STARTING TIME
NQ 289 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 2 0 ENDING DATE
NDTIME 0000 ENDING TIME
ICENT 19 CENTURY MARK
COMPUTATION INTERVAL 0.08 HOURS
TOTAL TIME BASE 24.00 HOURS
ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-Feet
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

8 KK * EXIST *

6 IN TIME DATA FOR INPUT TIME SERIES
JXMIN 30 TIME INTERVAL IN MINUTES
JXDATE 1 0 STARTING DATE
JXTIME 0 STARTING TIME

15 BA SUBBASIN CHARACTERISTICS
TAREA 0.92 SUBBASIN AREA

9 PB STORM 7.80 BASIN TOTAL PRECIPITATION

10 PI INCREMENTAL PRECIPITATION PATTERN
Table with 11 columns of precipitation values ranging from 0.08 to 1.20.

0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08
 0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08

17 LS SCS LOSS RATE
 STPL 0.50 INITIAL ABSTRACTION
 CRVNBK 80.00 CURVE NUMBER
 RTIMP 15.00 PERCENT IMPERVIOUS AREA

16 UD SCS DIMENSIONLESS UNITGRAPH
 TLAG 1.09 LAG

UNIT HYDROGRAPH
 67 END-OF-PERIOD ORDINATES

9.	25.	47.	73.	107.	149.	197.	252.	299.	338.
366.	386.	392.	392.	389.	371.	352.	330.	307.	278.
246.	213.	184.	162.	144.	127.	113.	101.	91.	80.
72.	63.	55.	50.	44.	39.	35.	30.	27.	24.
21.	19.	17.	15.	13.	12.	10.	9.	8.	7.
6.	6.	5.	5.	4.	4.	3.	3.	3.	2.
2.	2.	1.	1.	1.	1.	0.			

HYDROGRAPH AT STATION EXIST

DA	MON	HR	MIN	ORD	RAIN	LOSS	EXCESS	COMP	Q	DA	MON	HR	MIN	ORD	RAIN	LOSS	EXCESS	COMP	Q
1				0000	1	0.00	0.00	0.00	0.	1				1205	146	0.09	0.01	0.08	405.
1				0005	2	0.01	0.01	0.00	0.	1				1210	147	0.09	0.01	0.08	497.
1				0010	3	0.01	0.01	0.00	0.	1				1215	148	0.09	0.01	0.08	599.
1				0015	4	0.01	0.01	0.00	0.	1				1220	149	0.09	0.01	0.08	708.
1				0020	5	0.01	0.01	0.00	0.	1				1225	150	0.09	0.01	0.08	817.
1				0025	6	0.01	0.01	0.00	0.	1				1230	151	0.09	0.01	0.09	919.
1				0030	7	0.01	0.01	0.00	0.	1				1235	152	0.05	0.00	0.04	1008.
1				0035	8	0.01	0.01	0.00	1.	1				1240	153	0.05	0.00	0.04	1078.
1				0040	9	0.01	0.01	0.00	1.	1				1245	154	0.05	0.00	0.04	1128.
1				0045	10	0.01	0.01	0.00	1.	1				1250	155	0.05	0.00	0.04	1160.
1				0050	11	0.01	0.01	0.00	1.	1				1255	156	0.05	0.00	0.04	1171.
1				0055	12	0.01	0.01	0.00	2.	1				1300	157	0.05	0.00	0.04	1167.
1				0100	13	0.01	0.01	0.00	2.	1				1305	158	0.04	0.00	0.03	1149.
1				0105	14	0.01	0.01	0.00	3.	1				1310	159	0.04	0.00	0.03	1118.
1				0110	15	0.01	0.01	0.00	3.	1				1315	160	0.04	0.00	0.03	1073.
1				0115	16	0.01	0.01	0.00	3.	1				1320	161	0.04	0.00	0.03	1019.
1				0120	17	0.01	0.01	0.00	4.	1				1325	162	0.04	0.00	0.03	959.
1				0125	18	0.01	0.01	0.00	4.	1				1330	163	0.04	0.00	0.03	896.
1				0130	19	0.01	0.01	0.00	4.	1				1335	164	0.03	0.00	0.03	832.
1				0135	20	0.01	0.01	0.00	5.	1				1340	165	0.03	0.00	0.03	770.
1				0140	21	0.01	0.01	0.00	5.	1				1345	166	0.03	0.00	0.03	712.
1				0145	22	0.01	0.01	0.00	5.	1				1350	167	0.03	0.00	0.03	662.
1				0150	23	0.01	0.01	0.00	5.	1				1355	168	0.03	0.00	0.03	617.
1				0155	24	0.01	0.01	0.00	6.	1				1400	169	0.03	0.00	0.03	575.
1				0200	25	0.01	0.01	0.00	6.	1				1405	170	0.02	0.00	0.02	537.
1				0205	26	0.01	0.01	0.00	6.	1				1410	171	0.02	0.00	0.02	501.
1				0210	27	0.01	0.01	0.00	6.	1				1415	172	0.02	0.00	0.02	469.
1				0215	28	0.01	0.01	0.00	7.	1				1420	173	0.02	0.00	0.02	439.
1				0220	29	0.01	0.01	0.00	7.	1				1425	174	0.02	0.00	0.02	411.
1				0225	30	0.01	0.01	0.00	7.	1				1430	175	0.02	0.00	0.02	386.
1				0230	31	0.01	0.01	0.00	7.	1				1435	176	0.02	0.00	0.02	363.
1				0235	32	0.01	0.01	0.00	7.	1				1440	177	0.02	0.00	0.02	342.
1				0240	33	0.01	0.01	0.00	8.	1				1445	178	0.02	0.00	0.02	323.
1				0245	34	0.01	0.01	0.00	8.	1				1450	179	0.02	0.00	0.02	305.
1				0250	35	0.01	0.01	0.00	8.	1				1455	180	0.02	0.00	0.02	288.
1				0255	36	0.01	0.01	0.00	8.	1				1500	181	0.02	0.00	0.02	273.
1				0300	37	0.01	0.01	0.00	8.	1				1505	182	0.02	0.00	0.02	260.
1				0305	38	0.01	0.01	0.00	8.	1				1510	183	0.02	0.00	0.02	247.
1				0310	39	0.01	0.01	0.00	8.	1				1515	184	0.02	0.00	0.02	235.
1				0315	40	0.01	0.01	0.00	8.	1				1520	185	0.02	0.00	0.02	225.
1				0320	41	0.01	0.01	0.00	9.	1				1525	186	0.02	0.00	0.02	215.
1				0325	42	0.01	0.01	0.00	9.	1				1530	187	0.02	0.00	0.02	206.
1				0330	43	0.01	0.01	0.00	9.	1				1535	188	0.02	0.00	0.01	197.
1				0335	44	0.01	0.01	0.00	9.	1				1540	189	0.02	0.00	0.01	190.
1				0340	45	0.01	0.01	0.00	9.	1				1545	190	0.02	0.00	0.01	182.
1				0345	46	0.01	0.01	0.00	9.	1				1550	191	0.02	0.00	0.01	176.
1				0350	47	0.01	0.01	0.00	9.	1				1555	192	0.02	0.00	0.01	170.
1				0355	48	0.01	0.01	0.00	9.	1				1600	193	0.02	0.00	0.01	164.
1				0400	49	0.01	0.01	0.00	9.	1				1605	194	0.02	0.00	0.01	159.
1				0405	50	0.01	0.01	0.00	9.	1				1610	195	0.02	0.00	0.01	154.
1				0410	51	0.01	0.01	0.00	9.	1				1615	196	0.02	0.00	0.01	149.
1				0415	52	0.01	0.01	0.00	9.	1				1620	197	0.02	0.00	0.01	145.
1				0420	53	0.01	0.01	0.00	9.	1				1625	198	0.02	0.00	0.01	141.
1				0425	54	0.01	0.01	0.00	9.	1				1630	199	0.02	0.00	0.01	138.
1				0430	55	0.01	0.01	0.00	9.	1				1635	200	0.01	0.00	0.01	134.
1				0435	56	0.01	0.01	0.00	9.	1				1640	201	0.01	0.00	0.01	131.
1				0440	57	0.01	0.01	0.00	9.	1				1645	202	0.01	0.00	0.01	128.
1				0445	58	0.01	0.01	0.00	9.	1				1650	203	0.01	0.00	0.01	125.
1				0450	59	0.01	0.01	0.00	9.	1				1655	204	0.01	0.00	0.01	122.
1				0455	60	0.01	0.01	0.00	9.	1				1700	205	0.01	0.00	0.01	119.
1				0500	61	0.01	0.01	0.00	9.	1				1705	206	0.01	0.00	0.01	116.
1				0505	62	0.01	0.01	0.00	10.	1				1710	207	0.01	0.00	0.01	113.
1				0510	63	0.01	0.01	0.00	10.	1				1715	208	0.01	0.00	0.01	110.
1				0515	64	0.01	0.01	0.00	10.	1				1720	209	0.01	0.00	0.01	107.
1				0520	65	0.01	0.01	0.00	10.	1				1725	210	0.01	0.00	0.01	105.
1				0525	66	0.01	0.01	0.00	10.	1				1730	211	0.01	0.00	0.01	102.
1				0530	67	0.01	0.01	0.00	10.	1				1735	212	0.01	0.00	0.01	100.
1				0535	68	0.01	0.01	0.00	11.	1				1740	213	0.01	0.00	0.01	98.
1				0540	69	0.01	0.01	0.00	11.	1				1745	214	0.01	0.00	0.01	96.
1				0545	70	0.01	0.01	0.00	11.	1				1750	215	0.01	0.00	0.01	94.

HYDROGRAPH ROUTING DATA

19 RS	STORAGE ROUTING						
	NSTPS	1	NUMBER OF SUBREACHES				
	ITYP		ELEV TYPE OF INITIAL CONDITION				
	RSVVIC	1336.80	INITIAL CONDITION				
	X	0.00	WORKING R AND D COEFFICIENT				
20 SA	AREA	1.0	5.7	66.0			
21 SE	ELEVATION	1336.80	1340.00	1350.00			
22 SQ	DISCHARGE	1.	20.	113.	235.	368.	505.
23 SE	ELEVATION	1336.80	1337.53	1339.20	1340.86	1342.53	1344.20

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	9.69	313.35
ELEVATION	1336.80	1340.00	1350.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.99	5.76	9.69	15.68	34.66	65.92	313.35
OUTFLOW	1.00	20.00	113.00	171.80	235.00	368.00	505.00	980.83
ELEVATION	1336.80	1337.53	1339.20	1340.00	1340.86	1342.53	1344.20	1350.00

HYDROGRAPH AT STATION POND

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	1.	0.0	1336.8	*	1	0805	98	21.	1.0	1337.5	*	1	1610	195	422.	47.0	1343.2
1		0005	2	1.	0.0	1336.8	*	1	0810	99	21.	1.1	1337.6	*	1	1615	196	414.	45.2	1343.1
1		0010	3	1.	0.0	1336.8	*	1	0815	100	22.	1.1	1337.6	*	1	1620	197	406.	43.4	1343.0
1		0015	4	1.	0.0	1336.8	*	1	0820	101	23.	1.1	1337.6	*	1	1625	198	398.	41.6	1342.9
1		0020	5	1.	0.0	1336.8	*	1	0825	102	24.	1.2	1337.6	*	1	1630	199	391.	39.8	1342.8
1		0025	6	1.	0.0	1336.8	*	1	0830	103	25.	1.2	1337.6	*	1	1635	200	383.	38.1	1342.7
1		0030	7	1.	0.0	1336.8	*	1	0835	104	25.	1.3	1337.6	*	1	1640	201	376.	36.4	1342.6
1		0035	8	1.	0.0	1336.8	*	1	0840	105	26.	1.3	1337.6	*	1	1645	202	368.	34.7	1342.5
1		0040	9	1.	0.0	1336.8	*	1	0845	106	27.	1.3	1337.7	*	1	1650	203	357.	33.1	1342.4
1		0045	10	1.	0.0	1336.8	*	1	0850	107	28.	1.4	1337.7	*	1	1655	204	346.	31.5	1342.3
1		0050	11	1.	0.0	1336.8	*	1	0855	108	29.	1.4	1337.7	*	1	1700	205	335.	30.0	1342.1
1		0055	12	1.	0.0	1336.8	*	1	0900	109	30.	1.5	1337.7	*	1	1705	206	325.	28.5	1342.0
1		0100	13	1.	0.0	1336.8	*	1	0905	110	31.	1.5	1337.7	*	1	1710	207	315.	27.1	1341.9
1		0105	14	1.	0.0	1336.8	*	1	0910	111	32.	1.6	1337.7	*	1	1715	208	306.	25.8	1341.7
1		0110	15	2.	0.0	1336.8	*	1	0915	112	33.	1.7	1337.8	*	1	1720	209	296.	24.4	1341.6
1		0115	16	2.	0.0	1336.8	*	1	0920	113	34.	1.7	1337.8	*	1	1725	210	287.	23.1	1341.5
1		0120	17	2.	0.0	1336.8	*	1	0925	114	36.	1.8	1337.8	*	1	1730	211	279.	21.9	1341.4
1		0125	18	2.	0.1	1336.8	*	1	0930	115	37.	1.8	1337.8	*	1	1735	212	270.	20.7	1341.3
1		0130	19	2.	0.1	1336.9	*	1	0935	116	38.	1.9	1337.9	*	1	1740	213	262.	19.6	1341.2
1		0135	20	3.	0.1	1336.9	*	1	0940	117	39.	2.0	1337.9	*	1	1745	214	254.	18.5	1341.1
1		0140	21	3.	0.1	1336.9	*	1	0945	118	41.	2.1	1337.9	*	1	1750	215	247.	17.4	1341.0
1		0145	22	3.	0.1	1336.9	*	1	0950	119	42.	2.1	1337.9	*	1	1755	216	240.	16.3	1340.9
1		0150	23	3.	0.1	1336.9	*	1	0955	120	44.	2.2	1338.0	*	1	1800	217	232.	15.4	1340.8
1		0155	24	4.	0.1	1336.9	*	1	1000	121	45.	2.3	1338.0	*	1	1805	218	222.	14.4	1340.7
1		0200	25	4.	0.2	1336.9	*	1	1005	122	47.	2.4	1338.0	*	1	1810	219	212.	13.5	1340.6
1		0205	26	4.	0.2	1336.9	*	1	1010	123	48.	2.4	1338.0	*	1	1815	220	203.	12.7	1340.4
1		0210	27	4.	0.2	1336.9	*	1	1015	124	50.	2.5	1338.1	*	1	1820	221	195.	11.9	1340.3
1		0215	28	5.	0.2	1336.9	*	1	1020	125	52.	2.6	1338.1	*	1	1825	222	188.	11.2	1340.2
1		0220	29	5.	0.2	1337.0	*	1	1025	126	53.	2.7	1338.1	*	1	1830	223	180.	10.5	1340.1
1		0225	30	5.	0.2	1337.0	*	1	1030	127	55.	2.8	1338.2	*	1	1835	224	174.	9.9	1340.0
1		0230	31	5.	0.2	1337.0	*	1	1035	128	57.	2.9	1338.2	*	1	1840	225	165.	9.3	1339.9
1		0235	32	6.	0.2	1337.0	*	1	1040	129	59.	3.0	1338.2	*	1	1845	226	157.	8.7	1339.8
1		0240	33	6.	0.3	1337.0	*	1	1045	130	61.	3.1	1338.3	*	1	1850	227	150.	8.2	1339.7
1		0245	34	6.	0.3	1337.0	*	1	1050	131	64.	3.2	1338.3	*	1	1855	228	143.	7.8	1339.6
1		0250	35	6.	0.3	1337.0	*	1	1055	132	66.	3.4	1338.4	*	1	1900	229	137.	7.4	1339.5
1		0255	36	6.	0.3	1337.0	*	1	1100	133	69.	3.5	1338.4	*	1	1905	230	131.	7.0	1339.4
1		0300	37	7.	0.3	1337.0	*	1	1105	134	72.	3.7	1338.5	*	1	1910	231	126.	6.7	1339.4
1		0305	38	7.	0.3	1337.0	*	1	1110	135	76.	3.8	1338.5	*	1	1915	232	122.	6.3	1339.3
1		0310	39	7.	0.3	1337.0	*	1	1115	136	79.	4.0	1338.6	*	1	1920	233	117.	6.1	1339.3
1		0315	40	7.	0.3	1337.0	*	1	1120	137	83.	4.2	1338.7	*	1	1925	234	114.	5.8	1339.2
1		0320	41	7.	0.3	1337.0	*	1	1125	138	87.	4.4	1338.7	*	1	1930	235	109.	5.6	1339.1
1		0325	42	7.	0.3	1337.0	*	1	1130	139	92.	4.7	1338.8	*	1	1935	236	105.	5.4	1339.1
1		0330	43	8.	0.3	1337.1	*	1	1135	140	97.	5.0	1338.9	*	1	1940	237	102.	5.2	1339.0
1		0335	44	8.	0.3	1337.1	*	1	1140	141	104.	5.3	1339.0	*	1	1945	238	98.	5.0	1338.9
1		0340	45	8.	0.4	1337.1	*	1	1145	142	112.	5.7	1339.2	*	1	1950	239	96.	4.9	1338.9
1		0345	46	8.	0.4	1337.1	*	1	1150	143	121.	6.3	1339.3	*	1	1955	240	93.	4.7	1338.8
1		0350	47	8.	0.4	1337.1	*	1	1155	144	133.	7.1	1339.5	*	1	2000	241	91.	4.6	1338.8
1		0355	48	8.	0.4	1337.1	*	1	1200	145	149.	8.2	1339.7	*	1	2005	242	89.	4.5	1338.8
1		0400	49	8.	0.4	1337.1	*	1	1205	146	170.	9.6	1340.0	*	1	2010	243	88.	4.5	1338.7
1		0405	50	8.	0.4	1337.1	*	1	1210	147	190.	11.4	1340.3	*	1	2015	244	86.	4.4	1338.7
1		0410	51	8.	0.4	1337.1	*	1	1215	148	215.	13.8	1340.6	*	1	2020	245	85.	4.3	1338.7
1		0415	52	8.	0.4	1337.1	*	1	1220	149	243.	16.7	1341.0	*	1	2025	246	84.	4.3	1338.7
1		0420	53	8.	0.4	1337.1	*	1	1225	150	267.	20.2	1341.3	*	1	2030	247	83.	4.2	1338.7
1		0425	54	8.	0.4	1337.1	*	1	1230	151	295.	24.3	1341.6	*	1	2035	248	82.	4.2	1338.6
1		0430	55	8.	0.4	1337.1	*	1	1235	152	327.	28.8	1342.0	*	1	2040	249	81.	4.1	1338.6
1		0435	56	9.	0.4	1337.1	*	1	1240	153	361.	33.6	1342.4	*	1	2045	250	80.	4.1	1338.6
1		0440	57	9.	0.4	1337.1	*	1	1245	154	385.	38.6	1342.7	*	1	2050	251	80.	4.0	1338.6
1		0445	58	9.	0.4	1337.1	*	1	1250	155	408.	43.8	1343.0	*	1	2055	252	79.	4.0	1338.6
1		0450	59	9.	0.4	1337.1	*	1	1255	156	431.	48.9	1343.3	*	1	2100	253	78.	4.0	1338.6
1		0455	60	9.	0.4	1337.1	*	1	1300	157	452.	53.9	1343.6	*	1	2105	254	77.	3.9	1338.6
1		0500	61	9.	0.4	1337.1	*	1	1305	158	473.	58.7	1343.8	*	1	2110	255	76.	3.9	1338.5
1		0505	62	9.	0.4	1337.1	*	1	1310	159	493.	63.2	1344.1	*	1	2115	256	76.	3.8	1338.5
1		0510	63	9.	0.4	1337.1	*	1	1315	160	508.	67.3	1344.2	*	1	2120	257	75.	3.8	1338.5

0.15	0.15	0.13	0.13	0.13	0.13	0.13	0.13	0.15	0.15
0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
0.12	0.12	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.08
0.08	0.08	0.08	0.08	0.12	0.12	0.12	0.12	0.12	0.12
0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

27 LS SCS LOSS RATE
 STRL 0.50 INITIAL ABSTRACTION
 CRVNR 80.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

26 UD SCS DIMENSIONLESS UNITGRAPH
 TLAG 0.20 LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

UNIT HYDROGRAPH
 14 END-OF-PERIOD ORDINATES

17. 55. 69. 55. 30. 18. 10. 6. 3. 2.
 1. 1. 0. 0.

HYDROGRAPH AT STATION ADD

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	*	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	0.00	0.00	0.00	0.	*	1	1205	146	0.09	0.01	0.08	98.	
1		0005	2	0.01	0.01	0.00	0.	*	1	1210	147	0.09	0.01	0.08	83.	
1		0010	3	0.01	0.01	0.00	0.	*	1	1215	148	0.09	0.01	0.08	62.	
1		0015	4	0.01	0.01	0.00	0.	*	1	1220	149	0.09	0.01	0.08	45.	
1		0020	5	0.01	0.01	0.00	0.	*	1	1225	150	0.09	0.01	0.08	35.	
1		0025	6	0.01	0.01	0.00	0.	*	1	1230	151	0.09	0.01	0.08	30.	
1		0030	7	0.01	0.01	0.00	0.	*	1	1235	152	0.05	0.00	0.04	26.	
1		0035	8	0.01	0.01	0.00	0.	*	1	1240	153	0.05	0.00	0.04	22.	
1		0040	9	0.01	0.01	0.00	0.	*	1	1245	154	0.05	0.00	0.04	18.	
1		0045	10	0.01	0.01	0.00	0.	*	1	1250	155	0.05	0.00	0.04	15.	
1		0050	11	0.01	0.01	0.00	0.	*	1	1255	156	0.05	0.00	0.04	14.	
1		0055	12	0.01	0.01	0.00	0.	*	1	1300	157	0.05	0.00	0.04	13.	
1		0100	13	0.01	0.01	0.00	0.	*	1	1305	158	0.04	0.00	0.03	12.	
1		0105	14	0.01	0.01	0.00	0.	*	1	1310	159	0.04	0.00	0.03	11.	
1		0110	15	0.01	0.01	0.00	0.	*	1	1315	160	0.04	0.00	0.03	10.	
1		0115	16	0.01	0.01	0.00	0.	*	1	1320	161	0.04	0.00	0.03	9.	
1		0120	17	0.01	0.01	0.00	0.	*	1	1325	162	0.04	0.00	0.03	9.	
1		0125	18	0.01	0.01	0.00	0.	*	1	1330	163	0.04	0.00	0.03	9.	
1		0130	19	0.01	0.01	0.00	0.	*	1	1335	164	0.03	0.00	0.02	9.	
1		0135	20	0.01	0.01	0.00	0.	*	1	1340	165	0.03	0.00	0.02	8.	
1		0140	21	0.01	0.01	0.00	0.	*	1	1345	166	0.03	0.00	0.02	8.	
1		0145	22	0.01	0.01	0.00	0.	*	1	1350	167	0.03	0.00	0.02	7.	
1		0150	23	0.01	0.01	0.00	0.	*	1	1355	168	0.03	0.00	0.02	7.	
1		0155	24	0.01	0.01	0.00	0.	*	1	1400	169	0.03	0.00	0.02	7.	
1		0200	25	0.01	0.01	0.00	0.	*	1	1405	170	0.02	0.00	0.02	7.	
1		0205	26	0.01	0.01	0.00	0.	*	1	1410	171	0.02	0.00	0.02	6.	
1		0210	27	0.01	0.01	0.00	0.	*	1	1415	172	0.02	0.00	0.02	6.	
1		0215	28	0.01	0.01	0.00	0.	*	1	1420	173	0.02	0.00	0.02	6.	
1		0220	29	0.01	0.01	0.00	0.	*	1	1425	174	0.02	0.00	0.02	6.	
1		0225	30	0.01	0.01	0.00	0.	*	1	1430	175	0.02	0.00	0.02	6.	
1		0230	31	0.01	0.01	0.00	0.	*	1	1435	176	0.02	0.00	0.02	6.	
1		0235	32	0.01	0.01	0.00	0.	*	1	1440	177	0.02	0.00	0.02	5.	
1		0240	33	0.01	0.01	0.00	0.	*	1	1445	178	0.02	0.00	0.02	5.	
1		0245	34	0.01	0.01	0.00	0.	*	1	1450	179	0.02	0.00	0.02	5.	
1		0250	35	0.01	0.01	0.00	0.	*	1	1455	180	0.02	0.00	0.02	5.	
1		0255	36	0.01	0.01	0.00	0.	*	1	1500	181	0.02	0.00	0.02	5.	
1		0300	37	0.01	0.01	0.00	0.	*	1	1505	182	0.02	0.00	0.02	5.	
1		0305	38	0.01	0.01	0.00	0.	*	1	1510	183	0.02	0.00	0.02	5.	
1		0310	39	0.01	0.01	0.00	0.	*	1	1515	184	0.02	0.00	0.02	5.	
1		0315	40	0.01	0.01	0.00	0.	*	1	1520	185	0.02	0.00	0.02	5.	
1		0320	41	0.01	0.01	0.00	0.	*	1	1525	186	0.02	0.00	0.02	4.	
1		0325	42	0.01	0.01	0.00	0.	*	1	1530	187	0.02	0.00	0.02	4.	
1		0330	43	0.01	0.01	0.00	0.	*	1	1535	188	0.02	0.00	0.01	4.	
1		0335	44	0.01	0.01	0.00	0.	*	1	1540	189	0.02	0.00	0.01	4.	
1		0340	45	0.01	0.01	0.00	0.	*	1	1545	190	0.02	0.00	0.01	4.	
1		0345	46	0.01	0.01	0.00	0.	*	1	1550	191	0.02	0.00	0.01	4.	
1		0350	47	0.01	0.01	0.00	0.	*	1	1555	192	0.02	0.00	0.01	4.	
1		0355	48	0.01	0.01	0.00	0.	*	1	1600	193	0.02	0.00	0.01	4.	
1		0400	49	0.01	0.01	0.00	0.	*	1	1605	194	0.02	0.00	0.01	4.	
1		0405	50	0.01	0.01	0.00	0.	*	1	1610	195	0.02	0.00	0.01	4.	
1		0410	51	0.01	0.01	0.00	0.	*	1	1615	196	0.02	0.00	0.01	4.	
1		0415	52	0.01	0.01	0.00	0.	*	1	1620	197	0.02	0.00	0.01	4.	
1		0420	53	0.01	0.01	0.00	0.	*	1	1625	198	0.02	0.00	0.01	4.	
1		0425	54	0.01	0.01	0.00	0.	*	1	1630	199	0.02	0.00	0.01	4.	
1		0430	55	0.01	0.01	0.00	0.	*	1	1635	200	0.01	0.00	0.01	4.	
1		0435	56	0.01	0.01	0.00	0.	*	1	1640	201	0.01	0.00	0.01	4.	
1		0440	57	0.01	0.01	0.00	0.	*	1	1645	202	0.01	0.00	0.01	3.	
1		0445	58	0.01	0.01	0.00	0.	*	1	1650	203	0.01	0.00	0.01	3.	
1		0450	59	0.01	0.01	0.00	0.	*	1	1655	204	0.01	0.00	0.01	3.	
1		0455	60	0.01	0.01	0.00	0.	*	1	1700	205	0.01	0.00	0.01	3.	
1		0500	61	0.01	0.01	0.00	0.	*	1	1705	206	0.01	0.00	0.01	3.	
1		0505	62	0.01	0.01	0.00	0.	*	1	1710	207	0.01	0.00	0.01	3.	
1		0510	63	0.01	0.01	0.00	0.	*	1	1715	208	0.01	0.00	0.01	3.	
1		0515	64	0.01	0.01	0.00	0.	*	1	1720	209	0.01	0.00	0.01	3.	
1		0520	65	0.01	0.01	0.00	0.	*	1	1725	210	0.01	0.00	0.01	3.	
1		0525	66	0.01	0.01	0.00	0.	*	1	1730	211	0.01	0.00	0.01	3.	
1		0530	67	0.01	0.01	0.00	0.	*	1	1735	212	0.01	0.00	0.01	3.	
1		0535	68	0.01	0.01	0.00	0.	*	1	1740	213	0.01	0.00	0.01	3.	

1	0540	69	0.01	0.01	0.00	0.	*	1	1745	214	0.01	0.00	0.01	3.
1	0545	70	0.01	0.01	0.00	0.	*	1	1750	215	0.01	0.00	0.01	3.
1	0550	71	0.01	0.01	0.00	0.	*	1	1755	216	0.01	0.00	0.01	3.
1	0555	72	0.01	0.01	0.00	0.	*	1	1800	217	0.01	0.00	0.01	3.
1	0600	73	0.01	0.01	0.00	0.	*	1	1805	218	0.01	0.00	0.01	3.
i	0605	74	0.01	0.01	0.00	0.	*	1	1810	219	0.01	0.00	0.01	3.
i	0610	75	0.01	0.01	0.00	0.	*	1	1815	220	0.01	0.00	0.01	3.
1	0615	76	0.01	0.01	0.00	0.	*	1	1820	221	0.01	0.00	0.01	3.
1	0620	77	0.01	0.01	0.00	0.	*	1	1825	222	0.01	0.00	0.01	3.
1	0625	78	0.01	0.01	0.00	0.	*	1	1830	223	0.01	0.00	0.01	3.
1	0630	79	0.01	0.01	0.00	0.	*	1	1835	224	0.01	0.00	0.01	3.
1	0635	80	0.01	0.01	0.00	0.	*	1	1840	225	0.01	0.00	0.01	3.
1	0640	81	0.01	0.01	0.00	0.	*	1	1845	226	0.01	0.00	0.01	3.
1	0645	82	0.01	0.01	0.00	0.	*	1	1850	227	0.01	0.00	0.01	3.
i	0650	83	0.01	0.01	0.00	1.	*	1	1855	228	0.01	0.00	0.01	3.
i	0655	84	0.01	0.01	0.00	1.	*	1	1900	229	0.01	0.00	0.01	3.
1	0700	85	0.01	0.01	0.00	1.	*	1	1905	230	0.01	0.00	0.01	3.
1	0705	86	0.01	0.01	0.00	1.	*	1	1910	231	0.01	0.00	0.01	3.
1	0710	87	0.01	0.01	0.00	1.	*	1	1915	232	0.01	0.00	0.01	3.
1	0715	88	0.01	0.01	0.00	1.	*	1	1920	233	0.01	0.00	0.01	3.
1	0720	89	0.01	0.01	0.00	1.	*	1	1925	234	0.01	0.00	0.01	3.
1	0725	90	0.01	0.01	0.00	1.	*	1	1930	235	0.01	0.00	0.01	3.
1	0730	91	0.01	0.01	0.00	1.	*	1	1935	236	0.01	0.00	0.01	3.
i	0735	92	0.01	0.01	0.00	1.	*	1	1940	237	0.01	0.00	0.01	3.
1	0740	93	0.01	0.01	0.00	1.	*	1	1945	238	0.01	0.00	0.01	3.
1	0745	94	0.01	0.01	0.00	1.	*	1	1950	239	0.01	0.00	0.01	3.
1	0750	95	0.01	0.01	0.00	1.	*	1	1955	240	0.01	0.00	0.01	3.
1	0755	96	0.01	0.01	0.00	1.	*	1	2000	241	0.01	0.00	0.01	3.
1	0800	97	0.01	0.01	0.00	1.	*	1	2005	242	0.01	0.00	0.01	3.
1	0805	98	0.02	0.01	0.00	1.	*	1	2010	243	0.01	0.00	0.01	3.
1	0810	99	0.02	0.01	0.00	1.	*	1	2015	244	0.01	0.00	0.01	3.
1	0815	100	0.02	0.01	0.00	1.	*	1	2020	245	0.01	0.00	0.01	2.
1	0820	101	0.02	0.01	0.01	1.	*	1	2025	246	0.01	0.00	0.01	2.
1	0825	102	0.02	0.01	0.01	1.	*	1	2030	247	0.01	0.00	0.01	2.
i	0830	103	0.02	0.01	0.01	1.	*	1	2035	248	0.01	0.00	0.01	2.
1	0835	104	0.02	0.01	0.01	1.	*	1	2040	249	0.01	0.00	0.01	2.
1	0840	105	0.02	0.01	0.01	1.	*	1	2045	250	0.01	0.00	0.01	2.
1	0845	106	0.02	0.01	0.01	2.	*	1	2050	251	0.01	0.00	0.01	2.
1	0850	107	0.02	0.01	0.01	2.	*	1	2055	252	0.01	0.00	0.01	2.
1	0855	108	0.02	0.01	0.01	2.	*	1	2100	253	0.01	0.00	0.01	2.
1	0900	109	0.02	0.01	0.01	2.	*	1	2105	254	0.01	0.00	0.01	2.
1	0905	110	0.02	0.01	0.01	2.	*	1	2110	255	0.01	0.00	0.01	2.
2	0910	111	0.02	0.01	0.01	2.	*	1	2115	256	0.01	0.00	0.01	2.
1	0915	112	0.02	0.01	0.01	2.	*	1	2120	257	0.01	0.00	0.01	2.
1	0920	113	0.02	0.01	0.01	2.	*	1	2125	258	0.01	0.00	0.01	2.
1	0925	114	0.02	0.01	0.01	2.	*	1	2130	259	0.01	0.00	0.01	2.
1	0930	115	0.02	0.01	0.01	2.	*	1	2135	260	0.01	0.00	0.01	2.
1	0935	116	0.02	0.01	0.01	2.	*	1	2140	261	0.01	0.00	0.01	2.
1	0940	117	0.02	0.01	0.01	2.	*	1	2145	262	0.01	0.00	0.01	2.
1	0945	118	0.02	0.01	0.01	2.	*	1	2150	263	0.01	0.00	0.01	2.
1	0950	119	0.02	0.01	0.01	2.	*	1	2155	264	0.01	0.00	0.01	2.
1	0955	120	0.02	0.01	0.01	3.	*	1	2200	265	0.01	0.00	0.01	2.
2	1000	121	0.02	0.01	0.01	3.	*	1	2205	266	0.01	0.00	0.01	2.
1	1005	122	0.03	0.02	0.01	3.	*	1	2210	267	0.01	0.00	0.01	2.
1	1010	123	0.03	0.02	0.01	3.	*	1	2215	268	0.01	0.00	0.01	2.
1	1015	124	0.03	0.02	0.02	3.	*	1	2220	269	0.01	0.00	0.01	2.
1	1020	125	0.03	0.02	0.02	4.	*	1	2225	270	0.01	0.00	0.01	2.
1	1025	126	0.03	0.02	0.02	4.	*	1	2230	271	0.01	0.00	0.01	2.
1	1030	127	0.03	0.02	0.02	4.	*	1	2235	272	0.01	0.00	0.01	2.
1	1035	128	0.04	0.02	0.02	4.	*	1	2240	273	0.01	0.00	0.01	2.
1	1040	129	0.04	0.02	0.02	5.	*	1	2245	274	0.01	0.00	0.01	2.
1	1045	130	0.04	0.02	0.02	5.	*	1	2250	275	0.01	0.00	0.01	2.
1	1050	131	0.04	0.02	0.02	5.	*	1	2255	276	0.01	0.00	0.01	2.
1	1055	132	0.04	0.02	0.02	6.	*	1	2300	277	0.01	0.00	0.01	2.
1	1100	133	0.04	0.02	0.02	6.	*	1	2305	278	0.01	0.00	0.01	2.
1	1105	134	0.06	0.03	0.04	6.	*	1	2310	279	0.01	0.00	0.01	2.
1	1110	135	0.06	0.03	0.04	7.	*	1	2315	280	0.01	0.00	0.01	2.
1	1115	136	0.06	0.02	0.04	8.	*	1	2320	281	0.01	0.00	0.01	2.
1	1120	137	0.06	0.02	0.04	9.	*	1	2325	282	0.01	0.00	0.01	2.
1	1125	138	0.06	0.02	0.04	9.	*	1	2330	283	0.01	0.00	0.01	2.
1	1130	139	0.06	0.02	0.04	10.	*	1	2335	284	0.01	0.00	0.01	2.
1	1135	140	0.49	0.16	0.34	15.	*	1	2340	285	0.01	0.00	0.01	2.
1	1140	141	0.49	0.13	0.37	32.	*	1	2345	286	0.01	0.00	0.01	2.
1	1145	142	0.49	0.10	0.39	55.	*	1	2350	287	0.01	0.00	0.01	2.
1	1150	143	0.49	0.09	0.41	75.	*	1	2355	288	0.01	0.00	0.01	2.
1	1155	144	0.49	0.07	0.42	88.	*	2	0000	289	0.01	0.00	0.01	2.
1	1200	145	0.49	0.06	0.43	98.	*							2.

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TOTAL RAINFALL = 7.80, TOTAL LOSS = 2.36, TOTAL EXCESS = 5.44

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.00-HR
98.	12.08	16.	5.	5.	5.
		(INCHES)	4.320	5.418	5.418
		(AC-FT)	8.	10.	10.

CUMULATIVE AREA = 0.03 SQ MI

29 HC

HYDROGRAPH COMBINATION
ICOMP

2 NUMBER OF HYDROGRAPHS TO COMBINE

				HYDROGRAPH AT STATION				COMB				SUM OF 2 HYDROGRAPHS							
DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW
1		0000	1	1.	1		0605	74	11.	1		1210	147	274.	1		1815	220	206.
1		0005	2	1.	1		0610	75	11.	1		1215	148	278.	1		1820	221	198.
1		0010	3	1.	1		0615	76	11.	1		1220	149	287.	1		1825	222	190.
1		0015	4	1.	1		0620	77	11.	1		1225	150	302.	1		1830	223	183.
1		0020	5	1.	1		0625	78	11.	1		1230	151	325.	1		1835	224	176.
1		0025	6	1.	1		0630	79	12.	1		1235	152	353.	1		1840	225	168.
1		0030	7	1.	1		0635	80	12.	1		1240	153	382.	1		1845	226	160.
1		0035	8	1.	1		0640	81	12.	1		1245	154	403.	1		1850	227	152.
1		0040	9	1.	1		0645	82	12.	1		1250	155	423.	1		1855	228	146.
1		0045	10	1.	1		0650	83	13.	1		1255	156	444.	1		1900	229	140.
1		0050	11	1.	1		0655	84	13.	1		1300	157	465.	1		1905	230	134.
1		0055	12	1.	1		0700	85	14.	1		1305	158	485.	1		1910	231	129.
1		0100	13	1.	1		0705	86	14.	1		1310	159	504.	1		1915	232	124.
1		0105	14	1.	1		0710	87	14.	1		1315	160	518.	1		1920	233	120.
1		0110	15	2.	1		0715	88	15.	1		1320	161	524.	1		1925	234	116.
1		0115	16	2.	1		0720	89	15.	1		1325	162	530.	1		1930	235	112.
1		0120	17	2.	1		0725	90	16.	1		1330	163	535.	1		1935	236	108.
1		0125	18	2.	1		0730	91	17.	1		1335	164	539.	1		1940	237	105.
1		0130	19	2.	1		0735	92	17.	1		1340	165	542.	1		1945	238	101.
1		0135	20	3.	1		0740	93	18.	1		1345	166	545.	1		1950	239	99.
1		0140	21	3.	1		0745	94	19.	1		1350	167	546.	1		1955	240	96.
1		0145	22	3.	1		0750	95	19.	1		1355	168	547.	1		2000	241	94.
1		0150	23	3.	1		0755	96	20.	1		1400	169	548.	1		2005	242	92.
1		0155	24	4.	1		0800	97	21.	1		1405	170	548.	1		2010	243	90.
1		0200	25	4.	1		0805	98	22.	1		1410	171	547.	1		2015	244	89.
1		0205	26	4.	1		0810	99	22.	1		1415	172	546.	1		2020	245	87.
1		0210	27	4.	1		0815	100	23.	1		1420	173	545.	1		2025	246	86.
1		0215	28	5.	1		0820	101	24.	1		1425	174	543.	1		2030	247	85.
1		0220	29	5.	1		0825	102	25.	1		1430	175	542.	1		2035	248	84.
1		0225	30	5.	1		0830	103	26.	1		1435	176	539.	1		2040	249	83.
1		0230	31	5.	1		0835	104	27.	1		1440	177	537.	1		2045	250	83.
1		0235	32	6.	1		0840	105	28.	1		1445	178	534.	1		2050	251	82.
1		0240	33	6.	1		0845	106	29.	1		1450	179	531.	1		2055	252	81.
1		0245	34	6.	1		0850	107	30.	1		1455	180	528.	1		2100	253	80.
1		0250	35	6.	1		0855	108	31.	1		1500	181	524.	1		2105	254	80.
1		0255	36	6.	1		0900	109	32.	1		1505	182	521.	1		2110	255	79.
1		0300	37	7.	1		0905	110	33.	1		1510	183	518.	1		2115	256	78.
1		0305	38	7.	1		0910	111	34.	1		1515	184	514.	1		2120	257	77.
1		0310	39	7.	1		0915	112	35.	1		1520	185	510.	1		2125	258	76.
1		0315	40	7.	1		0920	113	36.	1		1525	186	502.	1		2130	259	75.
1		0320	41	7.	1		0925	114	38.	1		1530	187	494.	1		2135	260	74.
1		0325	42	7.	1		0930	115	39.	1		1535	188	485.	1		2140	261	73.
1		0330	43	8.	1		0935	116	40.	1		1540	189	476.	1		2145	262	72.
1		0335	44	8.	1		0940	117	42.	1		1545	190	468.	1		2150	263	71.
1		0340	45	8.	1		0945	118	43.	1		1550	191	459.	1		2155	264	70.
1		0345	46	8.	1		0950	119	45.	1		1555	192	451.	1		2200	265	69.
1		0350	47	8.	1		0955	120	46.	1		1600	193	442.	1		2205	266	69.
1		0355	48	8.	1		1000	121	48.	1		1605	194	434.	1		2210	267	68.
1		0400	49	8.	1		1005	122	49.	1		1610	195	426.	1		2215	268	67.
1		0405	50	8.	1		1010	123	51.	1		1615	196	418.	1		2220	269	66.
1		0410	51	8.	1		1015	124	53.	1		1620	197	410.	1		2225	270	65.
1		0415	52	8.	1		1020	125	55.	1		1625	198	402.	1		2230	271	64.
1		0420	53	8.	1		1025	126	57.	1		1630	199	394.	1		2235	272	63.
1		0425	54	8.	1		1030	127	59.	1		1635	200	387.	1		2240	273	62.
1		0430	55	8.	1		1035	128	61.	1		1640	201	379.	1		2245	274	62.
1		0435	56	9.	1		1040	129	64.	1		1645	202	372.	1		2250	275	61.
1		0440	57	9.	1		1045	130	66.	1		1650	203	360.	1		2255	276	60.
1		0445	58	9.	1		1050	131	69.	1		1655	204	349.	1		2300	277	59.
1		0450	59	9.	1		1055	132	72.	1		1700	205	338.	1		2305	278	59.
1		0455	60	9.	1		1100	133	75.	1		1705	206	328.	1		2310	279	58.
1		0500	61	9.	1		1105	134	78.	1		1710	207	318.	1		2315	280	58.
1		0505	62	9.	1		1110	135	83.	1		1715	208	308.	1		2320	281	58.
1		0510	63	9.	1		1115	136	87.	1		1720	209	299.	1		2325	282	57.
1		0515	64	9.	1		1120	137	92.	1		1725	210	290.	1		2330	283	57.
1		0520	65	9.	1		1125	138	97.	1		1730	211	282.	1		2335	284	56.
1		0525	66	9.	1		1130	139	102.	1		1735	212	273.	1		2340	285	56.
1		0530	67	9.	1		1135	140	113.	1		1740	213	265.	1		2345	286	55.
1		0535	68	10.	1		1140	141	136.	1		1745	214	257.	1		2350	287	55.
1		0540	69	10.	1		1145	142	167.	1		1750	215	250.	1		2355	288	54.
1		0545	70	10.	1		1150	143	196.	1		1755	216	243.	2	0000	289	54.	
1		0550	71	10.	1		1155	144	221.	1		1800	217	234.	1				
1		0555	72	10.	1		1200	145	246.	1		1805	218	224.	1				
1		0600	73	10.	1		1205	146	268.	1		1810	219	215.	1				

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.00-HR
548.	14.08	429.	145.	145.	145.
		(INCHES)	4.172	5.622	5.622
		(AC-FT)	213.	287.	287.

CUMULATIVE AREA = 0.96 SQ MI

30 KK

* PONDZ *

HYDROGRAPH ROUTING DATA

31 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP ELEV TYPE OF INITIAL CONDITION
RSVRIC 1335.10 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

32 SA AREA 3.8 4.9

33 SE ELEVATION 1335.10 1337.00

34 SQ DISCHARGE 1. 30. 102. 199. 290.

35 SE ELEVATION 1335.10 1335.50 1336.00 1336.50 1336.90

COMPUTED STORAGE-ELEVATION DATA

STORAGE 0.00 6.24
ELEVATION 1335.10 1337.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE 0.00 1.56 3.64 5.87 7.76 8.24
OUTFLOW 1.00 30.00 102.00 199.00 290.00 312.74
ELEVATION 1335.10 1335.50 1336.00 1336.50 1336.90 1337.00

WARNING --- ROUTED OUTFLOW (314.) IS GREATER THAN MAXIMUM OUTFLOW (313.) IN STORAGE-OUTFLOW TABLE

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HYDROGRAPH AT STATION POND2

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	1.	0.0	1335.1 * 1	0805	98	17.	0.9	1335.3 * 1	1610	195	451.	11.2	1337.6				
1		0005	2	1.	0.0	1335.1 * 1	0810	99	18.	0.9	1335.3 * 1	1615	196	443.	11.0	1337.6				
1		0010	3	1.	0.0	1335.1 * 1	0815	100	18.	0.9	1335.3 * 1	1620	197	435.	10.9	1337.5				
1		0015	4	1.	0.0	1335.1 * 1	0820	101	19.	1.0	1335.3 * 1	1625	198	427.	10.7	1337.5				
1		0020	5	1.	0.0	1335.1 * 1	0825	102	20.	1.0	1335.4 * 1	1630	199	419.	10.5	1337.5				
1		0025	6	1.	0.0	1335.1 * 1	0830	103	20.	1.0	1335.4 * 1	1635	200	411.	10.3	1337.4				
1		0030	7	1.	0.0	1335.1 * 1	0835	104	21.	1.1	1335.4 * 1	1640	201	403.	10.2	1337.4				
1		0035	8	1.	0.0	1335.1 * 1	0840	105	22.	1.1	1335.4 * 1	1645	202	396.	10.0	1337.4				
1		0040	9	1.	0.0	1335.1 * 1	0845	106	22.	1.2	1335.4 * 1	1650	203	387.	9.8	1337.3				
1		0045	10	1.	0.0	1335.1 * 1	0850	107	23.	1.2	1335.4 * 1	1655	204	378.	9.6	1337.3				
1		0050	11	1.	0.0	1335.1 * 1	0855	108	24.	1.2	1335.4 * 1	1700	205	369.	9.4	1337.2				
1		0055	12	1.	0.0	1335.1 * 1	0900	109	25.	1.3	1335.4 * 1	1705	206	359.	9.2	1337.2				
1		0100	13	1.	0.0	1335.1 * 1	0905	110	26.	1.3	1335.4 * 1	1710	207	349.	9.0	1337.2				
1		0105	14	1.	0.0	1335.1 * 1	0910	111	27.	1.4	1335.5 * 1	1715	208	339.	8.8	1337.1				
1		0110	15	1.	0.0	1335.1 * 1	0915	112	28.	1.4	1335.5 * 1	1720	209	329.	8.6	1337.1				
1		0115	16	1.	0.0	1335.1 * 1	0920	113	29.	1.5	1335.5 * 1	1725	210	320.	8.4	1337.0				
1		0120	17	1.	0.0	1335.1 * 1	0925	114	30.	1.5	1335.5 * 1	1730	211	310.	8.2	1337.0				
1		0125	18	1.	0.0	1335.1 * 1	0930	115	31.	1.6	1335.5 * 1	1735	212	301.	8.0	1336.9				
1		0130	19	1.	0.0	1335.1 * 1	0935	116	33.	1.6	1335.5 * 1	1740	213	292.	7.8	1336.9				
1		0135	20	2.	0.0	1335.1 * 1	0940	117	35.	1.7	1335.5 * 1	1745	214	284.	7.6	1336.9				
1		0140	21	2.	0.0	1335.1 * 1	0945	118	36.	1.7	1335.5 * 1	1750	215	275.	7.4	1336.8				
1		0145	22	2.	0.0	1335.1 * 1	0950	119	38.	1.8	1335.6 * 1	1755	216	267.	7.3	1336.8				
1		0150	23	2.	0.1	1335.1 * 1	0955	120	40.	1.8	1335.6 * 1	1800	217	259.	7.1	1336.8				
1		0155	24	2.	0.1	1335.1 * 1	1000	121	41.	1.9	1335.6 * 1	1805	218	250.	6.9	1336.7				
1		0200	25	2.	0.1	1335.1 * 1	1005	122	43.	1.9	1335.6 * 1	1810	219	242.	6.8	1336.7				
1		0205	26	3.	0.1	1335.1 * 1	1010	123	44.	2.0	1335.6 * 1	1815	220	233.	6.6	1336.6				
1		0210	27	3.	0.1	1335.1 * 1	1015	124	46.	2.0	1335.6 * 1	1820	221	224.	6.4	1336.6				
1		0215	28	3.	0.1	1335.1 * 1	1020	125	48.	2.1	1335.6 * 1	1825	222	216.	6.2	1336.6				
1		0220	29	3.	0.1	1335.1 * 1	1025	126	50.	2.1	1335.6 * 1	1830	223	207.	6.0	1336.5				
1		0225	30	3.	0.1	1335.1 * 1	1030	127	51.	2.2	1335.6 * 1	1835	224	200.	5.9	1336.5				
1		0230	31	4.	0.1	1335.1 * 1	1035	128	53.	2.2	1335.7 * 1	1840	225	192.	5.7	1336.5				
1		0235	32	4.	0.2	1335.1 * 1	1040	129	55.	2.3	1335.7 * 1	1845	226	185.	5.5	1336.4				
1		0240	33	4.	0.2	1335.1 * 1	1045	130	57.	2.4	1335.7 * 1	1850	227	177.	5.4	1336.4				
1		0245	34	4.	0.2	1335.1 * 1	1050	131	60.	2.4	1335.7 * 1	1855	228	170.	5.2	1336.4				
1		0250	35	5.	0.2	1335.1 * 1	1055	132	62.	2.5	1335.7 * 1	1900	229	163.	5.0	1336.3				

1	0255	36	5.	0.2	1335.2	*	1	1100	133	64.	2.6	1335.7	*	1	1905	230	156.	4.9	1336.3
1	0300	37	5.	0.2	1335.2	*	1	1105	134	67.	2.6	1335.8	*	1	1910	231	150.	4.7	1336.2
1	0305	38	5.	0.2	1335.2	*	1	1110	135	70.	2.7	1335.8	*	1	1915	232	144.	4.6	1336.2
1	0310	39	5.	0.2	1335.2	*	1	1115	136	73.	2.8	1335.8	*	1	1920	233	138.	4.5	1336.2
1	0315	40	6.	0.2	1335.2	*	1	1120	137	77.	2.9	1335.8	*	1	1925	234	133.	4.4	1336.2
1	0320	41	6.	0.3	1335.2	*	1	1125	138	80.	3.0	1335.8	*	1	1930	235	128.	4.2	1336.1
1	0325	42	6.	0.3	1335.2	*	1	1130	139	84.	3.1	1335.9	*	1	1935	236	123.	4.1	1336.1
1	0330	43	6.	0.3	1335.2	*	1	1135	140	89.	3.3	1335.9	*	1	1940	237	119.	4.0	1336.1
1	0335	44	6.	0.3	1335.2	*	1	1140	141	97.	3.5	1336.0	*	1	1945	238	115.	3.9	1336.1
1	0340	45	7.	0.3	1335.2	*	1	1145	142	110.	3.8	1336.0	*	1	1950	239	111.	3.8	1336.0
1	0345	46	7.	0.3	1335.2	*	1	1150	143	129.	4.3	1336.1	*	1	1955	240	107.	3.8	1336.0
1	0350	47	7.	0.3	1335.2	*	1	1155	144	149.	4.7	1336.2	*	1	2000	241	104.	3.7	1336.0
1	0355	48	7.	0.3	1335.2	*	1	1200	145	171.	5.2	1336.4	*	1	2005	242	101.	3.6	1336.0
1	0400	49	7.	0.3	1335.2	*	1	1205	146	194.	5.8	1336.5	*	1	2010	243	99.	3.6	1336.0
1	0405	50	7.	0.3	1335.2	*	1	1210	147	215.	6.2	1336.6	*	1	2015	244	97.	3.5	1336.0
1	0410	51	7.	0.3	1335.2	*	1	1215	148	233.	6.6	1336.6	*	1	2020	245	95.	3.4	1336.0
1	0415	52	8.	0.4	1335.2	*	1	1220	149	247.	6.9	1336.7	*	1	2025	246	93.	3.4	1335.9
1	0420	53	8.	0.4	1335.2	*	1	1225	150	260.	7.1	1336.8	*	1	2030	247	92.	3.3	1335.9
1	0425	54	8.	0.4	1335.2	*	1	1230	151	276.	7.5	1336.8	*	1	2035	248	90.	3.3	1335.9
1	0430	55	8.	0.4	1335.2	*	1	1235	152	293.	7.8	1336.9	*	1	2040	249	89.	3.3	1335.9
1	0435	56	8.	0.4	1335.2	*	1	1240	153	314.	8.3	1337.0	*	1	2045	250	88.	3.2	1335.9
1	0440	57	8.	0.4	1335.2	*	1	1245	154	336.	8.7	1337.1	*	1	2050	251	87.	3.2	1335.9
1	0445	58	8.	0.4	1335.2	*	1	1250	155	357.	9.2	1337.2	*	1	2055	252	85.	3.2	1335.9
1	0450	59	8.	0.4	1335.2	*	1	1255	156	378.	9.6	1337.3	*	1	2100	253	84.	3.1	1335.9
1	0455	60	8.	0.4	1335.2	*	1	1300	157	400.	10.1	1337.4	*	1	2105	254	83.	3.1	1335.9
1	0500	61	8.	0.4	1335.2	*	1	1305	158	421.	10.5	1337.5	*	1	2110	255	83.	3.1	1335.9
1	0505	62	8.	0.4	1335.2	*	1	1310	159	441.	11.0	1337.6	*	1	2115	256	82.	3.1	1335.9
1	0510	63	8.	0.4	1335.2	*	1	1315	160	460.	11.4	1337.6	*	1	2120	257	81.	3.0	1335.9
1	0515	64	8.	0.4	1335.2	*	1	1320	161	477.	11.8	1337.7	*	1	2125	258	80.	3.0	1335.8
1	0520	65	9.	0.4	1335.2	*	1	1325	162	491.	12.1	1337.8	*	1	2130	259	79.	3.0	1335.8
1	0525	66	9.	0.4	1335.2	*	1	1330	163	502.	12.3	1337.8	*	1	2135	260	78.	3.0	1335.8
1	0530	67	9.	0.4	1335.2	*	1	1335	164	512.	12.5	1337.9	*	1	2140	261	77.	2.9	1335.8
1	0535	68	9.	0.4	1335.2	*	1	1340	165	520.	12.7	1337.9	*	1	2145	262	76.	2.9	1335.8
1	0540	69	9.	0.4	1335.2	*	1	1345	166	527.	12.8	1337.9	*	1	2150	263	75.	2.9	1335.8
1	0545	70	9.	0.4	1335.2	*	1	1350	167	532.	12.9	1338.0	*	1	2155	264	74.	2.8	1335.8
1	0550	71	9.	0.4	1335.2	*	1	1355	168	536.	13.0	1338.0	*	1	2200	265	73.	2.8	1335.8
1	0555	72	9.	0.4	1335.2	*	1	1400	169	539.	13.1	1338.0	*	1	2205	266	72.	2.8	1335.8
1	0600	73	9.	0.5	1335.2	*	1	1405	170	542.	13.1	1338.0	*	1	2210	267	72.	2.8	1335.8
1	0605	74	10.	0.5	1335.2	*	1	1410	171	543.	13.2	1338.0	*	1	2215	268	71.	2.7	1335.8
1	0610	75	10.	0.5	1335.2	*	1	1415	172	544.	13.2	1338.0	*	1	2220	269	70.	2.7	1335.8
1	0615	76	10.	0.5	1335.2	*	1	1420	173	545.	13.2	1338.0	*	1	2225	270	69.	2.7	1335.8
1	0620	77	10.	0.5	1335.2	*	1	1425	174	545.	13.2	1338.0	*	1	2230	271	68.	2.7	1335.8
1	0625	78	10.	0.5	1335.2	*	1	1430	175	544.	13.2	1338.0	*	1	2235	272	67.	2.6	1335.8
1	0630	79	10.	0.5	1335.2	*	1	1435	176	543.	13.2	1338.0	*	1	2240	273	66.	2.6	1335.8
1	0635	80	10.	0.5	1335.2	*	1	1440	177	542.	13.1	1338.0	*	1	2245	274	65.	2.6	1335.7
1	0640	81	11.	0.5	1335.2	*	1	1445	178	540.	13.1	1338.0	*	1	2250	275	64.	2.6	1335.7
1	0645	82	11.	0.5	1335.2	*	1	1450	179	538.	13.1	1338.0	*	1	2255	276	64.	2.5	1335.7
1	0650	83	11.	0.5	1335.2	*	1	1455	180	535.	13.0	1338.0	*	1	2300	277	63.	2.5	1335.7
1	0655	84	11.	0.6	1335.2	*	1	1500	181	533.	13.0	1338.0	*	1	2305	278	62.	2.5	1335.7
1	0700	85	12.	0.6	1335.2	*	1	1505	182	530.	12.9	1338.0	*	1	2310	279	61.	2.5	1335.7
1	0705	86	12.	0.6	1335.2	*	1	1510	183	527.	12.8	1337.9	*	1	2315	280	61.	2.4	1335.7
1	0710	87	12.	0.6	1335.3	*	1	1515	184	524.	12.8	1337.9	*	1	2320	281	60.	2.4	1335.7
1	0715	88	12.	0.6	1335.3	*	1	1520	185	521.	12.7	1337.9	*	1	2325	282	59.	2.4	1335.7
1	0720	89	13.	0.6	1335.3	*	1	1525	186	517.	12.6	1337.9	*	1	2330	283	59.	2.4	1335.7
1	0725	90	13.	0.7	1335.3	*	1	1530	187	511.	12.5	1337.9	*	1	2335	284	58.	2.4	1335.7
1	0730	91	13.	0.7	1335.3	*	1	1535	188	505.	12.4	1337.8	*	1	2340	285	58.	2.4	1335.7
1	0735	92	14.	0.7	1335.3	*	1	1540	189	499.	12.2	1337.8	*	1	2345	286	57.	2.4	1335.7
1	0740	93	14.	0.7	1335.3	*	1	1545	190	491.	12.1	1337.8	*	1	2350	287	57.	2.3	1335.7
1	0745	94	15.	0.7	1335.3	*	1	1550	191	484.	11.9	1337.8	*	1	2355	288	56.	2.3	1335.7
1	0750	95	15.	0.8	1335.3	*	1	1555	192	476.	11.7	1337.7	*	2	0000	289	56.	2.3	1335.7
1	0755	96	16.	0.8	1335.3	*	1	1600	193	468.	11.6	1337.7	*						
1	0800	97	16.	0.8	1335.3	*	1	1605	194	459.	11.4	1337.6	*						

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.00-HR
(CFS)	(HR)	(CFS)			
545.	14.33	427.	143.	143.	143.
		(INCHES)	4.152	5.576	5.576
		(AC-FT)	212.	284.	284.
PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.00-HR
(AC-FT)	(HR)				
13.	14.33	11.	4.	4.	4.
PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.00-HR
(FEET)	(HR)				
1338.02	14.33	1337.50	1336.03	1336.03	1336.03
CUMULATIVE AREA =		0.96 SQ MI			

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	EXIST	1171.	12.92	441.	141.	141.	0.92		
ROUTED TO	POND	541.	14.08	419.	140.	140.	0.92	1344.64	14.08
HYDROGRAPH AT	ADD	98.	12.08	16.	5.	5.	0.03		
2 COMBINED AT	COMB	548.	14.08	429.	145.	145.	0.96		
ROUTED TO	POND2	545.	14.33	427.	143.	143.	0.96	1338.02	14.33

*** NORMAL END OF HEC-1 ***



APPENDIX B

**HEC-1 MODEL OF EXISTING KTA BOX CULVERT AND
UPSTREAM BASIN COMBINED WITH DEVELOPED FAWN
GROVE BASIN ROUTED THROUGH EXISTING POND ALONG
THE EAST SIDE OF FAWN GROVE**

```
*****  
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *  
*        MAY 1991                    *  
*        VERSION 4.0.1E             *  
* RUN DATE 10/01/2003 TIME 11:48:08 *  
*****
```

```
*****  
* U.S. ARMY CORPS OF ENGINEERS     *  
* HYDROLOGIC ENGINEERING CENTER    *  
* 609 SECOND STREET                *  
* DAVIS, CALIFORNIA 95616         *  
* (916) 756-1104                   *  
*****
```

```
  X  X  XXXXXXX  XXXXX          X  
  X  X  X      X      X      XX  
  X  X  X      X              X  
XXXXXXX  XXXX  X          XXXX  X  
  X  X  X      X              X  
  X  X  X      X      X      X  
  X  X  XXXXXXX  XXXXX          XXX
```

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*****  
*****  
*** Full Microcomputer Implementation ***  
*** by ***  
*** Haestad Methods, Inc. ***  
***  
*****  
*****
```

37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.
THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


```

*****
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* RUN DATE 10/01/2003 TIME 11:48:08 *
*****
    
```

```

*****
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*****
    
```

CLINT MILLER PLAT AT KTA AND GREENWICH
 UPSTREAM BASIN TO KTA BOX CULVERT
 EXISTING BASIN RUN AS POND WITH KTA BOX

```

7 IO      OUTPUT CONTROL VARIABLES
          IPRNT      1  PRINT CONTROL
          IPLOT      0  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

IT        HYDROGRAPH TIME DATA
          NMIN       5  MINUTES IN COMPUTATION INTERVAL
          IDATE      1  0  STARTING DATE
          ITIME      0000 STARTING TIME
          NQ         289 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE     2  0  ENDING DATE
          NDTIME     0000 ENDING TIME
          ICENT      19  CENTURY MARK

          COMPUTATION INTERVAL  0.08 HOURS
          TOTAL TIME BASE      24.00 HOURS
    
```

```

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW              CUBIC FEET PER SECOND
STORAGE VOLUME    ACRE-FEET
SURFACE AREA      ACRES
TEMPERATURE       DEGREES FAHRENHEIT
    
```

8 KK

EXIST

6 IN

```

TIME DATA FOR INPUT TIME SERIES
JXMIN      30  TIME INTERVAL IN MINUTES
JXDATE     1  0  STARTING DATE
JXTIME     0  0  STARTING TIME
    
```

15 BA

```

SUBBASIN CHARACTERISTICS
TAREA      0.92  SUBBASIN AREA
    
```

9 PB

```

PRECIPITATION DATA
STORM      7.80  BASIN TOTAL PRECIPITATION
    
```

10 PI

```

INCREMENTAL PRECIPITATION PATTERN
0.08  0.08  0.08  0.08  0.08  0.08  0.08  0.08  0.08  0.08
0.08  0.08  0.08  0.08  0.08  0.08  0.08  0.08  0.10  0.10
0.12  0.12  0.12  0.12  0.12  0.12  0.12  0.10  0.10  0.10
0.12  0.12  0.12  0.12  0.10  0.10  0.10  0.10  0.10  0.13
0.10  0.10  0.10  0.13  0.13  0.13  0.13  0.13  0.13  0.13
0.13  0.13  0.13  0.13  0.15  0.15  0.15  0.12  0.12  0.12
0.15  0.15  0.15  0.15  0.15  0.15  0.15  0.15  0.15  0.18
0.12  0.12  0.15  0.15  0.15  0.17  0.17  0.17  0.17  0.17
0.18  0.18  0.18  0.18  0.18  0.18  0.18  0.22  0.22  0.22
0.18  0.18  0.18  0.18  0.18  0.18  0.18  0.23  0.23  0.27
0.22  0.22  0.23  0.23  0.23  0.23  0.23  0.28  0.28  0.28
0.27  0.27  0.27  0.27  0.27  0.28  0.28  0.28  0.28  0.28
0.40  0.40  0.40  0.40  0.40  0.40  0.40  0.52  0.52  0.52
0.52  0.52  0.80  0.80  0.80  0.80  0.80  0.80  1.20  1.20
6.33  6.33  6.33  6.33  1.20  1.20  1.20  1.20  1.20  1.20
0.62  0.62  0.62  0.62  0.62  0.62  0.45  0.45  0.45  0.45
0.45  0.45  0.35  0.35  0.35  0.35  0.35  0.35  0.30  0.30
0.30  0.30  0.30  0.30  0.25  0.25  0.25  0.25  0.25  0.25
0.23  0.23  0.23  0.23  0.23  0.23  0.23  0.20  0.20  0.20
0.20  0.20  0.20  0.20  0.20  0.20  0.20  0.20  0.20  0.15
0.15  0.15  0.15  0.15  0.15  0.15  0.15  0.15  0.15  0.15
0.15  0.15  0.15  0.15  0.15  0.15  0.15  0.15  0.15  0.15
0.15  0.15  0.13  0.13  0.13  0.13  0.13  0.13  0.13  0.15
0.15  0.15  0.15  0.15  0.15  0.15  0.12  0.12  0.12  0.12
0.12  0.12  0.12  0.12  0.12  0.12  0.10  0.10  0.10  0.08
0.12  0.12  0.10  0.10  0.10  0.10  0.10  0.10  0.10  0.08
0.08  0.08  0.08  0.08  0.12  0.12  0.12  0.12  0.12  0.12
    
```

	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

17 LS SCS LOSS RATE 0.50 INITIAL ABSTRACTION
 STRTL 80.00 CURVE NUMBER
 CRVNR 15.00 PERCENT IMPERVIOUS AREA
 RTIMP

16 UD SCS DIMENSIONLESS UNITGRAPH
 TLAG 1.09 LAG

UNIT HYDROGRAPH
 67 END-OF-PERIOD ORDINATES

9.	25.	47.	73.	107.	146.	197.	252.	299.	338.
368.	386.	392.	392.	389.	371.	352.	330.	307.	278.
246.	213.	184.	162.	144.	127.	113.	101.	91.	80.
72.	63.	55.	50.	44.	39.	35.	30.	27.	24.
21.	19.	17.	15.	13.	12.	10.	9.	8.	7.
6.	6.	5.	5.	4.	4.	3.	3.	3.	2.
2.	2.	1.	1.	1.	1.	0.			

HYDROGRAPH AT STATION EXIST

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	0.00	0.00	0.00	0.	1		1205	146	0.09	0.01	0.08	405.
1		0005	2	0.01	0.01	0.00	0.	1		1210	147	0.09	0.01	0.08	497.
1		0010	3	0.01	0.01	0.00	0.	1		1215	148	0.09	0.01	0.08	599.
1		0015	4	0.01	0.01	0.00	0.	1		1220	149	0.09	0.01	0.08	708.
1		0020	5	0.01	0.01	0.00	0.	1		1225	150	0.09	0.01	0.08	817.
1		0025	6	0.01	0.01	0.00	0.	1		1230	151	0.09	0.01	0.09	919.
1		0030	7	0.01	0.01	0.00	0.	1		1235	152	0.05	0.00	0.04	1008.
1		0035	8	0.01	0.01	0.00	1.	1		1240	153	0.05	0.00	0.04	1078.
1		0040	9	0.01	0.01	0.00	1.	1		1245	154	0.05	0.00	0.04	1129.
1		0045	10	0.01	0.01	0.00	1.	1		1250	155	0.05	0.00	0.04	1160.
1		0050	11	0.01	0.01	0.00	1.	1		1255	156	0.05	0.00	0.04	1171.
1		0055	12	0.01	0.01	0.00	2.	1		1300	157	0.05	0.00	0.04	1167.
1		0100	13	0.01	0.01	0.00	2.	1		1305	158	0.04	0.00	0.03	1149.
1		0105	14	0.01	0.01	0.00	3.	1		1310	159	0.04	0.00	0.03	1118.
1		0110	15	0.01	0.01	0.00	3.	1		1315	160	0.04	0.00	0.03	1073.
1		0115	16	0.01	0.01	0.00	3.	1		1320	161	0.04	0.00	0.03	1019.
1		0120	17	0.01	0.01	0.00	4.	1		1325	162	0.04	0.00	0.03	959.
1		0125	18	0.01	0.01	0.00	4.	1		1330	163	0.04	0.00	0.03	896.
1		0130	19	0.01	0.01	0.00	4.	1		1335	164	0.03	0.00	0.03	832.
1		0135	20	0.01	0.01	0.00	5.	1		1340	165	0.03	0.00	0.03	770.
1		0140	21	0.01	0.01	0.00	5.	1		1345	166	0.03	0.00	0.03	712.
1		0145	22	0.01	0.01	0.00	5.	1		1350	167	0.03	0.00	0.03	662.
1		0150	23	0.01	0.01	0.00	5.	1		1355	168	0.03	0.00	0.03	617.
1		0155	24	0.01	0.01	0.00	6.	1		1400	169	0.03	0.00	0.02	575.
1		0200	25	0.01	0.01	0.00	6.	1		1405	170	0.02	0.00	0.02	537.
1		0205	26	0.01	0.01	0.00	6.	1		1410	171	0.02	0.00	0.02	501.
1		0210	27	0.01	0.01	0.00	6.	1		1415	172	0.02	0.00	0.02	469.
1		0215	28	0.01	0.01	0.00	7.	1		1420	173	0.02	0.00	0.02	439.
1		0220	29	0.01	0.01	0.00	7.	1		1425	174	0.02	0.00	0.02	411.
1		0225	30	0.01	0.01	0.00	7.	1		1430	175	0.02	0.00	0.02	386.
1		0230	31	0.01	0.01	0.00	7.	1		1435	176	0.02	0.00	0.02	363.
1		0235	32	0.01	0.01	0.00	7.	1		1440	177	0.02	0.00	0.02	342.
1		0240	33	0.01	0.01	0.00	8.	1		1445	178	0.02	0.00	0.02	323.
1		0245	34	0.01	0.01	0.00	8.	1		1450	179	0.02	0.00	0.02	305.
1		0250	35	0.01	0.01	0.00	8.	1		1455	180	0.02	0.00	0.02	288.
1		0255	36	0.01	0.01	0.00	8.	1		1500	181	0.02	0.00	0.02	273.
1		0300	37	0.01	0.01	0.00	8.	1		1505	182	0.02	0.00	0.02	260.
1		0305	38	0.01	0.01	0.00	8.	1		1510	183	0.02	0.00	0.02	247.
1		0310	39	0.01	0.01	0.00	8.	1		1515	184	0.02	0.00	0.02	235.
1		0315	40	0.01	0.01	0.00	8.	1		1520	185	0.02	0.00	0.02	225.
1		0320	41	0.01	0.01	0.00	8.	1		1525	186	0.02	0.00	0.02	215.
1		0325	42	0.01	0.01	0.00	9.	1		1530	187	0.02	0.00	0.02	206.
1		0330	43	0.01	0.01	0.00	9.	1		1535	188	0.02	0.00	0.01	197.
1		0335	44	0.01	0.01	0.00	9.	1		1540	189	0.02	0.00	0.01	190.
1		0340	45	0.01	0.01	0.00	9.	1		1545	190	0.02	0.00	0.01	182.
1		0345	46	0.01	0.01	0.00	9.	1		1550	191	0.02	0.00	0.01	176.
1		0350	47	0.01	0.01	0.00	9.	1		1555	192	0.02	0.00	0.01	170.
1		0355	48	0.01	0.01	0.00	9.	1		1600	193	0.02	0.00	0.01	164.
1		0400	49	0.01	0.01	0.00	9.	1		1605	194	0.02	0.00	0.01	159.
1		0405	50	0.01	0.01	0.00	9.	1		1610	195	0.02	0.00	0.01	154.
1		0410	51	0.01	0.01	0.00	9.	1		1615	196	0.02	0.00	0.01	149.
1		0415	52	0.01	0.01	0.00	9.	1		1620	197	0.02	0.00	0.01	145.
1		0420	53	0.01	0.01	0.00	9.	1		1625	198	0.02	0.00	0.01	141.
1		0425	54	0.01	0.01	0.00	9.	1		1630	199	0.02	0.00	0.01	138.
1		0430	55	0.01	0.01	0.00	9.	1		1635	200	0.01	0.00	0.01	134.
1		0435	56	0.01	0.01	0.00	9.	1		1640	201	0.01	0.00	0.01	131.
1		0440	57	0.01	0.01	0.00	9.	1		1645	202	0.01	0.00	0.01	128.
1		0445	58	0.01	0.01	0.00	9.	1		1650	203	0.01	0.00	0.01	125.
1		0450	59	0.01	0.01	0.00	9.	1		1655	204	0.01	0.00	0.01	122.
1		0455	60	0.01	0.01	0.00	9.	1		1700	205	0.01	0.00	0.01	119.
1		0500	61	0.01	0.01	0.00	9.	1		1705	206	0.01	0.00	0.01	116.
1		0505	62	0.01	0.01	0.00	9.	1		1710	207	0.01	0.00	0.01	113.
1		0510	63	0.01	0.01	0.00	10.	1		1715	208	0.01	0.00	0.01	110.
1		0515	64	0.01	0.01	0.00	10.	1		1720	209	0.01	0.00	0.01	107.
1		0520	65	0.01	0.01	0.00	10.	1		1725	210	0.01	0.00	0.01	105.
1		0525	66	0.01	0.01	0.00	10.	1		1730	211	0.01	0.00	0.01	102.
1		0530	67	0.01	0.01	0.00	10.	1		1735	212	0.01	0.00	0.01	100.
1		0535	68	0.01	0.01	0.00	10.	1		1740	213	0.01	0.00	0.01	98.
1		0540	69	0.01	0.01	0.00	11.	1		1745	214	0.01	0.00	0.01	96.
1		0545	70	0.01	0.01	0.00	11.	1		1750	215	0.01	0.00	0.01	94.

HYDROGRAPH ROUTING DATA

19 RS	STORAGE ROUTING	1	NUMBER OF SUBREACHES				
	NSTPS	ELEV	TYPE OF INITIAL CONDITION				
	ITYP	1336.80	INITIAL CONDITION				
	RSVVIC	0.00	WORKING R AND D COEFFICIENT				
	X						
20 SA	AREA	1.0	5.7	66.0			
21 SE	ELEVATION	1336.80	1340.00	1350.00			
22 SQ	DISCHARGE	1.	20.	113.	235.	368.	505.
23 SE	ELEVATION	1336.80	1337.53	1339.20	1340.86	1342.53	1344.20

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	9.69	313.35
ELEVATION	1336.80	1340.00	1350.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	0.99	5.76	9.69	15.68	34.66	65.92	313.35
OUTFLOW	1.00	20.00	113.00	171.80	235.00	368.00	505.00	980.83
ELEVATION	1336.80	1337.53	1339.20	1340.00	1340.86	1342.53	1344.20	1350.00

HYDROGRAPH AT STATION POND

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	1.	0.0	1336.8	*	1	0805	98	21.	1.0	1337.5	*	1	1610	195	422.	47.0	1343.2
1		0005	2	1.	0.0	1336.8	*	1	0810	99	21.	1.1	1337.6	*	1	1615	196	414.	45.2	1343.1
1		0010	3	1.	0.0	1336.8	*	1	0815	100	22.	1.1	1337.6	*	1	1620	197	406.	43.4	1343.0
1		0015	4	1.	0.0	1336.8	*	1	0820	101	23.	1.1	1337.6	*	1	1625	198	398.	41.6	1342.9
1		0020	5	1.	0.0	1336.8	*	1	0825	102	24.	1.2	1337.6	*	1	1630	199	391.	39.8	1342.8
1		0025	6	1.	0.0	1336.8	*	1	0830	103	25.	1.2	1337.6	*	1	1635	200	383.	38.1	1342.7
1		0030	7	1.	0.0	1336.8	*	1	0835	104	25.	1.3	1337.6	*	1	1640	201	376.	36.4	1342.6
1		0035	8	1.	0.0	1336.8	*	1	0840	105	26.	1.3	1337.6	*	1	1645	202	368.	34.7	1342.5
1		0040	9	1.	0.0	1336.8	*	1	0845	106	27.	1.3	1337.7	*	1	1650	203	357.	33.1	1342.4
1		0045	10	1.	0.0	1336.8	*	1	0850	107	28.	1.4	1337.7	*	1	1655	204	346.	31.5	1342.3
1		0050	11	1.	0.0	1336.8	*	1	0855	108	29.	1.4	1337.7	*	1	1700	205	335.	30.0	1342.1
1		0055	12	1.	0.0	1336.8	*	1	0900	109	30.	1.5	1337.7	*	1	1705	206	325.	28.5	1342.0
1		0100	13	1.	0.0	1336.8	*	1	0905	110	31.	1.5	1337.7	*	1	1710	207	315.	27.1	1341.9
1		0105	14	1.	0.0	1336.8	*	1	0910	111	32.	1.6	1337.7	*	1	1715	208	306.	25.8	1341.7
1		0110	15	2.	0.0	1336.8	*	1	0915	112	33.	1.7	1337.8	*	1	1720	209	296.	24.4	1341.6
1		0115	16	2.	0.0	1336.8	*	1	0920	113	34.	1.7	1337.8	*	1	1725	210	287.	23.1	1341.5
1		0120	17	2.	0.0	1336.8	*	1	0925	114	36.	1.8	1337.8	*	1	1730	211	279.	21.9	1341.4
1		0125	18	2.	0.1	1336.9	*	1	0930	115	37.	1.8	1337.8	*	1	1735	212	270.	20.7	1341.3
1		0130	19	2.	0.1	1336.9	*	1	0935	116	38.	1.9	1337.9	*	1	1740	213	262.	19.6	1341.2
1		0135	20	3.	0.1	1336.9	*	1	0940	117	39.	2.0	1337.9	*	1	1745	214	254.	18.5	1341.1
1		0140	21	3.	0.1	1336.9	*	1	0945	118	41.	2.1	1337.9	*	1	1750	215	247.	17.4	1341.0
1		0145	22	3.	0.1	1336.9	*	1	0950	119	42.	2.1	1337.9	*	1	1755	216	240.	16.3	1340.9
1		0150	23	3.	0.1	1336.9	*	1	0955	120	44.	2.2	1338.0	*	1	1800	217	232.	15.4	1340.8
1		0155	24	4.	0.1	1336.9	*	1	1000	121	45.	2.3	1338.0	*	1	1805	218	222.	14.4	1340.7
1		0200	25	4.	0.2	1336.9	*	1	1005	122	47.	2.4	1338.0	*	1	1810	219	212.	13.5	1340.6
1		0205	26	4.	0.2	1336.9	*	1	1010	123	48.	2.4	1338.0	*	1	1815	220	203.	12.7	1340.4
1		0210	27	4.	0.2	1336.9	*	1	1015	124	50.	2.5	1338.1	*	1	1820	221	195.	11.9	1340.3
1		0215	28	5.	0.2	1336.9	*	1	1020	125	52.	2.6	1338.1	*	1	1825	222	188.	11.2	1340.2
1		0220	29	5.	0.2	1337.0	*	1	1025	126	53.	2.7	1338.1	*	1	1830	223	180.	10.5	1340.1
1		0225	30	5.	0.2	1337.0	*	1	1030	127	55.	2.8	1338.2	*	1	1835	224	174.	9.9	1340.0
1		0230	31	5.	0.2	1337.0	*	1	1035	128	57.	2.9	1338.2	*	1	1840	225	165.	9.3	1339.9
1		0235	32	6.	0.2	1337.0	*	1	1040	129	59.	3.0	1338.2	*	1	1845	226	157.	8.7	1339.8
1		0240	33	6.	0.3	1337.0	*	1	1045	130	61.	3.1	1338.3	*	1	1850	227	150.	8.2	1339.7
1		0245	34	6.	0.3	1337.0	*	1	1050	131	64.	3.2	1338.3	*	1	1855	228	143.	7.8	1339.6
1		0250	35	6.	0.3	1337.0	*	1	1055	132	66.	3.4	1338.4	*	1	1900	229	137.	7.4	1339.5
1		0255	36	6.	0.3	1337.0	*	1	1100	133	69.	3.5	1338.4	*	1	1905	230	131.	7.0	1339.5
1		0300	37	7.	0.3	1337.0	*	1	1105	134	72.	3.7	1338.5	*	1	1910	231	126.	6.7	1339.4
1		0305	38	7.	0.3	1337.0	*	1	1110	135	76.	3.8	1338.5	*	1	1915	232	122.	6.3	1339.3
1		0310	39	7.	0.3	1337.0	*	1	1115	136	79.	4.0	1338.6	*	1	1920	233	117.	6.1	1339.3
1		0315	40	7.	0.3	1337.0	*	1	1120	137	83.	4.2	1338.7	*	1	1925	234	114.	5.8	1339.2
1		0320	41	7.	0.3	1337.0	*	1	1125	138	87.	4.4	1338.7	*	1	1930	235	109.	5.6	1339.1
1		0325	42	7.	0.3	1337.0	*	1	1130	139	92.	4.7	1338.8	*	1	1935	236	105.	5.4	1339.0
1		0330	43	8.	0.3	1337.1	*	1	1135	140	97.	5.0	1338.9	*	1	1940	237	102.	5.2	1338.9
1		0335	44	8.	0.3	1337.1	*	1	1140	141	104.	5.3	1339.0	*	1	1945	238	98.	5.0	1338.9
1		0340	45	8.	0.4	1337.1	*	1	1145	142	112.	5.7	1339.2	*	1	1950	239	96.	4.9	1338.8
1		0345	46	8.	0.4	1337.1	*	1	1150	143	121.	6.3	1339.3	*	1	1955	240	93.	4.7	1338.8
1		0350	47	8.	0.4	1337.1	*	1	1155	144	133.	7.1	1339.5	*	1	2000	241	91.	4.5	1338.8
1		0355	48	8.	0.4	1337.1	*	1	1200	145	149.	8.2	1339.7	*	1	2005	242	89.	4.5	1338.7
1		0400	49	8.	0.4	1337.1	*	1	1205	146	170.	9.6	1340.0	*	1	2010	243	88.	4.5	1338.7
1		0405	50	8.	0.4	1337.1	*	1	1210	147	190.	11.4	1340.3	*	1	2015	244	86.	4.4	1338.7
1		0410	51	8.	0.4	1337.1	*	1	1215	148	215.	13.8	1340.6	*	1	2020	245	85.	4.3	1338.7
1		0415	52	8.	0.4	1337.1	*	1	1220	149	243.	16.7	1341.0	*	1	2025	246	84.	4.3	1338.7
1		0420	53	8.	0.4	1337.1	*	1	1225	150	267.	20.2	1341.3	*	1	2030	247	83.	4.2	1338.7
1		0425	54	8.	0.4	1337.1	*	1	1230	151	295.	24.3	1341.6	*	1	2035	248	82.	4.2	1338.6
1		0430	55	8.	0.4	1337.1	*	1	1235	152	327.	28.8	1342.0	*	1	2040	249	81.	4.1	1338.6
1		0435	56	9.	0.4	1337.1	*	1	1240	153	361.	33.6	1342.4	*	1	2045	250	80.	4.1	1338.6
1		0440	57	9.	0.4	1337.1	*	1	1245	154	385.	38.6	1342.7	*	1	2050	251	80.	4.0	1338.6
1		0445	58	9.	0.4	1337.1	*	1	1250	155	408.	43.8	1343.0	*	1	2055	252	79.	4.0	1338.6
1		0450	59	9.	0.4	1337.1	*	1	1255	156	431.	48.9	1343.3	*	1	2100	253	78.	4.0	1338.6
1		0455	60	9.	0.4	1337.1	*	1	1300	157	452.	53.9	1343.6	*	1	2105	254	77.	3.9	1338.6
1		0500	61	9.	0.4	1337.1	*	1	1305	158	473.	58.7	1343.8	*	1	2110	255	76.	3.9	1338.5
1		0505	62	9.	0.4	1337.1	*	1	1310	159	493.	63.2	1344.1	*	1	2115	256	76.	3.8	1338.5
1		0510	63	9.	0.4	1337.1	*	1	1315	160	508.	67.3	1344.2	*	1	2120	257	75.	3.8	1338.5

0.15	0.15	0.13	0.13	0.13	0.13	0.13	0.13	0.15	0.15
0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
0.12	0.12	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.08
0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.12	0.12
0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

27 LS SCS LOSS RATE
 STRTL 0.35 INITIAL ABSTRACTION
 CRVNR 85.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

26 UD SCS DIMENSIONLESS UNITGRAPH
 TLAG 0.15 LAG

WARNING *** TIME INTERVAL IS GREATER THAN .29*LAG

32.	85.	75.	38.	19.	9.	5.	2.	1.	1.
0.									

UNIT HYDROGRAPH
 11 END-OF-PERIOD ORDINATES

HYDROGRAPH AT STATION ADD

DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q	DA	MON	HRMN	ORD	RAIN	LOSS	EXCESS	COMP Q
1		0000	1	0.00	0.00	0.00	0.	1		1205	146	0.09	0.01	0.09	106.
1		0005	2	0.01	0.01	0.00	0.	1		1210	147	0.09	0.01	0.09	76.
1		0010	3	0.01	0.01	0.00	0.	1		1215	148	0.09	0.01	0.09	50.
1		0015	4	0.01	0.01	0.00	0.	1		1220	149	0.09	0.01	0.09	36.
1		0020	5	0.01	0.01	0.00	0.	1		1225	150	0.09	0.01	0.09	30.
1		0025	6	0.01	0.01	0.00	0.	1		1230	151	0.09	0.01	0.09	26.
1		0030	7	0.01	0.01	0.00	0.	1		1235	152	0.05	0.00	0.05	23.
1		0035	8	0.01	0.01	0.00	0.	1		1240	153	0.05	0.00	0.05	19.
1		0040	9	0.01	0.01	0.00	0.	1		1245	154	0.05	0.00	0.05	16.
1		0045	10	0.01	0.01	0.00	0.	1		1250	155	0.05	0.00	0.05	14.
1		0050	11	0.01	0.01	0.00	0.	1		1255	156	0.05	0.00	0.05	13.
1		0055	12	0.01	0.01	0.00	0.	1		1300	157	0.05	0.00	0.05	12.
1		0100	13	0.01	0.01	0.00	0.	1		1305	158	0.04	0.00	0.03	12.
1		0105	14	0.01	0.01	0.00	0.	1		1310	159	0.04	0.00	0.03	11.
1		0110	15	0.01	0.01	0.00	0.	1		1315	160	0.04	0.00	0.03	11.
1		0115	16	0.01	0.01	0.00	0.	1		1320	161	0.04	0.00	0.03	10.
1		0120	17	0.01	0.01	0.00	0.	1		1325	162	0.04	0.00	0.03	9.
1		0125	18	0.01	0.01	0.00	0.	1		1330	163	0.04	0.00	0.03	9.
1		0130	19	0.01	0.01	0.00	0.	1		1335	164	0.03	0.00	0.03	9.
1		0135	20	0.01	0.01	0.00	0.	1		1340	165	0.03	0.00	0.03	8.
1		0140	21	0.01	0.01	0.00	0.	1		1345	166	0.03	0.00	0.03	8.
1		0145	22	0.01	0.01	0.00	0.	1		1350	167	0.03	0.00	0.03	7.
1		0150	23	0.01	0.01	0.00	0.	1		1355	168	0.03	0.00	0.03	7.
1		0155	24	0.01	0.01	0.00	0.	1		1400	169	0.03	0.00	0.03	7.
1		0200	25	0.01	0.01	0.00	0.	1		1405	170	0.02	0.00	0.02	7.
1		0205	26	0.01	0.01	0.00	0.	1		1410	171	0.02	0.00	0.02	6.
1		0210	27	0.01	0.01	0.00	0.	1		1415	172	0.02	0.00	0.02	6.
1		0215	28	0.01	0.01	0.00	0.	1		1420	173	0.02	0.00	0.02	6.
1		0220	29	0.01	0.01	0.00	0.	1		1425	174	0.02	0.00	0.02	6.
1		0225	30	0.01	0.01	0.00	0.	1		1430	175	0.02	0.00	0.02	6.
1		0230	31	0.01	0.01	0.00	0.	1		1435	176	0.02	0.00	0.02	6.
1		0235	32	0.01	0.01	0.00	0.	1		1440	177	0.02	0.00	0.02	5.
1		0240	33	0.01	0.01	0.00	0.	1		1445	178	0.02	0.00	0.02	5.
1		0245	34	0.01	0.01	0.00	0.	1		1450	179	0.02	0.00	0.02	5.
1		0250	35	0.01	0.01	0.00	0.	1		1455	180	0.02	0.00	0.02	5.
1		0255	36	0.01	0.01	0.00	0.	1		1500	181	0.02	0.00	0.02	5.
1		0300	37	0.01	0.01	0.00	0.	1		1505	182	0.02	0.00	0.02	5.
1		0305	38	0.01	0.01	0.00	0.	1		1510	183	0.02	0.00	0.02	5.
1		0310	39	0.01	0.01	0.00	0.	1		1515	184	0.02	0.00	0.02	5.
1		0315	40	0.01	0.01	0.00	0.	1		1520	185	0.02	0.00	0.02	5.
1		0320	41	0.01	0.01	0.00	0.	1		1525	186	0.02	0.00	0.02	5.
1		0325	42	0.01	0.01	0.00	0.	1		1530	187	0.02	0.00	0.02	5.
1		0330	43	0.01	0.01	0.00	0.	1		1535	188	0.02	0.00	0.01	5.
1		0335	44	0.01	0.01	0.00	0.	1		1540	189	0.02	0.00	0.01	4.
1		0340	45	0.01	0.01	0.00	0.	1		1545	190	0.02	0.00	0.01	4.
1		0345	46	0.01	0.01	0.00	0.	1		1550	191	0.02	0.00	0.01	4.
1		0350	47	0.01	0.01	0.00	0.	1		1555	192	0.02	0.00	0.01	4.
1		0355	48	0.01	0.01	0.00	0.	1		1600	193	0.02	0.00	0.01	4.
1		0400	49	0.01	0.01	0.00	0.	1		1605	194	0.02	0.00	0.01	4.
1		0405	50	0.01	0.01	0.00	0.	1		1610	195	0.02	0.00	0.01	4.
1		0410	51	0.01	0.01	0.00	0.	1		1615	196	0.02	0.00	0.01	4.
1		0415	52	0.01	0.01	0.00	0.	1		1620	197	0.02	0.00	0.01	4.
1		0420	53	0.01	0.01	0.00	0.	1		1625	198	0.02	0.00	0.01	4.
1		0425	54	0.01	0.01	0.00	0.	1		1630	199	0.02	0.00	0.01	4.
1		0430	55	0.01	0.01	0.00	0.	1		1635	200	0.01	0.00	0.01	4.
1		0435	56	0.01	0.01	0.00	0.	1		1640	201	0.01	0.00	0.01	4.
1		0440	57	0.01	0.01	0.00	0.	1		1645	202	0.01	0.00	0.01	3.
1		0445	58	0.01	0.01	0.00	0.	1		1650	203	0.01	0.00	0.01	3.
1		0450	59	0.01	0.01	0.00	0.	1		1655	204	0.01	0.00	0.01	3.
1		0455	60	0.01	0.01	0.00	0.	1		1700	205	0.01	0.00	0.01	3.
1		0500	61	0.01	0.01	0.00	0.	1		1705	206	0.01	0.00	0.01	3.
1		0505	62	0.01	0.01	0.00	0.	1		1710	207	0.01	0.00	0.01	3.
1		0510	63	0.01	0.01	0.00	0.	1		1715	208	0.01	0.00	0.01	3.
1		0515	64	0.01	0.01	0.00	0.	1		1720	209	0.01	0.00	0.01	3.
1		0520	65	0.01	0.01	0.00	0.	1		1725	210	0.01	0.00	0.01	3.
1		0525	66	0.01	0.01	0.00	1.	1		1730	211	0.01	0.00	0.01	3.
1		0530	67	0.01	0.01	0.00	1.	1		1735	212	0.01	0.00	0.01	3.
1		0535	68	0.01	0.01	0.00	1.	1		1740	213	0.01	0.00	0.01	3.

1	0540	69	0.01	0.01	0.00	1.	*	1	1745	214	0.01	0.00	0.01	3.
1	0545	70	0.01	0.01	0.00	1.	*	1	1750	215	0.01	0.00	0.01	3.
1	0550	71	0.01	0.01	0.00	1.	*	1	1755	216	0.01	0.00	0.01	3.
1	0555	72	0.01	0.01	0.00	1.	*	1	1800	217	0.01	0.00	0.01	3.
1	0600	73	0.01	0.01	0.00	1.	*	1	1805	218	0.01	0.00	0.01	3.
1	0605	74	0.01	0.01	0.00	1.	*	1	1810	219	0.01	0.00	0.01	3.
1	0610	75	0.01	0.01	0.00	1.	*	1	1815	220	0.01	0.00	0.01	3.
1	0615	76	0.01	0.01	0.00	1.	*	1	1820	221	0.01	0.00	0.01	3.
1	0620	77	0.01	0.01	0.00	1.	*	1	1825	222	0.01	0.00	0.01	3.
1	0625	78	0.01	0.01	0.00	1.	*	1	1830	223	0.01	0.00	0.01	3.
1	0630	79	0.01	0.01	0.00	1.	*	1	1835	224	0.01	0.00	0.01	3.
1	0635	80	0.01	0.01	0.00	1.	*	1	1840	225	0.01	0.00	0.01	3.
1	0640	81	0.01	0.01	0.00	1.	*	1	1845	226	0.01	0.00	0.01	3.
1	0645	82	0.01	0.01	0.00	1.	*	1	1850	227	0.01	0.00	0.01	3.
1	0650	83	0.01	0.01	0.00	1.	*	1	1855	228	0.01	0.00	0.01	3.
1	0655	84	0.01	0.01	0.00	1.	*	1	1900	229	0.01	0.00	0.01	3.
1	0700	85	0.01	0.01	0.00	1.	*	1	1905	230	0.01	0.00	0.01	3.
1	0705	86	0.01	0.01	0.00	1.	*	1	1910	231	0.01	0.00	0.01	3.
1	0710	87	0.01	0.01	0.00	1.	*	1	1915	232	0.01	0.00	0.01	3.
1	0715	88	0.01	0.01	0.00	1.	*	1	1920	233	0.01	0.00	0.01	3.
1	0720	89	0.01	0.01	0.00	1.	*	1	1925	234	0.01	0.00	0.01	3.
1	0725	90	0.01	0.01	0.00	1.	*	1	1930	235	0.01	0.00	0.01	3.
1	0730	91	0.01	0.01	0.01	1.	*	1	1935	236	0.01	0.00	0.01	3.
1	0735	92	0.01	0.01	0.01	1.	*	1	1940	237	0.01	0.00	0.01	3.
1	0740	93	0.01	0.01	0.01	1.	*	1	1945	238	0.01	0.00	0.01	3.
1	0745	94	0.01	0.01	0.01	1.	*	1	1950	239	0.01	0.00	0.01	3.
1	0750	95	0.01	0.01	0.01	2.	*	1	1955	240	0.01	0.00	0.01	3.
1	0755	96	0.01	0.01	0.01	2.	*	1	2000	241	0.01	0.00	0.01	3.
1	0800	97	0.01	0.01	0.01	2.	*	1	2005	242	0.01	0.00	0.01	3.
1	0805	98	0.02	0.01	0.01	2.	*	1	2010	243	0.01	0.00	0.01	3.
1	0810	99	0.02	0.01	0.01	2.	*	1	2015	244	0.01	0.00	0.01	3.
1	0815	100	0.02	0.01	0.01	2.	*	1	2020	245	0.01	0.00	0.01	2.
1	0820	101	0.02	0.01	0.01	2.	*	1	2025	246	0.01	0.00	0.01	2.
1	0825	102	0.02	0.01	0.01	2.	*	1	2030	247	0.01	0.00	0.01	2.
1	0830	103	0.02	0.01	0.01	2.	*	1	2035	248	0.01	0.00	0.01	2.
1	0835	104	0.02	0.01	0.01	2.	*	1	2040	249	0.01	0.00	0.01	2.
1	0840	105	0.02	0.01	0.01	2.	*	1	2045	250	0.01	0.00	0.01	2.
1	0845	106	0.02	0.01	0.01	2.	*	1	2045	251	0.01	0.00	0.01	2.
1	0850	107	0.02	0.01	0.01	2.	*	1	2050	252	0.01	0.00	0.01	2.
1	0855	108	0.02	0.01	0.01	2.	*	1	2055	252	0.01	0.00	0.01	2.
1	0900	109	0.02	0.01	0.01	2.	*	1	2100	253	0.01	0.00	0.01	2.
1	0905	110	0.02	0.01	0.01	2.	*	1	2105	254	0.01	0.00	0.01	2.
1	0910	111	0.02	0.01	0.01	3.	*	1	2110	255	0.01	0.00	0.01	2.
1	0915	112	0.02	0.01	0.01	3.	*	1	2115	256	0.01	0.00	0.01	2.
1	0920	113	0.02	0.01	0.01	3.	*	1	2120	257	0.01	0.00	0.01	2.
1	0925	114	0.02	0.01	0.01	3.	*	1	2125	258	0.01	0.00	0.01	2.
1	0930	115	0.02	0.01	0.01	3.	*	1	2130	259	0.01	0.00	0.01	2.
1	0935	116	0.02	0.01	0.01	3.	*	1	2135	260	0.01	0.00	0.01	2.
1	0940	117	0.02	0.01	0.01	3.	*	1	2140	261	0.01	0.00	0.01	2.
1	0945	118	0.02	0.01	0.01	3.	*	1	2145	262	0.01	0.00	0.01	2.
1	0950	119	0.02	0.01	0.01	3.	*	1	2150	263	0.01	0.00	0.01	2.
1	0955	120	0.02	0.01	0.01	3.	*	1	2155	264	0.01	0.00	0.01	2.
1	1000	121	0.02	0.01	0.01	3.	*	1	2200	265	0.01	0.00	0.01	2.
1	1005	122	0.03	0.01	0.02	4.	*	1	2205	266	0.01	0.00	0.01	2.
1	1010	123	0.03	0.01	0.02	4.	*	1	2210	267	0.01	0.00	0.01	2.
1	1015	124	0.03	0.01	0.02	5.	*	1	2215	268	0.01	0.00	0.01	2.
1	1020	125	0.03	0.01	0.02	5.	*	1	2220	269	0.01	0.00	0.01	2.
1	1025	126	0.03	0.01	0.02	5.	*	1	2225	270	0.01	0.00	0.01	2.
1	1030	127	0.03	0.01	0.02	5.	*	1	2230	271	0.01	0.00	0.01	2.
1	1035	128	0.04	0.01	0.03	6.	*	1	2235	272	0.01	0.00	0.01	2.
1	1040	129	0.04	0.01	0.03	6.	*	1	2240	273	0.01	0.00	0.01	2.
1	1045	130	0.04	0.01	0.03	7.	*	1	2245	274	0.01	0.00	0.01	2.
1	1050	131	0.04	0.01	0.03	7.	*	1	2250	275	0.01	0.00	0.01	2.
1	1055	132	0.04	0.01	0.03	7.	*	1	2255	276	0.01	0.00	0.01	2.
1	1100	133	0.04	0.01	0.03	7.	*	1	2300	277	0.01	0.00	0.01	2.
1	1105	134	0.06	0.02	0.04	8.	*	1	2305	278	0.01	0.00	0.01	2.
1	1110	135	0.06	0.02	0.05	9.	*	1	2310	279	0.01	0.00	0.01	2.
1	1115	136	0.06	0.02	0.05	11.	*	1	2315	280	0.01	0.00	0.01	2.
1	1120	137	0.06	0.02	0.05	11.	*	1	2320	281	0.01	0.00	0.01	2.
1	1125	138	0.06	0.02	0.05	11.	*	1	2325	282	0.01	0.00	0.01	2.
1	1130	139	0.06	0.02	0.05	12.	*	1	2330	283	0.01	0.00	0.01	2.
1	1135	140	0.49	0.10	0.39	12.	*	1	2335	284	0.01	0.00	0.01	2.
1	1140	141	0.49	0.08	0.41	23.	*	1	2340	285	0.01	0.00	0.01	2.
1	1145	142	0.49	0.07	0.43	53.	*	1	2345	286	0.01	0.00	0.01	2.
1	1150	143	0.49	0.05	0.44	81.	*	1	2350	287	0.01	0.00	0.01	2.
1	1155	144	0.49	0.05	0.45	98.	*	1	2355	288	0.01	0.00	0.01	2.
1	1200	145	0.49	0.04	0.46	108.	*	2	0000	289	0.01	0.00	0.01	2.
						114.	*							

TOTAL RAINFALL = 7.60, TOTAL LOSS = 1.78, TOTAL EXCESS = 6.02
 PEAK FLOW TIME MAXIMUM AVERAGE FLOW 24.00-HR
 (CFS) (HR) 6-HR 24-HR 72-HR
 114. 12.00 (CFS) 17. 6. 6. 6.
 (INCHES) 4.720 6.005 6.005 6.005
 (AC-FT) 9. 11. 11. 11.
 CUMULATIVE AREA = 0.03 SQ MI

29 HC

HYDROGRAPH COMBINATION
ICOMP

2 NUMBER OF HYDROGRAPHS TO COMBINE

HYDROGRAPH AT STATION COMB
SUM OF 2 HYDROGRAPHS

DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	DA	MON	HRMN	ORD	FLOW	
1		0000	1	1.	1		0605	74	11.	1		1210	147	267.	1		1815	220	206.	
1		0005	2	1.	1		0610	75	11.	1		1215	148	265.	1		1820	221	198.	
1		0010	3	1.	1		0615	76	11.	1		1220	149	279.	1		1825	222	191.	
1		0015	4	1.	1		0620	77	12.	1		1225	150	297.	1		1830	223	183.	
1		0020	5	1.	1		0625	78	12.	1		1230	151	322.	1		1835	224	176.	
1		0025	6	1.	1		0630	79	12.	1		1235	152	350.	1		1840	225	168.	
1		0030	7	1.	1		0635	80	12.	1		1240	153	380.	1		1845	226	160.	
1		0035	8	1.	1		0640	81	13.	1		1245	154	401.	1		1850	227	153.	
1		0040	9	1.	1		0645	82	13.	1		1250	155	422.	1		1855	228	146.	
1		0045	10	1.	1		0650	83	13.	1		1255	156	443.	1		1900	229	140.	
1		0050	11	1.	1		0655	84	14.	1		1300	157	465.	1		1905	230	134.	
1		0055	12	1.	1		0700	85	14.	1		1305	158	485.	1		1910	231	129.	
1		0100	13	1.	1		0705	86	15.	1		1310	159	504.	1		1915	232	125.	
1		0105	14	1.	1		0710	87	15.	1		1315	160	517.	1		1920	233	120.	
1		0110	15	2.	1		0715	88	15.	1		1320	161	524.	1		1925	234	117.	
1		0115	16	2.	1		0720	89	16.	1		1325	162	530.	1		1930	235	112.	
1		0120	17	2.	1		0725	90	16.	1		1330	163	535.	1		1935	236	108.	
1		0125	18	2.	1		0730	91	17.	1		1335	164	539.	1		1940	237	105.	
1		0130	19	2.	1		0735	92	17.	1		1340	165	542.	1		1945	238	101.	
1		0135	20	2.	1		0740	93	18.	1		1345	166	544.	1		1950	239	99.	
1		0140	21	3.	1		0745	94	18.	1		1350	167	546.	1		1955	240	96.	
1		0145	22	3.	1		0750	95	19.	1		1355	168	547.	1		2000	241	94.	
1		0150	23	3.	1		0755	96	20.	1		1400	169	548.	1		2005	242	92.	
1		0155	24	3.	1		0800	97	21.	1		1405	170	548.	1		2010	243	90.	
1		0200	25	4.	1		0805	98	22.	1		1410	171	547.	1		2015	244	89.	
1		0205	26	4.	1		0810	99	22.	1		1415	172	546.	1		2020	245	87.	
1		0210	27	4.	1		0815	100	23.	1		1420	173	545.	1		2025	246	86.	
1		0215	28	4.	1		0820	101	24.	1		1425	174	545.	1		2030	247	85.	
1		0220	29	5.	1		0825	102	25.	1		1430	175	544.	1		2035	248	84.	
1		0225	30	5.	1		0830	103	26.	1		1435	176	542.	1		2040	249	83.	
1		0230	31	5.	1		0835	104	27.	1		1440	177	539.	1		2045	250	83.	
1		0235	32	5.	1		0840	105	27.	1		1445	178	537.	1		2050	251	82.	
1		0240	33	6.	1		0845	106	28.	1		1450	179	534.	1		2055	252	81.	
1		0245	34	6.	1		0850	107	28.	1		1455	180	528.	1		2100	253	80.	
1		0250	35	6.	1		0855	108	30.	1		1500	181	525.	1		2105	254	80.	
1		0255	36	6.	1		0900	109	31.	1		1505	182	521.	1		2110	255	79.	
1		0300	37	6.	1		0905	110	32.	1		1510	183	518.	1		2115	256	78.	
1		0305	38	7.	1		0910	111	34.	1		1515	184	514.	1		2120	257	77.	
1		0310	39	7.	1		0915	112	35.	1		1520	185	510.	1		2125	258	76.	
1		0315	40	7.	1		0920	113	36.	1		1525	186	502.	1		2130	259	75.	
1		0320	41	7.	1		0925	114	37.	1		1530	187	494.	1		2135	260	74.	
1		0325	42	7.	1		0930	115	39.	1		1535	188	485.	1		2140	261	73.	
1		0330	43	7.	1		0935	116	40.	1		1540	189	476.	1		2145	262	72.	
1		0335	44	8.	1		0940	117	41.	1		1545	190	476.	1		2150	263	71.	
1		0340	45	8.	1		0945	118	43.	1		1550	191	468.	1		2155	264	70.	
1		0345	46	8.	1		0950	119	44.	1		1555	192	459.	1		2200	265	69.	
1		0350	47	8.	1		0955	120	46.	1		1600	193	451.	1		2205	266	69.	
1		0355	48	8.	1		1000	121	47.	1		1605	194	442.	1		2210	267	68.	
1		0400	49	8.	1		1005	122	49.	1		1610	195	434.	1		2215	268	67.	
1		0405	50	8.	1		1010	123	50.	1		1615	196	426.	1		2220	269	66.	
1		0410	51	8.	1		1015	124	52.	1		1620	197	418.	1		2225	270	65.	
1		0415	52	8.	1		1020	125	55.	1		1625	198	410.	1		2230	271	64.	
1		0420	53	8.	1		1025	126	57.	1		1630	199	402.	1		2235	272	63.	
1		0425	54	9.	1		1030	127	58.	1		1635	200	395.	1		2240	273	62.	
1		0430	55	9.	1		1035	128	60.	1		1640	201	387.	1		2245	274	61.	
1		0435	56	9.	1		1040	129	63.	1		1645	202	379.	1		2250	275	61.	
1		0440	57	9.	1		1045	130	65.	1		1650	203	372.	1		2255	276	60.	
1		0445	58	9.	1		1050	131	68.	1		1655	204	360.	1		2300	277	59.	
1		0450	59	9.	1		1055	132	71.	1		1700	205	349.	1		2305	278	59.	
1		0455	60	9.	1		1100	133	74.	1		1705	206	338.	1		2310	279	58.	
1		0500	61	9.	1		1105	134	77.	1		1710	207	328.	1		2315	280	58.	
1		0505	62	9.	1		1110	135	80.	1		1715	208	318.	1		2320	281	56.	
1		0510	63	9.	1		1115	136	85.	1		1720	209	309.	1		2325	282	57.	
1		0515	64	9.	1		1120	137	90.	1		1725	210	299.	1		2330	283	57.	
1		0520	65	9.	1		1125	138	95.	1		1730	211	290.	1		2335	284	56.	
1		0525	66	10.	1		1130	139	99.	1		1735	212	282.	1		2340	285	56.	
1		0530	67	10.	1		1135	140	104.	1		1740	213	273.	1		2345	286	55.	
1		0535	68	10.	1		1140	141	121.	1		1745	214	265.	1		2350	287	55.	
1		0540	69	10.	1		1145	142	157.	1		1750	215	257.	1		2355	288	54.	
1		0545	70	10.	1		1150	143	194.	1		1755	216	250.	1		0000	289	54.	
1		0550	71	10.	1		1155	144	219.	1		1800	217	243.	2					
1		0555	72	11.	1		1200	145	240.	1		1805	218	235.	1					
1		0600	73	11.	1		1205	146	262.	1		1810	219	225.	1					
									276.	1				215.						

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	6-HR	24-HR	72-HR	24.00-HR
548.	14.08	429.	145.	145.	145.
		(INCHES)	4.170	5.643	5.643
		(AC-FT)	213.	288.	288.

CUMULATIVE AREA = 0.96 SQ MI

30 KK

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*   POND2   *
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HYDROGRAPH ROUTING DATA

31 RS	STORAGE ROUTING					
	NSTPS	1	NUMBER OF SUBREACHES			
	ITYP		ELEV TYPE OF INITIAL CONDITION			
	RSVRC	1335.10	INITIAL CONDITION			
	X	0.00	WORKING R AND D COEFFICIENT			
32 SA	AREA	3.8	4.9			
33 SE	ELEVATION	1335.10	1337.00			
34 SQ	DISCHARGE	1.	30.	102.	199.	290.
35 SE	ELEVATION	1335.10	1335.50	1336.00	1336.50	1336.90

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	8.24
ELEVATION	1335.10	1337.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	1.56	3.64	5.87	7.76	8.24
OUTFLOW	1.00	30.00	102.00	199.00	290.00	312.74
ELEVATION	1335.10	1335.50	1336.00	1336.50	1336.90	1337.00

WARNING --- ROUTED OUTFLOW (334.) IS GREATER THAN MAXIMUM OUTFLOW (313.) IN STORAGE-OUTFLOW TABLE

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 WARNING --- ROUTED OUTFLOW (320.) IS GREATER THAN MAXIMUM OUTFLOW (313.) IN STORAGE-OUTFLOW TABLE

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 HYDROGRAPH AT STATION POND2

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	1.	0.0	1335.1 * 1	0805	98	18.	0.9	1335.3 * 1	1610	195	451.	11.2	1337.6				
1		0005	2	1.	0.0	1335.1 * 1	0810	99	18.	0.9	1335.3 * 1	1615	196	443.	11.0	1337.6				
1		0010	3	1.	0.0	1335.1 * 1	0815	100	19.	1.0	1335.3 * 1	1620	197	435.	10.9	1337.5				
1		0015	4	1.	0.0	1335.1 * 1	0820	101	20.	1.0	1335.4 * 1	1625	198	427.	10.7	1337.5				
1		0020	5	1.	0.0	1335.1 * 1	0825	102	20.	1.0	1335.4 * 1	1630	199	419.	10.5	1337.5				
1		0025	6	1.	0.0	1335.1 * 1	0830	103	21.	1.1	1335.4 * 1	1635	200	411.	10.4	1337.4				
1		0030	7	1.	0.0	1335.1 * 1	0835	104	22.	1.1	1335.4 * 1	1640	201	403.	10.2	1337.4				
1		0035	8	1.	0.0	1335.1 * 1	0840	105	22.	1.2	1335.4 * 1	1645	202	396.	10.0	1337.4				
1		0040	9	1.	0.0	1335.1 * 1	0845	106	23.	1.2	1335.4 * 1	1650	203	387.	9.8	1337.3				
1		0045	10	1.	0.0	1335.1 * 1	0850	107	24.	1.2	1335.4 * 1	1655	204	378.	9.6	1337.3				
1		0050	11	1.	0.0	1335.1 * 1	0855	108	25.	1.3	1335.4 * 1	1700	205	369.	9.4	1337.2				
1		0055	12	1.	0.0	1335.1 * 1	0900	109	26.	1.3	1335.4 * 1	1705	206	359.	9.2	1337.2				
1		0100	13	1.	0.0	1335.1 * 1	0905	110	27.	1.4	1335.5 * 1	1710	207	349.	9.0	1337.2				
1		0105	14	1.	0.0	1335.1 * 1	0910	111	27.	1.4	1335.5 * 1	1715	208	339.	8.8	1337.1				
1		0110	15	1.	0.0	1335.1 * 1	0915	112	28.	1.5	1335.5 * 1	1720	209	329.	8.6	1337.1				
1		0115	16	1.	0.0	1335.1 * 1	0920	113	29.	1.5	1335.5 * 1	1725	210	320.	8.4	1337.0				
1		0120	17	1.	0.0	1335.1 * 1	0925	114	31.	1.6	1335.5 * 1	1730	211	310.	8.2	1337.0				
1		0125	18	1.	0.0	1335.1 * 1	0930	115	33.	1.6	1335.5 * 1	1735	212	301.	8.0	1336.9				
1		0130	19	1.	0.0	1335.1 * 1	0935	116	34.	1.7	1335.5 * 1	1740	213	292.	7.8	1336.9				
1		0135	20	2.	0.0	1335.1 * 1	0940	117	36.	1.7	1335.5 * 1	1745	214	284.	7.6	1336.9				
1		0140	21	2.	0.0	1335.1 * 1	0945	118	37.	1.8	1335.6 * 1	1750	215	275.	7.4	1336.8				
1		0145	22	2.	0.0	1335.1 * 1	0950	119	39.	1.8	1335.6 * 1	1755	216	267.	7.3	1336.8				
1		0150	23	2.	0.1	1335.1 * 1	0955	120	41.	1.9	1335.6 * 1	1800	217	259.	7.1	1336.8				
1		0155	24	2.	0.1	1335.1 * 1	1000	121	42.	1.9	1335.6 * 1	1805	218	250.	6.9	1336.7				
1		0200	25	2.	0.1	1335.1 * 1	1005	122	44.	2.0	1335.6 * 1	1810	219	242.	6.8	1336.7				
1		0205	26	3.	0.1	1335.1 * 1	1010	123	45.	2.0	1335.6 * 1	1815	220	233.	6.6	1336.6				
1		0210	27	3.	0.1	1335.1 * 1	1015	124	47.	2.1	1335.6 * 1	1820	221	224.	6.4	1336.6				
1		0215	28	3.	0.1	1335.1 * 1	1020	125	49.	2.1	1335.6 * 1	1825	222	216.	6.2	1336.6				
1		0220	29	3.	0.1	1335.1 * 1	1025	126	51.	2.2	1335.6 * 1	1830	223	208.	6.0	1336.5				
1		0225	30	3.	0.1	1335.1 * 1	1030	127	53.	2.2	1335.7 * 1	1835	224	200.	5.9	1336.5				
1		0230	31	4.	0.1	1335.1 * 1	1035	128	55.	2.3	1335.7 * 1	1840	225	192.	5.7	1336.5				
1		0235	32	4.	0.2	1335.1 * 1	1040	129	57.	2.3	1335.7 * 1	1845	226	185.	5.5	1336.4				
1		0240	33	4.	0.2	1335.1 * 1	1045	130	59.	2.4	1335.7 * 1	1850	227	178.	5.4	1336.4				
1		0245	34	4.	0.2	1335.1 * 1	1050	131	61.	2.5	1335.7 * 1	1855	228	170.	5.2	1336.4				
1		0250	35	5.	0.2	1335.1 * 1	1055	132	63.	2.5	1335.7 * 1	1900	229	163.	5.0	1336.3				
1		0255	36	5.	0.2	1335.2 * 1	1100	133	66.	2.6	1335.7 * 1	1905	230	156.	4.9	1336.3				
1		0300	37	5.	0.2	1335.2 * 1	1105	134	69.	2.7	1335.8 * 1	1910	231	150.	4.7	1336.2				

1	0305	38	5.	0.2	1335.2	*	1	1110	135	72.	2.8	1335.8	*	1	1915	232	144.	4.6	1336.2
1	0310	39	5.	0.2	1335.2	*	1	1115	136	75.	2.9	1335.8	*	1	1920	233	138.	4.5	1336.2
1	0315	40	6.	0.2	1335.2	*	1	1120	137	79.	3.0	1335.8	*	1	1925	234	133.	4.4	1336.2
1	0320	41	6.	0.3	1335.2	*	1	1125	138	82.	3.1	1335.9	*	1	1930	235	128.	4.2	1336.1
1	0325	42	6.	0.3	1335.2	*	1	1130	139	87.	3.2	1335.9	*	1	1935	236	124.	4.1	1336.1
1	0330	43	6.	0.3	1335.2	*	1	1135	140	92.	3.4	1335.9	*	1	1940	237	119.	4.0	1336.1
1	0335	44	6.	0.3	1335.2	*	1	1140	141	102.	3.6	1336.0	*	1	1945	238	115.	3.9	1336.1
1	0340	45	7.	0.3	1335.2	*	1	1145	142	121.	4.1	1336.1	*	1	1950	239	111.	3.9	1336.0
1	0345	46	7.	0.3	1335.2	*	1	1150	143	143.	4.6	1336.2	*	1	1955	240	107.	3.8	1336.0
1	0350	47	7.	0.3	1335.2	*	1	1155	144	166.	5.1	1336.3	*	1	2000	241	104.	3.7	1336.0
1	0355	48	7.	0.3	1335.2	*	1	1200	145	188.	5.6	1336.4	*	1	2005	242	101.	3.6	1336.0
1	0400	49	7.	0.3	1335.2	*	1	1205	146	210.	6.1	1336.5	*	1	2010	243	99.	3.6	1336.0
1	0405	50	7.	0.3	1335.2	*	1	1210	147	228.	6.5	1336.6	*	1	2015	244	97.	3.5	1336.0
1	0410	51	7.	0.3	1335.2	*	1	1215	148	239.	6.7	1336.7	*	1	2020	245	95.	3.4	1336.0
1	0415	52	8.	0.4	1335.2	*	1	1220	149	248.	6.9	1336.7	*	1	2025	246	93.	3.4	1335.9
1	0420	53	8.	0.4	1335.2	*	1	1225	150	259.	7.1	1336.8	*	1	2030	247	92.	3.3	1335.9
1	0425	54	8.	0.4	1335.2	*	1	1230	151	274.	7.4	1336.8	*	1	2035	248	90.	3.3	1335.9
1	0430	55	8.	0.4	1335.2	*	1	1235	152	291.	7.8	1336.9	*	1	2040	249	89.	3.3	1335.9
1	0435	56	8.	0.4	1335.2	*	1	1240	153	312.	8.2	1337.0	*	1	2045	250	88.	3.2	1335.9
1	0440	57	8.	0.4	1335.2	*	1	1245	154	334.	8.7	1337.1	*	1	2050	251	87.	3.2	1335.9
1	0445	58	8.	0.4	1335.2	*	1	1250	155	355.	9.1	1337.2	*	1	2055	252	85.	3.2	1335.9
1	0450	59	8.	0.4	1335.2	*	1	1255	156	377.	9.6	1337.3	*	1	2100	253	84.	3.1	1335.9
1	0455	60	8.	0.4	1335.2	*	1	1300	157	398.	10.1	1337.4	*	1	2105	254	84.	3.1	1335.9
1	0500	61	8.	0.4	1335.2	*	1	1305	158	419.	10.5	1337.5	*	1	2110	255	83.	3.1	1335.9
1	0505	62	9.	0.4	1335.2	*	1	1310	159	440.	11.0	1337.6	*	1	2115	256	82.	3.1	1335.9
1	0510	63	9.	0.4	1335.2	*	1	1315	160	460.	11.4	1337.6	*	1	2120	257	81.	3.0	1335.9
1	0515	64	9.	0.4	1335.2	*	1	1320	161	477.	11.8	1337.7	*	1	2125	258	80.	3.0	1335.8
1	0520	65	9.	0.4	1335.2	*	1	1325	162	491.	12.1	1337.8	*	1	2130	259	79.	3.0	1335.8
1	0525	66	9.	0.4	1335.2	*	1	1330	163	502.	12.3	1337.8	*	1	2135	260	78.	3.0	1335.8
1	0530	67	9.	0.4	1335.2	*	1	1335	164	512.	12.5	1337.9	*	1	2140	261	77.	2.9	1335.8
1	0535	68	9.	0.4	1335.2	*	1	1340	165	520.	12.7	1337.9	*	1	2145	262	76.	2.9	1335.8
1	0540	69	9.	0.4	1335.2	*	1	1345	166	526.	12.8	1337.9	*	1	2150	263	75.	2.9	1335.8
1	0545	70	9.	0.5	1335.2	*	1	1350	167	532.	12.9	1338.0	*	1	2155	264	74.	2.8	1335.8
1	0550	71	9.	0.5	1335.2	*	1	1355	168	536.	13.0	1338.0	*	1	2200	265	73.	2.8	1335.8
1	0555	72	10.	0.5	1335.2	*	1	1400	169	539.	13.1	1338.0	*	1	2205	266	72.	2.8	1335.8
1	0600	73	10.	0.5	1335.2	*	1	1405	170	542.	13.1	1338.0	*	1	2210	267	72.	2.8	1335.8
1	0605	74	10.	0.5	1335.2	*	1	1410	171	543.	13.2	1338.0	*	1	2215	268	71.	2.7	1335.8
1	0610	75	10.	0.5	1335.2	*	1	1415	172	544.	13.2	1338.0	*	1	2220	269	70.	2.7	1335.8
1	0615	76	10.	0.5	1335.2	*	1	1420	173	545.	13.2	1338.0	*	1	2225	270	69.	2.7	1335.8
1	0620	77	10.	0.5	1335.2	*	1	1425	174	545.	13.2	1338.0	*	1	2230	271	68.	2.7	1335.8
1	0625	78	11.	0.5	1335.2	*	1	1430	175	544.	13.2	1338.0	*	1	2235	272	67.	2.6	1335.8
1	0630	79	11.	0.5	1335.2	*	1	1435	176	543.	13.2	1338.0	*	1	2240	273	66.	2.6	1335.8
1	0635	80	11.	0.5	1335.2	*	1	1440	177	542.	13.1	1338.0	*	1	2245	274	65.	2.6	1335.7
1	0640	81	11.	0.5	1335.2	*	1	1445	178	540.	13.1	1338.0	*	1	2250	275	64.	2.6	1335.7
1	0645	82	11.	0.6	1335.2	*	1	1450	179	538.	13.1	1338.0	*	1	2255	276	64.	2.5	1335.7
1	0650	83	12.	0.6	1335.2	*	1	1455	180	535.	13.0	1338.0	*	1	2300	277	63.	2.5	1335.7
1	0655	84	12.	0.6	1335.2	*	1	1500	181	533.	13.0	1338.0	*	1	2305	278	62.	2.5	1335.7
1	0700	85	12.	0.6	1335.3	*	1	1505	182	530.	12.9	1338.0	*	1	2310	279	61.	2.5	1335.7
1	0705	86	12.	0.6	1335.3	*	1	1510	183	527.	12.8	1337.9	*	1	2315	280	61.	2.4	1335.7
1	0710	87	13.	0.6	1335.3	*	1	1515	184	524.	12.8	1337.9	*	1	2320	281	60.	2.4	1335.7
1	0715	88	13.	0.6	1335.3	*	1	1520	185	521.	12.7	1337.9	*	1	2325	282	59.	2.4	1335.7
1	0720	89	13.	0.7	1335.3	*	1	1525	186	517.	12.6	1337.9	*	1	2330	283	59.	2.4	1335.7
1	0725	90	14.	0.7	1335.3	*	1	1530	187	512.	12.5	1337.9	*	1	2335	284	58.	2.4	1335.7
1	0730	91	14.	0.7	1335.3	*	1	1535	188	505.	12.4	1337.8	*	1	2340	285	58.	2.4	1335.7
1	0735	92	14.	0.7	1335.3	*	1	1540	189	499.	12.2	1337.8	*	1	2345	286	57.	2.4	1335.7
1	0740	93	15.	0.7	1335.3	*	1	1545	190	491.	12.1	1337.8	*	1	2350	287	57.	2.3	1335.7
1	0745	94	15.	0.8	1335.3	*	1	1550	191	484.	11.9	1337.8	*	1	2355	288	56.	2.3	1335.7
1	0750	95	16.	0.8	1335.3	*	1	1555	192	476.	11.7	1337.7	*	2	0000	289	56.	2.3	1335.7
1	0755	96	16.	0.8	1335.3	*	1	1600	193	468.	11.6	1337.7	*						
1	0800	97	17.	0.9	1335.3	*	1	1605	194	460.	11.4	1337.6	*						

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.00-HR
(CFS)	(HR)	(CFS)			
545.	14.33	427.	144.	144.	144.
		(INCHES)	4.151	5.597	5.597
		(AC-FT)	212.	286.	286.
PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	24.00-HR
(AC-FT)	(HR)				
13.	14.33	11.	4.	4.	4.
PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	24.00-HR
(FEET)	(HR)				
1338.02	14.33	1337.50	1336.04	1336.04	1336.04
CUMULATIVE AREA =		0.96 SQ MI			

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	EXIST	1171.	12.92	441.	141.	141.	0.92		
ROUTED TO	POND	541.	14.08	419.	140.	140.	0.92	1344.64	14.08
HYDROGRAPH AT	ADD	114.	12.00	17.	6.	6.	0.03		
2 COMBINED AT	COMB	548.	14.08	429.	145.	145.	0.96		
ROUTED TO	POND2	545.	14.33	427.	144.	144.	0.96	1338.02	14.33

*** NORMAL END OF HEC-1 ***



APPENDIX C

**HEC-1 MODEL OF NEW DETENTION BASIN FOR THE WEST
DRAINAGE BASIN OF FAWN GROVE AT SUNSET LAKES
ADDITION**

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	CLINT MILLER PLAT AT KTA AND GREENWICH									
2	ID	WEST BASIN TO EXISTING SMALL POND									
3	ID	STORM WATER DETENTION CALCULATIONS									
4	ID										
5	IT	5									
6	IN	30	289								
7	IO	4									
8	KK	EXIST									
9	PB	7.8									
10	PC	0	0.5	1.0	1.5	2.2	2.8	3.5	4.1	4.7	5.5
11	PC	6.3	7.2	7.9	8.8	9.9	10.9	12	13.3	14.7	16.3
12	PC	18	20.4	23.5	28.3	66.3	73.5	77.2	79.9	82	83.8
13	PC	85.3	86.7	87.9	89.1	90	90.9	91.8	92.7	93.5	94.4
14	PC	95.3	96	96.7	97.3	97.8	98.5	99	99.5	100	
15	BA	0.0469									
16	UD	0.20									
17	LS	0	80								
18	KK	DEVEL									
19	BA	0.0448									
20	UD	0.15									
21	LS	0	90								
22	KK	POND									
23	RS	1	ELEV	1346.0							
24	SA	1.96	2.14	2.77	3.45						
25	SE	1346	1347	1348	1349						
26	SQ	.1	17	48	88	136	190				
27	SE	1346	1346.5	1347	1347.5	1348	1348.5				
28	ZZ										

```

*****
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* MAY 1991 *
* VERSION 4.0.1E *
* RUN DATE 12/22/2003 TIME 16:23:19 *
*****
    
```

```

*****
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 756-1104 *
*****
    
```

CLINT MILLER PLAT AT KTA AND GREENWICH
 WEST BASIN TO EXISTING SMALL POND
 STORM WATER DETENTION CALCULATIONS

```

7 IO      OUTPUT CONTROL VARIABLES
          IPRNT      4 PRINT CONTROL
          IPLOT      0 PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE

IT        HYDROGRAPH TIME DATA
          NMIN      5 MINUTES IN COMPUTATION INTERVAL
          IDATE     1 0 STARTING DATE
          ITIME     0000 STARTING TIME
          NQ        289 NUMBER OF HYDROGRAPH ORDINATES
          NDDATE    2 0 ENDING DATE
          NDTIME    0000 ENDING TIME
          ICENT     19 CENTURY MARK

          COMPUTATION INTERVAL 0.08 HOURS
          TOTAL TIME BASE     24.00 HOURS

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME    ACRE-FEET
SURFACE AREA      ACRES
TEMPERATURE       DEGREES FAHRENHEIT
    
```

```

*****
* EXIST *
*****
    
```

```

6 IN      TIME DATA FOR INPUT TIME SERIES
          JXMIN     30 TIME INTERVAL IN MINUTES
          JXDATE    1 0 STARTING DATE
          JXTIME    0 STARTING TIME
    
```

SUBBASIN RUNOFF DATA

```

15 BA     SUBBASIN CHARACTERISTICS
          TAREA     0.05 SUBBASIN AREA
    
```

PRECIPITATION DATA

```

9 PB      STORM      7.80 BASIN TOTAL PRECIPITATION
    
```

```

10 PI     INCREMENTAL PRECIPITATION PATTERN
          0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08
          0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.08 0.12 0.12
          0.12 0.12 0.12 0.12 0.10 0.10 0.10 0.10 0.10 0.10
          0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10
          0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0.13
          0.15 0.15 0.15 0.15 0.15 0.15 0.12 0.12 0.12 0.12
          0.12 0.12 0.15 0.15 0.15 0.15 0.15 0.15 0.18 0.18
          0.18 0.18 0.18 0.18 0.17 0.17 0.17 0.17 0.17 0.17
          0.18 0.18 0.16 0.18 0.18 0.18 0.18 0.22 0.22 0.22
          0.22 0.22 0.23 0.23 0.23 0.23 0.23 0.23 0.27 0.27
          0.27 0.27 0.27 0.27 0.28 0.28 0.28 0.28 0.28 0.28
          0.40 0.40 0.40 0.40 0.40 0.40 0.52 0.52 0.52 0.52
          0.52 0.52 0.80 0.80 0.80 0.80 0.80 0.80 0.80 0.80
          6.33 6.33 6.33 6.33 1.20 1.20 1.20 1.20 1.20 1.20
          0.62 0.62 0.62 0.62 0.62 0.62 0.62 0.45 0.45 0.45
          0.45 0.45 0.35 0.35 0.35 0.35 0.35 0.35 0.30 0.30
          0.30 0.30 0.30 0.30 0.25 0.25 0.25 0.25 0.25 0.25
          0.23 0.23 0.23 0.23 0.23 0.23 0.20 0.20 0.20 0.20
          0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.20 0.15 0.15
          0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15
          0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15
          0.15 0.15 0.13 0.13 0.13 0.13 0.13 0.13 0.15 0.15
          0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.15
          0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12
          0.12 0.12 0.10 0.10 0.10 0.10 0.10 0.10 0.08 0.08
          0.08 0.08 0.08 0.08 0.12 0.12 0.12 0.12 0.12 0.12
    
```

	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

17 LS SCS LOSS RATE
 STRFL 0.50 INITIAL ABSTRACTION
 CRVNR 80.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

16 UD SCS DIMENSIONLESS UNITGRAPH
 TLAG 0.20 LAG

 UNIT HYDROGRAPH
 14 END-OF-PERIOD ORDINATES

23.	75.	93.	75.	42.	24.	14.	8.	4.	3.
1.	1.	0.	0.						

18 KK *****
 * DEVEL *

SUBBASIN RUNOFF DATA

19 BA SUBBASIN CHARACTERISTICS
 TAREA 0.04 SUBBASIN AREA

PRECIPITATION DATA

9 PB STORM 7.80 BASIN TOTAL PRECIPITATION

10 PI INCREMENTAL PRECIPITATION PATTERN

0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.12	0.12
0.12	0.12	0.12	0.12	0.12	0.10	0.10	0.10	0.10	0.10	0.10
0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.10	0.10	0.10
0.10	0.10	0.10	0.10	0.10	0.10	0.12	0.10	0.10	0.10	0.10
0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
0.12	0.12	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.18	0.18
0.18	0.18	0.18	0.18	0.18	0.17	0.17	0.17	0.17	0.17	0.17
0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.22	0.22	0.22	0.22
0.22	0.22	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.27	0.27
0.27	0.27	0.27	0.27	0.27	0.28	0.28	0.28	0.28	0.28	0.28
0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.52	0.52	0.52	0.52
0.52	0.52	0.80	0.80	0.80	0.80	0.80	0.80	0.80	6.33	6.33
6.33	6.33	6.33	6.33	1.20	1.20	1.20	1.20	1.20	1.20	1.20
0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.45	0.45	0.45	0.45
0.45	0.45	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.30	0.30
0.30	0.30	0.30	0.30	0.25	0.25	0.25	0.25	0.25	0.25	0.25
0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.20	0.20	0.20	0.20
0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.15	0.15
0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
0.15	0.15	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.15	0.15
0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
0.12	0.12	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.08	0.08
0.08	0.08	0.08	0.08	0.08	0.12	0.12	0.12	0.12	0.12	0.12
0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08

21 LS SCS LOSS RATE
 STRFL 0.22 INITIAL ABSTRACTION
 CRVNR 90.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

20 UD SCS DIMENSIONLESS UNITGRAPH
 TLAG 0.15 LAG

 UNIT HYDROGRAPH
 11 END-OF-PERIOD ORDINATES

42.	111.	97.	49.	25.	12.	6.	3.	1.	1.
0.									

22 KK *****
 * POND *

HYDROGRAPH ROUTING DATA

23 RS STORAGE ROUTING
 NSTPS 1 NUMBER OF SUBREACHES
 ITYP ELEV TYPE OF INITIAL CONDITION
 RSVRIC 1346.00 INITIAL CONDITION

	X	0.00 WORKING R AND D COEFFICIENT					
24 SA	AREA	2.0	2.1	2.8	3.5		
25 SE	ELEVATION	1346.00	1347.00	1348.00	1349.00		
26 SQ	DISCHARGE	0.	17.	48.	88.	136.	190.
27 SE	ELEVATION	1346.00	1346.50	1347.00	1347.50	1348.00	1348.50

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	2.05	4.50	7.60			
ELEVATION	1346.00	1347.00	1348.00	1349.00			

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	1.00	2.05	3.19	4.50	5.96	7.60
OUTFLOW	0.10	17.00	48.00	88.00	136.00	190.00	244.00
ELEVATION	1346.00	1346.50	1347.00	1347.50	1348.00	1348.50	1349.00

RUNOFF SUMMARY
 FLOW IN CUBIC FEET PER SECOND
 TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	EXIST	134.	12.08	22.	7.	7.	0.05		
HYDROGRAPH AT	DEVEL	157.	12.00	24.	8.	8.	0.04		
ROUTED TO	POND	108.	12.17	24.	8.	8.	0.04		
							1347.71	12.17	

*** NORMAL END OF HEC-1 ***