SUBAREA 1

SUBAREA 2

SUBAREA 3

SUBAREA 4

SUBAREA 5

SUBAREA 6

SUBAREA 7

US 29

US 40

US 40

US 29

FREDERICK ROAD

OLD COLUMBIA PIKE

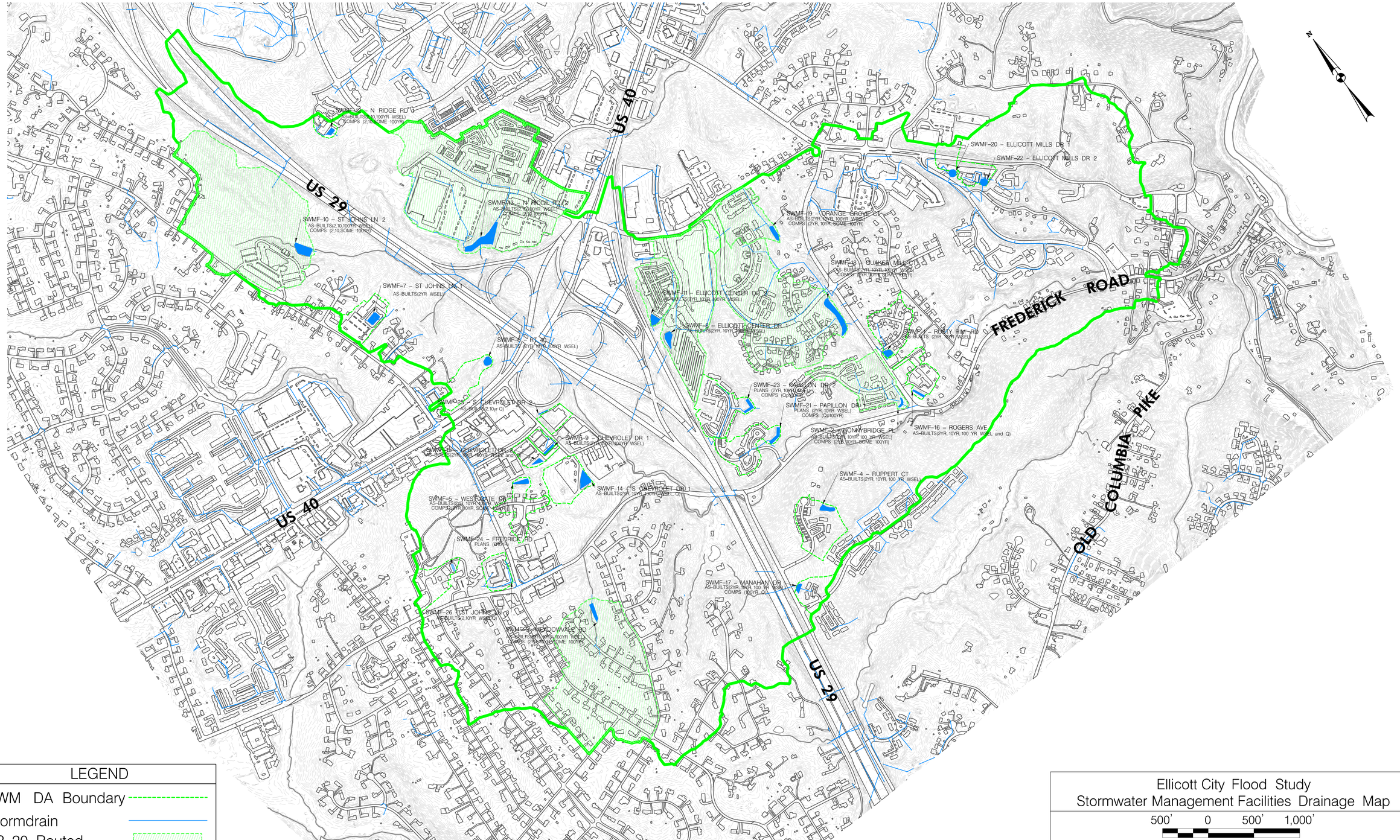
N

LEGEND	
DA Boundary	
Watershed Tc Pathway	
Subarea DA	
Subarea Tc Pathway	
Stormdrain	

Ellicott City Flood Study
Large Subarea Drainage Areas

500' 0 500' 1,000'

SCALE: 1" = 500'



LEGEND

SWM DA Boundary

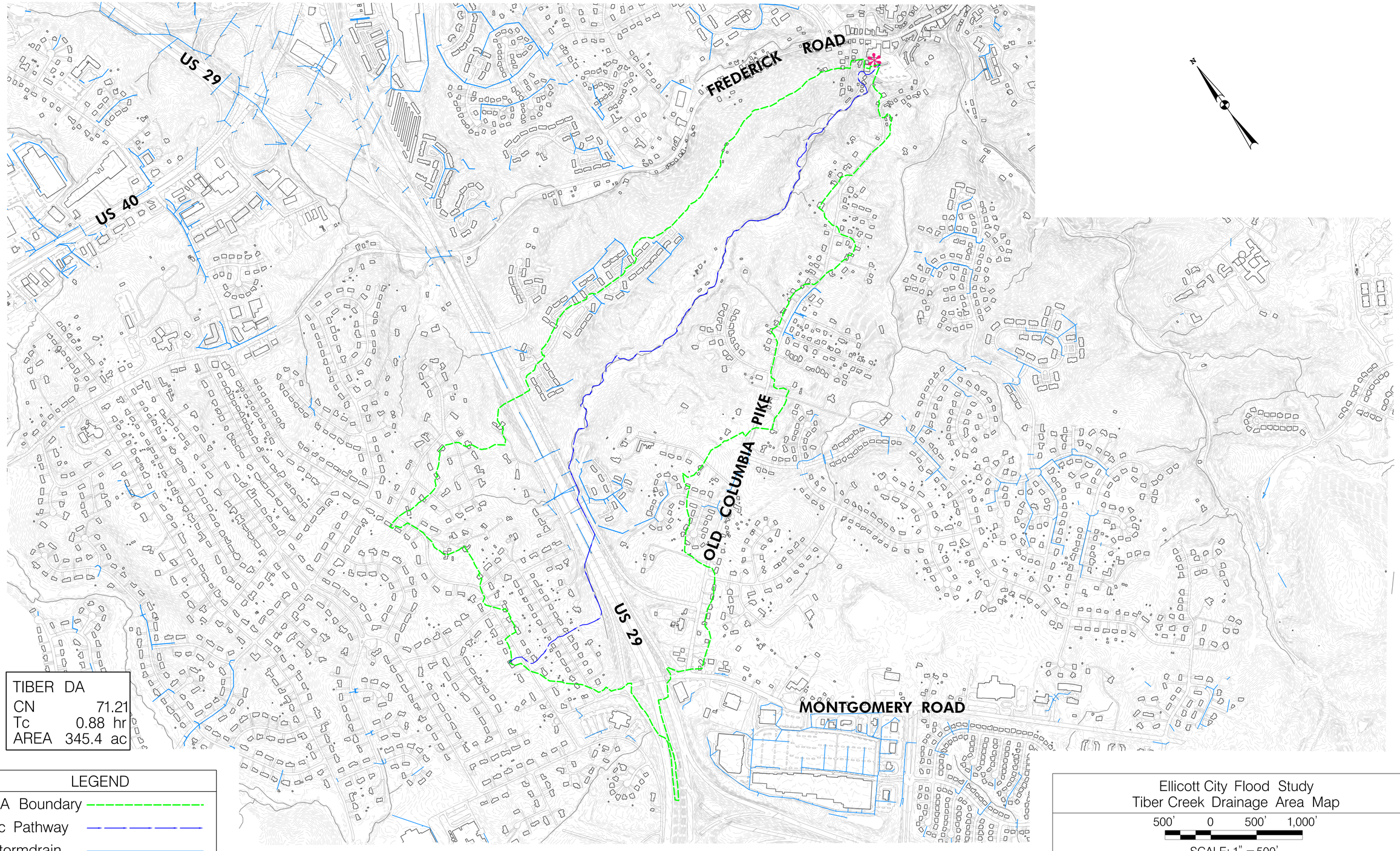
Stormdrain

TR–20 Routed SWM DA

Ellicott City Flood Study
Stormwater Management Facilities Drainage Map

500' 0 500' 1,000'

SCALE: 1" = 500'



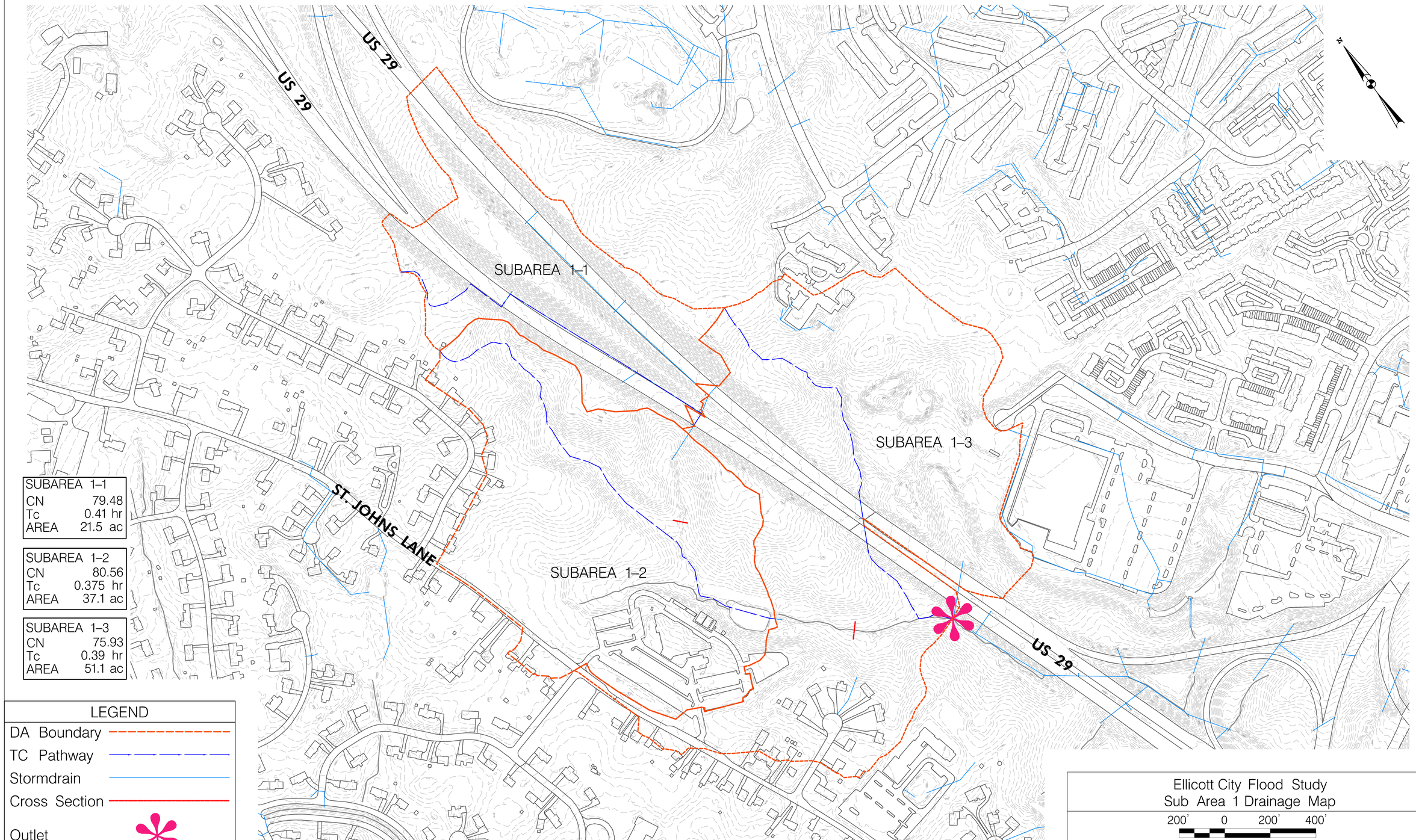
TIBER DA	
CN	71.21
Tc	0.88 hr
AREA	345.4 ac

LEGEND
DA Boundary
Tc Pathway
Stormdrain

Ellicott City Flood Study
Tiber Creek Drainage Area Map

500' 0 500' 1,000'

SCALE: 1" = 500'



SUBAREA 1–1	
CN	79.48
Tc	0.41 hr
AREA	21.5 ac

SUBAREA 1–2	
CN	80.56
Tc	0.375 hr
AREA	37.1 ac

SUBAREA 1–3	
CN	75.93
Tc	0.39 hr
AREA	51.1 ac

LEGEND

- DA Boundary
- TC Pathway
- Stormdrain
- Cross Section
- Outlet

Ellicott City Flood Study
Sub Area 1 Drainage Map

200' 0 200' 400'

SCALE: 1" = 200'

SUBAREA 2–1	
CN	88.59
Tc	0.42 hr
AREA	47.0 ac

SUBAREA 2–2	
CN	73.12
Tc	0.22 hr
AREA	36.4 ac

SUBAREA 2–3	
CN	79.03
Tc	0.25 hr
AREA	12.4 ac

SUBAREA 2–4	
CN	87.90
Tc	0.16 hr
AREA	13.5 ac

SUBAREA 2–5	
CN	91.88
Tc	0.26 hr
AREA	20.0 ac

SUBAREA 2–6	
CN	84.51
Tc	0.17 hr
AREA	25.9 ac

SUBAREA 2–7	
CN	72.25
Tc	0.13 hr
AREA	6.2 ac

LEGEND

- DA Boundary
- TC Pathway
- Stormdrain
- Cross Section
- Outlet

US 29

US 40

SUBAREA 2–1

SUBAREA 2–2

SUBAREA 2–3

SUBAREA 2–4

SUBAREA 2–5

SUBAREA 2–6

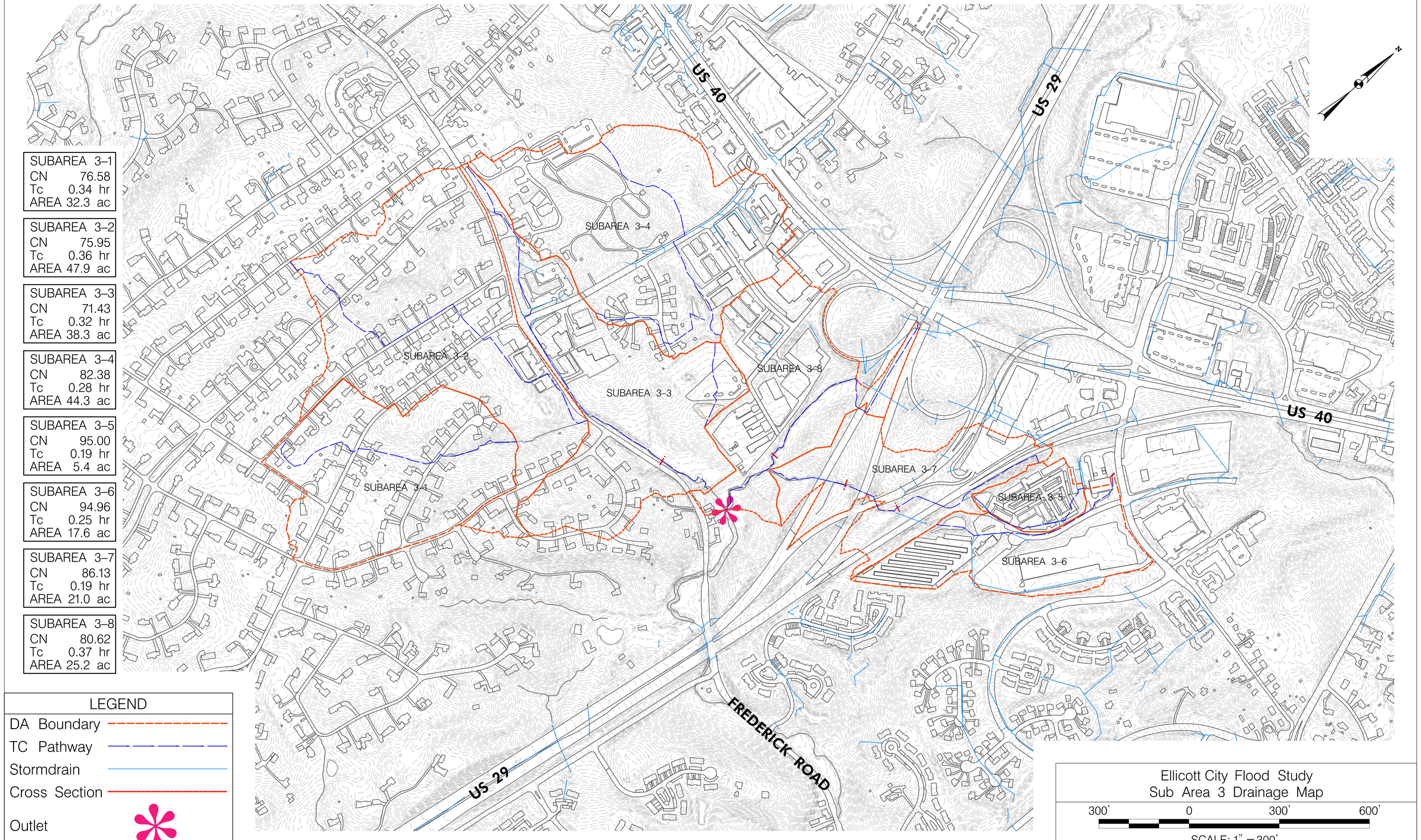
SUBAREA 2–7

N

Ellicott City Flood Study
Sub Area 2 Drainage Map

200' 0 200' 400'

SCALE: 1" = 200'



SUBAREA 3-1	
CN	76.58
Tc	0.34 hr
AREA	32.3 ac

SUBAREA 3-2	
CN	75.95
Tc	0.36 hr
AREA	47.9 ac

SUBAREA 3-3	
CN	71.43
Tc	0.32 hr
AREA	38.3 ac

SUBAREA 3-4	
CN	82.38
Tc	0.28 hr
AREA	44.3 ac

SUBAREA 3-5	
CN	95.00
Tc	0.19 hr
AREA	5.4 ac

SUBAREA 3-6	
CN	94.96
Tc	0.25 hr
AREA	17.6 ac

SUBAREA 3-7	
CN	86.13
Tc	0.19 hr
AREA	21.0 ac

SUBAREA 3-8	
CN	80.62
Tc	0.37 hr
AREA	25.2 ac

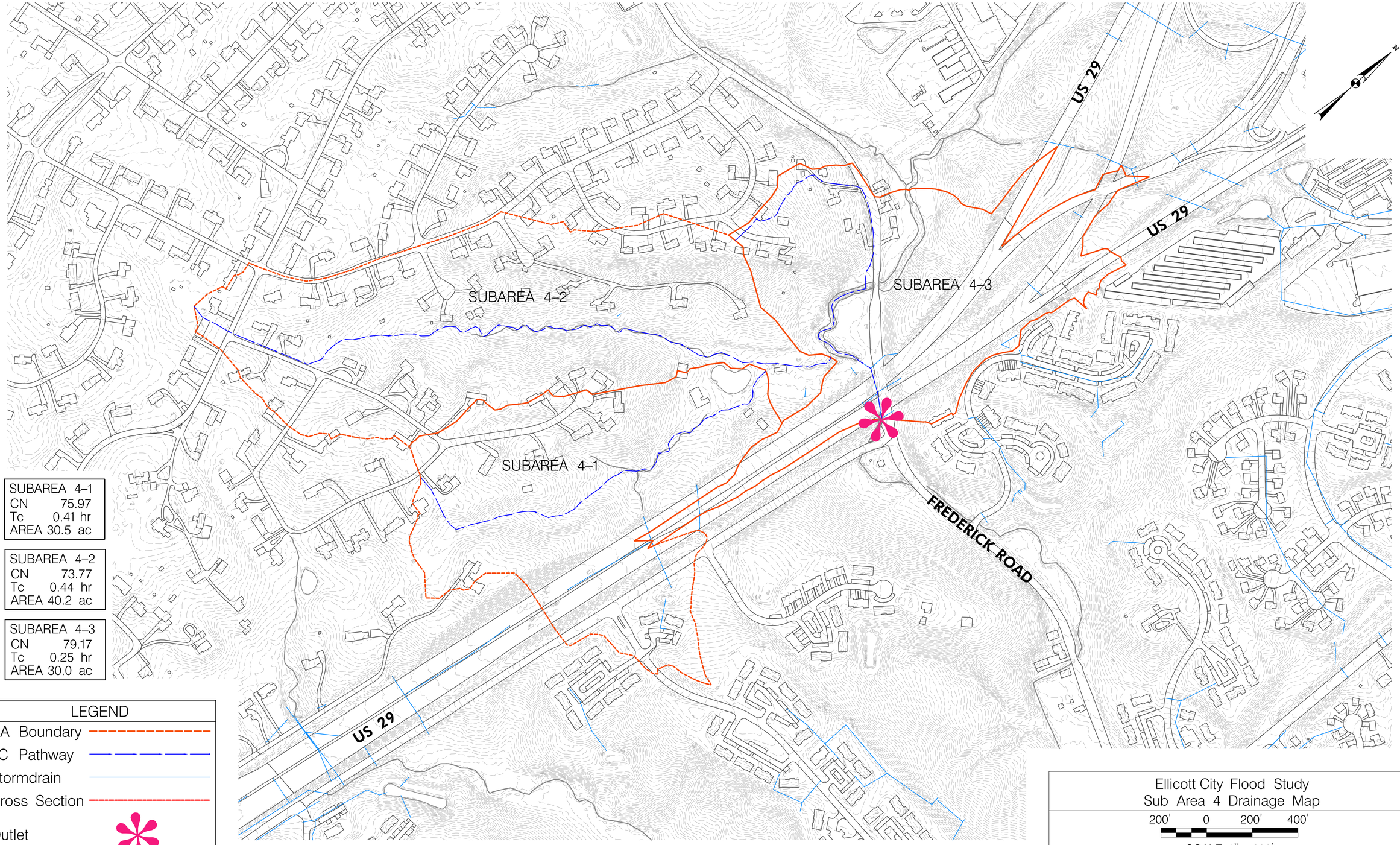
LEGEND

- DA Boundary
- TC Pathway
- Stormdrain
- Cross Section
- Outlet

Ellicott City Flood Study
Sub Area 3 Drainage Map

300' 0 300' 600'

SCALE: 1" = 300'



SUBAREA 4–1	
CN	75.97
Tc	0.41 hr
AREA	30.5 ac

SUBAREA 4–2	
CN	73.77
Tc	0.44 hr
AREA	40.2 ac

SUBAREA 4–3	
CN	79.17
Tc	0.25 hr
AREA	30.0 ac

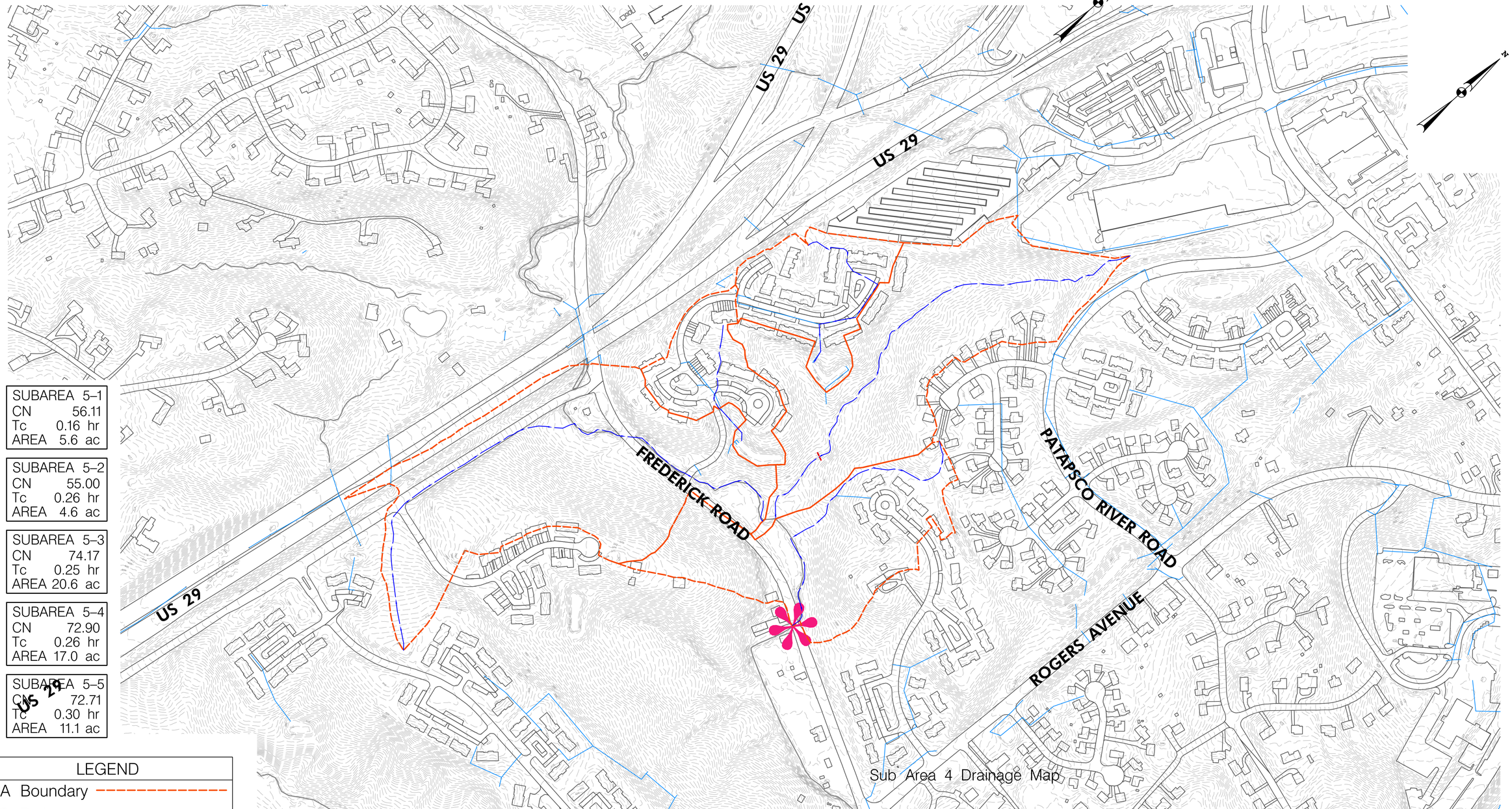
LEGEND

- DA Boundary
- TC Pathway
- Stormdrain
- Cross Section
- Outlet

Ellicott City Flood Study
Sub Area 4 Drainage Map

200' 0 200' 400'

SCALE: 1" = 200'



SUBAREA 5–1	
CN	56.11
Tc	0.16 hr
AREA	5.6 ac

SUBAREA 5–2	
CN	55.00
Tc	0.26 hr
AREA	4.6 ac

SUBAREA 5–3	
CN	74.17
Tc	0.25 hr
AREA	20.6 ac

SUBAREA 5–4	
CN	72.90
Tc	0.26 hr
AREA	17.0 ac

SUBAREA 5–5	
CN	72.71
Tc	0.30 hr
AREA	11.1 ac

LEGEND

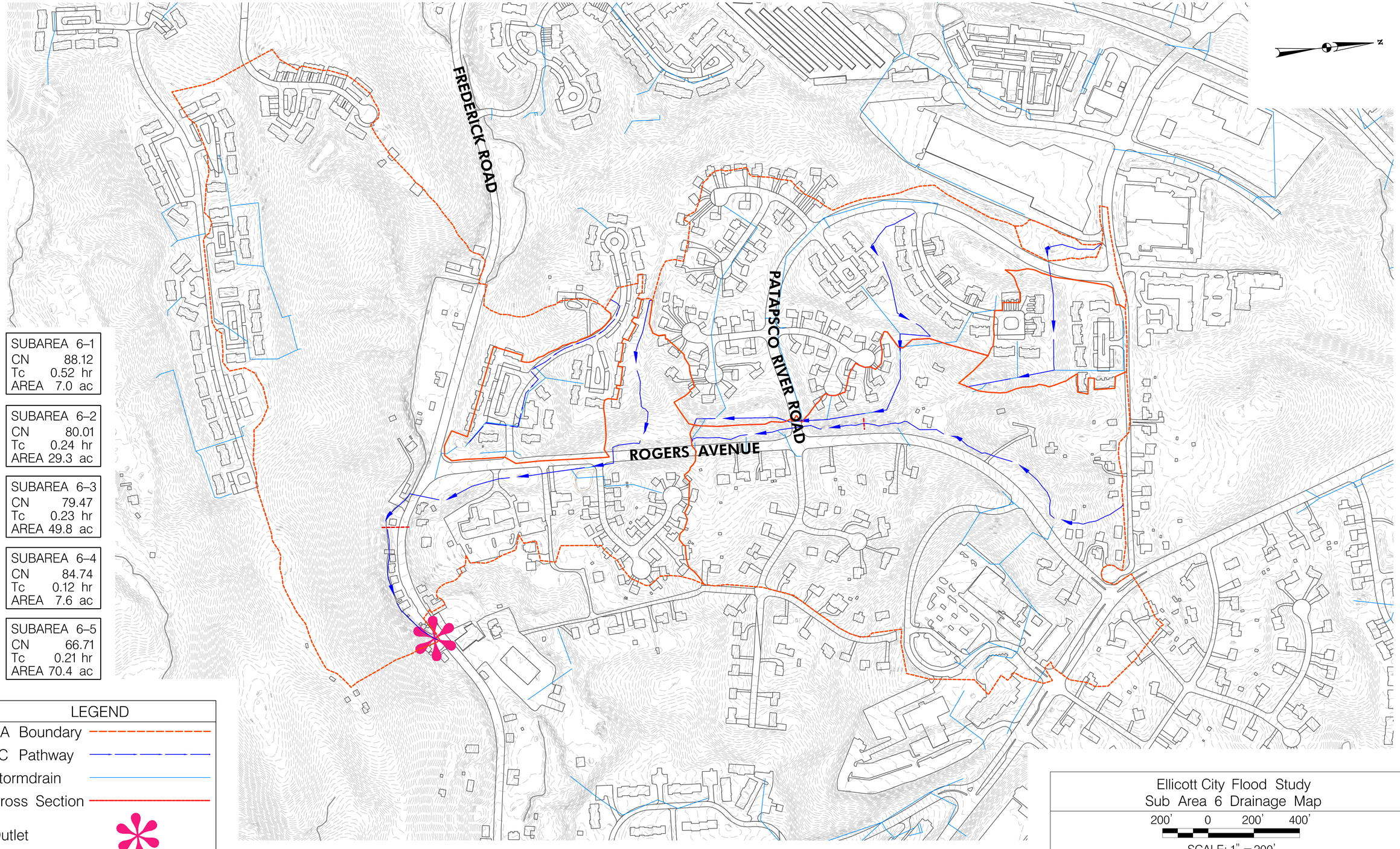
- DA Boundary
- TC Pathway
- Stormdrain
- Cross Section
- Outlet

Sub Area 4 Drainage Map

Ellicott City Flood Study
Sub Area 5 Drainage Map

200' 0 200' 400'

SCALE: 1" = 200'



SUBAREA 6–1
CN 88.12
Tc 0.52 hr
AREA 7.0 ac

SUBAREA 6–2
CN 80.01
Tc 0.24 hr
AREA 29.3 ac

SUBAREA 6–3
CN 79.47
Tc 0.23 hr
AREA 49.8 ac

SUBAREA 6–4
CN 84.74
Tc 0.12 hr
AREA 7.6 ac

SUBAREA 6–5
CN 66.71
Tc 0.21 hr
AREA 70.4 ac

LEGEND

DA Boundary

TC Pathway

Stormdrain

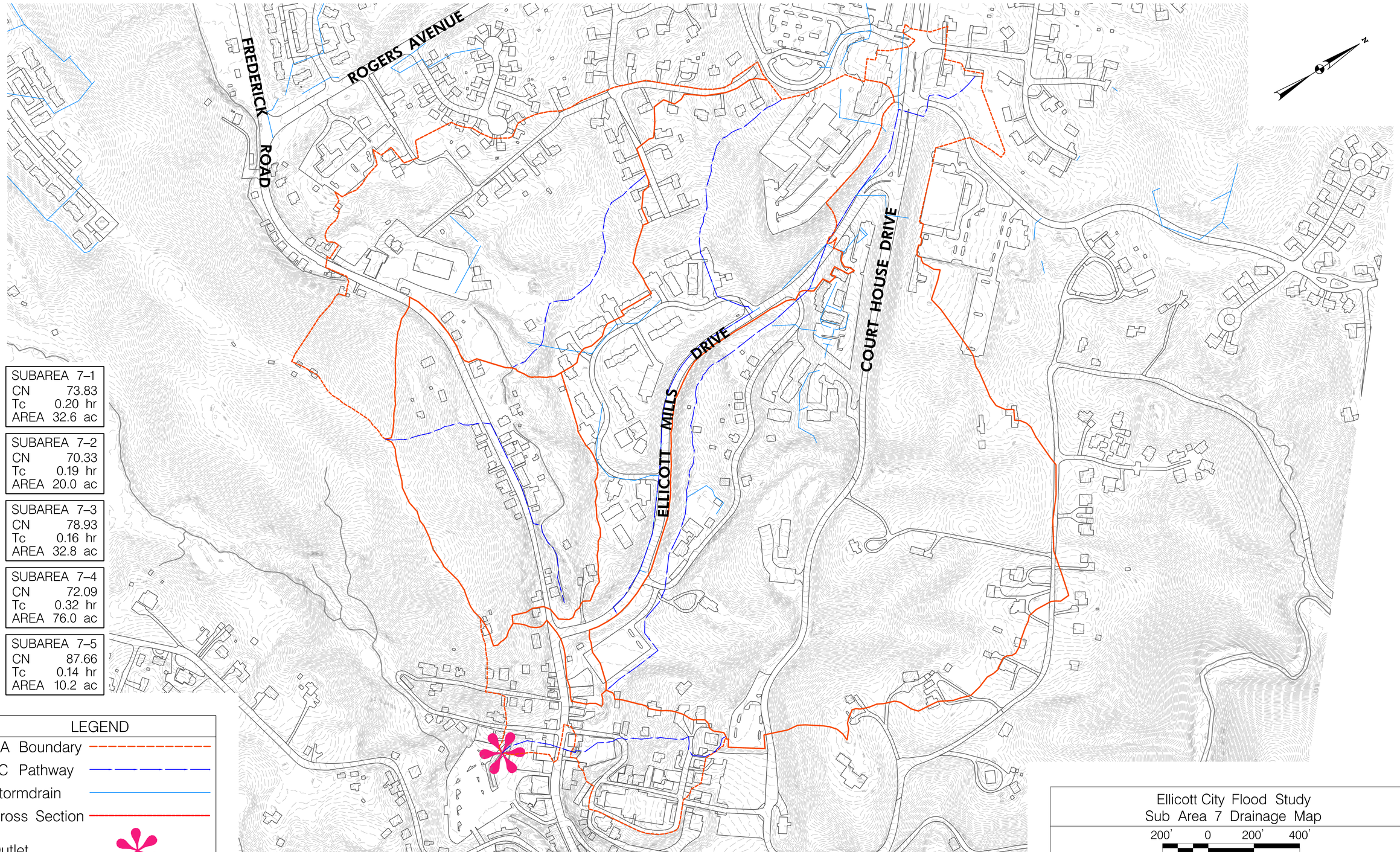
Cross Section

Outlet

Ellicott City Flood Study
Sub Area 6 Drainage Map

200' 0 200' 400'

SCALE: 1" = 200'



SUBAREA 7–1	
CN	73.83
Tc	0.20 hr
AREA	32.6 ac

SUBAREA 7–2	
CN	70.33
Tc	0.19 hr
AREA	20.0 ac

SUBAREA 7–3	
CN	78.93
Tc	0.16 hr
AREA	32.8 ac

SUBAREA 7–4	
CN	72.09
Tc	0.32 hr
AREA	76.0 ac

SUBAREA 7–5	
CN	87.66
Tc	0.14 hr
AREA	10.2 ac

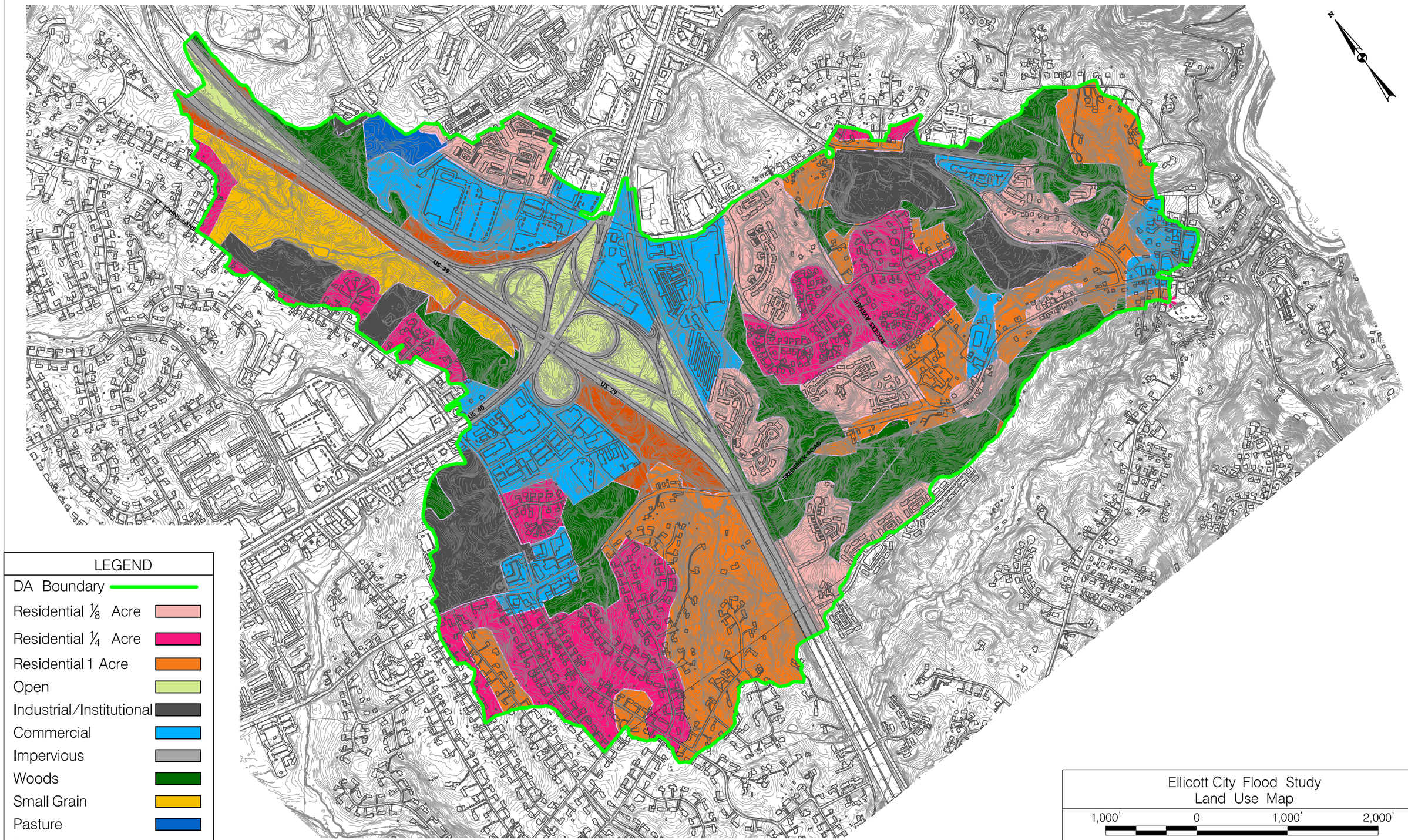
LEGEND

- DA Boundary
- TC Pathway
- Stormdrain
- Cross Section
- Outlet

Ellicott City Flood Study
Sub Area 7 Drainage Map

200' 0 200' 400'

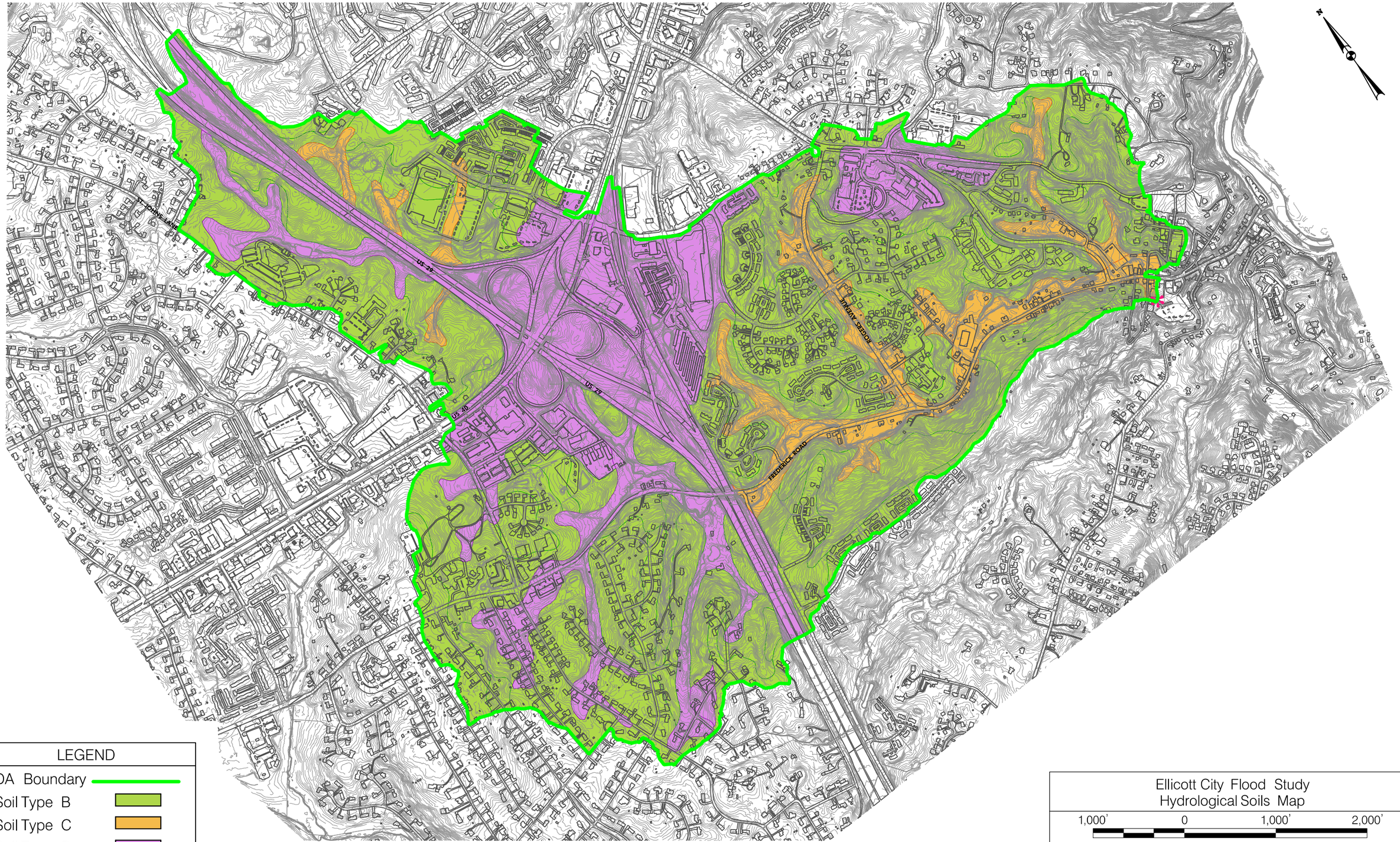
SCALE: 1" = 200'



Ellicott City Flood Study
Land Use Map

1,000' 0 1,000' 2,000'

SCALE: 1" =1,000'



LEGEND

DA Boundary

Soil Type B

Soil Type C

Soil Type D

Ellicott City Flood Study
Hydrological Soils Map

1,000' 0 1,000' 2,000'

SCALE: 1" =1,000'

NOAA Atlas 14, Volume 2, Version 3
Location name: Ellicott City, Maryland, US*
Coordinates: 39.2792, -76.8187
Elevation: 392 ft*
* source: Google Maps

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.344** (0.312-0.379)	**0.412** (0.373-0.454)	**0.489** (0.443-0.539)	**0.545** (0.493-0.601)	**0.616** (0.553-0.679)	**0.668** (0.597-0.738)	**0.720** (0.640-0.796)	**0.769** (0.680-0.853)	**0.831** (0.727-0.927)	**0.879** (0.764-0.985)
10-min	**0.549** (0.498-0.606)	**0.658** (0.597-0.726)	**0.783** (0.709-0.863)	**0.872** (0.788-0.961)	**0.982** (0.881-1.08)	**1.06** (0.951-1.18)	**1.14** (1.02-1.26)	**1.22** (1.08-1.35)	**1.31** (1.15-1.47)	**1.38** (1.20-1.55)
15-min	**0.687** (0.623-0.757)	**0.827** (0.750-0.912)	**0.990** (0.897-1.09)	**1.10** (0.997-1.22)	**1.25** (1.12-1.37)	**1.35** (1.20-1.49)	**1.45** (1.29-1.60)	**1.54** (1.36-1.71)	**1.65** (1.45-1.85)	**1.74** (1.51-1.95)
30-min	**0.942** (0.854-1.04)	**1.14** (1.04-1.26)	**1.41** (1.27-1.55)	**1.60** (1.45-1.76)	**1.84** (1.65-2.03)	**2.03** (1.81-2.24)	**2.21** (1.97-2.45)	**2.39** (2.12-2.66)	**2.63** (2.30-2.94)	**2.81** (2.44-3.15)
60-min	**1.17** (1.06-1.29)	**1.43** (1.30-1.58)	**1.80** (1.63-1.99)	**2.08** (1.88-2.29)	**2.46** (2.20-2.71)	**2.75** (2.46-3.04)	**3.05** (2.71-3.37)	**3.36** (2.97-3.73)	**3.78** (3.31-4.21)	**4.11** (3.57-4.61)
2-hr	**1.41** (1.27-1.55)	**1.71** (1.55-1.89)	**2.17** (1.96-2.39)	**2.52** (2.27-2.78)	**3.02** (2.70-3.32)	**3.42** (3.05-3.77)	**3.85** (3.41-4.26)	**4.30** (3.78-4.77)	**4.95** (4.29-5.52)	**5.47** (4.70-6.14)
3-hr	**1.51** (1.37-1.67)	**1.83** (1.66-2.03)	**2.33** (2.10-2.57)	**2.71** (2.44-3.00)	**3.27** (2.92-3.61)	**3.72** (3.31-4.12)	**4.21** (3.71-4.66)	**4.72** (4.12-5.25)	**5.47** (4.71-6.11)	**6.08** (5.17-6.83)
6-hr	**1.88** (1.71-2.08)	**2.28** (2.07-2.52)	**2.88** (2.60-3.19)	**3.37** (3.04-3.73)	**4.10** (3.66-4.54)	**4.72** (4.18-5.23)	**5.40** (4.73-5.99)	**6.14** (5.32-6.83)	**7.23** (6.16-8.11)	**8.16** (6.86-9.21)
12-hr	**2.30** (2.07-2.60)	**2.79** (2.51-3.14)	**3.54** (3.17-3.99)	**4.19** (3.73-4.71)	**5.18** (4.56-5.82)	**6.05** (5.28-6.79)	**7.03** (6.05-7.91)	**8.12** (6.90-9.16)	**9.80** (8.13-11.1)	**11.3** (9.18-12.8)
24-hr	**2.66** (2.45-2.93)	**3.21** (2.95-3.55)	**4.13** (3.78-4.55)	**4.94** (4.51-5.42)	**6.18** (5.59-6.75)	**7.28** (6.53-7.92)	**8.53** (7.58-9.25)	**9.95** (8.73-10.8)	**12.1** (10.5-13.1)	**14.1** (12.0-15.1)
2-day	**3.08** (2.82-3.39)	**3.72** (3.41-4.10)	**4.77** (4.36-5.25)	**5.67** (5.17-6.24)	**7.02** (6.36-7.71)	**8.20** (7.38-8.99)	**9.52** (8.49-10.4)	**11.0** (9.70-12.0)	**13.2** (11.5-14.4)	**15.1** (13.0-16.5)
3-day	**3.25** (2.97-3.58)	**3.92** (3.59-4.33)	**5.02** (4.59-5.54)	**5.97** (5.43-6.57)	**7.38** (6.68-8.11)	**8.62** (7.75-9.45)	**9.99** (8.91-10.9)	**11.5** (10.2-12.6)	**13.8** (12.0-15.1)	**15.8** (13.6-17.3)
4-day	**3.42** (3.12-3.77)	**4.13** (3.78-4.56)	**5.28** (4.82-5.82)	**6.26** (5.70-6.90)	**7.74** (7.00-8.50)	**9.04** (8.12-9.90)	**10.5** (9.32-11.5)	**12.1** (10.6-13.2)	**14.5** (12.6-15.9)	**16.5** (14.2-18.1)
7-day	**3.98** (3.66-4.35)	**4.78** (4.40-5.24)	**6.05** (5.56-6.62)	**7.13** (6.54-7.79)	**8.75** (7.97-9.54)	**10.2** (9.18-11.0)	**11.7** (10.5-12.7)	**13.4** (11.9-14.6)	**16.0** (14.0-17.4)	**18.1** (15.7-19.8)
10-day	**4.53** (4.18-4.95)	**5.44** (5.02-5.94)	**6.80** (6.27-7.41)	**7.93** (7.29-8.64)	**9.59** (8.77-10.4)	**11.0** (9.98-11.9)	**12.5** (11.3-13.5)	**14.1** (12.6-15.3)	**16.4** (14.6-17.9)	**18.4** (16.1-20.0)
20-day	**6.14** (5.73-6.60)	**7.30** (6.81-7.86)	**8.82** (8.23-9.49)	**10.1** (9.36-10.8)	**11.8** (10.9-12.7)	**13.2** (12.2-14.2)	**14.6** (13.5-15.7)	**16.1** (14.8-17.3)	**18.2** (16.5-19.6)	**19.9** (17.9-21.5)
30-day	**7.58** (7.10-8.12)	**8.97** (8.41-9.61)	**10.7** (9.99-11.4)	**12.0** (11.3-12.9)	**13.9** (13.0-14.9)	**15.4** (14.3-16.5)	**17.0** (15.7-18.1)	**18.5** (17.1-19.8)	**20.7** (18.9-22.2)	**22.4** (20.3-24.1)
45-day	**9.56** (9.00-10.2)	**11.3** (10.6-12.0)	**13.2** (12.4-14.0)	**14.6** (13.8-15.6)	**16.6** (15.5-17.6)	**18.0** (16.9-19.2)	**19.5** (18.2-20.7)	**20.9** (19.5-22.2)	**22.7** (21.1-24.2)	**24.1** (22.3-25.7)
60-day	**11.4** (10.8-12.0)	**13.4** (12.6-14.2)	**15.5** (14.6-16.4)	**17.1** (16.1-18.0)	**19.1** (18.0-20.2)	**20.6** (19.4-21.8)	**22.1** (20.7-23.4)	**23.4** (21.9-24.9)	**25.2** (23.5-26.8)	**26.5** (24.6-28.2)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

Fixed Region Peak Flow Estimates for: Ellicott City Flood Study
GISHydro Release Version Date: September 15, 2008
Hydro Extension Version Date: October 22, 2007
Analysis Date: January 28, 2013

Geographic Province(s):
-Piedmont (100.0% of area)

Q(1.25): 263 cfs
Q(1.50): 357 cfs
Q(1.75): 413 cfs
Q(2): 453 cfs
Q(5): 827 cfs
Q(10): 1160 cfs
Q(25): 1690 cfs
Q(50): 2180 cfs
Q(100): 2770 cfs
Q(200): 3450 cfs
Q(500): 4550 cfs

Area Weighted Prediction Intervals (from Tasker)

Return	50 PERCENT		67 PERCENT		90 PERCENT		95 PERCENT	
Period	lower	upper	lower	upper	lower	upper	lower	upper
1.25	199	347	176	393	129	535	111	625
1.5	279	458	250	511	190	672	165	773
1.75	325	525	292	584	224	762	196	872
2	358	574	322	638	248	830	217	947
5	681	1000	625	1090	504	1360	452	1510
10	969	1390	896	1500	734	1830	664	2020
25	1420	2020	1310	2180	1080	2660	974	2940
50	1810	2640	1660	2870	1350	3540	1210	3930
100	2240	3410	2050	3740	1620	4710	1440	5290
200	2730	4370	2460	4840	1900	6290	1660	7170
500	3460	6000	3060	6770	2260	9190	1930	10700

Individual Province Tasker Analyses Follow:

Flood frequency estimates for
Ellicott City Flood Study
REGION: Piedmont Urban
area= 1.60:impervious area = 41.70 :skew= 0.58

Return Period	Discharge (cfs)	Standard Error of Prediction (percent)	Equivalent Years of Record	Standard Error of Prediction (logs)
1.25	263.	41.7	2.80	0.1739
1.50	357.	36.9	3.17	0.1552
1.75	413.	35.7	3.47	0.1503
2.00	453.	35.1	3.82	0.1481
5.00	827.	28.5	11.16	0.1216
10.00	1160.	26.2	20.30	0.1119
25.00	1690.	26.0	32.10	0.1110
50.00	2180.	27.7	37.01	0.1182
100.00	2770.	30.8	38.07	0.1306
200.00	3450.	34.8	36.65	0.1469
500.00	4550.	41.3	33.53	0.1722

P R E D I C T I O N I N T E R V A L S

Return	50 PERCENT		67 PERCENT		90 PERCENT		95 PERCENT	
Period	lower	upper	lower	upper	lower	upper	lower	upper
1.25	199.	347.	176.	393.	129.	535.	111.	625.

frdischarges

1.50	279.	458.	250.	511.	190.	672.	165.	773.
1.75	325.	525.	292.	584.	224.	762.	196.	872.
2.00	358.	574.	322.	638.	248.	830.	217.	947.
5.00	681.	1000.	625.	1090.	504.	1360.	452.	1510.
10.00	969.	1390.	896.	1500.	734.	1830.	664.	2020.
25.00	1420.	2020.	1310.	2180.	1080.	2660.	974.	2940.
50.00	1810.	2640.	1660.	2870.	1350.	3540.	1210.	3930.
100.00	2240.	3410.	2050.	3740.	1620.	4710.	1440.	5290.
200.00	2730.	4370.	2460.	4840.	1900.	6290.	1660.	7170.
500.00	3460.	6000.	3060.	6770.	2260.	9190.	1930.	10700.

Warning: VPI is negative 11

Howard County Rain Gauge- 9/7/11

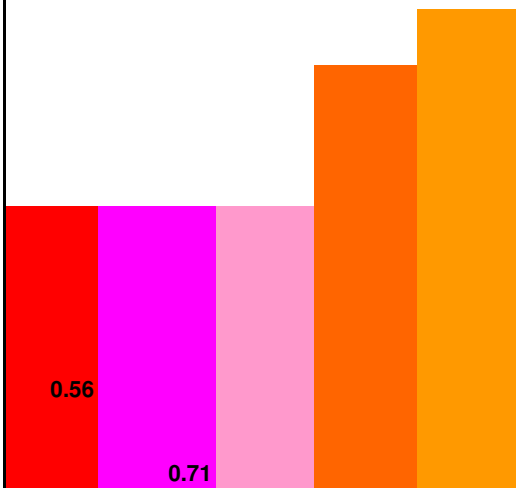
Reading					Rain Depth	Cumulative Depth	Intensity
day	day	hour	min	sec	in	in	in/hr
9/8/2011	1	21	44	32	0.0397	5.3198	0.054
9/8/2011	1	21	0	38	0.0397	5.2801	0.125
9/8/2011	1	20	41	31	0.0397	5.2404	0.201
9/8/2011	1	20	29	41	0.0397	5.2007	0.144
9/8/2011	1	20	13	10	0.0397	5.161	0.194
9/8/2011	1	20	0	55	0.0397	5.1213	0.224
9/8/2011	1	19	50	16	0.0397	5.0816	0.181
9/8/2011	1	19	37	6	0.0397	5.0419	0.174
9/8/2011	1	19	23	23	0.0397	5.0022	0.180
9/8/2011	1	19	10	11	0.0397	4.9625	0.154
9/8/2011	1	18	54	40	0.0397	4.9228	0.082
9/8/2011	1	18	25	32	0.0397	4.8831	0.007
9/8/2011	1	12	33	51	0	4.8434	0.000
	1	12	16	0		4.8434	
	1	11	46	0		4.8434	
	1	11	16	0		4.8434	
	1	10	46	0		4.8434	
	1	10	16	0		4.8434	
	1	9	46	0		4.8434	
	1	9	16	0		4.8434	
9/8/2011	1	8	38	40	0.0397	4.8434	0.052
	1	8	16	0		4.8037	
9/8/2011	1	7	53	10	0.0397	4.8037	0.065
9/8/2011	1	7	16	33	0.0397	4.764	0.418
9/8/2011	1	7	10	51	0.0397	4.7243	1.075
9/8/2011	1	7	8	38	0.0397	4.6846	0.337
9/8/2011	1	7	1	34	0.0397	4.6449	0.376
9/8/2011	1	6	55	14	0.0397	4.6052	0.311
9/8/2011	1	6	47	35	0.0397	4.5655	0.284
9/8/2011	1	6	39	12	0.0397	4.5258	0.396
9/8/2011	1	6	33	11	0.0397	4.4861	0.357
9/8/2011	1	6	26	31	0.0397	4.4464	0.266
9/8/2011	1	6	17	33	0.0397	4.4067	0.238
9/8/2011	1	6	7	32	0.0397	4.367	0.790
9/8/2011	1	6	4	31	0.0397	4.3273	0.851
9/8/2011	1	6	1	43	0.0397	4.2876	0.473
9/8/2011	1	5	56	41	0.0397	4.2479	1.108
9/8/2011	1	5	54	32	0.0397	4.2082	0.993
9/8/2011	1	5	52	8	0.0397	4.1685	0.498
9/8/2011	1	5	47	21	0.0397	4.1288	0.437
9/8/2011	1	5	41	54	0.0397	4.0891	0.438
9/8/2011	1	5	36	28	0.0397	4.0494	0.012
9/8/2011	1	2	17	35	0.0397	4.0097	0.068
9/8/2011	1	1	42	26	0.0397	3.97	0.251
9/8/2011	1	1	32	56	0.0397	3.9303	0.136
9/8/2011	1	1	15	22	0.0397	3.8906	0.217
9/8/2011	1	1	4	22	0.0397	3.8509	0.259
9/8/2011	1	0	55	11	0.0397	3.8112	0.404
9/8/2011	1	0	49	17	0.0397	3.7715	0.375
9/8/2011	1	0	42	56	0.0397	3.7318	0.447
9/8/2011	1	0	37	36	0.0397	3.6921	0.638
9/8/2011	1	0	33	52	0	3.6524	0.000
9/8/2011	1	0	26	54	0.0397	3.6524	0.186
9/8/2011	1	0	14	7	0.0397	3.6127	0.089
9/7/2011	0	23	47	19	0.0397	3.573	0.272
9/7/2011	0	23	38	33	0.0397	3.5333	1.243
9/7/2011	0	23	36	38	0.0397	3.4936	2.071

Summary
Total Rainfall = 5.32 inches
Total Duration = 45.18 hours
Average Rainfall Intensity = 1.06 in/hr

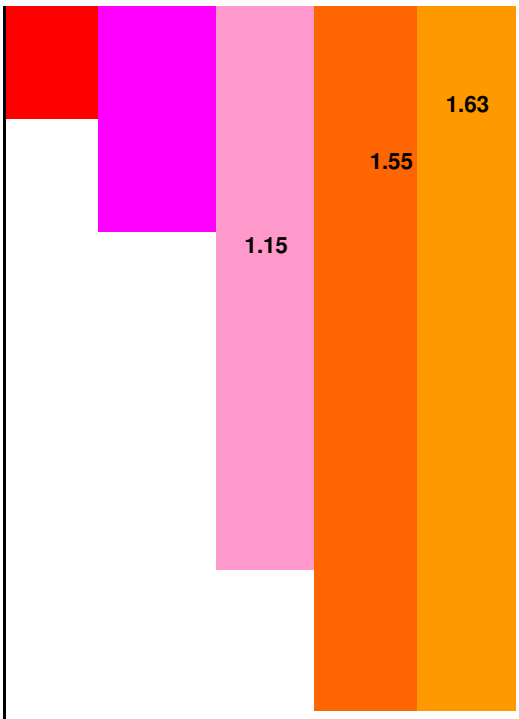
Most Intense Rainfall Intervals

County Rain Gauge
15 Minute = 0.56
30 Minute = 0.71
60 minute = 1.15
2 hour = 1.55

9/7/2011	0	23	35	29	0.0397	3.4539	2.042
9/7/2011	0	23	34	19	0.0397	3.4142	1.906
9/7/2011	0	23	33	4	0.0397	3.3745	2.552
9/7/2011	0	23	32	8	0.0397	3.3348	2.042
9/7/2011	0	23	30	58	0.0397	3.2951	0.417
9/7/2011	0	23	25	15	0.0397	3.2554	0.258
9/7/2011	0	23	16	1	0.0397	3.2157	0.164
9/7/2011	0	23	1	30	0.0397	3.176	0.107
9/7/2011	0	22	39	11	0.0397	3.1363	0.104
9/7/2011	0	22	16	16	0.0397	3.0966	0.662
9/7/2011	0	22	12	40	0.0397	3.0569	1.571
9/7/2011	0	22	11	9	0.0397	3.0172	0.768
9/7/2011	0	22	8	3	0.0397	2.9775	1.075
9/7/2011	0	22	5	50	0.0397	2.9378	0.966
9/7/2011	0	22	3	22	0.0397	2.8981	1.809
9/7/2011	0	22	2	3	0.0397	2.8584	2.599
9/7/2011	0	22	1	8	0.0397	2.8187	2.305
9/7/2011	0	22	0	6	0.0397	2.779	1.643
9/7/2011	0	21	58	39	0.0397	2.7393	2.343
9/7/2011	0	21	57	38	0.0397	2.6996	0.281
9/7/2011	0	21	49	10	0.0397	2.6599	0.309
9/7/2011	0	21	41	27	0.0397	2.6202	0.671
9/7/2011	0	21	37	54	0.0397	2.5805	0.591
9/7/2011	0	21	33	52	0.0397	2.5408	1.931
9/7/2011	0	21	32	38	0.0397	2.5011	3.107
9/7/2011	0	21	31	52	0.0397	2.4614	0.092
9/7/2011	0	21	5	56	0.0397	2.4217	0.018
	0	19	46	0		2.382	
	0	19	16	0		2.382	
9/7/2011	0	18	51	5	0.0397	2.382	0.043
	0	18	16	0		2.3423	
9/7/2011	0	17	55	35	0.0397	2.3423	0.760
9/7/2011	0	17	52	27	0.0397	2.3026	3.041
9/7/2011	0	17	51	40	0.0397	2.2629	1.276
9/7/2011	0	17	49	48	0.0397	2.2232	1.099
9/7/2011	0	17	47	38	0.0397	2.1835	2.042
9/7/2011	0	17	46	28	0.0397	2.1438	2.507
9/7/2011	0	17	45	31	0.0397	2.1041	1.606
9/7/2011	0	17	44	2	0.0397	2.0644	0.016
		17	16		0	2.0247	
		16	46		0	2.0247	
		16	16		0	2.0247	
		15	46		0	2.0247	
9/7/2011	0	15	17	43	0.0397	2.0247	0.071
9/7/2011	0	14	44	14	0.0397	1.985	0.112
9/7/2011	0	14	22	53	0.0397	1.9453	0.265
9/7/2011	0	14	13	54	0.0397	1.9056	0.108
9/7/2011	0	13	51	54	0.0397	1.8659	0.184
9/7/2011	0	13	38	57	0.0397	1.8262	0.550
9/7/2011	0	13	34	37	0.0397	1.7865	0.877
9/7/2011	0	13	31	54	0.0397	1.7468	0.959
9/7/2011	0	13	29	25	0.0397	1.7071	1.191
9/7/2011	0	13	27	25	0.0397	1.6674	2.102
9/7/2011	0	13	26	17	0.0397	1.6277	3.573
9/7/2011	0	13	25	37	0.0397	1.588	3.863
9/7/2011	0	13	25	0	0.0397	1.5483	4.083
9/7/2011	0	13	24	25	0.0397	1.5086	3.970
9/7/2011	0	13	23	49	0.0397	1.4689	3.863
9/7/2011	0	13	23	12	0.0397	1.4292	3.863
9/7/2011	0	13	22	35	0.0397	1.3895	3.761
9/7/2011	0	13	21	57	0.0397	1.3498	3.970



9/7/2011	0	13	21	21	0.0397	1.3101	2.199
9/7/2011	0	13	20	16	0.0397	1.2704	1.809
9/7/2011	0	13	18	57	0.0397	1.2307	1.162
9/7/2011	0	13	16	54	0.0397	1.191	1.388
9/7/2011	0	13	15	11	0.0397	1.1513	0.381
9/7/2011	0	13	8	56	0.0397	1.1116	0.558
9/7/2011	0	13	4	40	0.0397	1.0719	0.798
9/7/2011	0	13	1	41	0.0397	1.0322	1.232
9/7/2011	0	12	59	45	0.0397	0.9925	0.419
9/7/2011	0	12	54	4	0.0397	0.9528	0.764
9/7/2011	0	12	50	57	0.0397	0.9131	1.323
9/7/2011	0	12	49	9	0.0397	0.8734	1.504
9/7/2011	0	12	47	34	0.0397	0.8337	0.539
9/7/2011	0	12	43	9	0.0397	0.794	0.807
9/7/2011	0	12	40	12	0.0397	0.7543	1.108
9/7/2011	0	12	38	3	0.0397	0.7146	1.243
9/7/2011	0	12	36	8	0.0397	0.6749	1.881
9/7/2011	0	12	34	52	0.0397	0.6352	2.382
9/7/2011	0	12	33	52	0	0.5955	0.000
9/7/2011	0	12	32	52	0.0397	0.5955	0.550
9/7/2011	0	12	28	32	0.0397	0.5558	2.013
9/7/2011	0	12	27	21	0.0397	0.5161	3.107
9/7/2011	0	12	26	35	0.0397	0.4764	0.644
9/7/2011	0	12	22	53	0.0397	0.4367	1.323
9/7/2011	0	12	21	5	0.0397	0.397	0.048
9/7/2011	0	11	31	27	0.0397	0.3573	0.004
		11	16		0	0.3176	
		10	46		0	0.3176	
		10	16		0	0.3176	
		9	46		0	0.3176	
		9	16		0	0.3176	
		8	46		0	0.3176	
		8	16		0	0.3176	
		7	46		0	0.3176	
		7	16		0	0.3176	
		6	46		0	0.3176	
		6	16		0	0.3176	
		5	46		0	0.3176	
		5	16		0	0.3176	
		4	46		0	0.3176	
		4	16		0	0.3176	
		3	46		0	0.3176	
		3	16		0	0.3176	
		2	46		0	0.3176	
		2	16		0	0.3176	
		1	46		0	0.3176	
9/7/2011	0	1	6	1	0.0397	0.3176	1.643
9/7/2011	0	1	4	34	0.0397	0.2779	2.343
9/7/2011	0	1	3	33	0.0397	0.2382	2.858
9/7/2011	0	1	2	43	0.0397	0.1985	2.343
9/7/2011	0	1	1	42	0.0397	0.1588	2.552
9/7/2011	0	1	0	46	0.0397	0.1191	2.697
9/7/2011	0	0	59	53	0.0397	0.0794	1.181
9/7/2011	0	0	57	52	0.0397	0.0397	0.099
9/7/2011	0	0	33	53	0		0.000

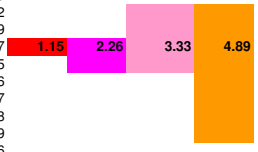


Old Line Rain Gauge (KMDELLIC3)- Rainfall Data for 9/7/2011

Time (hr)	Cumulative Rainfall (in)	Delta Rain (in)	Dimensionless Time	Dimensionless Rainfall
0	0		0.0000	0.0000
0.25	0	0	0.0104	0.0000
0.5	0	0	0.0208	0.0000
0.75	0	0	0.0313	0.0000
1	0.11	0.11	0.0417	0.0136
1.25	0.51	0.4	0.0521	0.0629
1.5	0.51	0	0.0625	0.0629
1.75	0.51	0	0.0729	0.0629
2	0.51	0	0.0833	0.0629
2.25	0.51	0	0.0938	0.0629
2.5	0.51	0	0.1042	0.0629
2.75	0.51	0	0.1146	0.0629
3	0.51	0	0.1250	0.0629
3.25	0.51	0	0.1354	0.0629
3.5	0.51	0	0.1458	0.0629
3.75	0.51	0	0.1563	0.0629
4	0.51	0	0.1667	0.0629
4.25	0.51	0	0.1771	0.0629
4.5	0.52	0.01	0.1875	0.0641
4.75	0.52	0	0.1979	0.0641
5	0.55	0.03	0.2083	0.0678
5.25	0.62	0.07	0.2188	0.0764
5.5	0.62	0	0.2292	0.0764
5.75	0.64	0.02	0.2396	0.0789
6	0.64	0	0.2500	0.0789
6.25	0.64	0	0.2604	0.0789
6.5	0.64	0	0.2708	0.0789
6.75	0.66	0.02	0.2813	0.0814
7	0.7	0.04	0.2917	0.0863
7.25	0.71	0.01	0.3021	0.0875
7.5	0.73	0.02	0.3125	0.0900
7.75	0.73	0	0.3229	0.0900
8	0.74	0.01	0.3333	0.0912
8.25	1.01	0.27	0.3438	0.1245
8.5	1.01	0	0.3542	0.1245
8.75	1.01	0	0.3646	0.1245
9	1.01	0	0.3750	0.1245
9.25	1.03	0.02	0.3854	0.1270
9.5	1.03	0	0.3958	0.1270
9.75	1.03	0	0.4063	0.1270
10	1.03	0	0.4167	0.1270
10.25	1.03	0	0.4271	0.1270
10.5	1.07	0.04	0.4375	0.1319
10.75	1.07	0	0.4479	0.1319
11	1.07	0	0.4583	0.1319
11.25	1.51	0.44	0.4688	0.1862
11.5	2.14	0.63	0.4792	0.2639
11.75	3.29	1.15	0.4896	0.4057
12	4.4	1.11	0.5000	0.5425
12.25	4.66	0.26	0.5104	0.5746
12.5	5.18	0.52	0.5208	0.6387
12.75	5.7	0.52	0.5313	0.7028
13	5.96	0.26	0.5417	0.7349
13.25	5.99	0.03	0.5521	0.7386
13.5	6.31	0.32	0.5625	0.7781
13.75	6.54	0.23	0.5729	0.8064
14	6.57	0.03	0.5833	0.8101
14.25	6.62	0.05	0.5938	0.8163
14.5	6.67	0.05	0.6042	0.8224
14.75	6.7	0.03	0.6146	0.8261
15	6.72	0.02	0.6250	0.8286
15.25	6.74	0.02	0.6354	0.8311
15.5	6.75	0.01	0.6458	0.8323
15.75	6.75	0	0.6563	0.8323
16	6.75	0	0.6667	0.8323
16.25	6.77	0.02	0.6771	0.8348
16.5	6.79	0.02	0.6875	0.8372
16.75	6.79	0	0.6979	0.8372
17	6.79	0	0.7083	0.8372
17.25	6.79	0	0.7188	0.8372
17.5	6.79	0	0.7292	0.8372
17.75	6.8	0.01	0.7396	0.8385
18	6.8	0	0.7500	0.8385
18.25	6.8	0	0.7604	0.8385
18.5	6.8	0	0.7708	0.8385
18.75	6.8	0	0.7813	0.8385
19	6.83	0.03	0.7917	0.8422
19.25	6.83	0	0.8021	0.8422
19.5	6.86	0.03	0.8125	0.8459
19.75	6.87	0.01	0.8229	0.8471
20	6.87	0	0.8333	0.8471
20.25	6.88	0.01	0.8438	0.8483
20.5	6.88	0	0.8542	0.8483
20.75	6.88	0	0.8646	0.8483
21	6.88	0	0.8750	0.8483
21.25	6.88	0	0.8854	0.8483
21.5	6.89	0.01	0.8958	0.8496
21.75	7.16	0.27	0.9063	0.8829
22	7.34	0.18	0.9167	0.9051
22.25	7.61	0.27	0.9271	0.9383
22.5	7.69	0.08	0.9375	0.9482
22.75	7.75	0.06	0.9479	0.9556
23	7.84	0.09	0.9583	0.9667
23.25	7.93	0.09	0.9688	0.9778
23.5	8	0.07	0.9792	0.9864
23.75	8.11	0.11	0.9896	1.0000
24	8.11	0	1.0000	1.0000

Maximum Rainfall Intensities

15 Minute = 1.15
30 Minute = 2.26
60 Minute = 3.33
2 hour = 4.89



Existing Stormwater Management Facilities

BMP Type	FileNo	BMPID	Subdivision Name	Street Address	Map Name	Area (sf)	MT-Area (ac)	Design-Area	As-Builts?	Comps?	TR20 CN reduce	TR20 Structure?	SUBAREA	Notes
WP	SDP-96-001	POND	WALMART STORES, INC/ #2412 ELLICOTT CITY	3200 NORTH RIDGE RD	SWMF-13- N RIDGE RD 2	2046365	47.0	48.11	Y	Y	N	Y	2	Dam elevations for 2,10,100yr WSEL/hydrology/stage-storage. 2,10,100 yr TR-20 and existing conditions.
DP	SDP-85-143	POND	BETHEL PRESBYTERIAN CHURCH, PARCEL 1168	3165 ST JOHNS LN	SWMF-10- ST JOHNS LN 2	1625791	37.3	37.90	Y	Y	N	Y	1	Dam elevations for 2,10,100yr WSEL/hydrology/stage-storage. Some 100yr hydrology.Receives DA from SHA (MD-29), which is not included in as-built DA
UGS	F-85-018	POND	BEDFORD SQUARE	3695 MEADOWVALE RD	SWMF-3- MEADOWVALE RD	1407573	32.3	33.50	Y	Y	N	Y	3	Dam elevations for 2,10,100yr WSEL/hydrology/stage-storage. Some 100yr hydrology.
EDSD	F-85-113	POND 1	RIVER MILLS	3605 QUAKER MILL CT	SWMF-18- QUAKER MILL CT	1268468	29.1	20.48	Y	Y	N	Y	6	Dam elevations for 2,10,100yr WSEL/stage-storage Q100- as-built DA does not include area of pond
DP	SDP-83-100	POND	ELLICOTT CITY SELF STORAGE, PARCEL A	3470 ELLICOTT CENTER DR	SWMF-8- ELLICOTT CENTER DR 1	692253	17.6	19.93	Y	N	N	Y	3	Dam elevation- 2,10,100yr WSEL
EDSD	F-84-054	POND	BRAEBROOKE	3707 BONNY BRIDGE PLACE	SWMF-2- BONNYBRIDGE PL	408507	7.6	7.30	Y	Y	N	Y	6	Dam elevations for 2, 10, 100yr WSEL / hydrology/stage-storage. Some hydrology. No TR-20.
EDSD	F-85-113	POND 2	RIVER MILLS	3456 ORANGE GROVE CT	SWMF-19- ORANGE GROVE CT	307862	7.1	6.40	Y	Y	N	Y	6	Dam elevations for 2,10,100yr WSEL/stage-storage Q100- as-built DA does not include area of pond
EDSW	SDP-86-263	POND	ELLICOTT RIDGE PROFESSIONAL PARK, PARCEL A-2	3449 ELLICOTT CENTER DR	SWMF-11- ELLICOTT CENTER DR 2	258272	5.9	4.96	Y	N	N	Y	3	Dam elevation- 2,10,100yr WSEL/Weir and riser dimensions
EDSW	F-88-226	POND	ELLICOTT'S CHOICE	8758 RUPPERT COURT	SWMF-4- RUPPERT CT	248531	5.7	6.90	Y	N	Y	N	6	Dam elevations for 2,10,100yr WSEL
DP	F-96-088	UGS 1-P	PAPILLON, PARCEL 121	8735 PAPILLON DR	SWMF-21- PAPILLON DR 1	231820	5.3	4.78	Y	N	Y	N	5	2,10,100 Q- no ELEV
WP	F-96-088	UGS 2-P	PAPILLON, PARCEL 121	8858 PAPILLON DR	SWMF-23-PAPILLON DR 2	229929	5.3	8.63	Y	N	Y	N	5	2,10,100 Q- no ELEV
DP	F-80-086	POND	ROGERS AVENUE, SECTION 1	3606 RUSTY RIM RD	SWMF-1- RUSTY RIM RD	194567	4.5	4.70	Y	N	Y	N	6	Dam elevations for 2,10yr WSEL
DP	SDP-98-136	POND	MILLER CHEVROLET USED CARS, PARCEL 717	3520 SOUTH CHEVROLET DR	SWMF-14- S CHEVROLET DR 1	188387	4.3	3.69	Y	N	Y	N	3	Dam elevations for 2,10,100yr WSEL and Q- as-built DA does not include area of pond
UGS	F-89-226	POND	WESTGATE WOODS, LOTS 1-21	3517 WESTGATE DRIVE	SWMF-5-WESTGATE RD	159714	3.7	4.48	Y	Y	Y	N	3	Dam elevations for 2,10,100yr WSEL/q100
UGS	SDP-05-119	POND	9050 ROUTE 40 RETAIL CTR, PARCEL A	9050 BALTIMORE NATIONAL PIKE (RT 40)	SWMF-6- RT 40	150863	3.5	3.42	Y	N	Y	N	2	Dam elevations for 2,10,100yr WSEL / Some major flood reduction
UGS	SDP-01-134	UGS-P	ST JOHN'S EPISCOPAL CHURCH, PARCEL 535	9120 FREDERICK RD	SWMF-24- FREDRICK RD	149653	3.4	3.44	Y	N	Y	N	3	Q10
DP	SDP-79-058	POND	CHAPELGATE PRESBYTERIAN CHURCH	3291 ST JOHNS LN	SWMF-7- ST JOHNS LN 1	148458	3.4	3.50	Y	N	Y	N	2	Dam elevation- 2yr WSEL
UGS	SDP-99-060	POND	ST. PETER'S EPISCOPAL CHURCH, PARCEL 939	3695 ROGERS AVE	SWMF-16- ROGERS AVE	120249	2.8	2.58	Y	N	Y	N	6	Dam elevations for 2,10,100yr WSEL and Q- as-built DA does not include area of pond
UGS	F-84-152	POND 1	TOLL HOUSE	8806 MANAHAN DR	SWMF-17- MANAHAN DR	109190	2.5	2.30	Y	Y	Y	N	4	Dam elevations for 2,10,100yr WSEL/stage-storage Q100- OLD Comps
DP	SDP-87-120	UGS-P	FREDERICK CROSSING, PARCEL 111	3570 ST JOHNS LN	SWMF-26- ST JOHNS LN 3	101670	2.3	2.24	Y	N	Y	N	3	Q10?
DP	SDP-98-145	POND	KMS PROFESSIONAL BUILDING, PARCEL B-6	9011 CHEVROLET DR	SWMF-15- CHEVROLET DR 2	80037	1.8	1.62	Y	N	Y	N	3	Dam elevations for 2,10,100yr WSEL and Q- as-built DA does not include area of pond
DP	SDP-85-235	UGS-P	THULMAN EASTERN CORPORATION, PARCEL C-1	3487 SOUTH CHEVROLET DR	SWMF-25- S CHEVROLET DR 2	67394	1.5	?	Y	N	Y	N	3	2,10yr WSEL
DP	SDP-85-072	POND	S.S.V. PROFESSIONAL BUILDING FOR MILLER LAND CO	9005 CHEVROLET DR	SWMF-9- CHEVROLET DR 1	64411	1.5	?	Y	N	Y	N	3	Dam elevation- 2,10,100yr WSEL
DP	SDP-87-210	POND	OAKVIEW TREATMENT CTR, PARCEL C-2	3100 NORTH RIDGE RD	SWMF-12- N RIDGE RD 1	44968	1.0	0.80	Y	Y	Y	N	1	Dam elevations for 2,10,100yr WSEL/hydrology/stage-storage. Some 100yr hydrology.
DP	SDP-81-080	UGS 2-GC	GARVEY OFFICE BUILDING, PARCEL 121	3535 ELLICOTT MILLS DR	SWMF-22- ELLICOTT MILLS 2		0.0		N	N	Y	N	1	
UGS	SDP-81-080	UGS 1-GC	GARVEY OFFICE BUILDING, PARCEL 121	3535 ELLICOTT MILLS DR	SWMF-20- ELLICOTT MILLS 1		0.0		N	N	Y	N	7	

Principal Spillway Computations - Existing Conditions

Highway Storage- Structure 22

Pond Elevation	Pond Volume
352.00 ft	
354.00 ft	0.023 ac-ft
356.00 ft	0.152 ac-ft
358.00 ft	0.634 ac-ft
360.00 ft	1.718 ac-ft
362.00 ft	3.540 ac-ft
363.00 ft	4.666 ac-ft
364.00 ft	5.979 ac-ft
366.00 ft	9.261 ac-ft
368.00 ft	13.206 ac-ft
370.00 ft	17.801 ac-ft
371.00 ft	20.331 ac-ft

Barrel Q	Barrel HW
	352.50 ft
20.00 ft³/s	354.71 ft
50.00 ft³/s	356.22 ft
80.00 ft³/s	359.87 ft
120.00 ft³/s	363.64 ft
160.00 ft³/s	368.71 ft
200.00 ft³/s	370.55 ft
240.00 ft³/s	370.77 ft
280.00 ft³/s	370.93 ft
320.00 ft³/s	371.05 ft
360.00 ft³/s	371.16 ft
400.00 ft³/s	#REF!

Release Point	Crest Elevation	Crest Width	Orifice Height	Orifice Area	Co	Cw
NORTH	352.50 ft	2.50 ft	1.96 ft	4.91 ft²	0.6	3.1

Total Flow	Riser WSEL	Pond WSEL	Pond Storage	NORTH			Barrel
	352.50 ft						
1.00 ft³/s	352.61 ft	352.78 ft	0.008 ac-ft	submerged-weir	h=0.40 ft	Q=1.00 ft³/s	Q=1.00 ft³/s
5.00 ft³/s	353.05 ft	353.39 ft	0.015 ac-ft	submerged-weir	h=0.62 ft	Q=5.00 ft³/s	Q=5.00 ft³/s
10.00 ft³/s	353.61 ft	354.02 ft	0.023 ac-ft	submerged-weir	h=0.73 ft	Q=10.00 ft³/s	Q=10.00 ft³/s
20.00 ft³/s	354.71 ft	354.71 ft	0.045 ac-ft	barrel	n/a	n/a	Q=20.00 ft³/s
40.00 ft³/s	355.72 ft	355.72 ft	0.121 ac-ft	barrel	n/a	n/a	Q=40.00 ft³/s
60.00 ft³/s	356.62 ft	356.62 ft	0.247 ac-ft	barrel	n/a	n/a	Q=60.00 ft³/s
80.00 ft³/s	357.42 ft	357.42 ft	0.442 ac-ft	barrel	n/a	n/a	Q=80.00 ft³/s
100.00 ft³/s	358.65 ft	358.65 ft	0.907 ac-ft	barrel	n/a	n/a	Q=100.00 ft³/s
120.00 ft³/s	359.87 ft	359.87 ft	1.627 ac-ft	barrel	n/a	n/a	Q=120.00 ft³/s
140.00 ft³/s	361.76 ft	361.76 ft	3.276 ac-ft	barrel	n/a	n/a	Q=140.00 ft³/s
160.00 ft³/s	363.64 ft	363.64 ft	5.469 ac-ft	barrel	n/a	n/a	Q=160.00 ft³/s
180.00 ft³/s	366.18 ft	366.18 ft	9.579 ac-ft	barrel	n/a	n/a	Q=180.00 ft³/s
200.00 ft³/s	368.71 ft	368.71 ft	14.766 ac-ft	barrel	n/a	n/a	Q=200.00 ft³/s
250.00 ft³/s	370.61 ft	370.61 ft	19.313 ac-ft	barrel	n/a	n/a	Q=250.00 ft³/s
300.00 ft³/s	370.85 ft	370.85 ft	19.942 ac-ft	barrel	n/a	n/a	Q=300.00 ft³/s

orifice: $Q_o = C_d A_o (2gH_o)^{1/2}$

Q_o = the orifice flow rate
C_d = orifice discharge coefficient (0.40 - 0.60)
A_o = area of orifice
H_o = effective head on the orifice measured from the centre of the opening
g = acceleration due to gravity

sharp-crested weir: $Q_w = C_w L H_w^{1.5}$

Q_w = weir discharge
L = weir base width
H_w = head above weir crest excluding velocity head

submerged sharp-crested weir: $Q_s = Q_u[1-(H_2/H_1)^{1.5}]^{0.385}$

Q_s = submerged weir discharge
Q_u = unsubmerged weir discharge
H_1 = upstream head above weir crest
H_2 = downstream head above weir crest

Principal Spillway Computations - Existing Conditions

SWMF-03 (Structure-31)

Pond Elevation	Pond Volume
356.38 ft	
357.26 ft	0.02
357.50 ft	0.03
358.00 ft	0.05
358.50 ft	0.08
359.00 ft	0.1
360.00 ft	0.16
361.00 ft	0.25
362.00 ft	0.36
363.50 ft	0.6
364.00 ft	0.72

Barrel Q	Barrel HW
40.00 ft³/s	358.63 ft
50.00 ft³/s	359.84 ft
120.00 ft³/s	366.60 ft
160.00 ft³/s	366.68 ft
200.00 ft³/s	366.76 ft
240.00 ft³/s	366.83 ft
280.00 ft³/s	366.89 ft
320.00 ft³/s	366.95 ft
360.00 ft³/s	367.01 ft
400.00 ft³/s	

Release Point	Crest Width	Orifice Height	Orifice Area	Co	Cw
ORIFICE	1.75 ft	1.37 ft	2.41 ft²	0.6	3.1

Total Flow	Pond WSEL	Pond Storage	ORIFICE			Barrel
5.00 ft³/s	357.33 ft		weir	h=0.95 ft	Q=5.00 ft³/s	Q=5.00 ft³/s
10.00 ft³/s	357.81 ft		orifice	h=0.74 ft	Q=10.00 ft³/s	Q=10.00 ft³/s
20.00 ft³/s	360.04 ft		orifice	h=2.97 ft	Q=20.00 ft³/s	Q=20.00 ft³/s
40.00 ft³/s	363.25 ft		orifice	h=4.62 ft	Q=24.93 ft³/s	Q=40.00 ft³/s
60.00 ft³/s	363.70 ft		orifice	h=2.91 ft	Q=19.79 ft³/s	Q=60.00 ft³/s
80.00 ft³/s	364.08 ft		orifice	h=1.38 ft	Q=13.65 ft³/s	Q=80.00 ft³/s
100.00 ft³/s	364.60 ft		barrel	n/a	n/a	Q=100.00 ft³/s
140.00 ft³/s	366.55 ft		barrel	n/a	n/a	Q=140.00 ft³/s
180.00 ft³/s	366.64 ft		barrel	n/a	n/a	Q=180.00 ft³/s
220.00 ft³/s	366.72 ft		barrel	n/a	n/a	Q=220.00 ft³/s
260.00 ft³/s	366.80 ft		barrel	n/a	n/a	Q=260.00 ft³/s
300.00 ft³/s	366.86 ft		barrel	n/a	n/a	Q=300.00 ft³/s
340.00 ft³/s	366.92 ft		barrel	n/a	n/a	Q=340.00 ft³/s
380.00 ft³/s	366.98 ft		barrel	n/a	n/a	Q=380.00 ft³/s

orifice: $Q_o = C_d A_o (2gH_o)^{1/2}$

Q_o = the orifice flow rate

C_d = orifice discharge coefficient (0.40 - 0.60)

A_o = area of orifice

H_o = effective head on the orifice measured from the centre of the opening

g = acceleration due to gravity

sharp-crested weir: $Q_w = C_w L H_w^{1.5}$

Q_w = weir discharge

L = weir base width

H_w = head above weir crest excluding velocity head

submerged sharp-crested weir: $Q_s = Q_u[1-(H_2/H_1)^{1.5}]^{0.385}$

Q_s = submerged weir discharge

Q_u = unsubmerged weir discharge

H_1 = upstream head above weir crest

H_2 = downstream head above weir crest

Principal Spillway Computations - Existing Conditions

SWMF-11 (Structure 32)

Pond Elevation	Pond Volume
375.40 ft	
375.50 ft	0.008 ac-ft
376.00 ft	0.087 ac-ft
378.00 ft	0.447 ac-ft
380.00 ft	0.899 ac-ft
382.00 ft	1.460 ac-ft
383.00 ft	1.845 ac-ft

Barrel Q	Barrel HW
	375.40 ft
20.00 ft³/s	378.22 ft
44.00 ft³/s	381.78 ft
66.00 ft³/s	382.79 ft
88.00 ft³/s	382.89 ft
110.00 ft³/s	382.97 ft
132.00 ft³/s	383.04 ft
154.00 ft³/s	383.11 ft
176.00 ft³/s	383.18 ft
198.00 ft³/s	383.18 ft
220.00 ft³/s	
	#REF!

Release Point	Crest Width	Orifice Height	Orifice Area	Co	Cw
Notch Weir	1.50 ft	1.00 ft	1.50 ft²	0.6	3.1

Total Flow	Pond WSEL	Pond Storage	Notch Weir			Barrel	Storage w/o Permanent Pool (0.585 ac-ft)
1.00 ft³/s	379.36 ft	0.743 ac-ft	weir	h=0.36 ft	Q=1.00 ft³/s	Q=1.00 ft³/s	0.16
5.00 ft³/s	380.00 ft	0.899 ac-ft	weir	h=1.00 ft	Q=4.65 ft³/s	Q=5.00 ft³/s	0.31
10.00 ft³/s	380.20 ft	0.951 ac-ft	orifice	h=0.70 ft	Q=6.05 ft³/s	Q=10.00 ft³/s	0.37
15.00 ft³/s	380.33 ft	0.985 ac-ft	orifice	h=0.83 ft	Q=6.60 ft³/s	Q=15.00 ft³/s	0.40
20.00 ft³/s	380.45 ft	1.015 ac-ft	orifice	h=0.95 ft	Q=7.03 ft³/s	Q=20.00 ft³/s	0.43
25.00 ft³/s	380.55 ft	1.042 ac-ft	orifice	h=1.05 ft	Q=7.39 ft³/s	Q=25.00 ft³/s	0.46
30.00 ft³/s	380.65 ft	1.070 ac-ft	orifice	h=0.95 ft	Q=7.04 ft³/s	Q=30.00 ft³/s	0.49
35.00 ft³/s	380.45 ft	1.014 ac-ft	barrel	n/a	n/a	Q=35.00 ft³/s	0.43
40.00 ft³/s	381.19 ft	1.218 ac-ft	barrel	n/a	n/a	Q=40.00 ft³/s	0.63
44.00 ft³/s	381.78 ft	1.393 ac-ft	barrel	n/a	n/a	Q=44.00 ft³/s	0.81
66.00 ft³/s	382.59 ft	1.669 ac-ft	barrel	n/a	n/a	Q=66.00 ft³/s	1.08
88.00 ft³/s	382.79 ft	1.752 ac-ft	barrel	n/a	n/a	Q=88.00 ft³/s	1.17
110.00 ft³/s	382.89 ft	1.795 ac-ft	barrel	n/a	n/a	Q=110.00 ft³/s	1.21
132.00 ft³/s	382.97 ft	1.832 ac-ft	barrel	n/a	n/a	Q=132.00 ft³/s	1.25

orifice: $Q_o = C_d A_o (2gH_o)^{1/2}$

Q_o = the orifice flow rate
C_d = orifice discharge coefficient (0.40 - 0.60)
A_o = area of orifice
H_o = effective head on the orifice measured from the centre of the opening
g = acceleration due to gravity

sharp-crested weir: $Q_w = C_w L H_w^{1.5}$

Q_w = weir discharge
L = weir base width
H_w = head above weir crest excluding velocity head

submerged sharp-crested weir: $Q_s = Q_u[1-(H_2/H_1)^{1.5}]^{0.385}$

Q_s = submerged weir discharge
Q_u = unsubmerged weir discharge
H_1 = upstream head above weir crest
H_2 = downstream head above weir crest

Principal Spillway Computations - Existing Conditions

SWMF-08 (Structure-33)

Pond Elevation	Pond Volume
344.20 ft	
346.00 ft	0.093 ac-ft
348.00 ft	0.348 ac-ft
350.00 ft	0.709 ac-ft
352.00 ft	1.196 ac-ft
356.00 ft	2.598 ac-ft

Barrel Q	Barrel HW
	350.00 ft
20.00 ft³/s	352.57 ft
40.00 ft³/s	353.78 ft
60.00 ft³/s	357.46 ft
80.00 ft³/s	358.08 ft
100.00 ft³/s	358.14 ft
120.00 ft³/s	358.19 ft
140.00 ft³/s	358.23 ft
160.00 ft³/s	358.27 ft
180.00 ft³/s	358.31 ft
200.00 ft³/s	

Release Point	Crest Width	Orifice Height	Orifice Area	Co	Cw
Notch Weir	2.00 ft	2.50 ft	5.00 ft²	0.6	3.1

Total Flow	Pond WSEL	Pond Storage	Notch Weir			Barrel
1.00 ft³/s	354.30 ft	1.926 ac-ft	weir	h=0.30 ft	Q=1.00 ft³/s	Q=1.00 ft³/s
2.00 ft³/s	354.47 ft	1.989 ac-ft	weir	h=0.47 ft	Q=2.00 ft³/s	Q=2.00 ft³/s
5.00 ft³/s	354.87 ft	2.139 ac-ft	weir	h=0.87 ft	Q=5.00 ft³/s	Q=5.00 ft³/s
10.00 ft³/s	355.38 ft	2.339 ac-ft	weir	h=1.38 ft	Q=10.00 ft³/s	Q=10.00 ft³/s
20.00 ft³/s	356.18 ft	2.678 ac-ft	weir	h=2.18 ft	Q=20.00 ft³/s	Q=20.00 ft³/s
40.00 ft³/s	356.88 ft	2.991 ac-ft	orifice	h=1.63 ft	Q=30.76 ft³/s	Q=40.00 ft³/s
60.00 ft³/s	357.27 ft	3.172 ac-ft	orifice	h=1.95 ft	Q=33.62 ft³/s	Q=60.00 ft³/s
80.00 ft³/s	357.46 ft	3.262 ac-ft	barrel	n/a	n/a	Q=80.00 ft³/s
100.00 ft³/s	358.08 ft	3.568 ac-ft	barrel	n/a	n/a	Q=100.00 ft³/s
120.00 ft³/s	358.14 ft	3.598 ac-ft	barrel	n/a	n/a	Q=120.00 ft³/s
140.00 ft³/s	358.19 ft	3.623 ac-ft	barrel	n/a	n/a	Q=140.00 ft³/s
171.00 ft³/s	358.25 ft	3.655 ac-ft	barrel	n/a	n/a	Q=171.00 ft³/s
180.00 ft³/s	358.27 ft	3.664 ac-ft	barrel	n/a	n/a	Q=180.00 ft³/s
184.00 ft³/s	358.28 ft	3.668 ac-ft	barrel	n/a	n/a	Q=184.00 ft³/s
185.00 ft³/s	358.28 ft	3.669 ac-ft	barrel	n/a	n/a	Q=185.00 ft³/s

Storage not including the permanent pool (0.842 ac-ft)

Pond WSEL	Storage used for TR-20
354.30 ft	1.08 ac-ft
354.47 ft	1.15 ac-ft
354.87 ft	1.30 ac-ft
355.38 ft	1.50 ac-ft
356.18 ft	1.84 ac-ft
356.88 ft	2.15 ac-ft
357.27 ft	2.33 ac-ft
357.46 ft	2.42 ac-ft
358.08 ft	2.73 ac-ft
358.14 ft	2.76 ac-ft
358.19 ft	2.78 ac-ft
358.25 ft	2.81 ac-ft
358.27 ft	2.82 ac-ft
358.28 ft	2.83 ac-ft
358.28 ft	2.83 ac-ft

orifice: $Q_o = C_d A_o (2gH_o)^{1/2}$

Q_o = the orifice flow rate

C_d = orifice discharge coefficient (0.40 - 0.60)

A_o = area of orifice

H_o = effective head on the orifice measured from the centre of the opening

g = acceleration due to gravity

sharp-crested weir: $Q_w = C_w L H_w^{1.5}$

Q_w = weir discharge

L = weir base width

H_w = head above weir crest excluding velocity head

submerged sharp-crested weir: $Q_s = Q_u[1-(H_2/H_1)^{1.5}]^{0.385}$

Q_s = submerged weir discharge

Q_u = unsubmerged weir discharge

H_1 = upstream head above weir crest

H_2 = downstream head above weir crest

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Entire Watershed - 1 Drainage Area

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT: Parking Lot D

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	759725	17.44	837.16
C	Brush - (good)	65	82385	1.89	122.93
D	Brush - (good)	73	638778	14.66	1070.50
D	Impervious - paved parking lots roofs & drives	98	568	0.01	1.28
B	Impervious - rds paved curb/pipe (incl ROW)	98	5228	0.12	11.76
C	Impervious - rds paved curb/pipe (incl ROW)	98	1872	0.04	4.21
D	Impervious - rds paved curb/pipe (incl ROW)	98	2489232	57.14	5600.20
D	Open Space (good) - grass >75%	80	1847946	42.42	3393.84
B	Pasture / grassland / range (grazing) - (good)	61	281665	6.47	394.43
C	Pasture / grassland / range (grazing) - (good)	74	8260	0.19	14.03
B	Residential - 1 acre	68	4971788	114.14	7761.29
C	Residential - 1 acre	79	862834	19.81	1564.83
D	Residential - 1 acre	84	1058601	24.30	2041.38
B	Residential - 1/4 acre	75	5656572	129.86	9739.28
C	Residential - 1/4 acre	83	270627	6.21	515.66
D	Residential - 1/4 acre	87	637623	14.64	1273.49
B	Residential - 1/8 acre or less	85	4352591	99.92	8493.35
C	Residential - 1/8 acre or less	90	767993	17.63	1586.76
D	Residential - 1/8 acre or less	92	275481	6.32	581.82
B	Small grain - SR - (good)	75	1192271	27.37	2052.81
C	Small grain - SR - (good)	83	1085	0.02	2.07
D	Small grain - SR - (good)	87	547284	12.56	1093.06
B	Urban district - commercial/business	92	2620412	60.16	5534.39
C	Urban district - commercial/business	94	528814	12.14	1141.15
D	Urban district - commercial/business	95	3523070	80.88	7683.46
B	Urban district - industrial	88	2571130	59.03	5194.20
C	Urban district - industrial	91	13800	0.32	28.83
D	Urban district - industrial	93	956453	21.96	2042.01
B	Woods - (good)	55	4815172	110.54	6079.76
C	Woods - (good)	70	1128894	25.92	1814.11
D	Woods - (good)	77	556669	12.78	984.01
		TOTAL	**43424823**	**996.90**	**78658.07**
				MI^2	**1.5577**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **78658.07** = **78.9**
TOTAL ACRES **996.90**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Entire Watershed - 1 Drainage Area- All Woods

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT: Parking Lot D

CONDITION: ____ ULTIMATE
____ EXISTING
X ALL WOODS

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Woods - (good)	55	27226554	625.04	34376.96
C	Woods - (good)	70	3666566	84.17	5892.09
D	Woods - (good)	77	12531708	287.69	22152.01
		TOTAL	**43424828**	**996.90**	**62421.07**
				MI^2	**1.5577**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **62421.07** = **62.6**
TOTAL ACRES **996.90**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Tiber Run Watershed - Existing

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT: Parking Lot D

CONDITION: ____ ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	622130	14.28	685.54
C	Brush - (good)	65	115580	2.65	172.47
B	Impervious - rds paved curb/pipe (incl ROW)	98	8013	0.18	18.03
C	Impervious - rds paved curb/pipe (incl ROW)	98	6474	0.15	14.57
D	Impervious - rds paved curb/pipe (incl ROW)	98	341719	7.84	768.79
B	Pasture / grassland / range (grazing) - (good)	61	0	0.00	0.00
B	Residential - 1 acre	68	2478461	56.90	3869.04
C	Residential - 1 acre	79	283528	6.51	514.20
D	Residential - 1 acre	84	806777	18.52	1555.77
B	Residential - 1/4 acre	75	2858084	65.61	4920.94
C	Residential - 1/4 acre	83	286392	6.57	545.70
D	Residential - 1/4 acre	87	694636	15.95	1387.36
B	Residential - 1/8 acre or less	85	839801	19.28	1638.73
D	Residential - 1/8 acre or less	92	6767	0.16	14.29
B	Small grain - SR - (poor)	76	252611	5.80	440.74
C	Small grain - SR - (poor)	84	42865	0.98	82.66
B	Urban district - commercial/business	92	673346	15.46	1422.13
D	Urban district - commercial/business	95	10821	0.25	23.60
B	Urban district - industrial	88	3749	0.09	7.57
D	Urban district - industrial	93	7451	0.17	15.91
B	Woods - (good)	55	3245583	74.51	4097.96
C	Woods - (good)	70	1146943	26.33	1843.11
D	Woods - (good)	77	317627	7.29	561.46
		TOTAL	**15049358.00**	**345.49**	**24600.56**
				MI^2	**0.5398**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **24600.56** = **71.2**
TOTAL ACRES **345.49**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Entire Watershed - Large Subarea 1- Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT: Parking Lot D

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	177701	4.08	195.81
C	Brush - (good)	65	19973	0.46	29.80
D	Brush - (good)	73	182545	4.19	305.92
D	Impervious - rds paved curb/pipe (incl ROW)	98	486412	11.17	1094.32
D	Open Space (good) - grass >75%	80	318320	7.31	584.61
B	Pasture / grassland / range (grazing) - (good)	61	211100	4.85	295.62
C	Pasture / grassland / range (grazing) - (good)	74	8260	0.19	14.03
B	Residential - 1/4 acre	75	476134	10.93	819.79
B	Small grain - SR - (good)	75	918097	21.08	1580.75
D	Small grain - SR - (good)	87	493137	11.32	984.92
B	Urban district - commercial/business	92	276240	6.34	583.43
C	Urban district - commercial/business	94	43280	0.99	93.40
B	Urban district - industrial	88	495474	11.37	1000.96
D	Urban district - industrial	93	49877	1.15	106.49
B	Woods - (good)	55	324755	7.46	410.04
C	Woods - (good)	70	187880	4.31	301.92
D	Woods - (good)	77	111025	2.55	196.26
		TOTAL	**4780210**	**109.74**	**8598.05**
				MI^2	**0.1715**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **8598.05** = **78.4**
TOTAL ACRES **109.74**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Entire Watershed - Large Subarea 2- Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT: Parking Lot D

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	227026	5.21	250.17
C	Brush - (good)	65	62412	1.43	93.13
D	Brush - (good)	73	97160	2.23	162.83
D	Impervious - paved parking lots roofs & drives	98	568	0.01	1.28
B	Impervious - rds paved curb/pipe (incl ROW)	98	4860	0.11	10.93
C	Impervious - rds paved curb/pipe (incl ROW)	98	1872	0.04	4.21
D	Impervious - rds paved curb/pipe (incl ROW)	98	1117514	25.65	2514.15
D	Open Space (good) - grass >75%	80	1086299	24.94	1995.04
B	Pasture / grassland / range (grazing) - (good)	61	70564	1.62	98.82
B	Residential - 1/4 acre	75	320715	7.36	552.20
C	Residential - 1/4 acre	83	1173	0.03	2.24
B	Residential - 1/8 acre or less	85	716320	16.44	1397.78
C	Residential - 1/8 acre or less	90	26517	0.61	54.79
B	Small grain - SR - (good)	75	274173	6.29	472.06
C	Small grain - SR - (good)	83	1085	0.02	2.07
D	Small grain - SR - (good)	87	54148	1.24	108.15
B	Urban district - commercial/business	92	1092177	25.07	2306.71
C	Urban district - commercial/business	94	97039	2.23	209.40
D	Urban district - commercial/business	95	1020318	23.42	2225.21
B	Urban district - industrial	88	246400	5.66	497.78
D	Urban district - industrial	93	10278	0.24	21.94
B	Woods - (good)	55	380783	8.74	480.79
C	Woods - (good)	70	49036	1.13	78.80
D	Woods - (good)	77	1573	0.04	2.78
		TOTAL	**5154583**	**118.33**	**10026.53**
				MI^2	**0.1849**

WEIGHTED RUNOFF CURVE NUMBER = TOT RCN x AC = 10026.53 / TOTAL ACRES 118.33 = 84.7

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Entire Watershed - Large Subarea 3- Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT: Parking Lot D

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	209926	4.82	231.32
D	Brush - (good)	73	280845	6.45	470.65
D	Impervious - rds paved curb/pipe (incl ROW)	98	349421	8.02	786.12
D	Open Space (good) - grass >75%	80	330116	7.58	606.27
B	Residential - 1 acre	68	647421	14.86	1010.67
D	Residential - 1 acre	84	99207	2.28	191.31
B	Residential - 1/4 acre	75	2545730	58.44	4383.14
D	Residential - 1/4 acre	87	585055	13.43	1168.50
B	Residential - 1/8 acre or less	85	277	0.01	0.54
D	Residential - 1/8 acre or less	92	7435	0.17	15.70
B	Urban district - commercial/business	92	776126	17.82	1639.20
D	Urban district - commercial/business	95	2264635	51.99	4938.94
B	Urban district - industrial	88	1033541	23.73	2087.96
D	Urban district - industrial	93	159538	3.66	340.61
B	Woods - (good)	55	503324	11.55	635.51
D	Woods - (good)	77	309553	7.11	547.19
		TOTAL	**10102150**	**231.91**	**19053.64**
				MI^2	**0.3624**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **19053.64** = **82.2**
TOTAL ACRES **231.91**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Entire Watershed - Large Subarea 4- Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT: Parking Lot D

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	136280	3.13	150.17
D	Brush - (good)	73	78228	1.80	131.10
B	Impervious - rds paved curb/pipe (incl ROW)	98	368	0.01	0.83
D	Impervious - rds paved curb/pipe (incl ROW)	98	496083	11.39	1116.07
D	Open Space (good) - grass >75%	80	113210	2.60	207.92
B	Residential - 1 acre	68	2063015	47.36	3220.50
D	Residential - 1 acre	84	933222	21.42	1799.60
B	Residential - 1/4 acre	75	271033	6.22	466.65
D	Residential - 1/4 acre	87	7756	0.18	15.49
B	Residential - 1/8 acre or less	85	205590	4.72	401.17
D	Residential - 1/8 acre or less	92	33844	0.78	71.48
B	Urban district - commercial/business	92	4046	0.09	8.55
D	Urban district - commercial/business	95	4743	0.11	10.34
B	Woods - (good)	55	22237	0.51	28.08
C	Woods - (good)	70	1291	0.03	2.07
D	Woods - (good)	77	16073	0.37	28.41
		TOTAL	**4387019**	**100.71**	**7658.44**
				MI^2	**0.1574**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **7658.44** = **76.0**
TOTAL ACRES **100.71**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Entire Watershed - Large Subarea 5- Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT: Parking Lot D

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
D	Impervious - rds paved curb/pipe (incl ROW)	98	39803	0.91	89.55
B	Residential - 1 acre	68	35534	0.82	55.47
C	Residential - 1 acre	79	8706	0.20	15.79
B	Residential - 1/4 acre	75	166245	3.82	286.23
C	Residential - 1/4 acre	83	460	0.01	0.88
D	Residential - 1/4 acre	87	62	0.00	0.12
B	Residential - 1/8 acre or less	85	997244	22.89	1945.95
C	Residential - 1/8 acre or less	90	76888	1.77	158.86
D	Residential - 1/8 acre or less	92	36662	0.84	77.43
B	Urban district - commercial/business	92	40519	0.93	85.58
C	Urban district - commercial/business	94	16674	0.38	35.98
D	Urban district - commercial/business	95	23252	0.53	50.71
B	Woods - (good)	55	569988	13.09	719.68
C	Woods - (good)	70	491583	11.29	789.96
D	Woods - (good)	77	62566	1.44	110.60
		TOTAL	**2566186**	**58.91**	**4422.80**
				MI^2	**0.0920**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **4422.80** = **75.1**
TOTAL ACRES **58.91**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Entire Watershed - Large Subarea 6- Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT: Parking Lot D

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	8792	0.20	9.69
B	Residential - 1 acre	68	613743	14.09	958.09
C	Residential - 1 acre	79	366417	8.41	664.53
D	Residential - 1 acre	84	6878	0.16	13.26
B	Residential - 1/4 acre	75	1567024	35.97	2698.04
C	Residential - 1/4 acre	83	196256	4.51	373.95
D	Residential - 1/4 acre	87	11413	0.26	22.79
B	Residential - 1/8 acre or less	85	1872293	42.98	3653.46
C	Residential - 1/8 acre or less	90	323218	7.42	667.81
D	Residential - 1/8 acre or less	92	197546	4.54	417.22
C	Urban district - commercial/business	94	11	0.00	0.02
D	Urban district - commercial/business	95	31284	0.72	68.23
B	Urban district - industrial	88	172234	3.95	347.95
C	Urban district - industrial	91	13800	0.32	28.83
D	Urban district - industrial	93	323030	7.42	689.66
B	Woods - (good)	55	1206711	27.70	1523.63
C	Woods - (good)	70	231244	5.31	371.60
D	Woods - (good)	77	10438	0.24	18.45
		TOTAL	**7152332**	**164.19**	**12527.23**
				MI^2	**0.2566**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **12527.23** = **76.3**
TOTAL ACRES **164.19**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Entire Watershed - Large Subarea 7- Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT: Parking Lot D

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	1612074	37.01	2516.55
C	Residential - 1 acre	79	487711	11.20	884.51
D	Residential - 1 acre	84	19122	0.44	36.87
B	Residential - 1/4 acre	75	309691	7.11	533.21
C	Residential - 1/4 acre	83	72738	1.67	138.60
D	Residential - 1/4 acre	87	33336	0.77	66.58
B	Residential - 1/8 acre or less	85	561010	12.88	1094.72
C	Residential - 1/8 acre or less	90	341370	7.84	705.31
B	Urban district - commercial/business	92	431282	9.90	910.88
C	Urban district - commercial/business	94	371809	8.54	802.34
D	Urban district - commercial/business	95	178830	4.11	390.01
B	Urban district - industrial	88	623481	14.31	1259.56
D	Urban district - industrial	93	413730	9.50	883.31
B	Woods - (good)	55	1807374	41.49	2282.04
C	Woods - (good)	70	167860	3.85	269.75
D	Woods - (good)	77	45443	1.04	80.33
		TOTAL	**7476861**	**171.65**	**12854.56**
				MI^2	**0.2682**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **12854.56** = **74.9**
TOTAL ACRES **171.65**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
DA 3-3 - Structure management thru CN only

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	19785	0.45	21.80
D	Brush - (good)	73	40261	0.92	67.47
B	Residential - 1 acre	68	190580	4.38	297.51
D	Residential - 1 acre	84	30571	0.70	58.95
B	Residential - 1/4 acre	75	307661	7.06	529.72
B	Urban district - commercial/business	92	297776	6.84	628.91
D	Urban district - commercial/business	95	40255	0.92	87.79
B	Urban district - industrial	88	134115	3.08	270.94
B	Woods - (good)	55	427757	9.82	540.10
D	Woods - (good)	77	180292	4.14	318.70
		TOTAL	**1669053.00**	**38.32**	**2821.89**
				MI^2	**0.0599**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2821.89** = **73.6**
TOTAL ACRES **38.32**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
DA 3-4 -Structure management thru CN only

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1/4 acre	75	117749	2.70	202.74
D	Residential - 1/4 acre	87	30675	0.70	61.27
B	Urban district - commercial/business	92	93474		
D	Urban district - commercial/business	95	379249		
B	Urban district - industrial	88	898065		
D	Urban district - industrial	93	159538		
B	Woods - (good)	55	246382		
D	Woods - (good)	77	3310		
		TOTAL	**148424**	**3.41**	**264.00**
				MI^2	**0.0053**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **264.00** = **77.5**
TOTAL ACRES **3.41**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
DA 6-1 -Structure management thru CN only

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Woods - (good)	55	176497	4.05	222.85
C	Woods - (good)	70	435	0.01	0.70
D	Woods - (good)	77	130931	3.01	231.44
		TOTAL	**307863.00**	**7.07**	**454.99**
				MI^2	**0.0110**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **454.99** = **64.4**
TOTAL ACRES **7.07**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
DA6-2 -Structure management thru CN only

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Woods - (good)	55	1181582	27.13	1491.90
C	Woods - (good)	70	2023	0.05	3.25
D	Woods - (good)	77	94442	2.17	166.94
		TOTAL	**1278047.00**	**29.34**	**1662.09**
				MI^2	**0.0458**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **1662.09** = **56.6**
TOTAL ACRES **29.34**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
DA 6-4 -Structure management thru CN only

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Woods - (good)	55	258847	5.94	326.83
C	Woods - (good)	70	72600	1.67	116.67
		TOTAL	**331447**	**7.61**	**443.49**
				MI^2	**0.0119**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **443.49** = **58.3**
TOTAL ACRES **7.61**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 1-1 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	81103	1.86	89.37
D	Brush - (good)	73	94184	2.16	157.84
D	Impervious - rds paved curb/pipe (incl ROW)	98	267816	6.15	602.52
D	Open Space (good) - grass >75%	80	318320	7.31	584.61
B	Residential - 1/4 acre	75	4146	0.10	7.14
B	Small grain - SR - (good)	75	37528	0.86	64.61
B	Woods - (good)	55	65599	1.51	82.83
D	Woods - (good)	77	69179	1.59	122.29
		TOTAL	**937875**	**21.53**	**1711.21**
				MI^2	**0.0336**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **1711.21** = **79.5**
TOTAL ACRES **21.53**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 1-2 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	32774	0.75	36.11
D	Brush - (good)	73	11902	0.27	19.95
B	Residential - 1/4 acre	75	216271	4.96	372.37
B	Small grain - SR - (good)	75	584292	13.41	1006.01
D	Small grain - SR - (good)	87	386968	8.88	772.87
B	Urban district - industrial	88	335130	7.69	677.03
D	Urban district - industrial	93	49877	1.15	106.49
		TOTAL	**1617214**	**37.13**	**2990.83**
				MI^2	**0.0580**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2990.83** = **80.6**
TOTAL ACRES **37.13**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 1-3 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	63824	1.47	70.33
C	Brush - (good)	65	19973	0.46	29.80
D	Brush - (good)	73	76458	1.76	128.13
D	Impervious - rds paved curb/pipe (incl ROW)	98	218596	5.02	491.79
B	Pasture / grassland / range (grazing) - (good)	61	211100	4.85	295.62
C	Pasture / grassland / range (grazing) - (good)	74	8260	0.19	14.03
B	Residential - 1/4 acre	75	255770	5.87	440.38
B	Small grain - SR - (good)	75	296279	6.80	510.12
D	Small grain - SR - (good)	87	106168	2.44	212.04
B	Urban district - commercial/business	92	276240	6.34	583.43
C	Urban district - commercial/business	94	43280	0.99	93.40
B	Urban district - industrial	88	160344	3.68	323.93
B	Woods - (good)	55	259157	5.95	327.22
C	Woods - (good)	70	187880	4.31	301.92
D	Woods - (good)	77	41846	0.96	73.97
		TOTAL	**2225175**	**51.08**	**3896.10**
				MI^2	**0.0798**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **3896.10** = **76.3**
TOTAL ACRES **51.08**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 2-1 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	7753	0.18	8.54
D	Brush - (good)	73	6325	0.15	10.60
D	Impervious - rds paved curb/pipe (incl ROW)	98	1100	0.03	2.47
B	Pasture / grassland / range (grazing) - (good)	61	70564	1.62	98.82
B	Residential - 1/8 acre or less	85	716061	16.44	1397.27
C	Residential - 1/8 acre or less	90	26517	0.61	54.79
B	Urban district - commercial/business	92	946224	21.72	1998.45
C	Urban district - commercial/business	94	80420	1.85	173.54
D	Urban district - commercial/business	95	191795	4.40	418.29
		TOTAL	**2046759**	**46.99**	**4162.77**
				MI^2	**0.0734**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **4162.77** = **88.6**
TOTAL ACRES **46.99**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 2-2 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	125600	2.88	138.40
C	Brush - (good)	65	23403	0.54	34.92
D	Brush - (good)	73	38170	0.88	63.97
B	Impervious - rds paved curb/pipe (incl ROW)	98	2429	0.06	5.46
C	Impervious - rds paved curb/pipe (incl ROW)	98	967	0.02	2.18
D	Impervious - rds paved curb/pipe (incl ROW)	98	215305	4.94	484.39
D	Open Space (good) - grass >75%	80	90603	2.08	166.40
B	Residential - 1/4 acre	75	320715	7.36	552.20
C	Residential - 1/4 acre	83	1173	0.03	2.24
B	Small grain - SR - (good)	75	226056	5.19	389.21
C	Small grain - SR - (good)	83	1085	0.02	2.07
D	Small grain - SR - (good)	87	54148	1.24	108.15
B	Urban district - commercial/business	92	6145	0.14	12.98
B	Urban district - industrial	88	246400	5.66	497.78
D	Urban district - industrial	93	10278	0.24	21.94
B	Woods - (good)	55	174268	4.00	220.04
C	Woods - (good)	70	49036	1.13	78.80
		TOTAL	**1585781**	**36**	**2781**
				MI^2	**0.0569**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2781.11** = **76.4**
TOTAL ACRES **36.40**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 2-3 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	35649	0.82	39.28
D		73	24377	0.56	40.85
B	Impervious - rds paved curb/pipe (incl ROW)	98	697	0.02	1.57
D		98	125844	2.89	283.12
D	Open Space (good) - grass >75%	80	196146	4.50	360.23
B	Small grain - SR - (good)	75	44862	1.03	77.24
B	Urban district - commercial/business	92	365	0.01	0.77
D		95	37329	0.86	81.41
B	Woods - (good)	55	73258	1.68	92.50
		TOTAL	**538527**	**12**	**977**
				MI^2	**0.0193**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **976.98** = **79.0**
TOTAL ACRES **12.36**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 2-4 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
D	Impervious - rds paved curb/pipe (incl ROW)	98	166566	3.82	374.74
D	Open Space (good) - grass >75%	80	312113	7.17	573.21
D	Urban district - commercial/business	95	110333	2.53	240.63
		TOTAL	**589012**	**14**	**1189**
				MI^2	**0.0211**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **1188.57** = **87.9**
TOTAL ACRES **13.52**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 2-5 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
D	Impervious - rds paved curb/pipe (incl ROW)	98	142050	3.26	319.58
D	Open Space (good) - grass >75%	80	209636	4.81	385.01
D	Urban district - commercial/business	95	519535	11.93	1133.05
		TOTAL	**871221**	**20**	**1838**
				MI^2	**0.0313**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **1837.64** = **91.9**
TOTAL ACRES **20.00**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 2-6 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	1991	0.05	2.19
D	Brush - (good)	73	21004	0.48	35.20
D	Impervious - paved parking lots roofs & drives	98	568	0.01	1.28
B	Impervious - rds paved curb/pipe (incl ROW)	98	1734	0.04	3.90
D	Impervious - rds paved curb/pipe (incl ROW)	98	427232	9.81	961.17
D	Open Space (good) - grass >75%	80	277801	6.38	510.19
B	Small grain - SR - (good)	75	3255	0.07	5.60
B	Urban district - commercial/business	92	97613	2.24	206.16
D	Urban district - commercial/business	95	161303	3.70	351.79
B	Woods - (good)	55	133258	3.06	168.26
D	Woods - (good)	77	1573	0.04	2.78
		TOTAL	**1127332**	**26**	**2249**
				MI^2	**0.0404**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2248.53** = **86.9**
TOTAL ACRES **25.88**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 2-6 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	100533	2.31	110.78
C	Brush - (good)	65	39009	0.90	58.21
D	Brush - (good)	73	11355	0.26	19.03
C	Impervious - rds paved curb/pipe (incl ROW)	98	905	0.02	2.04
D	Impervious - rds paved curb/pipe (incl ROW)	98	54978	1.26	123.69
B	Urban district - commercial/business	92	46156	1.06	97.48
C	Urban district - commercial/business	94	16619	0.38	35.86
		TOTAL	**269555**	**6**	**447**
				MI^2	**0.0097**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **447.09** = **72.2**
TOTAL ACRES **6.19**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 3-1 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	146363	3.36	228.48
D	Residential - 1 acre	84	31365	0.72	60.48
B	Residential - 1/4 acre	75	957652	21.98	1648.85
D	Residential - 1/4 acre	87	254641	5.85	508.58
B	Woods - (good)	55	5568	0.13	7.03
D	Woods - (good)	77	11984	0.28	21.18
		TOTAL	**1407573**	**32**	**2475**
				MI^2	**0.0505**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2474.61** = **76.6**
TOTAL ACRES **32.31**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 3-2 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	309699	7.11	483.46
B	Residential - 1/4 acre	75	1014256	23.28	1746.31
D	Residential - 1/4 acre	87	296429	6.81	592.04
B	Urban district - commercial/business	92	77302	1.77	163.26
D	Urban district - commercial/business	95	110111	2.53	240.14
B	Urban district - industrial	88	1555	0.04	3.14
B	Woods - (good)	55	158962	3.65	200.71
D	Woods - (good)	77	117735	2.70	208.12
		TOTAL	**2086049**	**48**	**3637**
				MI^2	**0.0748**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **3637.18** = **76.0**
TOTAL ACRES **47.89**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 3-3 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	19785	0.45	21.80
D	Brush - (good)	73	40261	0.92	67.47
B	Residential - 1 acre	68	190580	4.38	297.51
D	Residential - 1 acre	84	30571	0.70	58.95
B	Residential - 1/4 acre	75	308601	7.08	531.34
B	Urban district - commercial/business	92	476354	10.94	1006.07
D	Urban district - commercial/business	95	40783	0.94	88.94
B	Urban district - industrial	88	134115	3.08	270.94
B	Woods - (good)	55	248239	5.70	313.43
D	Woods - (good)	77	179764	4.13	317.76
		TOTAL	**1669053**	**38**	**2974**
				MI^2	**0.0599**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2974.23** = **77.6**
TOTAL ACRES **38.32**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 3-4 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1/4 acre	75	265184	6.09	456.58
D	Residential - 1/4 acre	87	33985	0.78	67.88
B	Urban district - commercial/business	92	102444	2.35	216.36
D	Urban district - commercial/business	95	379249	8.71	827.10
B	Urban district - industrial	88	897872	20.61	1813.88
D	Urban district - industrial	93	159538	3.66	340.61
B	Woods - (good)	55	89976	2.07	113.61
		TOTAL	**1928248**	**44**	**3836**
				MI^2	**0.0692**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **3836.03** = **86.7**
TOTAL ACRES **44.27**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 3-5 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
D	Urban district - commercial/business	95	233155	5.35	508.49
		TOTAL	**233155**	**5**	**508**
				MI^2	**0.0084**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **508.49** = **95.0**
TOTAL ACRES **5.35**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 3-6 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1/8 acre or less	85	211	0.00	0.41
D	Residential - 1/8 acre or less	92	6911	0.16	14.60
B	Urban district - commercial/business	92	1577	0.04	3.33
D	Urban district - commercial/business	95	757460	17.39	1651.94
D	Woods - (good)	77	53	0.00	0.09
		TOTAL	**766212**	**18**	**1670**
				MI^2	**0.0275**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **1670.38** = **95.0**
TOTAL ACRES **17.59**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 3-7 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	70751	1.62	77.96
D	Brush - (good)	73	39247	0.90	65.77
D	Impervious - rds paved curb/pipe (incl ROW)	98	282974	6.50	636.63
D	Open Space (good) - grass >75%	80	318123	7.30	584.25
B	Residential - 1/8 acre or less	85	63	0.00	0.12
D	Residential - 1/8 acre or less	92	520	0.01	1.10
D	Urban district - commercial/business	95	203251	4.67	443.27
		TOTAL	**914929**	**21**	**1809**
				MI^2	**0.0328**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **1809.10** = **86.1**
TOTAL ACRES **21.00**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 3-8 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	119392	2.74	131.56
D	Brush - (good)	73	201337	4.62	337.41
D	Impervious - rds paved curb/pipe (incl ROW)	98	66448	1.53	149.49
D	Open Space (good) - grass >75%	80	11992	0.28	22.02
B	Residential - 1 acre	68	779	0.02	1.22
D	Residential - 1 acre	84	37272	0.86	71.87
B	Urban district - commercial/business	92	118448	2.72	250.17
D	Urban district - commercial/business	95	540581	12.41	1178.95
B	Woods - (good)	55	579	0.01	0.73
		TOTAL	**1096828**	**25**	**2143**
				MI^2	**0.0393**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2143.43** = **85.1**
TOTAL ACRES **25.18**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 4-1 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
D	Impervious - rds paved curb/pipe (incl ROW)	98	103097	2.37	231.94
B	Residential - 1 acre	68	785224	18.03	1225.79
D		84	227122	5.21	437.98
B	Residential - 1/8 acre or less	85	179955	4.13	351.15
D		92	33655	0.77	71.08
		TOTAL	**1329053**	**31**	**2318**
				MI^2	**0.0477**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2317.94** = **76.0**
TOTAL ACRES **30.51**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 4-2 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
D	Residential - 1 acre	68	968870	22.24	1512.47
B	Residential - 1 acre	84	503127	11.55	970.22
D	Residential - 1/4 acre	75	271033	6.22	466.65
B	Residential - 1/4 acre	87	7756	0.18	15.49
		TOTAL	**1750786**	**40**	**2965**
				MI^2	**0.0628**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2964.83** = **73.8**
TOTAL ACRES **40.19**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 4-3 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	136280	3.13	150.17
D	Brush - (good)	73	78228	1.80	131.10
B	Impervious - rds paved curb/pipe (incl ROW)	98	368	0.01	0.83
D	Impervious - rds paved curb/pipe (incl ROW)	98	392986	9.02	884.13
D	Open Space (good) - grass >75%	80	113210	2.60	207.92
B	Residential - 1 acre	68	308921	7.09	482.25
D	Residential - 1 acre	84	202973	4.66	391.41
B	Residential - 1/8 acre or less	85	25635	0.59	50.02
D	Residential - 1/8 acre or less	92	189	0.00	0.40
B	Urban district - commercial/business	92	4046	0.09	8.55
D	Urban district - commercial/business	95	4743	0.11	10.34
B	Woods - (good)	55	22237	0.51	28.08
C	Woods - (good)	70	1291	0.03	2.07
D	Woods - (good)	77	16073	0.37	28.41
		TOTAL	**1307180**	**30**	**2376**
				MI^2	**0.0469**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2375.67** = **79.2**
TOTAL ACRES **30.01**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 5-1 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1/8 acre or less	85	208808	4.79	407.45
C	Residential - 1/8 acre or less	90	13851	0.32	28.62
D	Residential - 1/8 acre or less	92	1966	0.05	4.15
B	Urban district - commercial/business	92	120	0.00	0.25
B	Woods - (good)	55	17477	0.40	22.07
D	Woods - (good)	77	827	0.02	1.46
		TOTAL	**243049**	**6**	**464**
				MI^2	**0.0087**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **464.01** = **83.2**
TOTAL ACRES **5.58**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 5-2 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1/8 acre or less	85	188143	4.32	367.13
B	Woods - (good)	55	13053	0.30	16.48
		TOTAL	**201196**	**5**	**384**
				MI^2	**0.0072**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **383.61** = **83.1**
TOTAL ACRES **4.62**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 5-3 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
D	Impervious - rds paved curb/pipe (incl ROW)	98	39803	0.91	89.55
B	Residential - 1/8 acre or less	85	331234	7.60	646.35
C	Residential - 1/8 acre or less	90	9	0.00	0.02
D	Residential - 1/8 acre or less	92	34386	0.79	72.62
B	Woods - (good)	55	229130	5.26	289.31
C	Woods - (good)	70	215202	4.94	345.83
D	Woods - (good)	77	48415	1.11	85.58
		TOTAL	**898179**	**21**	**1529**
				MI^2	**0.0322**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **1529.25** = **74.2**
TOTAL ACRES **20.62**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 5-4 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1/4 acre	75	115381	2.65	198.66
C	Residential - 1/4 acre	83	460	0.01	0.88
D	Residential - 1/4 acre	87	62	0.00	0.12
B	Residential - 1/8 acre or less	85	93693	2.15	182.83
C	Residential - 1/8 acre or less	90	48852	1.12	100.93
D	Residential - 1/8 acre or less	92	314	0.01	0.66
B	Urban district - commercial/business	92	40399	0.93	85.32
C	Urban district - commercial/business	94	16674	0.38	35.98
D	Urban district - commercial/business	95	23252	0.53	50.71
B	Woods - (good)	55	185559	4.26	234.29
C	Woods - (good)	70	204110	4.69	328.00
D	Woods - (good)	77	13324	0.31	23.55
		TOTAL	**742080**	**17**	**1242**
				MI^2	**0.0266**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **1241.94** = **72.9**
TOTAL ACRES **17.04**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 5-5 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	35534	0.82	55.47
C	Residential - 1 acre	79	8706	0.20	15.79
B	Residential - 1/4 acre	75	50864	1.17	87.58
B	Residential - 1/8 acre or less	85	175368	4.03	342.20
C	Residential - 1/8 acre or less	90	14176	0.33	29.29
B	Woods - (good)	55	124771	2.86	157.54
C	Woods - (good)	70	72271	1.66	116.14
		TOTAL	**481690**	**11**	**804**
				MI^2	**0.0173**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **804.00** = **72.7**
TOTAL ACRES **11.06**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 6-1 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1/8 acre or less	85	176497	4.05	344.40
C	Residential - 1/8 acre or less	90	435	0.01	0.90
D	Residential - 1/8 acre or less	92	117136	2.69	247.39
D	Urban district - commercial/business	95	13794	0.32	30.08
		TOTAL	**307862**	**7**	**623**
				MI^2	**0.0110**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **622.78** = **88.1**
TOTAL ACRES **7.07**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 6-2 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1/4 acre	75	696861	16.00	1199.83
C	Residential - 1/4 acre	83	2023	0.05	3.85
D	Residential - 1/4 acre	87	2	0.00	0.00
B	Residential - 1/8 acre or less	85	484721	11.13	945.85
D	Residential - 1/8 acre or less	92	68736	1.58	145.17
D	Urban district - commercial/business	95	17502	0.40	38.17
D	Woods - (good)	77	8203	0.19	14.50
		TOTAL	**1278048**	**29**	**2347**
				MI^2	**0.0458**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2347.38** = **80.0**
TOTAL ACRES **29.34**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 6-3 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	321504	7.38	501.89
C	Residential - 1 acre	79	91506	2.10	165.95
D	Residential - 1 acre	84	6878	0.16	13.26
B	Residential - 1/4 acre	75	635580	14.59	1094.32
C	Residential - 1/4 acre	83	126285	2.90	240.63
D	Residential - 1/4 acre	87	11411	0.26	22.79
B	Residential - 1/8 acre or less	85	181504	4.17	354.17
C	Residential - 1/8 acre or less	90	130285	2.99	269.18
D	Residential - 1/8 acre or less	92	11674	0.27	24.66
B	Urban district - industrial	88	172234	3.95	347.95
C	Urban district - industrial	91	13800	0.32	28.83
D	Urban district - industrial	93	323030	7.42	689.66
B	Woods - (good)	55	78872	1.81	99.59
C	Woods - (good)	70	61258	1.41	98.44
D	Woods - (good)	77	2235	0.05	3.95
		TOTAL	**2168056**	**50**	**3955**
				MI^2	**0.0778**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **3955.27** = **79.5**
TOTAL ACRES **49.77**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 6-4 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	8	0.00	0.01
C	Residential - 1 acre	79	9645	0.22	17.49
B	Residential - 1/4 acre	75	1030	0.02	1.77
B	Residential - 1/8 acre or less	85	257810	5.92	503.07
C	Residential - 1/8 acre or less	90	62955	1.45	130.07
		TOTAL	**331448**	**8**	**652**
				MI^2	**0.0119**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **652.42** = **85.7**
TOTAL ACRES **7.61**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 6-5 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	8792	0.20	9.69
B	Residential - 1 acre	68	292231	6.71	456.19
C	Residential - 1 acre	79	265147	6.09	480.87
B	Residential - 1/4 acre	75	233552	5.36	402.12
C	Residential - 1/4 acre	83	67948	1.56	129.47
B	Residential - 1/8 acre or less	85	771064	17.70	1504.60
C	Residential - 1/8 acre or less	90	129258	2.97	267.06
C	Urban district - commercial/business	94	11	0.00	0.02
B	Woods - (good)	55	1127839	25.89	1424.04
C	Woods - (good)	70	169986	3.90	273.16
		TOTAL	**3065828**	**70**	**4947**
				MI^2	**0.1100**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **4947.23** = **70.3**
TOTAL ACRES **70.38**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 7-1 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	211044	4.84	329.45
C	Residential - 1 acre	79	168481	3.87	305.56
B	Residential - 1/4 acre	75	198703	4.56	342.12
C	Residential - 1/4 acre	83	72738	1.67	138.60
D	Residential - 1/4 acre	87	4558	0.10	9.10
B	Residential - 1/8 acre or less	85	40416	0.93	78.87
C	Residential - 1/8 acre or less	90	13086	0.30	27.04
B	Urban district - commercial/business	92	32545	0.75	68.74
C	Urban district - commercial/business	94	215301	4.94	464.61
B	Urban district - industrial	88	69187	1.59	139.77
B	Woods - (good)	55	377537	8.67	476.69
C	Woods - (good)	70	18917	0.43	30.40
		TOTAL	**1422513**	**33**	**2411**
				MI^2	**0.0510**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2410.93** = **73.8**
TOTAL ACRES **32.66**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 7-2 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	174201	4.00	271.94
C	Residential - 1 acre	79	40982	0.94	74.32
D	Residential - 1 acre	84	2822	0.06	5.44
B	Residential - 1/4 acre	75	66868	1.54	115.13
D	Residential - 1/4 acre	87	16513	0.38	32.98
B	Residential - 1/8 acre or less	85	40204	0.92	78.45
B	Urban district - commercial/business	92	13182	0.30	27.84
C	Urban district - commercial/business	94	36018	0.83	77.72
D	Urban district - commercial/business	95	2312	0.05	5.04
B	Urban district - industrial	88	488465	11.21	986.80
D	Urban district - industrial	93	229598	5.27	490.19
B	Woods - (good)	55	273965	6.29	345.92
D	Woods - (good)	77	44552	1.02	78.75
		TOTAL	**1429682**	**33**	**2591**
				MI^2	**0.0513**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2590.53** = **78.9**
TOTAL ACRES **32.82**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 7-3 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	286536	6.58	447.30
C	Residential - 1 acre	79	140982	3.24	255.68
B	Residential - 1/8 acre or less	85	34076	0.78	66.49
C	Residential - 1/8 acre or less	90	141137	3.24	291.61
B	Urban district - commercial/business	92	342	0.01	0.72
C	Urban district - commercial/business	94	3384	0.08	7.30
B	Urban district - industrial	88	4672	0.11	9.44
B	Woods - (good)	55	260967	5.99	329.50
		TOTAL	**872096**	**20**	**1408**
				MI^2	**0.0313**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **1408.05** = **70.3**
TOTAL ACRES **20.02**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 7-4 -Existing-No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	875044	20.09	1366.00
C	Residential - 1 acre	79	112155	2.57	203.40
D	Residential - 1 acre	84	16300	0.37	31.43
B	Residential - 1/4 acre	75	44103	1.01	75.93
D	Residential - 1/4 acre	87	12265	0.28	24.50
B	Residential - 1/8 acre or less	85	446309	10.25	870.90
C	Residential - 1/8 acre or less	90	187142	4.30	386.66
B	Urban district - commercial/business	92	140134	3.22	295.97
C	Urban district - commercial/business	94	15289	0.35	32.99
D	Urban district - commercial/business	95	176519	4.05	384.97
B	Urban district - industrial	88	61159	1.40	123.55
D	Urban district - industrial	93	184133	4.23	393.12
B	Woods - (good)	55	888522	20.40	1121.87
C	Woods - (good)	70	148943	3.42	239.35
D	Woods - (good)	77	890	0.02	1.57
		TOTAL	**3308907**	**76**	**5552**
				MI^2	**0.1187**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **5552.22** = **73.1**
TOTAL ACRES **75.96**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 7-5 -Existing- No SWM Mgmt thru CN reduction

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	65258	1.50	101.87
C	Residential - 1 acre	79	25110	0.58	45.54
B	Urban district - commercial/business	92	245095	5.63	517.65
C	Urban district - commercial/business	94	101818	2.34	219.72
B	Woods - (good)	55	6377	0.15	8.05
		TOTAL	**443658**	**10**	**893**
				MI^2	**0.0159**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **892.83** = **87.7**
TOTAL ACRES **10.18**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 1-3 -Existing- SWM Mgmt thru CN reduction -SWMF-12

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	63824	1.47	70.33
C	Brush - (good)	65	19973	0.46	29.80
D	Brush - (good)	73	76458	1.76	128.13
D	Impervious - rds paved curb/pipe (incl ROW)	98	218596	5.02	491.79
B	Pasture / grassland / range (grazing) - (good)	61	211100	4.85	295.62
C	Pasture / grassland / range (grazing) - (good)	74	8260	0.19	14.03
B	Residential - 1/4 acre	75	255770	5.87	440.38
B	Small grain - SR - (good)	75	296279	6.80	510.12
D	Small grain - SR - (good)	87	106168	2.44	212.04
B	Urban district - commercial/business	92	276240	6.34	583.43
C	Urban district - commercial/business	94	43280	0.99	93.40
B	Urban district - industrial	88	137009	3.15	276.79
B	Woods - (good)	55	282316	6.48	356.46
C	Woods - (good)	70	187880	4.31	301.92
D	Woods - (good)	77	41846	0.96	73.97
		TOTAL	**2224999**	**51.08**	**3878.20**
				MI^2	**0.0798**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **3878.20** = **75.9**
TOTAL ACRES **51.08**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 2-2 -Existing- SWM Mgmt thru CN reduction (SWMF-7)

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	125600	2.88	138.40
C	Brush - (good)	65	23403	0.54	34.92
D	Brush - (good)	73	38170	0.88	63.97
B	Impervious - rds paved curb/pipe (incl ROW)	98	2429	0.06	5.46
C	Impervious - rds paved curb/pipe (incl ROW)	98	967	0.02	2.18
D	Impervious - rds paved curb/pipe (incl ROW)	98	215305	4.94	484.39
D	Open Space (good) - grass >75%	80	90603	2.08	166.40
B	Residential - 1/4 acre	75	313237	7.19	539.32
C	Residential - 1/4 acre	83	1173	0.03	2.24
B	Small grain - SR - (good)	75	226056	5.19	389.21
C	Small grain - SR - (good)	83	1085	0.02	2.07
D	Small grain - SR - (good)	87	54148	1.24	108.15
B	Urban district - commercial/business	92	6145	0.14	12.98
B	Urban district - industrial	88	93701	2.15	189.29
D	Urban district - industrial	93	10278	0.24	21.94
B	Woods - (good)	55	334445	7.68	422.28
C	Woods - (good)	70	49036	1.13	78.80
		TOTAL	**1585781**	**36**	**2662**
				MI^2	**0.0569**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2661.99** = **73.1**
TOTAL ACRES **36.40**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 2-6 -Existing- SWM Mgmt thru CN reduction (SWMF-6)

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	1991	0.05	2.19
D	Brush - (good)	73	21004	0.48	35.20
D	Impervious - paved parking lots roofs & drives	98	568	0.01	1.28
B	Impervious - rds paved curb/pipe (incl ROW)	98	1734	0.04	3.90
D	Impervious - rds paved curb/pipe (incl ROW)	98	427232	9.81	961.17
D	Open Space (good) - grass >75%	80	277801	6.38	510.19
B	Small grain - SR - (good)	75	3255	0.07	5.60
B	Urban district - commercial/business	92	25408	0.58	53.66
D	Urban district - commercial/business	95	161303	3.70	351.79
B	Woods - (good)	55	205470	4.72	259.43
D	Woods - (good)	77	1573	0.04	2.78
		TOTAL	**1127339**	**26**	**2187**
				MI^2	**0.0404**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2187.21** = **84.5**
TOTAL ACRES **25.88**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 3-3 -Existing- SWM Mgmt thru CN reduction SWMF-14,26

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	19785	0.45	21.80
D	Brush - (good)	73	40261	0.92	67.47
B	Residential - 1 acre	68	190580	4.38	297.51
D	Residential - 1 acre	84	30571	0.70	58.95
B	Residential - 1/4 acre	75	307661	7.06	529.72
B	Urban district - commercial/business	92	210312	4.83	444.19
D	Urban district - commercial/business	95	40255	0.92	87.79
B	Urban district - industrial	88	119923	2.75	242.27
B	Woods - (good)	55	529427	12.15	668.47
D	Woods - (good)	77	180292	4.14	318.70
		TOTAL	**1669067**	**38**	**2737**
				MI^2	**0.0599**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2736.86** = **71.4**
TOTAL ACRES **38.32**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 3-8 -Existing- SWM Mgmt thru CN reduction- SWMF-9,15,25

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	119392	2.74	131.56
D	Brush - (good)	73	201337	4.62	337.41
D	Impervious - rds paved curb/pipe (incl ROW)	98	66448	1.53	149.49
D	Open Space (good) - grass >75%	80	11992	0.28	22.02
B	Residential - 1 acre	68	779	0.02	1.22
D	Residential - 1 acre	84	37272	0.86	71.87
B	Urban district - commercial/business	92	42596	0.98	89.96
D	Urban district - commercial/business	95	421974	9.69	920.28
B	Woods - (good)	55	76573	1.76	96.68
D	Woods - (good)	77	118603	2.72	209.65
		TOTAL	**1096966**	**25**	**2030**
				MI^2	**0.0393**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2030.16** = **80.6**
TOTAL ACRES **25.18**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 4-1 -Existing- SWM Mgmt thru CN reduction- SWMF-17

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
D	Impervious - rds paved curb/pipe (incl ROW)	98	103097	2.37	231.94
B	Residential - 1 acre	68	785224	18.03	1225.79
D	Residential - 1 acre	84	227122	5.21	437.98
B	Residential - 1/8 acre or less	85	70764	1.62	138.08
D	Residential - 1/8 acre or less	92	33655	0.77	71.08
B	Woods - (good)	55	109191	2.51	137.87
		TOTAL	**1329053**	**31**	**2243**
				MI^2	**0.0477**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **2242.74** = **73.5**
TOTAL ACRES **30.51**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 5-1 -Existing- SWM Mgmt thru CN reduction- SWMF-23

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Woods - (good)	55	226405	5.20	285.86
C	Woods - (good)	70	13851	0.32	22.26
D	Woods - (good)	77	2793	0.06	4.94
		TOTAL	**243049**	**6**	**313**
				MI^2	**0.0087**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **313.06** = **56.1**
TOTAL ACRES **5.58**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 5-2 -Existing- SWM Mgmt thru CN reduction- SWMF-21

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Woods - (good)	55	201196	4.62	254.04
		TOTAL	**201196**	**5**	**254**
				MI^2	**0.0072**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **254.04** = **55.0**
TOTAL ACRES **4.62**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 6-5 -Existing- SWM Mgmt thru CN reduction- SWMF-1,4,16

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Brush - (good)	48	8792	0.20	9.69
B	Residential - 1 acre	68	170937	3.92	266.84
C	Residential - 1 acre	79	239551	5.50	434.45
B	Residential - 1/4 acre	75	72648	1.67	125.08
C	Residential - 1/4 acre	83	61203	1.41	116.62
B	Residential - 1/8 acre or less	85	575586	13.21	1123.16
C	Residential - 1/8 acre or less	90	128733	2.96	265.98
C	Urban district - commercial/business	94	11	0.00	0.02
B	Woods - (good)	55	1605251	36.85	2026.83
C	Woods - (good)	70	202837	4.66	325.95
		TOTAL	**3065549**	**70**	**4695**
				MI^2	**0.1100**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **4694.63** = **66.7**
TOTAL ACRES **70.38**

SCS TR-55 RUNOFF CURVE NUMBER COMPUTATION

JOB NAME: Ellicott City Flood Study
Howard County
Small Subarea 7-4 -Existing- SWM Mgmt thru CN reduction - SWMF-20,22

DATE: 01/28/13
JOB NO.: 5493-01

COMPUTED BY: ADM
CHECKED BY: CJB

STUDY POINT:

CONDITION: ULTIMATE
X EXISTING

RUNOFF CURVE NUMBER COMPUTATION

HYDROLOGIC SOIL GROUP	LAND USE	RUNOFF CURVE NO.	Area (ft^2)	AREA (ac)	RCN x A
B	Residential - 1 acre	68	875044	20.09	1366.00
C	Residential - 1 acre	79	112155	2.57	203.40
D	Residential - 1 acre	84	16300	0.37	31.43
B	Residential - 1/4 acre	75	44103	1.01	75.93
D	Residential - 1/4 acre	87	12265	0.28	24.50
B	Residential - 1/8 acre or less	85	446309	10.25	870.90
C	Residential - 1/8 acre or less	90	187142	4.30	386.66
B	Urban district - commercial/business	92	133714	3.07	282.41
C	Urban district - commercial/business	94	15289	0.35	32.99
D	Urban district - commercial/business	95	55440	1.27	120.91
B	Urban district - industrial	88	42627	0.98	86.12
D	Urban district - industrial	93	166398	3.82	355.26
B	Woods - (good)	55	913473	20.97	1153.38
C	Woods - (good)	70	148943	3.42	239.35
D	Woods - (good)	77	139679	3.21	246.91
		TOTAL	**3308881**	**76**	**5476**
				MI^2	**0.1187**

WEIGHTED RUNOFF CURVE NUMBER = **TOT RCN x AC =** **5476.13** = **72.1**
TOTAL ACRES **75.96**

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA #1
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	woods,dens			
Roughness Coefficient	0.80			
Land Slope (ft/ft)	0.035			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.498			0.498

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	DE	
Flow Length (ft)	80	127	150	
Paved or Unpaved	unpaved	unpaved	unpaved	
Land Slope (ft/ft)	0.031	0.024	0.130	
Flow Velocity (ft/sec.)	2.852	2.480	5.817	
Flow Time (hr.)	0.0078	0.0142	0.0072	0.029

CHANNEL FLOW

Flow Segment Name	EF	GH	HI	IJ	JK	LM	MN	NO	OP	PQ	QR	RS	ST	TU	UV	VW	WX	XY	YZ	ZAA	AABB	BBCC	CCDD	DDEE	EEFF	FFGG	GGHH	HHII	IIJJ	JJKK	KKLL	
Flow Depth (ft)	0.25	0.5	0.5	0.500	0.5	1	1	1	1.5	1.5	2	2	2	2	2	2	2.25	2.5	2.5	2.75	2.75	1	1	1	1.5	1.5	2	2	2.5	2.5	2.75	
Bottom Width (ft)	0	2	3	4	5	6	6	6	6	7	7	7	7	7	7	7	7	7	8	8	8	2	2	2	3	3	5	6	7	7	7	
Side Slope (Z1)	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	2	2	3	3	3	3	3	
Side Slope (Z2)	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	2	2	3	3	3	3	3	
Manning's Coefficient	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	
Flow Length (ft)	168	805	215	793	473	220	399	149	239	987	452	1164	277	1216	578	1012	178	754	249	1285	1100	69	653	323	64	175	369	181	537	36	603	
Channel Slope (ft/ft)	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	
Flow Velocity (ft/sec.)	0.949	1.884	1.980	2.016	2.097	3.142	3.142	3.142	3.919	3.994	4.670	4.670	4.670	4.670	4.670	4.670	4.981	5.277	5.361	5.648	5.648	2.822	2.822	2.822	3.684	3.684	4.488	4.585	5.277	5.277	5.561	
Flow Time (hr.)	0.0492	0.1187	0.0302	0.1093	0.0626	0.0194	0.0353	0.0132	0.0169	0.0686	0.0269	0.0692	0.0165	0.0723	0.0344	0.0602	0.0099	0.0397	0.0129	0.0632	0.0541	0.0068	0.0643	0.0318	0.0048	0.0132	0.0228	0.0110	0.0283	0.0019	0.0301	1.1977

PIPE FLOW (Assuming full flow)

Flow Segment Name											
Pipe Diameter (ft)											
Manning's Coefficient											
Pipe Slope (ft/ft)											
Pipe Length (ft)											
Flow Velocity (ft/sec.)											
Flow Time (hr.)											

TIME OF CONCENTRATION (hr.)/(min)

Total time	1.725 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, Entire DA
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB
Surface Description	woods,light
Roughness Coefficient	0.40
Land Slope (ft/ft)	0.035
Flow Length (ft) [100' max]	100
Two-Year Rainfall (in.)	3.20
Flow Time (hr.)	0.286

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	DE
Flow Length (ft)	80	127	150
Paved or Unpaved	unpaved	unpaved	unpaved
Land Slope (ft/ft)	0.031	0.024	0.130
Flow Velocity (ft/sec.)	2.852	2.480	5.817
Flow Time (hr.)	0.0078	0.0142	0.0072	0.029

CHANNEL FLOW

Flow Segment Name	EF	GH	HI	IJ	MN	OP	PQ	QR	ST	TU	UV	VW	WX	XY	ZAA	AABB	BBCC	DDEE	EEFF	FFGG
Flow Depth (ft)	0.25	0.5	0.5	0.500	1	1	1	1.5	1.5	2	2	1	2	2	2	2.25	2.5	2.5	2.75	2.75
Bottom Width (ft)	0	2	3	4	6	6	6	6	7	7	7	15	7	7	7	8	8	7	7	8
Side Slope (Z1)	4	3	3	3	3	3	0	0	3	3	3	0	3	3	3	0	0	3	3	0
Side Slope (Z2)	4	3	3	3	3	3	0	0	3	3	3	0	3	3	3	0	0	3	3	0
Manning's Coefficient	0.045	0.045	0.045	0.045	0.013	0.013	0.013	0.013	0.045	0.045	0.045	0.013	0.045	0.045	0.03	0.03	0.03	0.03	0.03	0.013
Flow Length (ft)	168	805	215	793	220	399	149	239	987	452	1164	277	1216	578	1012	178	754	249	1285	1100
Channel Slope (ft/ft)	0.012	0.026	0.019	0.018	0.034	0.017	0.023	0.008	0.013	0.009	0.008	0.007	0.016	0.009	0.013	0.017	0.025	0.076	0.029	0.023
Flow Velocity (ft/sec.)	0.883	2.593	2.301	2.283	17.000	12.190	14.462	10.457	3.906	3.744	3.500	8.935	4.975	3.702	6.895	8.200	10.479	18.633	12.063	23.864
Flow Time (hr.)	0.0529	0.0862	0.0260	0.0965	0.0036	0.0091	0.0029	0.0063	0.0702	0.0335	0.0924	0.0086	0.0679	0.0434	0.0408	0.0060	0.0200	0.0037	0.0296	0.0128	0.7123

PIPE FLOW (Assuming full flow)

Flow Segment Name	FG	FG	FG	FG	FG	JK	KL	LM	NO, BITUMIN	RS, STRUCT	YZ, PIPE?	CCDD
Pipe Diameter (ft)	2.00	1.50	1.50	3.00	3	5	5.5	6	6	8	8	8
Manning's Coefficient	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.035	0.035	0.035
Pipe Slope (ft/ft)	0.058	0.020	0.020	0.003	0.003	0.016	0.024	0.031	0.004	0.007	0.014	0.023
Pipe Length (ft)	69.00	653.00	323.00	64.00	175	472	369	95	181	537	36	603
Flow Velocity (ft/sec.)	17.338	8.419	8.302	5.275	5.044	16.608	22.074	26.529	9.958	5.817	7.943	10.269
Flow Time (hr.)	0.0011	0.022	0.011	0.003	0.010	0.008	0.005	0.001	0.005	0.026	0.001	0.016	0.108

TIME OF CONCENTRATION (hr.)/(min)

Total time	1.136 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, SA #1
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	woods,light			
Roughness Coefficient	0.40			
Land Slope (ft/ft)	0.035			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.286			0.286

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	DE	
Flow Length (ft)	80	127	150	
Paved or Unpaved	unpaved	unpaved	unpaved	
Land Slope (ft/ft)	0.031	0.024	0.130	
Flow Velocity (ft/sec.)	2.852	2.480	5.817	
Flow Time (hr.)	0.0078	0.0142	0.0072	0.029

CHANNEL FLOW

Flow Segment Name	EF	GH	HI	IJ	
Flow Depth (ft)	0.25	0.5	0.5	0.500	
Bottom Width (ft)	0	2	3	4	
Side Slope (Z1)	4	3	3	3	
Side Slope (Z2)	4	3	3	3	
Manning's Coefficient	0.045	0.045	0.045	0.045	
Flow Length (ft)	168	805	215	793	
Channel Slope (ft/ft)	0.012	0.026	0.019	0.018	
Flow Velocity (ft/sec.)	0.883	2.593	2.301	2.283	
Flow Time (hr.)	0.0529	0.0862	0.0260	0.0965	0.2616

PIPE FLOW (Assuming full flow)

Flow Segment Name	FG	FG	FG	FG	FG	
Pipe Diameter (ft)	2.00	1.50	1.50	3.00	3	
Manning's Coefficient	0.013	0.013	0.013	0.013	0.013	
Pipe Slope (ft/ft)	0.058	0.020	0.020	0.003	0.003	
Pipe Length (ft)	69.00	653.00	323.00	64.00	175	
Flow Velocity (ft/sec.)	17.338	8.419	8.302	5.275	5.044	
Flow Time (hr.)	0.0011	0.022	0.011	0.003	0.010	0.046

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.623	hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, SA #2
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	2A2B			
Surface Description	GRASS, DE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.040			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.180			0.180

SHALLOW CONCENTRATED FLOW

Flow Segment Name	2B2C	2C2D		
Flow Length (ft)	430	156		
Paved or Unpaved	unpaved	paved		
Land Slope (ft/ft)	0.058	0.038		
Flow Velocity (ft/sec.)	3.890	3.987		
Flow Time (hr.)	0.0307	0.0109		0.042

CHANNEL FLOW

*ASSUME RIPRAP CHANNEL

Flow Segment Name	2G2H*	2I2J	2JN	OP	PQ	QR	S2K	
Flow Depth (ft)	1	1	1	1	1	1.5	1.5	
Bottom Width (ft)	0	0	6	6	6	6	7	
Side Slope (Z1)	4	4	3	3	0	0	3	
Side Slope (Z2)	4	4	3	3	0	0	3	
Manning's Coefficient	0.070	0.700	0.013	0.013	0.013	0.013	0.045	
Flow Length (ft)	434	171	30	399	149	239	69	
Channel Slope (ft/ft)	0.035	0.123	0.034	0.017	0.023	0.008	0.013	
Flow Velocity (ft/sec.)	2.436	0.459	17.092	12.190	14.462	10.457	3.880	
Flow Time (hr.)	0.0495	0.1034	0.0005	0.0091	0.0029	0.0063	0.0049	0.1766

PIPE FLOW (Assuming full flow)

Flow Segment Name	2D2E	2E2F	2F2G	2H2I	NO	RS, STRUCTURAL STEEL 18IN
Pipe Diameter (ft)	1.25	2.25	3.00	3.00	6	8
Manning's Coefficient	0.013	0.013	0.013	0.013	0.013	0.035
Pipe Slope (ft/ft)	0.033	0.025	0.031	0.050	0.004	0.007
Pipe Length (ft)	92.00	438.00	758.00	161.00	181	537
Flow Velocity (ft/sec.)	9.506	12.203	16.543	21.034	9.958	5.817
Flow Time (hr.)	0.0027	0.010	0.013	0.002	0.005	0.026	0.058

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.457 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, SA #3
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	3A3B			
Surface Description	GRASS, DE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.020			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.238			0.238

SHALLOW CONCENTRATED FLOW

Flow Segment Name	3B3C	3C3D	
Flow Length (ft)	705	120	
Paved or Unpaved	unpaved	paved	
Land Slope (ft/ft)	0.078	0.071	
Flow Velocity (ft/sec.)	4.507	5.410	
Flow Time (hr.)	0.0435	0.0062	0.050

CHANNEL FLOW

Flow Segment Name	3F3G	3G3H		
Flow Depth (ft)	0.5	0.75		
Bottom Width (ft)	1	1.5		
Side Slope (Z1)	2	2		
Side Slope (Z2)	2	2		
Manning's Coefficient	0.045	0.045		
Flow Length (ft)	298	1248		
Channel Slope (ft/ft)	0.037	0.026		
Flow Velocity (ft/sec.)	2.900	3.167		
Flow Time (hr.)	0.0285	0.1095		0.1380

PIPE FLOW (Assuming full flow)

Flow Segment Name	3D3E	3E3F	
Pipe Diameter (ft)	1.50	2.00	
Manning's Coefficient	0.013	0.013	
Pipe Slope (ft/ft)	0.041	0.027	
Pipe Length (ft)	532	1012	
Flow Velocity (ft/sec.)	12.088	11.762	
Flow Time (hr.)	0.0122	0.0239	0.036

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.462 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, SA #4
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	4A4B			
Surface Description	GRASS, DE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.020			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.238			0.238

SHALLOW CONCENTRATED FLOW

Flow Segment Name	4B4C			
Flow Length (ft)	779			
Paved or Unpaved	unpaved			
Land Slope (ft/ft)	0.046			
Flow Velocity (ft/sec.)	3.468			
Flow Time (hr.)	0.0624			0.062

CHANNEL FLOW

Flow Segment Name	4C4D	4D4E	4EV	VW	
Flow Depth (ft)	1	1	2	1	
Bottom Width (ft)	1	3	7	15	
Side Slope (Z1)	2	3	3	0	
Side Slope (Z2)	2	3	3	0	
Manning's Coefficient	0.045	0.045	0.045	0.013	
Flow Length (ft)	1506	744	113	277	
Channel Slope (ft/ft)	0.041	0.030	0.008	0.007	
Flow Velocity (ft/sec.)	4.452	4.232	3.560	8.935	
Flow Time (hr.)	0.0940	0.0488	0.0088	0.0086	0.1602

PIPE FLOW (Assuming full flow)

Flow Segment Name		
Pipe Diameter (ft)		
Manning's Coefficient		
Pipe Slope (ft/ft)		
Pipe Length (ft)		
Flow Velocity (ft/sec.)		
Flow Time (hr.)		0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.460 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, SA #5
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	5A5B			
Surface Description	GRASS, DE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.050			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.165			0.165

SHALLOW CONCENTRATED FLOW

Flow Segment Name	5B5C		
Flow Length (ft)	76		
Paved or Unpaved	unpaved		
Land Slope (ft/ft)	0.171		
Flow Velocity (ft/sec.)	6.673		
Flow Time (hr.)	0.0032		0.003

CHANNEL FLOW

Flow Segment Name	5C5D	5D5E	5EX	XY		
Flow Depth (ft)	0.5	1	2	2		
Bottom Width (ft)	1	3	7	7		
Side Slope (Z1)	2	3	3	3		
Side Slope (Z2)	2	3	3	3		
Manning's Coefficient	0.045	0.045	0.045	0.045		
Flow Length (ft)	381	1060	418	457		
Channel Slope (ft/ft)	0.115	0.044	0.038	0.011		
Flow Velocity (ft/sec.)	5.129	5.183	7.787	4.163		
Flow Time (hr.)	0.0206	0.0568	0.0149	0.0305		0.1229

PIPE FLOW (Assuming full flow)

Flow Segment Name	YZ		
Pipe Diameter (ft)	8		
Manning's Coefficient	0.035		
Pipe Slope (ft/ft)	0.014		
Pipe Length (ft)	36		
Flow Velocity (ft/sec.)	7.943		
Flow Time (hr.)	0.0013		0.001

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.292 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, SA #6
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	6A6B			
Surface Description	GRASS, DE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.100			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.125			0.125

SHALLOW CONCENTRATED FLOW

Flow Segment Name	6B6C		
Flow Length (ft)	145		
Paved or Unpaved	unpaved		
Land Slope (ft/ft)	0.090		
Flow Velocity (ft/sec.)	4.831		
Flow Time (hr.)	0.0083		0.008

CHANNEL FLOW

Flow Segment Name	6C6D	6D6E	6F6G	BBCC	
Flow Depth (ft)	0.5	1	1.5	2.5	
Bottom Width (ft)	1	3	3	8	
Side Slope (Z1)	2	3	3	0	
Side Slope (Z2)	2	3	3	0	
Manning's Coefficient	0.045	0.045	0.045	0.03	
Flow Length (ft)	507	760	735	754	
Channel Slope (ft/ft)	0.095	0.047	0.020	0.025	
Flow Velocity (ft/sec.)	4.644	5.357	4.401	10.479	
Flow Time (hr.)	0.0303	0.0394	0.0464	0.0200	0.1361

PIPE FLOW (Assuming full flow)

			COR ALUM	
Flow Segment Name	6E6F	6G6H	6HBB	
Pipe Diameter (ft)	1.5	2	2.5	
Manning's Coefficient	0.013	0.013	0.035	
Pipe Slope (ft/ft)	0.022	0.012	0.029	
Pipe Length (ft)	137	256	734	
Flow Velocity (ft/sec.)	8.796	7.795	5.250	
Flow Time (hr.)	0.0043	0.0091	0.0388	0.004

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.274 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, SA #7
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	7A7B			
Surface Description	GRASS, DE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.020			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.238			0.238

SHALLOW CONCENTRATED FLOW

Flow Segment Name	7B7C		
Flow Length (ft)	394		
Paved or Unpaved	unpaved		
Land Slope (ft/ft)	0.025		
Flow Velocity (ft/sec.)	2.570		
Flow Time (hr.)	0.0426		0.043

CHANNEL FLOW

Flow Segment Name	7E7F	7G7H	HGG	
Flow Depth (ft)	0.5	0.5	2.75	
Bottom Width (ft)	3	3	8	
Side Slope (Z1)	2	2	0	
Side Slope (Z2)	2	2	0	
Manning's Coefficient	0.045	0.045	0.013	
Flow Length (ft)	914	300	659	
Channel Slope (ft/ft)	0.096	0.047	0.023	
Flow Velocity (ft/sec.)	5.394	24.007	24.007	
Flow Time (hr.)	0.0471	0.0035	0.0076	0.0582

PIPE FLOW (Assuming full flow)

Flow Segment Name	7C7D	7D7E	7F7G	
Pipe Diameter (ft)	1.5	2	2.5	
Manning's Coefficient	0.013	0.013	0.013	
Pipe Slope (ft/ft)	0.068	0.104	0.031	
Pipe Length (ft)	622	663	766	
Flow Velocity (ft/sec.)	15.446	23.230	14.791	
Flow Time (hr.)	0.0112	0.0079	0.0144	0.011

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.350 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA1-1
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	woods,light			
Roughness Coefficient	0.40			
Land Slope (ft/ft)	0.035			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.286			0.286

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	DE	
Flow Length (ft)	80	127	150	
Paved or Unpaved	unpaved	unpaved	unpaved	
Land Slope (ft/ft)	0.031	0.024	0.130	
Flow Velocity (ft/sec.)	2.852	2.480	5.817	
Flow Time (hr.)	0.0078	0.0142	0.0072	0.029

CHANNEL FLOW

Flow Segment Name	EF		
Flow Depth (ft)	0.25		
Bottom Width (ft)	0		
Side Slope (Z1)	4		
Side Slope (Z2)	4		
Manning's Coefficient	0.045		
Flow Length (ft)	168		
Channel Slope (ft/ft)	0.012		
Flow Velocity (ft/sec.)	0.883		
Flow Time (hr.)	0.0529		0.0529

PIPE FLOW (Assuming full flow)

Flow Segment Name	FG	FG	FG	FG	
Pipe Diameter (ft)	2.00	1.50	1.50	3.00	
Manning's Coefficient	0.013	0.013	0.013	0.013	
Pipe Slope (ft/ft)	0.058	0.020	0.020	0.003	
Pipe Length (ft)	69.00	653.00	323.00	64.00	
Flow Velocity (ft/sec.)	17.338	8.419	8.302	5.275	
Flow Time (hr.)	0.0011	0.022	0.011	0.003	0.037

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.405 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA1-2
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS, DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.050			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.165			0.165

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC			
Flow Length (ft)	530			
Paved or Unpaved	unpaved			
Land Slope (ft/ft)	0.077			
Flow Velocity (ft/sec.)	4.488			
Flow Time (hr.)	0.0328			0.033

CHANNEL FLOW

Flow Segment Name	CD	DE	EF	
Flow Depth (ft)	0.5	0.5	0.5	
Bottom Width (ft)	2	3	4	
Side Slope (Z1)	4	4	3	
Side Slope (Z2)	4	4	3	
Manning's Coefficient	0.045	0.045	0.045	
Flow Length (ft)	911	415	215	
Channel Slope (ft/ft)	0.037	0.014	0.0093023	
Flow Velocity (ft/sec.)	3.026	1.976	1.683	
Flow Time (hr.)	0.0836	0.0583	0.0355	0.1775

PIPE FLOW (Assuming full flow)

Flow Segment Name		
Pipe Diameter (ft)		
Manning's Coefficient		
Pipe Slope (ft/ft)		
Pipe Length (ft)		
Flow Velocity (ft/sec.)		
Flow Time (hr.)		0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.375 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA1-3
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	woods,light			
Roughness Coefficient	0.40			
Land Slope (ft/ft)	0.050			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.248			0.248

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC		
Flow Length (ft)	397		
Paved or Unpaved	unpaved		
Land Slope (ft/ft)	0.088		
Flow Velocity (ft/sec.)	4.791		
Flow Time (hr.)	0.0230		0.023

CHANNEL FLOW

Flow Segment Name	EF	GH	HI	
Flow Depth (ft)	0.5	0.5	0.5	
Bottom Width (ft)	0	1	4	
Side Slope (Z1)	4	3	3	
Side Slope (Z2)	4	3	3	
Manning's Coefficient	0.045	0.045	0.045	
Flow Length (ft)	648	370	152	
Channel Slope (ft/ft)	0.065	0.059	0.007	
Flow Velocity (ft/sec.)	3.270	3.611	1.415	
Flow Time (hr.)	0.0551	0.0285	0.0298	0.1134

PIPE FLOW (Assuming full flow)

Flow Segment Name	FG			
Pipe Diameter (ft)	2.50			
Manning's Coefficient	0.013			
Pipe Slope (ft/ft)	0.015			
Pipe Length (ft)	270.00			
Flow Velocity (ft/sec.)	10.171			
Flow Time (hr.)	0.0074			0.007

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.392 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA2-1
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	woods,light			
Roughness Coefficient	0.40			
Land Slope (ft/ft)	0.035			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.286			0.286

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	DE	
Flow Length (ft)	330	56	245	
Paved or Unpaved	unpaved	unpaved	PAVED	
Land Slope (ft/ft)	0.036	0.232	0.024	
Flow Velocity (ft/sec.)	3.077	7.774	3.181	
Flow Time (hr.)	0.0298	0.0020	0.0214	0.053

CHANNEL FLOW

Flow Segment Name		
Flow Depth (ft)	0.25	
Bottom Width (ft)	0	
Side Slope (Z1)	4	
Side Slope (Z2)	4	
Manning's Coefficient	0.045	
Flow Length (ft)	168	
Channel Slope (ft/ft)	0.012	
Flow Velocity (ft/sec.)	0.883	
Flow Time (hr.)	0.0529	0.0529

PIPE FLOW (Assuming full flow)

Flow Segment Name	EF	FG	GH	
Pipe Diameter (ft)	2.00	3.00	3.00	
Manning's Coefficient	0.013	0.013	0.013	
Pipe Slope (ft/ft)	0.026	0.030	0.040	
Pipe Length (ft)	530.00	804.00	250.00	
Flow Velocity (ft/sec.)	11.535	16.303	18.872	
Flow Time (hr.)	0.0128	0.014	0.004	0.030

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.422 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA2-2
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	woods, light			
Roughness Coefficient	0.40			
Land Slope (ft/ft)	0.180			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.149			0.149

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD		
Flow Length (ft)	250	171		
Paved or Unpaved	unpaved	unpaved		
Land Slope (ft/ft)	0.120	0.094		
Flow Velocity (ft/sec.)	5.589	4.935		
Flow Time (hr.)	0.0124	0.0096		0.022

CHANNEL FLOW

Flow Segment Name	DE	FG	
Flow Depth (ft)	0.75	0.5	
Bottom Width (ft)	1	6	
Side Slope (Z1)	4	3	
Side Slope (Z2)	4	3	
Manning's Coefficient	0.045	0.013	
Flow Length (ft)	484	220	
Channel Slope (ft/ft)	0.041	0.034	
Flow Velocity (ft/sec.)	3.750	11.619	
Flow Time (hr.)	0.0359	0.0053	0.0411

PIPE FLOW (Assuming full flow)

Flow Segment Name	EF		
Pipe Diameter (ft)	3.00		
Manning's Coefficient	0.024		
Pipe Slope (ft/ft)	0.034		
Pipe Length (ft)	263.00		
Flow Velocity (ft/sec.)	9.455		
Flow Time (hr.)	0.0077	0.008	

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.220 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA2-3
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	woods, light			
Roughness Coefficient	0.40			
Land Slope (ft/ft)	0.080			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.206			0.206

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC			
Flow Length (ft)	534			
Paved or Unpaved	unpaved			
Land Slope (ft/ft)	0.099			
Flow Velocity (ft/sec.)	5.083			
Flow Time (hr.)	0.0292			0.029

CHANNEL FLOW

Flow Segment Name	DE	EF		
Flow Depth (ft)	1	1		
Bottom Width (ft)	6	6		
Side Slope (Z1)	3	0		
Side Slope (Z2)	3	0		
Manning's Coefficient	0.013	0.013		
Flow Length (ft)	109	72		
Channel Slope (ft/ft)	0.017	0.049		
Flow Velocity (ft/sec.)	12.086	20.804		
Flow Time (hr.)	0.0025	0.0010		0.0035

PIPE FLOW (Assuming full flow)

Flow Segment Name	CD			
Pipe Diameter (ft)	2.00			
Manning's Coefficient	0.024			
Pipe Slope (ft/ft)	0.054			
Pipe Length (ft)	316.00			
Flow Velocity (ft/sec.)	9.047			
Flow Time (hr.)	0.0097			0.010

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.248	hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA2-4
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS, DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.120			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.116			0.116

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC			
Flow Length (ft)	360			
Paved or Unpaved	unpaved			
Land Slope (ft/ft)	0.067			
Flow Velocity (ft/sec.)	4.166			
Flow Time (hr.)	0.0240			0.024

CHANNEL FLOW

Flow Segment Name	EF	FG		
Flow Depth (ft)	1	0.5		
Bottom Width (ft)	1	6		
Side Slope (Z1)	3	0		
Side Slope (Z2)	3	0		
Manning's Coefficient	0.045	0.013		
Flow Length (ft)	297	165		
Channel Slope (ft/ft)	0.074	0.030		
Flow Velocity (ft/sec.)	6.005	11.311		
Flow Time (hr.)	0.0137	0.0041		0.0178

PIPE FLOW (Assuming full flow)

Flow Segment Name	CD	GH		
Pipe Diameter (ft)	3.00	4.00		
Manning's Coefficient	0.013	0.024		
Pipe Slope (ft/ft)	0.061	0.050		
Pipe Length (ft)	198.00	207.00		
Flow Velocity (ft/sec.)	23.230	13.878		
Flow Time (hr.)	0.0024	0.0041		0.007

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.164 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA2-5
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.170			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.101			0.101

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC		
Flow Length (ft)	290		
Paved or Unpaved	unpaved		
Land Slope (ft/ft)	0.017		
Flow Velocity (ft/sec.)	2.119		
Flow Time (hr.)	0.0380		0.038

CHANNEL FLOW

Flow Segment Name	DE	FG		
Flow Depth (ft)	0.5	0.5		
Bottom Width (ft)	0	1		
Side Slope (Z1)	3	4		
Side Slope (Z2)	3	4		
Manning's Coefficient	0.045	0.045		
Flow Length (ft)	411	160		
Channel Slope (ft/ft)	0.019	0.013		
Flow Velocity (ft/sec.)	1.765	1.628		
Flow Time (hr.)	0.0647	0.0273		0.0920

PIPE FLOW (Assuming full flow)

Flow Segment Name	CD	EF	GH	HI	
Pipe Diameter (ft)	2.00	4.00	4.00	4.00	
Manning's Coefficient	0.013	0.013	0.024	0.013	
Pipe Slope (ft/ft)	0.005	0.040	0.047	0.040	
Pipe Length (ft)	190.00	757.00	106.00	159.00	
Flow Velocity (ft/sec.)	5.224	22.756	13.447	22.862	
Flow Time (hr.)	0.0101	0.0092	0.0022	0.0019	0.023

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.255 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA2-6
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS, DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.100			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.125			0.125

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD		
Flow Length (ft)	202	105		
Paved or Unpaved	unpaved	Unpaved		
Land Slope (ft/ft)	0.183	0.210		
Flow Velocity (ft/sec.)	6.905	7.385		
Flow Time (hr.)	0.0081	0.0039		0.012

CHANNEL FLOW

Flow Segment Name	FG	HI		
Flow Depth (ft)	1	1		
Bottom Width (ft)	6	6		
Side Slope (Z1)	0	3		
Side Slope (Z2)	0	3		
Manning's Coefficient	0.013	0.045		
Flow Length (ft)	239	68		
Channel Slope (ft/ft)	0.008	0.015		
Flow Velocity (ft/sec.)	8.632	3.247		
Flow Time (hr.)	0.0077	0.0058		0.0135

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE	EF	GH	
Pipe Diameter (ft)	2.00	2.50	8.00	
Manning's Coefficient	0.013	0.013	0.013	
Pipe Slope (ft/ft)	0.146	0.047	0.006	
Pipe Length (ft)	82.00	344.00	537.00	
Flow Velocity (ft/sec.)	27.547	18.021	13.562	
Flow Time (hr.)	0.0008	0.0053	0.0110	0.017

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.168 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA2-7
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS, DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.230			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.090			0.090

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD		
Flow Length (ft)	311	222		
Paved or Unpaved	unpaved	Unpaved		
Land Slope (ft/ft)	0.084	0.036		
Flow Velocity (ft/sec.)	4.665	3.063		
Flow Time (hr.)	0.0185	0.0201		0.039

CHANNEL FLOW

Flow Segment Name				
Flow Depth (ft)				
Bottom Width (ft)				
Side Slope (Z1)				
Side Slope (Z2)				
Manning's Coefficient				
Flow Length (ft)				
Channel Slope (ft/ft)				
Flow Velocity (ft/sec.)				
Flow Time (hr.)				0.0000

PIPE FLOW (Assuming full flow)

Flow Segment Name				
Pipe Diameter (ft)				
Manning's Coefficient				
Pipe Slope (ft/ft)				
Pipe Length (ft)				
Flow Velocity (ft/sec.)				
Flow Time (hr.)				0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.128 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA3-1
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS, DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.035			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.190			0.190

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD		
Flow Length (ft)	575	40		
Paved or Unpaved	unpaved	paved		
Land Slope (ft/ft)	0.024	0.025		
Flow Velocity (ft/sec.)	2.518	3.214		
Flow Time (hr.)	0.0634	0.0035		0.067

CHANNEL FLOW

Flow Segment Name	EF	GH	
Flow Depth (ft)	0.5	0.5	
Bottom Width (ft)	0	3	
Side Slope (Z1)	3	3	
Side Slope (Z2)	3	3	
Manning's Coefficient	0.045	0.045	
Flow Length (ft)	248	385	
Channel Slope (ft/ft)	0.024	0.031	
Flow Velocity (ft/sec.)	1.968	2.978	
Flow Time (hr.)	0.0350	0.0359	0.0709

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE	FG	HI		
Pipe Diameter (ft)	2.00	2.50	3.00	3.00	
Manning's Coefficient	0.013	0.013	0.013	0.013	
Pipe Slope (ft/ft)	0.056	0.027	0.050	0.003	
Pipe Length (ft)	215.00	225.00	53.00	64.00	
Flow Velocity (ft/sec.)	17.012	13.645	21.099	5.275	
Flow Time (hr.)	0.0035	0.005	0.001	0.003	0.012

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.340 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA3-2
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS, DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.020			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.238			0.238

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD		
Flow Length (ft)	705	120		
Paved or Unpaved	unpaved	paved		
Land Slope (ft/ft)	0.078	0.071		
Flow Velocity (ft/sec.)	4.507	5.410		
Flow Time (hr.)	0.0435	0.0062		0.050

CHANNEL FLOW

Flow Segment Name	FG	GH	
Flow Depth (ft)	0.5	0.75	
Bottom Width (ft)	1	1.5	
Side Slope (Z1)	2	2	
Side Slope (Z2)	2	2	
Manning's Coefficient	0.045	0.045	
Flow Length (ft)	298	65	
Channel Slope (ft/ft)	0.037	0.026	
Flow Velocity (ft/sec.)	2.900	3.189	
Flow Time (hr.)	0.0285	0.0057	0.0342

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE	EF	
Pipe Diameter (ft)	1.50	2.00	
Manning's Coefficient	0.013	0.013	
Pipe Slope (ft/ft)	0.041	0.027	
Pipe Length (ft)	532	1012	
Flow Velocity (ft/sec.)	12.088	11.762	
Flow Time (hr.)	0.0122	0.0239	0.036

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.358	hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA3-3
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.035			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.190			0.190

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	
Flow Length (ft)	259	314	
Paved or Unpaved	unpaved	paved	
Land Slope (ft/ft)	0.069	0.032	
Flow Velocity (ft/sec.)	4.253	3.628	
Flow Time (hr.)	0.0169	0.0240	0.041

CHANNEL FLOW

Flow Segment Name	EF			
Flow Depth (ft)	0.75			
Bottom Width (ft)	1.5			
Side Slope (Z1)	2			
Side Slope (Z2)	2			
Manning's Coefficient	0.045			
Flow Length (ft)	1013			
Channel Slope (ft/ft)	0.032			
Flow Velocity (ft/sec.)	3.515			
Flow Time (hr.)	0.0800			0.0800

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE	
Pipe Diameter (ft)	2.50	
Manning's Coefficient	0.013	
Pipe Slope (ft/ft)	0.051	
Pipe Length (ft)	790.00	
Flow Velocity (ft/sec.)	18.802	
Flow Time (hr.)	0.0117	0.012

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.323 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA3-4
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS, LIGHT			
Roughness Coefficient	0.15			
Land Slope (ft/ft)	0.070			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.099			0.099

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC			
Flow Length (ft)	770			
Paved or Unpaved	unpaved			
Land Slope (ft/ft)	0.087			
Flow Velocity (ft/sec.)	4.759			
Flow Time (hr.)	0.0449			0.045

CHANNEL FLOW

Flow Segment Name	DE		
Flow Depth (ft)	0.5		
Bottom Width (ft)	2		
Side Slope (Z1)	4		
Side Slope (Z2)	4		
Manning's Coefficient	0.045		
Flow Length (ft)	681		
Channel Slope (ft/ft)	0.009		
Flow Velocity (ft/sec.)	1.470		
Flow Time (hr.)	0.1287		0.1287

PIPE FLOW (Assuming full flow)

Flow Segment Name	CD	
Pipe Diameter (ft)	2.00	
Manning's Coefficient	0.013	
Pipe Slope (ft/ft)	0.044	
Pipe Length (ft)	183.00	
Flow Velocity (ft/sec.)	15.056	
Flow Time (hr.)	0.0034	0.003

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.276 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA3-5
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.080			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.137			0.137

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC		
Flow Length (ft)	187		
Paved or Unpaved	paved		
Land Slope (ft/ft)	0.021		
Flow Velocity (ft/sec.)	2.973		
Flow Time (hr.)	0.0175		0.017

CHANNEL FLOW

Flow Segment Name				
Flow Depth (ft)				
Bottom Width (ft)				
Side Slope (Z1)				
Side Slope (Z2)				
Manning's Coefficient				
Flow Length (ft)				
Channel Slope (ft/ft)				
Flow Velocity (ft/sec.)				
Flow Time (hr.)				0.0000

PIPE FLOW (Assuming full flow)

Flow Segment Name	CD	DE		
Pipe Diameter (ft)	1.25	1.25		
Manning's Coefficient	0.024	0.024		
Pipe Slope (ft/ft)	0.031	0.031		
Pipe Length (ft)	590.00	97.00		
Flow Velocity (ft/sec.)	4.980	5.020		
Flow Time (hr.)	0.0329	0.0054		0.038

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.192 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA3-6
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS, DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.050			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.165			0.165

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD		
Flow Length (ft)	40	755		
Paved or Unpaved	unpaved	PAVED		
Land Slope (ft/ft)	0.025	0.024		
Flow Velocity (ft/sec.)	2.551	3.139		
Flow Time (hr.)	0.0044	0.0668		0.071

CHANNEL FLOW

Flow Segment Name				
Flow Depth (ft)				
Bottom Width (ft)				
Side Slope (Z1)				
Side Slope (Z2)				
Manning's Coefficient				
Flow Length (ft)				
Channel Slope (ft/ft)				
Flow Velocity (ft/sec.)				
Flow Time (hr.)				0.0000

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE	EF		
Pipe Diameter (ft)	2.00	2.00		
Manning's Coefficient	0.024	0.024		
Pipe Slope (ft/ft)	0.078	0.139		
Pipe Length (ft)	320.00	180.00		
Flow Velocity (ft/sec.)	10.902	14.536		
Flow Time (hr.)	0.0082	0.0034		0.012

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.248 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA3-7
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	woods,light			
Roughness Coefficient	0.40			
Land Slope (ft/ft)	0.560			
Flow Length (ft) [100' max]	52			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.056			0.056

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC		
Flow Length (ft)	300		
Paved or Unpaved	unpaved		
Land Slope (ft/ft)	0.020		
Flow Velocity (ft/sec.)	2.282		
Flow Time (hr.)	0.0365		0.037

CHANNEL FLOW

Flow Segment Name	CD	EF	HI	JK	
Flow Depth (ft)	0.75	1	1	1	
Bottom Width (ft)	0	2	2.5	3	
Side Slope (Z1)	4	3	3	3	
Side Slope (Z2)	4	3	3	3	
Manning's Coefficient	0.045	0.045	0.045	0.045	
Flow Length (ft)	400	310	102	326	
Channel Slope (ft/ft)	0.053	0.052	0.020	0.025	
Flow Velocity (ft/sec.)	3.856	5.341	3.374	3.856	
Flow Time (hr.)	0.0288	0.0161	0.0084	0.0235	0.0768

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE	FG	GH	IJ
Pipe Diameter (ft)	1.50	3.50	3.50	3.50
Manning's Coefficient	0.024	0.024	0.024	0.013
Pipe Slope (ft/ft)	0.040	0.016	0.014	0.043
Pipe Length (ft)	200.00	85.00	167.00	140.00
Flow Velocity (ft/sec.)	6.440	7.269	6.790	21.648
Flow Time (hr.)	0.0086	0.0032	0.0068	0.0018	0.021

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.190 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA3-8
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.030			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.202			0.202

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD		
Flow Length (ft)	593	200		
Paved or Unpaved	unpaved	unpaved		
Land Slope (ft/ft)	0.035	0.125		
Flow Velocity (ft/sec.)	3.036	5.704		
Flow Time (hr.)	0.0543	0.0097		0.064

CHANNEL FLOW

Flow Segment Name	DE	EF		
Flow Depth (ft)	1.5	2		
Bottom Width (ft)	7	7		
Side Slope (Z1)	3	3		
Side Slope (Z2)	3	3		
Manning's Coefficient	0.045	0.045		
Flow Length (ft)	907	452		
Channel Slope (ft/ft)	0.013	0.009		
Flow Velocity (ft/sec.)	3.880	3.744		
Flow Time (hr.)	0.0649	0.0335		0.0985

PIPE FLOW (Assuming full flow)

Flow Segment Name	CD			
Pipe Diameter (ft)	2.00			
Manning's Coefficient	0.013			
Pipe Slope (ft/ft)	0.013			
Pipe Length (ft)	75.00			
Flow Velocity (ft/sec.)	8.315			
Flow Time (hr.)	0.0025			0.003

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.367 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA4-1
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS, DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.015			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.267			0.267

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD		
Flow Length (ft)	500	463		
Paved or Unpaved	unpaved	UNPAVED		
Land Slope (ft/ft)	0.081	0.078		
Flow Velocity (ft/sec.)	4.592	4.499		
Flow Time (hr.)	0.0302	0.0286		0.059

CHANNEL FLOW

Flow Segment Name	EF		
Flow Depth (ft)	0.5		
Bottom Width (ft)	1		
Side Slope (Z1)	3		
Side Slope (Z2)	3		
Manning's Coefficient	0.045		
Flow Length (ft)	798		
Channel Slope (ft/ft)	0.030		
Flow Velocity (ft/sec.)	2.568		
Flow Time (hr.)	0.0863		0.0863

PIPE FLOW (Assuming full flow)

Flow Segment Name				
Pipe Diameter (ft)				
Manning's Coefficient				
Pipe Slope (ft/ft)				
Pipe Length (ft)				
Flow Velocity (ft/sec.)				
Flow Time (hr.)				0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.412	hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA4-2
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS, DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.020			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.238			0.238

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC			
Flow Length (ft)	779			
Paved or Unpaved	unpaved			
Land Slope (ft/ft)	0.046			
Flow Velocity (ft/sec.)	3.468			
Flow Time (hr.)	0.0624			0.062

CHANNEL FLOW

Flow Segment Name	CD	DE	
Flow Depth (ft)	1	1	
Bottom Width (ft)	1	3	
Side Slope (Z1)	2	3	
Side Slope (Z2)	2	3	
Manning's Coefficient	0.045	0.045	
Flow Length (ft)	1506	708	
Channel Slope (ft/ft)	0.041	0.031	
Flow Velocity (ft/sec.)	4.452	4.339	
Flow Time (hr.)	0.0940	0.0453	0.1393

PIPE FLOW (Assuming full flow)

Flow Segment Name			
Pipe Diameter (ft)			
Manning's Coefficient			
Pipe Slope (ft/ft)			
Pipe Length (ft)			
Flow Velocity (ft/sec.)			
Flow Time (hr.)			0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.440 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA4-3
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	GRASS, DENSE			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.055			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.159			0.159

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	DE	
Flow Length (ft)	374	532	153	
Paved or Unpaved	unpaved	paved	unpaved	
Land Slope (ft/ft)	0.120	0.089	0.114	
Flow Velocity (ft/sec.)	5.597	6.074	5.457	
Flow Time (hr.)	0.0186	0.0243	0.0078	0.051

CHANNEL FLOW

Flow Segment Name	EF	FG		
Flow Depth (ft)	2	1		
Bottom Width (ft)	7	15		
Side Slope (Z1)	3	0		
Side Slope (Z2)	3	0		
Manning's Coefficient	0.045	0.013		
Flow Length (ft)	566	277		
Channel Slope (ft/ft)	0.016	0.007		
Flow Velocity (ft/sec.)	5.019	8.935		
Flow Time (hr.)	0.0313	0.0086		0.0399

PIPE FLOW (Assuming full flow)

Flow Segment Name				
Pipe Diameter (ft)				
Manning's Coefficient				
Pipe Slope (ft/ft)				
Pipe Length (ft)				
Flow Velocity (ft/sec.)				
Flow Time (hr.)				0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.249 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA5-1
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	Grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.110			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.120			0.120

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD		
Flow Length (ft)	168	115		
Paved or Unpaved	unpaved	paved		
Land Slope (ft/ft)	0.054	0.009		
Flow Velocity (ft/sec.)	3.734	1.896		
Flow Time (hr.)	0.0125	0.0169		0.029

CHANNEL FLOW

Flow Segment Name			
Flow Depth (ft)			
Bottom Width (ft)			
Side Slope (Z1)			
Side Slope (Z2)			
Manning's Coefficient			
Flow Length (ft)			
Channel Slope (ft/ft)			
Flow Velocity (ft/sec.)			
Flow Time (hr.)			0.0000

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE	EF		
Pipe Diameter (ft)	1.50	2.00		
Manning's Coefficient	0.013	0.013		
Pipe Slope (ft/ft)	0.014	0.139		
Pipe Length (ft)	296.00	151.00		
Flow Velocity (ft/sec.)	6.910	26.854		
Flow Time (hr.)	0.0119	0.002		0.013

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.163 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA5-2
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	Grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.020			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.238			0.238

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD		
Flow Length (ft)	132	121		
Paved or Unpaved	unpaved	paved		
Land Slope (ft/ft)	0.083	0.074		
Flow Velocity (ft/sec.)	4.658	5.544		
Flow Time (hr.)	0.0079	0.0061		0.014

CHANNEL FLOW

Flow Segment Name			
Flow Depth (ft)			
Bottom Width (ft)			
Side Slope (Z1)			
Side Slope (Z2)			
Manning's Coefficient			
Flow Length (ft)			
Channel Slope (ft/ft)			
Flow Velocity (ft/sec.)			
Flow Time (hr.)			0.0000

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE		
Pipe Diameter (ft)	2.00		
Manning's Coefficient	0.013		
Pipe Slope (ft/ft)	0.024		
Pipe Length (ft)	168		
Flow Velocity (ft/sec.)	11.111		
Flow Time (hr.)	0.0042		0.004

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.256 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA5-3
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	Grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.090			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.130			0.130

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	DE	
Flow Length (ft)	471	606	224	
Paved or Unpaved	unpaved	paved	unpaved	
Land Slope (ft/ft)	0.096	0.083	0.125	
Flow Velocity (ft/sec.)	4.987	5.839	5.704	
Flow Time (hr.)	0.0262	0.0288	0.0109	0.066

CHANNEL FLOW

Flow Segment Name	EF			
Flow Depth (ft)	2			
Bottom Width (ft)	7			
Side Slope (Z1)	3			
Side Slope (Z2)	3			
Manning's Coefficient	0.045			
Flow Length (ft)	991			
Channel Slope (ft/ft)	0.017			
Flow Velocity (ft/sec.)	5.213			
Flow Time (hr.)	0.0528			0.0528

PIPE FLOW (Assuming full flow)

Flow Segment Name				
Pipe Diameter (ft)				
Manning's Coefficient				
Pipe Slope (ft/ft)				
Pipe Length (ft)				
Flow Velocity (ft/sec.)				
Flow Time (hr.)				0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.249 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA5-4
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	Grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.050			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.165			0.165

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC			
Flow Length (ft)	76			
Paved or Unpaved	unpaved			
Land Slope (ft/ft)	0.171			
Flow Velocity (ft/sec.)	6.673			
Flow Time (hr.)	0.0032			0.003

CHANNEL FLOW

Flow Segment Name	CD	DE	EF	
Flow Depth (ft)	0.5	1	2	
Bottom Width (ft)	1	3	7	
Side Slope (Z1)	2	3	3	
Side Slope (Z2)	2	3	3	
Manning's Coefficient	0.045	0.045	0.045	
Flow Length (ft)	383	1060	418	
Channel Slope (ft/ft)	0.115	0.044	0.038	
Flow Velocity (ft/sec.)	5.116	5.183	7.787	
Flow Time (hr.)	0.0208	0.0568	0.0149	0.0925

PIPE FLOW (Assuming full flow)

Flow Segment Name				
Pipe Diameter (ft)				
Manning's Coefficient				
Pipe Slope (ft/ft)				
Pipe Length (ft)				
Flow Velocity (ft/sec.)				
Flow Time (hr.)				0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.261	hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA5-5
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	woods, light			
Roughness Coefficient	0.40			
Land Slope (ft/ft)	0.070			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.217			0.217

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	DE	
Flow Length (ft)	421	94	262	
Paved or Unpaved	unpaved	unpaved	unpaved	
Land Slope (ft/ft)	0.069	0.106	0.134	
Flow Velocity (ft/sec.)	4.235	5.262	5.897	
Flow Time (hr.)	0.0276	0.0050	0.0123	0.045

CHANNEL FLOW

Flow Segment Name	EF			
Flow Depth (ft)	2			
Bottom Width (ft)	7			
Side Slope (Z1)	3			
Side Slope (Z2)	3			
Manning's Coefficient	0.045			
Flow Length (ft)	357			
Channel Slope (ft/ft)	0.009			
Flow Velocity (ft/sec.)	3.776			
Flow Time (hr.)	0.0263			0.0263

PIPE FLOW (Assuming full flow)

Flow Segment Name	FG			
Pipe Diameter (ft)	8			
Manning's Coefficient	0.035			
Pipe Slope (ft/ft)	0.014			
Pipe Length (ft)	36			
Flow Velocity (ft/sec.)	1.149			
Flow Time (hr.)	0.009			0.009

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.297 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, SWMF-19, Orange Grove Ct, Subarea 6-1
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB	
Surface Description	grass, dense	
Roughness Coefficient	0.24	
Land Slope (ft/ft)	0.040	
Flow Length (ft) [100' max]	100	
Two-Year Rainfall (in.)	3.20	
Flow Time (hr.)	0.180	0.180

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC			
Flow Length (ft)	160			
Paved or Unpaved	unpaved			
Land Slope (ft/ft)	0.081			
Flow Velocity (ft/sec.)	4.599			
Flow Time (hr.)	0.0097			0.010

CHANNEL FLOW

Flow Segment Name	DE	FG		
Flow Depth (ft)	0.5	0.5		
Bottom Width (ft)	0	1		
Side Slope (Z1)	5	3		
Side Slope (Z2)	5	3		
Manning's Coefficient	0.240	0.045		
Flow Length (ft)	331	175		
Channel Slope (ft/ft)	0.015	0.046		
Flow Velocity (ft/sec.)	0.298	3.166		
Flow Time (hr.)	0.3085	0.0154		0.3238

PIPE FLOW (Assuming full flow)

	BCCMP			
Flow Segment Name	CD	EF		
Pipe Diameter (ft)	1.25	1.25		
Manning's Coefficient	0.013	0.013		
Pipe Slope (ft/ft)	0.048	0.175		
Pipe Length (ft)	200.00	229.00		
Flow Velocity (ft/sec.)	11.472	22.000		
Flow Time (hr.)	0.0048	0.003		0.008

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.521 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, SWMF-18, QUAKER MILL CT, Subarea 6-2
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	Grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.070			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.144			0.144

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC		
Flow Length (ft)	467		
Paved or Unpaved	unpaved		
Land Slope (ft/ft)	0.049		
Flow Velocity (ft/sec.)	3.581		
Flow Time (hr.)	0.0362		0.036

CHANNEL FLOW

*ASSUME RIPRAP CHANNEL

Flow Segment Name	CD*	EF		
Flow Depth (ft)	0.5	1		
Bottom Width (ft)	2	2		
Side Slope (Z1)	3	3		
Side Slope (Z2)	3	3		
Manning's Coefficient	0.070	0.045		
Flow Length (ft)	307	381		
Channel Slope (ft/ft)	0.059	0.024		
Flow Velocity (ft/sec.)	2.499	3.613		
Flow Time (hr.)	0.0341			0.0341

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE		
Pipe Diameter (ft)	2.00		
Manning's Coefficient	0.024		
Pipe Slope (ft/ft)	0.060		
Pipe Length (ft)	834.00		
Flow Velocity (ft/sec.)	9.550		
Flow Time (hr.)	0.0243		0.024

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.239 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, Subarea #6-3, Off-site Drainage
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	Grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.120			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.116			0.116

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	DE	
Flow Length (ft)	150	30	50	
Paved or Unpaved	unpaved	paved	unpaved	
Land Slope (ft/ft)	0.140	0.100	0.200	
Flow Velocity (ft/sec.)	6.037	6.428	7.216	
Flow Time (hr.)	0.0069	0.0013	0.0019	0.010

CHANNEL FLOW

Flow Segment Name	EF			
Flow Depth (ft)	1			
Bottom Width (ft)	2			
Side Slope (Z1)	3			
Side Slope (Z2)	3			
Manning's Coefficient	0.045			
Flow Length (ft)	1800			
Channel Slope (ft/ft)	0.043			
Flow Velocity (ft/sec.)	4.894			
Flow Time (hr.)	0.1022			0.1022

PIPE FLOW (Assuming full flow)

Flow Segment Name				
Pipe Diameter (ft)				
Manning's Coefficient				
Pipe Slope (ft/ft)				
Pipe Length (ft)				
Flow Velocity (ft/sec.)				
Flow Time (hr.)				0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.228 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA #6-4, off-site drainage
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	Grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.050			
Flow Length (ft) [100' max]	40			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.079			0.079

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC			
Flow Length (ft)	506			
Paved or Unpaved	paved			
Land Slope (ft/ft)	0.081			
Flow Velocity (ft/sec.)	5.786			
Flow Time (hr.)	0.0243			0.024

CHANNEL FLOW

Flow Segment Name				
Flow Depth (ft)				
Bottom Width (ft)				
Side Slope (Z1)				
Side Slope (Z2)				
Manning's Coefficient				
Flow Length (ft)				
Channel Slope (ft/ft)				
Flow Velocity (ft/sec.)				
Flow Time (hr.)				0.0000

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE			
Pipe Diameter (ft)	1.5			
Manning's Coefficient	0.024			
Pipe Slope (ft/ft)	0.062			
Pipe Length (ft)	545			
Flow Velocity (ft/sec.)	8.042			
Flow Time (hr.)	0.0188			0.019

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.122	hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA #6-5, off-site drainage
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	Grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.100			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.125			0.125

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC			
Flow Length (ft)	572			
Paved or Unpaved	unpaved			
Land Slope (ft/ft)	0.108			
Flow Velocity (ft/sec.)	5.312			
Flow Time (hr.)	0.0299			0.030

CHANNEL FLOW

Flow Segment Name	CD	EF		
Flow Depth (ft)	1	1.75		
Bottom Width (ft)	2	6		
Side Slope (Z1)	3	1		
Side Slope (Z2)	3	1		
Manning's Coefficient	0.045	0.045		
Flow Length (ft)	119	773		
Channel Slope (ft/ft)	0.370	0.061		
Flow Velocity (ft/sec.)	14.294	9.391		
Flow Time (hr.)	0.0023	0.0229		0.0252

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE			
Pipe Diameter (ft)	2.5			
Manning's Coefficient	0.015			
Pipe Slope (ft/ft)	0.022			
Pipe Length (ft)	990			
Flow Velocity (ft/sec.)	10.795			
Flow Time (hr.)	0.0255			0.025

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.205	hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA7-1
Existing Tc

BY: ADM

OVERLAND FLOW

Flow Segment Name	AB
Surface Description	Grass, dense
Roughness Coefficient	0.24
Land Slope (ft/ft)	0.110
Flow Length (ft) [100' max]	100
Two-Year Rainfall (in.)	3.20

Flow Time (hr.)	0.120			0.120

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	DE
Flow Length (ft)	677	127	150
Paved or Unpaved	unpaved	unpaved	unpaved
Land Slope (ft/ft)	0.139	0.024	0.130
Flow Velocity (ft/sec.)	6.012	2.480	5.817

Flow Time (hr.)	0.0313	0.0142	0.0072	0.053

CHANNEL FLOW

Flow Segment Name	EF		
Flow Depth (ft)	0.5		
Bottom Width (ft)	0		
Side Slope (Z1)	4		
Side Slope (Z2)	4		
Manning's Coefficient	0.045		
Flow Length (ft)	349		
Channel Slope (ft/ft)	0.097		
Flow Velocity (ft/sec.)	4.009		

Flow Time (hr.)	0.0242			0.0242

PIPE FLOW (Assuming full flow)

Flow Segment Name					
Pipe Diameter (ft)					
Manning's Coefficient					
Pipe Slope (ft/ft)					
Pipe Length (ft)					
Flow Velocity (ft/sec.)					

Flow Time (hr.)				0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.197 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA7-2
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	Grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.110			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.120			0.120

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	
Flow Length (ft)	732	38	
Paved or Unpaved	unpaved	paved	
Land Slope (ft/ft)	0.156	0.053	
Flow Velocity (ft/sec.)	6.367	4.664	
Flow Time (hr.)	0.0319	0.0023	0.034

CHANNEL FLOW

Flow Segment Name			
Flow Depth (ft)			
Bottom Width (ft)			
Side Slope (Z1)			
Side Slope (Z2)			
Manning's Coefficient			
Flow Length (ft)			
Channel Slope (ft/ft)			
Flow Velocity (ft/sec.)			
Flow Time (hr.)			0.0000

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE	EF	
Pipe Diameter (ft)	1.50	2.00	
Manning's Coefficient	0.013	0.013	
Pipe Slope (ft/ft)	0.050	0.060	
Pipe Length (ft)	347	1553	
Flow Velocity (ft/sec.)	13.349	17.669	
Flow Time (hr.)	0.0072	0.0244	0.007

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.162 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA7-3
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	woods,light			
Roughness Coefficient	0.40			
Land Slope (ft/ft)	0.180			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.149			0.149

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	
Flow Length (ft)	340	123	
Paved or Unpaved	unpaved	paved	
Land Slope (ft/ft)	0.224	0.024	
Flow Velocity (ft/sec.)	7.628	3.175	
Flow Time (hr.)	0.0124	0.0108	0.023

CHANNEL FLOW

Flow Segment Name	EF			
Flow Depth (ft)	2.75			
Bottom Width (ft)	7			
Side Slope (Z1)	3			
Side Slope (Z2)	3			
Manning's Coefficient	0.03			
Flow Length (ft)	364			
Channel Slope (ft/ft)	0.044			
Flow Velocity (ft/sec.)	14.904			
Flow Time (hr.)	0.0068			0.0068

PIPE FLOW (Assuming full flow)

Flow Segment Name	DE			
Pipe Diameter (ft)	2.00			
Manning's Coefficient	0.013			
Pipe Slope (ft/ft)	0.051			
Pipe Length (ft)	413.00			
Flow Velocity (ft/sec.)	16.238			
Flow Time (hr.)	0.0071			0.007

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.186 hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA7-4
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	Grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.060			
Flow Length (ft) [100' max]	100			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.153			0.153

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC		
Flow Length (ft)	147		
Paved or Unpaved	unpaved		
Land Slope (ft/ft)	0.034		
Flow Velocity (ft/sec.)	2.976		
Flow Time (hr.)	0.0137		0.014

CHANNEL FLOW

Flow Segment Name	EF	GH		
Flow Depth (ft)	0.5	0.5		
Bottom Width (ft)	0	0.5		
Side Slope (Z1)	3	3		
Side Slope (Z2)	3	3		
Manning's Coefficient	0.045	0.045		
Flow Length (ft)	932	539		
Channel Slope (ft/ft)	0.079	0.041		
Flow Velocity (ft/sec.)	3.565	2.808		
Flow Time (hr.)	0.0726	0.0533		0.1259

PIPE FLOW (Assuming full flow)

Flow Segment Name	CD	DE	FG	
Pipe Diameter (ft)	1.50	2.00	2.00	
Manning's Coefficient	0.013	0.013	0.013	
Pipe Slope (ft/ft)	0.061	0.114	0.046	
Pipe Length (ft)	639.00	682.00	478.00	
Flow Velocity (ft/sec.)	14.685	24.353	15.448	
Flow Time (hr.)	0.0121	0.0078	0.0086	0.028

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.321	hr

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: Ellicott City, DA7-5
Existing Tc BY: ADM

OVERLAND FLOW

Flow Segment Name	AB			
Surface Description	Grass, dense			
Roughness Coefficient	0.24			
Land Slope (ft/ft)	0.110			
Flow Length (ft) [100' max]	83			
Two-Year Rainfall (in.)	3.20			
Flow Time (hr.)	0.104			0.104

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC	CD	DE	
Flow Length (ft)	194	341	175	
Paved or Unpaved	paved	unpaved	paved	
Land Slope (ft/ft)	0.067	0.202	0.046	
Flow Velocity (ft/sec.)	5.262	7.258	4.346	
Flow Time (hr.)	0.0102	0.0131	0.0112	0.034

CHANNEL FLOW

Flow Segment Name	EF			
Flow Depth (ft)	2.75			
Bottom Width (ft)	8			
Side Slope (Z1)	0			
Side Slope (Z2)	0			
Manning's Coefficient	0.013			
Flow Length (ft)	352			
Channel Slope (ft/ft)	0.023			
Flow Velocity (ft/sec.)	23.864			
Flow Time (hr.)	0.0041			0.0041

PIPE FLOW (Assuming full flow)

Flow Segment Name				
Pipe Diameter (ft)				
Manning's Coefficient				
Pipe Slope (ft/ft)				
Pipe Length (ft)				
Flow Velocity (ft/sec.)				
Flow Time (hr.)				0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.142 hr

```
1


 ******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY******************

 JOB TR-20                                                    NOPLOTS
 TITLE     Ellicott City Flood Study

 TITLE     Existing- No Mgmt- 10,50, 100 yr (24-hr)

  6 RUNOFF 1   3       1       1.5577      78.90        1.136          1
    ENDATA
  7 INCREM 6                      0.1
  7 COMPUT 7   3     3            0.0        4.94         1.02 2  1   10
    ENDCMP 1
  7 COMPUT 7   3     3            0.0        7.28         1.02 2  1   50
    ENDCMP 1
  7 COMPUT 7   3     3            0.0        8.53         1.02 2  1   99
    ENDCMP 1
    ENDJOB 2

 ********************************END OF 80-80 LIST*******************************
1
 TR20 ------------------------------------------------------------------- SCS -
                            Ellicott City Flood                          VERSION
 02/25/**                  10,50, 100 yr (24-hr)                        2.04TEST
 09:05:51                  PASS   1   JOB NO.   1                      PAGE   1



 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .100 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   3  TO XSECTION   3
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   3  TO XSECTION   3
    STARTING TIME =   .00       RAIN DEPTH =  7.28       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =50            RAIN TABLE NO. = 2


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   3  TO XSECTION   3
    STARTING TIME =   .00       RAIN DEPTH =  8.53       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =99            RAIN TABLE NO. = 2


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   3
1
 TR20 ------------------------------------------------------------------- SCS -
                            Ellicott City Flood                          VERSION
 02/25/**                  10,50, 100 yr (24-hr)                        2.04TEST
```

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 1 STORM 10							
XSECTION 3	RUNOFF	1.56	2.74	---	12.59	1347	863.5
RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 50							
XSECTION 3	RUNOFF	1.56	4.83	---	12.57	2384	1528.2
RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 99							
XSECTION 3	RUNOFF	1.56	5.98	---	12.57	2940	1884.6

1
TR20 ---------- SCS -
Ellicott City Flood VERSION
02/25/** 10,50, 100 yr (24-hr) 2.04TEST
09:05:51 SUMMARY, JOB NO. 1 PAGE 3

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
XSECTION 3	1.56			
ALTERNATE 1		1347	2384	2940

1
TR20 ---------- SCS -
Ellicott City Flood VERSION
02/25/** 10,50, 100 yr (24-hr) 2.04TEST

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST
FILES

INPUT = EXECTY.DAT , GIVEN DATA FILE
OUTPUT = EXECTY.OUT , DATED 02/25/**,09:05:51

FILES GENERATED - DATED 02/25/**,09:05:51

NONE!

TOTAL NUMBER OF WARNINGS = 0, MESSAGES = 0

*** TR-20 RUN COMPLETED ***

1

```
 ******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY******************

 JOB TR-20                                                        NOPLOTS
 TITLE     Ellicott City Flood
 TITLE     10,50, 100 yr (24-hr)- All Woods Condition
  6 RUNOFF 1   3       1       1.5577      62.62        1.136          1
    ENDATA
  7 INCREM 6                     0.1
  7 COMPUT 7   3     3           0.0        4.94         1.02 2  1   10
    ENDCMP 1
  7 COMPUT 7   3     3           0.0        7.28         1.02 2  1   50
    ENDCMP 1
  7 COMPUT 7   3     3           0.0        8.53         1.02 2  1   99
    ENDCMP 1
    ENDJOB 2

 ********************************END OF 80-80 LIST********************************
1
 TR20 ------------------------------------------------------------------------ SCS -
                            Ellicott City Flood                          VERSION
 02/26/**          10,50, 100 yr (24-hr)- All Woods Condition           2.04TEST
 11:45:07                  PASS   1   JOB NO.   1                      PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .100 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   3  TO XSECTION   3
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   3  TO XSECTION   3
    STARTING TIME =   .00       RAIN DEPTH =  7.28       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =50            RAIN TABLE NO. = 2


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   3  TO XSECTION   3
    STARTING TIME =   .00       RAIN DEPTH =  8.53       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =99            RAIN TABLE NO. = 2


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   3
1
 TR20 ------------------------------------------------------------------------ SCS -
                            Ellicott City Flood                          VERSION
 02/26/**          10,50, 100 yr (24-hr)- All Woods Condition           2.04TEST
 11:45:07                  SUMMARY, JOB NO.   1                       PAGE   2
```

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 1 STORM 10							
XSECTION 3	RUNOFF	1.56	1.44	---	12.65	632	405.1
RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 50							
XSECTION 3	RUNOFF	1.56	3.07	---	12.61	1464	938.5
RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 99							
XSECTION 3	RUNOFF	1.56	4.04	---	12.60	1955	1253.2

1
TR20 ---------- SCS -
02/26/** 10,50, 100 yr (24-hr)- All Woods Condition 2.04TEST
11:45:07 SUMMARY, JOB NO. 1 PAGE 3

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
XSECTION 3	1.56			
ALTERNATE 1		632	1464	1955

1
TR20 ---------- SCS -
02/26/** 10,50, 100 yr (24-hr)- All Woods Condition 2.04TEST

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST

FILES

INPUT = exwoods.dat , GIVEN DATA FILE
OUTPUT = exwoods.OUT , DATED 02/26/**,11:45:07

FILES GENERATED - DATED 02/26/**,11:45:07

NONE!

TOTAL NUMBER OF WARNINGS = 0, MESSAGES = 0

*** TR-20 RUN COMPLETED ***

```
1


 ******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY******************

 JOB TR-20                                                        NOPLOTS
 TITLE     Ellicott City Flood
 TITLE     10,50, 100 yr (24-hr)- All Woods Condition, Natural Tc
  6 RUNOFF 1   3       1       1.5577      62.62        1.725          1
    ENDATA
  7 INCREM 6                      0.1
  7 COMPUT 7   3     3            0.0        4.94         1.02 2  1   10
    ENDCMP 1
  7 COMPUT 7   3     3            0.0        7.28         1.02 2  1   50
    ENDCMP 1
  7 COMPUT 7   3     3            0.0        8.53         1.02 2  1   99
    ENDCMP 1
    ENDJOB 2

 ********************************END OF 80-80 LIST********************************
1
 TR20 ------------------------------------------------------------------------ SCS -
                             Ellicott City Flood                          VERSION
 02/14/**    10,50, 100 yr (24-hr)- All Woods Condition, Natural Tc      2.04TEST
 08:36:12                    PASS   1   JOB NO.   1                     PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .100 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   3  TO XSECTION   3
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   3  TO XSECTION   3
    STARTING TIME =   .00       RAIN DEPTH =  7.28       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =50            RAIN TABLE NO. = 2


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   3  TO XSECTION   3
    STARTING TIME =   .00       RAIN DEPTH =  8.53       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =99            RAIN TABLE NO. = 2


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   3
1
 TR20 ------------------------------------------------------------------------ SCS -
                             Ellicott City Flood                          VERSION
 02/14/**    10,50, 100 yr (24-hr)- All Woods Condition, Natural Tc      2.04TEST
 08:36:12                    SUMMARY, JOB NO.   1                     PAGE   2
```

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 1 STORM 10							
XSECTION 3	RUNOFF	1.56	1.44	---	13.05	474	303.8
RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 50							
XSECTION 3	RUNOFF	1.56	3.07	---	13.00	1095	701.9
RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 99							
XSECTION 3	RUNOFF	1.56	4.04	---	12.98	1466	939.7

1
TR20 ---------- SCS -
Ellicott City Flood VERSION
02/14/** 10,50, 100 yr (24-hr)- All Woods Condition, Natural Tc 2.04TEST
08:36:12 SUMMARY, JOB NO. 1 PAGE 3

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
XSECTION 3	1.56			
ALTERNATE 1		474	1095	1466

1
TR20 ---------- SCS -
Ellicott City Flood VERSION
02/14/** 10,50, 100 yr (24-hr)- All Woods Condition, Natural Tc 2.04TEST

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST
FILES

INPUT = exnat.dat , GIVEN DATA FILE
OUTPUT = exnat.OUT , DATED 02/14/**,08:36:12

FILES GENERATED - DATED 02/14/**,08:36:12

NONE!

TOTAL NUMBER OF WARNINGS = 0, MESSAGES = 0

*** TR-20 RUN COMPLETED ***

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                       NOPLOTS
TITLE     Ellicott City Flood Study- Tiber Run DA
TITLE     EXISTING COND.- 10,50,100 yr (24hr)
 5 RAINFL 5              0.2500
 8               0.0000       0.0000      0.0000      0.0000      0.0136
 8               0.0629       0.0629      0.0629      0.0629      0.0629
 8               0.0629       0.0629      0.0629      0.0629      0.0629
 8               0.0629       0.0629      0.0629      0.0641      0.0641
 8               0.0678       0.0764      0.0764      0.0789      0.0789
 8               0.0789       0.0789      0.0814      0.0863      0.0875
 8               0.0900       0.0900      0.0912      0.1245      0.1245
 8               0.1245       0.1245      0.1270      0.1270      0.1270
 8               0.1270       0.1270      0.1319      0.1319      0.1319
 8               0.1862       0.2639      0.4057      0.5425      0.5746
 8               0.6387       0.7028      0.7349      0.7386      0.7781
 8               0.8064       0.8101      0.8163      0.8224      0.8261
 8               0.8286       0.8311      0.8323      0.8323      0.8323
 8               0.8348       0.8372      0.8372      0.8372      0.8372
 8               0.8372       0.8385      0.8385      0.8385      0.8385
 8               0.8385       0.8422      0.8422      0.8459      0.8471
 8               0.8471       0.8483      0.8483      0.8483      0.8483
 8               0.8483       0.8496      0.8829      0.9051      0.9383
 8               0.9482       0.9556      0.9667      0.9778      0.9864
 8               1.0000       1.0000      1.0000      1.0000      1.0000
 9 ENDTBL
 5 RAINFL 6              0.2500
 8               0.0000       0.0773      0.1879      0.3898      0.5847
 8               0.6304       0.7217      0.8130      0.8586      0.8639
 8               0.9201       0.9605      0.9658      0.9745      0.9833
 8               0.9886       0.9921      0.9956      0.9974      0.9974
 8               1.0000       1.0000      1.0000      1.0000      1.0000
 9 ENDTBL
 6 RUNOFF 1 001       1       0.5398      71.210       0.8790 1 1 1   1 DA
   ENDATA
 7 INCREM 6                      .06
 7 COMPUT 7 001   001            0.0        4.94         1.02 2  1   10
   ENDCMP 1
 7 COMPUT 7 001   001            0.0        7.28         1.02 2  1   50
   ENDCMP 1
 7 COMPUT 7 001   001            0.0        8.53         1.02 2  1   99
   ENDCMP 1
   ENDJOB 2

**********END OF 80-80 LIST**********
1
TR20 ------------------------------------------------------------------ SCS -
                 Ellicott City Flood Study- Tiber Run DA              VERSION
05/31/**     EXISTING COND.- 10,50,100 yr (24hr), 9-7-11 Rainfall     2.04TEST
10:26:41                    PASS   1   JOB NO.   1                    PAGE   1


EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .060 HOURS


EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION   1
   STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
```

ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS
ALTERNATE NO. = 1 STORM NO. =10 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10

HRS	MAIN TIME INCREMENT = .060 hr,				DRAINAGE AREA =			.54 SQ.MI.
10.08 CFS	.40	.55	.74	.96	1.21	1.50	1.82	2.17
10.56 CFS	2.57	3.00	3.47	3.98	4.54	5.15	5.82	6.54
11.04 CFS	7.33	8.20	9.15	10.19	11.35	12.64	14.09	15.71
11.52 CFS	17.60	19.96	23.18	28.05	35.65	47.94	67.74	97.27
12.00 CFS	137	186	241	298	349	389	413	423
12.48 CFS	419	405	382	353	321	290	260	235
12.96 CFS	213	195	178	163	150	138	128	119
13.44 CFS	111	104	98	92	87	83	79	75
13.92 CFS	72.11	69.09	66.32	63.77	61.43	59.26	57.25	55.35
14.40 CFS	53.57	51.90	50.35	48.93	47.69	46.62	45.69	44.86
14.88 CFS	44.10	43.39	42.73	42.10	41.50	40.92	40.36	39.82
15.36 CFS	39.28	38.76	38.25	37.74	37.24	36.74	36.25	35.75
15.84 CFS	35.26	34.77	34.28	33.79	33.31	32.82	32.34	31.87
16.32 CFS	31.41	30.98	30.56	30.17	29.80	29.46	29.14	28.85
16.80 CFS	28.57	28.31	28.07	27.84	27.62	27.41	27.20	27.00
17.28 CFS	26.81	26.62	26.43	26.25	26.06	25.88	25.70	25.52
17.76 CFS	25.35	25.17	24.99	24.82	24.64	24.46	24.29	24.11
18.24 CFS	23.94	23.76	23.59	23.41	23.23	23.06	22.88	22.70
18.72 CFS	22.53	22.35	22.17	21.99	21.82	21.64	21.46	21.28
19.20 CFS	21.10	20.92	20.74	20.56	20.38	20.20	20.02	19.84
19.68 CFS	19.66	19.47	19.29	19.11	18.93	18.74	18.56	18.38
20.16 CFS	18.20	18.02	17.85	17.68	17.53	17.38	17.24	17.12
20.64 CFS	17.01	16.91	16.82	16.74	16.67	16.60	16.54	16.48
21.12 CFS	16.43	16.38	16.33	16.29	16.25	16.21	16.17	16.13
21.60 CFS	16.09	16.05	16.02	15.98	15.94	15.91	15.87	15.84
22.08 CFS	15.80	15.77	15.74	15.70	15.67	15.63	15.60	15.56
22.56 CFS	15.53	15.50	15.46	15.43	15.39	15.36	15.33	15.29
23.04 CFS	15.26	15.22	15.19	15.15	15.12	15.09	15.05	15.02
23.52 CFS	14.98	14.95	14.91	14.88	14.84	14.81	14.77	14.74
24.00 CFS	14.69	14.61	14.43	14.13	13.67	13.01	12.14	11.12
24.48 CFS	9.99	8.83	7.68	6.58	5.57	4.67	3.89	3.25
24.96 CFS	2.72	2.28	1.91	1.61	1.34	1.12	.94	.79
25.44 CFS	.66	.55	.46					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.09 WATERSHED INCHES; 728 CFS-HRS; 60.1 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Tiber Run DA VERSION
05/31/** EXISTING COND.- 10,50,100 yr (24hr), 9-7-11 Rainfall 2.04TEST
10:26:41 PASS 1 JOB NO. 1 PAGE 2

DURATION(HRS)	2	4	6	8	10	12	14	15
FLOW(CFS)	71	36	26	20	16	15	4	0

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 1
STARTING TIME = .00 RAIN DEPTH = 7.28 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS
ALTERNATE NO. = 1 STORM NO. =50 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =50

HRS	MAIN TIME INCREMENT = .060 hr,				DRAINAGE AREA =			.54 SQ.MI.
8.22 CFS	.47	.61	.78	.97	1.18	1.40	1.65	1.92
8.70 CFS	2.21	2.52	2.85	3.20	3.57	3.97	4.38	4.81
9.18 CFS	5.26	5.72	6.20	6.69	7.18	7.67	8.17	8.66
9.66 CFS	9.15	9.65	10.16	10.68	11.23	11.80	12.42	13.07
10.14 CFS	13.77	14.53	15.33	16.20	17.12	18.12	19.18	20.31
10.62 CFS	21.52	22.80	24.18	25.66	27.25	28.95	30.79	32.76
11.10 CFS	34.89	37.20	39.72	42.50	45.56	48.98	52.79	57.19
11.58 CFS	63	70	81	98	125	167	228	308
12.06 CFS	404	509	615	707	776	816	828	814
12.54 CFS	780	732	673	609	546	488	439	396
13.02 CFS	360	328	299	274	251	232	215	200
13.50 CFS	187	175	164	155	147	139	133	127
13.98 CFS	121	116	111	107	103	99	96	93
14.46 CFS	89.69	86.89	84.34	82.11	80.19	78.54	77.08	75.73
14.94 CFS	74.48	73.30	72.18	71.12	70.09	69.10	68.14	67.20
15.42 CFS	66.28	65.38	64.48	63.60	62.73	61.86	60.99	60.13
15.90 CFS	59.28	58.42	57.57	56.72	55.87	55.04	54.22	53.43
16.38 CFS	52.66	51.94	51.25	50.61	50.02	49.47	48.95	48.47
16.86 CFS	48.02	47.60	47.20	46.81	46.44	46.08	45.73	45.39
17.34 CFS	45.06	44.73	44.40	44.08	43.77	43.45	43.14	42.83
17.82 CFS	42.52	42.21	41.91	41.60	41.29	40.99	40.68	40.38
18.30 CFS	40.07	39.77	39.47	39.16	38.86	38.55	38.25	37.94
18.78 CFS	37.63	37.33	37.02	36.71	36.41	36.10	35.79	35.48
19.26 CFS	35.18	34.87	34.56	34.25	33.94	33.63	33.32	33.01
19.74 CFS	32.70	32.39	32.08	31.77	31.46	31.14	30.83	30.53
20.22 CFS	30.22	29.93	29.65	29.38	29.13	28.90	28.69	28.50
20.70 CFS	28.33	28.17	28.04	27.91	27.80	27.69	27.59	27.50
21.18 CFS	27.41	27.33	27.25	27.18	27.11	27.04	26.97	26.90
21.66 CFS	26.84	26.77	26.71	26.64	26.58	26.52	26.46	26.40
22.14 CFS	26.34	26.28	26.22	26.16	26.10	26.04	25.98	25.92
22.62 CFS	25.86	25.80	25.74	25.68	25.62	25.56	25.50	25.44

1

23.10 CFS	25.38	25.32	25.26	25.20	25.14	25.08	25.02	24.96
23.58 CFS	24.90	24.84	24.78	24.72	24.66	24.59	24.53	24.47
24.06 CFS	24.33	24.04	23.55	22.79	21.68	20.23	18.51	16.63
24.54 CFS	14.68	12.76	10.94	9.26	7.76	6.46	5.39	4.52
25.02 CFS	3.79	3.18	2.67	2.24	1.87	1.56	1.31	1.09
25.50 CFS	.91	.76	.63	.53	.44			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.98 WATERSHED INCHES; 1387 CFS-HRS; 114.7 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	131	63	45	36	28	26	18	4

DURATION(HRS)	17
FLOW(CFS)	0

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 1

STARTING TIME = .00 RAIN DEPTH = 8.53 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS
ALTERNATE NO. = 1 STORM NO. =99 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99

HRS	MAIN TIME INCREMENT = .060 hr,				DRAINAGE AREA =			.54 SQ.MI.
7.38 CFS	.44	.59	.77	.96	1.17	1.40	1.64	1.90
7.86 CFS	2.16	2.44	2.72	3.01	3.31	3.62	3.94	4.26
8.34 CFS	4.60	4.96	5.33	5.73	6.15	6.59	7.05	7.54
8.82 CFS	8.06	8.61	9.17	9.77	10.39	11.03	11.69	12.37
9.30 CFS	13.06	13.75	14.44	15.13	15.81	16.47	17.13	17.79
9.78 CFS	18.46	19.15	19.87	20.64	21.46	22.34	23.29	24.32
10.26 CFS	25.42	26.61	27.88	29.24	30.70	32.26	33.92	35.68
10.74 CFS	37.57	39.59	41.75	44.08	46.58	49.26	52.15	55.28
11.22 CFS	58.68	62.41	66.54	71.12	76.21	82.09	89.30	99.12
11.70 CFS	114	136	171	226	304	406	528	662
12.18 CFS	795	912	997	1046	1058	1038	993	929
12.66 CFS	853	770	689	615	552	498	452	411
13.14 CFS	374	342	314	289	268	249	232	217
13.62 CFS	204	192	182	172	164	156	149	143
14.10 CFS	137	132	127	122	118	114	110	107
14.58 CFS	103	101	98	96	94	93	91	90
15.06 CFS	88.37	87.05	85.78	84.56	83.37	82.21	81.07	79.95
15.54 CFS	78.85	77.76	76.68	75.61	74.55	73.49	72.43	71.38
16.02 CFS	70.33	69.29	68.25	67.22	66.22	65.24	64.30	63.41

1

16.50 CFS	62.57	61.78	61.05	60.37	59.74	59.15	58.60	58.07
16.98 CFS	57.58	57.10	56.64	56.20	55.77	55.35	54.94	54.53
17.46 CFS	54.13	53.74	53.35	52.96	52.58	52.20	51.82	51.44
17.94 CFS	51.06	50.68	50.31	49.93	49.56	49.18	48.81	48.43
18.42 CFS	48.06	47.69	47.31	46.94	46.56	46.19	45.81	45.44
18.90 CFS	45.06	44.69	44.31	43.93	43.56	43.18	42.80	42.43
19.38 CFS	42.05	41.67	41.29	40.91	40.53	40.15	39.77	39.39
19.86 CFS	39.01	38.63	38.25	37.87	37.49	37.12	36.75	36.39
20.34 CFS	36.04	35.72	35.41	35.13	34.87	34.64	34.43	34.24
20.82 CFS	34.07	33.92	33.78	33.65	33.53	33.42	33.31	33.21
21.30 CFS	33.11	33.02	32.93	32.85	32.76	32.68	32.60	32.52
21.78 CFS	32.44	32.36	32.28	32.21	32.13	32.06	31.98	31.91
22.26 CFS	31.83	31.76	31.69	31.61	31.54	31.46	31.39	31.32
22.74 CFS	31.24	31.17	31.10	31.02	30.95	30.87	30.80	30.73
23.22 CFS	30.65	30.58	30.50	30.43	30.36	30.28	30.21	30.13
23.70 CFS	30.06	29.99	29.91	29.84	29.76	29.67	29.50	29.14
24.18 CFS	28.54	27.61	26.27	24.52	22.44	20.16	17.81	15.49
24.66 CFS	13.28	11.24	9.42	7.85	6.55	5.48	4.60	3.86
25.14 CFS	3.24	2.71	2.27	1.90	1.59	1.32	1.10	.92
25.62 CFS	.77	.64	.53	.44				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.07 WATERSHED INCHES; 1766 CFS-HRS; 145.9 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	169	79	56	45	35	31	26	8

DURATION(HRS)	18	18
FLOW(CFS)	1	0

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3

1
TR20 ---------- SCS -
Ellicott City Flood Study- Tiber Run DA VERSION
05/31/** EXISTING COND.- 10,50,100 yr (24hr), 9-7-11 Rainfall 2.04TEST
10:26:41 SUMMARY, JOB NO. 1 PAGE 5

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .060 HOURS							
ALTERNATE 1 STORM 10							
XSECTION 1	RUNOFF	.54	2.09	---	12.43	423	783.3
RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 50							
XSECTION 1	RUNOFF	.54	3.98	---	12.42	828	1533.3
RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 99							
XSECTION 1	RUNOFF	.54	5.07	---	12.41	1058	1959.3

1
TR20 ---------- SCS -
Ellicott City Flood Study- Tiber Run DA VERSION
05/31/** EXISTING COND.- 10,50,100 yr (24hr), 9-7-11 Rainfall 2.04TEST
10:26:41 SUMMARY, JOB NO. 1 PAGE 6

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
XSECTION 1	.54			
ALTERNATE 1		423	828	1058

1
TR20 ---------- SCS -
Ellicott City Flood Study- Tiber Run DA VERSION

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST

FILES

INPUT = tiber.dat , GIVEN DATA FILE
OUTPUT = tiber.OUT , DATED 05/31/**,10:26:41

FILES GENERATED - DATED 05/31/**,10:26:41

NONE!

TOTAL NUMBER OF WARNINGS = 0, MESSAGES = 0

*** TR-20 RUN COMPLETED ***

```
 ******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY******************

 JOB TR-20                                                          NOPLOTS
 TITLE     Ellicott City Flood Study- Tiber Run DA
 TITLE     EXISTING COND.- 9-7-11 Rainfall
  5 RAINFL 5               0.2500
  8               0.0000       0.0000      0.0000      0.0000      0.0136
  8               0.0629       0.0629      0.0629      0.0629      0.0629
  8               0.0629       0.0629      0.0629      0.0629      0.0629
  8               0.0629       0.0629      0.0629      0.0641      0.0641
  8               0.0678       0.0764      0.0764      0.0789      0.0789
  8               0.0789       0.0789      0.0814      0.0863      0.0875
  8               0.0900       0.0900      0.0912      0.1245      0.1245
  8               0.1245       0.1245      0.1270      0.1270      0.1270
  8               0.1270       0.1270      0.1319      0.1319      0.1319
  8               0.1862       0.2639      0.4057      0.5425      0.5746
  8               0.6387       0.7028      0.7349      0.7386      0.7781
  8               0.8064       0.8101      0.8163      0.8224      0.8261
  8               0.8286       0.8311      0.8323      0.8323      0.8323
  8               0.8348       0.8372      0.8372      0.8372      0.8372
  8               0.8372       0.8385      0.8385      0.8385      0.8385
  8               0.8385       0.8422      0.8422      0.8459      0.8471
  8               0.8471       0.8483      0.8483      0.8483      0.8483
  8               0.8483       0.8496      0.8829      0.9051      0.9383
  8               0.9482       0.9556      0.9667      0.9778      0.9864
  8               1.0000       1.0000      1.0000      1.0000      1.0000
  9 ENDTBL
  5 RAINFL 6               0.2500
  8               0.0000       0.0773      0.1879      0.3898      0.5847
  8               0.6304       0.7217      0.8130      0.8586      0.8639
  8               0.9201       0.9605      0.9658      0.9745      0.9833
  8               0.9886       0.9921      0.9956      0.9974      0.9974
  8               1.0000       1.0000      1.0000      1.0000      1.0000
  9 ENDTBL
  6 RUNOFF 1 001       1       0.5398      71.210       0.8790 1 1 1   1 DA
    ENDATA
  7 INCREM 6                      .06
  7 COMPUT 7 001   001            0.0        8.11         1.05 2  1   24
    ENDCMP 1
  7 COMPUT 7 001   001            0.0        5.70         1.06 2  1   06
    ENDCMP 1
    ENDJOB 2

 ********************************END OF 80-80 LIST********************************
1
 TR20 ------------------------------------------------------------------- SCS -
                  Ellicott City Flood Study- Tiber Run DA              VERSION
 05/31/**     EXISTING COND.- 10,50,100 yr (24hr), 9-7-11 Rainfall      2.04TEST
 10:24:37                    PASS   1   JOB NO.   1                     PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .060 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION   1
    STARTING TIME =   .00       RAIN DEPTH =  8.11       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =24            RAIN TABLE NO. = 5
```

OPERATION RUNOFF XSECTION 1

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =24

HRS	MAIN TIME INCREMENT = .060 hr,				DRAINAGE AREA =			.54 SQ.MI.
8.16 CFS	.32	.66	1.16	1.79	2.50	3.19	3.76	4.14
8.64 CFS	4.31	4.27	4.08	3.78	3.37	2.92	2.46	2.05
9.12 CFS	1.72	1.49	1.34	1.27	1.26	1.27	1.29	1.30
9.60 CFS	1.29	1.24	1.16	1.07	.96	.84	.71	.60
10.08 CFS	.50	.42	.35	.30	.28	.31	.40	.56
10.56 CFS	.79	1.08	1.39	1.66	1.87	1.98	2.00	1.95
11.04 CFS	2.07	2.80	4.44	7.37	12.30	19.99	30.67	44.35
11.52 CFS	62	84	113	148	190	239	296	357
12.00 CFS	422	485	543	591	627	648	653	645
12.48 CFS	628	608	588	570	556	545	538	533
12.96 CFS	529	522	510	492	469	440	409	377
13.44 CFS	346	319	298	284	277	273	272	271
13.92 CFS	269	264	256	244	227	209	189	170
14.40 CFS	153	137	123	112	102	94	87	81
14.88 CFS	75.31	69.80	64.56	59.63	54.99	50.70	46.77	43.20
15.36 CFS	40.00	37.13	34.52	32.06	29.67	27.33	25.00	22.67
15.84 CFS	20.32	17.98	15.68	13.53	11.64	10.12	9.06	8.50
16.32 CFS	8.49	9.01	9.94	11.14	12.41	13.57	14.46	14.99
16.80 CFS	15.06	14.62	13.73	12.55	11.22	9.81	8.44	7.16
17.28 CFS	5.99	4.98	4.15	3.47	2.93	2.53	2.28	2.21
17.76 CFS	2.34	2.65	3.10	3.59	4.03	4.33	4.46	4.40
18.24 CFS	4.20	3.90	3.50	3.05	2.59	2.16	1.79	1.49
18.72 CFS	1.24	1.10	1.16	1.50	2.21	3.35	4.88	6.64
19.20 CFS	8.40	9.95	11.15	12.03	12.71	13.36	14.12	14.97
19.68 CFS	15.86	16.67	17.27	17.59	17.59	17.23	16.52	15.48
20.16 CFS	14.21	12.90	11.70	10.71	9.94	9.32	8.75	8.17
20.64 CFS	7.56	6.90	6.22	5.53	4.82	4.12	3.47	2.90
21.12 CFS	2.41	2.02	1.70	1.47	1.35	1.36	1.64	2.72
21.60 CFS	6	11	19	32	49	69	90	111
22.08 CFS	132	150	167	183	196	207	215	219
22.56 CFS	220	216	209	200	189	177	164	152
23.04 CFS	142	133	127	122	119	116	114	113
23.52 CFS	111	110	108	107	106	106	105	104
24.00 CFS	102	98	92	85	77	69	60	51
24.48 CFS	43.54	36.39	30.26	25.21	21.09	17.66	14.80	12.39
24.96 CFS	10.36	8.66	7.25	6.07	5.07	4.24	3.54	2.95

1

25.44 CFS	2.46	2.05	1.70	1.41	1.16	.95	.77	.63
25.92 CFS	.51	.41						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.70 WATERSHED INCHES; 1637 CFS-HRS; 135.3 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	271	123	60	17	10	4	2	1

DURATION(HRS)	17
FLOW(CFS)	0

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

```
 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION   1
    STARTING TIME =   .00       RAIN DEPTH =  5.70       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. = 6            RAIN TABLE NO. = 6


 OPERATION RUNOFF   XSECTION   1

                    HYDROGRAPH POINTS FOR   ALTERNATE = 1,   STORM = 6
     HRS      MAIN TIME INCREMENT =  .060 hr,      DRAINAGE AREA =    .54 SQ.MI.
      .36 CFS       .24     .61    1.22    3.10    7.75   16.26   29.80   50.32
      .84 CFS        79     117     162     213     266     319     366     404
     1.32 CFS       431     446     450     449     445     441     439     438
     1.80 CFS       439     442     445     447     445     438     424     404
     2.28 CFS       380     353     326     301     279     264     255     251
     2.76 CFS       250     250     250     248     244     235     223     207
     3.24 CFS       189     171     154     138     124     112     102      93
     3.72 CFS     86.38   80.32   74.78   69.49   64.42   59.61   55.05   50.77
     4.20 CFS     46.79   43.16   39.87   36.92   34.27   31.85   29.56   27.34
     4.68 CFS     25.16   23.00   20.87   18.81   16.89   15.21   13.83   12.79
     5.16 CFS     12.02   11.42   10.85   10.23    9.53    8.74    7.91    7.03
     5.64 CFS      6.12    5.22    4.38    3.64    3.02    2.52    2.10    1.76
     6.12 CFS      1.47    1.23    1.02     .85     .71     .59     .49

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.68 WATERSHED INCHES;     933 CFS-HRS;      77.1 ACRE-FEET.

    DURATION(HRS)   2      4      6      6
    FLOW(CFS)     231     24      1      0
1
 TR20 ------------------------------------------------------------------- SCS -
                  Ellicott City Flood Study- Tiber Run DA              VERSION
 05/31/**     EXISTING COND.- 10,50,100 yr (24hr), 9-7-11 Rainfall     2.04TEST
 10:24:37                     PASS   3   JOB NO.   1                   PAGE   3


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2
1
 TR20 ------------------------------------------------------------------- SCS -
                  Ellicott City Flood Study- Tiber Run DA              VERSION
 05/31/**     EXISTING COND.- 10,50,100 yr (24hr), 9-7-11 Rainfall     2.04TEST
 10:24:37                      SUMMARY, JOB NO.   1                   PAGE   4


                             SUMMARY TABLE 1
                             ---------------
    SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
    A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
 F-FLAT TOP HYDROGRAPH   T-TRUNCATED HYDROGRAPH   R-RISING TRUNCATED HYDROGRAPH

 XSECTION/  STANDARD                                    PEAK DISCHARGE
 STRUCTURE   CONTROL    DRAINAGE   RUNOFF   ------------------------------------
    ID      OPERATION     AREA     AMOUNT   ELEVATION   TIME     RATE    RATE
                         (SQ MI)    (IN)      (FT)      (HR)     (CFS)   (CSM)

 RAINFALL OF   8.11 inches AND  23.80 hr DURATION, BEGINS AT    .0 hrs.
 RAINTABLE NUMBER  5,    ARC 2
 MAIN TIME INCREMENT   .060 HOURS

    ALTERNATE    1   STORM   24
    ---------------------------
```

```
 XSECTION   1  RUNOFF      .54     4.70        ---     12.35      653   1209.3

 RAINFALL OF   5.70 inches AND   5.00 hr DURATION, BEGINS AT    .0 hrs.
 RAINTABLE NUMBER  6,    ARC 2

    ALTERNATE    1   STORM    6
    ----------------------------
 XSECTION   1  RUNOFF      .54     2.68        ---      1.46      451    835.2
1
 TR20 ------------------------------------------------------------------------ SCS -
                 Ellicott City Flood Study- Tiber Run DA              VERSION
 05/31/**     EXISTING COND.- 10,50,100 yr (24hr), 9-7-11 Rainfall      2.04TEST
 10:24:37                     SUMMARY, JOB NO.   1                     PAGE   5


                             SUMMARY TABLE 3
                             ---------------
      STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
      QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

 XSECTION/          DRAINAGE
 STRUCTURE            AREA       STORM NUMBERS.....
   ID               (SQ MI)          6        24


 XSECTION    1          .54
 ----------------------------
    ALTERNATE    1                  451       653
1
 TR20 ------------------------------------------------------------------------ SCS -
                 Ellicott City Flood Study- Tiber Run DA              VERSION
 05/31/**     EXISTING COND.- 10,50,100 yr (24hr), 9-7-11 Rainfall      2.04TEST



 END OF  1 JOBS IN THIS RUN
```

```
                    SCS  TR-20,  VERSION 2.04TEST
                                  FILES

     INPUT  = tiber2.dat                              , GIVEN DATA FILE
     OUTPUT = tiber2.OUT                              , DATED 05/31/**,10:24:37

              FILES GENERATED - DATED 05/31/**,10:24:37

                                NONE!


            TOTAL NUMBER OF WARNINGS =   0,  MESSAGES =   0

                     *** TR-20 RUN COMPLETED ***
```

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                       NOPLOTS
TITLE     Ellicott City Flood Study- 7 Subareas, Preexisting Land Use (woods)
TITLE     No Mgmt- 10,50,100 yr (24hr)

 2 XSECTN   011                  1.0      344.00
 8                            340.00        0.00        0.00
 8                            340.25        7.08        1.69
 8                            340.50       23.63        3.75
 8                            340.75       48.96        6.19
 8                            341.00       83.42        9.00
 8                            341.25      127.58       12.19
 8                            341.50      182.06       15.75
 8                            341.75      247.50       19.69
 8                            342.00      324.56       24.00
 8                            342.25      413.88       28.69
 8                            342.50      516.08       33.75
 8                            342.75      631.80       39.19
 8                            343.00      761.64       45.00
 9 ENDTBL
 2 XSECTN   021                  1.0      314.40
 8                            313.22        0.00        0.00
 8                            313.51        1.10        0.89
 8                            313.81        3.51        1.84
 8                            314.10       16.22        5.61
 8                            314.40       34.66        9.74
 8                            314.68       48.28       24.71
 8                            314.96       79.66       42.09
 8                            315.24      126.64       61.87
 8                            315.52      189.07       84.06
 8                            315.80      267.27      108.64
 8                            316.08      361.75      135.63
 8                            316.36      473.14      165.02
 8                            316.64      602.11      196.81
 8                            316.92      749.37      231.00
 8                            317.20      878.70      277.25
 8                            317.48     1103.89      329.14
 8                            317.76     1358.10      382.70
 8                            318.04     1640.58      437.94
 8                            318.32     1950.87      494.86
 8                            318.60     2288.69      553.45
 9 ENDTBL
 2 XSECTN   031                  1.0      288.90
 8                            287.68        0.00        0.00
 8                            287.99        1.15        0.94
 8                            288.29        3.69        1.95
 8                            288.60       17.06        5.98
 8                            288.90       36.44       10.37
 8                            289.19       63.07       39.25
 8                            289.47      121.85       69.50
 8                            289.76      206.05      101.12
 8                            290.05      313.23      134.09
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                            290.33       442.07       168.42
  8                            290.62       591.78       204.12
  8                            290.91       761.87       241.18
  8                            291.19       952.02       279.60
  8                            291.48      1162.04       319.38
  8                            291.77      1391.84       360.52
  8                            292.05      1641.40       403.02
  8                            292.34      1910.74       446.89
  8                            292.63      2199.92       492.11
  8                            292.91      2509.04       538.70
  8                            293.20      2838.22       586.65
  9 ENDTBL
  2 XSECTN    041                 1.0       282.40
  8                            281.10         0.00         0.00
  8                            281.42         1.24         1.09
  8                            281.75         3.96         2.26
  8                            282.07        18.30         6.92
  8                            282.40        39.09        12.00
  8                            282.88        67.33        37.27
  8                            283.36       131.17        65.87
  8                            283.84       225.10        97.78
  8                            284.32       348.01       133.01
  8                            284.80       499.91       171.56
  8                            285.28       681.29       213.43
  8                            285.76       892.92       258.61
  8                            286.24      1135.70       307.11
  8                            286.72      1410.63       358.94
  8                            287.20      1718.74       414.08
  8                            287.68      2061.13       472.54
  8                            288.16      2438.87       534.31
  8                            288.64      2853.08       599.41
  8                            289.12      3301.76       667.84
  8                            289.60      3785.91       739.78
  9 ENDTBL
  2 XSECTN    051                 1.0       248.40
  8                            247.07         0.00         0.00
  8                            247.41         1.85         1.14
  8                            247.74         5.93         2.35
  8                            248.07        27.43         7.18
  8                            248.40        58.61        12.46
  8                            248.67        89.70        40.04
  8                            248.95       158.39        68.99
  8                            249.22       256.90        99.30
  8                            249.49       382.40       130.99
  8                            249.77       533.43       164.04
  8                            250.04       709.09       198.46
  8                            250.31       908.86       234.24
  8                            250.59      1132.40       271.40
  8                            250.86      1379.55       309.92
  8                            251.13      1650.25       349.81
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                            251.41      1944.49       391.07
  8                            251.68      2262.35       433.69
  8                            251.95      2603.94       477.69
  8                            252.23      2969.40       523.05
  8                            252.50      3358.93       569.78
  9 ENDTBL
  2 XSECTN    061                 1.0       212.00
```

```
  8                                  210.50        0.00        0.00
  8                                  210.75        4.72        2.23
  8                                  211.00       15.68        4.92
  8                                  211.25       32.36        8.06
  8                                  211.50       54.93       11.67
  8                                  211.75       83.70       15.73
  8                                  212.00      119.05       20.25
  8                                  212.25      163.87       25.14
  8                                  212.50      215.35       30.31
  8                                  212.75      273.55       35.77
  8                                  213.00      338.57       41.50
  8                                  214.00      669.42       67.25
  8                                  215.00      806.07       99.00
  8                                  216.00     1088.03      138.25
  8                                  217.00     1451.30      187.50
  8                                  218.00     1978.93      249.25
  8                                  219.00     2262.06      340.00
  8                                  220.00     3115.20      476.25
  8                                  221.00     4892.67      639.25
  9 ENDTBL
  6 RUNOFF 1  01       1       0.1715      63.368       0.623          1   SA1
  6 REACH  3  11   1   2       3007.5
  6 RUNOFF 1  02       1       0.2497      66.224       0.457          1   SA2
  6 ADDHYD 4  12   1 2 3
  6 REACH  3  21   3   1       1442.6
  6 RUNOFF 1  03       2       0.3624      64.551       0.462          1   SA3
  6 ADDHYD 4  23   1 2 3
  6 REACH  3  31   3   1       1147.3
  6 RUNOFF 1  04       2       0.1574      63.445       0.460          1   SA4
  6 ADDHYD 4  34   1 2 3
  6 REACH  3  41   3   1       1744.9
  6 RUNOFF 1  05       2       0.0921      59.866       0.292          1   SA5
  6 ADDHYD 4  45   1 2 3
  6 REACH  3  51   3   1       1483.4
  6 RUNOFF 1  06       2       0.2566      59.158       0.274          1   SA6
  6 ADDHYD 4  56   1 2 3
  6 REACH  3  61   3   1       3192.4
  6 RUNOFF 1  07       2       0.2682      59.924       0.350          1   SA7
  6 ADDHYD 4  67   1 2 3                                     1          1   OUTLET
    ENDATA
  7 INCREM 6                      .06
  7 COMPUT 7  01    67            0.0        4.94         1.02 2  1   10
    ENDCMP 1
1


 **********80-80 LIST OF INPUT DATA (CONTINUED)**********

  7 COMPUT 7  01    67            0.0        7.28         1.02 2  1   50
    ENDCMP 1
  7 COMPUT 7  01    67            0.0        8.53         1.02 2  1   99
    ENDCMP 1
    ENDJOB 2

 ******************************END OF 80-80 LIST*******************************
1
 TR20 ------------------------------------------------------------------- SCS -
        Ellicott City Flood Study- Subareas, Preexisting Land Use (woo VERSION
 03/22/**                      10,50,100 yr (24hr)                      2.04TEST
 13:42:07                   PASS   1   JOB NO.   1                     PAGE   1
```

```
 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .060 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  67
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2


 OPERATION ADDHYD   XSECTION  67

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.24                        508.6                       (NULL)
       12.67                        642.7                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.45 WATERSHED INCHES;    1455 CFS-HRS;     120.2 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  67
    STARTING TIME =   .00       RAIN DEPTH =  7.28       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =50            RAIN TABLE NO. = 2


 OPERATION ADDHYD   XSECTION  67

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.59                       1551.1                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.07 WATERSHED INCHES;    3089 CFS-HRS;     255.3 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- Subareas, Preexisting Land Use (woo VERSION
 03/22/**                     10,50,100 yr (24hr)                      2.04TEST
 13:42:07                   PASS   3   JOB NO.   1                    PAGE   2



 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  67
    STARTING TIME =   .00       RAIN DEPTH =  8.53       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =99            RAIN TABLE NO. = 2


 OPERATION ADDHYD   XSECTION  67

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.56                       2085.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.04 WATERSHED INCHES;    4064 CFS-HRS;     335.9 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   3
```

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subareas, Preexisting Land Use (woo VERSION
03/22/** 10,50,100 yr (24hr) 2.04TEST
13:42:07 SUMMARY, JOB NO. 1 PAGE 3

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .060 HOURS							
ALTERNATE 1 STORM 10							
XSECTION 1	RUNOFF	.17	1.50	---	12.29	112	658.8
XSECTION 2	RUNOFF	.25	1.70	---	12.18	228	912.0
XSECTION 3	RUNOFF	.36	1.58	---	12.18	301	836.1
XSECTION 4	RUNOFF	.16	1.50	---	12.18	124	775.0
XSECTION 5	RUNOFF	.09	1.26	---	12.09	75	833.3
XSECTION 6	RUNOFF	.26	1.21	---	12.08	207	796.2
XSECTION 7	RUNOFF	.27	1.26	---	12.12	199	737.0
XSECTION 67	ADDHYD	1.56	1.45	---	12.67	643	412.2
RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 50							
XSECTION 1	RUNOFF	.17	3.15	---	12.26	255	1500.0
XSECTION 2	RUNOFF	.25	3.45	---	12.16	488	1952.0
XSECTION 3	RUNOFF	.36	3.27	---	12.17	669	1858.3
XSECTION 4	RUNOFF	.16	3.16	---	12.17	280	1750.0
XSECTION 5	RUNOFF	.09	2.79	---	12.07	182	2022.2
XSECTION 6	RUNOFF	.26	2.72	---	12.06	508	1953.8
XSECTION 7	RUNOFF	.27	2.79	---	12.11	481	1781.5
XSECTION 67	ADDHYD	1.56	3.07	---	12.59	1551	994.2
RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 99							
XSECTION 1	RUNOFF	.17	4.13	---	12.26	338	1988.2
XSECTION 2	RUNOFF	.25	4.47	---	12.16	635	2540.0
XSECTION 3	RUNOFF	.36	4.27	---	12.16	881	2447.2

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subareas, Preexisting Land Use (woo VERSION
03/22/** 10,50,100 yr (24hr) 2.04TEST
13:42:07 SUMMARY, JOB NO. 1 PAGE 4

ECSAPRE.OUT

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION		DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 1 STORM 99								
XSECTION	4	RUNOFF	.16	4.14	---	12.17	366	2287.5
XSECTION	5	RUNOFF	.09	3.72	---	12.07	246	2733.3
XSECTION	6	RUNOFF	.26	3.63	---	12.06	688	2646.2
XSECTION	7	RUNOFF	.27	3.72	---	12.10	651	2411.1
XSECTION	67	ADDHYD	1.56	4.04	---	12.56	2085	1336.5

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subareas, Preexisting Land Use (woo VERSION
03/22/** 10,50,100 yr (24hr) 2.04TEST
13:42:07 SUMMARY, JOB NO. 1 PAGE 5

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFORMATION INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 10											
11	3008		112	12.3	110	12.4	3.46	1.44	.016	.981	.69?
21	1443		312	12.2	280	12.4	.81	1.24	.065	.900	.38
31	1147		532	12.2	510	12.4	.37	1.39	.028	.959	.53
41	1745		601	12.4	560	12.5	.52	1.34	.045	.931	.41
51	1483		581	12.5	561	12.6	.63	1.33	.029	.966	.49
61	3192		603	12.6	595	12.7	1.62	1.43	.012	.986	.64
ALTERNATE 1 STORM 50											
11	3008		254	12.2	251	12.4	3.71	1.41	.014	.991	.78?
21	1443		686	12.2	643	12.4	.60	1.31	.046	.938	.47
31	1147		1225	12.2	1191	12.4	.27	1.45	.018	.972	.67?
41	1745		1420	12.3	1351	12.4	.43	1.37	.035	.952	.50
51	1483		1404	12.4	1373	12.5	.39	1.42	.018	.978	.63
61	3192		1488	12.5	1436	12.6	4.24	1.11	.048	.965	.45

ALTERNATE 1 STORM 99

11	3008	336	12.2	333	12.4	3.80	1.40	.013	.990	.81?
21	1443	901	12.2	842	12.4	.77	1.25	.053	.934	.46
31	1147	1605	12.2	1573	12.3	.26	1.46	.016	.980	.71?
41	1745	1875	12.3	1795	12.4	.43	1.38	.032	.957	.53
51	1483	1865	12.4	1843	12.5	.37	1.44	.016	.988	.68?
61	3192	1993	12.5	1925	12.6	4.43	1.10	.050	.966	.45

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
XSECTION	1	.17			
ALTERNATE	1		112	255	338
XSECTION	2	.25			
ALTERNATE	1		228	488	635
XSECTION	3	.36			
ALTERNATE	1		301	669	881
XSECTION	4	.16			
ALTERNATE	1		124	280	366
XSECTION	5	.09			
ALTERNATE	1		75	182	246
XSECTION	6	.26			
ALTERNATE	1		207	508	688
XSECTION	7	.27			
ALTERNATE	1		199	481	651
XSECTION	67	1.56			
ALTERNATE	1		643	1551	2085

1

```
END OF  1 JOBS IN THIS RUN




                SCS  TR-20,  VERSION 2.04TEST
                             FILES

    INPUT  = ecsapre.dat                          , GIVEN DATA FILE
    OUTPUT = ecsapre.OUT                          , DATED 03/22/**,13:42:07

          FILES GENERATED - DATED 03/22/**,13:42:07

                          NONE!


       TOTAL NUMBER OF WARNINGS =   0,  MESSAGES =   0

                *** TR-20 RUN COMPLETED ***
```

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                        NOPLOTS
TITLE     Ellicott City Flood Study- 7 Subareas, Existing Conditions
TITLE     No Mgmt- 10,50,100 yr (24hr)

 2 XSECTN   011                  1.0      344.00
 8                            340.00        0.00        0.00
 8                            340.25        7.08        1.69
 8                            340.50       23.63        3.75
 8                            340.75       48.96        6.19
 8                            341.00       83.42        9.00
 8                            341.25      127.58       12.19
 8                            341.50      182.06       15.75
 8                            341.75      247.50       19.69
 8                            342.00      324.56       24.00
 8                            342.25      413.88       28.69
 8                            342.50      516.08       33.75
 8                            342.75      631.80       39.19
 8                            343.00      761.64       45.00
 9 ENDTBL
 2 XSECTN   021                  1.0      314.40
 8                            313.22        0.00        0.00
 8                            313.51        1.10        0.89
 8                            313.81        3.51        1.84
 8                            314.10       16.22        5.61
 8                            314.40       34.66        9.74
 8                            314.68       48.28       24.71
 8                            314.96       79.66       42.09
 8                            315.24      126.64       61.87
 8                            315.52      189.07       84.06
 8                            315.80      267.27      108.64
 8                            316.08      361.75      135.63
 8                            316.36      473.14      165.02
 8                            316.64      602.11      196.81
 8                            316.92      749.37      231.00
 8                            317.20      878.70      277.25
 8                            317.48     1103.89      329.14
 8                            317.76     1358.10      382.70
 8                            318.04     1640.58      437.94
 8                            318.32     1950.87      494.86
 8                            318.60     2288.69      553.45
 9 ENDTBL
 2 XSECTN   031                  1.0      288.90
 8                            287.68        0.00        0.00
 8                            287.99        1.15        0.94
 8                            288.29        3.69        1.95
 8                            288.60       17.06        5.98
 8                            288.90       36.44       10.37
 8                            289.19       63.07       39.25
 8                            289.47      121.85       69.50
 8                            289.76      206.05      101.12
 8                            290.05      313.23      134.09
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              290.33      442.07      168.42
  8                              290.62      591.78      204.12
  8                              290.91      761.87      241.18
  8                              291.19      952.02      279.60
  8                              291.48     1162.04      319.38
  8                              291.77     1391.84      360.52
  8                              292.05     1641.40      403.02
  8                              292.34     1910.74      446.89
  8                              292.63     2199.92      492.11
  8                              292.91     2509.04      538.70
  8                              293.20     2838.22      586.65
  9 ENDTBL
  2 XSECTN    041                   1.0      282.40
  8                              281.10        0.00        0.00
  8                              281.42        1.24        1.09
  8                              281.75        3.96        2.26
  8                              282.07       18.30        6.92
  8                              282.40       39.09       12.00
  8                              282.88       67.33       37.27
  8                              283.36      131.17       65.87
  8                              283.84      225.10       97.78
  8                              284.32      348.01      133.01
  8                              284.80      499.91      171.56
  8                              285.28      681.29      213.43
  8                              285.76      892.92      258.61
  8                              286.24     1135.70      307.11
  8                              286.72     1410.63      358.94
  8                              287.20     1718.74      414.08
  8                              287.68     2061.13      472.54
  8                              288.16     2438.87      534.31
  8                              288.64     2853.08      599.41
  8                              289.12     3301.76      667.84
  8                              289.60     3785.91      739.78
  9 ENDTBL
  2 XSECTN    051                   1.0      248.40
  8                              247.07        0.00        0.00
  8                              247.41        1.85        1.14
  8                              247.74        5.93        2.35
  8                              248.07       27.43        7.18
  8                              248.40       58.61       12.46
  8                              248.67       89.70       40.04
  8                              248.95      158.39       68.99
  8                              249.22      256.90       99.30
  8                              249.49      382.40      130.99
  8                              249.77      533.43      164.04
  8                              250.04      709.09      198.46
  8                              250.31      908.86      234.24
  8                              250.59     1132.40      271.40
  8                              250.86     1379.55      309.92
  8                              251.13     1650.25      349.81
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              251.41     1944.49      391.07
  8                              251.68     2262.35      433.69
  8                              251.95     2603.94      477.69
  8                              252.23     2969.40      523.05
  8                              252.50     3358.93      569.78
  9 ENDTBL
  2 XSECTN    061                   1.0      212.00
```

```
                                    ECSAXSEC.OUT
  8                                 210.50        0.00        0.00
  8                                 210.75        4.72        2.23
  8                                 211.00       15.68        4.92
  8                                 211.25       32.36        8.06
  8                                 211.50       54.93       11.67
  8                                 211.75       83.70       15.73
  8                                 212.00      119.05       20.25
  8                                 212.25      163.87       25.14
  8                                 212.50      215.35       30.31
  8                                 212.75      273.55       35.77
  8                                 213.00      338.57       41.50
  8                                 214.00      669.42       67.25
  8                                 215.00      806.07       99.00
  8                                 216.00     1088.03      138.25
  8                                 217.00     1451.30      187.50
  8                                 218.00     1978.93      249.25
  8                                 219.00     2262.06      340.00
  8                                 220.00     3115.20      476.25
  8                                 221.00     4892.67      639.25
  9 ENDTBL
  6 RUNOFF 1  01       1        0.1715      78.350       0.623          1   SA1
  6 REACH  3  11   1   2        3007.5
  6 RUNOFF 1  02       1        0.2497      84.762       0.457          1   SA2
  6 ADDHYD 4  12   1 2 3                                                1
  6 REACH  3  21   3   1        1442.6
  6 RUNOFF 1  03       2        0.3624      82.158       0.462          1   SA3
  6 ADDHYD 4  23   1 2 3                                                1
  6 REACH  3  31   3   1        1147.3
  6 RUNOFF 1  04       2        0.1574      76.043       0.460          1   SA4
  6 ADDHYD 4  34   1 2 3                                                1
  6 REACH  3  41   3   1        1744.9
  6 RUNOFF 1  05       2        0.0921      75.075       0.292          1   SA5
  6 ADDHYD 4  45   1 2 3                                                1
  6 REACH  3  51   3   1        1483.4
  6 RUNOFF 1  06       2        0.2566      76.295       0.274          1   SA6
  6 ADDHYD 4  56   1 2 3                                                1
  6 REACH  3  61   3   1        3192.4
  6 RUNOFF 1  07       2        0.2682      74.890       0.350          1   SA7
  6 ADDHYD 4  67   1 2 3                                    1           1   OUTLET
    ENDATA
  7 INCREM 6                       .06
  7 COMPUT 7  01    67            0.0         4.94         1.02 2  1   10
    ENDCMP 1
1


 **********80-80 LIST OF INPUT DATA (CONTINUED)**********

  7 COMPUT 7  01    67            0.0         7.28         1.02 2  1   50
    ENDCMP 1
  7 COMPUT 7  01    67            0.0         8.53         1.02 2  1   99
    ENDCMP 1
    ENDJOB 2

 ********************************END OF 80-80 LIST********************************
1
 TR20 ------------------------------------------------------------------- SCS -
          Ellicott City Flood Study- Subareas, Existing Conditions     VERSION
 03/22/**                      10,50,100 yr (24hr)                     2.04TEST
 13:40:18                    PASS   1   JOB NO.   1                    PAGE   1
```

```
 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .060 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  67
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2


 OPERATION ADDHYD   XSECTION  67

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.57                        1403.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.75 WATERSHED INCHES;    2762 CFS-HRS;     228.3 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  67
    STARTING TIME =   .00       RAIN DEPTH =  7.28       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =50            RAIN TABLE NO. = 2


 OPERATION ADDHYD   XSECTION  67

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.54                        2473.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.83 WATERSHED INCHES;    4855 CFS-HRS;     401.2 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  67
    STARTING TIME =   .00       RAIN DEPTH =  8.53       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =99            RAIN TABLE NO. = 2
1
 TR20 ------------------------------------------------------------------- SCS -
           Ellicott City Flood Study- Subareas, Existing Conditions     VERSION
 03/22/**                     10,50,100 yr (24hr)                      2.04TEST
 13:40:18                    PASS   3   JOB NO.   1                    PAGE   2



 OPERATION ADDHYD   XSECTION  67

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.52                        3084.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.99 WATERSHED INCHES;    6019 CFS-HRS;     497.4 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   3
1
```

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .060 HOURS							
ALTERNATE 1 STORM 10							
XSECTION 1	RUNOFF	.17	2.69	---	12.26	222	1305.9
XSECTION 2	RUNOFF	.25	3.29	---	12.15	464	1856.0
XSECTION 12	ADDHYD	.42	3.04	---	12.20	638	1519.0
XSECTION 3	RUNOFF	.36	3.04	---	12.16	626	1738.9
XSECTION 23	ADDHYD	.78	3.04	---	12.23	1144	1466.7
XSECTION 4	RUNOFF	.16	2.49	---	12.17	221	1381.3
XSECTION 34	ADDHYD	.94	2.95	---	12.29	1299	1381.9
XSECTION 5	RUNOFF	.09	2.41	---	12.07	160	1777.8
XSECTION 45	ADDHYD	1.03	2.90	---	12.40	1280	1242.7
XSECTION 6	RUNOFF	.26	2.51	---	12.06	479	1842.3
XSECTION 56	ADDHYD	1.29	2.82	---	12.48	1351	1047.3
XSECTION 7	RUNOFF	.27	2.39	---	12.10	421	1559.3
XSECTION 67	ADDHYD	1.56	2.75	---	12.57	1403	899.4
RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 50							
XSECTION 1	RUNOFF	.17	4.77	---	12.25	393	2311.8
XSECTION 2	RUNOFF	.25	5.49	---	12.15	767	3068.0
XSECTION 12	ADDHYD	.42	5.19	---	12.19	1087	2588.1
XSECTION 3	RUNOFF	.36	5.19	---	12.15	1049	2913.9
XSECTION 23	ADDHYD	.78	5.19	---	12.22	1944	2492.3
XSECTION 4	RUNOFF	.16	4.51	---	12.15	405	2531.3
XSECTION 34	ADDHYD	.94	5.08	---	12.28	2249	2392.6
XSECTION 5	RUNOFF	.09	4.40	---	12.06	292	3244.4
XSECTION 45	ADDHYD	1.03	5.02	---	12.38	2254	2188.3
XSECTION 6	RUNOFF	.26	4.54	---	12.05	859	3303.8

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 1 STORM 50							
XSECTION 56	ADDHYD	1.29	4.92	---	12.44	2411	1869.0
XSECTION 7	RUNOFF	.27	4.38	---	12.09	776	2874.1
XSECTION 67	ADDHYD	1.56	4.83	---	12.54	2473	1585.3
RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 99							
XSECTION 1	RUNOFF	.17	5.92	---	12.25	489	2876.5
XSECTION 2	RUNOFF	.25	6.69	---	12.15	923	3692.0
XSECTION 12	ADDHYD	.42	6.38	---	12.19	1326	3157.1
XSECTION 3	RUNOFF	.36	6.38	---	12.15	1281	3558.3
XSECTION 23	ADDHYD	.78	6.38	---	12.22	2387	3060.3
XSECTION 4	RUNOFF	.16	5.64	---	12.15	501	3131.3
XSECTION 34	ADDHYD	.94	6.25	---	12.27	2779	2956.4
XSECTION 5	RUNOFF	.09	5.53	---	12.06	366	4066.7
XSECTION 45	ADDHYD	1.03	6.19	---	12.36	2800	2718.4
XSECTION 6	RUNOFF	.26	5.67	---	12.05	1071	4119.2
XSECTION 56	ADDHYD	1.29	6.09	---	12.42	3007	2331.0
XSECTION 7	RUNOFF	.27	5.51	---	12.09	975	3611.1
XSECTION 67	ADDHYD	1.56	5.99	---	12.52	3084	1976.9

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subareas, Existing Conditions VERSION
03/22/** 10,50,100 yr (24hr) 2.04TEST
13:40:18 SUMMARY, JOB NO. 1 PAGE 5

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	HYDROGRAPH INFLOW TIME (HR)	HYDROGRAPH OUTFLOW PEAK (CFS)	HYDROGRAPH OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 10											
11	3008		221	12.2	218	12.4	3.66	1.41	.015	.987	.76?

21	1443	636	12.2	594	12.3	.61	1.31	.049	.934	.47
31	1147	1142	12.2	1117	12.3	.27	1.45	.019	.978	.66
41	1745	1298	12.3	1234	12.4	.44	1.37	.038	.950	.49
51	1483	1278	12.4	1252	12.5	.41	1.42	.020	.979	.62
61	3192	1351	12.5	1307	12.6	3.99	1.13	.046	.968	.46

ALTERNATE 1 STORM 50

11	3008	393	12.2	389	12.3	3.85	1.39	.013	.990	.83?
21	1443	1085	12.2	1019	12.3	.72	1.26	.049	.939	.48
31	1147	1940	12.2	1918	12.3	.25	1.46	.014	.989	.74?
41	1745	2241	12.3	2157	12.4	.43	1.38	.030	.962	.55
51	1483	2251	12.4	2220	12.5	.36	1.44	.015	.986	.71?
61	3192	2408	12.4	2287	12.6	5.91	1.02	.075	.950	.37

ALTERNATE 1 STORM 99

11	3008	489	12.2	485	12.3	3.92	1.39	.012	.993	.86?
21	1443	1324	12.2	1255	12.3	.65	1.28	.043	.948	.51
31	1147	2380	12.2	2362	12.3	.25	1.46	.013	.992	.77?
41	1745	2764	12.3	2683	12.4	.44	1.37	.028	.971	.57
51	1483	2799	12.4	2759	12.4	.35	1.44	.013	.986	.74?
61	3192	3007	12.4	2850	12.5	6.33	1.01	.079	.948	.36

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
XSECTION	1	.17			
ALTERNATE	1		222	393	489
XSECTION	2	.25			
ALTERNATE	1		464	767	923
XSECTION	3	.36			
ALTERNATE	1		626	1049	1281
XSECTION	4	.16			
ALTERNATE	1		221	405	501
XSECTION	5	.09			
ALTERNATE	1		160	292	366

```
XSECTION    6          .26
---------------------------
   ALTERNATE    1                479       859      1071

XSECTION    7          .27
---------------------------
   ALTERNATE    1                421       776       975

XSECTION   12          .42
---------------------------
   ALTERNATE    1                638      1087      1326

XSECTION   23          .78
---------------------------
   ALTERNATE    1               1144      1944      2387

XSECTION   34          .94
---------------------------
   ALTERNATE    1               1299      2249      2779

XSECTION   45         1.03
---------------------------
   ALTERNATE    1               1280      2254      2800

XSECTION   56         1.29
---------------------------
   ALTERNATE    1               1351      2411      3007

XSECTION   67         1.56
---------------------------
   ALTERNATE    1               1403      2473      3084
1
TR20 ------------------------------------------------------------------------ SCS -
          Ellicott City Flood Study- Subareas, Existing Conditions     VERSION
03/22/**                     10,50,100 yr (24hr)                          2.04TEST



END OF  1 JOBS IN THIS RUN
```

SCS TR-20, VERSION 2.04TEST
FILES

```
    INPUT  = ecsaxsec.dat                          , GIVEN DATA FILE
    OUTPUT = ecsaxsec.OUT                          , DATED 03/22/**,13:40:18

             FILES GENERATED - DATED 03/22/**,13:40:18

                             NONE!


           TOTAL NUMBER OF WARNINGS =   0,  MESSAGES =   0
```

*** TR-20 RUN COMPLETED ***

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                    NOPLOTS
TITLE     Ellicott City Flood Study- Subarea 3- MGMT Structures

TITLE     -no CN reduction- EXISTING COND.- 10,50,100 yr (24hr)

 2 XSECTN   005                  1.0      317.00
 8                             316.00        0.00        0.00
 8                             316.50        2.68        2.59
 8                             317.00       10.37        6.88
 8                             317.50       24.26       12.84
 8                             318.00       45.55       20.50
 8                             318.50       70.64       34.75
 8                             319.00      137.01       60.50
 8                             319.25      200.57       76.25
 8                             319.50      273.06       92.00
 8                             319.75      353.76      107.75
 8                             320.00      442.13      123.50
 8                             320.50      640.03      155.00
 8                             321.00      863.72      186.50
 9 ENDTBL
 2 XSECTN   009                  1.0      313.00
 8                             310.00        0.00        0.00
 8                             311.00       12.25        5.50
 8                             312.00       52.16       16.00
 8                             312.50       83.38       23.13
 8                             313.00      123.94       31.50
 8                             313.25      148.02       36.16
 8                             313.50      174.79       41.13
 8                             313.75      204.34       46.41
 8                             314.00      236.81       52.00
 8                             314.50      278.65       65.75
 8                             315.00      353.72       84.00
 9 ENDTBL
 2 XSECTN   012                  1.0      338.50
 8                             338.00        0.00        0.00
 8                             338.10        4.87        2.46
 8                             338.25       22.73        6.38
 8                             338.50       73.99       13.53
 8                             338.75      149.34       21.45
 8                             339.00      247.95       30.13
 8                             339.50      515.65       49.78
 9 ENDTBL
 2 XSECTN   017                  1.0      331.00
 8                             330.00        0.00        0.00
 8                             330.25       14.29        3.25
 8                             330.50       46.85        7.00
 8                             330.75       95.34       11.25
 8                             331.00      159.64       16.00
 8                             331.25      240.13       21.25
 8                             331.50      337.44       27.00
 8                             331.75      452.26       33.25
 8                             332.00      585.36       40.00
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              332.50      875.33       55.81
  8                              333.00     1272.05       75.25
  9 ENDTBL
  3 STRUCT       02
  8                              356.38        0.0         0.00
  8                              357.26       10.90        0.02
  8                              357.50       12.30        0.03
  8                              358.00       14.70        0.05
  8                              359.00       18.70        0.10
  8                              360.00       22.00        0.16
  8                              361.00       24.90        0.25
  8                              361.50       26.20        0.30
  8                              362.00       27.50        0.36
  8                              362.50       28.70        0.43
  8                              362.90       29.60        0.49
  8                              363.50       51.30        0.60
  8                              363.75       65.70        0.67
  8                              364.00       82.60        0.72
  8                              364.20       83.30        0.83
  8                              364.60      100.00        0.88
  8                              366.80      260.00        1.47
  8                              366.92      340.00        1.49
  8                              366.98      380.00        1.50
  9 ENDTBL
  3 STRUCT       11
  8                              375.40        0.00        0.00
  8                              379.36        1.00        0.74
  8                              380.00        5.00        0.89
  8                              380.20       10.00        0.94
  8                              380.33       15.00        0.98
  8                              380.45       20.00        1.01
  8                              380.55       25.00        1.04
  8                              380.65       30.00        1.06
  8                              381.19       40.00        1.21
  8                              381.78       44.00        1.39
  8                              382.59       66.00        1.66
  8                              382.79       88.00        1.75
  8                              382.89      110.00        1.79
  8                              382.97      132.00        1.83
  9 ENDTBL
  3 STRUCT       14
  8                              350.00        0.00        0.00
  8                              354.30        1.00        1.08
  8                              354.47        2.00        1.15
  8                              354.87        5.00        1.30
  8                              355.38       10.00        1.50
  8                              356.18       20.00        1.84
  8                              356.88       40.00        2.15
  8                              357.27       60.00        2.33
  8                              357.46       80.00        2.42
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              358.08      100.00        2.73
  8                              358.14      120.00        2.76
  8                              358.19      140.00        2.78
  8                              358.25      171.00        2.81
  8                              358.27      180.00        2.82
  9 ENDTBL
```

```
  3 STRUCT      16
  9 ENDTBL
  6 RUNOFF 1 001       1       0.0505      76.581       0.3401         1 DA1
  6 RESVOR 2    02 1   2                                    1         1 SWMF3
  6 RUNOFF 1 003       3       0.0748      75.950       0.3581         1 DA2
  6 ADDHYD 4 004   2 3 4                                    1         1 DA1+2
  6 REACH  3 005   4   1       1021.0                       1         1
  6 RUNOFF 1 006       2       0.0599      77.623       0.3231         1 DA3
  6 ADDHYD 4 007   1 2 5                                    1         1 DA12+3
  6 RUNOFF 1 008       1       0.0692      86.658       0.2761         1 DA4
  6 REACH  3 009   1   6       1603.0                       1         1
  6 RUNOFF 1 010       2       0.0084      95.000       0.1921         1 DA5
  6 RESVOR 2    11 2   3                                    1         1 SWMF11
  6 REACH  3 012   3   7        583.0                       1         1
  6 RUNOFF 1 013       1       0.0275      94.963       0.2481         1 DA6
  6 RESVOR 2    14 1   2                                    1         1 SWMF8
  6 ADDHYD 4 015   7 2 1                                    1         1 DA5+6
  6 RESVOR 2    16 1   2                                    1         1 HWAYSTOR
  6 REACH  3 017   2   4        934.0                       1         1
  6 RUNOFF 1 018       1       0.0328      86.132       0.1901         1 DA7
  6 ADDHYD 4 019   4 1 3                                    1           DA56+7
  6 RUNOFF 1 020       2       0.0393      85.125       0.3671         1 DA8
  6 ADDHYD 4 021   5 2 1                                    1           DA3+8
  6 ADDHYD 4 022   6 1 2                                    1           DA4+8
  6 ADDHYD 4 023   3 2 1                                    1         1 DA7+8
    ENDATA
  7 INCREM 6                     0.1
  7 COMPUT 7  01    23           0.0        4.94         1.02 2  1   10
    ENDCMP 1
  7 COMPUT 7  01    23           0.0        7.28         1.02 2  1   50
    ENDCMP 1
  7 COMPUT 7  01    23           0.0        8.53         1.02 2  1   99
    ENDCMP 1
    ENDJOB 2

 ********************************END OF 80-80 LIST*********************************
1
 TR20 ------------------------------------------------------------------------ SCS -
                  Ellicott City Flood Study- Subarea 3- MGMT            VERSION
 03/22/**            EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:40:00                    PASS   1   JOB NO.   1                     PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .100 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  23
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                          86.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.54 WATERSHED INCHES;      83 CFS-HRS;       6.8 ACRE-FEET.

 *** WARNING - STRUCTURE  2, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
               TIME INCREMENT OF   .043 HOURS.                              ***
```

*** WARNING - STRUCTURE 2, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS   0 CFS.   ***

OPERATION RESVOR   STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	80.0	363.96
13.28	7.9	357.02

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
2.54 WATERSHED INCHES;   83 CFS-HRS;   6.8 ACRE-FEET.

OPERATION RUNOFF   XSECTION   3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	120.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
2.48 WATERSHED INCHES;   120 CFS-HRS;   9.9 ACRE-FEET.

OPERATION ADDHYD   XSECTION   4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	195.3	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:40:00 PASS 1 JOB NO. 1 PAGE 2

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
2.50 WATERSHED INCHES;   202 CFS-HRS;   16.7 ACRE-FEET.

OPERATION REACH   XSECTION   5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	181.3	319.17

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
2.50 WATERSHED INCHES;   202 CFS-HRS;   16.7 ACRE-FEET.

OPERATION RUNOFF   XSECTION   6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	108.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
2.63 WATERSHED INCHES;   101 CFS-HRS;   8.4 ACRE-FEET.

OPERATION ADDHYD   XSECTION   7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	253.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)

2.54 WATERSHED INCHES; 304 CFS-HRS; 25.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	173.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.47 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	163.1	313.39

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.47 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:40:00 PASS 1 JOB NO. 1 PAGE 3

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	28.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.36 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT .6%. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	12.8	380.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.21 WATERSHED INCHES; 23 CFS-HRS; 1.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 12. ***

OPERATION REACH XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	12.8	338.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.21 WATERSHED INCHES; 23 CFS-HRS; 1.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	84.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 77 CFS-HRS; 6.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	60.9	357.28

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:40:00 PASS 1 JOB NO. 1 PAGE 4

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.16 WATERSHED INCHES; 74 CFS-HRS; 6.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	72.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.17 WATERSHED INCHES; 97 CFS-HRS; 8.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	72.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.17 WATERSHED INCHES; 97 CFS-HRS; 8.0 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 17. ***

OPERATION REACH XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	72.9	330.63

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.17 WATERSHED INCHES; 97 CFS-HRS; 8.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	92.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 72 CFS-HRS; 6.0 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 18.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT -.1%. ***

```
 OPERATION ADDHYD   XSECTION  19
1
 TR20 ------------------------------------------------------------------- SCS -
                 Ellicott City Flood Study- Subarea 3- MGMT            VERSION
 03/22/**           EXISTING COND.- 10,50,100 yr (24hr)                2.04TEST
 12:40:00                   PASS   1   JOB NO.   1                     PAGE   5


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.07                         137.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.81 WATERSHED INCHES;     169 CFS-HRS;      14.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                          84.3                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.32 WATERSHED INCHES;      84 CFS-HRS;       7.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  21

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.18                         325.8                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.68 WATERSHED INCHES;     388 CFS-HRS;      32.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  22

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.18                         488.7                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.87 WATERSHED INCHES;     543 CFS-HRS;      44.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.15                         604.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.04 WATERSHED INCHES;     712 CFS-HRS;      58.9 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1
1
 TR20 ------------------------------------------------------------------- SCS -
                 Ellicott City Flood Study- Subarea 3- MGMT            VERSION
 03/22/**           EXISTING COND.- 10,50,100 yr (24hr)                2.04TEST
 12:40:00                   PASS   2   JOB NO.   1                     PAGE   6


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  23
```

STARTING TIME = .00 RAIN DEPTH = 7.28 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. = 1 STORM NO. =50 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	155.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

*** WARNING - STRUCTURE 2, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 2, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	151.7	365.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	218.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.49 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	368.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.52 WATERSHED INCHES; 365 CFS-HRS; 30.2 ACRE-FEET.

1

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	362.7	319.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.53 WATERSHED INCHES; 367 CFS-HRS; 30.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	192.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.68 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	507.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.58 WATERSHED INCHES; 547 CFS-HRS; 45.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	278.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 255 CFS-HRS; 21.1 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	262.0	314.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 255 CFS-HRS; 21.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 10
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	42.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 36 CFS-HRS; 3.0 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT .7%. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	32.9	380.81

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.56 WATERSHED INCHES; 36 CFS-HRS; 2.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,

CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 12. ***

OPERATION REACH XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	32.9	338.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.56 WATERSHED INCHES; 36 CFS-HRS; 2.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	126.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.67 WATERSHED INCHES; 118 CFS-HRS; 9.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	99.5	358.07

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.48 WATERSHED INCHES; 115 CFS-HRS; 9.5 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:40:00 PASS 2 JOB NO. 1 PAGE 9

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	131.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.50 WATERSHED INCHES; 151 CFS-HRS; 12.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	131.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.50 WATERSHED INCHES; 151 CFS-HRS; 12.4 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 17. ***

OPERATION REACH XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	131.8	330.89

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

6.50 WATERSHED INCHES; 151 CFS-HRS; 12.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	149.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.64 WATERSHED INCHES; 119 CFS-HRS; 9.9 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 18.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT -.2% ***

OPERATION ADDHYD XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	270.5	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 270 CFS-HRS; 22.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	136.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.53 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	629.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.74 WATERSHED INCHES; 687 CFS-HRS; 56.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	891.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.97 WATERSHED INCHES; 943 CFS-HRS; 77.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	1100.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.18 WATERSHED INCHES; 1212 CFS-HRS; 100.1 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:40:00 PASS 3 JOB NO. 1 PAGE 11

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 23
STARTING TIME = .00 RAIN DEPTH = 8.53 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. = 1 STORM NO. =99 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	191.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.70 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

*** WARNING - STRUCTURE 2, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 2, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	185.7	365.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.70 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	275.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 272 CFS-HRS; 22.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	458.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	457.0	320.04

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	238.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.83 WATERSHED INCHES; 226 CFS-HRS; 18.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	639.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.72 WATERSHED INCHES; 683 CFS-HRS; 56.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	333.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.92 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	309.5	314.71

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.92 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 10
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	49.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT -.6%. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	38.7	381.12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.74 WATERSHED INCHES; 42 CFS-HRS; 3.5 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 12. ***

OPERATION REACH XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	38.7	338.33

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.74 WATERSHED INCHES; 42 CFS-HRS; 3.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	148.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 141 CFS-HRS; 11.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	154.9	358.22

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.60 WATERSHED INCHES; 135 CFS-HRS; 11.2 ACRE-FEET.

1

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	193.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.64 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	193.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.64 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 17. ***

OPERATION REACH XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	193.5	331.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.64 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	179.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.85 WATERSHED INCHES; 145 CFS-HRS; 12.0 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 18.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT .2%. ***

OPERATION ADDHYD XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	336.9	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.26 WATERSHED INCHES; 322 CFS-HRS; 26.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	165.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.73 WATERSHED INCHES; 171 CFS-HRS; 14.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	789.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.89 WATERSHED INCHES; 854 CFS-HRS; 70.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	1098.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.14 WATERSHED INCHES; 1163 CFS-HRS; 96.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	1382.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.35 WATERSHED INCHES; 1485 CFS-HRS; 122.7 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 1 STORM 10							
XSECTION 1	RUNOFF	.05	2.54	---	12.10	86	1720.0
STRUCTURE 2	RESVOR	.05	2.54	363.96	12.18	80	1600.0
XSECTION 3	RUNOFF	.07	2.48	---	12.11	120	1714.3
XSECTION 4	ADDHYD	.13	2.50	---	12.14	195	1500.0
XSECTION 5	REACH	.13	2.50	319.17	12.27	181	1392.3
XSECTION 6	RUNOFF	.06	2.63	---	12.09	108	1800.0
XSECTION 7	ADDHYD	.19	2.54	---	12.21	254	1336.8
XSECTION 8	RUNOFF	.07	3.47	---	12.05	173	2471.4
XSECTION 9	REACH	.07	3.47	313.39	12.17	163	2328.6
XSECTION 10	RUNOFF	.01	4.36	---	11.99	28	2800.0
STRUCTURE 11	RESVOR	.01	4.21	380.27	12.21	13	1300.0
XSECTION 12	REACH	.01	4.21	338.17	12.21	13	1300.0
XSECTION 13	RUNOFF	.03	4.35	---	12.02	84	2800.0
STRUCTURE 14	RESVOR	.03	4.16	357.28	12.15	61	2033.3
XSECTION 15	ADDHYD	.04	4.17	---	12.17	73	1825.0
STRUCTURE 16	RESVOR	.04	4.17	---	12.17	73	1825.0
XSECTION 17	REACH	.04	4.17	330.63	12.17	73	1825.0

XSECTION	18	RUNOFF	.03	3.42	---	12.00	93	3100.0
XSECTION	20	RUNOFF	.04	3.32	---	12.10	84	2100.0
XSECTION	23	ADDHYD	.36	3.04	---	12.15	604	1677.8

RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 50

XSECTION	1	RUNOFF	.05	4.57	---	12.09	155	3100.0
STRUCTURE	2	RESVOR	.05	4.57	365.31	12.14	152	3040.0
XSECTION	3	RUNOFF	.07	4.49	---	12.10	219	3128.6
XSECTION	4	ADDHYD	.13	4.52	---	12.12	368	2830.8

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 1 STORM 50							
XSECTION 5	REACH	.13	4.53	319.78	12.22	363	2792.3
XSECTION 6	RUNOFF	.06	4.68	---	12.08	193	3216.7
XSECTION 7	ADDHYD	.19	4.58	---	12.18	507	2668.4
XSECTION 8	RUNOFF	.07	5.71	---	12.04	279	3985.7
XSECTION 9	REACH	.07	5.71	314.30	12.17	262	3742.9
XSECTION 10	RUNOFF	.01	6.68	---	11.99	42	4200.0
STRUCTURE 11	RESVOR	.01	6.56	380.81	12.08	33	3300.0
XSECTION 12	REACH	.01	6.56	338.30	12.08	33	3300.0
XSECTION 13	RUNOFF	.03	6.67	---	12.02	126	4200.0
STRUCTURE 14	RESVOR	.03	6.48	358.07	12.13	100	3333.3
XSECTION 15	ADDHYD	.04	6.50	---	12.11	132	3300.0
STRUCTURE 16	RESVOR	.04	6.50	---	12.11	132	3300.0
XSECTION 17	REACH	.04	6.50	330.89	12.11	132	3300.0
XSECTION 18	RUNOFF	.03	5.64	---	12.00	150	5000.0
XSECTION 20	RUNOFF	.04	5.53	---	12.10	136	3400.0
XSECTION 23	ADDHYD	.36	5.18	---	12.14	1100	3055.6

RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 99

XSECTION	1	RUNOFF	.05	5.70	---	12.09	191	3820.0
STRUCTURE	2	RESVOR	.05	5.70	365.78	12.13	186	3720.0
XSECTION	3	RUNOFF	.07	5.63	---	12.10	275	3928.6
XSECTION	4	ADDHYD	.13	5.66	---	12.11	459	3530.8
XSECTION	5	REACH	.13	5.66	320.04	12.21	457	3515.4

XSECTION	6	RUNOFF	.06	5.83	---	12.08	238	3966.7
XSECTION	7	ADDHYD	.19	5.72	---	12.18	640	3368.4
XSECTION	8	RUNOFF	.07	6.92	---	12.04	334	4771.4
XSECTION	9	REACH	.07	6.92	314.71	12.17	310	4428.6
XSECTION	10	RUNOFF	.01	7.92	---	11.99	50	5000.0

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 1 STORM 99							
STRUCTURE 11	RESVOR	.01	7.74	381.12	12.09	39	3900.0
XSECTION 12	REACH	.01	7.74	338.33	12.09	39	3900.0
XSECTION 13	RUNOFF	.03	7.92	---	12.02	149	4966.7
STRUCTURE 14	RESVOR	.03	7.60	358.22	12.10	155	5166.7
XSECTION 15	ADDHYD	.04	7.64	---	12.10	194	4850.0
STRUCTURE 16	RESVOR	.04	7.64	---	12.10	194	4850.0
XSECTION 17	REACH	.04	7.64	331.11	12.10	194	4850.0
XSECTION 18	RUNOFF	.03	6.85	---	12.00	180	6000.0
XSECTION 20	RUNOFF	.04	6.73	---	12.10	165	4125.0
XSECTION 23	ADDHYD	.36	6.35	---	12.13	1382	3838.9

1

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

			HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
			INFLOW		OUTFLOW		Q-A EQ.			PEAK	ATT-
XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	RATIO Q/I (Q*)	KIN COEFF (C)

BASEFLOW IS .0 CFS

ALTERNATE 1 STORM 10										
5	1021	190	12.1	179	12.3	.71	1.30	.053	.945	.74?
9	1603	166	12.0	161	12.2	1.37	1.31	.058	.969	.76?
12	583	13	12.2	13	12.2	1.14	1.62	.004	1.000	1.00?
17	934	72	12.2	72	12.2	2.35	1.53	.004	1.000	1.00?

ALTERNATE 1 STORM 50										
5	1021	367	12.1	359	12.2	.37	1.47	.027	.980	.93?
9	1603	269	12.0	258	12.2	1.61	1.24	.063	.959	.76?
12	583	33	12.1	33	12.1	1.15	1.61	.005	1.000	1.00?
17	934	132	12.1	132	12.1	2.46	1.51	.004	1.000	1.00?

ALTERNATE 1 STORM 99										
5	1021	457	12.1	455	12.2	.32	1.50	.022	.996	.98?
9	1603	323	12.0	306	12.2	1.94	1.18	.074	.947	.72?
12	583	39	12.1	39	12.1	1.15	1.60	.005	1.000	1.00?
17	934	194	12.1	194	12.1	2.55	1.49	.005	1.000	1.00?

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:40:00 SUMMARY, JOB NO. 1 PAGE 20

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
STRUCTURE 16	.04			
ALTERNATE 1		73	132	194
STRUCTURE 14	.03			
ALTERNATE 1		61	100	155
STRUCTURE 11	.01			
ALTERNATE 1		13	33	39
STRUCTURE 2	.05			
ALTERNATE 1		80	152	186
XSECTION 1	.05			
ALTERNATE 1		86	155	191
XSECTION 3	.07			
ALTERNATE 1		120	219	275
XSECTION 4	.13			

ALTERNATE	1		195	368	459
XSECTION	5	.13			
ALTERNATE	1		181	363	457
XSECTION	6	.06			
ALTERNATE	1		108	193	238
XSECTION	7	.19			
ALTERNATE	1		254	507	640
XSECTION	8	.07			
ALTERNATE	1		173	279	334
XSECTION	9	.07			
ALTERNATE	1		163	262	310
XSECTION	10	.01			
ALTERNATE	1		28	42	50
XSECTION	12	.01			

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
XSECTION	12	.01			
ALTERNATE	1		13	33	39
XSECTION	13	.03			
ALTERNATE	1		84	126	149
XSECTION	15	.04			
ALTERNATE	1		73	132	194
XSECTION	17	.04			
ALTERNATE	1		73	132	194
XSECTION	18	.03			

```
   ALTERNATE    1                  93       150       180

 XSECTION   20          .04
 ---------------------------
   ALTERNATE    1                  84       136       165

 XSECTION   23          .36
 ---------------------------
   ALTERNATE    1                 604      1100      1382
1
 TR20 ------------------------------------------------------------------------ SCS -
                Ellicott City Flood Study- Subarea 3- MGMT            VERSION
 03/22/**          EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST



 END OF  1 JOBS IN THIS RUN




                    SCS  TR-20,  VERSION 2.04TEST
                                  FILES

     INPUT  = sa3mgmt.dat                              , GIVEN DATA FILE
     OUTPUT = sa3mgmt.OUT                              , DATED 03/22/**,12:40:00

              FILES GENERATED - DATED 03/22/**,12:40:00

                                NONE!


            TOTAL NUMBER OF WARNINGS =  18,  MESSAGES =   0

                      *** TR-20 RUN COMPLETED ***
```

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                       NOPLOTS
TITLE     Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN
TITLE     EXISTING COND.- 10,50,100 yr (24hr)
 2 XSECTN   005                  1.0      317.00
 8                            316.00        0.00        0.00
 8                            316.50        2.68        2.59
 8                            317.00       10.37        6.88
 8                            317.50       24.26       12.84
 8                            318.00       45.55       20.50
 8                            318.50       70.64       34.75
 8                            319.00      137.01       60.50
 8                            319.25      200.57       76.25
 8                            319.50      273.06       92.00
 8                            319.75      353.76      107.75
 8                            320.00      442.13      123.50
 8                            320.50      640.03      155.00
 8                            321.00      863.72      186.50
 9 ENDTBL
 2 XSECTN   009                  1.0      313.00
 8                            310.00        0.00        0.00
 8                            311.00       12.25        5.50
 8                            312.00       52.16       16.00
 8                            312.50       83.38       23.13
 8                            313.00      123.94       31.50
 8                            313.25      148.02       36.16
 8                            313.50      174.79       41.13
 8                            313.75      204.34       46.41
 8                            314.00      236.81       52.00
 8                            314.50      278.65       65.75
 8                            315.00      353.72       84.00
 9 ENDTBL
 2 XSECTN   012                  1.0      338.50
 8                            338.00        0.00        0.00
 8                            338.10        4.87        2.46
 8                            338.25       22.73        6.38
 8                            338.50       73.99       13.53
 8                            338.75      149.34       21.45
 8                            339.00      247.95       30.13
 8                            339.50      515.65       49.78
 9 ENDTBL
 2 XSECTN   017                  1.0      331.00
 8                            330.00        0.00        0.00
 8                            330.25       14.29        3.25
 8                            330.50       46.85        7.00
 8                            330.75       95.34       11.25
 8                            331.00      159.64       16.00
 8                            331.25      240.13       21.25
 8                            331.50      337.44       27.00
 8                            331.75      452.26       33.25
 8                            332.00      585.36       40.00
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8                            332.50      875.33       55.81
```

```
  8                          333.00     1272.05       75.25
  9 ENDTBL
  3 STRUCT       02
  8                          356.38        0.0         0.00
  8                          357.26       10.90        0.02
  8                          357.50       12.30        0.03
  8                          358.00       14.70        0.05
  8                          359.00       18.70        0.10
  8                          360.00       22.00        0.16
  8                          361.00       24.90        0.25
  8                          361.50       26.20        0.30
  8                          362.00       27.50        0.36
  8                          362.50       28.70        0.43
  8                          362.90       29.60        0.49
  8                          363.50       51.30        0.60
  8                          363.75       65.70        0.67
  8                          364.00       82.60        0.72
  8                          364.20       83.30        0.83
  8                          364.60      100.00        0.88
  8                          366.80      260.00        1.47
  8                          366.92      340.00        1.49
  8                          366.98      380.00        1.50
  9 ENDTBL
  3 STRUCT       11
  8                          375.40        0.00        0.00
  8                          379.36        1.00        0.74
  8                          380.00        5.00        0.89
  8                          380.20       10.00        0.94
  8                          380.33       15.00        0.98
  8                          380.45       20.00        1.01
  8                          380.55       25.00        1.04
  8                          380.65       30.00        1.06
  8                          381.19       40.00        1.21
  8                          381.78       44.00        1.39
  8                          382.59       66.00        1.66
  8                          382.79       88.00        1.75
  8                          382.89      110.00        1.79
  8                          382.97      132.00        1.83
  9 ENDTBL
  3 STRUCT       14
  8                          350.00        0.00        0.00
  8                          354.30        1.00        1.08
  8                          354.47        2.00        1.15
  8                          354.87        5.00        1.30
  8                          355.38       10.00        1.50
  8                          356.18       20.00        1.84
  8                          356.88       40.00        2.15
  8                          357.27       60.00        2.33
  8                          357.46       80.00        2.42
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                          358.08      100.00        2.73
  8                          358.14      120.00        2.76
  8                          358.19      140.00        2.78
  8                          358.25      171.00        2.81
  8                          358.27      180.00        2.82
  9 ENDTBL
  3 STRUCT       16
  9 ENDTBL
```

```
  6 RUNOFF 1 001       1       0.0505      76.581       0.3401           DA1
  6 RESVOR 2    02 1   2                                    1           SWMF3
  6 RUNOFF 1 003       3       0.0748      75.950       0.3581           DA2
  6 ADDHYD 4 004   2 3 4                                    1           DA1+2
  6 REACH  3 005   4   1       1021.0                       1
  6 RUNOFF 1 006       2       0.0599      73.647       0.3231         1 DA3
  6 ADDHYD 4 007   1 2 5                                    1         1 DA12+3
  6 RUNOFF 1 008       1       0.0692      84.939       0.2761         1 DA4
  6 REACH  3 009   1   6       1603.0                       1         1
  6 RUNOFF 1 010       2       0.0084      95.000       0.1921           DA5
  6 RESVOR 2    11 2   3                                    1           SWMF11
  6 REACH  3 012   3   7        583.0                       1
  6 RUNOFF 1 013       1       0.0275      94.963       0.2481           DA6
  6 RESVOR 2    14 1   2                                    1           SWMF8
  6 ADDHYD 4 015   7 2 1                                    1           DA5+6
  6 RESVOR 2    16 1   2                                    1           HWAYSTOR
  6 REACH  3 017   2   4        934.0                       1
  6 RUNOFF 1 018       1       0.0328      86.132       0.1901           DA7
  6 ADDHYD 4 019   4 1 3                                    1           DA56+7
  6 RUNOFF 1 020       2       0.0393      85.125       0.3671           DA8
  6 ADDHYD 4 021   5 2 1                                    1         1 DA3+8
  6 ADDHYD 4 022   6 1 2                                    1         1 DA4+8
  6 ADDHYD 4 023   3 2 1                                    1         1 DA7+8
    ENDATA
  7 INCREM 6                    0.1
  7 COMPUT 7  01    23          0.0        4.94         1.02 2  1   10
    ENDCMP 1
  7 COMPUT 7  01    23          0.0        7.28         1.02 2  1   50
    ENDCMP 1
  7 COMPUT 7  01    23          0.0        8.53         1.02 2  1   99
    ENDCMP 1
    ENDJOB 2

 ********************************END OF 80-80 LIST*********************************
1
 TR20 ------------------------------------------------------------------------ SCS -
            Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:38:07                    PASS   1   JOB NO.   1                     PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .100 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  23
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                          86.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.54 WATERSHED INCHES;      83 CFS-HRS;       6.8 ACRE-FEET.

 *** WARNING - STRUCTURE  2, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
               TIME INCREMENT OF   .043 HOURS.                              ***

 *** WARNING - STRUCTURE  2, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
```

FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	80.0	363.96
13.28	7.9	357.02

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.54 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	120.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.48 WATERSHED INCHES; 120 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	195.3	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:07 PASS 1 JOB NO. 1 PAGE 2

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	181.3	319.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	93.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.29 WATERSHED INCHES; 88 CFS-HRS; 7.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	243.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.43 WATERSHED INCHES; 291 CFS-HRS; 24.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	164.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.30 WATERSHED INCHES; 147 CFS-HRS; 12.2 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	155.3	313.32

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.30 WATERSHED INCHES; 147 CFS-HRS; 12.2 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:07 PASS 1 JOB NO. 1 PAGE 3

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	28.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.36 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT .6% ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	12.8	380.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.21 WATERSHED INCHES; 23 CFS-HRS; 1.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 12. ***

OPERATION REACH XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	12.8	338.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.21 WATERSHED INCHES; 23 CFS-HRS; 1.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	84.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 77 CFS-HRS; 6.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	60.9	357.28

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:07 PASS 1 JOB NO. 1 PAGE 4

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.16 WATERSHED INCHES; 74 CFS-HRS; 6.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	72.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.17 WATERSHED INCHES; 97 CFS-HRS; 8.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	72.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.17 WATERSHED INCHES; 97 CFS-HRS; 8.0 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 17. ***

OPERATION REACH XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	72.9	330.63

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.17 WATERSHED INCHES; 97 CFS-HRS; 8.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	92.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 72 CFS-HRS; 6.0 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 18.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT -.1%. ***

```
 OPERATION ADDHYD   XSECTION  19
1
 TR20 ------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:38:07                    PASS   1   JOB NO.   1                     PAGE   5


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.07                         137.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.81 WATERSHED INCHES;     169 CFS-HRS;      14.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                          84.3                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.32 WATERSHED INCHES;      84 CFS-HRS;       7.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  21

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.19                         314.8                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.59 WATERSHED INCHES;     375 CFS-HRS;      31.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  22

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.18                         469.9                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.76 WATERSHED INCHES;     522 CFS-HRS;      43.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.16                         584.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.96 WATERSHED INCHES;     691 CFS-HRS;      57.1 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1
1
 TR20 ------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:38:07                    PASS   2   JOB NO.   1                     PAGE   6


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  23
    STARTING TIME =   .00       RAIN DEPTH =  7.28       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
```

ALTERNATE NO. = 1 STORM NO. =50 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	155.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

*** WARNING - STRUCTURE 2, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 2, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	151.7	365.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	218.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.49 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	368.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.52 WATERSHED INCHES; 365 CFS-HRS; 30.2 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:07 PASS 2 JOB NO. 1 PAGE 7

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	362.7	319.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.53 WATERSHED INCHES; 367 CFS-HRS; 30.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.08	174.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.24 WATERSHED INCHES; 164 CFS-HRS; 13.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	494.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.44 WATERSHED INCHES; 531 CFS-HRS; 43.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	270.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.51 WATERSHED INCHES; 246 CFS-HRS; 20.3 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	255.0	314.22

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.51 WATERSHED INCHES; 246 CFS-HRS; 20.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 10
1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:07 PASS 2 JOB NO. 1 PAGE 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	42.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 36 CFS-HRS; 3.0 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT .7%. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	32.9	380.81

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.56 WATERSHED INCHES; 36 CFS-HRS; 2.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 12. ***

OPERATION REACH XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	32.9	338.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.56 WATERSHED INCHES; 36 CFS-HRS; 2.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	126.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.67 WATERSHED INCHES; 118 CFS-HRS; 9.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	99.5	358.07

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.48 WATERSHED INCHES; 115 CFS-HRS; 9.5 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:07 PASS 2 JOB NO. 1 PAGE 9

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	131.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.50 WATERSHED INCHES; 151 CFS-HRS; 12.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	131.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.50 WATERSHED INCHES; 151 CFS-HRS; 12.4 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 17. ***

OPERATION REACH XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	131.8	330.89

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.50 WATERSHED INCHES; 151 CFS-HRS; 12.4 ACRE-FEET.

```
 OPERATION RUNOFF   XSECTION  18

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.00                         149.5                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.64 WATERSHED INCHES;     119 CFS-HRS;       9.9 ACRE-FEET.

 *** WARNING - MAIN TIME INCREMENT (  .100) IS GREATER THAN 50% OF THE
               TIME OF CONCENTRATION (  .19) FOR SUBWATERSHED XSECTION  18.
               THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT  -.2%.            ***


 OPERATION ADDHYD   XSECTION  19

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.03                         270.5                       (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
           Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN       VERSION
 03/22/**              EXISTING COND.- 10,50,100 yr (24hr)              2.04TEST
 12:38:07                    PASS   2   JOB NO.   1                    PAGE  10


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.09 WATERSHED INCHES;     270 CFS-HRS;      22.3 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                         136.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.53 WATERSHED INCHES;     140 CFS-HRS;      11.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  21

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.17                         615.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.62 WATERSHED INCHES;     670 CFS-HRS;      55.3 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  22

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.17                         870.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.83 WATERSHED INCHES;     916 CFS-HRS;      75.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.14                        1075.6                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.07 WATERSHED INCHES;    1186 CFS-HRS;      98.0 ACRE-FEET.
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 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2
1
 TR20 ------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:38:07                    PASS   3   JOB NO.   1                     PAGE  11



 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  23
    STARTING TIME =   .00       RAIN DEPTH =  8.53       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =99            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.09                         191.4                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.70 WATERSHED INCHES;     186 CFS-HRS;      15.4 ACRE-FEET.

 *** WARNING - STRUCTURE  2, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
               TIME INCREMENT OF   .043 HOURS.                              ***

 *** WARNING - STRUCTURE  2, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
               FIRST NEGATIVE VALUE IS      0 CFS.                          ***


 OPERATION RESVOR   STRUCTURE  2

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.13                         185.7                        365.78

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.70 WATERSHED INCHES;     186 CFS-HRS;      15.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                         275.4                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.63 WATERSHED INCHES;     272 CFS-HRS;      22.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.11                         458.7                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.66 WATERSHED INCHES;     458 CFS-HRS;      37.8 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:38:07                    PASS   3   JOB NO.   1                     PAGE  12
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OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	457.0	320.04

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	221.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.36 WATERSHED INCHES; 207 CFS-HRS; 17.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	626.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.56 WATERSHED INCHES; 665 CFS-HRS; 54.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	327.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.71 WATERSHED INCHES; 300 CFS-HRS; 24.8 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	304.0	314.67

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.71 WATERSHED INCHES; 300 CFS-HRS; 24.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 10
1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:07 PASS 3 JOB NO. 1 PAGE 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	49.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 10.

THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT -.6%. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	38.7	381.12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.74 WATERSHED INCHES; 42 CFS-HRS; 3.5 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 12. ***

OPERATION REACH XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	38.7	338.33

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.74 WATERSHED INCHES; 42 CFS-HRS; 3.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	148.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 141 CFS-HRS; 11.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	154.9	358.22

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.60 WATERSHED INCHES; 135 CFS-HRS; 11.2 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:07 PASS 3 JOB NO. 1 PAGE 14

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	193.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.64 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	193.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

7.64 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 17. ***

OPERATION REACH XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	193.5	331.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.64 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	179.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.85 WATERSHED INCHES; 145 CFS-HRS; 12.0 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 18.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT .2%. ***

OPERATION ADDHYD XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	336.9	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3-MGMT thru wtd CN VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:07 PASS 3 JOB NO. 1 PAGE 15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.26 WATERSHED INCHES; 322 CFS-HRS; 26.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	165.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.73 WATERSHED INCHES; 171 CFS-HRS; 14.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	775.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 836 CFS-HRS; 69.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	1079.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.99 WATERSHED INCHES; 1136 CFS-HRS; 93.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	1361.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.23 WATERSHED INCHES; 1458 CFS-HRS; 120.4 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 1 STORM 10							
XSECTION 6	RUNOFF	.06	2.29	---	12.09	94	1566.7
XSECTION 7	ADDHYD	.19	2.43	---	12.22	244	1284.2
XSECTION 8	RUNOFF	.07	3.30	---	12.05	165	2357.1
XSECTION 9	REACH	.07	3.30	313.32	12.18	155	2214.3
XSECTION 21	ADDHYD	.22	2.59	---	12.19	315	1431.8
XSECTION 22	ADDHYD	.29	2.76	---	12.18	470	1620.7
XSECTION 23	ADDHYD	.36	2.96	---	12.16	584	1622.2
RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 50							
XSECTION 6	RUNOFF	.06	4.24	---	12.08	174	2900.0
XSECTION 7	ADDHYD	.19	4.44	---	12.19	494	2600.0
XSECTION 8	RUNOFF	.07	5.51	---	12.05	270	3857.1
XSECTION 9	REACH	.07	5.51	314.22	12.17	255	3642.9
XSECTION 21	ADDHYD	.22	4.62	---	12.17	615	2795.5
XSECTION 22	ADDHYD	.29	4.83	---	12.17	870	3000.0
XSECTION 23	ADDHYD	.36	5.07	---	12.14	1076	2988.9

RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 99

XSECTION	6	RUNOFF	.06	5.36	---	12.08	221	3683.3
XSECTION	7	ADDHYD	.19	5.56	---	12.18	627	3300.0
XSECTION	8	RUNOFF	.07	6.71	---	12.04	327	4671.4
XSECTION	9	REACH	.07	6.71	314.67	12.17	304	4342.9
XSECTION	21	ADDHYD	.22	5.77	---	12.16	776	3527.3

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 1 STORM 99

XSECTION	22	ADDHYD	.29	5.99	---	12.17	1079	3720.7
XSECTION	23	ADDHYD	.36	6.23	---	12.13	1361	3780.6

1

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

			HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
		FLOOD	INFLOW		OUTFLOW		Q-A EQ.			PEAK	ATT-
XSEC ID	REACH LENGTH (FT)	PLAIN LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	RATIO Q/I (Q*)	KIN COEFF (C)

BASEFLOW IS .0 CFS

ALTERNATE 1 STORM 10

5	1021	190	12.1	179	12.3	.71	1.30	.053	.945	.74?
9	1603	158	12.0	154	12.2	1.36	1.31	.059	.974	.76?
12	583	13	12.2	13	12.2	1.14	1.62	.004	1.000	1.00?
17	934	72	12.2	72	12.2	2.35	1.53	.004	1.000	1.00?

ALTERNATE	1	STORM	50							
5	1021	367	12.1	359	12.2	.37	1.47	.027	.980	.93?
9	1603	260	12.0	252	12.2	1.58	1.25	.062	.968	.76?
12	583	33	12.1	33	12.1	1.15	1.61	.005	1.000	1.00?
17	934	132	12.1	132	12.1	2.46	1.51	.004	1.000	1.00?
ALTERNATE	1	STORM	99							
5	1021	457	12.1	455	12.2	.32	1.50	.022	.996	.98?
9	1603	317	12.0	301	12.2	1.91	1.18	.074	.950	.72?
12	583	39	12.1	39	12.1	1.15	1.60	.005	1.000	1.00?
17	934	194	12.1	194	12.1	2.55	1.49	.005	1.000	1.00?

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
XSECTION	6	.06			
ALTERNATE	1		94	174	221
XSECTION	7	.19			
ALTERNATE	1		244	494	627
XSECTION	8	.07			
ALTERNATE	1		165	270	327
XSECTION	9	.07			
ALTERNATE	1		155	255	304
XSECTION	21	.22			
ALTERNATE	1		315	615	776
XSECTION	22	.29			
ALTERNATE	1		470	870	1079
XSECTION	23	.36			
ALTERNATE	1		584	1076	1361

1

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST

FILES

INPUT = sa3test.dat , GIVEN DATA FILE
OUTPUT = sa3test.OUT , DATED 03/22/**,12:38:07

FILES GENERATED - DATED 03/22/**,12:38:07

NONE!

TOTAL NUMBER OF WARNINGS = 18, MESSAGES =   0

*** TR-20 RUN COMPLETED ***

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                       NOPLOTS
TITLE     Ellicott City Flood Study- Subarea 3- NO MGMT of DA3-3,3-4

TITLE     EXISTING COND.- 10,50,100 yr (24hr)
 2 XSECTN   005                   1.0      317.00
 8                             316.00        0.00        0.00
 8                             316.50        2.68        2.59
 8                             317.00       10.37        6.88
 8                             317.50       24.26       12.84
 8                             318.00       45.55       20.50
 8                             318.50       70.64       34.75
 8                             319.00      137.01       60.50
 8                             319.25      200.57       76.25
 8                             319.50      273.06       92.00
 8                             319.75      353.76      107.75
 8                             320.00      442.13      123.50
 8                             320.50      640.03      155.00
 8                             321.00      863.72      186.50
 9 ENDTBL
 2 XSECTN   009                   1.0      313.00
 8                             310.00        0.00        0.00
 8                             311.00       12.25        5.50
 8                             312.00       52.16       16.00
 8                             312.50       83.38       23.13
 8                             313.00      123.94       31.50
 8                             313.25      148.02       36.16
 8                             313.50      174.79       41.13
 8                             313.75      204.34       46.41
 8                             314.00      236.81       52.00
 8                             314.50      278.65       65.75
 8                             315.00      353.72       84.00
 9 ENDTBL
 2 XSECTN   012                   1.0      338.50
 8                             338.00        0.00        0.00
 8                             338.10        4.87        2.46
 8                             338.25       22.73        6.38
 8                             338.50       73.99       13.53
 8                             338.75      149.34       21.45
 8                             339.00      247.95       30.13
 8                             339.50      515.65       49.78
 9 ENDTBL
 2 XSECTN   017                   1.0      331.00
 8                             330.00        0.00        0.00
 8                             330.25       14.29        3.25
 8                             330.50       46.85        7.00
 8                             330.75       95.34       11.25
 8                             331.00      159.64       16.00
 8                             331.25      240.13       21.25
 8                             331.50      337.44       27.00
 8                             331.75      452.26       33.25
 8                             332.00      585.36       40.00
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                          332.50      875.33       55.81
  8                          333.00     1272.05       75.25
  9 ENDTBL
  3 STRUCT       02
  8                          356.38        0.0         0.00
  8                          357.26       10.90        0.02
  8                          357.50       12.30        0.03
  8                          358.00       14.70        0.05
  8                          359.00       18.70        0.10
  8                          360.00       22.00        0.16
  8                          361.00       24.90        0.25
  8                          361.50       26.20        0.30
  8                          362.00       27.50        0.36
  8                          362.50       28.70        0.43
  8                          362.90       29.60        0.49
  8                          363.50       51.30        0.60
  8                          363.75       65.70        0.67
  8                          364.00       82.60        0.72
  8                          364.20       83.30        0.83
  8                          364.60      100.00        0.88
  8                          366.80      260.00        1.47
  8                          366.92      340.00        1.49
  8                          366.98      380.00        1.50
  9 ENDTBL
  3 STRUCT       11
  8                          375.40        0.00        0.00
  8                          379.36        1.00        0.74
  8                          380.00        5.00        0.89
  8                          380.20       10.00        0.94
  8                          380.33       15.00        0.98
  8                          380.45       20.00        1.01
  8                          380.55       25.00        1.04
  8                          380.65       30.00        1.06
  8                          381.19       40.00        1.21
  8                          381.78       44.00        1.39
  8                          382.59       66.00        1.66
  8                          382.79       88.00        1.75
  8                          382.89      110.00        1.79
  8                          382.97      132.00        1.83
  9 ENDTBL
  3 STRUCT       14
  8                          350.00        0.00        0.00
  8                          354.30        1.00        1.08
  8                          354.47        2.00        1.15
  8                          354.87        5.00        1.30
  8                          355.38       10.00        1.50
  8                          356.18       20.00        1.84
  8                          356.88       40.00        2.15
  8                          357.27       60.00        2.33
  8                          357.46       80.00        2.42
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                          358.08      100.00        2.73
  8                          358.14      120.00        2.76
  8                          358.19      140.00        2.78
  8                          358.25      171.00        2.81
  8                          358.27      180.00        2.82
  9 ENDTBL
  3 STRUCT       16
```

```
  9 ENDTBL
  6 RUNOFF 1 001       1       0.0505      76.581       0.3401           DA1
  6 RESVOR 2    02 1   2                                    1           SWMF3
  6 RUNOFF 1 003       3       0.0748      75.950       0.3581           DA2
  6 ADDHYD 4 004   2 3 4                                    1           DA1+2
  6 REACH  3 005   4   1       1021.0                       1
  6 RUNOFF 1 006       2       0.0599      77.623       0.3231         1 DA3
  6 ADDHYD 4 007   1 2 5                                    1         1 DA12+3
  6 RUNOFF 1 008       1       0.0692      86.658       0.2761         1 DA4
  6 REACH  3 009   1   6       1603.0                       1         1
  6 RUNOFF 1 010       2       0.0084      95.000       0.1921           DA5
  6 RESVOR 2    11 2   3                                    1           SWMF11
  6 REACH  3 012   3   7        583.0                       1
  6 RUNOFF 1 013       1       0.0275      94.963       0.2481           DA6
  6 RESVOR 2    14 1   2                                    1           SWMF8
  6 ADDHYD 4 015   7 2 1                                    1           DA5+6
  6 RESVOR 2    16 1   2                                    1           HWAYSTOR
  6 REACH  3 017   2   4        934.0                       1
  6 RUNOFF 1 018       1       0.0328      86.132       0.1901           DA7
  6 ADDHYD 4 019   4 1 3                                    1           DA56+7
  6 RUNOFF 1 020       2       0.0393      85.125       0.3671           DA8
  6 ADDHYD 4 021   5 2 1                                    1         1 DA3+8
  6 ADDHYD 4 022   6 1 2                                    1         1 DA4+8
  6 ADDHYD 4 023   3 2 1                                    1         1 DA7+8
    ENDATA
  7 INCREM 6                    0.1
  7 COMPUT 7  01    23          0.0        4.94         1.02 2  1   10
    ENDCMP 1
  7 COMPUT 7  01    23          0.0        7.28         1.02 2  1   50
    ENDCMP 1
  7 COMPUT 7  01    23          0.0        8.53         1.02 2  1   99
    ENDCMP 1
    ENDJOB 2

 ********************************END OF 80-80 LIST*********************************
1
 TR20 ------------------------------------------------------------------------ SCS -
            Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4      VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:38:35                    PASS   1   JOB NO.   1                     PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .100 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  23
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                         86.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.54 WATERSHED INCHES;      83 CFS-HRS;       6.8 ACRE-FEET.

 *** WARNING - STRUCTURE  2, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
               TIME INCREMENT OF   .043 HOURS.                              ***
```

*** WARNING - STRUCTURE 2, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS   0 CFS.   ***

OPERATION RESVOR   STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	80.0	363.96
13.28	7.9	357.02

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
2.54 WATERSHED INCHES;   83 CFS-HRS;   6.8 ACRE-FEET.

OPERATION RUNOFF   XSECTION   3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	120.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
2.48 WATERSHED INCHES;   120 CFS-HRS;   9.9 ACRE-FEET.

OPERATION ADDHYD   XSECTION   4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	195.3	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4 VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:35 PASS   1   JOB NO.   1 PAGE   2

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
2.50 WATERSHED INCHES;   202 CFS-HRS;   16.7 ACRE-FEET.

OPERATION REACH   XSECTION   5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	181.3	319.17

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
2.50 WATERSHED INCHES;   202 CFS-HRS;   16.7 ACRE-FEET.

OPERATION RUNOFF   XSECTION   6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	108.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
2.63 WATERSHED INCHES;   101 CFS-HRS;   8.4 ACRE-FEET.

OPERATION ADDHYD   XSECTION   7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	253.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
2.54 WATERSHED INCHES;   304 CFS-HRS;   25.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	173.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.47 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	163.1	313.39

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.47 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4 VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:35 PASS 1 JOB NO. 1 PAGE 3

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	28.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.36 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT .6% ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	12.8	380.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.21 WATERSHED INCHES; 23 CFS-HRS; 1.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 12. ***

OPERATION REACH XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	12.8	338.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.21 WATERSHED INCHES; 23 CFS-HRS; 1.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

```
   12.02                          84.1                          (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                4.35 WATERSHED INCHES;      77 CFS-HRS;       6.4 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 14

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.15                          60.9                          357.28
1
 TR20 ------------------------------------------------------------------- SCS -
          Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4      VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:38:35                    PASS   1   JOB NO.   1                     PAGE   4


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                4.16 WATERSHED INCHES;      74 CFS-HRS;       6.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  15

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.17                          72.9                          (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                4.17 WATERSHED INCHES;      97 CFS-HRS;       8.0 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 16

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.17                          72.9                          (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                4.17 WATERSHED INCHES;      97 CFS-HRS;       8.0 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION  17.       ***


 OPERATION REACH    XSECTION  17

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.17                          72.9                          330.63

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                4.17 WATERSHED INCHES;      97 CFS-HRS;       8.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  18

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.00                          92.7                          (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.42 WATERSHED INCHES;      72 CFS-HRS;       6.0 ACRE-FEET.

 *** WARNING - MAIN TIME INCREMENT (  .100) IS GREATER THAN 50% OF THE
               TIME OF CONCENTRATION (  .19) FOR SUBWATERSHED XSECTION  18.
               THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT  -.1%.            ***
```

```
 OPERATION ADDHYD   XSECTION  19
1
 TR20 ------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4      VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:38:35                    PASS   1   JOB NO.   1                     PAGE   5


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.07                         137.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.81 WATERSHED INCHES;     169 CFS-HRS;      14.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                          84.3                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.32 WATERSHED INCHES;      84 CFS-HRS;       7.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  21

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.18                         325.8                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.68 WATERSHED INCHES;     388 CFS-HRS;      32.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  22

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.18                         488.7                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.87 WATERSHED INCHES;     543 CFS-HRS;      44.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.15                         604.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.04 WATERSHED INCHES;     712 CFS-HRS;      58.9 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1
1
 TR20 ------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4      VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:38:35                    PASS   2   JOB NO.   1                     PAGE   6


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  23
    STARTING TIME =   .00       RAIN DEPTH =  7.28       RAIN DURATION =  1.00
```

ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. = 1 STORM NO. =50 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	155.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

*** WARNING - STRUCTURE 2, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 2, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	151.7	365.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	218.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.49 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	368.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.52 WATERSHED INCHES; 365 CFS-HRS; 30.2 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4 VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:35 PASS 2 JOB NO. 1 PAGE 7

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	362.7	319.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.53 WATERSHED INCHES; 367 CFS-HRS; 30.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	192.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.68 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	507.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.58 WATERSHED INCHES; 547 CFS-HRS; 45.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	278.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 255 CFS-HRS; 21.1 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	262.0	314.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 255 CFS-HRS; 21.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 10
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	42.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 36 CFS-HRS; 3.0 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT .7%. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	32.9	380.81

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.56 WATERSHED INCHES; 36 CFS-HRS; 2.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 12. ***

OPERATION REACH XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	32.9	338.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.56 WATERSHED INCHES; 36 CFS-HRS; 2.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	126.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.67 WATERSHED INCHES; 118 CFS-HRS; 9.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	99.5	358.07

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.48 WATERSHED INCHES; 115 CFS-HRS; 9.5 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4 VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:35 PASS 2 JOB NO. 1 PAGE 9

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	131.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.50 WATERSHED INCHES; 151 CFS-HRS; 12.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	131.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.50 WATERSHED INCHES; 151 CFS-HRS; 12.4 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 17. ***

OPERATION REACH XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	131.8	330.89

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.50 WATERSHED INCHES; 151 CFS-HRS; 12.4 ACRE-FEET.

```
 OPERATION RUNOFF   XSECTION  18

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.00                         149.5                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.64 WATERSHED INCHES;     119 CFS-HRS;       9.9 ACRE-FEET.

 *** WARNING - MAIN TIME INCREMENT (  .100) IS GREATER THAN 50% OF THE
               TIME OF CONCENTRATION (  .19) FOR SUBWATERSHED XSECTION  18.
               THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT  -.2%.            ***


 OPERATION ADDHYD   XSECTION  19

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.03                         270.5                       (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4      VERSION
 03/22/**              EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:38:35                    PASS   2   JOB NO.   1                     PAGE  10


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.09 WATERSHED INCHES;     270 CFS-HRS;      22.3 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                         136.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.53 WATERSHED INCHES;     140 CFS-HRS;      11.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  21

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.17                         629.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.74 WATERSHED INCHES;     687 CFS-HRS;      56.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  22

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.17                         891.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.97 WATERSHED INCHES;     943 CFS-HRS;      77.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.14                        1100.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
```

5.18 WATERSHED INCHES; 1212 CFS-HRS; 100.1 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2
1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4 VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:35 PASS 3 JOB NO. 1 PAGE 11

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 23
STARTING TIME = .00 RAIN DEPTH = 8.53 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. = 1 STORM NO. =99 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	191.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.70 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

*** WARNING - STRUCTURE 2, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 2, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	185.7	365.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.70 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	275.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 272 CFS-HRS; 22.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	458.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.
1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4 VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:35 PASS 3 JOB NO. 1 PAGE 12

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	457.0	320.04

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	238.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.83 WATERSHED INCHES; 226 CFS-HRS; 18.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	639.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.72 WATERSHED INCHES; 683 CFS-HRS; 56.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	333.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.92 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	309.5	314.71

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.92 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 10
1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4 VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:35 PASS 3 JOB NO. 1 PAGE 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	49.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE

TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT -.6%. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	38.7	381.12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.74 WATERSHED INCHES; 42 CFS-HRS; 3.5 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 12. ***

OPERATION REACH XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	38.7	338.33

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.74 WATERSHED INCHES; 42 CFS-HRS; 3.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	148.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 141 CFS-HRS; 11.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	154.9	358.22

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.60 WATERSHED INCHES; 135 CFS-HRS; 11.2 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4 VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:35 PASS 3 JOB NO. 1 PAGE 14

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	193.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.64 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	193.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.64 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 17. ***

OPERATION REACH XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	193.5	331.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.64 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	179.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.85 WATERSHED INCHES; 145 CFS-HRS; 12.0 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.19) FOR SUBWATERSHED XSECTION 18.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT .2%. ***

OPERATION ADDHYD XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	336.9	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4 VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:35 PASS 3 JOB NO. 1 PAGE 15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.26 WATERSHED INCHES; 322 CFS-HRS; 26.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	165.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.73 WATERSHED INCHES; 171 CFS-HRS; 14.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	789.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.89 WATERSHED INCHES; 854 CFS-HRS; 70.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

```
   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.16                         1098.4                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  6.14 WATERSHED INCHES;    1163 CFS-HRS;      96.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.13                         1382.2                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  6.35 WATERSHED INCHES;    1485 CFS-HRS;     122.7 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   3
1
 TR20 ------------------------------------------------------------------------ SCS -
           Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4      VERSION
 03/22/**              EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 12:38:35                      SUMMARY, JOB NO.   1                      PAGE  16


                              SUMMARY TABLE 1
                              ---------------
    SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
    A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
 F-FLAT TOP HYDROGRAPH   T-TRUNCATED HYDROGRAPH   R-RISING TRUNCATED HYDROGRAPH

 XSECTION/  STANDARD                                        PEAK DISCHARGE
 STRUCTURE   CONTROL    DRAINAGE   RUNOFF   ------------------------------------
    ID      OPERATION     AREA     AMOUNT   ELEVATION   TIME     RATE     RATE
                         (SQ MI)    (IN)      (FT)      (HR)     (CFS)    (CSM)

 RAINFALL OF   4.94 inches AND  24.00 hr DURATION, BEGINS AT    .0 hrs.
 RAINTABLE NUMBER  2,    ARC 2
 MAIN TIME INCREMENT   .100 HOURS

    ALTERNATE    1   STORM   10
    --------------------------
 XSECTION   6  RUNOFF      .06     2.63        ---     12.09      108   1800.0
 XSECTION   7  ADDHYD      .19     2.54        ---     12.21      254   1336.8
 XSECTION   8  RUNOFF      .07     3.47        ---     12.05      173   2471.4
 XSECTION   9  REACH       .07     3.47     313.39     12.17      163   2328.6
 XSECTION  21  ADDHYD      .22     2.68        ---     12.18      326   1481.8

 XSECTION  22  ADDHYD      .29     2.87        ---     12.18      489   1686.2
 XSECTION  23  ADDHYD      .36     3.04        ---     12.15      604   1677.8

 RAINFALL OF   7.28 inches AND  24.00 hr DURATION, BEGINS AT    .0 hrs.

    ALTERNATE    1   STORM   50
    --------------------------
 XSECTION   6  RUNOFF      .06     4.68        ---     12.08      193   3216.7
 XSECTION   7  ADDHYD      .19     4.58        ---     12.18      507   2668.4
 XSECTION   8  RUNOFF      .07     5.71        ---     12.04      279   3985.7
 XSECTION   9  REACH       .07     5.71     314.30     12.17      262   3742.9
 XSECTION  21  ADDHYD      .22     4.74        ---     12.17      629   2859.1

 XSECTION  22  ADDHYD      .29     4.97        ---     12.17      891   3072.4
 XSECTION  23  ADDHYD      .36     5.18        ---     12.14     1100   3055.6
```

RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 99

XSECTION	6	RUNOFF	.06	5.83	---	12.08	238	3966.7
XSECTION	7	ADDHYD	.19	5.72	---	12.18	640	3368.4
XSECTION	8	RUNOFF	.07	6.92	---	12.04	334	4771.4
XSECTION	9	REACH	.07	6.92	314.71	12.17	310	4428.6
XSECTION	21	ADDHYD	.22	5.89	---	12.16	790	3590.9

1

TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4 VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:35 SUMMARY, JOB NO. 1 PAGE 17

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 1 STORM 99

XSECTION	22	ADDHYD	.29	6.14	---	12.16	1098	3786.2
XSECTION	23	ADDHYD	.36	6.35	---	12.13	1382	3838.9

1

TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 3- NO MGMT of DA3,4 VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
12:38:35 SUMMARY, JOB NO. 1 PAGE 18

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFORMATION INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)

BASEFLOW IS .0 CFS

ALTERNATE 1 STORM 10

5	1021	190	12.1	179	12.3	.71	1.30	.053	.945	.74?
9	1603	166	12.0	161	12.2	1.37	1.31	.058	.969	.76?
12	583	13	12.2	13	12.2	1.14	1.62	.004	1.000	1.00?

17	934	72	12.2	72	12.2	2.35	1.53	.004	1.000	1.00?

ALTERNATE 1 STORM 50

5	1021	367	12.1	359	12.2	.37	1.47	.027	.980	.93?
9	1603	269	12.0	258	12.2	1.61	1.24	.063	.959	.76?
12	583	33	12.1	33	12.1	1.15	1.61	.005	1.000	1.00?
17	934	132	12.1	132	12.1	2.46	1.51	.004	1.000	1.00?

ALTERNATE 1 STORM 99

5	1021	457	12.1	455	12.2	.32	1.50	.022	.996	.98?
9	1603	323	12.0	306	12.2	1.94	1.18	.074	.947	.72?
12	583	39	12.1	39	12.1	1.15	1.60	.005	1.000	1.00?
17	934	194	12.1	194	12.1	2.55	1.49	.005	1.000	1.00?

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
XSECTION	6	.06			
ALTERNATE	1		108	193	238
XSECTION	7	.19			
ALTERNATE	1		254	507	640
XSECTION	8	.07			
ALTERNATE	1		173	279	334
XSECTION	9	.07			
ALTERNATE	1		163	262	310
XSECTION	21	.22			
ALTERNATE	1		326	629	790
XSECTION	22	.29			
ALTERNATE	1		489	891	1098
XSECTION	23	.36			
ALTERNATE	1		604	1100	1382

1

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST

FILES

INPUT = sa3.dat , GIVEN DATA FILE
OUTPUT = sa3.OUT , DATED 03/22/**,12:38:35

FILES GENERATED - DATED 03/22/**,12:38:35

NONE!

TOTAL NUMBER OF WARNINGS = 18, MESSAGES =   0

*** TR-20 RUN COMPLETED ***

1

```
 ******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY******************

 JOB TR-20                                                          NOPLOTS
 TITLE     Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2)
 TITLE     CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr)
  3 STRUCT       02
  8                              329.75         0.00         0.00
  8                              330.00         1.56         0.01
  8                              332.00         4.37         0.13
  8                              334.00         5.96         0.39
  8                              334.10         6.01         0.40
  8                              334.50        10.20         0.47
  8                              335.00        16.10         0.56
  8                              336.00        28.91         0.75
  8                              337.00        40.10         0.97
  9 ENDTBL
  3 STRUCT       05
  8                              287.30         0.00         0.00
  8                              288.00         5.45         0.01
  8                              289.00         9.05         0.05
  8                              290.00        11.60         0.13
  8                              292.00        15.35         0.50
  8                              294.00        18.40         1.19
  8                              294.30        18.92         1.26
  8                              294.50        20.73         1.40
  8                              295.00        36.40         1.60
  8                              295.40        38.00         1.80
  8                              296.00        51.10         2.15
  8                              297.00        69.60         2.75
  8                              298.00        86.80         3.44
  8                              298.68        98.50         3.91
  8                              298.80       107.56         4.00
  9 ENDTBL
  3 STRUCT       11
  8                              259.43         0.00         0.00
  8                              260.00         1.30         0.026
  8                              260.50         1.70         0.050
  8                              261.00         2.10         0.075
  8                              261.50         2.40         0.095
  8                              262.00         2.70         0.119
  8                              262.50         2.90         0.160
  8                              263.00         3.20         0.205
  8                              263.50         3.40         0.245
  8                              264.00         3.60         0.285
  8                              264.50         3.80         0.360
  8                              265.00         3.90         0.415
  8                              265.50         4.10         0.480
  8                              266.00        11.00         0.537
  8                              266.50        15.40         0.620
  8                              267.00        16.00         0.709
  8                              267.50        30.30         0.798
  8                              268.00        56.00         0.887
```

1

```
 **********************80-80 LIST OF INPUT DATA (CONTINUED)**********************

  8                              268.50       145.68         0.976
```

```
  9 ENDTBL
  2 XSECTN   003                  1.0      300.50
  8                             300.00        0.00        0.00
  8                             300.10        0.29        0.23
  8                             300.25        1.47        0.69
  8                             300.40        3.55        1.28
  8                             300.50        5.48        1.75
  8                             300.60        7.88        2.28
  8                             300.75       12.45        3.19
  8                             300.90       18.28        4.23
  8                             301.00       22.91        5.00
  8                             301.10       28.18        5.83
  8                             301.25       37.36        7.19
  8                             301.40       48.14        8.68
  8                             301.50       56.26        9.75
  9 ENDTBL
  2 XSECTN   009                  1.0      248.40
  8                             247.07        0.00        0.00
  8                             247.41        1.85        1.14
  8                             247.74        5.93        2.35
  8                             248.07       27.43        7.18
  8                             248.40       58.61       12.46
  8                             248.67       89.70       40.04
  8                             248.95      158.39       68.99
  8                             249.22      256.90       99.30
  8                             249.49      382.40      130.99
  8                             249.77      533.43      164.04
  8                             250.04      709.09      198.46
  8                             250.31      908.86      234.24
  8                             250.59     1132.40      271.40
  8                             250.86     1379.55      309.92
  8                             251.13     1650.25      349.81
  8                             251.41     1944.49      391.07
  8                             251.68     2262.35      433.69
  8                             251.95     2603.94      477.69
  8                             252.23     2969.40      523.05
  8                             252.50     3358.93      569.78
  9 ENDTBL
  6 RUNOFF 1 001       1       0.0110       88.119       0.5211         1 DA1
  6 RESVOR 2    02 1   2                                      1         1 SWMF19
  6 REACH  3 003   2   3       1283.0                         1
  6 RUNOFF 1 004       1       0.0458       80.006       0.2391         1 DA2
  6 RESVOR 2    05 1   2                                      1         1 SWMF18
  6 ADDHYD 4 006   3 2 4                                      1         1 DA1+2
  6 RUNOFF 1 007       5       0.0778       79.468       0.2281         1 DA3
  6 ADDHYD 4 008   4 5 1                                      1         1 DA12+3
  6 REACH  3 009   1   2       2166.0                         1         1
  6 RUNOFF 1 010       1       0.0119       85.744       0.1221         1 DA4
  6 RESVOR 2    11 1   3                                      1         1 SWMF2
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 REACH  3 009   3   4       1081.0                         1
  6 RUNOFF 1 012       5       0.1100       66.708       0.2051         1 DA5
  6 ADDHYD 4 013   2 4 6                                      1         1 DA123+4
  6 ADDHYD 4 014   5 6 2                                      1         1 DA12345
    ENDATA
  7 INCREM 6                     0.1
  7 COMPUT 7  01    14           0.0         4.94         1.02 2  1   10
    ENDCMP 1
```

```
  7 COMPUT 7  01    14            0.0        7.28         1.02 2  1   50
    ENDCMP 1
  7 COMPUT 7  01    14            0.0        8.53         1.02 2  1   99
    ENDCMP 1
    ENDJOB 2

 ********************************END OF 80-80 LIST*******************************
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2)     VERSION
 03/14/**          CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr)            2.04TEST
 14:05:30                    PASS   1   JOB NO.   1                     PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .100 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  14
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.19                          20.6                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.62 WATERSHED INCHES;      26 CFS-HRS;       2.1 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.46                          12.5                         334.70

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.62 WATERSHED INCHES;      26 CFS-HRS;       2.1 ACRE-FEET.


 OPERATION REACH    XSECTION   3

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.58                          12.4                         300.75

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.62 WATERSHED INCHES;      26 CFS-HRS;       2.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   4

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.03                         100.7                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.84 WATERSHED INCHES;      84 CFS-HRS;       6.9 ACRE-FEET.

 *** WARNING - STRUCTURE  5, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
               TIME INCREMENT OF   .043 HOURS.                              ***
1
 TR20 ------------------------------------------------------------------- SCS -
```

*** WARNING - STRUCTURE 5, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	41.0	295.54

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 84 CFS-HRS; 7.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.47	49.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.00 WATERSHED INCHES; 110 CFS-HRS; 9.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	172.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.79 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	197.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.88 WATERSHED INCHES; 250 CFS-HRS; 20.7 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	140.1	248.88

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.87 WATERSHED INCHES; 250 CFS-HRS; 20.6 ACRE-FEET.

1
TR20 ---------- SCS -

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

11.95 36.0 (RUNOFF)

*** WARNING - XSECTION 10, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
(36.01) EXCEEDS ADJACENT COORDINATE (34.07) BY 5 %. ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.12) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT 2.5%. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	16.0	266.97

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	15.7	247.89

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	152.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.74 WATERSHED INCHES; 123 CFS-HRS; 10.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	155.9	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2) VERSION
03/14/** CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr) 2.04TEST
14:05:30 PASS 1 JOB NO. 1 PAGE 4

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.92 WATERSHED INCHES; 276 CFS-HRS; 22.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	253.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.41 WATERSHED INCHES; 399 CFS-HRS; 33.0 ACRE-FEET.

```
 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  14
    STARTING TIME =   .00       RAIN DEPTH =  7.28       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =50            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.19                          33.2                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.88 WATERSHED INCHES;      42 CFS-HRS;       3.4 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.38                          24.8                         335.68

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.88 WATERSHED INCHES;      42 CFS-HRS;       3.5 ACRE-FEET.


 OPERATION REACH    XSECTION   3

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.49                          24.7                         301.03
1
 TR20 ------------------------------------------------------------------- SCS -
          Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2)     VERSION
 03/14/**          CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr)            2.04TEST
 14:05:30                    PASS   2   JOB NO.   1                     PAGE   5


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.87 WATERSHED INCHES;      42 CFS-HRS;       3.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   4

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.03                         174.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.95 WATERSHED INCHES;     146 CFS-HRS;      12.1 ACRE-FEET.

 *** WARNING - STRUCTURE  5, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
               TIME INCREMENT OF   .043 HOURS.                              ***

 *** WARNING - STRUCTURE  5, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
               FIRST NEGATIVE VALUE IS      0 CFS.                          ***


 OPERATION RESVOR   STRUCTURE  5

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.23                          82.4                         297.74
```

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 146 CFS-HRS; 12.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.34	98.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.13 WATERSHED INCHES; 188 CFS-HRS; 15.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	298.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.89 WATERSHED INCHES; 245 CFS-HRS; 20.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 8

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2) VERSION
03/14/** CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr) 2.04TEST
14:05:30 PASS 2 JOB NO. 1 PAGE 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	357.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 434 CFS-HRS; 35.8 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	275.4	249.26

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 433 CFS-HRS; 35.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	57.7	(RUNOFF)

*** WARNING - XSECTION 10, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
(57.74) EXCEEDS ADJACENT COORDINATE (54.48) BY 6 %. ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.59 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.12) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT 2.3%. ***

OPERATION RESVOR STRUCTURE 11

```
   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.04                          46.7                         267.82

 *** WARNING - STRUCTURE 11, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
               (    46.71) EXCEEDS ADJACENT COORDINATE (    44.45) BY  5 %. ***

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.61 WATERSHED INCHES;      43 CFS-HRS;       3.6 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION   9.       ***


 OPERATION REACH    XSECTION   9
1
 TR20 ------------------------------------------------------------------- SCS -
          Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2)     VERSION
 03/14/**          CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr)            2.04TEST
 14:05:30                    PASS   2   JOB NO.   1                     PAGE   7


   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.04                          46.7                         248.27

 *** WARNING - XSECTION   9, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
               (    46.71) EXCEEDS ADJACENT COORDINATE (    44.45) BY  5 %. ***

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.61 WATERSHED INCHES;      43 CFS-HRS;       3.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  12

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.02                         316.0                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.50 WATERSHED INCHES;     248 CFS-HRS;      20.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  13

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.20                         294.8                        (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.04 WATERSHED INCHES;     477 CFS-HRS;      39.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  14

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.07                         534.9                        (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.38 WATERSHED INCHES;     725 CFS-HRS;      59.9 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  14
```

STARTING TIME = .00 RAIN DEPTH = 8.53 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. = 1 STORM NO. =99 RAIN TABLE NO. = 2

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2) VERSION
03/14/** CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr) 2.04TEST
14:05:30 PASS 3 JOB NO. 1 PAGE 8

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	39.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.09 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	30.5	336.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.09 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION REACH XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.47	30.4	301.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.09 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	214.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

*** WARNING - STRUCTURE 5, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 5, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	107.2	298.80

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2) VERSION
03/14/** CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr) 2.04TEST
14:05:30 PASS 3 JOB NO. 1 PAGE 9

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.13 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	121.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.32 WATERSHED INCHES; 232 CFS-HRS; 19.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	366.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 304 CFS-HRS; 25.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	443.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.17 WATERSHED INCHES; 536 CFS-HRS; 44.3 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	354.1	249.43

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.16 WATERSHED INCHES; 535 CFS-HRS; 44.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	69.4	(RUNOFF)

*** WARNING - XSECTION 10, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
(69.45) EXCEEDS ADJACENT COORDINATE (65.36) BY 6 %. ***

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2) VERSION
03/14/** CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr) 2.04TEST
14:05:30 PASS 3 JOB NO. 1 PAGE 10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.80 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.12) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT 3.6%. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	72.9	268.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.70 WATERSHED INCHES; 51 CFS-HRS; 4.2 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	67.9	248.48

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.88 WATERSHED INCHES; 53 CFS-HRS; 4.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	409.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.53 WATERSHED INCHES; 321 CFS-HRS; 26.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	398.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.21 WATERSHED INCHES; 587 CFS-HRS; 48.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	705.2	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2) VERSION
03/14/** CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr) 2.04TEST
14:05:30 PASS 3 JOB NO. 1 PAGE 11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.49 WATERSHED INCHES; 908 CFS-HRS; 75.0 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2) VERSION
03/14/** CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr) 2.04TEST
14:05:30 SUMMARY, JOB NO. 1 PAGE 12

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:

F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION		DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.								
RAINTABLE NUMBER 2, ARC 2								
MAIN TIME INCREMENT .100 HOURS								
ALTERNATE 1 STORM 10								
XSECTION	1	RUNOFF	.01	3.62	---	12.19	21	2100.0
STRUCTURE	2	RESVOR	.01	3.62	334.70	12.46	13	1300.0
XSECTION	4	RUNOFF	.05	2.84	---	12.03	101	2020.0
STRUCTURE	5	RESVOR	.05	2.85	295.54	12.26	41	820.0
XSECTION	6	ADDHYD	.06	3.00	---	12.47	49	816.7
XSECTION	7	RUNOFF	.08	2.79	---	12.02	172	2150.0
XSECTION	8	ADDHYD	.13	2.88	---	12.05	197	1515.4
XSECTION	9	REACH	.13	2.87	248.88	12.24	140	1076.9
XSECTION	10	RUNOFF	.01	3.38	---	11.95	36	3600.0
STRUCTURE	11	RESVOR	.01	3.38	266.97	12.14	16	1600.0
XSECTION	12	RUNOFF	.11	1.74	---	12.02	152	1381.8
XSECTION	13	ADDHYD	.15	2.92	---	12.24	156	1040.0
XSECTION	14	ADDHYD	.26	2.41	---	12.10	253	973.1
RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.								
ALTERNATE 1 STORM 50								
XSECTION	1	RUNOFF	.01	5.88	---	12.19	33	3300.0
STRUCTURE	2	RESVOR	.01	5.88	335.68	12.38	25	2500.0
XSECTION	4	RUNOFF	.05	4.95	---	12.03	174	3480.0
STRUCTURE	5	RESVOR	.05	4.95	297.74	12.23	82	1640.0
XSECTION	6	ADDHYD	.06	5.13	---	12.34	98	1633.3
XSECTION	7	RUNOFF	.08	4.89	---	12.02	298	3725.0
XSECTION	8	ADDHYD	.13	4.99	---	12.04	357	2746.2
XSECTION	9	REACH	.13	4.99	249.26	12.22	275	2115.4
XSECTION	10	RUNOFF	.01	5.59	---	11.95	58	5800.0
STRUCTURE	11	RESVOR	.01	5.61	267.82	12.04	47	4700.0

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2) VERSION
03/14/** CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr) 2.04TEST
14:05:30 SUMMARY, JOB NO. 1 PAGE 13

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION		DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

```
   ALTERNATE    1   STORM   50
   --------------------------
XSECTION  12  RUNOFF      .11     3.50        ---     12.02      316   2872.7
XSECTION  13  ADDHYD      .15     5.04        ---     12.20      295   1966.7
XSECTION  14  ADDHYD      .26     4.38        ---     12.07      535   2057.7

RAINFALL OF   8.53 inches AND  24.00 hr DURATION, BEGINS AT    .0 hrs.

   ALTERNATE    1   STORM   99
   --------------------------
XSECTION   1  RUNOFF      .01     7.09        ---     12.19       39   3900.0
STRUCTURE  2  RESVOR      .01     7.09     336.14     12.36       30   3000.0
XSECTION   4  RUNOFF      .05     6.12        ---     12.02      214   4280.0
STRUCTURE  5  RESVOR      .05     6.13     298.80     12.21      107   2140.0
XSECTION   6  ADDHYD      .06     6.32        ---     12.26      122   2033.3

XSECTION   7  RUNOFF      .08     6.06        ---     12.02      366   4575.0
XSECTION   8  ADDHYD      .13     6.17        ---     12.04      444   3415.4
XSECTION   9  REACH       .13     6.16     249.43     12.21      354   2723.1
XSECTION  10  RUNOFF      .01     6.80        ---     11.95       69   6900.0
STRUCTURE 11  RESVOR      .01     6.70     268.09     12.01       73   7300.0

XSECTION  12  RUNOFF      .11     4.53        ---     12.01      409   3718.2
XSECTION  13  ADDHYD      .15     6.21        ---     12.19      398   2653.3
XSECTION  14  ADDHYD      .26     5.49        ---     12.09      705   2711.5
1
TR20 ------------------------------------------------------------------- SCS -
        Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2)     VERSION
03/14/**          CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr)           2.04TEST
14:05:30                  SUMMARY, JOB NO.   1                        PAGE  14


                          SUMMARY TABLE 2
                          ---------------
          MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
  QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
                           LENGTH FACTOR - VALUE K* GREATER THAN  1.0;
                           ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

                    HYDROGRAPH INFORMATION          ROUTING PARAMETERS
                   -------------------------    -------------------------------
             FLOOD    INFLOW        OUTFLOW      Q-A EQ.            PEAK  ATT-
XSEC REACH   PLAIN  -----------   -----------   ----------- LENGTH  RATIO  KIN
 ID  LENGTH LENGTH PEAK   TIME   PEAK   TIME   COEFF POWER FACTOR   Q/I  COEFF
      (FT)   (FT)  (CFS)  (HR)   (CFS)  (HR)    (X)   (M)   (k*)   (Q*)  (C)


BASEFLOW IS    .0 CFS

   ALTERNATE    1   STORM   10
   --------------------------
  3   1283           12  12.5      12  12.6   2.47   1.39   .013   .994   .87?
  9   2166          190  12.0     138  12.2   1.86   1.05   .180   .723   .34
  9   1081           16  12.1      15  12.3   1.53   1.49   .014   .984   .90?

   ALTERNATE    1   STORM   50
   --------------------------
  3   1283           25  12.4      25  12.5   2.51   1.37   .014   .998   .95?
  9   2166          347  12.0     274  12.2   1.14   1.18   .127   .790   .43
  9   1081           44  12.0      44  12.0   1.69   1.41   .024  1.000  1.00?

   ALTERNATE    1   STORM   99
```

3	1283	30	12.4	30	12.5	2.52	1.37	.014	.999	.97?
9	2166	433	12.0	353	12.2	.91	1.24	.106	.816	.47
9	1081	73	12.0	67	12.1	1.66	1.28	.062	.925	.89?

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
STRUCTURE 11		.01			
ALTERNATE	1		16	47	73
STRUCTURE 5		.05			
ALTERNATE	1		41	82	107
STRUCTURE 2		.01			
ALTERNATE	1		13	25	30
XSECTION 1		.01			
ALTERNATE	1		21	33	39
XSECTION 4		.05			
ALTERNATE	1		101	174	214
XSECTION 6		.06			
ALTERNATE	1		49	98	122
XSECTION 7		.08			
ALTERNATE	1		172	298	366
XSECTION 8		.13			
ALTERNATE	1		197	357	444
XSECTION 9		.13			
ALTERNATE	1		140	275	354
XSECTION 10		.01			
ALTERNATE	1		36	58	69
XSECTION 12		.11			

```
   ALTERNATE    1                152       316       409

 XSECTION   13          .15
 ---------------------------
   ALTERNATE    1                156       295       398

 XSECTION   14          .26
 ---------------------------
   ALTERNATE    1                253       535       705
1
 TR20 ------------------------------------------------------------------------ SCS -
        Ellicott City Flood Study- Subarea 6- MGMT (SWMF-18,19,2)     VERSION
 03/14/**          CN MGMT (SWMF-1,4,16) 10,50,100 yr (24hr)            2.04TEST


 END OF  1 JOBS IN THIS RUN
```

SCS TR-20, VERSION 2.04TEST

FILES

```
     INPUT  = SA6MGMT.DATY                              , GIVEN DATA FILE
     OUTPUT = SA6MGMT.OUT                               , DATED 03/14/**,14:05:30

          FILES GENERATED - DATED 03/14/**,14:05:30

                         NONE!


        TOTAL NUMBER OF WARNINGS =  15,  MESSAGES =   0

                  *** TR-20 RUN COMPLETED ***
```

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                       NOPLOTS
TITLE     Ellicott City Flood Study- Subarea 6- INCLUDES structure MGMT,

TITLE     no CN reduction- 10,50,100 yr (24hr)

  3 STRUCT      02
  8                           329.75        0.00        0.00
  8                           330.00        1.56        0.01
  8                           332.00        4.37        0.13
  8                           334.00        5.96        0.39
  8                           334.10        6.01        0.40
  8                           334.50       10.20        0.47
  8                           335.00       16.10        0.56
  8                           336.00       28.91        0.75
  8                           337.00       40.10        0.97
  9 ENDTBL
  3 STRUCT      05
  8                           287.30        0.00        0.00
  8                           288.00        5.45        0.01
  8                           289.00        9.05        0.05
  8                           290.00       11.60        0.13
  8                           292.00       15.35        0.50
  8                           294.00       18.40        1.19
  8                           294.30       18.92        1.26
  8                           294.50       20.73        1.40
  8                           295.00       36.40        1.60
  8                           295.40       38.00        1.80
  8                           296.00       51.10        2.15
  8                           297.00       69.60        2.75
  8                           298.00       86.80        3.44
  8                           298.68       98.50        3.91
  8                           298.80      107.56        4.00
  9 ENDTBL
  3 STRUCT      11
  8                           259.43        0.00        0.00
  8                           260.00        1.30        0.026
  8                           260.50        1.70        0.050
  8                           261.00        2.10        0.075
  8                           261.50        2.40        0.095
  8                           262.00        2.70        0.119
  8                           262.50        2.90        0.160
  8                           263.00        3.20        0.205
  8                           263.50        3.40        0.245
  8                           264.00        3.60        0.285
  8                           264.50        3.80        0.360
  8                           265.00        3.90        0.415
  8                           265.50        4.10        0.480
  8                           266.00       11.00        0.537
  8                           266.50       15.40        0.620
  8                           267.00       16.00        0.709
  8                           267.50       30.30        0.798
  8                           268.00       56.00        0.887
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                                268.50      145.68        0.976
  9 ENDTBL
  2 XSECTN   003                     1.0      300.50
  8                                300.00        0.00        0.00
  8                                300.10        0.29        0.23
  8                                300.25        1.47        0.69
  8                                300.40        3.55        1.28
  8                                300.50        5.48        1.75
  8                                300.60        7.88        2.28
  8                                300.75       12.45        3.19
  8                                300.90       18.28        4.23
  8                                301.00       22.91        5.00
  8                                301.10       28.18        5.83
  8                                301.25       37.36        7.19
  8                                301.40       48.14        8.68
  8                                301.50       56.26        9.75
  9 ENDTBL
  2 XSECTN   009                     1.0      248.40
  8                                247.07        0.00        0.00
  8                                247.41        1.85        1.14
  8                                247.74        5.93        2.35
  8                                248.07       27.43        7.18
  8                                248.40       58.61       12.46
  8                                248.67       89.70       40.04
  8                                248.95      158.39       68.99
  8                                249.22      256.90       99.30
  8                                249.49      382.40      130.99
  8                                249.77      533.43      164.04
  8                                250.04      709.09      198.46
  8                                250.31      908.86      234.24
  8                                250.59     1132.40      271.40
  8                                250.86     1379.55      309.92
  8                                251.13     1650.25      349.81
  8                                251.41     1944.49      391.07
  8                                251.68     2262.35      433.69
  8                                251.95     2603.94      477.69
  8                                252.23     2969.40      523.05
  8                                252.50     3358.93      569.78
  9 ENDTBL
  6 RUNOFF 1 001       1       0.0110      88.119       0.5211         1 DA1
  6 RESVOR 2    02 1   2                                    1         1 SWMF19
  6 REACH  3 003   2   3       1283.0                           1
  6 RUNOFF 1 004       1       0.0458      80.006       0.2391         1 DA2
  6 RESVOR 2    05 1   2                                    1         1 SWMF18
  6 ADDHYD 4 006   3 2 4                                    1         1 DA1+2
  6 RUNOFF 1 007       5       0.0778      79.468       0.2281         1 DA3
  6 ADDHYD 4 008   4 5 1                                    1         1 DA12+3
  6 REACH  3 009   1   2       2166.0                           1         1
  6 RUNOFF 1 010       1       0.0119      85.744       0.1221         1 DA4
  6 RESVOR 2    11 1   3                                    1         1 SWMF2
1
```

```
 **********80-80 LIST OF INPUT DATA (CONTINUED)**********

  6 REACH  3 009   3   4       1081.0                           1
  6 RUNOFF 1 012       5       0.1100      70.291       0.2051         1 DA5
  6 ADDHYD 4 013   2 4 6                                    1         1 DA123+4
  6 ADDHYD 4 014   5 6 2                                    1         1 DA12345
    ENDATA
  7 INCREM 6                     0.1
```

```
 7 COMPUT 7  01    14            0.0         4.94         1.02 2  1   10
   ENDCMP 1
 7 COMPUT 7  01    14            0.0         7.28         1.02 2  1   50
   ENDCMP 1
 7 COMPUT 7  01    14            0.0         8.53         1.02 2  1   99
   ENDCMP 1
   ENDJOB 2

 ******************************END OF 80-80 LIST*******************************
1
 TR20 ------------------------------------------------------------------- SCS -
           Ellicott City Flood Study- Subarea 6- INCLUDES MGMT        VERSION
 03/14/**                    10,50,100 yr (24hr)                      2.04TEST
 09:31:11                  PASS   1   JOB NO.   1                     PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .100 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  14
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.19                          20.6                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.62 WATERSHED INCHES;      26 CFS-HRS;       2.1 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.46                          12.5                         334.70

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.62 WATERSHED INCHES;      26 CFS-HRS;       2.1 ACRE-FEET.


 OPERATION REACH    XSECTION   3

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.58                          12.4                         300.75

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.62 WATERSHED INCHES;      26 CFS-HRS;       2.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   4

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.03                         100.7                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.84 WATERSHED INCHES;      84 CFS-HRS;       6.9 ACRE-FEET.

 *** WARNING - STRUCTURE  5, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
               TIME INCREMENT OF   .043 HOURS.                              ***
```

```
1
 TR20 ------------------------------------------------------------------- SCS -
           Ellicott City Flood Study- Subarea 6- INCLUDES MGMT        VERSION
 03/14/**                    10,50,100 yr (24hr)                     2.04TEST
 09:31:11                  PASS   1   JOB NO.   1                    PAGE   2


 *** WARNING - STRUCTURE  5, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
               FIRST NEGATIVE VALUE IS      0 CFS.                          ***


 OPERATION RESVOR   STRUCTURE  5

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.26                         41.0                         295.54

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.85 WATERSHED INCHES;      84 CFS-HRS;       7.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.47                         49.0                         (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.00 WATERSHED INCHES;     110 CFS-HRS;       9.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   7

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.02                        172.0                         (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.79 WATERSHED INCHES;     140 CFS-HRS;      11.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   8

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.05                        197.3                         (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.88 WATERSHED INCHES;     250 CFS-HRS;      20.7 ACRE-FEET.


 OPERATION REACH    XSECTION   9

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.24                        140.1                         248.88

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.87 WATERSHED INCHES;     250 CFS-HRS;      20.6 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
           Ellicott City Flood Study- Subarea 6- INCLUDES MGMT        VERSION
 03/14/**                    10,50,100 yr (24hr)                     2.04TEST
 09:31:11                  PASS   1   JOB NO.   1                    PAGE   3


 OPERATION RUNOFF   XSECTION  10
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	36.0	(RUNOFF)

*** WARNING - XSECTION 10, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
(36.01) EXCEEDS ADJACENT COORDINATE (34.07) BY 5 %. ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.12) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT 2.5%. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	16.0	266.97

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	15.7	247.89

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	180.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.01 WATERSHED INCHES; 143 CFS-HRS; 11.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	155.9	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.92 WATERSHED INCHES; 276 CFS-HRS; 22.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	274.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

2.53 WATERSHED INCHES; 419 CFS-HRS; 34.6 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 14
STARTING TIME = .00 RAIN DEPTH = 7.28 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. = 1 STORM NO. =50 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	33.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.88 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	24.8	335.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.88 WATERSHED INCHES; 42 CFS-HRS; 3.5 ACRE-FEET.

OPERATION REACH XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.49	24.7	301.03

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	174.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 146 CFS-HRS; 12.1 ACRE-FEET.

*** WARNING - STRUCTURE 5, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 5, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

```
      12.23                          82.4                          297.74

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                4.95 WATERSHED INCHES;     146 CFS-HRS;      12.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.34                          98.2                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.13 WATERSHED INCHES;     188 CFS-HRS;      15.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   7

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.02                         298.3                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                4.89 WATERSHED INCHES;     245 CFS-HRS;      20.3 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   8
1
 TR20 ------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- Subarea 6- INCLUDES MGMT        VERSION
 03/14/**                    10,50,100 yr (24hr)                      2.04TEST
 09:31:11                  PASS   2   JOB NO.   1                     PAGE   6


   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.04                         357.4                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                4.99 WATERSHED INCHES;     434 CFS-HRS;      35.8 ACRE-FEET.


 OPERATION REACH    XSECTION   9

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.22                         275.4                        249.26

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                4.99 WATERSHED INCHES;     433 CFS-HRS;      35.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  10

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.95                          57.7                       (RUNOFF)

 *** WARNING - XSECTION  10, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
               (    57.74) EXCEEDS ADJACENT COORDINATE (    54.48) BY  6 %. ***

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.59 WATERSHED INCHES;      43 CFS-HRS;       3.5 ACRE-FEET.

 *** WARNING - MAIN TIME INCREMENT (  .100) IS GREATER THAN 50% OF THE
               TIME OF CONCENTRATION (  .12) FOR SUBWATERSHED XSECTION  10.
               THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT  2.3%.           ***
```

```
 OPERATION RESVOR   STRUCTURE 11

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.04                         46.7                         267.82

 *** WARNING - STRUCTURE 11, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
               (    46.71) EXCEEDS ADJACENT COORDINATE (    44.45) BY  5 %. ***

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.61 WATERSHED INCHES;      43 CFS-HRS;       3.6 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION   9.       ***


 OPERATION REACH    XSECTION   9
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- Subarea 6- INCLUDES MGMT        VERSION
 03/14/**                     10,50,100 yr (24hr)                      2.04TEST
 09:31:11                   PASS   2   JOB NO.   1                     PAGE   7


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.04                         46.7                         248.27

 *** WARNING - XSECTION   9, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
               (    46.71) EXCEEDS ADJACENT COORDINATE (    44.45) BY  5 %. ***

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.61 WATERSHED INCHES;      43 CFS-HRS;       3.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  12

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                        350.9                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.88 WATERSHED INCHES;     275 CFS-HRS;      22.8 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  13

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.20                        294.8                        (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.04 WATERSHED INCHES;     477 CFS-HRS;      39.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  14

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.06                        563.7                        (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.54 WATERSHED INCHES;     752 CFS-HRS;      62.1 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2
```

```
 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  14
    STARTING TIME =   .00       RAIN DEPTH =  8.53       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. = 1           STORM NO. =99            RAIN TABLE NO. = 2
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- Subarea 6- INCLUDES MGMT        VERSION
 03/14/**                      10,50,100 yr (24hr)                      2.04TEST
 09:31:11                     PASS   3   JOB NO.   1                    PAGE   8



 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.19                         39.5                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.09 WATERSHED INCHES;      50 CFS-HRS;       4.2 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.36                         30.5                         336.14

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.09 WATERSHED INCHES;      50 CFS-HRS;       4.2 ACRE-FEET.


 OPERATION REACH    XSECTION   3

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.47                         30.4                         301.14

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.09 WATERSHED INCHES;      50 CFS-HRS;       4.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.02                        214.2                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.12 WATERSHED INCHES;     181 CFS-HRS;      15.0 ACRE-FEET.

 *** WARNING - STRUCTURE  5, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
               TIME INCREMENT OF   .043 HOURS.                            ***

 *** WARNING - STRUCTURE  5, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
               FIRST NEGATIVE VALUE IS      0 CFS.                        ***


 OPERATION RESVOR   STRUCTURE  5

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.21                        107.2                        298.80
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- Subarea 6- INCLUDES MGMT        VERSION
 03/14/**                      10,50,100 yr (24hr)                      2.04TEST
```

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.13 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	121.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.32 WATERSHED INCHES; 232 CFS-HRS; 19.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	366.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 304 CFS-HRS; 25.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	443.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.17 WATERSHED INCHES; 536 CFS-HRS; 44.3 ACRE-FEET.

OPERATION REACH XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	354.1	249.43

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.16 WATERSHED INCHES; 535 CFS-HRS; 44.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	69.4	(RUNOFF)

*** WARNING - XSECTION 10, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
(69.45) EXCEEDS ADJACENT COORDINATE (65.36) BY 6 %. ***

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.80 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

*** WARNING - MAIN TIME INCREMENT (.100) IS GREATER THAN 50% OF THE
TIME OF CONCENTRATION (.12) FOR SUBWATERSHED XSECTION 10.
THIS WILL REDUCE THE COMPUTED PEAK BY ABOUT 3.6%. ***

```
 OPERATION RESVOR   STRUCTURE 11

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                         72.9                        268.09

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.70 WATERSHED INCHES;      51 CFS-HRS;       4.2 ACRE-FEET.


 OPERATION REACH    XSECTION   9

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.11                         67.9                        248.48

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.88 WATERSHED INCHES;      53 CFS-HRS;       4.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  12

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                        449.0                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.95 WATERSHED INCHES;     352 CFS-HRS;      29.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  13

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.19                        398.1                        (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.21 WATERSHED INCHES;     587 CFS-HRS;      48.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  14

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.08                        735.2                        (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- Subarea 6- INCLUDES MGMT        VERSION
 03/14/**                     10,50,100 yr (24hr)                      2.04TEST
 09:31:11                   PASS   3   JOB NO.   1                     PAGE  11


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.67 WATERSHED INCHES;     939 CFS-HRS;      77.6 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   3
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- Subarea 6- INCLUDES MGMT        VERSION
 03/14/**                     10,50,100 yr (24hr)                      2.04TEST
 09:31:11                     SUMMARY, JOB NO.   1                     PAGE  12


                            SUMMARY TABLE 1
                            ---------------
```

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 1 STORM 10							
XSECTION 1	RUNOFF	.01	3.62	---	12.19	21	2100.0
STRUCTURE 2	RESVOR	.01	3.62	334.70	12.46	13	1300.0
XSECTION 4	RUNOFF	.05	2.84	---	12.03	101	2020.0
STRUCTURE 5	RESVOR	.05	2.85	295.54	12.26	41	820.0
XSECTION 6	ADDHYD	.06	3.00	---	12.47	49	816.7
XSECTION 7	RUNOFF	.08	2.79	---	12.02	172	2150.0
XSECTION 8	ADDHYD	.13	2.88	---	12.05	197	1515.4
XSECTION 9	REACH	.13	2.87	248.88	12.24	140	1076.9
XSECTION 10	RUNOFF	.01	3.38	---	11.95	36	3600.0
STRUCTURE 11	RESVOR	.01	3.38	266.97	12.14	16	1600.0
XSECTION 12	RUNOFF	.11	2.01	---	12.02	180	1636.4
XSECTION 13	ADDHYD	.15	2.92	---	12.24	156	1040.0
XSECTION 14	ADDHYD	.26	2.53	---	12.08	275	1057.7
RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 50							
XSECTION 1	RUNOFF	.01	5.88	---	12.19	33	3300.0
STRUCTURE 2	RESVOR	.01	5.88	335.68	12.38	25	2500.0
XSECTION 4	RUNOFF	.05	4.95	---	12.03	174	3480.0
STRUCTURE 5	RESVOR	.05	4.95	297.74	12.23	82	1640.0
XSECTION 6	ADDHYD	.06	5.13	---	12.34	98	1633.3
XSECTION 7	RUNOFF	.08	4.89	---	12.02	298	3725.0
XSECTION 8	ADDHYD	.13	4.99	---	12.04	357	2746.2
XSECTION 9	REACH	.13	4.99	249.26	12.22	275	2115.4
XSECTION 10	RUNOFF	.01	5.59	---	11.95	58	5800.0
STRUCTURE 11	RESVOR	.01	5.61	267.82	12.04	47	4700.0

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 6- INCLUDES MGMT VERSION
03/14/** 10,50,100 yr (24hr) 2.04TEST
09:31:11 SUMMARY, JOB NO. 1 PAGE 13

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 1 STORM 50

XSECTION	12	RUNOFF	.11	3.88	---	12.01	351	3190.9
XSECTION	13	ADDHYD	.15	5.04	---	12.20	295	1966.7
XSECTION	14	ADDHYD	.26	4.54	---	12.06	564	2169.2

RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 99

XSECTION	1	RUNOFF	.01	7.09	---	12.19	39	3900.0
STRUCTURE	2	RESVOR	.01	7.09	336.14	12.36	30	3000.0
XSECTION	4	RUNOFF	.05	6.12	---	12.02	214	4280.0
STRUCTURE	5	RESVOR	.05	6.13	298.80	12.21	107	2140.0
XSECTION	6	ADDHYD	.06	6.32	---	12.26	122	2033.3
XSECTION	7	RUNOFF	.08	6.06	---	12.02	366	4575.0
XSECTION	8	ADDHYD	.13	6.17	---	12.04	444	3415.4
XSECTION	9	REACH	.13	6.16	249.43	12.21	354	2723.1
XSECTION	10	RUNOFF	.01	6.80	---	11.95	69	6900.0
STRUCTURE	11	RESVOR	.01	6.70	268.09	12.01	73	7300.0
XSECTION	12	RUNOFF	.11	4.95	---	12.01	449	4081.8
XSECTION	13	ADDHYD	.15	6.21	---	12.19	398	2653.3
XSECTION	14	ADDHYD	.26	5.67	---	12.08	735	2826.9

1

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	HYDROGRAPH INFLOW TIME (HR)	HYDROGRAPH OUTFLOW PEAK (CFS)	HYDROGRAPH OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)

BASEFLOW IS .0 CFS

ALTERNATE 1 STORM 10

3	1283	12	12.5	12	12.6	2.47	1.39	.013	.994	.87?
9	2166	190	12.0	138	12.2	1.86	1.05	.180	.723	.34
9	1081	16	12.1	15	12.3	1.53	1.49	.014	.984	.90?

ALTERNATE 1 STORM 50

3	1283	25	12.4	25	12.5	2.51	1.37	.014	.998	.95?
9	2166	347	12.0	274	12.2	1.14	1.18	.127	.790	.43
9	1081	44	12.0	44	12.0	1.69	1.41	.024	1.000	1.00?

ALTERNATE 1 STORM 99										
3	1283	30	12.4	30	12.5	2.52	1.37	.014	.999	.97?
9	2166	433	12.0	353	12.2	.91	1.24	.106	.816	.47
9	1081	73	12.0	67	12.1	1.66	1.28	.062	.925	.89?

1
TR20 ---------- SCS -
Ellicott City Flood Study- Subarea 6- INCLUDES MGMT VERSION
03/14/** 10,50,100 yr (24hr) 2.04TEST
09:31:11 SUMMARY, JOB NO. 1 PAGE 15

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
STRUCTURE 11		.01			
ALTERNATE	1		16	47	73
STRUCTURE 5		.05			
ALTERNATE	1		41	82	107
STRUCTURE 2		.01			
ALTERNATE	1		13	25	30
XSECTION 1		.01			
ALTERNATE	1		21	33	39
XSECTION 4		.05			
ALTERNATE	1		101	174	214
XSECTION 6		.06			
ALTERNATE	1		49	98	122
XSECTION 7		.08			
ALTERNATE	1		172	298	366
XSECTION 8		.13			
ALTERNATE	1		197	357	444
XSECTION 9		.13			
ALTERNATE	1		140	275	354
XSECTION 10		.01			
ALTERNATE	1		36	58	69

```
 XSECTION   12          .11
 ---------------------------
    ALTERNATE    1                180       351       449

 XSECTION   13          .15
 ---------------------------
    ALTERNATE    1                156       295       398

 XSECTION   14          .26
 ---------------------------
    ALTERNATE    1                275       564       735
1
 TR20 ------------------------------------------------------------------------ SCS -
             Ellicott City Flood Study- Subarea 6- INCLUDES MGMT        VERSION
 03/14/**                     10,50,100 yr (24hr)                       2.04TEST



 END OF  1 JOBS IN THIS RUN




                     SCS  TR-20,  VERSION 2.04TEST
                                  FILES

     INPUT  = sa6mgmt.dat                              , GIVEN DATA FILE
     OUTPUT = sa6mgmt.OUT                              , DATED 03/14/**,09:31:11

              FILES GENERATED - DATED 03/14/**,09:31:11

                              NONE!


            TOTAL NUMBER OF WARNINGS =  15,  MESSAGES =   0

                      *** TR-20 RUN COMPLETED ***
```

```
JOB TR-20                                                          NOPLOTS
TITLE     Ellicott City Flood Study- Subarea 6- MGMT simulated thru CN
TITLE     - 10,50,100 yr (24hr)
 3 STRUCT      02
 9 ENDTBL
 3 STRUCT      05
 9 ENDTBL
 3 STRUCT      11
 9 ENDTBL
 2 XSECTN   003                  1.0      300.50
 8                            300.00        0.00        0.00
 8                            300.10        0.29        0.23
 8                            300.25        1.47        0.69
 8                            300.40        3.55        1.28
 8                            300.50        5.48        1.75
 8                            300.60        7.88        2.28
 8                            300.75       12.45        3.19
 8                            300.90       18.28        4.23
 8                            301.00       22.91        5.00
 8                            301.10       28.18        5.83
 8                            301.25       37.36        7.19
 8                            301.40       48.14        8.68
 8                            301.50       56.26        9.75
 9 ENDTBL
 2 XSECTN   009                  1.0      248.40
 8                            247.07        0.00        0.00
 8                            247.41        1.85        1.14
 8                            247.74        5.93        2.35
 8                            248.07       27.43        7.18
 8                            248.40       58.61       12.46
 8                            248.67       89.70       40.04
 8                            248.95      158.39       68.99
 8                            249.22      256.90       99.30
 8                            249.49      382.40      130.99
 8                            249.77      533.43      164.04
 8                            250.04      709.09      198.46
 8                            250.31      908.86      234.24
 8                            250.59     1132.40      271.40
 8                            250.86     1379.55      309.92
 8                            251.13     1650.25      349.81
 8                            251.41     1944.49      391.07
 8                            251.68     2262.35      433.69
 8                            251.95     2603.94      477.69
 8                            252.23     2969.40      523.05
 8                            252.50     3358.93      569.78
 9 ENDTBL
 6 RUNOFF 1 001       1       0.0110       64.378       0.5211         1 DA1
 6 RESVOR 2    02 1   2                                     1         1 SWMF19
 6 REACH  3 003   2   3       1283.0                        1
 6 RUNOFF 1 004       1       0.0458       56.649       0.2391         1 DA2
 6 RESVOR 2    05 1   2                                     1         1 SWMF18
 6 ADDHYD 4 006   3 2 4                                     1         1 DA1+2
 6 RUNOFF 1 007       5       0.0778       79.468       0.2281         1 DA3
 6 ADDHYD 4 008   4 5 1                                     1         1 DA12+3
 6 REACH  3 009   1   2       2166.0                        1
 6 RUNOFF 1 010       1       0.0119       58.286       0.1221         1 DA4
 6 RESVOR 2    11 1   3                                     1         1 SWMF2
 6 REACH  3 009   3   4       1081.0                        1
 6 RUNOFF 1 012       5       0.1100       70.291       0.2051         1 DA5
 6 ADDHYD 4 013   2 4 6                                     1         1 DA123+4
 6 ADDHYD 4 014   5 6 2                                     1         1 DA12345
   ENDATA
 7 INCREM 6                    0.1
```

```
7 COMPUT 7  01    14            0.0         4.94          1.02 2  1   10
  ENDCMP 1
7 COMPUT 7  01    14            0.0         7.28          1.02 2  1   50
  ENDCMP 1
7 COMPUT 7  01    14            0.0         8.53          1.02 2  1   99
  ENDCMP 1
  ENDJOB 2
```

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                       NOPLOTS
TITLE     Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,
TITLE     CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)
 2 XSECTN   002                  1.0      389.50
 8                            389.00        0.00        0.00
 8                            389.25        1.65        1.06
 8                            389.50        6.25        2.75
 8                            389.75       14.40        5.06
 8                            390.00       26.75        8.00
 8                            390.25       45.54       14.33
 8                            390.50       68.67       15.00
 8                            390.75       96.11       18.88
 8                            391.00      127.89       23.00
 8                            391.25      164.08       27.38
 8                            391.50      204.77       32.00
 8                            391.75      250.06       36.88
 9 ENDTBL
 2 XSECTN   005                  1.0      367.00
 8                            366.00        0.00        0.00
 8                            366.50        3.51        1.5
 8                            367.00       13.55        4.00
 8                            367.50       30.53        9.00
 8                            367.75       47.87       13.00
 8                            368.00       72.23       18.00
 8                            368.25      104.79       23.98
 8                            368.50      146.13       30.94
 8                            368.75      197.14       38.86
 8                            369.00      258.63       47.75
 8                            369.25      331.41       57.61
 8                            369.50      416.25       68.44
 9 ENDTBL
 3 STRUCT      11
 8                            380.00        0.00        0.00
 8                            381.00        2.70        0.53
 8                            382.20       53.00        1.16
 8                            383.80      186.80        1.40
 9 ENDTBL
 2 XSECTN   008                  1.0      330.00
 8                            356.00        0.00        0.00
 8                            356.50       20.21        6.94
 8                            357.00       68.51       15.75
 8                            357.50      144.11       26.44
 8                            358.00      248.93       39.00
 8                            358.50      389.07       53.25
 8                            359.00      561.31       69.00
 8                            359.50      767.14       86.25
 8                            360.00     1008.16      105.00
 8                            361.00     1375.68      147.50
 8                            361.50     1604.19      171.38
 9 ENDTBL
```


**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 2 XSECTN   016                  1.0      333.08
```

```
  8                              331.08         0.00         0.00
  8                              332.08        80.21         8.00
  8                              333.08       225.50        16.00
  8                              333.58       310.09        20.00
  8                              334.08       399.94        24.00
  8                              334.58       493.86        28.00
  8                              335.08       590.97        32.00
  8                              335.58       690.67        36.00
  8                              336.08       792.47        40.00
  8                              336.58       896.02        44.00
  9 ENDTBL
  2 XSECTN    023                   1.0       314.40
  8                              313.22         0.00         0.00
  8                              313.51         1.10         0.89
  8                              313.81         3.51         1.84
  8                              314.10        16.22         5.61
  8                              314.40        34.66         9.74
  8                              314.68        48.28        24.71
  8                              314.96        79.66        42.09
  8                              315.24       126.64        61.87
  8                              315.52       189.07        84.06
  8                              315.80       267.27       108.64
  8                              316.08       361.75       135.63
  8                              316.36       473.14       165.02
  8                              316.64       602.11       196.81
  8                              316.92       749.37       231.00
  8                              317.20       878.70       277.25
  8                              317.48      1103.89       329.14
  8                              317.76      1358.10       382.70
  8                              318.04      1640.58       437.94
  8                              318.32      1950.87       494.86
  8                              318.60      2288.69       553.45
  9 ENDTBL
  3 STRUCT       21
  8                              364.00         0.00         0.00
  8                              366.00         0.30         0.55
  8                              368.00         0.50         1.31
  8                              369.00         3.20         1.80
  8                              370.00         5.20         2.29
  8                              372.00         7.80         3.48
  8                              374.00         9.60         5.00
  8                              375.00        10.40         5.86
  8                              376.00        45.30         6.79
  8                              376.50        74.10         7.31
  8                              377.00       106.80         7.83
  8                              378.00       149.80         8.90
  8                              379.00       155.60        10.06
  8                              380.00       162.00        11.29
  9 ENDTBL
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  3 STRUCT       22
  8                              352.50         0.00         0.00
  8                              358.65       100.00         0.91
  8                              361.76       140.00         3.28
  8                              363.64       160.00         5.47
  8                              366.18       180.00         9.58
  8                              368.71       200.00        14.77
  8                              370.61       250.00        19.31
```

```
  9 ENDTBL
  3 STRUCT      23
  9 ENDTBL
  2 XSECTN   027                  1.0      317.00
  8                             316.00        0.00        0.00
  8                             316.50        2.68        2.59
  8                             317.00       10.37        6.88
  8                             317.50       24.26       12.84
  8                             318.00       45.55       20.50
  8                             318.50       70.64       34.75
  8                             319.00      137.01       60.50
  8                             319.25      200.57       76.25
  8                             319.50      273.06       92.00
  8                             319.75      353.76      107.75
  8                             320.00      442.13      123.50
  8                             320.50      640.03      155.00
  8                             321.00      863.72      186.50
  9 ENDTBL
  2 XSECTN   032                  1.0      313.00
  8                             310.00        0.00        0.00
  8                             311.00       12.25        5.50
  8                             312.00       52.16       16.00
  8                             312.50       83.38       23.13
  8                             313.00      123.94       31.50
  8                             313.25      148.02       36.16
  8                             313.50      174.79       41.13
  8                             313.75      204.34       46.41
  8                             314.00      236.81       52.00
  8                             314.50      278.65       65.75
  8                             315.00      353.72       84.00
  9 ENDTBL
  2 XSECTN   034                  1.0      338.50
  8                             338.00        0.00        0.00
  8                             338.10        4.87        2.46
  8                             338.25       22.73        6.38
  8                             338.50       73.99       13.53
  8                             338.75      149.34       21.45
  8                             339.00      247.95       30.13
  8                             339.50      515.65       49.78
  9 ENDTBL
  2 XSECTN   037                  1.0      331.00
  8                             330.00        0.00        0.00
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                             330.25       14.29        3.25
  8                             330.50       46.85        7.00
  8                             330.75       95.34       11.25
  8                             331.00      159.64       16.00
  8                             331.25      240.13       21.25
  8                             331.50      337.44       27.00
  8                             331.75      452.26       33.25
  8                             332.00      585.36       40.00
  8                             332.50      875.33       55.81
  8                             333.00     1272.05       75.25
  9 ENDTBL
  2 XSECTN   044                  1.0      288.90
  8                             287.68        0.00        0.00
  8                             287.99        1.15        0.94
  8                             288.29        3.69        1.95
```

```
  8                              288.60        17.06         5.98
  8                              288.90        36.44        10.37
  8                              289.19        63.07        39.25
  8                              289.47       121.85        69.50
  8                              289.76       206.05       101.12
  8                              290.05       313.23       134.09
  8                              290.33       442.07       168.42
  8                              290.62       591.78       204.12
  8                              290.91       761.87       241.18
  8                              291.19       952.02       279.60
  8                              291.48      1162.04       319.38
  8                              291.77      1391.84       360.52
  8                              292.05      1641.40       403.02
  8                              292.34      1910.74       446.89
  8                              292.63      2199.92       492.11
  8                              292.91      2509.04       538.70
  8                              293.20      2838.22       586.65
  9 ENDTBL
  3 STRUCT       31
  8                              356.38         0.0          0.00
  8                              357.26        10.90         0.02
  8                              357.50        12.30         0.03
  8                              358.00        14.70         0.05
  8                              359.00        18.70         0.10
  8                              360.00        22.00         0.16
  8                              361.00        24.90         0.25
  8                              361.50        26.20         0.30
  8                              362.00        27.50         0.36
  8                              362.50        28.70         0.43
  8                              362.90        29.60         0.49
  8                              363.50        51.30         0.60
  8                              363.75        65.70         0.67
  8                              364.00        82.60         0.72
  8                              364.20        83.30         0.83
  8                              364.60       100.00         0.88
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              366.80       260.00         1.47
  8                              366.92       340.00         1.49
  8                              366.98       380.00         1.50
  9 ENDTBL
  3 STRUCT       32
  8                              375.40         0.00         0.00
  8                              379.36         1.00         0.74
  8                              380.00         5.00         0.89
  8                              380.20        10.00         0.94
  8                              380.33        15.00         0.98
  8                              380.45        20.00         1.01
  8                              380.55        25.00         1.04
  8                              380.65        30.00         1.06
  8                              381.19        40.00         1.21
  8                              381.78        44.00         1.39
  8                              382.59        66.00         1.66
  8                              382.79        88.00         1.75
  8                              382.89       110.00         1.79
  8                              382.97       132.00         1.83
  9 ENDTBL
  3 STRUCT       33
  8                              350.00         0.00         0.00
```

```
  8                              354.30         1.00         1.08
  8                              354.47         2.00         1.15
  8                              354.87         5.00         1.30
  8                              355.38        10.00         1.50
  8                              356.18        20.00         1.84
  8                              356.88        40.00         2.15
  8                              357.27        60.00         2.33
  8                              357.46        80.00         2.42
  8                              358.08       100.00         2.73
  8                              358.14       120.00         2.76
  8                              358.19       140.00         2.78
  8                              358.25       171.00         2.81
  8                              358.27       180.00         2.82
  9 ENDTBL
  3 STRUCT      34
  9 ENDTBL
  2 XSECTN   051                    1.0       282.40
  8                              281.10         0.00         0.00
  8                              281.42         1.24         1.09
  8                              281.75         3.96         2.26
  8                              282.07        18.30         6.92
  8                              282.40        39.09        12.00
  8                              282.88        67.33        37.27
  8                              283.36       131.17        65.87
  8                              283.84       225.10        97.78
  8                              284.32       348.01       133.01
  8                              284.80       499.91       171.56
  8                              285.28       681.29       213.43
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              285.76       892.92       258.61
  8                              286.24      1135.70       307.11
  8                              286.72      1410.63       358.94
  8                              287.20      1718.74       414.08
  8                              287.68      2061.13       472.54
  8                              288.16      2438.87       534.31
  8                              288.64      2853.08       599.41
  8                              289.12      3301.76       667.84
  8                              289.60      3785.91       739.78
  9 ENDTBL
  2 XSECTN   053                    1.0       289.00
  8                              288.00         0.00         0.00
  8                              288.50         9.00         2.88
  8                              289.00        34.26         7.50
  8                              289.50        79.27        13.88
  8                              290.00       147.75        22.00
  8                              290.50       227.49        31.94
  8                              291.00       332.02        43.75
  8                              291.50       463.75        57.44
  8                              291.75       540.56        64.98
  8                              292.00       625.07        73.00
  9 ENDTBL
  2 XSECTN   063                    1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
```

```
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
  8                              250.59      1132.40       271.40
  8                              250.86      1379.55       309.92
  8                              251.13      1650.25       349.81
  8                              251.41      1944.49       391.07
  8                              251.68      2262.35       433.69
  8                              251.95      2603.94       477.69
  8                              252.23      2969.40       523.05
  8                              252.50      3358.93       569.78
  9 ENDTBL
  3 STRUCT      61
  8                              329.75         0.00         0.00
  8                              330.00         1.56         0.01
  8                              332.00         4.37         0.13
  8                              334.00         5.96         0.39
  8                              334.10         6.01         0.40
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              334.50        10.20         0.47
  8                              335.00        16.10         0.56
  8                              336.00        28.91         0.75
  8                              337.00        40.10         0.97
  9 ENDTBL
  3 STRUCT      62
  8                              287.30         0.00         0.00
  8                              288.00         5.45         0.01
  8                              289.00         9.05         0.05
  8                              290.00        11.60         0.13
  8                              292.00        15.35         0.50
  8                              294.00        18.40         1.19
  8                              294.30        18.92         1.26
  8                              294.50        20.73         1.40
  8                              295.00        36.40         1.60
  8                              295.40        38.00         1.80
  8                              296.00        51.10         2.15
  8                              297.00        69.60         2.75
  8                              298.00        86.80         3.44
  8                              298.68        98.50         3.91
  8                              298.80       107.56         4.00
  9 ENDTBL
  3 STRUCT      63
  8                              259.43         0.00         0.00
  8                              260.00         1.30         0.026
  8                              260.50         1.70         0.050
  8                              261.00         2.10         0.075
  8                              261.50         2.40         0.095
  8                              262.00         2.70         0.119
  8                              262.50         2.90         0.160
  8                              263.00         3.20         0.205
  8                              263.50         3.40         0.245
  8                              264.00         3.60         0.285
  8                              264.50         3.80         0.360
  8                              265.00         3.90         0.415
  8                              265.50         4.10         0.480
```

```
  8                              266.00        11.00         0.537
  8                              266.50        15.40         0.620
  8                              267.00        16.00         0.709
  8                              267.50        30.30         0.798
  8                              268.00        56.00         0.887
  8                              268.50       145.68         0.976
  9 ENDTBL
  2 XSECTN    065                  1.0       300.50
  8                              300.00         0.00         0.00
  8                              300.10         0.29         0.23
  8                              300.25         1.47         0.69
  8                              300.40         3.55         1.28
  8                              300.50         5.48         1.75
  8                              300.60         7.88         2.28
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              300.75        12.45         3.19
  8                              300.90        18.28         4.23
  8                              301.00        22.91         5.00
  8                              301.10        28.18         5.83
  8                              301.25        37.36         7.19
  8                              301.40        48.14         8.68
  8                              301.50        56.26         9.75
  9 ENDTBL
  2 XSECTN    070                  1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
  8                              250.59      1132.40       271.40
  8                              250.86      1379.55       309.92
  8                              251.13      1650.25       349.81
  8                              251.41      1944.49       391.07
  8                              251.68      2262.35       433.69
  8                              251.95      2603.94       477.69
  8                              252.23      2969.40       523.05
  8                              252.50      3358.93       569.78
  9 ENDTBL
  2 XSECTN    072                  1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
```

```
  8                                250.59     1132.40      271.40
  8                                250.86     1379.55      309.92
  8                                251.13     1650.25      349.81
  8                                251.41     1944.49      391.07
  8                                251.68     2262.35      433.69
  8                                251.95     2603.94      477.69
  8                                252.23     2969.40      523.05
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                                252.50     3358.93      569.78
  9 ENDTBL
  2 XSECTN   077                     1.0      229.00
  8                                226.00        0.00        0.00
  8                                226.50       11.73        5.31
  8                                227.00       42.97       13.25
  8                                227.50       96.50       23.81
  8                                228.00      175.93       37.00
  8                                228.50      258.13       54.25
  8                                229.00      385.22       77.00
  8                                229.50      561.82      105.25
  8                                230.00      793.74      139.00
  8                                230.50     1079.38      179.94
  8                                231.00     1462.49      229.75
  8                                231.50     1953.75      288.44
  8                                232.00     2564.16      356.00
  8                                232.50     3408.70      429.13
  8                                233.00     4351.01      504.50
  9 ENDTBL
  2 XSECTN   080                     1.0      212.00
  8                                210.50        0.00        0.00
  8                                210.75        4.72        2.23
  8                                211.00       15.68        4.92
  8                                211.25       32.36        8.06
  8                                211.50       54.93       11.67
  8                                211.75       83.70       15.73
  8                                212.00      119.05       20.25
  8                                212.25      163.87       25.14
  8                                212.50      215.35       30.31
  8                                212.75      273.55       35.77
  8                                213.00      338.57       41.50
  8                                214.00      669.42       67.25
  8                                215.00      806.07       99.00
  8                                216.00     1088.03      138.25
  8                                217.00     1451.30      187.50
  8                                218.00     1978.93      249.25
  8                                219.00     2262.06      340.00
  8                                220.00     3115.20      476.25
  8                                221.00     4892.67      639.25
  9 ENDTBL
  6 RUNOFF  1 001        1        0.0336       79.478       0.4051          DA1
  6 REACH   3 002    1   2        1170.0                         1
  6 RUNOFF  1 003        1        0.0580       80.559       0.3751          DA2
  6 ADDHYD  4 004    1 2 3                                      1          DA1+2
  6 RESVOR  2     11 3   1                                      1        1 SWMF10
  6 REACH   3 005    1   2         797.0                        1
  6 RUNOFF  1 006        3        0.0798       75.926       0.3921          DA3
  6 ADDHYD  4 007    2 3 4                                      1         DA12+3
  6 REACH   3 008    4   7        1221.0                         1        1 SA1-SA2
  6 RUNOFF  1 009        1        0.0734       88.594       0.4221          DA1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 RESVOR 2    21 1   2                                    1         1 SWMF13
  6 RUNOFF 1 010       3       0.0097      72.249       0.1281           DA7
  6 RESVOR 2    22 2 3 4                                    1         1 HWY STOR
  6 RUNOFF 1 011       2       0.0569      73.123       0.2201           DA2
  6 ADDHYD 4 012   7 2 3                                    1           SA1+DA2
  6 RUNOFF 1 013       5       0.0193      79.025       0.2481           DA3
  6 ADDHYD 4 014   4 3 6                                    1           DA17+2
  6 ADDHYD 4 015   6 5 3                                    1           DA172+3
  6 RESVOR 2    23 3   1                                    1         1 HWYSTOR2
  6 REACH  3 016   1   2        920.0                       1         1
  6 RUNOFF 1 017       3       0.0211      87.900       0.1641           DA4
  6 RUNOFF 1 018       4       0.0313      91.880       0.2551           DA5
  6 RUNOFF 1 019       5       0.0404      84.513       0.1681           DA6
  6 ADDHYD 4 020   3 4 6                                    1         1 DA4+5
  6 ADDHYD 4 021   6 5 1                                    1           DA123+6
  6 ADDHYD 4 022   2 1 3                                    1           DA45+6
  6 REACH  3 023   3   7       1379.0                       1         1 SA2-SA3
  6 RUNOFF 1 024       1       0.0505      76.581       0.3401           DA1
  6 RESVOR 2    31 1   2                                    1         1 SWMF3
  6 RUNOFF 1 025       3       0.0748      75.950       0.3581           DA2
  6 ADDHYD 4 026   2 3 4                                    1           DA1+2
  6 REACH  3 027   4   1       1021.0                       1
  6 RUNOFF 1 028       2       0.0599      71.428       0.3231           DA3
  6 ADDHYD 4 029   7 2 3                                    1           SA2+DA3
  6 ADDHYD 4 030   1 3 5                                    1           DA12+3
  6 RUNOFF 1 031       1       0.0692      82.378       0.2761           DA4
  6 REACH  3 032   1   6       1603.0                       1
  6 RUNOFF 1 033       2       0.0084      95.000       0.1921           DA5
  6 RESVOR 2    32 2   3                                    1         1 SWMF11
  6 REACH  3 034   3   7        583.0                       1
  6 RUNOFF 1 035       1       0.0275      94.963       0.2481           DA6
  6 RESVOR 2    33 1   2                                    1         1 SWMF8
  6 ADDHYD 4 036   7 2 1                                    1           DA5+6
  6 RESVOR 2    34 1   2                                    1         1 HWYSTOR3
  6 REACH  3 037   2   4        934.0                       1
  6 RUNOFF 1 038       1       0.0328      86.132       0.1901           DA7
  6 ADDHYD 4 039   4 1 3                                    1           DA56+7
  6 RUNOFF 1 040       2       0.0393      80.617       0.3671           DA8
  6 ADDHYD 4 041   5 2 1                                    1           DA3+8
  6 ADDHYD 4 042   6 1 2                                    1           DA4+8
  6 ADDHYD 4 043   3 2 1                                    1           DA7+8
  6 REACH  3 044   1   7       1428.0                       1         1 SA3-SA4
  6 RUNOFF 1 045       1       0.0477      75.971       0.4121           DA1
  6 RUNOFF 1 046       2       0.0628      73.766       0.4401           DA2
  6 ADDHYD 4 047   1 2 3                                    1           DA1+2
  6 RUNOFF 1 048       1       0.0469      79.166       0.2491           DA3
  6 ADDHYD 4 049   7 1 2                                    1           SA3+DA3
  6 ADDHYD 4 050   2 3 4                                    1           DA12+3
  6 REACH  3 051   4   7       1275.0                       1         1 SA4-SA5
  6 RUNOFF 1 052       1       0.0087      56.108       0.1631           DA1
```


**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 REACH  3 053   1   5        652.0                       1
```

```
  6 RUNOFF 1 054        1       0.0072       55.000       0.2561           DA2
  6 RUNOFF 1 055        2       0.0322       74.166       0.2491           DA3
  6 ADDHYD 4 056   7 2 4                                       1           SA4+DA3
  6 ADDHYD 4 057   5 1 3                                       1           DA1+2
  6 ADDHYD 4 058   4 3 5                                       1           DA12+3
  6 RUNOFF 1 059        1       0.0266       72.902       0.2611           DA4
  6 ADDHYD 4 060   5 1 2                                       1           DA123+4
  6 RUNOFF 1 061        3       0.0173       72.707       0.2971           DA5
  6 ADDHYD 4 062   2 3 6                                       1           DA1234+5
  6 REACH  3 063   6   7       1959.0                          1         1 SA5-SA6
  6 RUNOFF 1 064        1       0.0110       88.119       0.5211           DA1
  6 RESVOR 2    61 1   2                                       1         1 SWMF19
  6 REACH  3 065   2   3       1283.0                          1
  6 RUNOFF 1 066        1       0.0458       80.006       0.2391           DA2
  6 RESVOR 2    62 1   2                                       1         1 SWMF18
  6 ADDHYD 4 067   3 2 4                                       1           DA1+2
  6 RUNOFF 1 068        5       0.0778       79.468       0.2281           DA3
  6 ADDHYD 4 069   4 5 1                                       1           DA12+3
  6 REACH  3 070   1   2       2166.0                          1
  6 RUNOFF 1 071        1       0.0119       85.744       0.1221           DA4
  6 RESVOR 2    63 1   3                                       1         1 SWMF2
  6 REACH  3 072   3   4       1081.0                          1
  6 RUNOFF 1 073        5       0.1100       66.708       0.2051           DA5
  6 ADDHYD 4 074   7 5 1                                       1           SA5+DA5
  6 ADDHYD 4 075   2 4 6                                       1           DA123+4
  6 ADDHYD 4 076   1 6 2                                       1         1 DA12345
  6 REACH  3 077   2   7        884.0                          1         1 SA6-SA7
  6 RUNOFF 1 078        2       0.0510       73.827       0.1971           DA1
  6 ADDHYD 4 079   7 2 1                                       1           SA6+DA1
  6 REACH  3 080   1   2       1296.0                          1
  6 RUNOFF 1 081        3       0.0513       78.929       0.1621           DA3
  6 ADDHYD 4 082   2 3 4                                       1           DA1+3
  6 RUNOFF 1 083        1       0.0313       70.330       0.1861           DA2
  6 ADDHYD 4 084   4 1 2                                       1           DA13+2
  6 RUNOFF 1 085        3       0.1187       72.091       0.3211           DA4
  6 ADDHYD 4 086   2 3 1                                       1           DA123+4
  6 RUNOFF 1 087        4       0.0159       87.661       0.1421           DA5
  6 ADDHYD 4 088   1 4 7                                       1         1 DA1234+5
    ENDATA
  7 INCREM 6                      .06
  7 COMPUT 7 001   088             0.0         3.21         1.02 2  1   2
    ENDCMP 1
  7 COMPUT 7 001   088             0.0         4.94         1.02 2  1   10
    ENDCMP 1
  7 COMPUT 7 001   088             0.0         7.28         1.02 2  1   50
    ENDCMP 1
  7 COMPUT 7 001   088             0.0         8.53         1.02 2  1   99
    ENDCMP 1
    ENDJOB 2
1


 **********80-80 LIST OF INPUT DATA (CONTINUED)**********


 ********************************END OF 80-80 LIST********************************
1
 TR20 ------------------------------------------------------------------- SCS -
        Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                    PASS   1   JOB NO.   1                     PAGE   1
```

```
 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .060 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  88
    STARTING TIME =   .00       RAIN DEPTH =  3.21       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. = 2            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.14                          27.7                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.37 WATERSHED INCHES;      30 CFS-HRS;       2.5 ACRE-FEET.


 OPERATION REACH    XSECTION   2

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.23                          26.2                         389.99

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.37 WATERSHED INCHES;      30 CFS-HRS;       2.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.12                          53.2                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.45 WATERSHED INCHES;      54 CFS-HRS;       4.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.15                          76.0                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.42 WATERSHED INCHES;      84 CFS-HRS;       6.9 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 11
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                    PASS   1   JOB NO.   1                     PAGE   2


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.24                          73.7                         382.45

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.42 WATERSHED INCHES;      84 CFS-HRS;       6.9 ACRE-FEET.


 OPERATION REACH    XSECTION   5
```

```
   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.31                          70.4                         367.98

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.41 WATERSHED INCHES;      84 CFS-HRS;       6.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   6

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.14                          55.1                         (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.15 WATERSHED INCHES;      59 CFS-HRS;       4.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   7

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.29                         109.1                         (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.29 WATERSHED INCHES;     143 CFS-HRS;      11.8 ACRE-FEET.


 OPERATION REACH    XSECTION   8

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.36                         107.0                         357.25

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.29 WATERSHED INCHES;     143 CFS-HRS;      11.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   9

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.13                          89.9                         (RUNOFF)
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)          2.04TEST
 08:27:24                    PASS   1   JOB NO.   1                      PAGE   3


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.05 WATERSHED INCHES;      97 CFS-HRS;       8.0 ACRE-FEET.

 *** MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
               STARTS  4.00 FEET BELOW ASSUMED CREST ELEVATION AT   368.00.
               THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME.                ***


 OPERATION RESVOR   STRUCTURE 21

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      13.20                          9.1 *                        373.41
                                        * FIRST POINT OF FLAT PEAK

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.74 WATERSHED INCHES;      83 CFS-HRS;       6.8 ACRE-FEET.
```

```
 OPERATION RUNOFF   XSECTION  10

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.98                         8.1                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                    .95 WATERSHED INCHES;       6 CFS-HRS;        .5 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 22

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.36                         9.1                         353.06

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.74 WATERSHED INCHES;      82 CFS-HRS;       6.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  11

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.04                        43.5                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                    .99 WATERSHED INCHES;      37 CFS-HRS;       3.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  12
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                     PASS   1   JOB NO.   1                     PAGE   4


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.35                       118.4                        (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.22 WATERSHED INCHES;     180 CFS-HRS;      14.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  13

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.05                        19.8                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.34 WATERSHED INCHES;      17 CFS-HRS;       1.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  14

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.35                       125.2                        (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.34 WATERSHED INCHES;     262 CFS-HRS;      21.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  15
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	130.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.34 WATERSHED INCHES; 279 CFS-HRS; 23.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	130.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.34 WATERSHED INCHES; 279 CFS-HRS; 23.0 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

OPERATION REACH XSECTION 16

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 1 JOB NO. 1 PAGE 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	130.9	332.43

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.34 WATERSHED INCHES; 279 CFS-HRS; 23.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	36.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.99 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	54.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.35 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	60.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.73 WATERSHED INCHES; 45 CFS-HRS; 3.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	89.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.20 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	150.0	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 1 JOB NO. 1 PAGE 6

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.00 WATERSHED INCHES; 120 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	244.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.49 WATERSHED INCHES; 397 CFS-HRS; 32.8 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	202.6	315.57

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.49 WATERSHED INCHES; 397 CFS-HRS; 32.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	39.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.19 WATERSHED INCHES; 39 CFS-HRS; 3.2 ACRE-FEET.

*** WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	26.8	361.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.19 WATERSHED INCHES; 39 CFS-HRS; 3.2 ACRE-FEET.

```
 OPERATION RUNOFF   XSECTION  25
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                     PASS   1   JOB NO.   1                     PAGE   7


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.11                          54.5                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.16 WATERSHED INCHES;      56 CFS-HRS;       4.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  26

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.13                          79.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.17 WATERSHED INCHES;      95 CFS-HRS;       7.8 ACRE-FEET.


 OPERATION REACH    XSECTION  27

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.27                          70.2                         318.49

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.17 WATERSHED INCHES;      95 CFS-HRS;       7.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  28

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                          34.3                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                    .91 WATERSHED INCHES;      35 CFS-HRS;       2.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  29

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.17                         233.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.41 WATERSHED INCHES;     432 CFS-HRS;      35.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  30

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.19                         298.3                       (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                     PASS   1   JOB NO.   1                     PAGE   8
```

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.36 WATERSHED INCHES; 526 CFS-HRS; 43.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	80.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.57 WATERSHED INCHES; 70 CFS-HRS; 5.8 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	71.3	312.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.57 WATERSHED INCHES; 70 CFS-HRS; 5.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	17.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.65 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS
WITH .28 AC-FT (.05 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 376.89. ***

OPERATION RESVOR STRUCTURE 32

*** MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS,
AT STRUCTURE 32 ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.26	1.0	379.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.03 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

*** WARNING - XSECTION 34, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN
2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,
UNLESS NEW RATING TABLE VALUES ARE INSERTED. ***

OPERATION REACH XSECTION 34

*** MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS,
AT XSECTION 34 ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

13.38	1.0	338.02

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.02 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	53.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.65 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	20.8	356.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.10 WATERSHED INCHES; 37 CFS-HRS; 3.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	21.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.08 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	21.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.08 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 1 JOB NO. 1 PAGE 10

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	21.4	330.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.08 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	51.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

1.85 WATERSHED INCHES; 39 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	53.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.97 WATERSHED INCHES; 87 CFS-HRS; 7.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	36.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.45 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	331.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.37 WATERSHED INCHES; 563 CFS-HRS; 46.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 1 JOB NO. 1 PAGE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	402.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.39 WATERSHED INCHES; 633 CFS-HRS; 52.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	442.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.43 WATERSHED INCHES; 719 CFS-HRS; 59.4 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.31	402.3	290.24

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.43 WATERSHED INCHES; 718 CFS-HRS; 59.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	32.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.16 WATERSHED INCHES; 36 CFS-HRS; 2.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	35.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.03 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	67.0	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 1 JOB NO. 1 PAGE 12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.08 WATERSHED INCHES; 77 CFS-HRS; 6.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	48.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.35 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.29	419.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.43 WATERSHED INCHES; 759 CFS-HRS; 62.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	476.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.39 WATERSHED INCHES; 837 CFS-HRS; 69.1 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.40 451.8 284.65

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.39 WATERSHED INCHES; 836 CFS-HRS; 69.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	1.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.29 WATERSHED INCHES; 2 CFS-HRS; .1 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 1 JOB NO. 1 PAGE 13

*** WARNING - XSECTION 53, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN
2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,
UNLESS NEW RATING TABLE VALUES ARE INSERTED. ***

OPERATION REACH XSECTION 53

*** MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS,
AT XSECTION 53 ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	.9	288.05

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.28 WATERSHED INCHES; 2 CFS-HRS; .1 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

*** MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS,
AT XSECTION 54 ***

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.25 WATERSHED INCHES; 1 CFS-HRS; .1 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	25.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.05 WATERSHED INCHES; 22 CFS-HRS; 1.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	458.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.38 WATERSHED INCHES; 858 CFS-HRS; 70.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 1 JOB NO. 1 PAGE 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	1.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.27 WATERSHED INCHES; 3 CFS-HRS; .2 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	459.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.36 WATERSHED INCHES; 861 CFS-HRS; 71.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	18.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.98 WATERSHED INCHES; 17 CFS-HRS; 1.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	465.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.35 WATERSHED INCHES; 878 CFS-HRS; 72.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	11.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.97 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	469.3	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.34 WATERSHED INCHES; 889 CFS-HRS; 73.4 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.56	435.6	249.59

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.34 WATERSHED INCHES; 888 CFS-HRS; 73.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	11.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.01 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.56	5.3	333.13

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.01 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.68	5.2	300.49

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.01 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	50.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.41 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

1

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

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 OPERATION RESVOR   STRUCTURE 62

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.30                          16.8                         292.96
       13.74                           3.1                         287.70

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.41 WATERSHED INCHES;      42 CFS-HRS;       3.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  67

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.45                          21.6                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.52 WATERSHED INCHES;      56 CFS-HRS;       4.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  68

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.04                          84.3                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.37 WATERSHED INCHES;      69 CFS-HRS;       5.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  69

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.04                         101.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.44 WATERSHED INCHES;     125 CFS-HRS;      10.3 ACRE-FEET.


 OPERATION REACH    XSECTION  70

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.25                          76.9                         248.56
1
 TR20 ------------------------------------------------------------------- SCS -
          Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                     PASS   1   JOB NO.   1                     PAGE  17


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.44 WATERSHED INCHES;     125 CFS-HRS;      10.3 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  71

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.96                          20.3                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.82 WATERSHED INCHES;      14 CFS-HRS;       1.2 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 63
```

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.22 3.9 264.92

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.82 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.42 3.9 247.57

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.82 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.05 53.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
.68 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.55 445.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.28 WATERSHED INCHES; 936 CFS-HRS; 77.4 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 1 JOB NO. 1 PAGE 18

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.25 80.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.47 WATERSHED INCHES; 139 CFS-HRS; 11.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.52 500.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.30 WATERSHED INCHES; 1075 CFS-HRS; 88.8 ACRE-FEET.

OPERATION REACH XSECTION 77

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.59 499.7 229.32

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.30 WATERSHED INCHES; 1075 CFS-HRS; 88.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	42.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.03 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.59	505.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.29 WATERSHED INCHES; 1109 CFS-HRS; 91.6 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 80. ***

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 1 JOB NO. 1 PAGE 19

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.59	505.5	213.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.29 WATERSHED INCHES; 1109 CFS-HRS; 91.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	59.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.34 WATERSHED INCHES; 44 CFS-HRS; 3.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.59	512.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.29 WATERSHED INCHES; 1153 CFS-HRS; 95.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	21.0	(RUNOFF)

```
   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  .85 WATERSHED INCHES;      17 CFS-HRS;       1.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  84

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.59                         515.3                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 1.28 WATERSHED INCHES;    1170 CFS-HRS;      96.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  85
1
 TR20 ------------------------------------------------------------------------ SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                     PASS   1   JOB NO.   1                     PAGE  20


   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.10                          71.5                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  .94 WATERSHED INCHES;      72 CFS-HRS;       6.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  86

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.57                         532.5                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 1.25 WATERSHED INCHES;    1242 CFS-HRS;     102.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  87

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.97                          28.3                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 1.98 WATERSHED INCHES;      20 CFS-HRS;       1.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  88

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.57                         535.2                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 1.26 WATERSHED INCHES;    1263 CFS-HRS;     104.3 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  88
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2
```

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 OPERATION RUNOFF   XSECTION   1
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                     PASS   2   JOB NO.   1                     PAGE  21


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.13                          57.7                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.79 WATERSHED INCHES;      61 CFS-HRS;       5.0 ACRE-FEET.


 OPERATION REACH    XSECTION   2

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.20                          57.0                         390.37

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.79 WATERSHED INCHES;      61 CFS-HRS;       5.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.11                         107.5                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.89 WATERSHED INCHES;     108 CFS-HRS;       8.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.14                         160.1                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.85 WATERSHED INCHES;     169 CFS-HRS;      13.9 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 11

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.16                         158.7                         383.46

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.85 WATERSHED INCHES;     168 CFS-HRS;      13.9 ACRE-FEET.


 OPERATION REACH    XSECTION   5

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.23                         157.8                         368.56
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                     PASS   2   JOB NO.   1                     PAGE  22
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 168 CFS-HRS; 13.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	123.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.48 WATERSHED INCHES; 128 CFS-HRS; 10.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	270.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.68 WATERSHED INCHES; 296 CFS-HRS; 24.5 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	268.7	358.07

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.68 WATERSHED INCHES; 296 CFS-HRS; 24.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	158.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.67 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

*** MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	57.6	376.21

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 2 JOB NO. 1 PAGE 23

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.31 WATERSHED INCHES; 157 CFS-HRS; 12.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

11.97	19.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.17 WATERSHED INCHES; 14 CFS-HRS; 1.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.63	52.7	355.74

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.30 WATERSHED INCHES; 156 CFS-HRS; 12.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	102.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.24 WATERSHED INCHES; 82 CFS-HRS; 6.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	311.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.57 WATERSHED INCHES; 378 CFS-HRS; 31.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	41.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.75 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

1

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	318.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.74 WATERSHED INCHES; 534 CFS-HRS; 44.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	342.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

2.74 WATERSHED INCHES; 568 CFS-HRS; 46.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	342.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.74 WATERSHED INCHES; 568 CFS-HRS; 46.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	342.8	333.76

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.74 WATERSHED INCHES; 568 CFS-HRS; 46.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	64.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.60 WATERSHED INCHES; 49 CFS-HRS; 4.0 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 2 JOB NO. 1 PAGE 25

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	91.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.01 WATERSHED INCHES; 81 CFS-HRS; 6.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	113.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.26 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	153.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

3.85 WATERSHED INCHES; 130 CFS-HRS; 10.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.00 265.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.59 WATERSHED INCHES; 215 CFS-HRS; 17.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.05 523.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.92 WATERSHED INCHES; 780 CFS-HRS; 64.5 ACRE-FEET.

OPERATION REACH XSECTION 23

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 2 JOB NO. 1 PAGE 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.19 476.0 316.37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.92 WATERSHED INCHES; 780 CFS-HRS; 64.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.09 85.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.53 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

*** WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.16 80.3 363.97

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.53 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.11 121.4 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.48 WATERSHED INCHES; 120 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	199.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 2 JOB NO. 1 PAGE 27

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	180.2	319.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	85.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.10 WATERSHED INCHES; 81 CFS-HRS; 6.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	549.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.82 WATERSHED INCHES; 861 CFS-HRS; 71.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	719.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.75 WATERSHED INCHES; 1063 CFS-HRS; 87.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	156.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

3.06 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

OPERATION REACH XSECTION 32

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 2 JOB NO. 1 PAGE 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	142.1	313.19

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.06 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	28.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS
WITH .38 AC-FT (.07 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 377.43. ***

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	12.8	380.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.51 WATERSHED INCHES; 19 CFS-HRS; 1.6 ACRE-FEET.

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	12.7	338.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 19 CFS-HRS; 1.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	84.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 77 CFS-HRS; 6.4 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 2 JOB NO. 1 PAGE 29

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS
WITH .95 AC-FT (.05 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 353.80. ***

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	64.4	357.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.70 WATERSHED INCHES; 66 CFS-HRS; 5.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	71.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	71.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	71.6	330.63

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	92.7	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 72 CFS-HRS; 6.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	137.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.54 WATERSHED INCHES; 157 CFS-HRS; 13.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	73.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.89 WATERSHED INCHES; 73 CFS-HRS; 6.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	785.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.76 WATERSHED INCHES; 1137 CFS-HRS; 93.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	925.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.79 WATERSHED INCHES; 1273 CFS-HRS; 105.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	1039.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 1426 CFS-HRS; 117.8 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 2 JOB NO. 1 PAGE 31

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	989.1	291.24

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.84 WATERSHED INCHES; 1425 CFS-HRS; 117.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	71.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.48 WATERSHED INCHES; 76 CFS-HRS; 6.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	83.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.30 WATERSHED INCHES; 93 CFS-HRS; 7.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	154.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.37 WATERSHED INCHES; 169 CFS-HRS; 14.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	99.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.76 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 2 JOB NO. 1 PAGE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	1028.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.84 WATERSHED INCHES; 1509 CFS-HRS; 124.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	1163.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.78 WATERSHED INCHES; 1678 CFS-HRS; 138.7 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.34	1126.6	286.22

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.78 WATERSHED INCHES; 1677 CFS-HRS; 138.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

```
   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.02                          6.7                          (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.02 WATERSHED INCHES;       6 CFS-HRS;        .5 ACRE-FEET.

*** WARNING - XSECTION  53, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN
              2ND TABLE VALUE.  THIS REACH ROUTING MAY BE INCORRECT,
              UNLESS NEW RATING TABLE VALUES ARE INSERTED.                 ***


 OPERATION REACH    XSECTION  53

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.10                          6.6                           288.36

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.02 WATERSHED INCHES;       6 CFS-HRS;        .5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  54
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                    PASS   2   JOB NO.   1                     PAGE  33


   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.08                          4.3                          (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   .95 WATERSHED INCHES;       4 CFS-HRS;        .4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  55

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.05                         57.7                          (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.33 WATERSHED INCHES;      48 CFS-HRS;       4.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  56

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.33                       1143.5                          (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.77 WATERSHED INCHES;    1726 CFS-HRS;     142.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  57

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.09                         10.8                          (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   .99 WATERSHED INCHES;      10 CFS-HRS;        .8 ACRE-FEET.
```

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.33	1147.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.74 WATERSHED INCHES; 1736 CFS-HRS; 143.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	44.7	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 2 JOB NO. 1 PAGE 34

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.22 WATERSHED INCHES; 38 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.33	1162.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.73 WATERSHED INCHES; 1774 CFS-HRS; 146.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	27.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.21 WATERSHED INCHES; 25 CFS-HRS; 2.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.33	1173.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.72 WATERSHED INCHES; 1799 CFS-HRS; 148.6 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	1121.4	250.58

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.72 WATERSHED INCHES; 1798 CFS-HRS; 148.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.19 21.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

1

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	12.9	334.73

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.55	12.5	300.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	101.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.84 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	42.6	295.61
14.73	4.1	287.82

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.83 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	49.1	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.99 WATERSHED INCHES; 110 CFS-HRS; 9.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	173.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.79 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	195.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.88 WATERSHED INCHES; 250 CFS-HRS; 20.6 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	137.2	248.86

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.87 WATERSHED INCHES; 250 CFS-HRS; 20.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	37.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.39 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	15.9	266.88

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.37 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

1

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	15.5	247.89

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.39 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	153.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.74 WATERSHED INCHES; 123 CFS-HRS; 10.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	1149.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.62 WATERSHED INCHES; 1921 CFS-HRS; 158.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	152.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.92 WATERSHED INCHES; 276 CFS-HRS; 22.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	1283.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.65 WATERSHED INCHES; 2196 CFS-HRS; 181.5 ACRE-FEET.

OPERATION REACH XSECTION 77
1
TR20 ---------- SCS - Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 2 JOB NO. 1 PAGE 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.49	1282.7	230.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.65 WATERSHED INCHES; 2196 CFS-HRS; 181.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	97.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.30 WATERSHED INCHES; 76 CFS-HRS; 6.3 ACRE-FEET.

```
 OPERATION ADDHYD   XSECTION  79

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.49                        1297.1                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.64 WATERSHED INCHES;    2272 CFS-HRS;     187.7 ACRE-FEET.


 OPERATION REACH    XSECTION  80

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.56                        1291.9                         216.56

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.64 WATERSHED INCHES;    2271 CFS-HRS;     187.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  81

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.99                         123.3                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.74 WATERSHED INCHES;      91 CFS-HRS;       7.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  82

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.56                        1305.3                       (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                     PASS   2   JOB NO.   1                     PAGE  39


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.64 WATERSHED INCHES;    2362 CFS-HRS;     195.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  83

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                          53.0                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.02 WATERSHED INCHES;      41 CFS-HRS;       3.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  84

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.56                        1312.2                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.63 WATERSHED INCHES;    2403 CFS-HRS;     198.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  85
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	174.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.16 WATERSHED INCHES; 165 CFS-HRS; 13.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.55	1351.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.59 WATERSHED INCHES; 2568 CFS-HRS; 212.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	50.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.58 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 2 JOB NO. 1 PAGE 40

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.55	1356.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.60 WATERSHED INCHES; 2605 CFS-HRS; 215.2 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 88
STARTING TIME = .00 RAIN DEPTH = 7.28 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS
ALTERNATE NO. = 1 STORM NO. =50 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	99.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.89 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	99.4	390.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.89 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	184.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.01 WATERSHED INCHES; 188 CFS-HRS; 15.5 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 3 JOB NO. 1 PAGE 41

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	278.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.96 WATERSHED INCHES; 293 CFS-HRS; 24.3 ACRE-FEET.

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 11,
VALUE EXTRAPOLATED. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	275.5	384.86

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 293 CFS-HRS; 24.2 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	275.2	369.06

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 292 CFS-HRS; 24.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	223.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.49 WATERSHED INCHES; 231 CFS-HRS; 19.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	481.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.74 WATERSHED INCHES; 524 CFS-HRS; 43.3 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 3 JOB NO. 1 PAGE 42

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	481.5	358.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.74 WATERSHED INCHES; 524 CFS-HRS; 43.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	252.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.94 WATERSHED INCHES; 281 CFS-HRS; 23.2 ACRE-FEET.

*** MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.34	150.2	378.07

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.44 WATERSHED INCHES; 258 CFS-HRS; 21.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	36.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.62	115.2	359.83

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.42 WATERSHED INCHES; 257 CFS-HRS; 21.2 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 3 JOB NO. 1 PAGE 43

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	191.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.19 WATERSHED INCHES; 154 CFS-HRS; 12.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	566.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.60 WATERSHED INCHES; 678 CFS-HRS; 56.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	71.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.84 WATERSHED INCHES; 60 CFS-HRS; 5.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	643.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.79 WATERSHED INCHES; 933 CFS-HRS; 77.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	676.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.80 WATERSHED INCHES; 994 CFS-HRS; 82.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	676.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.80 WATERSHED INCHES; 994 CFS-HRS; 82.1 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	676.0	335.51

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.80 WATERSHED INCHES; 994 CFS-HRS; 82.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	102.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.84 WATERSHED INCHES; 80 CFS-HRS; 6.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	140.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.31 WATERSHED INCHES; 127 CFS-HRS; 10.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	185.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.47 WATERSHED INCHES; 143 CFS-HRS; 11.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 3 JOB NO. 1 PAGE 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	237.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 207 CFS-HRS; 17.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	421.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.83 WATERSHED INCHES; 349 CFS-HRS; 28.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.06 970.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.01 WATERSHED INCHES; 1337 CFS-HRS; 110.5 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.19 883.5 317.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.01 WATERSHED INCHES; 1337 CFS-HRS; 110.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.09 154.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

*** WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 3 JOB NO. 1 PAGE 46

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.13 149.0 365.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.56 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.10 220.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.50 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.11 367.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.52 WATERSHED INCHES; 366 CFS-HRS; 30.2 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	352.5	319.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.53 WATERSHED INCHES; 366 CFS-HRS; 30.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	165.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.00 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 3 JOB NO. 1 PAGE 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	1022.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.88 WATERSHED INCHES; 1492 CFS-HRS; 123.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	1369.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.81 WATERSHED INCHES; 1858 CFS-HRS; 153.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	263.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.22 WATERSHED INCHES; 233 CFS-HRS; 19.3 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	243.1	314.08

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.22 WATERSHED INCHES; 233 CFS-HRS; 19.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

```
   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.99                          42.3                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  6.68 WATERSHED INCHES;      36 CFS-HRS;       3.0 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS
              WITH        .48 AC-FT (  .09 WATERSHED INCHES) FLOOD STORAGE
              REMAINING IN RESERVOIR AT ELEV.    378.00.                  ***


 OPERATION RESVOR   STRUCTURE 32
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
 08:27:24                     PASS   3   JOB NO.   1                     PAGE  48


   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.09                          33.1                        380.82

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.60 WATERSHED INCHES;      30 CFS-HRS;       2.5 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
              CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION  34.       ***


 OPERATION REACH    XSECTION  34

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.09                          33.1                        338.30

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.60 WATERSHED INCHES;      30 CFS-HRS;       2.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  35

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.03                         126.8                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  6.67 WATERSHED INCHES;     118 CFS-HRS;       9.8 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS
              WITH       1.02 AC-FT (  .06 WATERSHED INCHES) FLOOD STORAGE
              REMAINING IN RESERVOIR AT ELEV.    354.09.                  ***


 OPERATION RESVOR   STRUCTURE 33

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.12                         104.8                        358.09

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.99 WATERSHED INCHES;     106 CFS-HRS;       8.8 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  36
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	137.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.90 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	137.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.90 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	137.5	330.91

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.90 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	149.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.64 WATERSHED INCHES; 119 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	272.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.78 WATERSHED INCHES; 256 CFS-HRS; 21.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	126.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.02 WATERSHED INCHES; 127 CFS-HRS; 10.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	1485.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.82 WATERSHED INCHES; 1985 CFS-HRS; 164.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	1724.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.86 WATERSHED INCHES; 2218 CFS-HRS; 183.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	1940.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.93 WATERSHED INCHES; 2468 CFS-HRS; 203.9 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	1865.7	292.29

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.92 WATERSHED INCHES; 2466 CFS-HRS; 203.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	130.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.51 WATERSHED INCHES; 139 CFS-HRS; 11.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 46
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	157.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.26 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

```
 OPERATION ADDHYD   XSECTION  47

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.14                         288.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.37 WATERSHED INCHES;     311 CFS-HRS;      25.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  48

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.04                         173.6                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.85 WATERSHED INCHES;     147 CFS-HRS;      12.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  49

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.23                        1941.8                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.92 WATERSHED INCHES;    2613 CFS-HRS;     215.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  50

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.21                        2203.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.85 WATERSHED INCHES;    2924 CFS-HRS;     241.7 ACRE-FEET.


 OPERATION REACH    XSECTION  51

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.30                        2153.4                        287.80
1
 TR20 ------------------------------------------------------------------- SCS -
          Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)          2.04TEST
 08:27:24                     PASS   3   JOB NO.   1                     PAGE  52


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.85 WATERSHED INCHES;    2924 CFS-HRS;     241.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  52

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.00                          17.8                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.41 WATERSHED INCHES;      14 CFS-HRS;       1.1 ACRE-FEET.


 OPERATION REACH    XSECTION  53
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	17.7	288.67

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.41 WATERSHED INCHES; 14 CFS-HRS; 1.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	12.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.30 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	106.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.30 WATERSHED INCHES; 89 CFS-HRS; 7.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.30	2187.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.83 WATERSHED INCHES; 3013 CFS-HRS; 249.0 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	29.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.36 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.30	2197.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.79 WATERSHED INCHES; 3037 CFS-HRS; 251.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	83.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.16 WATERSHED INCHES; 71 CFS-HRS; 5.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.30	2226.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.78 WATERSHED INCHES; 3109 CFS-HRS; 256.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	51.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.14 WATERSHED INCHES; 46 CFS-HRS; 3.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 3 JOB NO. 1 PAGE 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.29	2249.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.77 WATERSHED INCHES; 3155 CFS-HRS; 260.7 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	2176.4	251.61

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.76 WATERSHED INCHES; 3154 CFS-HRS; 260.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	33.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	25.1	335.70

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.88 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	24.6	301.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	175.3	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 3 JOB NO. 1 PAGE 55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 146 CFS-HRS; 12.1 ACRE-FEET.

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	82.5	297.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 146 CFS-HRS; 12.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	99.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.13 WATERSHED INCHES; 188 CFS-HRS; 15.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	299.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.89 WATERSHED INCHES; 246 CFS-HRS; 20.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	363.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 433 CFS-HRS; 35.8 ACRE-FEET.

OPERATION REACH XSECTION 70
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 3 JOB NO. 1 PAGE 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	273.1	249.25

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 433 CFS-HRS; 35.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	59.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.59 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	50.9	267.90

*** WARNING - STRUCTURE 63, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
(50.93) EXCEEDS ADJACENT COORDINATE (48.04) BY 6 %. ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.61 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	46.5	248.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.58 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	316.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.49 WATERSHED INCHES; 248 CFS-HRS; 20.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 74
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.39 2239.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.64 WATERSHED INCHES; 3402 CFS-HRS; 281.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.23 299.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.04 WATERSHED INCHES; 477 CFS-HRS; 39.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.38 2498.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.69 WATERSHED INCHES; 3878 CFS-HRS; 320.5 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. ***

OPERATION REACH XSECTION 77

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.38 2498.3 231.95

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.69 WATERSHED INCHES; 3878 CFS-HRS; 320.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.01 181.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.26 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79
1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.37 2530.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.67 WATERSHED INCHES; 4019 CFS-HRS; 332.1 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	2501.6	219.28

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.67 WATERSHED INCHES; 4018 CFS-HRS; 332.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	213.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.82 WATERSHED INCHES; 160 CFS-HRS; 13.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	2528.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.68 WATERSHED INCHES; 4178 CFS-HRS; 345.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	103.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.89 WATERSHED INCHES; 79 CFS-HRS; 6.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	2543.4	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 PASS 3 JOB NO. 1 PAGE 59

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.66 WATERSHED INCHES; 4256 CFS-HRS; 351.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	334.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.07 WATERSHED INCHES; 312 CFS-HRS; 25.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

```
   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.44                         2638.4                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.61 WATERSHED INCHES;    4568 CFS-HRS;     377.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  87

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.96                          80.0                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.81 WATERSHED INCHES;      60 CFS-HRS;       4.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  88

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.44                         2647.4                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.63 WATERSHED INCHES;    4628 CFS-HRS;     382.4 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   3
1
 TR20 ------------------------------------------------------------------------ SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)          2.04TEST
 08:27:24                     PASS   4   JOB NO.   1                     PAGE  60



 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  88
    STARTING TIME =   .00       RAIN DEPTH =  8.53       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =99            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.12                          122.5                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  6.05 WATERSHED INCHES;     131 CFS-HRS;      10.8 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION   2.       ***


 OPERATION REACH    XSECTION   2

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.12                          122.5                        390.96

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  6.05 WATERSHED INCHES;     131 CFS-HRS;      10.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	226.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.19 WATERSHED INCHES; 232 CFS-HRS; 19.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	348.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.14 WATERSHED INCHES; 363 CFS-HRS; 30.0 ACRE-FEET.

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 11,
VALUE EXTRAPOLATED. ***

1

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	346.0	385.70

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 362 CFS-HRS; 29.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 5. ***

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	346.0	369.29

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 362 CFS-HRS; 29.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	277.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 290 CFS-HRS; 23.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	623.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.89 WATERSHED INCHES; 651 CFS-HRS; 53.8 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 8. ***

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	623.2	359.15

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.89 WATERSHED INCHES; 651 CFS-HRS; 53.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	300.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.15 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

*** MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 21, TRUNCATED AT 400 POINTS
WITH 2.39 AC-FT (.05 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 370.17. ***

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	157.4	379.28

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.54 WATERSHED INCHES; 310 CFS-HRS; 25.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	46.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.20 WATERSHED INCHES; 33 CFS-HRS; 2.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.78	129.4	360.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

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TR20 ---------- SCS -

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	241.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.29 WATERSHED INCHES; 194 CFS-HRS; 16.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	823.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 846 CFS-HRS; 69.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	87.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.00 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	879.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.92 WATERSHED INCHES; 1153 CFS-HRS; 95.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	956.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.93 WATERSHED INCHES; 1228 CFS-HRS; 101.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23
1
TR20 ---------- SCS -

Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	956.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

5.93 WATERSHED INCHES; 1228 CFS-HRS; 101.5 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

*** WARNING - XSECTION 16, INFLOW EXCEEDS MAX TABLE DISCHARGE,
EXTRAPOLATION USED. ***

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	956.7	336.87

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.93 WATERSHED INCHES; 1228 CFS-HRS; 101.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	122.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.08 WATERSHED INCHES; 96 CFS-HRS; 8.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	166.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.55 WATERSHED INCHES; 152 CFS-HRS; 12.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	223.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.66 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	283.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.36 WATERSHED INCHES; 249 CFS-HRS; 20.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

11.99 505.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.06 WATERSHED INCHES; 423 CFS-HRS; 34.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	1396.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.16 WATERSHED INCHES; 1645 CFS-HRS; 136.0 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	1283.8	317.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.16 WATERSHED INCHES; 1644 CFS-HRS; 135.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	192.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

*** WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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*** WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	185.8	365.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.70 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	273.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 272 CFS-HRS; 22.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	457.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	444.6	320.01

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	209.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.09 WATERSHED INCHES; 197 CFS-HRS; 16.3 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	1482.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.02 WATERSHED INCHES; 1840 CFS-HRS; 152.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	1905.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.95 WATERSHED INCHES; 2298 CFS-HRS; 189.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	318.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.40 WATERSHED INCHES; 286 CFS-HRS; 23.6 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.15 288.6 314.57

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.40 WATERSHED INCHES; 286 CFS-HRS; 23.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	49.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS
WITH .53 AC-FT (.10 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 378.25. ***

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	38.7	381.12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.74 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. ***

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	38.7	338.33

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.74 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	149.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 141 CFS-HRS; 11.6 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS
WITH 1.05 AC-FT (.06 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 354.18. ***

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	148.8	358.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.24 WATERSHED INCHES; 128 CFS-HRS; 10.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	187.4	(NULL)

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.12 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	187.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.12 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	187.4	331.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.12 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	179.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.85 WATERSHED INCHES; 145 CFS-HRS; 12.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	346.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.00 WATERSHED INCHES; 310 CFS-HRS; 25.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	154.1	(RUNOFF)

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.19 WATERSHED INCHES; 157 CFS-HRS; 13.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	2059.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.96 WATERSHED INCHES; 2455 CFS-HRS; 202.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	2348.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.00 WATERSHED INCHES; 2741 CFS-HRS; 226.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	2604.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.08 WATERSHED INCHES; 3045 CFS-HRS; 251.6 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	2514.2	292.91

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.07 WATERSHED INCHES; 3043 CFS-HRS; 251.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	161.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.14 195.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.37 WATERSHED INCHES; 218 CFS-HRS; 18.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.14 357.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.48 WATERSHED INCHES; 391 CFS-HRS; 32.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.03 214.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.02 WATERSHED INCHES; 182 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.21 2627.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.07 WATERSHED INCHES; 3225 CFS-HRS; 266.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.20 2964.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.00 WATERSHED INCHES; 3616 CFS-HRS; 298.8 ACRE-FEET.

OPERATION REACH XSECTION 51
1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.28 2892.1 288.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.00 WATERSHED INCHES; 3616 CFS-HRS; 298.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.00 24.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.28 WATERSHED INCHES; 18 CFS-HRS; 1.5 ACRE-FEET.

OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	24.7	288.81

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.27 WATERSHED INCHES; 18 CFS-HRS; 1.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	16.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.15 WATERSHED INCHES; 15 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	133.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.42 WATERSHED INCHES; 113 CFS-HRS; 9.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	2938.4	(NULL)

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 3728 CFS-HRS; 308.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	41.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.22 WATERSHED INCHES; 33 CFS-HRS; 2.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	2952.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.94 WATERSHED INCHES; 3761 CFS-HRS; 310.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	105.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.27 WATERSHED INCHES; 90 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	2993.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.92 WATERSHED INCHES; 3852 CFS-HRS; 318.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	65.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.24 WATERSHED INCHES; 59 CFS-HRS; 4.8 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	3024.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.91 WATERSHED INCHES; 3910 CFS-HRS; 323.1 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	2936.4	252.20

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.91 WATERSHED INCHES; 3909 CFS-HRS; 323.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	40.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.10 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	30.8	336.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.10 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	30.4	301.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.09 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	215.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 62,
VALUE EXTRAPOLATED. ***

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	109.4	298.82

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	127.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.31 WATERSHED INCHES; 231 CFS-HRS; 19.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	367.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 304 CFS-HRS; 25.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	447.1	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.16 WATERSHED INCHES; 535 CFS-HRS; 44.2 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	350.7	249.42

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.16 WATERSHED INCHES; 535 CFS-HRS; 44.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	71.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.79 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	71.9	268.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.81 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	64.0	248.45

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.80 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	410.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.53 WATERSHED INCHES; 321 CFS-HRS; 26.6 ACRE-FEET.

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	3018.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 4230 CFS-HRS; 349.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	382.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.21 WATERSHED INCHES; 588 CFS-HRS; 48.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	3353.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.82 WATERSHED INCHES; 4818 CFS-HRS; 398.1 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. ***

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	3353.2	232.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.82 WATERSHED INCHES; 4818 CFS-HRS; 398.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	227.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.37 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.35 3396.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 4995 CFS-HRS; 412.8 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.43 3356.6 220.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.80 WATERSHED INCHES; 4993 CFS-HRS; 412.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
11.98 263.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 198 CFS-HRS; 16.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.43 3390.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 5192 CFS-HRS; 429.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.00 131.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.96 WATERSHED INCHES; 100 CFS-HRS; 8.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 84
1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.43 3410.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.79 WATERSHED INCHES; 5292 CFS-HRS; 437.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.08 423.9 (RUNOFF)

```
   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.17 WATERSHED INCHES;     396 CFS-HRS;      32.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  86

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.42                        3538.2                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.74 WATERSHED INCHES;    5688 CFS-HRS;     470.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  87

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.96                          95.6                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                7.05 WATERSHED INCHES;      72 CFS-HRS;       6.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  88

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.42                        3549.3                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.76 WATERSHED INCHES;    5760 CFS-HRS;     476.0 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   4
1
 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
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 TR20 ------------------------------------------------------------------- SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST
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                             SUMMARY TABLE 1
                             ---------------
   SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
   A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
 F-FLAT TOP HYDROGRAPH   T-TRUNCATED HYDROGRAPH   R-RISING TRUNCATED HYDROGRAPH

 XSECTION/  STANDARD                                    PEAK DISCHARGE
 STRUCTURE   CONTROL    DRAINAGE   RUNOFF   ------------------------------------
    ID      OPERATION     AREA     AMOUNT   ELEVATION   TIME     RATE    RATE
                         (SQ MI)    (IN)      (FT)      (HR)     (CFS)   (CSM)

 RAINFALL OF   3.21 inches AND  24.00 hr DURATION, BEGINS AT    .0 hrs.
 RAINTABLE NUMBER  2,    ARC 2
 MAIN TIME INCREMENT   .060 HOURS

    ALTERNATE    1   STORM    2
    ---------------------------
```

STRUCTURE 11	RESVOR	.09	1.42	382.45	12.24	74	822.2
XSECTION 8	REACH	.17	1.29	357.25	12.36	107	629.4
STRUCTURE 21	RESVOR	.07	1.74	373.41	13.20F	9F	128.6
STRUCTURE 22	RESVOR	.07	1.74	353.06	13.36	9	128.6
STRUCTURE 23	RESVOR	.32	1.34	---	12.35	131	409.4
XSECTION 16	REACH	.32	1.34	332.43	12.35	131	409.4
XSECTION 20	ADDHYD	.05	2.20	---	12.01	90	1800.0
XSECTION 23	REACH	.41	1.49	315.57	12.19	203	495.1
STRUCTURE 31	RESVOR	.05	1.19	361.75	12.26	27	540.0
STRUCTURE 32	RESVOR	.01	2.03	379.31	13.26R	1R	100.0
STRUCTURE 33	RESVOR	.03	2.10	356.21	12.25	21	700.0
STRUCTURE 34	RESVOR	.04	2.08	---	12.26	21	525.0
XSECTION 44	REACH	.78	1.43	290.24	12.31	402	515.4
XSECTION 51	REACH	.93	1.39	284.65	12.40	452	486.0
XSECTION 63	REACH	1.03	1.34	249.59	12.56	436	423.3
STRUCTURE 61	RESVOR	.01	2.01	333.13	12.56	5	500.0
STRUCTURE 62	RESVOR	.05	1.41	292.96	12.30	17	340.0
STRUCTURE 63	RESVOR	.01	1.82	264.92	12.22	4	400.0
XSECTION 76	ADDHYD	1.28	1.30	---	12.52	501	391.4
XSECTION 77	REACH	1.28	1.30	229.32	12.59	500	390.6
XSECTION 88	ADDHYD	1.55	1.26	---	12.57	535	345.2

RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 10

STRUCTURE 11	RESVOR	.09	2.85	383.46	12.16	159	1766.7
XSECTION 8	REACH	.17	2.68	358.07	12.25	269	1582.4

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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 1 STORM 10

STRUCTURE 21	RESVOR	.07	3.31	376.21	12.50	58	828.6
STRUCTURE 22	RESVOR	.07	3.30	355.74	12.63	53	757.1
STRUCTURE 23	RESVOR	.32	2.74	---	12.20	343	1071.9
XSECTION 16	REACH	.32	2.74	333.76	12.20	343	1071.9
XSECTION 20	ADDHYD	.05	3.85	---	12.01	153	3060.0
XSECTION 23	REACH	.41	2.92	316.37	12.19	476	1161.0
STRUCTURE 31	RESVOR	.05	2.53	363.97	12.16	80	1600.0
STRUCTURE 32	RESVOR	.01	3.51	380.27	12.18	13	1300.0

STRUCTURE	33	RESVOR	.03	3.70	357.31	12.14	64	2133.3
STRUCTURE	34	RESVOR	.04	3.66	---	12.17	72	1800.0
XSECTION	44	REACH	.78	2.84	291.24	12.27	989	1267.9
XSECTION	51	REACH	.93	2.78	286.22	12.34	1127	1211.8
XSECTION	63	REACH	1.03	2.72	250.58	12.45	1121	1088.3
STRUCTURE	61	RESVOR	.01	3.62	334.73	12.44	13	1300.0
STRUCTURE	62	RESVOR	.05	2.83	295.61	12.25	43	860.0
STRUCTURE	63	RESVOR	.01	3.37	266.88	12.11	16	1600.0
XSECTION	76	ADDHYD	1.28	2.65	---	12.43	1284	1003.1
XSECTION	77	REACH	1.28	2.65	230.77	12.49	1283	1002.3
XSECTION	88	ADDHYD	1.55	2.60	---	12.55	1356	874.8

RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 50

STRUCTURE	11	RESVOR	.09	4.95	384.86	12.15	276	3066.7
XSECTION	8	REACH	.17	4.74	358.77	12.23	481	2829.4
STRUCTURE	21	RESVOR	.07	5.44	378.07	12.34	150	2142.9
STRUCTURE	22	RESVOR	.07	5.42	359.83	12.62	115	1642.9
STRUCTURE	23	RESVOR	.32	4.80	---	12.21	676	2112.5
XSECTION	16	REACH	.32	4.80	335.51	12.21	676	2112.5
XSECTION	20	ADDHYD	.05	6.12	---	12.01	238	4760.0

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 1 STORM 50

XSECTION	23	REACH	.41	5.01	317.21	12.19	884	2156.1
STRUCTURE	31	RESVOR	.05	4.56	365.27	12.13	149	2980.0
STRUCTURE	32	RESVOR	.01	5.60	380.82	12.09	33	3300.0
STRUCTURE	33	RESVOR	.03	5.99	358.09	12.12	105	3500.0
STRUCTURE	34	RESVOR	.04	5.90	---	12.11	137	3425.0
XSECTION	44	REACH	.78	4.92	292.29	12.24	1866	2392.3
XSECTION	51	REACH	.93	4.85	287.80	12.30	2153	2315.1
XSECTION	63	REACH	1.03	4.76	251.61	12.39	2176	2112.6
STRUCTURE	61	RESVOR	.01	5.88	335.70	12.37	25	2500.0
STRUCTURE	62	RESVOR	.05	4.95	297.75	12.22	83	1660.0
STRUCTURE	63	RESVOR	.01	5.61	267.90	12.03	51	5100.0
XSECTION	76	ADDHYD	1.28	4.69	---	12.38	2498	1951.6
XSECTION	77	REACH	1.28	4.69	231.95	12.38	2498	1951.6

XSECTION	88	ADDHYD	1.55	4.63	---	12.44	2647	1707.7

RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 99

STRUCTURE	11	RESVOR	.09	6.12	385.70	12.13	346	3844.4
XSECTION	8	REACH	.17	5.89	359.15	12.12	623	3664.7
STRUCTURE	21	RESVOR	.07	6.54	379.28	12.38	157	2242.9
STRUCTURE	22	RESVOR	.07	6.53	360.94	12.78	129	1842.9
STRUCTURE	23	RESVOR	.32	5.93	---	12.10	957	2990.6
XSECTION	16	REACH	.32	5.93	336.87	12.10	957	2990.6
XSECTION	20	ADDHYD	.05	7.36	---	12.01	284	5680.0
XSECTION	23	REACH	.41	6.16	317.68	12.15	1284	3131.7
STRUCTURE	31	RESVOR	.05	5.70	365.78	12.13	186	3720.0
STRUCTURE	32	RESVOR	.01	6.74	381.12	12.09	39	3900.0
STRUCTURE	33	RESVOR	.03	7.24	358.21	12.07	149	4966.7
STRUCTURE	34	RESVOR	.04	7.12	---	12.07	187	4675.0

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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 1 STORM 99							
XSECTION 44	REACH	.78	6.07	292.91	12.22	2514	3223.1
XSECTION 51	REACH	.93	6.00	288.68	12.28	2892	3109.7
XSECTION 63	REACH	1.03	5.91	252.20	12.37	2936	2850.5
STRUCTURE 61	RESVOR	.01	7.10	336.17	12.36	31	3100.0
STRUCTURE 62	RESVOR	.05	6.12	298.82	12.20	109	2180.0
STRUCTURE 63	RESVOR	.01	6.81	268.09	12.00	72	7200.0
XSECTION 76	ADDHYD	1.28	5.82	---	12.35	3353	2619.5
XSECTION 77	REACH	1.28	5.82	232.47	12.35	3353	2619.5
XSECTION 88	ADDHYD	1.55	5.76	---	12.42	3549	2289.7

1

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;

XTRA.OUT
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	HYDROGRAPH INFLOW TIME (HR)	HYDROGRAPH OUTFLOW PEAK (CFS)	HYDROGRAPH OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 2											
2	1170		28	12.1	26	12.2	1.57	1.36	.038	.949	.59
5	797		74	12.2	70	12.3	2.16	1.22	.025	.950	.80?
8	1221		109	12.3	107	12.4	1.17	1.47	.013	.983	.79?
16	920		130	12.4	130	12.4	3.61	1.49	.001	1.000	1.00?
23	1379		242	12.1	203	12.2	.97	1.19	.063	.837	.36
27	1021		79	12.1	70	12.2	1.10	1.17	.079	.881	.41
32	1603		81	12.1	71	12.2	1.29	1.33	.076	.881	.48
34	583		1	13.3	1	13.4	1.14	1.62	.001	.999	.49
37	934		21	12.2	21	12.3	2.31	1.55	.003	.996	.95?
44	1428		441	12.2	402	12.3	.41	1.36	.039	.912	.42
51	1275		474	12.2	451	12.4	.57	1.32	.030	.951	.48
53	652		1	12.1	1	12.1	2.05	1.40	.027	.795	.58
63	1959		468	12.4	435	12.5	.75	1.28	.047	.931	.36
65	1283		5	12.5	5	12.7	2.47	1.43	.011	.995	.54
70	2166		101	12.1	77	12.2	1.68	1.16	.123	.762	.29
72	1081		4	12.2	4	12.4	1.50	1.61	.005	.995	.51
77	884		500	12.5	500	12.6	1.93	1.22	.009	.999	.88?
80	1296		505	12.6	505	12.6	1.60	1.44	.003	1.000	1.00?
ALTERNATE 1 STORM 10											
2	1170		58	12.1	57	12.2	.27	2.00	.006	.985	.84?
5	797		158	12.2	157	12.2	1.93	1.26	.019	.997	.90?
8	1221		270	12.2	268	12.2	1.28	1.44	.012	.994	.91?
16	920		342	12.2	342	12.2	3.81	1.47	.001	1.000	1.00?
23	1379		523	12.1	476	12.2	.65	1.29	.043	.910	.46
27	1021		198	12.1	180	12.2	.69	1.31	.054	.908	.53
32	1603		156	12.1	140	12.2	1.36	1.31	.064	.900	.53
34	583		13	12.2	13	12.2	1.14	1.62	.005	.988	.92?

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 SUMMARY, JOB NO. 1 PAGE 86

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

HYDROGRAPH INFORMATION ROUTING PARAMETERS

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
ALTERNATE 1 STORM 10											
37	934		71	12.2	71	12.2	2.35	1.53	.004	1.000	1.00?
44	1428		1035	12.2	982	12.2	.28	1.45	.027	.949	.55
51	1275		1164	12.2	1123	12.4	.44	1.37	.024	.965	.60
53	652		7	12.0	6	12.1	2.05	1.40	.026	.964	.80?
63	1959		1168	12.3	1117	12.4	.42	1.41	.030	.957	.49
65	1283		13	12.4	12	12.5	2.48	1.39	.013	.974	.63
70	2166		194	12.1	137	12.3	1.85	1.05	.184	.705	.22
72	1081		16	12.1	15	12.2	1.53	1.49	.014	.977	.66
77	884		1283	12.4	1282	12.5	1.92	1.22	.010	.999	.96?
80	1296		1297	12.5	1290	12.5	3.86	1.14	.016	.995	.85?
ALTERNATE 1 STORM 50											
2	1170		100	12.1	99	12.2	.27	2.00	.004	.998	.97?
5	797		273	12.2	273	12.2	1.80	1.29	.015	1.000	.98?
8	1221		481	12.2	481	12.2	1.30	1.43	.010	1.000	.99?
16	920		673	12.2	673	12.2	4.39	1.41	.001	1.000	1.00?
23	1379		971	12.1	883	12.2	.75	1.26	.045	.909	.48
27	1021		367	12.1	350	12.2	.37	1.47	.027	.954	.68?
32	1603		263	12.1	241	12.1	1.45	1.28	.059	.915	.57
34	583		33	12.1	33	12.1	1.15	1.61	.006	1.000	1.00?
37	934		137	12.1	137	12.1	2.47	1.51	.004	1.000	1.00?
44	1428		1924	12.1	1866	12.2	.25	1.46	.021	.970	.64
51	1275		2190	12.2	2153	12.3	.43	1.38	.021	.983	.68?
53	652		18	12.0	18	12.1	2.05	1.40	.021	.991	.93?
63	1959		2248	12.3	2166	12.4	.36	1.44	.024	.963	.59
65	1283		25	12.4	25	12.5	2.51	1.37	.014	.979	.70?
70	2166		361	12.1	272	12.2	1.13	1.18	.132	.755	.28

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 SUMMARY, JOB NO. 1 PAGE 87

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
ALTERNATE 1 STORM 50											
72	1081		48	12.0	46	12.1	1.70	1.41	.026	.962	.77?

77	884	2494	12.4	2494	12.4	1.68	1.25	.009	1.000	1.00?
80	1296	2528	12.4	2494	12.5	5.99	1.02	.032	.986	.72?

ALTERNATE 1 STORM 99

2	1170	122	12.1	122	12.1	.25	2.00	.003	1.000	1.00?
5	797	345	12.1	345	12.1	1.76	1.29	.014	1.000	1.00?
8	1221	623	12.1	623	12.1	1.33	1.43	.010	1.000	1.00?
16	920	950	12.1	950	12.1	4.86	1.38	.002	1.000	1.00?
23	1379	1394	12.1	1272	12.2	.64	1.29	.045	.913	.53
27	1021	457	12.1	444	12.2	.32	1.50	.022	.971	.73?
32	1603	317	12.1	285	12.1	1.84	1.20	.076	.897	.51
34	583	38	12.1	38	12.1	1.15	1.60	.006	1.000	1.00?
37	934	185	12.1	185	12.1	2.54	1.49	.005	1.000	1.00?
44	1428	2599	12.1	2503	12.2	.26	1.46	.021	.963	.68?
51	1275	2950	12.2	2886	12.3	.44	1.37	.021	.978	.72?
53	652	25	12.0	25	12.1	2.05	1.40	.019	.998	.98?
63	1959	3005	12.3	2935	12.4	.35	1.44	.023	.977	.62
65	1283	31	12.4	30	12.4	2.52	1.37	.014	.985	.73?
70	2166	443	12.1	350	12.2	.91	1.24	.109	.791	.31
72	1081	72	12.0	63	12.1	1.66	1.33	.045	.876	.72?
77	884	3352	12.4	3352	12.4	1.19	1.31	.007	1.000	1.00?
80	1296	3394	12.4	3354	12.4	5.34	1.04	.032	.988	.74?

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr) 2.04TEST
08:27:24 SUMMARY, JOB NO. 1 PAGE 88

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 2	10	50	99
STRUCTURE 63	.01				
ALTERNATE 1		4	16	51	72
STRUCTURE 62	.05				
ALTERNATE 1		17	43	83	109
STRUCTURE 61	.01				
ALTERNATE 1		5	13	25	31
STRUCTURE 34	.04				
ALTERNATE 1		21	72	137	187
STRUCTURE 33	.03				
ALTERNATE 1		21	64	105	149

STRUCTURE 32	.01				
ALTERNATE	1	1?	13	33	39
STRUCTURE 31	.05				
ALTERNATE	1	27	80	149	186
STRUCTURE 23	.32				
ALTERNATE	1	131	343	676	957
STRUCTURE 22	.07				
ALTERNATE	1	9	53	115	129
STRUCTURE 21	.07				
ALTERNATE	1	9	58	150	157
STRUCTURE 11	.09				
ALTERNATE	1	74	159	276	346
XSECTION 8	.17				
ALTERNATE	1	107	269	481	623
XSECTION 16	.32				
ALTERNATE	1	131	343	676	957
XSECTION 20	.05				

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 2	10	50	99
XSECTION 20		.05				
ALTERNATE	1		90	153	238	284
XSECTION 23		.41				
ALTERNATE	1		203	476	884	1284
XSECTION 44		.78				
ALTERNATE	1		402	989	1866	2514

```
 XSECTION   51          .93
 ---------------------------
    ALTERNATE    1               452      1127      2153      2892

 XSECTION   63         1.03
 ---------------------------
    ALTERNATE    1               436      1121      2176      2936

 XSECTION   76         1.28
 ---------------------------
    ALTERNATE    1               501      1284      2498      3353

 XSECTION   77         1.28
 ---------------------------
    ALTERNATE    1               500      1283      2498      3353

 XSECTION   88         1.55
 ---------------------------
    ALTERNATE    1               535      1356      2647      3549
1
 TR20 ------------------------------------------------------------------------ SCS -
          Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**        CN MGMT- EXISTING COND.- 2,10,50,100 yr (24hr)         2.04TEST



 END OF  1 JOBS IN THIS RUN
```

SCS TR-20, VERSION 2.04TEST
FILES

```
     INPUT  = xtra.dat                                , GIVEN DATA FILE
     OUTPUT = xtra.OUT                                , DATED 07/05/**,08:27:24

              FILES GENERATED - DATED 07/05/**,08:27:24

                              NONE!


            TOTAL NUMBER OF WARNINGS =  39,  MESSAGES =  16

                      *** TR-20 RUN COMPLETED ***
```

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                       NOPLOTS
TITLE     Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,
TITLE     CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR
 2 XSECTN   002                  1.0      389.50
 8                            389.00        0.00        0.00
 8                            389.25        1.65        1.06
 8                            389.50        6.25        2.75
 8                            389.75       14.40        5.06
 8                            390.00       26.75        8.00
 8                            390.25       45.54       14.33
 8                            390.50       68.67       15.00
 8                            390.75       96.11       18.88
 8                            391.00      127.89       23.00
 8                            391.25      164.08       27.38
 8                            391.50      204.77       32.00
 8                            391.75      250.06       36.88
 9 ENDTBL
 2 XSECTN   005                  1.0      367.00
 8                            366.00        0.00        0.00
 8                            366.50        3.51        1.5
 8                            367.00       13.55        4.00
 8                            367.50       30.53        9.00
 8                            367.75       47.87       13.00
 8                            368.00       72.23       18.00
 8                            368.25      104.79       23.98
 8                            368.50      146.13       30.94
 8                            368.75      197.14       38.86
 8                            369.00      258.63       47.75
 8                            369.25      331.41       57.61
 8                            369.50      416.25       68.44
 9 ENDTBL
 3 STRUCT      11
 8                            380.00        0.00        0.00
 8                            381.00        2.70        0.53
 8                            382.20       53.00        1.16
 8                            383.80      186.80        1.40
 9 ENDTBL
 2 XSECTN   008                  1.0      330.00
 8                            356.00        0.00        0.00
 8                            356.50       20.21        6.94
 8                            357.00       68.51       15.75
 8                            357.50      144.11       26.44
 8                            358.00      248.93       39.00
 8                            358.50      389.07       53.25
 8                            359.00      561.31       69.00
 8                            359.50      767.14       86.25
 8                            360.00     1008.16      105.00
 8                            361.00     1375.68      147.50
 8                            361.50     1604.19      171.38
 9 ENDTBL
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 2 XSECTN   016                  1.0      333.08
```

```
  8                                331.08          0.00          0.00
  8                                332.08         80.21          8.00
  8                                333.08        225.50         16.00
  8                                333.58        310.09         20.00
  8                                334.08        399.94         24.00
  8                                334.58        493.86         28.00
  8                                335.08        590.97         32.00
  8                                335.58        690.67         36.00
  8                                336.08        792.47         40.00
  8                                336.58        896.02         44.00
  9 ENDTBL
  2 XSECTN   023                     1.0        314.40
  8                                313.22          0.00          0.00
  8                                313.51          1.10          0.89
  8                                313.81          3.51          1.84
  8                                314.10         16.22          5.61
  8                                314.40         34.66          9.74
  8                                314.68         48.28         24.71
  8                                314.96         79.66         42.09
  8                                315.24        126.64         61.87
  8                                315.52        189.07         84.06
  8                                315.80        267.27        108.64
  8                                316.08        361.75        135.63
  8                                316.36        473.14        165.02
  8                                316.64        602.11        196.81
  8                                316.92        749.37        231.00
  8                                317.20        878.70        277.25
  8                                317.48       1103.89        329.14
  8                                317.76       1358.10        382.70
  8                                318.04       1640.58        437.94
  8                                318.32       1950.87        494.86
  8                                318.60       2288.69        553.45
  9 ENDTBL
  3 STRUCT       21
  8                                364.00          0.00          0.00
  8                                366.00          0.30          0.55
  8                                368.00          0.50          1.31
  8                                369.00          3.20          1.80
  8                                370.00          5.20          2.29
  8                                372.00          7.80          3.48
  8                                374.00          9.60          5.00
  8                                375.00         10.40          5.86
  8                                376.00         45.30          6.79
  8                                376.50         74.10          7.31
  8                                377.00        106.80          7.83
  8                                378.00        149.80          8.90
  8                                379.00        155.60         10.06
  8                                380.00        162.00         11.29
  9 ENDTBL
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  3 STRUCT       22
  8                                352.50          0.00          0.00
  8                                358.65        100.00          0.91
  8                                361.76        140.00          3.28
  8                                363.64        160.00          5.47
  8                                366.18        180.00          9.58
  8                                368.71        200.00         14.77
  8                                370.61        250.00         19.31
```

```
  9 ENDTBL
  3 STRUCT      23
  9 ENDTBL
  2 XSECTN   027                  1.0      317.00
  8                             316.00        0.00        0.00
  8                             316.50        2.68        2.59
  8                             317.00       10.37        6.88
  8                             317.50       24.26       12.84
  8                             318.00       45.55       20.50
  8                             318.50       70.64       34.75
  8                             319.00      137.01       60.50
  8                             319.25      200.57       76.25
  8                             319.50      273.06       92.00
  8                             319.75      353.76      107.75
  8                             320.00      442.13      123.50
  8                             320.50      640.03      155.00
  8                             321.00      863.72      186.50
  9 ENDTBL
  2 XSECTN   032                  1.0      313.00
  8                             310.00        0.00        0.00
  8                             311.00       12.25        5.50
  8                             312.00       52.16       16.00
  8                             312.50       83.38       23.13
  8                             313.00      123.94       31.50
  8                             313.25      148.02       36.16
  8                             313.50      174.79       41.13
  8                             313.75      204.34       46.41
  8                             314.00      236.81       52.00
  8                             314.50      278.65       65.75
  8                             315.00      353.72       84.00
  9 ENDTBL
  2 XSECTN   034                  1.0      338.50
  8                             338.00        0.00        0.00
  8                             338.10        4.87        2.46
  8                             338.25       22.73        6.38
  8                             338.50       73.99       13.53
  8                             338.75      149.34       21.45
  8                             339.00      247.95       30.13
  8                             339.50      515.65       49.78
  9 ENDTBL
  2 XSECTN   037                  1.0      331.00
  8                             330.00        0.00        0.00
1


 **********80-80 LIST OF INPUT DATA (CONTINUED)**********

  8                             330.25       14.29        3.25
  8                             330.50       46.85        7.00
  8                             330.75       95.34       11.25
  8                             331.00      159.64       16.00
  8                             331.25      240.13       21.25
  8                             331.50      337.44       27.00
  8                             331.75      452.26       33.25
  8                             332.00      585.36       40.00
  8                             332.50      875.33       55.81
  8                             333.00     1272.05       75.25
  9 ENDTBL
  2 XSECTN   044                  1.0      288.90
  8                             287.68        0.00        0.00
  8                             287.99        1.15        0.94
  8                             288.29        3.69        1.95
```

```
  8                              288.60        17.06         5.98
  8                              288.90        36.44        10.37
  8                              289.19        63.07        39.25
  8                              289.47       121.85        69.50
  8                              289.76       206.05       101.12
  8                              290.05       313.23       134.09
  8                              290.33       442.07       168.42
  8                              290.62       591.78       204.12
  8                              290.91       761.87       241.18
  8                              291.19       952.02       279.60
  8                              291.48      1162.04       319.38
  8                              291.77      1391.84       360.52
  8                              292.05      1641.40       403.02
  8                              292.34      1910.74       446.89
  8                              292.63      2199.92       492.11
  8                              292.91      2509.04       538.70
  8                              293.20      2838.22       586.65
  9 ENDTBL
  3 STRUCT       31
  8                              356.38         0.0          0.00
  8                              357.26        10.90         0.02
  8                              357.50        12.30         0.03
  8                              358.00        14.70         0.05
  8                              359.00        18.70         0.10
  8                              360.00        22.00         0.16
  8                              361.00        24.90         0.25
  8                              361.50        26.20         0.30
  8                              362.00        27.50         0.36
  8                              362.50        28.70         0.43
  8                              362.90        29.60         0.49
  8                              363.50        51.30         0.60
  8                              363.75        65.70         0.67
  8                              364.00        82.60         0.72
  8                              364.20        83.30         0.83
  8                              364.60       100.00         0.88
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              366.80       260.00         1.47
  8                              366.92       340.00         1.49
  8                              366.98       380.00         1.50
  9 ENDTBL
  3 STRUCT       32
  8                              375.40         0.00         0.00
  8                              379.36         1.00         0.74
  8                              380.00         5.00         0.89
  8                              380.20        10.00         0.94
  8                              380.33        15.00         0.98
  8                              380.45        20.00         1.01
  8                              380.55        25.00         1.04
  8                              380.65        30.00         1.06
  8                              381.19        40.00         1.21
  8                              381.78        44.00         1.39
  8                              382.59        66.00         1.66
  8                              382.79        88.00         1.75
  8                              382.89       110.00         1.79
  8                              382.97       132.00         1.83
  9 ENDTBL
  3 STRUCT       33
  8                              350.00         0.00         0.00
```

```
  8                              354.30         1.00         1.08
  8                              354.47         2.00         1.15
  8                              354.87         5.00         1.30
  8                              355.38        10.00         1.50
  8                              356.18        20.00         1.84
  8                              356.88        40.00         2.15
  8                              357.27        60.00         2.33
  8                              357.46        80.00         2.42
  8                              358.08       100.00         2.73
  8                              358.14       120.00         2.76
  8                              358.19       140.00         2.78
  8                              358.25       171.00         2.81
  8                              358.27       180.00         2.82
  9 ENDTBL
  3 STRUCT      34
  9 ENDTBL
  2 XSECTN   051                    1.0       282.40
  8                              281.10         0.00         0.00
  8                              281.42         1.24         1.09
  8                              281.75         3.96         2.26
  8                              282.07        18.30         6.92
  8                              282.40        39.09        12.00
  8                              282.88        67.33        37.27
  8                              283.36       131.17        65.87
  8                              283.84       225.10        97.78
  8                              284.32       348.01       133.01
  8                              284.80       499.91       171.56
  8                              285.28       681.29       213.43
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              285.76       892.92       258.61
  8                              286.24      1135.70       307.11
  8                              286.72      1410.63       358.94
  8                              287.20      1718.74       414.08
  8                              287.68      2061.13       472.54
  8                              288.16      2438.87       534.31
  8                              288.64      2853.08       599.41
  8                              289.12      3301.76       667.84
  8                              289.60      3785.91       739.78
  9 ENDTBL
  2 XSECTN   053                    1.0       289.00
  8                              288.00         0.00         0.00
  8                              288.50         9.00         2.88
  8                              289.00        34.26         7.50
  8                              289.50        79.27        13.88
  8                              290.00       147.75        22.00
  8                              290.50       227.49        31.94
  8                              291.00       332.02        43.75
  8                              291.50       463.75        57.44
  8                              291.75       540.56        64.98
  8                              292.00       625.07        73.00
  9 ENDTBL
  2 XSECTN   063                    1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
```

```
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
  8                              250.59      1132.40       271.40
  8                              250.86      1379.55       309.92
  8                              251.13      1650.25       349.81
  8                              251.41      1944.49       391.07
  8                              251.68      2262.35       433.69
  8                              251.95      2603.94       477.69
  8                              252.23      2969.40       523.05
  8                              252.50      3358.93       569.78
  9 ENDTBL
  3 STRUCT      61
  8                              329.75         0.00         0.00
  8                              330.00         1.56         0.01
  8                              332.00         4.37         0.13
  8                              334.00         5.96         0.39
  8                              334.10         6.01         0.40
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              334.50        10.20         0.47
  8                              335.00        16.10         0.56
  8                              336.00        28.91         0.75
  8                              337.00        40.10         0.97
  9 ENDTBL
  3 STRUCT      62
  8                              287.30         0.00         0.00
  8                              288.00         5.45         0.01
  8                              289.00         9.05         0.05
  8                              290.00        11.60         0.13
  8                              292.00        15.35         0.50
  8                              294.00        18.40         1.19
  8                              294.30        18.92         1.26
  8                              294.50        20.73         1.40
  8                              295.00        36.40         1.60
  8                              295.40        38.00         1.80
  8                              296.00        51.10         2.15
  8                              297.00        69.60         2.75
  8                              298.00        86.80         3.44
  8                              298.68        98.50         3.91
  8                              298.80       107.56         4.00
  9 ENDTBL
  3 STRUCT      63
  8                              259.43         0.00         0.00
  8                              260.00         1.30         0.026
  8                              260.50         1.70         0.050
  8                              261.00         2.10         0.075
  8                              261.50         2.40         0.095
  8                              262.00         2.70         0.119
  8                              262.50         2.90         0.160
  8                              263.00         3.20         0.205
  8                              263.50         3.40         0.245
  8                              264.00         3.60         0.285
  8                              264.50         3.80         0.360
  8                              265.00         3.90         0.415
  8                              265.50         4.10         0.480
```

```
  8                              266.00        11.00         0.537
  8                              266.50        15.40         0.620
  8                              267.00        16.00         0.709
  8                              267.50        30.30         0.798
  8                              268.00        56.00         0.887
  8                              268.50       145.68         0.976
  9 ENDTBL
  2 XSECTN    065                   1.0       300.50
  8                              300.00         0.00         0.00
  8                              300.10         0.29         0.23
  8                              300.25         1.47         0.69
  8                              300.40         3.55         1.28
  8                              300.50         5.48         1.75
  8                              300.60         7.88         2.28
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              300.75        12.45         3.19
  8                              300.90        18.28         4.23
  8                              301.00        22.91         5.00
  8                              301.10        28.18         5.83
  8                              301.25        37.36         7.19
  8                              301.40        48.14         8.68
  8                              301.50        56.26         9.75
  9 ENDTBL
  2 XSECTN    070                   1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
  8                              250.59      1132.40       271.40
  8                              250.86      1379.55       309.92
  8                              251.13      1650.25       349.81
  8                              251.41      1944.49       391.07
  8                              251.68      2262.35       433.69
  8                              251.95      2603.94       477.69
  8                              252.23      2969.40       523.05
  8                              252.50      3358.93       569.78
  9 ENDTBL
  2 XSECTN    072                   1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
```

```
  8                              250.59     1132.40      271.40
  8                              250.86     1379.55      309.92
  8                              251.13     1650.25      349.81
  8                              251.41     1944.49      391.07
  8                              251.68     2262.35      433.69
  8                              251.95     2603.94      477.69
  8                              252.23     2969.40      523.05
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              252.50     3358.93      569.78
  9 ENDTBL
  2 XSECTN   077                    1.0      229.00
  8                              226.00        0.00        0.00
  8                              226.50       11.73        5.31
  8                              227.00       42.97       13.25
  8                              227.50       96.50       23.81
  8                              228.00      175.93       37.00
  8                              228.50      258.13       54.25
  8                              229.00      385.22       77.00
  8                              229.50      561.82      105.25
  8                              230.00      793.74      139.00
  8                              230.50     1079.38      179.94
  8                              231.00     1462.49      229.75
  8                              231.50     1953.75      288.44
  8                              232.00     2564.16      356.00
  8                              232.50     3408.70      429.13
  8                              233.00     4351.01      504.50
  9 ENDTBL
  2 XSECTN   080                    1.0      212.00
  8                              210.50        0.00        0.00
  8                              210.75        4.72        2.23
  8                              211.00       15.68        4.92
  8                              211.25       32.36        8.06
  8                              211.50       54.93       11.67
  8                              211.75       83.70       15.73
  8                              212.00      119.05       20.25
  8                              212.25      163.87       25.14
  8                              212.50      215.35       30.31
  8                              212.75      273.55       35.77
  8                              213.00      338.57       41.50
  8                              214.00      669.42       67.25
  8                              215.00      806.07       99.00
  8                              216.00     1088.03      138.25
  8                              217.00     1451.30      187.50
  8                              218.00     1978.93      249.25
  8                              219.00     2262.06      340.00
  8                              220.00     3115.20      476.25
  8                              221.00     4892.67      639.25
  9 ENDTBL
  5 RAINFL 5              0.2500
  8              0.0000       0.0000       0.0000       0.0000       0.0136
  8              0.0629       0.0629       0.0629       0.0629       0.0629
  8              0.0629       0.0629       0.0629       0.0629       0.0629
  8              0.0629       0.0629       0.0629       0.0641       0.0641
  8              0.0678       0.0764       0.0764       0.0789       0.0789
  8              0.0789       0.0789       0.0814       0.0863       0.0875
  8              0.0900       0.0900       0.0912       0.1245       0.1245
  8              0.1245       0.1245       0.1270       0.1270       0.1270
  8              0.1270       0.1270       0.1319       0.1319       0.1319
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8               0.1862       0.2639      0.4057      0.5425      0.5746
  8               0.6387       0.7028      0.7349      0.7386      0.7781
  8               0.8064       0.8101      0.8163      0.8224      0.8261
  8               0.8286       0.8311      0.8323      0.8323      0.8323
  8               0.8348       0.8372      0.8372      0.8372      0.8372
  8               0.8372       0.8385      0.8385      0.8385      0.8385
  8               0.8385       0.8422      0.8422      0.8459      0.8471
  8               0.8471       0.8483      0.8483      0.8483      0.8483
  8               0.8483       0.8496      0.8829      0.9051      0.9383
  8               0.9482       0.9556      0.9667      0.9778      0.9864
  8               1.0000       1.0000      1.0000      1.0000      1.0000
  9 ENDTBL
  5 RAINFL 6              0.2500
  8               0.0000       0.0773      0.1879      0.3898      0.5847
  8               0.6304       0.7217      0.8130      0.8586      0.8639
  8               0.9201       0.9605      0.9658      0.9745      0.9833
  8               0.9886       0.9921      0.9956      0.9974      0.9974
  8               1.0000       1.0000      1.0000      1.0000      1.0000
  9 ENDTBL
  6 RUNOFF 1 001       1       0.0336      79.478       0.4051           DA1
  6 REACH  3 002   1   2       1170.0                        1
  6 RUNOFF 1 003       1       0.0580      80.559       0.3751           DA2
  6 ADDHYD 4 004   1 2 3                                    1           DA1+2
  6 RESVOR 2    11 3   1                                    1         1 SWMF10
  6 REACH  3 005   1   2        797.0                        1
  6 RUNOFF 1 006       3       0.0798      75.926       0.3921           DA3
  6 ADDHYD 4 007   2 3 4                                    1           DA12+3
  6 REACH  3 008   4   7       1221.0                        1         1 SA1-SA2
  6 RUNOFF 1 009       1       0.0734      88.594       0.4221           DA1
  6 RESVOR 2    21 1   2                                    1         1 SWMF13
  6 RUNOFF 1 010       3       0.0097      72.249       0.1281           DA7
  6 RESVOR 2    22 2 3 4                                    1         1 HWY STOR
  6 RUNOFF 1 011       2       0.0569      73.123       0.2201           DA2
  6 ADDHYD 4 012   7 2 3                                    1           SA1+DA2
  6 RUNOFF 1 013       5       0.0193      79.025       0.2481           DA3
  6 ADDHYD 4 014   4 3 6                                    1           DA17+2
  6 ADDHYD 4 015   6 5 3                                    1           DA172+3
  6 RESVOR 2    23 3   1                                    1         1 HWYSTOR2
  6 REACH  3 016   1   2        920.0                        1
  6 RUNOFF 1 017       3       0.0211      87.900       0.1641           DA4
  6 RUNOFF 1 018       4       0.0313      91.880       0.2551           DA5
  6 RUNOFF 1 019       5       0.0404      84.513       0.1681           DA6
  6 ADDHYD 4 020   3 4 6                                    1           DA4+5
  6 ADDHYD 4 021   6 5 1                                    1           DA123+6
  6 ADDHYD 4 022   2 1 3                                    1           DA45+6
  6 REACH  3 023   3   7       1379.0                        1         1 SA2-SA3
  6 RUNOFF 1 024       1       0.0505      76.581       0.3401           DA1
  6 RESVOR 2    31 1   2                                    1         1 SWMF3
  6 RUNOFF 1 025       3       0.0748      75.950       0.3581           DA2
  6 ADDHYD 4 026   2 3 4                                    1           DA1+2
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 REACH  3 027   4   1       1021.0                        1
```

```
  6 RUNOFF 1 028       2       0.0599      71.428       0.3231          DA3
  6 ADDHYD 4 029   7 2 3                                    1          SA2+DA3
  6 ADDHYD 4 030   1 3 5                                    1          DA12+3
  6 RUNOFF 1 031       1       0.0692      82.378       0.2761          DA4
  6 REACH  3 032   1   6       1603.0                       1
  6 RUNOFF 1 033       2       0.0084      95.000       0.1921          DA5
  6 RESVOR 2    32 2   3                                    1        1 SWMF11
  6 REACH  3 034   3   7        583.0                       1
  6 RUNOFF 1 035       1       0.0275      94.963       0.2481          DA6
  6 RESVOR 2    33 1   2                                    1        1 SWMF8
  6 ADDHYD 4 036   7 2 1                                    1          DA5+6
  6 RESVOR 2    34 1   2                                    1        1 HWYSTOR3
  6 REACH  3 037   2   4        934.0                       1
  6 RUNOFF 1 038       1       0.0328      86.132       0.1901          DA7
  6 ADDHYD 4 039   4 1 3                                    1          DA56+7
  6 RUNOFF 1 040       2       0.0393      80.617       0.3671          DA8
  6 ADDHYD 4 041   5 2 1                                    1          DA3+8
  6 ADDHYD 4 042   6 1 2                                    1          DA4+8
  6 ADDHYD 4 043   3 2 1                                    1          DA7+8
  6 REACH  3 044   1   7       1428.0                       1        1 SA3-SA4
  6 RUNOFF 1 045       1       0.0477      75.971       0.4121          DA1
  6 RUNOFF 1 046       2       0.0628      73.766       0.4401          DA2
  6 ADDHYD 4 047   1 2 3                                    1          DA1+2
  6 RUNOFF 1 048       1       0.0469      79.166       0.2491          DA3
  6 ADDHYD 4 049   7 1 2                                    1          SA3+DA3
  6 ADDHYD 4 050   2 3 4                                    1          DA12+3
  6 REACH  3 051   4   7       1275.0                       1        1 SA4-SA5
  6 RUNOFF 1 052       1       0.0087      56.108       0.1631          DA1
  6 REACH  3 053   1   5        652.0                       1
  6 RUNOFF 1 054       1       0.0072      55.000       0.2561          DA2
  6 RUNOFF 1 055       2       0.0322      74.166       0.2491          DA3
  6 ADDHYD 4 056   7 2 4                                    1          SA4+DA3
  6 ADDHYD 4 057   5 1 3                                    1          DA1+2
  6 ADDHYD 4 058   4 3 5                                    1          DA12+3
  6 RUNOFF 1 059       1       0.0266      72.902       0.2611          DA4
  6 ADDHYD 4 060   5 1 2                                    1          DA123+4
  6 RUNOFF 1 061       3       0.0173      72.707       0.2971          DA5
  6 ADDHYD 4 062   2 3 6                                    1          DA1234+5
  6 REACH  3 063   6   7       1959.0                       1        1 SA5-SA6
  6 RUNOFF 1 064       1       0.0110      88.119       0.5211          DA1
  6 RESVOR 2    61 1   2                                    1        1 SWMF19
  6 REACH  3 065   2   3       1283.0                       1
  6 RUNOFF 1 066       1       0.0458      80.006       0.2391          DA2
  6 RESVOR 2    62 1   2                                    1        1 SWMF18
  6 ADDHYD 4 067   3 2 4                                    1          DA1+2
  6 RUNOFF 1 068       5       0.0778      79.468       0.2281          DA3
  6 ADDHYD 4 069   4 5 1                                    1          DA12+3
  6 REACH  3 070   1   2       2166.0                       1
  6 RUNOFF 1 071       1       0.0119      85.744       0.1221          DA4
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 RESVOR 2    63 1   3                                    1        1 SWMF2
  6 REACH  3 072   3   4       1081.0                       1
  6 RUNOFF 1 073       5       0.1100      66.708       0.2051          DA5
  6 ADDHYD 4 074   7 5 1                                    1          SA5+DA5
  6 ADDHYD 4 075   2 4 6                                    1        1 DA123+4
  6 ADDHYD 4 076   1 6 2                                    1        1 DA12345
  6 REACH  3 077   2   7        884.0                       1        1 SA6-SA7
  6 RUNOFF 1 078       2       0.0510      73.827       0.1971        1 DA1
```

```
 6 ADDHYD 4 079   7 2 1                                    1          SA6+DA1
 6 REACH  3 080   1   2       1296.0                       1
 6 RUNOFF 1 081       3       0.0513      78.929       0.1621          DA3
 6 ADDHYD 4 082   2 3 4                                    1          DA1+3
 6 RUNOFF 1 083       1       0.0313      70.330       0.1861          DA2
 6 ADDHYD 4 084   4 1 2                                    1          DA13+2
 6 RUNOFF 1 085       3       0.1187      72.091       0.3211          DA4
 6 ADDHYD 4 086   2 3 1                                    1          DA123+4
 6 RUNOFF 1 087       4       0.0159      87.661       0.1421          DA5
 6 ADDHYD 4 088   1 4 7                                    1        1 DA1234+5
   ENDATA
 7 INCREM 6                      .06
 7 COMPUT 7 001   088            0.0        8.11         1.05 2  1   24
   ENDCMP 1
 7 COMPUT 7 001   088            0.0        5.70         1.06 2  1   06
   ENDCMP 1
   ENDJOB 2

 ********************************END OF 80-80 LIST********************************
1
 TR20 ------------------------------------------------------------------------ SCS -
         Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
 07/05/**   CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR     2.04TEST
 08:41:05                     PASS   1   JOB NO.   1                     PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .060 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  88
    STARTING TIME =   .00       RAIN DEPTH =  8.11       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =24            RAIN TABLE NO. = 5


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        8.39                          3.2                        (RUNOFF)
       12.06                         68.5                        (RUNOFF)
       12.78                         38.2                        (RUNOFF)
       13.72                         19.7                        (RUNOFF)
       16.55                          1.4                        (RUNOFF)
       19.14                          1.4                        (RUNOFF)
       19.65                          1.6                        (RUNOFF)
       22.33                         18.3                        (RUNOFF)
       23.30                          7.1                        (RUNOFF)
       23.82                          7.4                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.66 WATERSHED INCHES;     123 CFS-HRS;      10.1 ACRE-FEET.


 OPERATION REACH    XSECTION   2

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        8.45                          3.2                         389.33
       12.13                         68.3                         390.50
       12.84                         38.2                         390.15
       13.79                         19.7                         389.86
       16.61                          1.4                         389.21
       19.20                          1.4                         389.21
```

19.72	1.6	389.25
22.40	18.3	389.83
23.36	7.1	389.53
23.88	7.4	389.53

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 123 CFS-HRS; 10.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.37	6.8	(RUNOFF)
12.05	124.2	(RUNOFF)
12.77	67.1	(RUNOFF)
13.70	35.0	(RUNOFF)
19.12	2.6	(RUNOFF)
19.63	3.0	(RUNOFF)
21.96	28.2	(RUNOFF)
22.32	32.6	(RUNOFF)
23.29	12.3	(RUNOFF)
23.81	13.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.79 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.39	9.7	(NULL)
12.07	190.5	(NULL)
12.79	104.9	(NULL)
13.73	54.2	(NULL)
16.56	3.8	(NULL)
19.15	3.9	(NULL)
19.66	4.5	(NULL)
22.34	50.4	(NULL)
23.31	19.4	(NULL)
23.83	20.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 11,
VALUE EXTRAPOLATED. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.78	1.6	380.59
12.09	190.1	383.84
12.82	104.9	382.82
13.85	50.5	382.14
16.76	2.5	380.93
22.43	47.1	382.06

23.38	19.2	381.39
23.89	19.3	381.40

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
08:41:05 PASS 1 JOB NO. 1 PAGE 3

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.65 WATERSHED INCHES; 334 CFS-HRS; 27.6 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.84	1.6	366.23
12.16	189.8	368.71
12.88	104.8	368.25
13.92	50.4	367.78
16.82	2.5	366.36
22.50	47.0	367.74
23.44	19.2	367.17
23.95	19.3	367.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.64 WATERSHED INCHES; 333 CFS-HRS; 27.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.38	4.6	(RUNOFF)
12.06	150.2	(RUNOFF)
12.78	86.3	(RUNOFF)
13.71	45.5	(RUNOFF)
16.54	3.2	(RUNOFF)
19.13	3.4	(RUNOFF)
19.64	3.8	(RUNOFF)
22.33	42.6	(RUNOFF)
23.29	16.4	(RUNOFF)
23.81	17.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.24 WATERSHED INCHES; 270 CFS-HRS; 22.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
08:41:05 PASS 1 JOB NO. 1 PAGE 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.40	5.3	(NULL)
12.11	334.9	(NULL)
12.82	189.8	(NULL)
13.81	91.6	(NULL)
16.55	5.6	(NULL)
19.14	4.7	(NULL)
19.65	5.5	(NULL)

22.38	86.4	(NULL)
23.31	35.4	(NULL)
23.83	35.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.46 WATERSHED INCHES; 604 CFS-HRS; 49.9 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.46	5.3	356.13
12.17	334.4	358.31
12.88	189.7	357.72
13.87	91.5	357.15
16.61	5.6	356.14
19.20	4.7	356.12
19.71	5.5	356.14
22.44	86.3	357.12
23.37	35.4	356.66
23.90	35.6	356.66

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.46 WATERSHED INCHES; 604 CFS-HRS; 49.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.40	4.6	(RUNOFF)
5.37	3.2	(RUNOFF)
8.39	16.2	(RUNOFF)
12.05	177.5	(RUNOFF)
12.77	91.9	(RUNOFF)
13.73	46.0	(RUNOFF)
19.66	3.7	(RUNOFF)
22.34	42.0	(RUNOFF)
23.30	16.2	(RUNOFF)
23.82	16.8	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.73 WATERSHED INCHES; 319 CFS-HRS; 26.4 ACRE-FEET.

*** MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 21, TRUNCATED AT 400 POINTS
WITH 4.58 AC-FT (.10 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 373.45. ***

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.30	121.3	377.34
13.84	43.1	375.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.56 WATERSHED INCHES; 263 CFS-HRS; 21.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.97	19.4	(RUNOFF)
12.70	10.4	(RUNOFF)
13.50	6.5	(RUNOFF)
14.30	1.1	(RUNOFF)
21.75	5.7	(RUNOFF)
22.23	5.9	(RUNOFF)
23.73	2.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.81 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.55	104.7	359.01
13.87	42.9	355.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.54 WATERSHED INCHES; 263 CFS-HRS; 21.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
08:41:05 PASS 1 JOB NO. 1 PAGE 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	110.8	(RUNOFF)
12.74	60.7	(RUNOFF)
13.57	35.5	(RUNOFF)
14.42	6.2	(RUNOFF)
19.03	3.2	(RUNOFF)
19.54	3.3	(RUNOFF)
21.82	30.2	(RUNOFF)
22.26	32.7	(RUNOFF)
23.23	11.6	(RUNOFF)
23.76	13.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.92 WATERSHED INCHES; 181 CFS-HRS; 14.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.39	6.4	(NULL)
12.08	419.9	(NULL)
12.80	246.1	(NULL)
13.78	118.1	(NULL)
16.53	7.8	(NULL)
19.09	6.8	(NULL)

19.62	7.8	(NULL)
20.32	4.0	(NULL)
22.32	112.1	(NULL)
23.79	47.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.32 WATERSHED INCHES; 784 CFS-HRS; 64.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.30	2.3	(RUNOFF)
12.00	42.6	(RUNOFF)
12.75	22.4	(RUNOFF)
13.59	12.5	(RUNOFF)
14.36	2.2	(RUNOFF)
19.56	1.1	(RUNOFF)
21.84	10.6	(RUNOFF)
22.27	11.5	(RUNOFF)
23.25	4.1	(RUNOFF)
23.77	4.7	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.61 WATERSHED INCHES; 70 CFS-HRS; 5.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	472.9	(NULL)
12.79	348.8	(NULL)
13.78	160.9	(NULL)
16.53	17.3	(NULL)
17.83	12.3	(NULL)
19.09	14.2	(NULL)
19.61	14.8	(NULL)
20.30	10.4	(NULL)
22.33	119.6	(NULL)
23.79	57.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.38 WATERSHED INCHES; 1047 CFS-HRS; 86.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	505.3	(NULL)
12.78	371.1	(NULL)
13.77	171.7	(NULL)
16.52	18.2	(NULL)
17.82	12.7	(NULL)
19.08	15.2	(NULL)
19.60	15.9	(NULL)
20.30	10.8	(NULL)
22.32	130.8	(NULL)

23.78	61.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.39 WATERSHED INCHES; 1117 CFS-HRS; 92.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	505.3	(NULL)
12.78	371.1	(NULL)
13.77	171.7	(NULL)
16.52	18.2	(NULL)
17.82	12.7	(NULL)
19.08	15.2	(NULL)
19.60	15.9	(NULL)
20.30	10.8	(NULL)
22.32	130.8	(NULL)
23.78	61.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.39 WATERSHED INCHES; 1117 CFS-HRS; 92.3 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	505.3	334.64
12.78	371.1	333.92
13.77	171.7	332.71
16.52	18.2	331.31
17.82	12.7	331.24
19.08	15.2	331.27
19.60	15.9	331.28
20.30	10.8	331.21
22.32	130.8	332.43
23.78	61.7	331.85

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.39 WATERSHED INCHES; 1117 CFS-HRS; 92.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.25	1.7	(RUNOFF)
8.26	7.1	(RUNOFF)
11.97	56.1	(RUNOFF)

12.70	27.0	(RUNOFF)
13.53	15.9	(RUNOFF)
14.36	2.6	(RUNOFF)
21.78	13.5	(RUNOFF)
22.24	14.0	(RUNOFF)
23.20	4.8	(RUNOFF)
23.74	5.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.66 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.30	5.9	(RUNOFF)
8.30	12.0	(RUNOFF)
11.98	85.2	(RUNOFF)
12.73	40.5	(RUNOFF)
13.60	22.0	(RUNOFF)
14.34	4.0	(RUNOFF)
21.85	18.3	(RUNOFF)
22.28	19.9	(RUNOFF)
23.25	7.1	(RUNOFF)
23.77	8.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 144 CFS-HRS; 11.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.26	10.2	(RUNOFF)
11.97	102.2	(RUNOFF)
12.70	50.3	(RUNOFF)
13.53	29.7	(RUNOFF)
14.36	4.9	(RUNOFF)
19.51	2.8	(RUNOFF)
21.78	25.3	(RUNOFF)
22.24	26.3	(RUNOFF)
23.20	9.0	(RUNOFF)
23.74	10.9	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.26 WATERSHED INCHES; 163 CFS-HRS; 13.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.29	7.5	(NULL)
8.28	18.8	(NULL)
11.97	141.4	(NULL)
12.72	67.5	(NULL)
13.57	37.5	(NULL)
14.35	6.6	(NULL)

21.81	31.1	(NULL)
22.26	33.7	(NULL)
23.23	11.9	(NULL)
23.75	13.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.94 WATERSHED INCHES; 235 CFS-HRS; 19.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.28	8.4	(NULL)
8.27	28.9	(NULL)
11.97	243.5	(NULL)
12.71	117.8	(NULL)
13.55	67.0	(NULL)
14.36	11.5	(NULL)
21.80	56.4	(NULL)
22.25	60.0	(NULL)
23.22	20.9	(NULL)
23.74	24.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.64 WATERSHED INCHES; 398 CFS-HRS; 32.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
08:41:05 PASS 1 JOB NO. 1 PAGE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.28	36.6	(NULL)
12.05	716.5	(NULL)
12.76	488.7	(NULL)
13.56	233.9	(NULL)
16.49	22.7	(NULL)
17.79	14.7	(NULL)
19.04	20.9	(NULL)
19.55	21.8	(NULL)
22.28	188.3	(NULL)
23.76	86.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.67 WATERSHED INCHES; 1515 CFS-HRS; 125.2 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.44	31.4	314.35
12.20	683.9	316.80
12.88	485.6	316.39
13.73	229.9	315.67
16.65	22.3	314.20
17.95	14.2	314.05
19.21	19.3	314.15
19.72	20.6	314.17
22.44	180.9	315.48

23.90	83.5	314.98

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.67 WATERSHED INCHES; 1513 CFS-HRS; 125.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.35	3.6	(RUNOFF)
12.04	100.2	(RUNOFF)
12.77	55.6	(RUNOFF)
13.67	29.7	(RUNOFF)
19.10	2.4	(RUNOFF)
19.61	2.6	(RUNOFF)
21.92	24.5	(RUNOFF)
22.31	28.1	(RUNOFF)
23.28	10.5	(RUNOFF)
23.80	11.3	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.32 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

*** WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.37	3.6	356.67
12.10	98.0	364.55
12.82	55.2	363.57
13.83	26.4	361.59
14.41	6.2	356.88
19.12	2.3	356.57
19.64	2.6	356.59
22.42	24.4	360.82
23.30	10.5	357.22
23.83	11.1	357.29

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.32 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.36	4.6	(RUNOFF)
12.05	144.5	(RUNOFF)
12.77	81.3	(RUNOFF)
13.68	43.3	(RUNOFF)
19.11	3.3	(RUNOFF)
19.62	3.7	(RUNOFF)

21.95	35.3	(RUNOFF)
22.31	40.8	(RUNOFF)
23.28	15.4	(RUNOFF)
23.81	16.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.25 WATERSHED INCHES; 253 CFS-HRS; 20.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.36	8.1	(NULL)
12.08	241.3	(NULL)
12.79	136.2	(NULL)
13.70	69.1	(NULL)
14.39	15.2	(NULL)
19.12	5.6	(NULL)
19.63	6.3	(NULL)
22.33	64.5	(NULL)
23.29	25.8	(NULL)
23.81	27.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.28 WATERSHED INCHES; 427 CFS-HRS; 35.3 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.46	7.5	316.81
12.16	234.0	319.37
12.88	135.1	318.99
13.81	68.1	318.45
16.62	5.0	316.65
19.21	5.2	316.66
19.73	5.9	316.71
22.42	63.5	318.36
23.38	25.7	317.53
23.90	26.9	317.56

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.28 WATERSHED INCHES; 427 CFS-HRS; 35.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	104.9	(RUNOFF)
12.77	61.0	(RUNOFF)
13.65	33.3	(RUNOFF)
16.51	2.4	(RUNOFF)
19.09	2.7	(RUNOFF)
19.60	2.9	(RUNOFF)
21.91	27.9	(RUNOFF)
22.30	31.8	(RUNOFF)
23.28	11.9	(RUNOFF)

23.79	13.0	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.72 WATERSHED INCHES; 182 CFS-HRS; 15.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.44	32.3	(NULL)
12.18	765.5	(NULL)
12.82	542.8	(NULL)
13.71	262.8	(NULL)
16.61	24.2	(NULL)
17.93	14.9	(NULL)
19.19	21.3	(NULL)
19.70	23.1	(NULL)
22.41	207.6	(NULL)
23.87	94.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.55 WATERSHED INCHES; 1695 CFS-HRS; 140.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.44	39.7	(NULL)
12.17	999.1	(NULL)
12.85	677.1	(NULL)
13.74	329.1	(NULL)
16.62	29.3	(NULL)
17.94	16.7	(NULL)
19.19	26.5	(NULL)
19.71	29.0	(NULL)
22.41	271.1	(NULL)
23.88	121.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.49 WATERSHED INCHES; 2122 CFS-HRS; 175.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.31	11.7	(RUNOFF)
12.01	161.5	(RUNOFF)
12.75	83.0	(RUNOFF)
13.62	45.2	(RUNOFF)
19.06	3.8	(RUNOFF)
19.57	4.0	(RUNOFF)

21.86	37.7	(RUNOFF)
22.29	41.4	(RUNOFF)
23.26	15.1	(RUNOFF)
23.78	16.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.00 WATERSHED INCHES; 268 CFS-HRS; 22.2 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	10.4	310.85
12.10	158.0	313.34
12.83	81.9	312.48
13.74	43.0	311.77
19.16	3.4	310.28
19.68	3.7	310.30
21.99	35.4	311.58
22.37	40.1	311.70
23.35	15.0	311.07
23.86	16.2	311.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.00 WATERSHED INCHES; 268 CFS-HRS; 22.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.27	3.4	(RUNOFF)
5.26	1.0	(RUNOFF)
8.27	4.4	(RUNOFF)
11.91	23.7	(RUNOFF)
12.71	11.1	(RUNOFF)
13.55	6.4	(RUNOFF)
14.43	1.1	(RUNOFF)
21.80	5.3	(RUNOFF)
22.25	5.6	(RUNOFF)
23.75	2.3	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS
WITH .70 AC-FT (.13 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 379.15. ***

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	22.4	380.50
12.77	11.0	380.23
13.78	4.9	379.98
23.85	1.6	379.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.93 WATERSHED INCHES; 32 CFS-HRS; 2.7 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. ***

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	22.4	338.25
12.77	11.0	338.15
13.78	4.9	338.10
23.85	1.6	338.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.93 WATERSHED INCHES; 32 CFS-HRS; 2.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.30	10.0	(RUNOFF)
8.30	12.9	(RUNOFF)
11.97	77.3	(RUNOFF)
12.73	36.1	(RUNOFF)
13.59	19.8	(RUNOFF)
14.36	3.5	(RUNOFF)
21.84	16.3	(RUNOFF)
22.27	17.6	(RUNOFF)
23.25	6.3	(RUNOFF)
23.77	7.1	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 133 CFS-HRS; 11.0 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS
WITH 1.15 AC-FT (.06 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 354.47. ***

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	76.0	357.42
12.80	35.2	356.71
13.77	16.8	355.93
16.57	1.2	354.34
22.46	10.9	355.46
23.83	6.4	355.01

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.72 WATERSHED INCHES; 119 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	98.5	(NULL)
12.79	46.2	(NULL)
13.78	21.7	(NULL)
16.55	2.1	(NULL)
22.46	11.9	(NULL)
23.84	8.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 151 CFS-HRS; 12.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	98.5	(NULL)
12.79	46.2	(NULL)
13.78	21.7	(NULL)
16.55	2.1	(NULL)
22.46	11.9	(NULL)
23.84	8.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 151 CFS-HRS; 12.5 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	98.5	330.76
12.79	46.2	330.49
13.78	21.7	330.31
16.55	2.1	330.04
22.46	11.9	330.21
23.84	8.0	330.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 151 CFS-HRS; 12.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.27	9.1	(RUNOFF)
11.97	84.4	(RUNOFF)
12.71	41.3	(RUNOFF)
13.55	23.9	(RUNOFF)
14.43	4.0	(RUNOFF)
19.01	2.2	(RUNOFF)
21.79	20.2	(RUNOFF)
22.25	21.2	(RUNOFF)
23.21	7.4	(RUNOFF)
23.74	8.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.45 WATERSHED INCHES; 136 CFS-HRS; 11.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.27	9.8	(NULL)
12.00	181.1	(NULL)
12.75	87.6	(NULL)
13.57	44.0	(NULL)
19.02	3.7	(NULL)
19.53	3.7	(NULL)
21.80	21.9	(NULL)
22.27	30.9	(NULL)
23.03	15.5	(NULL)
23.75	16.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.49 WATERSHED INCHES; 288 CFS-HRS; 23.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.36	4.7	(RUNOFF)
12.05	84.6	(RUNOFF)
12.77	45.5	(RUNOFF)
13.69	23.8	(RUNOFF)
19.12	1.8	(RUNOFF)
19.63	2.0	(RUNOFF)
21.95	19.2	(RUNOFF)
22.32	22.1	(RUNOFF)
23.28	8.4	(RUNOFF)
23.81	8.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.80 WATERSHED INCHES; 147 CFS-HRS; 12.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.44	43.7	(NULL)
12.16	1072.8	(NULL)
12.83	722.1	(NULL)
13.73	352.6	(NULL)
16.61	30.9	(NULL)
17.93	17.3	(NULL)
19.19	28.1	(NULL)
19.70	30.9	(NULL)
22.40	291.3	(NULL)
23.87	130.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.51 WATERSHED INCHES; 2268 CFS-HRS; 187.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.43	53.9	(NULL)
12.15	1225.7	(NULL)
12.83	804.0	(NULL)
13.74	395.6	(NULL)
16.60	34.0	(NULL)
17.93	18.4	(NULL)
19.18	31.4	(NULL)
19.70	34.5	(NULL)
22.40	331.1	(NULL)
23.87	146.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.56 WATERSHED INCHES; 2537 CFS-HRS; 209.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	58.0	(NULL)
12.12	1363.2	(NULL)
12.80	888.0	(NULL)
13.73	436.8	(NULL)
16.58	37.2	(NULL)
17.92	20.4	(NULL)
19.17	33.7	(NULL)
19.69	37.3	(NULL)
22.38	356.6	(NULL)
23.84	159.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 2821 CFS-HRS; 233.1 ACRE-FEET.

OPERATION REACH XSECTION 44
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.51	54.3	289.09
12.22	1335.5	291.70
12.87	886.7	291.09
13.83	432.7	290.31
16.68	36.6	288.90
18.01	19.9	288.64
19.27	32.3	288.84
19.78	36.2	288.90
22.47	350.3	290.13
23.92	158.0	289.59

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 2819 CFS-HRS; 232.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.39	2.7	(RUNOFF)
12.07	88.6	(RUNOFF)
12.79	51.6	(RUNOFF)
13.72	27.0	(RUNOFF)
16.55	1.9	(RUNOFF)
19.65	2.2	(RUNOFF)
22.34	25.2	(RUNOFF)
23.30	9.8	(RUNOFF)
23.82	10.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.25 WATERSHED INCHES; 162 CFS-HRS; 13.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	2.1	(RUNOFF)
12.10	108.8	(RUNOFF)
12.79	65.2	(RUNOFF)
13.74	34.1	(RUNOFF)
16.56	2.4	(RUNOFF)
19.16	2.4	(RUNOFF)
19.67	2.8	(RUNOFF)
22.35	32.0	(RUNOFF)
23.31	12.6	(RUNOFF)
23.82	13.0	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.40	4.8	(NULL)
12.09	197.0	(NULL)
12.79	116.8	(NULL)
13.73	61.1	(NULL)
16.56	4.2	(NULL)
19.15	4.3	(NULL)
19.66	5.0	(NULL)
22.34	57.2	(NULL)
23.31	22.4	(NULL)
23.82	23.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.10 WATERSHED INCHES; 364 CFS-HRS; 30.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.30	5.8	(RUNOFF)
12.00	103.6	(RUNOFF)
12.75	54.6	(RUNOFF)
13.59	30.4	(RUNOFF)
14.36	5.5	(RUNOFF)
19.56	2.8	(RUNOFF)
21.84	25.7	(RUNOFF)
22.28	27.9	(RUNOFF)
23.25	10.1	(RUNOFF)
23.77	11.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 170 CFS-HRS; 14.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.50	55.9	(NULL)
12.19	1393.2	(NULL)
13.80	457.4	(NULL)
16.65	37.8	(NULL)
18.00	20.1	(NULL)
19.26	32.9	(NULL)
19.77	37.6	(NULL)
20.44	18.8	(NULL)
22.45	366.5	(NULL)
23.88	164.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 2989 CFS-HRS; 247.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.49	59.8	(NULL)
12.17	1575.4	(NULL)
13.79	517.4	(NULL)
16.63	41.8	(NULL)
17.99	21.4	(NULL)
19.25	36.5	(NULL)
19.76	42.2	(NULL)
20.42	20.3	(NULL)
22.43	419.9	(NULL)
23.87	187.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.56 WATERSHED INCHES; 3353 CFS-HRS; 277.1 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

8.58	57.4	282.71
12.27	1552.6	286.94
13.87	513.5	284.84
16.72	41.2	282.44
18.08	21.0	282.11
19.34	35.5	282.34
19.85	41.5	282.44
20.47	20.3	282.10
22.51	415.4	284.53
23.94	186.2	283.64

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.56 WATERSHED INCHES; 3350 CFS-HRS; 276.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	9.7	(RUNOFF)
12.72	6.4	(RUNOFF)
13.53	4.1	(RUNOFF)
21.78	3.8	(RUNOFF)
22.24	4.0	(RUNOFF)
23.74	1.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.98 WATERSHED INCHES; 17 CFS-HRS; 1.4 ACRE-FEET.

OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	9.6	288.51
12.79	6.4	288.35
13.60	4.1	288.23
21.85	3.7	288.21
22.30	4.0	288.22
23.80	1.7	288.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.98 WATERSHED INCHES; 17 CFS-HRS; 1.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	7.0	(RUNOFF)
12.76	5.0	(RUNOFF)
13.60	3.0	(RUNOFF)
22.28	3.0	(RUNOFF)
23.25	1.1	(RUNOFF)
23.77	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.86 WATERSHED INCHES; 13 CFS-HRS; 1.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	63.4	(RUNOFF)
12.75	34.9	(RUNOFF)
13.59	19.8	(RUNOFF)
14.36	3.6	(RUNOFF)
19.05	1.7	(RUNOFF)
19.56	1.8	(RUNOFF)
21.84	16.8	(RUNOFF)
22.28	18.4	(RUNOFF)
23.25	6.6	(RUNOFF)
23.77	7.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.04 WATERSHED INCHES; 105 CFS-HRS; 8.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.58	57.6	(NULL)
10.83	13.4	(NULL)
12.26	1580.2	(NULL)
13.85	527.1	(NULL)
16.71	41.7	(NULL)
18.07	21.1	(NULL)
19.35	36.1	(NULL)
19.84	42.2	(NULL)
22.50	424.3	(NULL)
23.91	190.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.54 WATERSHED INCHES; 3455 CFS-HRS; 285.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	16.6	(NULL)
12.77	11.4	(NULL)
13.60	7.1	(NULL)
14.43	1.3	(NULL)
21.85	6.4	(NULL)
22.30	7.0	(NULL)
23.79	3.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.92 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.58	57.6	(NULL)
10.83	13.4	(NULL)
12.26	1587.9	(NULL)
13.85	532.5	(NULL)
16.71	41.9	(NULL)
18.07	21.2	(NULL)
19.35	36.1	(NULL)
19.84	42.5	(NULL)
22.50	427.7	(NULL)
23.89	192.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.50 WATERSHED INCHES; 3485 CFS-HRS; 288.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	50.3	(RUNOFF)
12.75	28.1	(RUNOFF)
13.60	15.8	(RUNOFF)
14.31	2.9	(RUNOFF)
19.06	1.4	(RUNOFF)
19.57	1.4	(RUNOFF)
21.85	13.5	(RUNOFF)
22.28	14.8	(RUNOFF)
23.25	5.4	(RUNOFF)
23.77	6.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.89 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.58	57.8	(NULL)
10.83	13.5	(NULL)
12.25	1612.0	(NULL)
13.84	544.6	(NULL)
16.69	42.4	(NULL)
18.07	21.2	(NULL)
19.37	36.6	(NULL)
19.83	43.2	(NULL)
22.48	435.9	(NULL)
23.85	197.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.48 WATERSHED INCHES; 3569 CFS-HRS; 294.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.03	32.0	(RUNOFF)
12.76	18.1	(RUNOFF)
13.63	10.0	(RUNOFF)
21.88	8.4	(RUNOFF)
22.29	9.5	(RUNOFF)
23.78	3.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.87 WATERSHED INCHES; 54 CFS-HRS; 4.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.58	57.9	(NULL)
9.57	8.4	(NULL)
10.83	13.5	(NULL)
12.24	1630.4	(NULL)
13.83	553.0	(NULL)
16.69	42.8	(NULL)
18.06	21.3	(NULL)
19.83	43.6	(NULL)
22.48	442.1	(NULL)
23.83	200.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.47 WATERSHED INCHES; 3623 CFS-HRS; 299.4 ACRE-FEET.

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OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.68	54.4	248.36
9.66	8.2	247.77
10.93	12.9	247.85
12.36	1597.9	251.08
13.91	549.2	249.79
16.80	41.9	248.22
18.16	20.9	247.97
19.92	42.8	248.23
22.58	436.8	249.59
23.91	200.2	249.06

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.47 WATERSHED INCHES; 3618 CFS-HRS; 299.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.45	2.0	(RUNOFF)
12.10	25.1	(RUNOFF)
12.77	13.8	(RUNOFF)
13.78	6.7	(RUNOFF)
22.38	6.0	(RUNOFF)
23.84	2.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.57	1.7	330.07
12.28	21.0	335.38
13.86	6.4	334.14
22.63	4.4	332.05

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION REACH XSECTION 65

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.66	1.6	300.26
12.38	20.7	300.95
13.94	6.4	300.54
22.73	4.4	300.44

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.29	6.3	(RUNOFF)
12.00	103.6	(RUNOFF)
12.74	53.6	(RUNOFF)
13.58	30.3	(RUNOFF)
14.37	5.4	(RUNOFF)
19.55	2.7	(RUNOFF)
21.83	25.6	(RUNOFF)
22.27	27.7	(RUNOFF)
23.25	9.9	(RUNOFF)
23.76	11.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.72 WATERSHED INCHES; 169 CFS-HRS; 14.0 ACRE-FEET.

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.33	5.8	288.10
10.56	1.3	287.46

12.17	69.2	296.98
13.71	27.5	294.71
15.60	1.1	287.44
16.48	2.1	287.57
19.07	2.6	287.64
19.58	2.7	287.65
22.46	16.0	292.45

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.73 WATERSHED INCHES; 169 CFS-HRS; 14.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.37	6.8	(NULL)
10.58	1.3	(NULL)
12.22	85.9	(NULL)
13.70	33.8	(NULL)
15.58	3.3	(NULL)
16.52	2.4	(NULL)
19.07	2.7	(NULL)
19.58	3.1	(NULL)
20.30	1.1	(NULL)
22.57	20.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.91 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.29	10.3	(RUNOFF)
11.99	175.1	(RUNOFF)
12.74	90.7	(RUNOFF)
13.58	51.8	(RUNOFF)
14.38	9.0	(RUNOFF)
19.55	4.7	(RUNOFF)
21.83	43.6	(RUNOFF)
22.26	47.1	(RUNOFF)
23.25	16.8	(RUNOFF)
23.76	19.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 284 CFS-HRS; 23.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

8.30	16.4	(NULL)
12.04	244.7	(NULL)
12.70	160.2	(NULL)
13.59	84.4	(NULL)
19.05	7.3	(NULL)
19.56	7.7	(NULL)
21.84	57.0	(NULL)
22.27	65.8	(NULL)
23.06	34.1	(NULL)
23.76	33.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 501 CFS-HRS; 41.4 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.58	11.0	247.82
10.82	2.2	247.44
12.30	206.6	249.08
13.84	80.6	248.59
16.75	5.1	247.67
19.32	4.6	247.63
19.83	5.9	247.74
20.50	2.3	247.45
22.52	58.4	248.40
23.98	32.3	248.12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.76 WATERSHED INCHES; 500 CFS-HRS; 41.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.23	3.4	(RUNOFF)
11.97	31.1	(RUNOFF)
12.69	15.0	(RUNOFF)
13.50	9.1	(RUNOFF)
14.29	1.5	(RUNOFF)
21.75	7.8	(RUNOFF)
22.23	8.1	(RUNOFF)
23.73	3.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.40 WATERSHED INCHES; 49 CFS-HRS; 4.1 ACRE-FEET.

1

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.35	1.6	260.35
12.01	28.9	267.45
12.75	14.8	266.43
13.60	7.9	265.78
23.75	3.0	262.69

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.39 WATERSHED INCHES; 49 CFS-HRS; 4.1 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.44	1.5	247.35
12.09	28.2	248.08
12.81	14.7	247.87
13.70	7.8	247.77
23.81	3.0	247.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.37 WATERSHED INCHES; 49 CFS-HRS; 4.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	179.2	(RUNOFF)
12.74	104.7	(RUNOFF)
13.56	62.9	(RUNOFF)
14.44	10.9	(RUNOFF)
19.02	5.8	(RUNOFF)
19.54	6.0	(RUNOFF)
21.80	55.1	(RUNOFF)
22.25	59.0	(RUNOFF)
23.23	21.0	(RUNOFF)
23.75	24.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.18 WATERSHED INCHES; 296 CFS-HRS; 24.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.72	6.8	(NULL)
8.68	54.4	(NULL)
9.66	8.2	(NULL)
12.37	1668.6	(NULL)
16.78	42.3	(NULL)
18.16	20.9	(NULL)
19.54	42.3	(NULL)
19.88	43.9	(NULL)
22.55	457.8	(NULL)
23.73	223.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.34 WATERSHED INCHES; 3914 CFS-HRS; 323.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

8.58	12.4	(NULL)
10.81	2.4	(NULL)
12.29	223.4	(NULL)
13.81	87.7	(NULL)
16.72	5.6	(NULL)
19.31	5.0	(NULL)
19.82	6.4	(NULL)
20.48	2.5	(NULL)
22.52	61.9	(NULL)
23.97	35.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 549 CFS-HRS; 45.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.42	7.6	(NULL)
8.66	65.3	(NULL)
9.63	9.6	(NULL)
10.91	14.9	(NULL)
12.36	1885.2	(NULL)
16.76	47.8	(NULL)
18.14	22.5	(NULL)
19.57	46.1	(NULL)
19.87	50.1	(NULL)
22.54	519.4	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.39 WATERSHED INCHES; 4462 CFS-HRS; 368.8 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. ***

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.42	7.6	226.33
8.66	65.3	227.21
9.63	9.6	226.41
10.91	14.9	226.55
12.36	1885.2	231.43
16.76	47.8	227.04
18.14	22.5	226.67
19.57	46.1	227.03
19.87	50.1	227.07
22.54	519.4	229.38

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.39 WATERSHED INCHES; 4462 CFS-HRS; 368.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

11.99	102.2	(RUNOFF)
12.73	55.3	(RUNOFF)
13.55	32.7	(RUNOFF)
14.44	5.6	(RUNOFF)
19.02	3.0	(RUNOFF)
19.53	3.1	(RUNOFF)
21.80	28.2	(RUNOFF)
22.25	30.0	(RUNOFF)
23.22	10.5	(RUNOFF)
23.75	12.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.00 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.42	7.6	(NULL)
8.66	65.3	(NULL)
9.63	9.6	(NULL)
12.37	1923.4	(NULL)
16.75	48.0	(NULL)
18.14	22.5	(NULL)
19.55	49.1	(NULL)
19.85	50.9	(NULL)
22.53	530.5	(NULL)
23.73	270.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.38 WATERSHED INCHES; 4627 CFS-HRS; 382.4 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.49	7.6	210.82
8.73	64.7	211.58
9.70	9.5	210.86
12.44	1919.7	217.89
16.82	47.9	211.42
18.21	22.4	211.10
19.62	49.0	211.43
19.92	50.8	211.45
22.60	530.0	213.58
23.79	270.6	212.74

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.37 WATERSHED INCHES; 4623 CFS-HRS; 382.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.26	7.2	(RUNOFF)
11.97	117.3	(RUNOFF)
12.71	60.1	(RUNOFF)

13.53	36.1	(RUNOFF)
14.36	6.0	(RUNOFF)
19.51	3.4	(RUNOFF)
21.77	31.0	(RUNOFF)
22.24	32.4	(RUNOFF)
23.20	11.1	(RUNOFF)
23.74	13.4	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.60 WATERSHED INCHES; 185 CFS-HRS; 15.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.49	7.9	(NULL)
8.73	64.7	(NULL)
9.70	9.5	(NULL)
12.45	1974.2	(NULL)
16.82	48.0	(NULL)
18.21	22.4	(NULL)
19.58	51.7	(NULL)
19.90	51.1	(NULL)
22.58	538.9	(NULL)
23.75	283.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.38 WATERSHED INCHES; 4808 CFS-HRS; 397.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	57.5	(RUNOFF)
12.72	32.1	(RUNOFF)
13.55	19.3	(RUNOFF)
14.43	3.3	(RUNOFF)
19.01	1.8	(RUNOFF)
19.53	1.8	(RUNOFF)
21.79	16.8	(RUNOFF)
22.25	17.8	(RUNOFF)
23.21	6.2	(RUNOFF)
23.74	7.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.59 WATERSHED INCHES; 93 CFS-HRS; 7.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

8.73	64.7	(NULL)
9.70	9.5	(NULL)
12.45	2002.1	(NULL)
16.81	48.0	(NULL)
18.21	22.4	(NULL)
19.57	53.4	(NULL)
19.88	51.4	(NULL)
22.40	546.0	(NULL)
22.56	544.8	(NULL)
23.75	290.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.36 WATERSHED INCHES; 4901 CFS-HRS; 405.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	212.0	(RUNOFF)
12.77	122.2	(RUNOFF)
13.65	66.9	(RUNOFF)
16.51	4.8	(RUNOFF)
19.09	5.5	(RUNOFF)
19.60	5.9	(RUNOFF)
21.91	55.8	(RUNOFF)
22.30	63.7	(RUNOFF)
23.27	23.7	(RUNOFF)
23.80	26.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.80 WATERSHED INCHES; 367 CFS-HRS; 30.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.49	7.9	(NULL)
8.73	64.9	(NULL)
9.69	9.6	(NULL)
12.46	2102.9	(NULL)
16.68	50.1	(NULL)
18.20	22.7	(NULL)
19.15	34.0	(NULL)
19.58	59.3	(NULL)
22.37	605.0	(NULL)
23.76	316.1	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.32 WATERSHED INCHES; 5268 CFS-HRS; 435.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.24	1.3	(RUNOFF)
8.25	5.3	(RUNOFF)
11.97	42.4	(RUNOFF)

12.69	20.4	(RUNOFF)
13.51	12.1	(RUNOFF)
14.33	2.0	(RUNOFF)
21.76	10.3	(RUNOFF)
22.23	10.7	(RUNOFF)
23.19	3.6	(RUNOFF)
23.73	4.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.63 WATERSHED INCHES; 68 CFS-HRS; 5.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
7.49	8.3	(NULL)
8.73	64.9	(NULL)
9.69	9.6	(NULL)
12.46	2122.1	(NULL)
16.66	50.2	(NULL)
18.20	22.7	(NULL)
19.11	34.4	(NULL)
19.57	60.2	(NULL)
22.36	611.1	(NULL)
23.76	320.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.33 WATERSHED INCHES; 5336 CFS-HRS; 441.0 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 88
STARTING TIME = .00 RAIN DEPTH = 5.70 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS
ALTERNATE NO. = 1 STORM NO. = 6 RAIN TABLE NO. = 6

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	55.5	(RUNOFF)
1.79	35.9	(RUNOFF)
2.72	19.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.17	55.1	390.35
1.86	35.8	390.12
2.79	19.0	389.84

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	102.7	(RUNOFF)
1.79	63.8	(RUNOFF)
2.70	34.0	(RUNOFF)
5.11	1.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.56 WATERSHED INCHES; 133 CFS-HRS; 11.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	155.1	(NULL)
1.80	99.1	(NULL)
2.73	52.5	(NULL)
5.13	2.0	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.52 WATERSHED INCHES; 208 CFS-HRS; 17.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	154.6	383.41
1.83	98.9	382.75
2.85	48.8	382.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.52 WATERSHED INCHES; 208 CFS-HRS; 17.2 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.19	154.0	368.54
1.89	98.9	368.20
2.92	48.8	367.76

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.52 WATERSHED INCHES; 208 CFS-HRS; 17.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	117.4	(RUNOFF)
1.79	79.9	(RUNOFF)
2.71	43.5	(RUNOFF)
5.12	1.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.11 WATERSHED INCHES; 160 CFS-HRS; 13.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.15	265.5	(NULL)
1.84	177.5	(NULL)
2.81	88.1	(NULL)
5.11	4.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.33 WATERSHED INCHES; 369 CFS-HRS; 30.5 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.21	264.5	358.06
1.90	177.3	357.66
2.87	88.0	357.13
5.18	4.3	356.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.33 WATERSHED INCHES; 369 CFS-HRS; 30.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	159.5	(RUNOFF)
1.78	89.9	(RUNOFF)
2.73	45.8	(RUNOFF)
5.13	1.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.40 WATERSHED INCHES; 209 CFS-HRS; 17.2 ACRE-FEET.

*** MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.89	86.2	376.68
2.84	42.7	375.93

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.15 WATERSHED INCHES; 197 CFS-HRS; 16.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	15.5	(RUNOFF)
1.71	9.6	(RUNOFF)
2.50	6.1	(RUNOFF)
3.45	1.0	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.77 WATERSHED INCHES; 17 CFS-HRS; 1.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.98	84.6	357.70
2.88	42.5	355.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.15 WATERSHED INCHES; 197 CFS-HRS; 16.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	88.5	(RUNOFF)
1.74	56.1	(RUNOFF)
2.57	33.4	(RUNOFF)
3.47	5.9	(RUNOFF)
5.03	1.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 105 CFS-HRS; 8.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.14	317.2	(NULL)
1.81	227.9	(NULL)
2.79	112.8	(NULL)
5.07	5.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.21 WATERSHED INCHES; 473 CFS-HRS; 39.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	36.0	(RUNOFF)
1.74	21.1	(RUNOFF)
2.59	12.1	(RUNOFF)
3.47	2.2	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.41 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.15	325.6	(NULL)
1.83	309.2	(NULL)
2.79	155.4	(NULL)
5.07	15.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.44 WATERSHED INCHES; 670 CFS-HRS; 55.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.12	354.5	(NULL)
1.82	329.6	(NULL)
2.77	165.3	(NULL)
5.06	15.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.44 WATERSHED INCHES; 712 CFS-HRS; 58.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.12	354.5	(NULL)
1.82	329.6	(NULL)
2.77	165.3	(NULL)
5.06	15.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.44 WATERSHED INCHES; 712 CFS-HRS; 58.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

OPERATION REACH XSECTION 16

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.12	354.5	333.83
1.82	329.6	333.69
2.77	165.3	332.67
5.06	15.8	331.28

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.44 WATERSHED INCHES; 712 CFS-HRS; 58.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.98	51.9	(RUNOFF)
1.71	26.6	(RUNOFF)
2.53	15.7	(RUNOFF)
3.46	2.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.32 WATERSHED INCHES; 59 CFS-HRS; 4.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.00	81.6	(RUNOFF)
1.73	40.2	(RUNOFF)
2.60	22.0	(RUNOFF)
3.47	3.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.76 WATERSHED INCHES; 96 CFS-HRS; 7.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	93.3	(RUNOFF)
1.72	48.9	(RUNOFF)
2.53	29.1	(RUNOFF)
3.46	4.9	(RUNOFF)
5.01	1.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.96 WATERSHED INCHES; 103 CFS-HRS; 8.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
08:41:05 PASS 2 JOB NO. 1 PAGE 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	134.3	(NULL)
1.72	66.8	(NULL)
2.57	37.1	(NULL)
3.46	6.5	(NULL)
5.03	1.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.58 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	227.6	(NULL)
1.72	115.7	(NULL)
2.55	66.1	(NULL)
3.46	11.4	(NULL)

5.02	3.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.31 WATERSHED INCHES; 258 CFS-HRS; 21.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.06	549.4	(NULL)
1.78	442.4	(NULL)
2.56	226.9	(NULL)
5.03	18.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.63 WATERSHED INCHES; 971 CFS-HRS; 80.2 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.22	505.6	316.43
1.92	434.2	316.26
2.73	223.3	315.64
5.18	18.1	314.13

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.63 WATERSHED INCHES; 971 CFS-HRS; 80.2 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.07	79.9	(RUNOFF)
1.78	52.0	(RUNOFF)
2.67	28.6	(RUNOFF)
5.09	1.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.18 WATERSHED INCHES; 103 CFS-HRS; 8.6 ACRE-FEET.

*** WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	78.1	363.93
1.83	51.3	363.50
2.82	25.6	361.27
5.11	1.2	356.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

3.17 WATERSHED INCHES; 103 CFS-HRS; 8.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	113.4	(RUNOFF)
1.78	75.5	(RUNOFF)
2.68	41.4	(RUNOFF)
5.10	1.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.12 WATERSHED INCHES; 150 CFS-HRS; 12.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	191.4	(NULL)
1.80	126.6	(NULL)
2.70	66.4	(NULL)
5.11	2.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.14 WATERSHED INCHES; 254 CFS-HRS; 21.0 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.20	178.6	319.16
1.89	124.8	318.91
2.82	65.2	318.39
5.20	2.6	316.49

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.14 WATERSHED INCHES; 254 CFS-HRS; 21.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.07	78.6	(RUNOFF)
1.78	55.5	(RUNOFF)
2.66	31.4	(RUNOFF)
5.08	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.70 WATERSHED INCHES; 104 CFS-HRS; 8.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.21	565.0	(NULL)
1.90	484.0	(NULL)
2.71	254.0	(NULL)

5.16	19.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.52 WATERSHED INCHES; 1075 CFS-HRS; 88.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.21	743.6	(NULL)
1.90	608.9	(NULL)
2.75	317.2	(NULL)
5.17	21.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.44 WATERSHED INCHES; 1329 CFS-HRS; 109.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.03	140.1	(RUNOFF)
1.75	79.4	(RUNOFF)
2.61	44.2	(RUNOFF)
3.46	8.1	(RUNOFF)
5.06	1.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.75 WATERSHED INCHES; 167 CFS-HRS; 13.8 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.12	134.3	313.11
1.84	78.5	312.42
2.74	41.8	311.74
5.16	1.7	310.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.75 WATERSHED INCHES; 167 CFS-HRS; 13.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.96	23.3	(RUNOFF)
1.72	11.1	(RUNOFF)
2.55	6.3	(RUNOFF)
3.46	1.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.11 WATERSHED INCHES; 28 CFS-HRS; 2.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 32

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.14	15.9	380.35
1.77	10.9	380.22
2.78	4.9	379.98

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.92 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.20	15.8	338.19
1.83	10.9	338.15
2.84	4.9	338.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.92 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	75.8	(RUNOFF)
1.73	36.1	(RUNOFF)
2.59	19.8	(RUNOFF)
3.47	3.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.10 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	66.3	357.33
1.80	35.1	356.71
2.77	16.8	355.92

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.93 WATERSHED INCHES; 87 CFS-HRS; 7.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 36
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	78.2	(NULL)
1.81	45.9	(NULL)
2.79	21.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

4.93 WATERSHED INCHES; 114 CFS-HRS; 9.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	78.2	(NULL)
1.81	45.9	(NULL)
2.79	21.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.93 WATERSHED INCHES; 114 CFS-HRS; 9.4 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	78.2	330.66
1.81	45.9	330.49
2.79	21.6	330.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.93 WATERSHED INCHES; 114 CFS-HRS; 9.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	77.8	(RUNOFF)
1.72	40.3	(RUNOFF)
2.55	23.5	(RUNOFF)
3.46	4.0	(RUNOFF)
5.02	1.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.13 WATERSHED INCHES; 88 CFS-HRS; 7.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.06	141.9	(NULL)
1.75	85.8	(NULL)
2.57	43.2	(NULL)
5.01	3.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.55 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	70.2	(RUNOFF)

1.78	43.1	(RUNOFF)
2.69	23.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.57 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.20	802.0	(NULL)
1.88	648.8	(NULL)
2.74	340.1	(NULL)
5.17	22.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.45 WATERSHED INCHES; 1419 CFS-HRS; 117.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.19	928.8	(NULL)
1.87	726.8	(NULL)
2.74	381.8	(NULL)
5.16	24.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.47 WATERSHED INCHES; 1587 CFS-HRS; 131.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.17	1040.1	(NULL)
1.84	806.3	(NULL)
2.73	422.8	(NULL)
5.15	27.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.57 WATERSHED INCHES; 1788 CFS-HRS; 147.8 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.27	1003.6	291.26
1.93	800.3	290.97
2.83	418.3	290.28
5.23	26.6	288.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.57 WATERSHED INCHES; 1788 CFS-HRS; 147.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	68.8	(RUNOFF)
1.80	47.6	(RUNOFF)
2.72	25.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.12 WATERSHED INCHES; 96 CFS-HRS; 7.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	80.8	(RUNOFF)
1.81	59.4	(RUNOFF)
2.74	32.4	(RUNOFF)
5.14	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.91 WATERSHED INCHES; 118 CFS-HRS; 9.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.12	149.5	(NULL)
1.80	107.0	(NULL)
2.73	58.1	(NULL)
5.13	2.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.00 WATERSHED INCHES; 214 CFS-HRS; 17.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	87.8	(RUNOFF)
1.74	51.5	(RUNOFF)
2.59	29.4	(RUNOFF)
3.47	5.3	(RUNOFF)
5.05	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.43 WATERSHED INCHES; 104 CFS-HRS; 8.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.26	1043.2	(NULL)
1.89	841.7	(NULL)
2.81	441.9	(NULL)
5.21	27.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.56 WATERSHED INCHES; 1892 CFS-HRS; 156.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.24	1170.9	(NULL)
1.87	946.5	(NULL)
2.79	498.8	(NULL)
5.19	29.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.49 WATERSHED INCHES; 2106 CFS-HRS; 174.0 ACRE-FEET.

OPERATION REACH XSECTION 51

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.34	1146.7	286.26
1.95	943.1	285.86
2.88	495.0	284.78
5.26	29.0	282.24

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.49 WATERSHED INCHES; 2106 CFS-HRS; 174.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.01	5.9	(RUNOFF)
1.73	5.3	(RUNOFF)
2.53	3.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.43 WATERSHED INCHES; 8 CFS-HRS; .7 ACRE-FEET.

*** WARNING - XSECTION 53, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN
2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,
UNLESS NEW RATING TABLE VALUES ARE INSERTED. ***

OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	5.7	288.32
1.80	5.3	288.29
2.61	3.5	288.20

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.43 WATERSHED INCHES; 8 CFS-HRS; .7 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.06	3.9	(RUNOFF)
1.78	4.1	(RUNOFF)
2.60	2.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.35 WATERSHED INCHES; 6 CFS-HRS; .5 ACRE-FEET.

OPERATION RUNOFF XSECTION 55
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
08:41:05 PASS 2 JOB NO. 1 PAGE 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.03	50.7	(RUNOFF)
1.75	32.2	(RUNOFF)
2.59	18.8	(RUNOFF)
3.47	3.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.95 WATERSHED INCHES; 61 CFS-HRS; 5.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.34	1167.7	(NULL)
1.92	967.0	(NULL)
2.86	507.6	(NULL)
5.24	29.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.48 WATERSHED INCHES; 2167 CFS-HRS; 179.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.07	9.6	(NULL)
1.79	9.3	(NULL)
2.60	6.2	(NULL)
3.51	1.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.39 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.34	1172.3	(NULL)
1.91	974.9	(NULL)
2.85	512.3	(NULL)
5.20	29.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.44 WATERSHED INCHES; 2181 CFS-HRS; 180.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 59
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.04	39.4	(RUNOFF)
1.76	25.8	(RUNOFF)
2.60	15.0	(RUNOFF)
3.47	2.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.83 WATERSHED INCHES; 49 CFS-HRS; 4.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.34	1189.5	(NULL)
1.88	996.8	(NULL)
2.84	523.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.43 WATERSHED INCHES; 2230 CFS-HRS; 184.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.06	24.8	(RUNOFF)
1.77	16.6	(RUNOFF)
2.64	9.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.81 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.34	1201.3	(NULL)
1.86	1012.3	(NULL)
2.83	531.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 2261 CFS-HRS; 186.9 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.46	1169.2	250.63
2.90	529.1	249.76

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 2261 CFS-HRS; 186.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	22.1	(RUNOFF)
1.79	13.4	(RUNOFF)
2.78	6.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.37	16.5	335.03
2.86	6.3	334.13

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.47	16.2	300.85
2.94	6.3	300.54

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	88.8	(RUNOFF)
1.74	51.1	(RUNOFF)
2.59	29.3	(RUNOFF)
3.47	5.2	(RUNOFF)
5.04	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.51 WATERSHED INCHES; 104 CFS-HRS; 8.6 ACRE-FEET.

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
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*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.21	49.4	295.92
1.84	47.5	295.84
2.73	26.2	294.67
5.06	1.3	287.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.51 WATERSHED INCHES; 104 CFS-HRS; 8.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.32	60.6	(NULL)
1.83	61.3	(NULL)
2.72	32.4	(NULL)
5.05	1.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.68 WATERSHED INCHES; 135 CFS-HRS; 11.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.01	149.5	(RUNOFF)
1.74	86.3	(RUNOFF)
2.58	49.9	(RUNOFF)
3.47	8.8	(RUNOFF)
5.03	2.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 174 CFS-HRS; 14.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.04	192.6	(NULL)
1.75	147.1	(NULL)
2.60	80.9	(NULL)
5.04	3.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.55 WATERSHED INCHES; 308 CFS-HRS; 25.5 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.27	146.8	248.90
1.93	141.6	248.88
2.79	77.4	248.56

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.55 WATERSHED INCHES; 308 CFS-HRS; 25.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.96	28.2	(RUNOFF)

1.71	14.8	(RUNOFF)
2.50	9.1	(RUNOFF)
3.45	1.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	20.8	267.17
1.75	14.2	266.37
2.60	7.8	265.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION REACH XSECTION 72

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TR20 ---------- SCS -
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.15	19.5	247.95
1.83	14.2	247.87
2.71	7.5	247.76

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.10 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	132.4	(RUNOFF)
1.74	93.5	(RUNOFF)
2.56	57.8	(RUNOFF)
3.47	10.3	(RUNOFF)
5.02	2.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.28 WATERSHED INCHES; 162 CFS-HRS; 13.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.47	1247.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.31 WATERSHED INCHES; 2423 CFS-HRS; 200.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.26	163.1	(NULL)
1.91	155.4	(NULL)

2.77	84.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.59 WATERSHED INCHES; 340 CFS-HRS; 28.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.46	1394.3	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.34 WATERSHED INCHES; 2762 CFS-HRS; 228.3 ACRE-FEET.

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.53	1393.8	230.91

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.34 WATERSHED INCHES; 2762 CFS-HRS; 228.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.00	83.2	(RUNOFF)
1.73	51.4	(RUNOFF)
2.55	30.9	(RUNOFF)
3.47	5.4	(RUNOFF)
5.02	1.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.91 WATERSHED INCHES; 96 CFS-HRS; 7.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.53	1441.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.32 WATERSHED INCHES; 2858 CFS-HRS; 236.2 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.60	1436.0	216.96

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.32 WATERSHED INCHES; 2858 CFS-HRS; 236.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	102.1	(RUNOFF)
1.72	57.3	(RUNOFF)
2.53	34.8	(RUNOFF)
3.46	5.8	(RUNOFF)
5.01	1.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.40 WATERSHED INCHES; 113 CFS-HRS; 9.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.61	1491.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.33 WATERSHED INCHES; 2971 CFS-HRS; 245.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.00	45.2	(RUNOFF)
1.73	29.3	(RUNOFF)
2.55	18.1	(RUNOFF)
3.46	3.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.60 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.61	1519.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.31 WATERSHED INCHES; 3023 CFS-HRS; 249.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.07	160.4	(RUNOFF)
1.78	111.7	(RUNOFF)
2.66	63.1	(RUNOFF)
5.08	2.7	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.76 WATERSHED INCHES; 211 CFS-HRS; 17.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.62	1623.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.27 WATERSHED INCHES; 3234 CFS-HRS; 267.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.97	39.1	(RUNOFF)
1.71	20.1	(RUNOFF)
2.51	12.1	(RUNOFF)
3.45	2.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.30 WATERSHED INCHES; 44 CFS-HRS; 3.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.62	1643.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.28 WATERSHED INCHES; 3279 CFS-HRS; 270.9 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 8.11 inches AND 23.80 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 5, ARC 2							
MAIN TIME INCREMENT .060 HOURS							
ALTERNATE 1 STORM 24							
STRUCTURE 11	RESVOR	.09	5.65	383.84	12.09	190	2111.1
XSECTION 8	REACH	.17	5.46	358.31	12.17	334	1964.7
STRUCTURE 21	RESVOR	.07	5.56	377.34	12.30	121	1728.6
STRUCTURE 22	RESVOR	.07	5.54	359.01	12.55	105	1500.0
STRUCTURE 23	RESVOR	.32	5.39	---	12.13	505	1578.1

XSECTION	23	REACH	.41	5.67	316.80	12.20	684	1668.3
STRUCTURE	31	RESVOR	.05	5.32	364.55	12.10	98	1960.0
STRUCTURE	32	RESVOR	.01	5.93	380.50	12.05	22	2200.0
STRUCTURE	33	RESVOR	.03	6.72	357.42	12.03	76	2533.3
STRUCTURE	34	RESVOR	.04	6.53	---	12.03	99	2475.0
XSECTION	44	REACH	.78	5.63	291.70	12.22	1335	1711.5
XSECTION	51	REACH	.93	5.56	286.94	12.27	1553	1669.9
XSECTION	63	REACH	1.03	5.47	251.08	12.36	1598	1551.5
STRUCTURE	61	RESVOR	.01	6.68	335.38	12.28	21	2100.0
STRUCTURE	62	RESVOR	.05	5.73	296.98	12.17	69	1380.0
STRUCTURE	63	RESVOR	.01	6.39	267.45	12.01	29	2900.0
XSECTION	75	ADDHYD	.15	5.81	---	12.29	223	1486.7
XSECTION	76	ADDHYD	1.28	5.39	---	12.36	1885	1472.7
XSECTION	77	REACH	1.28	5.39	231.43	12.36	1885	1472.7
XSECTION	78	RUNOFF	.05	5.00	---	11.99	102	2040.0
XSECTION	88	ADDHYD	1.55	5.33	---	12.46	2122	1369.0

RAINFALL OF 5.70 inches AND 5.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 6, ARC 2

ALTERNATE 1 STORM 6

STRUCTURE	11	RESVOR	.09	3.52	383.41	1.13	155	1722.2

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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 1 STORM 6

XSECTION	8	REACH	.17	3.33	358.06	1.21	265	1558.8
STRUCTURE	21	RESVOR	.07	4.15	376.68	1.89	86	1228.6
STRUCTURE	22	RESVOR	.07	4.15	357.70	1.98	85	1214.3
STRUCTURE	23	RESVOR	.32	3.44	---	1.12	354	1106.3
XSECTION	23	REACH	.41	3.63	316.43	1.22	506	1234.1
STRUCTURE	31	RESVOR	.05	3.17	363.93	1.11	78	1560.0
STRUCTURE	32	RESVOR	.01	4.92	380.35	1.14	16	1600.0
STRUCTURE	33	RESVOR	.03	4.93	357.33	1.10	66	2200.0
STRUCTURE	34	RESVOR	.04	4.93	---	1.13	78	1950.0
XSECTION	44	REACH	.78	3.57	291.26	1.27	1004	1287.2
XSECTION	51	REACH	.93	3.49	286.26	1.34	1147	1233.3
XSECTION	63	REACH	1.03	3.42	250.63	1.46	1169	1135.0
STRUCTURE	61	RESVOR	.01	4.35	335.03	1.37	16	1600.0

STRUCTURE	62	RESVOR	.05	3.51	295.92	1.21	49	980.0
STRUCTURE	63	RESVOR	.01	4.09	267.17	1.08	21	2100.0
XSECTION	75	ADDHYD	.15	3.59	---	1.26	163	1086.7
XSECTION	76	ADDHYD	1.28	3.34	---	1.46	1394	1089.1
XSECTION	77	REACH	1.28	3.34	230.91	1.53	1394	1089.1
XSECTION	78	RUNOFF	.05	2.91	---	1.00	83	1660.0
XSECTION	88	ADDHYD	1.55	3.28	---	1.62	1643	1060.0

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SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	HYDROGRAPH INFLOW TIME (HR)	HYDROGRAPH OUTFLOW PEAK (CFS)	HYDROGRAPH OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 24											
2	1170		68	12.1	68	12.1	.30	2.00	.002	.997	.91?
5	797		189	12.1	189	12.2	1.88	1.27	.009	1.000	.93?
8	1221		335	12.1	334	12.2	1.29	1.44	.006	.999	.94?
16	920		505	12.1	505	12.1	4.10	1.44	.001	1.000	1.00?
23	1379		715	12.1	681	12.2	.59	1.31	.023	.952	.50
27	1021		241	12.1	233	12.2	.52	1.38	.019	.970	.58
32	1603		161	12.0	157	12.1	1.36	1.31	.028	.974	.54
34	583		22	12.1	22	12.1	1.14	1.62	.004	1.000	1.00?
37	934		98	12.1	98	12.1	2.40	1.52	.003	1.000	1.00?
44	1428		1363	12.1	1331	12.2	.26	1.46	.013	.976	.59
51	1275		1575	12.2	1548	12.2	.43	1.38	.012	.982	.64
53	652		10	12.0	10	12.1	2.05	1.40	.008	.991	.85?
63	1959		1630	12.2	1598	12.4	.38	1.43	.015	.980	.54
65	1283		21	12.3	21	12.4	2.50	1.38	.010	.987	.68?
70	2166		243	12.1	207	12.3	1.45	1.12	.089	.851	.25
72	1081		29	12.0	28	12.1	1.66	1.42	.012	.970	.71?
77	884		1885	12.4	1885	12.4	1.80	1.23	.006	1.000	1.00?
80	1296		1923	12.4	1918	12.4	4.35	1.11	.012	.997	.85?
ALTERNATE 1 STORM 6											
2	1170		55	1.1	55	1.1	.26	2.00	.004	.988	.82?
5	797		154	1.1	154	1.2	1.93	1.26	.014	.997	.90?
8	1221		265	1.1	264	1.2	1.28	1.44	.009	.995	.91?
16	920		354	1.1	354	1.1	3.83	1.46	.001	1.000	1.00?
23	1379		547	1.1	502	1.2	.64	1.30	.033	.918	.46

27	1021	190	1.1	179	1.2	.71	1.30	.040	.938	.52
32	1603	140	1.0	134	1.1	1.35	1.31	.044	.957	.53
34	583	16	1.1	16	1.2	1.14	1.62	.004	.996	.96?

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TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
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SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	HYDROGRAPH INFLOW TIME (HR)	HYDROGRAPH OUTFLOW PEAK (CFS)	HYDROGRAPH OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
ALTERNATE 1 STORM 6											
37	934		78	1.1	78	1.1	2.36	1.53	.003	1.000	1.00?
44	1428		1033	1.1	1003	1.3	.28	1.45	.019	.971	.55
51	1275		1168	1.3	1145	1.3	.44	1.37	.018	.980	.60
53	652		6	1.0	6	1.1	2.05	1.40	.014	.976	.78?
63	1959		1200	1.3	1168	1.4	.41	1.41	.022	.973	.50
65	1283		16	1.4	16	1.4	2.48	1.39	.014	.981	.66
70	2166		191	1.0	147	1.3	1.85	1.05	.145	.767	.22
72	1081		21	1.1	19	1.1	1.59	1.45	.015	.933	.68?
77	884		1392	1.4	1391	1.5	1.90	1.22	.008	.999	.97?
80	1296		1437	1.5	1435	1.6	4.20	1.12	.015	.999	.84?

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES, VERSION
07/05/** CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR 2.04TEST
08:41:05 SUMMARY, JOB NO. 1 PAGE 68

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6	24
STRUCTURE 63	.01		
ALTERNATE 1		21	29
STRUCTURE 62	.05		
ALTERNATE 1		49	69

STRUCTURE	61	.01		
ALTERNATE	1		16	21
STRUCTURE	34	.04		
ALTERNATE	1		78	99
STRUCTURE	33	.03		
ALTERNATE	1		66	76
STRUCTURE	32	.01		
ALTERNATE	1		16	22
STRUCTURE	31	.05		
ALTERNATE	1		78	98
STRUCTURE	23	.32		
ALTERNATE	1		354	505
STRUCTURE	22	.07		
ALTERNATE	1		85	105
STRUCTURE	21	.07		
ALTERNATE	1		86	121
STRUCTURE	11	.09		
ALTERNATE	1		155	190
XSECTION	8	.17		
ALTERNATE	1		265	334
XSECTION	23	.41		
ALTERNATE	1		506	684
XSECTION	44	.78		

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6	24

```
XSECTION   44          .78
---------------------------
   ALTERNATE    1                1004      1335

XSECTION   51          .93
---------------------------
   ALTERNATE    1                1147      1553

XSECTION   63         1.03
---------------------------
   ALTERNATE    1                1169      1598

XSECTION   75          .15
---------------------------
   ALTERNATE    1                 163       223

XSECTION   76         1.28
---------------------------
   ALTERNATE    1                1394      1885

XSECTION   77         1.28
---------------------------
   ALTERNATE    1                1394      1885

XSECTION   78          .05
---------------------------
   ALTERNATE    1                  83       102

XSECTION   88         1.55
---------------------------
   ALTERNATE    1                1643      2122
1
TR20 ------------------------------------------------------------------------ SCS -
        Ellicott City Flood Study- All Combined SAs- MGMT STRUCTURES,  VERSION
07/05/**   CN MGMT- EXISTING COND.- TSL OBS.-9-7-11 MTHHS 6HR,24HR     2.04TEST



END OF  1 JOBS IN THIS RUN
```

SCS TR-20, VERSION 2.04TEST
FILES

```
    INPUT  = tslobs.dat                              , GIVEN DATA FILE
    OUTPUT = tslobs.OUT                              , DATED 07/05/**,08:41:05

             FILES GENERATED - DATED 07/05/**,08:41:05

                           NONE!


          TOTAL NUMBER OF WARNINGS =  16,  MESSAGES =   5
```

*** TR-20 RUN COMPLETED ***

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                       NOPLOTS
TITLE     Ellicott City Flood Study- All Combined SAs- MGMT
TITLE     SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr)
 2 XSECTN   002                   1.0      389.50
 8                              389.00        0.00        0.00
 8                              389.25        1.65        1.06
 8                              389.50        6.25        2.75
 8                              389.75       14.40        5.06
 8                              390.00       26.75        8.00
 8                              390.25       45.54       14.33
 8                              390.50       68.67       15.00
 8                              390.75       96.11       18.88
 8                              391.00      127.89       23.00
 8                              391.25      164.08       27.38
 8                              391.50      204.77       32.00
 8                              391.75      250.06       36.88
 9 ENDTBL
 2 XSECTN   005                   1.0      367.00
 8                              366.00        0.00        0.00
 8                              366.50        3.51        1.5
 8                              367.00       13.55        4.00
 8                              367.50       30.53        9.00
 8                              367.75       47.87       13.00
 8                              368.00       72.23       18.00
 8                              368.25      104.79       23.98
 8                              368.50      146.13       30.94
 8                              368.75      197.14       38.86
 8                              369.00      258.63       47.75
 8                              369.25      331.41       57.61
 8                              369.50      416.25       68.44
 9 ENDTBL
 3 STRUCT      11
 8                              380.00        0.00        0.00
 8                              381.00        2.70        0.53
 8                              382.20       53.00        1.16
 8                              383.80      186.80        1.40
 9 ENDTBL
 2 XSECTN   008                   1.0      330.00
 8                              356.00        0.00        0.00
 8                              356.50       20.21        6.94
 8                              357.00       68.51       15.75
 8                              357.50      144.11       26.44
 8                              358.00      248.93       39.00
 8                              358.50      389.07       53.25
 8                              359.00      561.31       69.00
 8                              359.50      767.14       86.25
 8                              360.00     1008.16      105.00
 8                              361.00     1375.68      147.50
 8                              361.50     1604.19      171.38
 9 ENDTBL
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 2 XSECTN   016                   1.0      333.08
```

```
  8                              331.08         0.00         0.00
  8                              332.08        80.21         8.00
  8                              333.08       225.50        16.00
  8                              333.58       310.09        20.00
  8                              334.08       399.94        24.00
  8                              334.58       493.86        28.00
  8                              335.08       590.97        32.00
  8                              335.58       690.67        36.00
  8                              336.08       792.47        40.00
  8                              336.58       896.02        44.00
  9 ENDTBL
  2 XSECTN    023                   1.0       314.40
  8                              313.22         0.00         0.00
  8                              313.51         1.10         0.89
  8                              313.81         3.51         1.84
  8                              314.10        16.22         5.61
  8                              314.40        34.66         9.74
  8                              314.68        48.28        24.71
  8                              314.96        79.66        42.09
  8                              315.24       126.64        61.87
  8                              315.52       189.07        84.06
  8                              315.80       267.27       108.64
  8                              316.08       361.75       135.63
  8                              316.36       473.14       165.02
  8                              316.64       602.11       196.81
  8                              316.92       749.37       231.00
  8                              317.20       878.70       277.25
  8                              317.48      1103.89       329.14
  8                              317.76      1358.10       382.70
  8                              318.04      1640.58       437.94
  8                              318.32      1950.87       494.86
  8                              318.60      2288.69       553.45
  9 ENDTBL
  3 STRUCT       21
  8                              364.00         0.00         0.00
  8                              366.00         0.30         0.55
  8                              368.00         0.50         1.31
  8                              369.00         3.20         1.80
  8                              370.00         5.20         2.29
  8                              372.00         7.80         3.48
  8                              374.00         9.60         5.00
  8                              375.00        10.40         5.86
  8                              376.00        45.30         6.79
  8                              376.50        74.10         7.31
  8                              377.00       106.80         7.83
  8                              378.00       149.80         8.90
  8                              379.00       155.60        10.06
  8                              380.00       162.00        11.29
  9 ENDTBL
1


 **********80-80 LIST OF INPUT DATA (CONTINUED)**********

  3 STRUCT       22
  8                              352.50         0.00         0.00
  8                              358.65       100.00         0.91
  8                              361.76       140.00         3.28
  8                              363.64       160.00         5.47
  8                              366.18       180.00         9.58
  8                              368.71       200.00        14.77
  8                              370.61       250.00        19.31
```

```
  9 ENDTBL
  3 STRUCT      23
  9 ENDTBL
  2 XSECTN   027                  1.0      317.00
  8                             316.00        0.00        0.00
  8                             316.50        2.68        2.59
  8                             317.00       10.37        6.88
  8                             317.50       24.26       12.84
  8                             318.00       45.55       20.50
  8                             318.50       70.64       34.75
  8                             319.00      137.01       60.50
  8                             319.25      200.57       76.25
  8                             319.50      273.06       92.00
  8                             319.75      353.76      107.75
  8                             320.00      442.13      123.50
  8                             320.50      640.03      155.00
  8                             321.00      863.72      186.50
  9 ENDTBL
  2 XSECTN   032                  1.0      313.00
  8                             310.00        0.00        0.00
  8                             311.00       12.25        5.50
  8                             312.00       52.16       16.00
  8                             312.50       83.38       23.13
  8                             313.00      123.94       31.50
  8                             313.25      148.02       36.16
  8                             313.50      174.79       41.13
  8                             313.75      204.34       46.41
  8                             314.00      236.81       52.00
  8                             314.50      278.65       65.75
  8                             315.00      353.72       84.00
  9 ENDTBL
  2 XSECTN   034                  1.0      338.50
  8                             338.00        0.00        0.00
  8                             338.10        4.87        2.46
  8                             338.25       22.73        6.38
  8                             338.50       73.99       13.53
  8                             338.75      149.34       21.45
  8                             339.00      247.95       30.13
  8                             339.50      515.65       49.78
  9 ENDTBL
  2 XSECTN   037                  1.0      331.00
  8                             330.00        0.00        0.00
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                             330.25       14.29        3.25
  8                             330.50       46.85        7.00
  8                             330.75       95.34       11.25
  8                             331.00      159.64       16.00
  8                             331.25      240.13       21.25
  8                             331.50      337.44       27.00
  8                             331.75      452.26       33.25
  8                             332.00      585.36       40.00
  8                             332.50      875.33       55.81
  8                             333.00     1272.05       75.25
  9 ENDTBL
  2 XSECTN   044                  1.0      288.90
  8                             287.68        0.00        0.00
  8                             287.99        1.15        0.94
  8                             288.29        3.69        1.95
```

```
  8                              288.60       17.06        5.98
  8                              288.90       36.44       10.37
  8                              289.19       63.07       39.25
  8                              289.47      121.85       69.50
  8                              289.76      206.05      101.12
  8                              290.05      313.23      134.09
  8                              290.33      442.07      168.42
  8                              290.62      591.78      204.12
  8                              290.91      761.87      241.18
  8                              291.19      952.02      279.60
  8                              291.48     1162.04      319.38
  8                              291.77     1391.84      360.52
  8                              292.05     1641.40      403.02
  8                              292.34     1910.74      446.89
  8                              292.63     2199.92      492.11
  8                              292.91     2509.04      538.70
  8                              293.20     2838.22      586.65
  9 ENDTBL
  3 STRUCT      31
  8                              356.38        0.0         0.00
  8                              357.26       10.90        0.02
  8                              357.50       12.30        0.03
  8                              358.00       14.70        0.05
  8                              359.00       18.70        0.10
  8                              360.00       22.00        0.16
  8                              361.00       24.90        0.25
  8                              361.50       26.20        0.30
  8                              362.00       27.50        0.36
  8                              362.50       28.70        0.43
  8                              362.90       29.60        0.49
  8                              363.50       51.30        0.60
  8                              363.75       65.70        0.67
  8                              364.00       82.60        0.72
  8                              364.20       83.30        0.83
  8                              364.60      100.00        0.88
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              366.80      260.00        1.47
  8                              366.92      340.00        1.49
  8                              366.98      380.00        1.50
  9 ENDTBL
  3 STRUCT      32
  8                              375.40        0.00        0.00
  8                              379.36        1.00        0.74
  8                              380.00        5.00        0.89
  8                              380.20       10.00        0.94
  8                              380.33       15.00        0.98
  8                              380.45       20.00        1.01
  8                              380.55       25.00        1.04
  8                              380.65       30.00        1.06
  8                              381.19       40.00        1.21
  8                              381.78       44.00        1.39
  8                              382.59       66.00        1.66
  8                              382.79       88.00        1.75
  8                              382.89      110.00        1.79
  8                              382.97      132.00        1.83
  9 ENDTBL
  3 STRUCT      33
  8                              350.00        0.00        0.00
```

```
  8                              354.30         1.00         1.08
  8                              354.47         2.00         1.15
  8                              354.87         5.00         1.30
  8                              355.38        10.00         1.50
  8                              356.18        20.00         1.84
  8                              356.88        40.00         2.15
  8                              357.27        60.00         2.33
  8                              357.46        80.00         2.42
  8                              358.08       100.00         2.73
  8                              358.14       120.00         2.76
  8                              358.19       140.00         2.78
  8                              358.25       171.00         2.81
  8                              358.27       180.00         2.82
  9 ENDTBL
  3 STRUCT      34
  9 ENDTBL
  2 XSECTN   051                    1.0       282.40
  8                              281.10         0.00         0.00
  8                              281.42         1.24         1.09
  8                              281.75         3.96         2.26
  8                              282.07        18.30         6.92
  8                              282.40        39.09        12.00
  8                              282.88        67.33        37.27
  8                              283.36       131.17        65.87
  8                              283.84       225.10        97.78
  8                              284.32       348.01       133.01
  8                              284.80       499.91       171.56
  8                              285.28       681.29       213.43
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              285.76       892.92       258.61
  8                              286.24      1135.70       307.11
  8                              286.72      1410.63       358.94
  8                              287.20      1718.74       414.08
  8                              287.68      2061.13       472.54
  8                              288.16      2438.87       534.31
  8                              288.64      2853.08       599.41
  8                              289.12      3301.76       667.84
  8                              289.60      3785.91       739.78
  9 ENDTBL
  2 XSECTN   053                    1.0       289.00
  8                              288.00         0.00         0.00
  8                              288.50         9.00         2.88
  8                              289.00        34.26         7.50
  8                              289.50        79.27        13.88
  8                              290.00       147.75        22.00
  8                              290.50       227.49        31.94
  8                              291.00       332.02        43.75
  8                              291.50       463.75        57.44
  8                              291.75       540.56        64.98
  8                              292.00       625.07        73.00
  9 ENDTBL
  2 XSECTN   063                    1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
```

```
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
  8                              250.59      1132.40       271.40
  8                              250.86      1379.55       309.92
  8                              251.13      1650.25       349.81
  8                              251.41      1944.49       391.07
  8                              251.68      2262.35       433.69
  8                              251.95      2603.94       477.69
  8                              252.23      2969.40       523.05
  8                              252.50      3358.93       569.78
  9 ENDTBL
  3 STRUCT      61
  8                              329.75         0.00         0.00
  8                              330.00         1.56         0.01
  8                              332.00         4.37         0.13
  8                              334.00         5.96         0.39
  8                              334.10         6.01         0.40
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              334.50        10.20         0.47
  8                              335.00        16.10         0.56
  8                              336.00        28.91         0.75
  8                              337.00        40.10         0.97
  9 ENDTBL
  3 STRUCT      62
  8                              287.30         0.00         0.00
  8                              288.00         5.45         0.01
  8                              289.00         9.05         0.05
  8                              290.00        11.60         0.13
  8                              292.00        15.35         0.50
  8                              294.00        18.40         1.19
  8                              294.30        18.92         1.26
  8                              294.50        20.73         1.40
  8                              295.00        36.40         1.60
  8                              295.40        38.00         1.80
  8                              296.00        51.10         2.15
  8                              297.00        69.60         2.75
  8                              298.00        86.80         3.44
  8                              298.68        98.50         3.91
  8                              298.80       107.56         4.00
  9 ENDTBL
  3 STRUCT      63
  8                              259.43         0.00         0.00
  8                              260.00         1.30         0.026
  8                              260.50         1.70         0.050
  8                              261.00         2.10         0.075
  8                              261.50         2.40         0.095
  8                              262.00         2.70         0.119
  8                              262.50         2.90         0.160
  8                              263.00         3.20         0.205
  8                              263.50         3.40         0.245
  8                              264.00         3.60         0.285
  8                              264.50         3.80         0.360
  8                              265.00         3.90         0.415
  8                              265.50         4.10         0.480
```

```
  8                              266.00        11.00         0.537
  8                              266.50        15.40         0.620
  8                              267.00        16.00         0.709
  8                              267.50        30.30         0.798
  8                              268.00        56.00         0.887
  8                              268.50       145.68         0.976
  9 ENDTBL
  2 XSECTN    065                   1.0       300.50
  8                              300.00         0.00         0.00
  8                              300.10         0.29         0.23
  8                              300.25         1.47         0.69
  8                              300.40         3.55         1.28
  8                              300.50         5.48         1.75
  8                              300.60         7.88         2.28
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              300.75        12.45         3.19
  8                              300.90        18.28         4.23
  8                              301.00        22.91         5.00
  8                              301.10        28.18         5.83
  8                              301.25        37.36         7.19
  8                              301.40        48.14         8.68
  8                              301.50        56.26         9.75
  9 ENDTBL
  2 XSECTN    070                   1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
  8                              250.59      1132.40       271.40
  8                              250.86      1379.55       309.92
  8                              251.13      1650.25       349.81
  8                              251.41      1944.49       391.07
  8                              251.68      2262.35       433.69
  8                              251.95      2603.94       477.69
  8                              252.23      2969.40       523.05
  8                              252.50      3358.93       569.78
  9 ENDTBL
  2 XSECTN    072                   1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
```

```
  8                              250.59     1132.40      271.40
  8                              250.86     1379.55      309.92
  8                              251.13     1650.25      349.81
  8                              251.41     1944.49      391.07
  8                              251.68     2262.35      433.69
  8                              251.95     2603.94      477.69
  8                              252.23     2969.40      523.05
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              252.50     3358.93      569.78
  9 ENDTBL
  2 XSECTN   077                    1.0      229.00
  8                              226.00        0.00        0.00
  8                              226.50       11.73        5.31
  8                              227.00       42.97       13.25
  8                              227.50       96.50       23.81
  8                              228.00      175.93       37.00
  8                              228.50      258.13       54.25
  8                              229.00      385.22       77.00
  8                              229.50      561.82      105.25
  8                              230.00      793.74      139.00
  8                              230.50     1079.38      179.94
  8                              231.00     1462.49      229.75
  8                              231.50     1953.75      288.44
  8                              232.00     2564.16      356.00
  8                              232.50     3408.70      429.13
  8                              233.00     4351.01      504.50
  9 ENDTBL
  2 XSECTN   080                    1.0      212.00
  8                              210.50        0.00        0.00
  8                              210.75        4.72        2.23
  8                              211.00       15.68        4.92
  8                              211.25       32.36        8.06
  8                              211.50       54.93       11.67
  8                              211.75       83.70       15.73
  8                              212.00      119.05       20.25
  8                              212.25      163.87       25.14
  8                              212.50      215.35       30.31
  8                              212.75      273.55       35.77
  8                              213.00      338.57       41.50
  8                              214.00      669.42       67.25
  8                              215.00      806.07       99.00
  8                              216.00     1088.03      138.25
  8                              217.00     1451.30      187.50
  8                              218.00     1978.93      249.25
  8                              219.00     2262.06      340.00
  8                              220.00     3115.20      476.25
  8                              221.00     4892.67      639.25
  9 ENDTBL
  5 RAINFL 5              0.2500
  8              0.0000       0.0000       0.0000       0.0000       0.0136
  8              0.0629       0.0629       0.0629       0.0629       0.0629
  8              0.0629       0.0629       0.0629       0.0629       0.0629
  8              0.0629       0.0629       0.0629       0.0641       0.0641
  8              0.0678       0.0764       0.0764       0.0789       0.0789
  8              0.0789       0.0789       0.0814       0.0863       0.0875
  8              0.0900       0.0900       0.0912       0.1245       0.1245
  8              0.1245       0.1245       0.1270       0.1270       0.1270
  8              0.1270       0.1270       0.1319       0.1319       0.1319
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8               0.1862       0.2639      0.4057      0.5425      0.5746
  8               0.6387       0.7028      0.7349      0.7386      0.7781
  8               0.8064       0.8101      0.8163      0.8224      0.8261
  8               0.8286       0.8311      0.8323      0.8323      0.8323
  8               0.8348       0.8372      0.8372      0.8372      0.8372
  8               0.8372       0.8385      0.8385      0.8385      0.8385
  8               0.8385       0.8422      0.8422      0.8459      0.8471
  8               0.8471       0.8483      0.8483      0.8483      0.8483
  8               0.8483       0.8496      0.8829      0.9051      0.9383
  8               0.9482       0.9556      0.9667      0.9778      0.9864
  8               1.0000       1.0000      1.0000      1.0000      1.0000
  9 ENDTBL
  5 RAINFL 6              0.2500
  8               0.0000       0.0773      0.1879      0.3898      0.5847
  8               0.6304       0.7217      0.8130      0.8586      0.8639
  8               0.9201       0.9605      0.9658      0.9745      0.9833
  8               0.9886       0.9921      0.9956      0.9974      0.9974
  8               1.0000       1.0000      1.0000      1.0000      1.0000
  9 ENDTBL
  6 RUNOFF 1 001       1       0.0336      79.478       0.4051           DA1
  6 REACH  3 002   1   2       1170.0                        1
  6 RUNOFF 1 003       1       0.0580      80.559       0.3751           DA2
  6 ADDHYD 4 004   1 2 3                                    1           DA1+2
  6 RESVOR 2    11 3   1                                    1         1 SWMF10
  6 REACH  3 005   1   2        797.0                        1
  6 RUNOFF 1 006       3       0.0798      76.270       0.3921           DA3
  6 ADDHYD 4 007   2 3 4                                    1           DA12+3
  6 REACH  3 008   4   7       1221.0                        1         1 SA1-SA2
  6 RUNOFF 1 009       1       0.0734      88.594       0.4221           DA1
  6 RESVOR 2    21 1   2                                    1         1 SWMF13
  6 RUNOFF 1 010       3       0.0097      72.249       0.1281           DA7
  6 RESVOR 2    22 2 3 4                                    1         1 HWY STOR
  6 RUNOFF 1 011       2       0.0569      76.394       0.2201           DA2
  6 ADDHYD 4 012   7 2 3                                    1           SA1+DA2
  6 RUNOFF 1 013       5       0.0193      79.025       0.2481           DA3
  6 ADDHYD 4 014   4 3 6                                    1           DA17+2
  6 ADDHYD 4 015   6 5 3                                    1           DA172+3
  6 RESVOR 2    23 3   1                                    1         1 HWYSTOR2
  6 REACH  3 016   1   2        920.0                        1
  6 RUNOFF 1 017       3       0.0211      87.900       0.1641           DA4
  6 RUNOFF 1 018       4       0.0313      91.880       0.2551           DA5
  6 RUNOFF 1 019       5       0.0404      86.883       0.1681           DA6
  6 ADDHYD 4 020   3 4 6                                    1           DA4+5
  6 ADDHYD 4 021   6 5 1                                    1           DA123+6
  6 ADDHYD 4 022   2 1 3                                    1           DA45+6
  6 REACH  3 023   3   7       1379.0                        1         1 SA2-SA3
  6 RUNOFF 1 024       1       0.0505      76.581       0.3401           DA1
  6 RESVOR 2    31 1   2                                    1         1 SWMF3
  6 RUNOFF 1 025       3       0.0748      75.950       0.3581           DA2
  6 ADDHYD 4 026   2 3 4                                    1           DA1+2
```


**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 REACH  3 027   4   1       1021.0                        1
```

```
  6 RUNOFF 1 028       2       0.0599      77.623       0.3231           DA3
  6 ADDHYD 4 029   7 2 3                                    1           SA2+DA3
  6 ADDHYD 4 030   1 3 5                                    1           DA12+3
  6 RUNOFF 1 031       1       0.0692      86.658       0.2761           DA4
  6 REACH  3 032   1   6       1603.0                       1
  6 RUNOFF 1 033       2       0.0084      95.000       0.1921           DA5
  6 RESVOR 2    32 2   3                                    1         1 SWMF11
  6 REACH  3 034   3   7        583.0                       1
  6 RUNOFF 1 035       1       0.0275      94.963       0.2481           DA6
  6 RESVOR 2    33 1   2                                    1         1 SWMF8
  6 ADDHYD 4 036   7 2 1                                    1           DA5+6
  6 RESVOR 2    34 1   2                                    1         1 HWYSTOR3
  6 REACH  3 037   2   4        934.0                       1
  6 RUNOFF 1 038       1       0.0328      86.132       0.1901           DA7
  6 ADDHYD 4 039   4 1 3                                    1           DA56+7
  6 RUNOFF 1 040       2       0.0393      85.125       0.3671           DA8
  6 ADDHYD 4 041   5 2 1                                    1           DA3+8
  6 ADDHYD 4 042   6 1 2                                    1           DA4+8
  6 ADDHYD 4 043   3 2 1                                    1           DA7+8
  6 REACH  3 044   1   7       1428.0                       1         1 SA3-SA4
  6 RUNOFF 1 045       1       0.0477      75.971       0.4121           DA1
  6 RUNOFF 1 046       2       0.0628      73.766       0.4401           DA2
  6 ADDHYD 4 047   1 2 3                                    1           DA1+2
  6 RUNOFF 1 048       1       0.0469      79.166       0.2491           DA3
  6 ADDHYD 4 049   7 1 2                                    1           SA3+DA3
  6 ADDHYD 4 050   2 3 4                                    1           DA12+3
  6 REACH  3 051   4   7       1275.0                       1         1 SA4-SA5
  6 RUNOFF 1 052       1       0.0087      83.161       0.1631           DA1
  6 REACH  3 053   1   5        652.0                       1
  6 RUNOFF 1 054       1       0.0072      83.054       0.2561           DA2
  6 RUNOFF 1 055       2       0.0322      74.166       0.2491           DA3
  6 ADDHYD 4 056   7 2 4                                    1           SA4+DA3
  6 ADDHYD 4 057   5 1 3                                    1           DA1+2
  6 ADDHYD 4 058   4 3 5                                    1           DA12+3
  6 RUNOFF 1 059       1       0.0266      72.902       0.2611           DA4
  6 ADDHYD 4 060   5 1 2                                    1           DA123+4
  6 RUNOFF 1 061       3       0.0173      72.707       0.2971           DA5
  6 ADDHYD 4 062   2 3 6                                    1           DA1234+5
  6 REACH  3 063   6   7       1959.0                       1         1 SA5-SA6
  6 RUNOFF 1 064       1       0.0110      88.119       0.5211           DA1
  6 RESVOR 2    61 1   2                                    1         1 SWMF19
  6 REACH  3 065   2   3       1283.0                       1
  6 RUNOFF 1 066       1       0.0458      80.006       0.2391           DA2
  6 RESVOR 2    62 1   2                                    1         1 SWMF18
  6 ADDHYD 4 067   3 2 4                                    1           DA1+2
  6 RUNOFF 1 068       5       0.0778      79.468       0.2281           DA3
  6 ADDHYD 4 069   4 5 1                                    1           DA12+3
  6 REACH  3 070   1   2       2166.0                       1
  6 RUNOFF 1 071       1       0.0119      85.744       0.1221           DA4
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 RESVOR 2    63 1   3                                    1         1 SWMF2
  6 REACH  3 072   3   4       1081.0                       1
  6 RUNOFF 1 073       5       0.1100      70.291       0.2051           DA5
  6 ADDHYD 4 074   7 5 1                                    1           SA5+DA5
  6 ADDHYD 4 075   2 4 6                                    1           DA123+4
  6 ADDHYD 4 076   1 6 2                                    1           DA12345
  6 REACH  3 077   2   7        884.0                       1         1 SA6-SA7
  6 RUNOFF 1 078       2       0.0510      73.827       0.1971           DA1
```

```
 6 ADDHYD 4 079   7 2 1                                    1          SA6+DA1
 6 REACH  3 080   1   2       1296.0                       1
 6 RUNOFF 1 081       3       0.0513      78.929       0.1621          DA3
 6 ADDHYD 4 082   2 3 4                                    1          DA1+3
 6 RUNOFF 1 083       1       0.0313      70.330       0.1861          DA2
 6 ADDHYD 4 084   4 1 2                                    1          DA13+2
 6 RUNOFF 1 085       3       0.1187      73.092       0.3211          DA4
 6 ADDHYD 4 086   2 3 1                                    1          DA123+4
 6 RUNOFF 1 087       4       0.0159      87.661       0.1421          DA5
 6 ADDHYD 4 088   1 4 7                                    1        1 DA1234+5
   ENDATA
 7 INCREM 6                      .06
 7 COMPUT 7 001   088            0.0        8.11         1.05 2  1   24
   ENDCMP 1
 7 COMPUT 7 001   088            0.0        5.70         1.06 2  1   06
   ENDCMP 1
   ENDJOB 2

 ********************************END OF 80-80 LIST*********************************
1
 TR20 ------------------------------------------------------------------------ SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT          VERSION
 07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr)   2.04TEST
 08:07:53                     PASS   1   JOB NO.   1                     PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .060 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  88
    STARTING TIME =   .00       RAIN DEPTH =  8.11       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =24            RAIN TABLE NO. = 5


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        8.39                          3.2                        (RUNOFF)
       12.06                         68.5                        (RUNOFF)
       12.78                         38.2                        (RUNOFF)
       13.72                         19.7                        (RUNOFF)
       16.55                          1.4                        (RUNOFF)
       19.14                          1.4                        (RUNOFF)
       19.65                          1.6                        (RUNOFF)
       22.33                         18.3                        (RUNOFF)
       23.30                          7.1                        (RUNOFF)
       23.82                          7.4                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.66 WATERSHED INCHES;     123 CFS-HRS;      10.1 ACRE-FEET.


 OPERATION REACH    XSECTION   2

    PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        8.45                          3.2                         389.33
       12.13                         68.3                         390.50
       12.84                         38.2                         390.15
       13.79                         19.7                         389.86
       16.61                          1.4                         389.21
       19.20                          1.4                         389.21
```

19.72	1.6	389.25
22.40	18.3	389.83
23.36	7.1	389.53
23.88	7.4	389.53

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 123 CFS-HRS; 10.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.37	6.8	(RUNOFF)
12.05	124.2	(RUNOFF)
12.77	67.1	(RUNOFF)
13.70	35.0	(RUNOFF)
19.12	2.6	(RUNOFF)
19.63	3.0	(RUNOFF)
21.96	28.2	(RUNOFF)
22.32	32.6	(RUNOFF)
23.29	12.3	(RUNOFF)
23.81	13.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.79 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.39	9.7	(NULL)
12.07	190.5	(NULL)
12.79	104.9	(NULL)
13.73	54.2	(NULL)
16.56	3.8	(NULL)
19.15	3.9	(NULL)
19.66	4.5	(NULL)
22.34	50.4	(NULL)
23.31	19.4	(NULL)
23.83	20.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 11,
VALUE EXTRAPOLATED. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.78	1.6	380.59
12.09	190.1	383.84
12.82	104.9	382.82
13.85	50.5	382.14
16.76	2.5	380.93
22.43	47.1	382.06

23.38	19.2	381.39
23.89	19.3	381.40

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 3

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.65 WATERSHED INCHES; 334 CFS-HRS; 27.6 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.84	1.6	366.23
12.16	189.8	368.71
12.88	104.8	368.25
13.92	50.4	367.78
16.82	2.5	366.36
22.50	47.0	367.74
23.44	19.2	367.17
23.95	19.3	367.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.64 WATERSHED INCHES; 333 CFS-HRS; 27.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.38	4.9	(RUNOFF)
12.06	151.5	(RUNOFF)
12.78	86.7	(RUNOFF)
13.71	45.6	(RUNOFF)
16.54	3.2	(RUNOFF)
19.13	3.4	(RUNOFF)
19.64	3.9	(RUNOFF)
22.33	42.7	(RUNOFF)
23.29	16.4	(RUNOFF)
23.81	17.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.28 WATERSHED INCHES; 272 CFS-HRS; 22.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.40	5.6	(NULL)
12.11	336.2	(NULL)
12.82	190.3	(NULL)
13.81	91.8	(NULL)
16.55	5.6	(NULL)
19.14	4.7	(NULL)
19.65	5.5	(NULL)

22.38	86.5	(NULL)
23.31	35.5	(NULL)
23.83	35.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.47 WATERSHED INCHES; 606 CFS-HRS; 50.0 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.46	5.6	356.14
12.17	335.7	358.31
12.88	190.2	357.72
13.87	91.7	357.15
16.61	5.6	356.14
19.20	4.7	356.12
19.71	5.5	356.14
22.44	86.4	357.12
23.37	35.5	356.66
23.90	35.6	356.66

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.48 WATERSHED INCHES; 606 CFS-HRS; 50.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.40	4.6	(RUNOFF)
5.37	3.2	(RUNOFF)
8.39	16.2	(RUNOFF)
12.05	177.5	(RUNOFF)
12.77	91.9	(RUNOFF)
13.73	46.0	(RUNOFF)
19.66	3.7	(RUNOFF)
22.34	42.0	(RUNOFF)
23.30	16.2	(RUNOFF)
23.82	16.8	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.73 WATERSHED INCHES; 319 CFS-HRS; 26.4 ACRE-FEET.

*** MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 21, TRUNCATED AT 400 POINTS
WITH 4.58 AC-FT (.10 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 373.45. ***

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.30	121.3	377.34
13.84	43.1	375.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.56 WATERSHED INCHES; 263 CFS-HRS; 21.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.97	19.4	(RUNOFF)
12.70	10.4	(RUNOFF)
13.50	6.5	(RUNOFF)
14.30	1.1	(RUNOFF)
21.75	5.7	(RUNOFF)
22.23	5.9	(RUNOFF)
23.73	2.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.81 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.55	104.7	359.01
13.87	42.9	355.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.54 WATERSHED INCHES; 263 CFS-HRS; 21.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.28	4.9	(RUNOFF)
11.99	119.9	(RUNOFF)
12.74	63.8	(RUNOFF)
13.57	36.9	(RUNOFF)
14.42	6.4	(RUNOFF)
19.54	3.4	(RUNOFF)
21.82	31.4	(RUNOFF)
22.26	33.7	(RUNOFF)
23.24	12.0	(RUNOFF)
23.76	13.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.30 WATERSHED INCHES; 195 CFS-HRS; 16.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.35	8.7	(NULL)
12.08	428.7	(NULL)
12.79	249.6	(NULL)
13.78	119.6	(NULL)
16.53	7.9	(NULL)
19.09	6.9	(NULL)

19.62	8.0	(NULL)
20.32	4.0	(NULL)
22.32	113.3	(NULL)
23.78	47.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.43 WATERSHED INCHES; 801 CFS-HRS; 66.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.30	2.3	(RUNOFF)
12.00	42.6	(RUNOFF)
12.75	22.4	(RUNOFF)
13.59	12.5	(RUNOFF)
14.36	2.2	(RUNOFF)
19.56	1.1	(RUNOFF)
21.84	10.6	(RUNOFF)
22.27	11.5	(RUNOFF)
23.25	4.1	(RUNOFF)
23.77	4.7	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 7

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.61 WATERSHED INCHES; 70 CFS-HRS; 5.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	479.7	(NULL)
12.79	352.4	(NULL)
13.78	162.4	(NULL)
16.53	17.4	(NULL)
17.83	12.3	(NULL)
19.09	14.3	(NULL)
19.61	14.9	(NULL)
20.30	10.4	(NULL)
22.33	120.8	(NULL)
23.79	57.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.46 WATERSHED INCHES; 1063 CFS-HRS; 87.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.33	11.2	(NULL)
12.13	513.0	(NULL)
12.78	374.6	(NULL)
13.77	173.2	(NULL)
16.52	18.3	(NULL)
17.82	12.7	(NULL)
19.08	15.4	(NULL)
19.60	16.0	(NULL)
22.32	132.0	(NULL)

23.78	62.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.47 WATERSHED INCHES; 1133 CFS-HRS; 93.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.33	11.2	(NULL)
12.13	513.0	(NULL)
12.78	374.6	(NULL)
13.77	173.2	(NULL)
16.52	18.3	(NULL)
17.82	12.7	(NULL)
19.08	15.4	(NULL)
19.60	16.0	(NULL)
22.32	132.0	(NULL)
23.78	62.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.47 WATERSHED INCHES; 1133 CFS-HRS; 93.6 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.33	11.2	331.22
12.13	513.0	334.68
12.78	374.6	333.94
13.77	173.2	332.72
16.52	18.3	331.31
17.82	12.7	331.24
19.08	15.4	331.27
19.60	16.0	331.28
22.32	132.0	332.44
23.78	62.1	331.85

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.47 WATERSHED INCHES; 1133 CFS-HRS; 93.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 17
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.25	1.7	(RUNOFF)
8.26	7.1	(RUNOFF)
11.97	56.1	(RUNOFF)

12.70	27.0	(RUNOFF)
13.53	15.9	(RUNOFF)
14.36	2.6	(RUNOFF)
21.78	13.5	(RUNOFF)
22.24	14.0	(RUNOFF)
23.20	4.8	(RUNOFF)
23.74	5.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.66 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.30	5.9	(RUNOFF)
8.30	12.0	(RUNOFF)
11.98	85.2	(RUNOFF)
12.73	40.5	(RUNOFF)
13.60	22.0	(RUNOFF)
14.34	4.0	(RUNOFF)
21.85	18.3	(RUNOFF)
22.28	19.9	(RUNOFF)
23.25	7.1	(RUNOFF)
23.77	8.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 144 CFS-HRS; 11.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.26	12.5	(RUNOFF)
11.97	105.9	(RUNOFF)
12.70	51.3	(RUNOFF)
13.53	30.2	(RUNOFF)
14.36	5.0	(RUNOFF)
19.51	2.8	(RUNOFF)
21.78	25.6	(RUNOFF)
22.24	26.7	(RUNOFF)
23.20	9.1	(RUNOFF)
23.74	11.0	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.54 WATERSHED INCHES; 170 CFS-HRS; 14.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.29	7.5	(NULL)
8.28	18.8	(NULL)
11.97	141.4	(NULL)
12.72	67.5	(NULL)
13.57	37.5	(NULL)
14.35	6.6	(NULL)

21.81	31.1	(NULL)
22.26	33.7	(NULL)
23.23	11.9	(NULL)
23.75	13.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.94 WATERSHED INCHES; 235 CFS-HRS; 19.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.28	9.8	(NULL)
8.27	31.2	(NULL)
11.97	247.3	(NULL)
12.71	118.8	(NULL)
13.55	67.5	(NULL)
14.36	11.6	(NULL)
21.80	56.7	(NULL)
22.25	60.3	(NULL)
23.22	21.0	(NULL)
23.74	24.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.77 WATERSHED INCHES; 405 CFS-HRS; 33.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.28	41.6	(NULL)
12.05	729.4	(NULL)
12.76	493.4	(NULL)
13.56	235.9	(NULL)
16.49	22.8	(NULL)
19.04	21.1	(NULL)
19.55	22.0	(NULL)
21.86	129.2	(NULL)
22.28	189.8	(NULL)
23.76	86.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.76 WATERSHED INCHES; 1538 CFS-HRS; 127.1 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.44	35.7	314.42
12.20	697.3	316.82
12.88	490.3	316.40
13.73	231.8	315.67
16.65	22.4	314.20
17.95	14.2	314.05
19.21	19.5	314.15
19.72	20.7	314.17
22.44	182.5	315.49

23.90	84.0	314.99

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.75 WATERSHED INCHES; 1536 CFS-HRS; 127.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.35	3.6	(RUNOFF)
12.04	100.2	(RUNOFF)
12.77	55.6	(RUNOFF)
13.67	29.7	(RUNOFF)
19.10	2.4	(RUNOFF)
19.61	2.6	(RUNOFF)
21.92	24.5	(RUNOFF)
22.31	28.1	(RUNOFF)
23.28	10.5	(RUNOFF)
23.80	11.3	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.32 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

*** WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.37	3.6	356.67
12.10	98.0	364.55
12.82	55.2	363.57
13.83	26.4	361.59
14.41	6.2	356.88
19.12	2.3	356.57
19.64	2.6	356.59
22.42	24.4	360.82
23.30	10.5	357.22
23.83	11.1	357.29

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.32 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.36	4.6	(RUNOFF)
12.05	144.5	(RUNOFF)
12.77	81.3	(RUNOFF)
13.68	43.3	(RUNOFF)
19.11	3.3	(RUNOFF)
19.62	3.7	(RUNOFF)

21.95	35.3	(RUNOFF)
22.31	40.8	(RUNOFF)
23.28	15.4	(RUNOFF)
23.81	16.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.25 WATERSHED INCHES; 253 CFS-HRS; 20.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.36	8.1	(NULL)
12.08	241.3	(NULL)
12.79	136.2	(NULL)
13.70	69.1	(NULL)
14.39	15.2	(NULL)
19.12	5.6	(NULL)
19.63	6.3	(NULL)
22.33	64.5	(NULL)
23.29	25.8	(NULL)
23.81	27.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.28 WATERSHED INCHES; 427 CFS-HRS; 35.3 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.46	7.5	316.81
12.16	234.0	319.37
12.88	135.1	318.99
13.81	68.1	318.45
16.62	5.0	316.65
19.21	5.2	316.66
19.73	5.9	316.71
22.42	63.5	318.36
23.38	25.7	317.53
23.90	26.9	317.56

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.28 WATERSHED INCHES; 427 CFS-HRS; 35.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.34	5.2	(RUNOFF)
12.04	123.6	(RUNOFF)
12.77	67.1	(RUNOFF)
13.65	36.2	(RUNOFF)
19.09	3.0	(RUNOFF)
19.60	3.1	(RUNOFF)
21.91	29.8	(RUNOFF)
22.30	33.8	(RUNOFF)
23.27	12.5	(RUNOFF)

23.80	13.8	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.44 WATERSHED INCHES; 210 CFS-HRS; 17.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.43	39.7	(NULL)
12.17	793.1	(NULL)
12.82	553.8	(NULL)
13.71	267.3	(NULL)
16.61	24.5	(NULL)
17.93	15.0	(NULL)
19.19	21.7	(NULL)
19.70	23.4	(NULL)
22.41	210.8	(NULL)
23.87	96.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 1747 CFS-HRS; 144.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.44	47.1	(NULL)
12.17	1027.0	(NULL)
12.84	688.0	(NULL)
13.74	333.6	(NULL)
16.61	29.6	(NULL)
17.94	16.8	(NULL)
19.19	26.8	(NULL)
19.70	29.3	(NULL)
22.41	274.3	(NULL)
23.87	122.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.62 WATERSHED INCHES; 2174 CFS-HRS; 179.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.31	17.2	(RUNOFF)
12.00	174.3	(RUNOFF)
12.75	86.5	(RUNOFF)
13.62	46.7	(RUNOFF)
19.06	4.0	(RUNOFF)
19.57	4.1	(RUNOFF)

21.86	38.7	(RUNOFF)
22.29	42.4	(RUNOFF)
23.26	15.4	(RUNOFF)
23.78	17.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.51 WATERSHED INCHES; 291 CFS-HRS; 24.0 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	15.4	311.08
12.09	171.2	313.47
12.83	85.5	312.53
13.74	44.5	311.81
19.16	3.5	310.29
19.68	3.8	310.31
21.99	36.4	311.60
22.37	41.2	311.72
23.35	15.3	311.08
23.86	16.6	311.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.51 WATERSHED INCHES; 291 CFS-HRS; 24.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.27	3.4	(RUNOFF)
5.26	1.0	(RUNOFF)
8.27	4.4	(RUNOFF)
11.91	23.7	(RUNOFF)
12.71	11.1	(RUNOFF)
13.55	6.4	(RUNOFF)
14.43	1.1	(RUNOFF)
21.80	5.3	(RUNOFF)
22.25	5.6	(RUNOFF)
23.75	2.3	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 16

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS
WITH .70 AC-FT (.13 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 379.15. ***

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	22.4	380.50
12.77	11.0	380.23
13.78	4.9	379.98
23.85	1.6	379.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.93 WATERSHED INCHES; 32 CFS-HRS; 2.7 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. ***

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	22.4	338.25
12.77	11.0	338.15
13.78	4.9	338.10
23.85	1.6	338.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.93 WATERSHED INCHES; 32 CFS-HRS; 2.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.30	10.0	(RUNOFF)
8.30	12.9	(RUNOFF)
11.97	77.3	(RUNOFF)
12.73	36.1	(RUNOFF)
13.59	19.8	(RUNOFF)
14.36	3.5	(RUNOFF)
21.84	16.3	(RUNOFF)
22.27	17.6	(RUNOFF)
23.25	6.3	(RUNOFF)
23.77	7.1	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 133 CFS-HRS; 11.0 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS
WITH 1.15 AC-FT (.06 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 354.47. ***

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	76.0	357.42
12.80	35.2	356.71
13.77	16.8	355.93
16.57	1.2	354.34
22.46	10.9	355.46
23.83	6.4	355.01

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.72 WATERSHED INCHES; 119 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	98.5	(NULL)
12.79	46.2	(NULL)
13.78	21.7	(NULL)
16.55	2.1	(NULL)
22.46	11.9	(NULL)
23.84	8.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 151 CFS-HRS; 12.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	98.5	(NULL)
12.79	46.2	(NULL)
13.78	21.7	(NULL)
16.55	2.1	(NULL)
22.46	11.9	(NULL)
23.84	8.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 151 CFS-HRS; 12.5 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 18

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	98.5	330.76
12.79	46.2	330.49
13.78	21.7	330.31
16.55	2.1	330.04
22.46	11.9	330.21
23.84	8.0	330.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 151 CFS-HRS; 12.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.27	9.1	(RUNOFF)
11.97	84.4	(RUNOFF)
12.71	41.3	(RUNOFF)
13.55	23.9	(RUNOFF)
14.43	4.0	(RUNOFF)
19.01	2.2	(RUNOFF)
21.79	20.2	(RUNOFF)
22.25	21.2	(RUNOFF)
23.21	7.4	(RUNOFF)
23.74	8.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.45 WATERSHED INCHES; 136 CFS-HRS; 11.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 1 JOB NO. 1 PAGE 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.27	9.8	(NULL)
12.00	181.1	(NULL)
12.75	87.6	(NULL)
13.57	44.0	(NULL)
19.02	3.7	(NULL)
19.53	3.7	(NULL)
21.80	21.9	(NULL)
22.27	30.9	(NULL)
23.03	15.5	(NULL)
23.75	16.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.49 WATERSHED INCHES; 288 CFS-HRS; 23.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.36	7.3	(RUNOFF)
12.04	92.7	(RUNOFF)
12.77	47.8	(RUNOFF)
13.69	24.7	(RUNOFF)
16.54	1.7	(RUNOFF)
19.12	1.9	(RUNOFF)
19.63	2.1	(RUNOFF)
22.32	22.8	(RUNOFF)
23.28	8.6	(RUNOFF)
23.81	9.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.33 WATERSHED INCHES; 161 CFS-HRS; 13.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.43	53.7	(NULL)
12.16	1107.9	(NULL)
12.83	735.3	(NULL)
13.73	358.0	(NULL)
16.61	31.2	(NULL)
17.93	17.4	(NULL)
19.19	28.5	(NULL)
19.70	31.3	(NULL)
22.40	295.0	(NULL)
23.87	131.5	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 2333 CFS-HRS; 192.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.42	69.0	(NULL)
12.15	1271.1	(NULL)
12.83	820.7	(NULL)
13.74	402.5	(NULL)
16.60	34.4	(NULL)
17.93	18.6	(NULL)
19.18	31.9	(NULL)
19.70	35.0	(NULL)
22.40	335.8	(NULL)
23.87	148.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.75 WATERSHED INCHES; 2624 CFS-HRS; 216.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	73.3	(NULL)
12.11	1414.6	(NULL)
12.79	904.7	(NULL)
13.73	443.7	(NULL)
16.58	37.7	(NULL)
17.92	20.6	(NULL)
19.17	34.2	(NULL)
19.69	37.8	(NULL)
22.38	361.4	(NULL)
23.84	161.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 2909 CFS-HRS; 240.4 ACRE-FEET.

OPERATION REACH XSECTION 44
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.50	68.5	289.22
12.21	1386.6	291.76
12.86	903.6	291.12
13.83	439.6	290.32
16.67	37.0	288.91
18.01	20.1	288.65
19.27	32.7	288.84
19.78	36.7	288.90
22.47	355.3	290.14
23.92	159.8	289.60

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.80 WATERSHED INCHES; 2906 CFS-HRS; 240.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.39	2.7	(RUNOFF)
12.07	88.6	(RUNOFF)
12.79	51.6	(RUNOFF)
13.72	27.0	(RUNOFF)
16.55	1.9	(RUNOFF)
19.65	2.2	(RUNOFF)
22.34	25.2	(RUNOFF)
23.30	9.8	(RUNOFF)
23.82	10.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.25 WATERSHED INCHES; 162 CFS-HRS; 13.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	2.1	(RUNOFF)
12.10	108.8	(RUNOFF)
12.79	65.2	(RUNOFF)
13.74	34.1	(RUNOFF)
16.56	2.4	(RUNOFF)
19.16	2.4	(RUNOFF)
19.67	2.8	(RUNOFF)
22.35	32.0	(RUNOFF)
23.31	12.6	(RUNOFF)
23.82	13.0	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.40	4.8	(NULL)
12.09	197.0	(NULL)
12.79	116.8	(NULL)
13.73	61.1	(NULL)
16.56	4.2	(NULL)
19.15	4.3	(NULL)
19.66	5.0	(NULL)
22.34	57.2	(NULL)
23.31	22.4	(NULL)
23.82	23.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.10 WATERSHED INCHES; 364 CFS-HRS; 30.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.30	5.8	(RUNOFF)
12.00	103.6	(RUNOFF)
12.75	54.6	(RUNOFF)
13.59	30.4	(RUNOFF)
14.36	5.5	(RUNOFF)
19.56	2.8	(RUNOFF)
21.84	25.7	(RUNOFF)
22.28	27.9	(RUNOFF)
23.25	10.1	(RUNOFF)
23.77	11.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 170 CFS-HRS; 14.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.50	70.2	(NULL)
12.19	1447.0	(NULL)
13.80	464.3	(NULL)
16.65	38.3	(NULL)
18.00	20.3	(NULL)
19.26	33.4	(NULL)
19.77	38.2	(NULL)
20.44	19.0	(NULL)
22.45	371.6	(NULL)
23.89	166.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.79 WATERSHED INCHES; 3076 CFS-HRS; 254.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.49	74.2	(NULL)
12.17	1631.0	(NULL)
13.79	524.2	(NULL)
16.63	42.3	(NULL)
17.99	21.6	(NULL)
19.24	37.0	(NULL)
19.76	42.7	(NULL)
20.42	20.5	(NULL)
22.43	425.1	(NULL)
23.87	189.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 3440 CFS-HRS; 284.3 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

8.58	71.1	282.91
12.26	1608.0	287.03
13.87	520.3	284.85
16.72	41.7	282.44
18.07	21.2	282.12
19.34	36.0	282.35
19.85	42.0	282.45
20.49	20.5	282.10
22.51	420.6	284.55
23.94	188.0	283.65

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 3437 CFS-HRS; 284.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)		PEAK ELEVATION(FEET)
8.26	2.0		(RUNOFF)
11.97	21.5		(RUNOFF)
12.70	10.7		(RUNOFF)
13.53	6.4		(RUNOFF)
14.34	1.0	*	(RUNOFF)
21.77	5.4		(RUNOFF)
22.24	5.6		(RUNOFF)
23.74	2.3		(RUNOFF)

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.10 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)		PEAK ELEVATION(FEET)
8.32	1.9		288.11
12.03	21.5		288.75
12.76	10.7		288.53
13.59	6.3		288.35
14.40	1.0	*	288.06
21.84	5.4		288.30
22.30	5.6		288.31
23.80	2.3		288.13

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.30	1.3	(RUNOFF)
12.00	17.2	(RUNOFF)
12.75	8.7	(RUNOFF)
13.59	4.8	(RUNOFF)
21.85	4.0	(RUNOFF)
22.28	4.4	(RUNOFF)
23.77	1.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.08 WATERSHED INCHES; 28 CFS-HRS; 2.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	63.4	(RUNOFF)
12.75	34.9	(RUNOFF)
13.59	19.8	(RUNOFF)
14.36	3.6	(RUNOFF)
19.05	1.7	(RUNOFF)
19.56	1.8	(RUNOFF)
21.84	16.8	(RUNOFF)
22.28	18.4	(RUNOFF)
23.25	6.6	(RUNOFF)
23.77	7.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.04 WATERSHED INCHES; 105 CFS-HRS; 8.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.58	71.3	(NULL)
10.83	15.4	(NULL)
12.25	1636.3	(NULL)
13.86	533.9	(NULL)
16.71	42.1	(NULL)
18.07	21.3	(NULL)
19.34	36.5	(NULL)
19.84	42.8	(NULL)
22.50	429.5	(NULL)
23.91	191.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.68 WATERSHED INCHES; 3542 CFS-HRS; 292.7 ACRE-FEET.

1

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.31	3.3	(NULL)
12.02	38.4	(NULL)
12.75	19.4	(NULL)
13.59	11.2	(NULL)
14.40	1.9	(NULL)

19.57	1.0	(NULL)
21.84	9.4	(NULL)
22.29	10.0	(NULL)
23.25	3.5	(NULL)
23.79	4.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 62 CFS-HRS; 5.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.58	71.7	(NULL)
10.83	15.5	(NULL)
12.25	1652.3	(NULL)
13.85	542.0	(NULL)
16.70	42.4	(NULL)
18.07	21.4	(NULL)
19.35	36.7	(NULL)
19.83	43.2	(NULL)
22.49	434.3	(NULL)
23.88	194.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.69 WATERSHED INCHES; 3605 CFS-HRS; 297.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	50.3	(RUNOFF)
12.75	28.1	(RUNOFF)
13.60	15.8	(RUNOFF)
14.31	2.9	(RUNOFF)
19.06	1.4	(RUNOFF)
19.57	1.4	(RUNOFF)
21.85	13.5	(RUNOFF)
22.28	14.8	(RUNOFF)
23.25	5.4	(RUNOFF)
23.77	6.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.89 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.58	71.8	(NULL)
10.83	15.5	(NULL)
12.24	1677.5	(NULL)
13.84	554.2	(NULL)
16.69	43.0	(NULL)
18.06	21.4	(NULL)
19.37	37.1	(NULL)
19.83	43.8	(NULL)

22.48	442.6	(NULL)
23.85	199.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.67 WATERSHED INCHES; 3689 CFS-HRS; 304.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	32.0	(RUNOFF)
12.76	18.1	(RUNOFF)
13.63	10.0	(RUNOFF)
21.88	8.4	(RUNOFF)
22.29	9.5	(RUNOFF)
23.78	3.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.87 WATERSHED INCHES; 54 CFS-HRS; 4.5 ACRE-FEET.

1

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.58	71.9	(NULL)
10.82	15.6	(NULL)
12.23	1696.7	(NULL)
13.83	562.6	(NULL)
16.68	43.4	(NULL)
18.06	21.5	(NULL)
19.38	37.5	(NULL)
19.82	44.3	(NULL)
22.47	448.8	(NULL)
23.83	203.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 3743 CFS-HRS; 309.3 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.70	10.5	247.81
8.68	67.6	248.48
10.93	14.8	247.88
12.34	1664.4	251.14
13.91	558.5	249.81
16.79	42.5	248.23
18.16	21.1	247.97
19.92	43.4	248.24
22.57	443.7	249.60
23.91	202.8	249.07

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.65 WATERSHED INCHES; 3738 CFS-HRS; 308.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.45	2.0	(RUNOFF)
12.10	25.1	(RUNOFF)
12.77	13.8	(RUNOFF)
13.78	6.7	(RUNOFF)
22.38	6.0	(RUNOFF)
23.84	2.4	(RUNOFF)

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.57	1.7	330.07
12.28	21.0	335.38
13.86	6.4	334.14
22.63	4.4	332.05

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.66	1.6	300.26
12.38	20.7	300.95
13.94	6.4	300.54
22.73	4.4	300.44

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.29	6.3	(RUNOFF)
12.00	103.6	(RUNOFF)
12.74	53.6	(RUNOFF)
13.58	30.3	(RUNOFF)
14.37	5.4	(RUNOFF)
19.55	2.7	(RUNOFF)
21.83	25.6	(RUNOFF)
22.27	27.7	(RUNOFF)
23.25	9.9	(RUNOFF)
23.76	11.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.72 WATERSHED INCHES; 169 CFS-HRS; 14.0 ACRE-FEET.

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.33	5.8	288.10
10.56	1.3	287.46
12.17	69.2	296.98
13.71	27.5	294.71
15.60	1.1	287.44
16.48	2.1	287.57
19.07	2.6	287.64
19.58	2.7	287.65
22.46	16.0	292.45

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.73 WATERSHED INCHES; 169 CFS-HRS; 14.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.37	6.8	(NULL)
10.58	1.3	(NULL)
12.22	85.9	(NULL)
13.70	33.8	(NULL)
15.58	3.3	(NULL)
16.52	2.4	(NULL)
19.07	2.7	(NULL)
19.58	3.1	(NULL)
20.30	1.1	(NULL)
22.57	20.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.91 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.29	10.3	(RUNOFF)
11.99	175.1	(RUNOFF)
12.74	90.7	(RUNOFF)
13.58	51.8	(RUNOFF)
14.38	9.0	(RUNOFF)
19.55	4.7	(RUNOFF)
21.83	43.6	(RUNOFF)
22.26	47.1	(RUNOFF)

23.25	16.8	(RUNOFF)
23.76	19.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 284 CFS-HRS; 23.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.30	16.4	(NULL)
12.04	244.7	(NULL)
12.70	160.2	(NULL)
13.59	84.4	(NULL)
19.05	7.3	(NULL)
19.56	7.7	(NULL)
21.84	57.0	(NULL)
22.27	65.8	(NULL)
23.06	34.1	(NULL)
23.76	33.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 501 CFS-HRS; 41.4 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.58	11.0	247.82
10.82	2.2	247.44
12.30	206.6	249.08
13.84	80.6	248.59
16.75	5.1	247.67
19.32	4.6	247.63
19.83	5.9	247.74
20.50	2.3	247.45
22.52	58.4	248.40
23.98	32.3	248.12

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.76 WATERSHED INCHES; 500 CFS-HRS; 41.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.23	3.4	(RUNOFF)
11.97	31.1	(RUNOFF)
12.69	15.0	(RUNOFF)
13.50	9.1	(RUNOFF)
14.29	1.5	(RUNOFF)
21.75	7.8	(RUNOFF)
22.23	8.1	(RUNOFF)
23.73	3.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.40 WATERSHED INCHES; 49 CFS-HRS; 4.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.35	1.6	260.35
12.01	28.9	267.45
12.75	14.8	266.43
13.60	7.9	265.78
23.75	3.0	262.69

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.39 WATERSHED INCHES; 49 CFS-HRS; 4.1 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.44	1.5	247.35
12.09	28.2	248.08
12.81	14.7	247.87
13.70	7.8	247.77
23.81	3.0	247.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.37 WATERSHED INCHES; 49 CFS-HRS; 4.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 73
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	199.7	(RUNOFF)
12.74	112.2	(RUNOFF)
13.56	66.7	(RUNOFF)
14.44	11.5	(RUNOFF)
19.02	6.1	(RUNOFF)
19.54	6.3	(RUNOFF)
21.80	57.8	(RUNOFF)
22.25	61.8	(RUNOFF)
23.23	21.9	(RUNOFF)
23.75	25.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.59 WATERSHED INCHES; 326 CFS-HRS; 26.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.70	10.5	(NULL)
8.68	67.6	(NULL)
10.93	14.8	(NULL)
12.36	1738.8	(NULL)
16.77	42.9	(NULL)
18.16	21.1	(NULL)
19.54	43.1	(NULL)
19.88	44.6	(NULL)

22.54	466.0	(NULL)
23.73	227.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.55 WATERSHED INCHES; 4064 CFS-HRS; 335.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.58	12.4	(NULL)
10.81	2.4	(NULL)
12.29	223.4	(NULL)
13.81	87.7	(NULL)
16.72	5.6	(NULL)
19.31	5.0	(NULL)
19.82	6.4	(NULL)
20.48	2.5	(NULL)
22.52	61.9	(NULL)
23.97	35.3	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 549 CFS-HRS; 45.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.71	10.8	(NULL)
5.65	10.0	(NULL)
8.66	78.6	(NULL)
9.63	10.6	(NULL)
10.91	16.9	(NULL)
12.35	1957.2	(NULL)
16.76	48.4	(NULL)
18.14	22.7	(NULL)
19.87	50.9	(NULL)
22.54	527.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.57 WATERSHED INCHES; 4612 CFS-HRS; 381.1 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. ***

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.71	10.8	226.46
5.65	10.0	226.43
8.66	78.6	227.33
9.63	10.6	226.45
10.91	16.9	226.58
12.35	1957.2	231.50
16.76	48.4	227.05
18.14	22.7	226.68

19.87	50.9	227.07
22.54	527.7	229.40

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.57 WATERSHED INCHES; 4612 CFS-HRS; 381.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	102.2	(RUNOFF)
12.73	55.3	(RUNOFF)
13.55	32.7	(RUNOFF)
14.44	5.6	(RUNOFF)
19.02	3.0	(RUNOFF)
19.53	3.1	(RUNOFF)
21.80	28.2	(RUNOFF)
22.25	30.0	(RUNOFF)
23.22	10.5	(RUNOFF)
23.75	12.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.00 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.71	10.8	(NULL)
8.66	78.7	(NULL)
9.63	10.6	(NULL)
12.36	1994.3	(NULL)
16.74	48.7	(NULL)
18.14	22.7	(NULL)
19.55	50.0	(NULL)
19.85	51.7	(NULL)
22.52	538.4	(NULL)
23.73	274.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.55 WATERSHED INCHES; 4776 CFS-HRS; 394.7 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.78	10.6	210.88
8.73	77.8	211.70
9.70	10.6	210.88
12.43	1990.5	218.04
16.81	48.6	211.43
18.21	22.6	211.10
19.62	49.9	211.44
19.92	51.6	211.46
22.59	538.0	213.60
23.80	274.0	212.75

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.55 WATERSHED INCHES; 4772 CFS-HRS; 394.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.26	7.2	(RUNOFF)
11.97	117.3	(RUNOFF)
12.71	60.1	(RUNOFF)
13.53	36.1	(RUNOFF)
14.36	6.0	(RUNOFF)
19.51	3.4	(RUNOFF)
21.77	31.0	(RUNOFF)
22.24	32.4	(RUNOFF)
23.20	11.1	(RUNOFF)
23.74	13.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.60 WATERSHED INCHES; 185 CFS-HRS; 15.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.78	10.6	(NULL)
8.73	77.9	(NULL)
9.70	10.6	(NULL)
12.43	2044.1	(NULL)
16.81	48.7	(NULL)
18.21	22.6	(NULL)
19.58	52.6	(NULL)
19.90	51.9	(NULL)
22.56	547.7	(NULL)
23.75	286.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.55 WATERSHED INCHES; 4957 CFS-HRS; 409.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 83
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	57.5	(RUNOFF)
12.72	32.1	(RUNOFF)
13.55	19.3	(RUNOFF)
14.43	3.3	(RUNOFF)
19.01	1.8	(RUNOFF)
19.53	1.8	(RUNOFF)
21.79	16.8	(RUNOFF)
22.25	17.8	(RUNOFF)

23.21	6.2	(RUNOFF)
23.74	7.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.59 WATERSHED INCHES; 93 CFS-HRS; 7.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.78	10.6	(NULL)
8.73	77.9	(NULL)
12.44	2071.5	(NULL)
16.81	48.7	(NULL)
18.21	22.6	(NULL)
19.57	54.3	(NULL)
19.88	52.2	(NULL)
22.40	556.8	(NULL)
22.55	553.8	(NULL)
23.75	294.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.53 WATERSHED INCHES; 5050 CFS-HRS; 417.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	217.8	(RUNOFF)
12.77	124.2	(RUNOFF)
13.65	67.9	(RUNOFF)
16.51	4.8	(RUNOFF)
19.09	5.6	(RUNOFF)
19.60	5.9	(RUNOFF)
21.91	56.4	(RUNOFF)
22.30	64.3	(RUNOFF)
23.27	23.9	(RUNOFF)
23.79	26.2	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.91 WATERSHED INCHES; 376 CFS-HRS; 31.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.78	10.6	(NULL)
5.72	10.1	(NULL)
8.73	78.2	(NULL)
9.70	10.6	(NULL)
12.45	2172.5	(NULL)
16.68	50.9	(NULL)
18.19	22.9	(NULL)
19.58	60.2	(NULL)
22.37	616.2	(NULL)
23.76	319.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.48 WATERSHED INCHES; 5427 CFS-HRS; 448.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.24	1.3	(RUNOFF)
8.25	5.3	(RUNOFF)
11.97	42.4	(RUNOFF)
12.69	20.4	(RUNOFF)
13.51	12.1	(RUNOFF)
14.33	2.0	(RUNOFF)
21.76	10.3	(RUNOFF)
22.23	10.7	(RUNOFF)
23.19	3.6	(RUNOFF)
23.73	4.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.63 WATERSHED INCHES; 68 CFS-HRS; 5.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.78	10.6	(NULL)
8.73	78.2	(NULL)
9.70	10.6	(NULL)
12.45	2191.7	(NULL)
16.66	51.0	(NULL)
18.19	22.9	(NULL)
19.13	35.0	(NULL)
19.57	61.2	(NULL)
22.36	622.4	(NULL)
23.76	324.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.49 WATERSHED INCHES; 5495 CFS-HRS; 454.1 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 88
STARTING TIME = .00 RAIN DEPTH = 5.70 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS
ALTERNATE NO. = 1 STORM NO. = 6 RAIN TABLE NO. = 6

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	55.5	(RUNOFF)
1.79	35.9	(RUNOFF)
2.72	19.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

3.46 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.17	55.1	390.35
1.86	35.8	390.12
2.79	19.0	389.84

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	102.7	(RUNOFF)
1.79	63.8	(RUNOFF)
2.70	34.0	(RUNOFF)
5.11	1.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.56 WATERSHED INCHES; 133 CFS-HRS; 11.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	155.1	(NULL)
1.80	99.1	(NULL)
2.73	52.5	(NULL)
5.13	2.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.52 WATERSHED INCHES; 208 CFS-HRS; 17.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	154.6	383.41
1.83	98.9	382.75
2.85	48.8	382.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.52 WATERSHED INCHES; 208 CFS-HRS; 17.2 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.19	154.0	368.54
1.89	98.9	368.20
2.92	48.8	367.76

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

3.52 WATERSHED INCHES; 208 CFS-HRS; 17.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	118.9	(RUNOFF)
1.79	80.5	(RUNOFF)
2.71	43.7	(RUNOFF)
5.12	1.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.15 WATERSHED INCHES; 162 CFS-HRS; 13.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.15	267.0	(NULL)
1.84	178.0	(NULL)
2.81	88.3	(NULL)
5.11	4.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.35 WATERSHED INCHES; 370 CFS-HRS; 30.6 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.21	266.0	358.06
1.90	177.8	357.66
2.87	88.2	357.13
5.18	4.3	356.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.35 WATERSHED INCHES; 370 CFS-HRS; 30.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	159.5	(RUNOFF)
1.78	89.9	(RUNOFF)
2.73	45.8	(RUNOFF)
5.13	1.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.40 WATERSHED INCHES; 209 CFS-HRS; 17.2 ACRE-FEET.

*** MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.89	86.2	376.68
2.84	42.7	375.93

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.15 WATERSHED INCHES; 197 CFS-HRS; 16.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	15.5	(RUNOFF)
1.71	9.6	(RUNOFF)
2.50	6.1	(RUNOFF)
3.45	1.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.77 WATERSHED INCHES; 17 CFS-HRS; 1.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.98	84.6	357.70
2.88	42.5	355.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.15 WATERSHED INCHES; 197 CFS-HRS; 16.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.01	99.6	(RUNOFF)
1.74	59.9	(RUNOFF)
2.57	35.2	(RUNOFF)
3.47	6.2	(RUNOFF)
5.03	1.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.16 WATERSHED INCHES; 116 CFS-HRS; 9.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 12
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	326.3	(NULL)
1.81	232.1	(NULL)
2.78	114.4	(NULL)
5.07	5.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.30 WATERSHED INCHES; 486 CFS-HRS; 40.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	36.0	(RUNOFF)
1.74	21.1	(RUNOFF)
2.59	12.1	(RUNOFF)
3.47	2.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.41 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.14	334.4	(NULL)
1.83	313.3	(NULL)
2.79	156.6	(NULL)
5.07	15.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.51 WATERSHED INCHES; 683 CFS-HRS; 56.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	368.6	(NULL)
1.81	333.8	(NULL)
2.77	167.0	(NULL)
5.06	15.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 725 CFS-HRS; 59.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	368.6	(NULL)
1.81	333.8	(NULL)
2.77	167.0	(NULL)
5.06	15.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 725 CFS-HRS; 59.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	368.6	333.91
1.81	333.8	333.71
2.77	167.0	332.68
5.06	15.9	331.28

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 725 CFS-HRS; 59.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.98	51.9	(RUNOFF)
1.71	26.6	(RUNOFF)
2.53	15.7	(RUNOFF)
3.46	2.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.32 WATERSHED INCHES; 59 CFS-HRS; 4.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.00	81.6	(RUNOFF)
1.73	40.2	(RUNOFF)
2.60	22.0	(RUNOFF)
3.47	3.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.76 WATERSHED INCHES; 96 CFS-HRS; 7.9 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	97.1	(RUNOFF)
1.71	50.4	(RUNOFF)
2.53	29.7	(RUNOFF)
3.46	5.0	(RUNOFF)
5.01	1.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.21 WATERSHED INCHES; 110 CFS-HRS; 9.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	134.3	(NULL)
1.72	66.8	(NULL)
2.57	37.1	(NULL)
3.46	6.5	(NULL)
5.03	1.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

4.58 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	233.0	(NULL)
1.72	117.1	(NULL)
2.55	66.7	(NULL)
3.46	11.5	(NULL)
5.02	3.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.42 WATERSHED INCHES; 265 CFS-HRS; 21.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.06	565.9	(NULL)
1.78	448.1	(NULL)
2.56	229.5	(NULL)
5.03	18.8	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.71 WATERSHED INCHES; 990 CFS-HRS; 81.8 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.22	522.5	316.47
1.92	440.0	316.28
2.73	225.7	315.65
5.18	18.2	314.13

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.71 WATERSHED INCHES; 990 CFS-HRS; 81.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.07	79.9	(RUNOFF)
1.78	52.0	(RUNOFF)
2.67	28.6	(RUNOFF)
5.09	1.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.18 WATERSHED INCHES; 103 CFS-HRS; 8.6 ACRE-FEET.

*** WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	78.1	363.93
1.83	51.3	363.50
2.82	25.6	361.27
5.11	1.2	356.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.17 WATERSHED INCHES; 103 CFS-HRS; 8.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 2 JOB NO. 1 PAGE 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	113.4	(RUNOFF)
1.78	75.5	(RUNOFF)
2.68	41.4	(RUNOFF)
5.10	1.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.12 WATERSHED INCHES; 150 CFS-HRS; 12.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	191.4	(NULL)
1.80	126.6	(NULL)
2.70	66.4	(NULL)
5.11	2.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.14 WATERSHED INCHES; 254 CFS-HRS; 21.0 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.20	178.6	319.16
1.89	124.8	318.91
2.82	65.2	318.39
5.20	2.6	316.49

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.14 WATERSHED INCHES; 254 CFS-HRS; 21.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.06	100.1	(RUNOFF)
1.78	63.1	(RUNOFF)
2.66	34.6	(RUNOFF)
5.08	1.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.28 WATERSHED INCHES; 127 CFS-HRS; 10.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 2 JOB NO. 1 PAGE 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.20	597.4	(NULL)
1.89	496.6	(NULL)
2.71	259.6	(NULL)
5.16	19.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.65 WATERSHED INCHES; 1117 CFS-HRS; 92.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.20	776.0	(NULL)
1.89	621.4	(NULL)
2.74	322.7	(NULL)
5.17	21.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.55 WATERSHED INCHES; 1371 CFS-HRS; 113.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	157.9	(RUNOFF)
1.75	84.1	(RUNOFF)
2.61	46.2	(RUNOFF)
3.46	8.4	(RUNOFF)
5.06	2.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.19 WATERSHED INCHES; 187 CFS-HRS; 15.5 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	152.7	313.29
1.84	83.3	312.50
2.74	43.7	311.79
5.15	1.8	310.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.19 WATERSHED INCHES; 187 CFS-HRS; 15.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.96	23.3	(RUNOFF)
1.72	11.1	(RUNOFF)
2.55	6.3	(RUNOFF)
3.46	1.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.11 WATERSHED INCHES; 28 CFS-HRS; 2.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.14	15.9	380.35
1.77	10.9	380.22
2.78	4.9	379.98

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.92 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.20	15.8	338.19
1.83	10.9	338.15
2.84	4.9	338.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.92 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	75.8	(RUNOFF)
1.73	36.1	(RUNOFF)
2.59	19.8	(RUNOFF)
3.47	3.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.10 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 33
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	66.3	357.33
1.80	35.1	356.71
2.77	16.8	355.92

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.93 WATERSHED INCHES; 87 CFS-HRS; 7.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	78.2	(NULL)
1.81	45.9	(NULL)
2.79	21.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.93 WATERSHED INCHES; 114 CFS-HRS; 9.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	78.2	(NULL)
1.81	45.9	(NULL)
2.79	21.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.93 WATERSHED INCHES; 114 CFS-HRS; 9.4 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	78.2	330.66
1.81	45.9	330.49
2.79	21.6	330.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.93 WATERSHED INCHES; 114 CFS-HRS; 9.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	77.8	(RUNOFF)
1.72	40.3	(RUNOFF)
2.55	23.5	(RUNOFF)
3.46	4.0	(RUNOFF)
5.02	1.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.13 WATERSHED INCHES; 88 CFS-HRS; 7.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.06	141.9	(NULL)
1.75	85.8	(NULL)
2.57	43.2	(NULL)

5.01	3.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.55 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.06	80.8	(RUNOFF)
1.78	46.2	(RUNOFF)
2.68	24.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.03 WATERSHED INCHES; 102 CFS-HRS; 8.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.19	843.2	(NULL)
1.88	664.4	(NULL)
2.73	346.7	(NULL)
5.17	22.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.58 WATERSHED INCHES; 1473 CFS-HRS; 121.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.18	987.1	(NULL)
1.87	747.2	(NULL)
2.74	390.4	(NULL)
5.16	24.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.64 WATERSHED INCHES; 1660 CFS-HRS; 137.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.16	1101.3	(NULL)
1.84	827.3	(NULL)
2.73	431.5	(NULL)
5.15	27.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.72 WATERSHED INCHES; 1862 CFS-HRS; 153.8 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.26	1065.9	291.35

1.92	821.6	291.00
2.83	426.8	290.30
5.23	26.9	288.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.72 WATERSHED INCHES; 1861 CFS-HRS; 153.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	68.8	(RUNOFF)
1.80	47.6	(RUNOFF)
2.72	25.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.12 WATERSHED INCHES; 96 CFS-HRS; 7.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 2 JOB NO. 1 PAGE 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	80.8	(RUNOFF)
1.81	59.4	(RUNOFF)
2.74	32.4	(RUNOFF)
5.14	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.91 WATERSHED INCHES; 118 CFS-HRS; 9.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.12	149.5	(NULL)
1.80	107.0	(NULL)
2.73	58.1	(NULL)
5.13	2.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.00 WATERSHED INCHES; 214 CFS-HRS; 17.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	87.8	(RUNOFF)
1.74	51.5	(RUNOFF)
2.59	29.4	(RUNOFF)
3.47	5.3	(RUNOFF)
5.05	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.43 WATERSHED INCHES; 104 CFS-HRS; 8.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.25	1107.0	(NULL)
1.89	863.2	(NULL)
2.81	450.4	(NULL)
5.21	27.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.70 WATERSHED INCHES; 1965 CFS-HRS; 162.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 2 JOB NO. 1 PAGE 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.23	1237.3	(NULL)
1.86	968.5	(NULL)
2.79	507.4	(NULL)
5.19	29.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.62 WATERSHED INCHES; 2179 CFS-HRS; 180.1 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.33	1212.9	286.37
1.95	964.8	285.90
2.88	503.4	284.81
5.27	29.2	282.24

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.62 WATERSHED INCHES; 2179 CFS-HRS; 180.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	19.5	(RUNOFF)
1.72	10.4	(RUNOFF)
2.53	6.2	(RUNOFF)
3.46	1.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.83 WATERSHED INCHES; 21 CFS-HRS; 1.8 ACRE-FEET.

OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.05	19.5	288.71
1.78	10.4	288.53
2.59	6.2	288.34
3.52	1.0	288.06

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.83 WATERSHED INCHES; 21 CFS-HRS; 1.8 ACRE-FEET.

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 OPERATION RUNOFF   XSECTION  54
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr)   2.04TEST
 08:07:53                    PASS   2   JOB NO.   1                     PAGE  55


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        1.02                          15.1                       (RUNOFF)
        1.74                           8.4                       (RUNOFF)
        2.60                           4.7                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.82 WATERSHED INCHES;      18 CFS-HRS;       1.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  55

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        1.03                          50.7                       (RUNOFF)
        1.75                          32.2                       (RUNOFF)
        2.59                          18.8                       (RUNOFF)
        3.47                           3.4                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.95 WATERSHED INCHES;      61 CFS-HRS;       5.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  56

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        1.32                         1233.9                       (NULL)
        1.92                          989.4                       (NULL)
        2.86                          516.0                       (NULL)
        5.25                           29.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.59 WATERSHED INCHES;    2240 CFS-HRS;     185.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  57

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        1.03                          34.2                       (NULL)
        1.76                          18.7                       (NULL)
        2.59                          10.9                       (NULL)
        3.49                           1.9                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.82 WATERSHED INCHES;      39 CFS-HRS;       3.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  58
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr)   2.04TEST
 08:07:53                    PASS   2   JOB NO.   1                     PAGE  56
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.32	1245.8	(NULL)
1.89	1004.8	(NULL)
2.85	523.8	(NULL)
5.21	29.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.60 WATERSHED INCHES; 2279 CFS-HRS; 188.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.04	39.4	(RUNOFF)
1.76	25.8	(RUNOFF)
2.60	15.0	(RUNOFF)
3.47	2.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.83 WATERSHED INCHES; 49 CFS-HRS; 4.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.32	1263.0	(NULL)
1.86	1027.7	(NULL)
2.84	535.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.58 WATERSHED INCHES; 2328 CFS-HRS; 192.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.06	24.8	(RUNOFF)
1.77	16.6	(RUNOFF)
2.64	9.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.81 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 62
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.32	1275.1	(NULL)
1.85	1043.5	(NULL)
2.83	543.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.56 WATERSHED INCHES; 2359 CFS-HRS; 195.0 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.44	1243.3	250.71
2.91	540.0	249.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.56 WATERSHED INCHES; 2359 CFS-HRS; 195.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	22.1	(RUNOFF)
1.79	13.4	(RUNOFF)
2.78	6.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.37	16.5	335.03
2.86	6.3	334.13

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.47	16.2	300.85
2.94	6.3	300.54

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
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OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	88.8	(RUNOFF)
1.74	51.1	(RUNOFF)
2.59	29.3	(RUNOFF)
3.47	5.2	(RUNOFF)
5.04	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.51 WATERSHED INCHES; 104 CFS-HRS; 8.6 ACRE-FEET.

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.21	49.4	295.92
1.84	47.5	295.84
2.73	26.2	294.67
5.06	1.3	287.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.51 WATERSHED INCHES; 104 CFS-HRS; 8.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.32	60.6	(NULL)
1.83	61.3	(NULL)
2.72	32.4	(NULL)
5.05	1.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.68 WATERSHED INCHES; 135 CFS-HRS; 11.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 2 JOB NO. 1 PAGE 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.01	149.5	(RUNOFF)
1.74	86.3	(RUNOFF)
2.58	49.9	(RUNOFF)
3.47	8.8	(RUNOFF)
5.03	2.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 174 CFS-HRS; 14.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.04	192.6	(NULL)
1.75	147.1	(NULL)
2.60	80.9	(NULL)
5.04	3.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.55 WATERSHED INCHES; 308 CFS-HRS; 25.5 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.27	146.8	248.90
1.93	141.6	248.88
2.79	77.4	248.56

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.55 WATERSHED INCHES; 308 CFS-HRS; 25.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.96	28.2	(RUNOFF)
1.71	14.8	(RUNOFF)
2.50	9.1	(RUNOFF)
3.45	1.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 2 JOB NO. 1 PAGE 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	20.8	267.17
1.75	14.2	266.37
2.60	7.8	265.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.15	19.5	247.95
1.83	14.2	247.87
2.71	7.5	247.76

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.10 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.01	155.2	(RUNOFF)
1.74	102.2	(RUNOFF)
2.56	62.2	(RUNOFF)
3.47	11.0	(RUNOFF)
5.02	2.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.59 WATERSHED INCHES; 184 CFS-HRS; 15.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.45	1327.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

3.47 WATERSHED INCHES; 2543 CFS-HRS; 210.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.26	163.1	(NULL)
1.91	155.4	(NULL)
2.77	84.7	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.59 WATERSHED INCHES; 340 CFS-HRS; 28.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.45	1475.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.48 WATERSHED INCHES; 2883 CFS-HRS; 238.2 ACRE-FEET.

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.51	1475.1	231.01

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.48 WATERSHED INCHES; 2883 CFS-HRS; 238.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.00	83.2	(RUNOFF)
1.73	51.4	(RUNOFF)
2.55	30.9	(RUNOFF)
3.47	5.4	(RUNOFF)
5.02	1.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.91 WATERSHED INCHES; 96 CFS-HRS; 7.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.51	1521.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 2979 CFS-HRS; 246.2 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

1.58	1517.6	217.13

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 2 JOB NO. 1 PAGE 62

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 2979 CFS-HRS; 246.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	102.1	(RUNOFF)
1.72	57.3	(RUNOFF)
2.53	34.8	(RUNOFF)
3.46	5.8	(RUNOFF)
5.01	1.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.40 WATERSHED INCHES; 113 CFS-HRS; 9.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.59	1572.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 3091 CFS-HRS; 255.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.00	45.2	(RUNOFF)
1.73	29.3	(RUNOFF)
2.55	18.1	(RUNOFF)
3.46	3.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.60 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.59	1600.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.44 WATERSHED INCHES; 3144 CFS-HRS; 259.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 85
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 PASS 2 JOB NO. 1 PAGE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.07	167.1	(RUNOFF)
1.78	114.2	(RUNOFF)
2.66	64.2	(RUNOFF)
5.08	2.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 218 CFS-HRS; 18.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.60	1703.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.40 WATERSHED INCHES; 3362 CFS-HRS; 277.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.97	39.1	(RUNOFF)
1.71	20.1	(RUNOFF)
2.51	12.1	(RUNOFF)
3.45	2.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.30 WATERSHED INCHES; 44 CFS-HRS; 3.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.60	1723.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.40 WATERSHED INCHES; 3406 CFS-HRS; 281.5 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2
1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)

RAINFALL OF 8.11 inches AND 23.80 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 5, ARC 2
MAIN TIME INCREMENT .060 HOURS

ALTERNATE 1 STORM 24

STRUCTURE 11	RESVOR	.09	5.65	383.84	12.09	190	2111.1
XSECTION 8	REACH	.17	5.48	358.31	12.17	336	1976.5
STRUCTURE 21	RESVOR	.07	5.56	377.34	12.30	121	1728.6
STRUCTURE 22	RESVOR	.07	5.54	359.01	12.55	105	1500.0
STRUCTURE 23	RESVOR	.32	5.47	---	12.13	513	1603.1
XSECTION 23	REACH	.41	5.75	316.82	12.20	697	1700.0
STRUCTURE 31	RESVOR	.05	5.32	364.55	12.10	98	1960.0
STRUCTURE 32	RESVOR	.01	5.93	380.50	12.05	22	2200.0
STRUCTURE 33	RESVOR	.03	6.72	357.42	12.03	76	2533.3
STRUCTURE 34	RESVOR	.04	6.53	---	12.03	99	2475.0
XSECTION 44	REACH	.78	5.80	291.76	12.21	1387	1778.2
XSECTION 51	REACH	.93	5.71	287.03	12.26	1608	1729.0
XSECTION 63	REACH	1.03	5.65	251.14	12.34	1664	1615.5
STRUCTURE 61	RESVOR	.01	6.68	335.38	12.28	21	2100.0
STRUCTURE 62	RESVOR	.05	5.73	296.98	12.17	69	1380.0
STRUCTURE 63	RESVOR	.01	6.39	267.45	12.01	29	2900.0
XSECTION 77	REACH	1.28	5.57	231.50	12.35	1957	1528.9
XSECTION 88	ADDHYD	1.55	5.49	---	12.45	2192	1414.2

RAINFALL OF 5.70 inches AND 5.00 hr DURATION, BEGINS AT .0 hrs.
RAINTABLE NUMBER 6, ARC 2

ALTERNATE 1 STORM 6

STRUCTURE 11	RESVOR	.09	3.52	383.41	1.13	155	1722.2
XSECTION 8	REACH	.17	3.35	358.06	1.21	266	1564.7
STRUCTURE 21	RESVOR	.07	4.15	376.68	1.89	86	1228.6
STRUCTURE 22	RESVOR	.07	4.15	357.70	1.98	85	1214.3
STRUCTURE 23	RESVOR	.32	3.50	---	1.11	369	1153.1

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 SUMMARY, JOB NO. 1 PAGE 65

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 1 STORM 6							
XSECTION 23	REACH	.41	3.71	316.47	1.22	522	1273.2
STRUCTURE 31	RESVOR	.05	3.17	363.93	1.11	78	1560.0
STRUCTURE 32	RESVOR	.01	4.92	380.35	1.14	16	1600.0
STRUCTURE 33	RESVOR	.03	4.93	357.33	1.10	66	2200.0
STRUCTURE 34	RESVOR	.04	4.93	---	1.13	78	1950.0
XSECTION 44	REACH	.78	3.72	291.35	1.26	1066	1366.7

XSECTION	51	REACH	.93	3.62	286.37	1.33	1213	1304.3
XSECTION	63	REACH	1.03	3.56	250.71	1.44	1243	1206.8
STRUCTURE	61	RESVOR	.01	4.35	335.03	1.37	16	1600.0
STRUCTURE	62	RESVOR	.05	3.51	295.92	1.21	49	980.0
STRUCTURE	63	RESVOR	.01	4.09	267.17	1.08	21	2100.0
XSECTION	77	REACH	1.28	3.48	231.01	1.51	1475	1152.3
XSECTION	88	ADDHYD	1.55	3.40	---	1.60	1724	1112.3

1

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	HYDROGRAPH INFLOW TIME (HR)	HYDROGRAPH OUTFLOW PEAK (CFS)	HYDROGRAPH OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	ROUTING PARAMETERS Q-A EQ. POWER (M)	ROUTING PARAMETERS LENGTH FACTOR (k*)	ROUTING PARAMETERS PEAK RATIO Q/I (Q*)	ROUTING PARAMETERS ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 24											
2	1170		68	12.1	68	12.1	.30	2.00	.002	.997	.91?
5	797		189	12.1	189	12.2	1.88	1.27	.009	1.000	.93?
8	1221		336	12.1	336	12.2	1.29	1.44	.006	.999	.94?
16	920		513	12.1	513	12.1	4.11	1.44	.001	1.000	1.00?
23	1379		728	12.1	695	12.2	.59	1.31	.023	.955	.50
27	1021		241	12.1	233	12.2	.52	1.38	.019	.970	.58
32	1603		174	12.0	170	12.1	1.37	1.31	.027	.975	.54
34	583		22	12.1	22	12.1	1.14	1.62	.004	1.000	1.00?
37	934		98	12.1	98	12.1	2.40	1.52	.003	1.000	1.00?
44	1428		1414	12.1	1381	12.2	.26	1.46	.013	.976	.60
51	1275		1630	12.2	1605	12.2	.43	1.38	.012	.985	.65
53	652		21	12.0	21	12.1	2.05	1.40	.007	1.000	.96?
63	1959		1696	12.2	1663	12.4	.37	1.43	.014	.980	.55
65	1283		21	12.3	21	12.4	2.50	1.38	.010	.987	.68?
70	2166		243	12.1	207	12.3	1.45	1.12	.089	.851	.25
72	1081		29	12.0	28	12.1	1.66	1.42	.012	.970	.71?
77	884		1956	12.4	1956	12.4	1.78	1.24	.006	1.000	1.00?
80	1296		1994	12.4	1990	12.4	4.43	1.10	.013	.998	.84?
ALTERNATE 1 STORM 6											
2	1170		55	1.1	55	1.1	.26	2.00	.004	.988	.82?
5	797		154	1.1	154	1.2	1.93	1.26	.014	.997	.90?
8	1221		267	1.1	266	1.2	1.28	1.44	.009	.995	.91?
16	920		363	1.1	363	1.1	3.85	1.46	.001	1.000	1.00?
23	1379		563	1.1	520	1.2	.63	1.30	.033	.924	.47

27	1021	190	1.1	179	1.2	.71	1.30	.040	.938	.52
32	1603	158	1.0	152	1.1	1.36	1.31	.043	.960	.54
34	583	16	1.1	16	1.2	1.14	1.62	.004	.996	.96?

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 SUMMARY, JOB NO. 1 PAGE 67

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	HYDROGRAPH INFLOW TIME (HR)	HYDROGRAPH OUTFLOW PEAK (CFS)	HYDROGRAPH OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
ALTERNATE 1 STORM 6											
37	934		78	1.1	78	1.1	2.36	1.53	.003	1.000	1.00?
44	1428		1098	1.1	1066	1.3	.27	1.45	.019	.971	.56
51	1275		1231	1.3	1213	1.3	.44	1.37	.018	.985	.61
53	652		19	1.0	19	1.1	2.05	1.40	.012	.999	.95?
63	1959		1275	1.3	1243	1.4	.41	1.42	.022	.975	.51
65	1283		16	1.4	16	1.4	2.48	1.39	.014	.981	.66
70	2166		191	1.0	147	1.3	1.85	1.05	.145	.767	.22
72	1081		21	1.1	19	1.1	1.59	1.45	.015	.933	.68?
77	884		1475	1.4	1475	1.5	1.89	1.22	.008	1.000	.98?
80	1296		1521	1.5	1515	1.6	4.25	1.11	.015	.996	.84?

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr) 2.04TEST
08:07:53 SUMMARY, JOB NO. 1 PAGE 68

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6	24
STRUCTURE 63	.01		
ALTERNATE 1		21	29
STRUCTURE 62	.05		
ALTERNATE 1		49	69

STRUCTURE	61	.01		
ALTERNATE	1		16	21
STRUCTURE	34	.04		
ALTERNATE	1		78	99
STRUCTURE	33	.03		
ALTERNATE	1		66	76
STRUCTURE	32	.01		
ALTERNATE	1		16	22
STRUCTURE	31	.05		
ALTERNATE	1		78	98
STRUCTURE	23	.32		
ALTERNATE	1		369	513
STRUCTURE	22	.07		
ALTERNATE	1		85	105
STRUCTURE	21	.07		
ALTERNATE	1		86	121
STRUCTURE	11	.09		
ALTERNATE	1		155	190
XSECTION	8	.17		
ALTERNATE	1		266	336
XSECTION	23	.41		
ALTERNATE	1		522	697
XSECTION	44	.78		

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6	24

```
 XSECTION   44          .78
 ---------------------------
    ALTERNATE    1                1066      1387

 XSECTION   51          .93
 ---------------------------
    ALTERNATE    1                1213      1608

 XSECTION   63         1.03
 ---------------------------
    ALTERNATE    1                1243      1664

 XSECTION   77         1.28
 ---------------------------
    ALTERNATE    1                1475      1957

 XSECTION   88         1.55
 ---------------------------
    ALTERNATE    1                1724      2192
1
 TR20 ------------------------------------------------------------------------ SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT          VERSION
 07/08/** SML SWM CN not reduced-EXIST COND.- Trop.Storm Lee (6,24hr)    2.04TEST



 END OF  1 JOBS IN THIS RUN
```

```
                    SCS  TR-20,  VERSION 2.04TEST
                                  FILES

     INPUT  = SAMTTSL.DAT                              , GIVEN DATA FILE
     OUTPUT = SAMTTSL.OUT                              , DATED 07/08/**,08:07:53

               FILES GENERATED - DATED 07/08/**,08:07:53

                                NONE!


            TOTAL NUMBER OF WARNINGS =  15,  MESSAGES =   5

                      *** TR-20 RUN COMPLETED ***
```

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                       NOPLOTS
TITLE     Ellicott City Flood Study- All Combined SAs- MGMT
TITLE     SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)
 2 XSECTN   002                  1.0      389.50
 8                             389.00        0.00        0.00
 8                             389.25        1.65        1.06
 8                             389.50        6.25        2.75
 8                             389.75       14.40        5.06
 8                             390.00       26.75        8.00
 8                             390.25       45.54       14.33
 8                             390.50       68.67       15.00
 8                             390.75       96.11       18.88
 8                             391.00      127.89       23.00
 8                             391.25      164.08       27.38
 8                             391.50      204.77       32.00
 8                             391.75      250.06       36.88
 9 ENDTBL
 2 XSECTN   005                  1.0      367.00
 8                             366.00        0.00        0.00
 8                             366.50        3.51        1.5
 8                             367.00       13.55        4.00
 8                             367.50       30.53        9.00
 8                             367.75       47.87       13.00
 8                             368.00       72.23       18.00
 8                             368.25      104.79       23.98
 8                             368.50      146.13       30.94
 8                             368.75      197.14       38.86
 8                             369.00      258.63       47.75
 8                             369.25      331.41       57.61
 8                             369.50      416.25       68.44
 9 ENDTBL
 3 STRUCT      11
 8                             380.00        0.00        0.00
 8                             381.00        2.70        0.53
 8                             382.20       53.00        1.16
 8                             383.80      186.80        1.40
 9 ENDTBL
 2 XSECTN   008                  1.0      330.00
 8                             356.00        0.00        0.00
 8                             356.50       20.21        6.94
 8                             357.00       68.51       15.75
 8                             357.50      144.11       26.44
 8                             358.00      248.93       39.00
 8                             358.50      389.07       53.25
 8                             359.00      561.31       69.00
 8                             359.50      767.14       86.25
 8                             360.00     1008.16      105.00
 8                             361.00     1375.68      147.50
 8                             361.50     1604.19      171.38
 9 ENDTBL
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 2 XSECTN   016                  1.0      333.08
```

```
  8                              331.08          0.00          0.00
  8                              332.08         80.21          8.00
  8                              333.08        225.50         16.00
  8                              333.58        310.09         20.00
  8                              334.08        399.94         24.00
  8                              334.58        493.86         28.00
  8                              335.08        590.97         32.00
  8                              335.58        690.67         36.00
  8                              336.08        792.47         40.00
  8                              336.58        896.02         44.00
  9 ENDTBL
  2 XSECTN    023                   1.0        314.40
  8                              313.22          0.00          0.00
  8                              313.51          1.10          0.89
  8                              313.81          3.51          1.84
  8                              314.10         16.22          5.61
  8                              314.40         34.66          9.74
  8                              314.68         48.28         24.71
  8                              314.96         79.66         42.09
  8                              315.24        126.64         61.87
  8                              315.52        189.07         84.06
  8                              315.80        267.27        108.64
  8                              316.08        361.75        135.63
  8                              316.36        473.14        165.02
  8                              316.64        602.11        196.81
  8                              316.92        749.37        231.00
  8                              317.20        878.70        277.25
  8                              317.48       1103.89        329.14
  8                              317.76       1358.10        382.70
  8                              318.04       1640.58        437.94
  8                              318.32       1950.87        494.86
  8                              318.60       2288.69        553.45
  9 ENDTBL
  3 STRUCT       21
  8                              364.00          0.00          0.00
  8                              366.00          0.30          0.55
  8                              368.00          0.50          1.31
  8                              369.00          3.20          1.80
  8                              370.00          5.20          2.29
  8                              372.00          7.80          3.48
  8                              374.00          9.60          5.00
  8                              375.00         10.40          5.86
  8                              376.00         45.30          6.79
  8                              376.50         74.10          7.31
  8                              377.00        106.80          7.83
  8                              378.00        149.80          8.90
  8                              379.00        155.60         10.06
  8                              380.00        162.00         11.29
  9 ENDTBL
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  3 STRUCT       22
  8                              352.50          0.00          0.00
  8                              358.65        100.00          0.91
  8                              361.76        140.00          3.28
  8                              363.64        160.00          5.47
  8                              366.18        180.00          9.58
  8                              368.71        200.00         14.77
  8                              370.61        250.00         19.31
```

```
  9 ENDTBL
  3 STRUCT      23
  9 ENDTBL
  2 XSECTN   027                  1.0      317.00
  8                             316.00        0.00        0.00
  8                             316.50        2.68        2.59
  8                             317.00       10.37        6.88
  8                             317.50       24.26       12.84
  8                             318.00       45.55       20.50
  8                             318.50       70.64       34.75
  8                             319.00      137.01       60.50
  8                             319.25      200.57       76.25
  8                             319.50      273.06       92.00
  8                             319.75      353.76      107.75
  8                             320.00      442.13      123.50
  8                             320.50      640.03      155.00
  8                             321.00      863.72      186.50
  9 ENDTBL
  2 XSECTN   032                  1.0      313.00
  8                             310.00        0.00        0.00
  8                             311.00       12.25        5.50
  8                             312.00       52.16       16.00
  8                             312.50       83.38       23.13
  8                             313.00      123.94       31.50
  8                             313.25      148.02       36.16
  8                             313.50      174.79       41.13
  8                             313.75      204.34       46.41
  8                             314.00      236.81       52.00
  8                             314.50      278.65       65.75
  8                             315.00      353.72       84.00
  9 ENDTBL
  2 XSECTN   034                  1.0      338.50
  8                             338.00        0.00        0.00
  8                             338.10        4.87        2.46
  8                             338.25       22.73        6.38
  8                             338.50       73.99       13.53
  8                             338.75      149.34       21.45
  8                             339.00      247.95       30.13
  8                             339.50      515.65       49.78
  9 ENDTBL
  2 XSECTN   037                  1.0      331.00
  8                             330.00        0.00        0.00
1
```

```
 **********************80-80 LIST OF INPUT DATA (CONTINUED)**********************

  8                             330.25       14.29        3.25
  8                             330.50       46.85        7.00
  8                             330.75       95.34       11.25
  8                             331.00      159.64       16.00
  8                             331.25      240.13       21.25
  8                             331.50      337.44       27.00
  8                             331.75      452.26       33.25
  8                             332.00      585.36       40.00
  8                             332.50      875.33       55.81
  8                             333.00     1272.05       75.25
  9 ENDTBL
  2 XSECTN   044                  1.0      288.90
  8                             287.68        0.00        0.00
  8                             287.99        1.15        0.94
  8                             288.29        3.69        1.95
```

```
  8                              288.60       17.06        5.98
  8                              288.90       36.44       10.37
  8                              289.19       63.07       39.25
  8                              289.47      121.85       69.50
  8                              289.76      206.05      101.12
  8                              290.05      313.23      134.09
  8                              290.33      442.07      168.42
  8                              290.62      591.78      204.12
  8                              290.91      761.87      241.18
  8                              291.19      952.02      279.60
  8                              291.48     1162.04      319.38
  8                              291.77     1391.84      360.52
  8                              292.05     1641.40      403.02
  8                              292.34     1910.74      446.89
  8                              292.63     2199.92      492.11
  8                              292.91     2509.04      538.70
  8                              293.20     2838.22      586.65
  9 ENDTBL
  3 STRUCT       31
  8                              356.38        0.0         0.00
  8                              357.26       10.90        0.02
  8                              357.50       12.30        0.03
  8                              358.00       14.70        0.05
  8                              359.00       18.70        0.10
  8                              360.00       22.00        0.16
  8                              361.00       24.90        0.25
  8                              361.50       26.20        0.30
  8                              362.00       27.50        0.36
  8                              362.50       28.70        0.43
  8                              362.90       29.60        0.49
  8                              363.50       51.30        0.60
  8                              363.75       65.70        0.67
  8                              364.00       82.60        0.72
  8                              364.20       83.30        0.83
  8                              364.60      100.00        0.88
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              366.80      260.00        1.47
  8                              366.92      340.00        1.49
  8                              366.98      380.00        1.50
  9 ENDTBL
  3 STRUCT       32
  8                              375.40        0.00        0.00
  8                              379.36        1.00        0.74
  8                              380.00        5.00        0.89
  8                              380.20       10.00        0.94
  8                              380.33       15.00        0.98
  8                              380.45       20.00        1.01
  8                              380.55       25.00        1.04
  8                              380.65       30.00        1.06
  8                              381.19       40.00        1.21
  8                              381.78       44.00        1.39
  8                              382.59       66.00        1.66
  8                              382.79       88.00        1.75
  8                              382.89      110.00        1.79
  8                              382.97      132.00        1.83
  9 ENDTBL
  3 STRUCT       33
  8                              350.00        0.00        0.00
```

```
  8                              354.30         1.00         1.08
  8                              354.47         2.00         1.15
  8                              354.87         5.00         1.30
  8                              355.38        10.00         1.50
  8                              356.18        20.00         1.84
  8                              356.88        40.00         2.15
  8                              357.27        60.00         2.33
  8                              357.46        80.00         2.42
  8                              358.08       100.00         2.73
  8                              358.14       120.00         2.76
  8                              358.19       140.00         2.78
  8                              358.25       171.00         2.81
  8                              358.27       180.00         2.82
  9 ENDTBL
  3 STRUCT       34
  9 ENDTBL
  2 XSECTN    051                   1.0       282.40
  8                              281.10         0.00         0.00
  8                              281.42         1.24         1.09
  8                              281.75         3.96         2.26
  8                              282.07        18.30         6.92
  8                              282.40        39.09        12.00
  8                              282.88        67.33        37.27
  8                              283.36       131.17        65.87
  8                              283.84       225.10        97.78
  8                              284.32       348.01       133.01
  8                              284.80       499.91       171.56
  8                              285.28       681.29       213.43
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              285.76       892.92       258.61
  8                              286.24      1135.70       307.11
  8                              286.72      1410.63       358.94
  8                              287.20      1718.74       414.08
  8                              287.68      2061.13       472.54
  8                              288.16      2438.87       534.31
  8                              288.64      2853.08       599.41
  8                              289.12      3301.76       667.84
  8                              289.60      3785.91       739.78
  9 ENDTBL
  2 XSECTN    053                   1.0       289.00
  8                              288.00         0.00         0.00
  8                              288.50         9.00         2.88
  8                              289.00        34.26         7.50
  8                              289.50        79.27        13.88
  8                              290.00       147.75        22.00
  8                              290.50       227.49        31.94
  8                              291.00       332.02        43.75
  8                              291.50       463.75        57.44
  8                              291.75       540.56        64.98
  8                              292.00       625.07        73.00
  9 ENDTBL
  2 XSECTN    063                   1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
```

```
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
  8                              250.59      1132.40       271.40
  8                              250.86      1379.55       309.92
  8                              251.13      1650.25       349.81
  8                              251.41      1944.49       391.07
  8                              251.68      2262.35       433.69
  8                              251.95      2603.94       477.69
  8                              252.23      2969.40       523.05
  8                              252.50      3358.93       569.78
  9 ENDTBL
  3 STRUCT      61
  8                              329.75         0.00         0.00
  8                              330.00         1.56         0.01
  8                              332.00         4.37         0.13
  8                              334.00         5.96         0.39
  8                              334.10         6.01         0.40
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              334.50        10.20         0.47
  8                              335.00        16.10         0.56
  8                              336.00        28.91         0.75
  8                              337.00        40.10         0.97
  9 ENDTBL
  3 STRUCT      62
  8                              287.30         0.00         0.00
  8                              288.00         5.45         0.01
  8                              289.00         9.05         0.05
  8                              290.00        11.60         0.13
  8                              292.00        15.35         0.50
  8                              294.00        18.40         1.19
  8                              294.30        18.92         1.26
  8                              294.50        20.73         1.40
  8                              295.00        36.40         1.60
  8                              295.40        38.00         1.80
  8                              296.00        51.10         2.15
  8                              297.00        69.60         2.75
  8                              298.00        86.80         3.44
  8                              298.68        98.50         3.91
  8                              298.80       107.56         4.00
  9 ENDTBL
  3 STRUCT      63
  8                              259.43         0.00         0.00
  8                              260.00         1.30         0.026
  8                              260.50         1.70         0.050
  8                              261.00         2.10         0.075
  8                              261.50         2.40         0.095
  8                              262.00         2.70         0.119
  8                              262.50         2.90         0.160
  8                              263.00         3.20         0.205
  8                              263.50         3.40         0.245
  8                              264.00         3.60         0.285
  8                              264.50         3.80         0.360
  8                              265.00         3.90         0.415
  8                              265.50         4.10         0.480
```

```
  8                              266.00        11.00         0.537
  8                              266.50        15.40         0.620
  8                              267.00        16.00         0.709
  8                              267.50        30.30         0.798
  8                              268.00        56.00         0.887
  8                              268.50       145.68         0.976
  9 ENDTBL
  2 XSECTN    065                   1.0       300.50
  8                              300.00         0.00         0.00
  8                              300.10         0.29         0.23
  8                              300.25         1.47         0.69
  8                              300.40         3.55         1.28
  8                              300.50         5.48         1.75
  8                              300.60         7.88         2.28
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              300.75        12.45         3.19
  8                              300.90        18.28         4.23
  8                              301.00        22.91         5.00
  8                              301.10        28.18         5.83
  8                              301.25        37.36         7.19
  8                              301.40        48.14         8.68
  8                              301.50        56.26         9.75
  9 ENDTBL
  2 XSECTN    070                   1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
  8                              250.59      1132.40       271.40
  8                              250.86      1379.55       309.92
  8                              251.13      1650.25       349.81
  8                              251.41      1944.49       391.07
  8                              251.68      2262.35       433.69
  8                              251.95      2603.94       477.69
  8                              252.23      2969.40       523.05
  8                              252.50      3358.93       569.78
  9 ENDTBL
  2 XSECTN    072                   1.0       248.40
  8                              247.07         0.00         0.00
  8                              247.41         1.85         1.14
  8                              247.74         5.93         2.35
  8                              248.07        27.43         7.18
  8                              248.40        58.61        12.46
  8                              248.67        89.70        40.04
  8                              248.95       158.39        68.99
  8                              249.22       256.90        99.30
  8                              249.49       382.40       130.99
  8                              249.77       533.43       164.04
  8                              250.04       709.09       198.46
  8                              250.31       908.86       234.24
```

```
  8                                250.59     1132.40      271.40
  8                                250.86     1379.55      309.92
  8                                251.13     1650.25      349.81
  8                                251.41     1944.49      391.07
  8                                251.68     2262.35      433.69
  8                                251.95     2603.94      477.69
  8                                252.23     2969.40      523.05
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                                252.50     3358.93      569.78
  9 ENDTBL
  2 XSECTN   077                     1.0      229.00
  8                                226.00        0.00        0.00
  8                                226.50       11.73        5.31
  8                                227.00       42.97       13.25
  8                                227.50       96.50       23.81
  8                                228.00      175.93       37.00
  8                                228.50      258.13       54.25
  8                                229.00      385.22       77.00
  8                                229.50      561.82      105.25
  8                                230.00      793.74      139.00
  8                                230.50     1079.38      179.94
  8                                231.00     1462.49      229.75
  8                                231.50     1953.75      288.44
  8                                232.00     2564.16      356.00
  8                                232.50     3408.70      429.13
  8                                233.00     4351.01      504.50
  9 ENDTBL
  2 XSECTN   080                     1.0      212.00
  8                                210.50        0.00        0.00
  8                                210.75        4.72        2.23
  8                                211.00       15.68        4.92
  8                                211.25       32.36        8.06
  8                                211.50       54.93       11.67
  8                                211.75       83.70       15.73
  8                                212.00      119.05       20.25
  8                                212.25      163.87       25.14
  8                                212.50      215.35       30.31
  8                                212.75      273.55       35.77
  8                                213.00      338.57       41.50
  8                                214.00      669.42       67.25
  8                                215.00      806.07       99.00
  8                                216.00     1088.03      138.25
  8                                217.00     1451.30      187.50
  8                                218.00     1978.93      249.25
  8                                219.00     2262.06      340.00
  8                                220.00     3115.20      476.25
  8                                221.00     4892.67      639.25
  9 ENDTBL
  6 RUNOFF  1 001        1        0.0336       79.478       0.4051          DA1
  6 REACH   3 002    1   2        1170.0                         1
  6 RUNOFF  1 003        1        0.0580       80.559       0.3751          DA2
  6 ADDHYD  4 004    1 2 3                                      1          DA1+2
  6 RESVOR  2     11 3   1                                      1        1 SWMF10
  6 REACH   3 005    1   2         797.0                         1
  6 RUNOFF  1 006        3        0.0798       76.270       0.3921          DA3
  6 ADDHYD  4 007    2 3 4                                      1         DA12+3
  6 REACH   3 008    4   7        1221.0                         1        1 SA1-SA2
  6 RUNOFF  1 009        1        0.0734       88.594       0.4221          DA1
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 RESVOR 2    21 1   2                                    1         1 SWMF13
  6 RUNOFF 1 010       3       0.0097      72.249      0.1281           DA7
  6 RESVOR 2    22 2 3 4                                    1         1 HWY STOR
  6 RUNOFF 1 011       2       0.0569      76.394      0.2201           DA2
  6 ADDHYD 4 012   7 2 3                                    1           SA1+DA2
  6 RUNOFF 1 013       5       0.0193      79.025      0.2481           DA3
  6 ADDHYD 4 014   4 3 6                                    1           DA17+2
  6 ADDHYD 4 015   6 5 3                                    1           DA172+3
  6 RESVOR 2    23 3   1                                    1         1 HWYSTOR2
  6 REACH  3 016   1   2        920.0                       1
  6 RUNOFF 1 017       3       0.0211      87.900      0.1641           DA4
  6 RUNOFF 1 018       4       0.0313      91.880      0.2551           DA5
  6 RUNOFF 1 019       5       0.0404      86.883      0.1681           DA6
  6 ADDHYD 4 020   3 4 6                                    1           DA4+5
  6 ADDHYD 4 021   6 5 1                                    1           DA123+6
  6 ADDHYD 4 022   2 1 3                                    1           DA45+6
  6 REACH  3 023   3   7       1379.0                       1         1 SA2-SA3
  6 RUNOFF 1 024       1       0.0505      76.581      0.3401           DA1
  6 RESVOR 2    31 1   2                                    1         1 SWMF3
  6 RUNOFF 1 025       3       0.0748      75.950      0.3581           DA2
  6 ADDHYD 4 026   2 3 4                                    1           DA1+2
  6 REACH  3 027   4   1       1021.0                       1
  6 RUNOFF 1 028       2       0.0599      77.623      0.3231           DA3
  6 ADDHYD 4 029   7 2 3                                    1           SA2+DA3
  6 ADDHYD 4 030   1 3 5                                    1           DA12+3
  6 RUNOFF 1 031       1       0.0692      86.658      0.2761           DA4
  6 REACH  3 032   1   6       1603.0                       1
  6 RUNOFF 1 033       2       0.0084      95.000      0.1921           DA5
  6 RESVOR 2    32 2   3                                    1         1 SWMF11
  6 REACH  3 034   3   7        583.0                       1
  6 RUNOFF 1 035       1       0.0275      94.963      0.2481           DA6
  6 RESVOR 2    33 1   2                                    1         1 SWMF8
  6 ADDHYD 4 036   7 2 1                                    1           DA5+6
  6 RESVOR 2    34 1   2                                    1         1 HWYSTOR3
  6 REACH  3 037   2   4        934.0                       1
  6 RUNOFF 1 038       1       0.0328      86.132      0.1901           DA7
  6 ADDHYD 4 039   4 1 3                                    1           DA56+7
  6 RUNOFF 1 040       2       0.0393      85.125      0.3671           DA8
  6 ADDHYD 4 041   5 2 1                                    1           DA3+8
  6 ADDHYD 4 042   6 1 2                                    1           DA4+8
  6 ADDHYD 4 043   3 2 1                                    1           DA7+8
  6 REACH  3 044   1   7       1428.0                       1         1 SA3-SA4
  6 RUNOFF 1 045       1       0.0477      75.971      0.4121           DA1
  6 RUNOFF 1 046       2       0.0628      73.766      0.4401           DA2
  6 ADDHYD 4 047   1 2 3                                    1           DA1+2
  6 RUNOFF 1 048       1       0.0469      79.166      0.2491           DA3
  6 ADDHYD 4 049   7 1 2                                    1           SA3+DA3
  6 ADDHYD 4 050   2 3 4                                    1           DA12+3
  6 REACH  3 051   4   7       1275.0                       1         1 SA4-SA5
  6 RUNOFF 1 052       1       0.0087      83.161      0.1631           DA1
```

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**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 REACH  3 053   1   5        652.0                       1
```

```
 6 RUNOFF 1 054        1       0.0072      83.054       0.2561           DA2
 6 RUNOFF 1 055        2       0.0322      74.166       0.2491           DA3
 6 ADDHYD 4 056    7 2 4                                    1           SA4+DA3
 6 ADDHYD 4 057    5 1 3                                    1           DA1+2
 6 ADDHYD 4 058    4 3 5                                    1           DA12+3
 6 RUNOFF 1 059        1       0.0266      72.902       0.2611           DA4
 6 ADDHYD 4 060    5 1 2                                    1           DA123+4
 6 RUNOFF 1 061        3       0.0173      72.707       0.2971           DA5
 6 ADDHYD 4 062    2 3 6                                    1           DA1234+5
 6 REACH  3 063    6   7       1959.0                       1         1 SA5-SA6
 6 RUNOFF 1 064        1       0.0110      88.119       0.5211           DA1
 6 RESVOR 2    61 1   2                                    1         1 SWMF19
 6 REACH  3 065    2   3       1283.0                       1
 6 RUNOFF 1 066        1       0.0458      80.006       0.2391           DA2
 6 RESVOR 2    62 1   2                                    1         1 SWMF18
 6 ADDHYD 4 067    3 2 4                                    1           DA1+2
 6 RUNOFF 1 068        5       0.0778      79.468       0.2281           DA3
 6 ADDHYD 4 069    4 5 1                                    1           DA12+3
 6 REACH  3 070    1   2       2166.0                       1
 6 RUNOFF 1 071        1       0.0119      85.744       0.1221           DA4
 6 RESVOR 2    63 1   3                                    1         1 SWMF2
 6 REACH  3 072    3   4       1081.0                       1
 6 RUNOFF 1 073        5       0.1100      70.291       0.2051           DA5
 6 ADDHYD 4 074    7 5 1                                    1           SA5+DA5
 6 ADDHYD 4 075    2 4 6                                    1           DA123+4
 6 ADDHYD 4 076    1 6 2                                    1           DA12345
 6 REACH  3 077    2   7        884.0                       1         1 SA6-SA7
 6 RUNOFF 1 078        2       0.0510      73.827       0.1971           DA1
 6 ADDHYD 4 079    7 2 1                                    1           SA6+DA1
 6 REACH  3 080    1   2       1296.0                       1
 6 RUNOFF 1 081        3       0.0513      78.929       0.1621           DA3
 6 ADDHYD 4 082    2 3 4                                    1           DA1+3
 6 RUNOFF 1 083        1       0.0313      70.330       0.1861           DA2
 6 ADDHYD 4 084    4 1 2                                    1           DA13+2
 6 RUNOFF 1 085        3       0.1187      73.092       0.3211           DA4
 6 ADDHYD 4 086    2 3 1                                    1           DA123+4
 6 RUNOFF 1 087        4       0.0159      87.661       0.1421           DA5
 6 ADDHYD 4 088    1 4 7                                    1         1 DA1234+5
   ENDATA
 7 INCREM 6                      .06
 7 COMPUT 7 001   088             0.0        4.94         1.02 2  1   10
   ENDCMP 1
 7 COMPUT 7 001   088             0.0        7.28         1.02 2  1   50
   ENDCMP 1
 7 COMPUT 7 001   088             0.0        8.53         1.02 2  1   99
   ENDCMP 1
   ENDJOB 2

 ********************************END OF 80-80 LIST*********************************
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT          VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)      2.04TEST
 13:19:56                     PASS   1   JOB NO.   1                     PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .060 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  88
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
```

ALTERNATE NO. = 1 STORM NO. =10 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	57.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.79 WATERSHED INCHES; 61 CFS-HRS; 5.0 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	57.0	390.37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.79 WATERSHED INCHES; 61 CFS-HRS; 5.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	107.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.89 WATERSHED INCHES; 108 CFS-HRS; 8.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	160.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 169 CFS-HRS; 13.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 1 JOB NO. 1 PAGE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	158.7	383.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 168 CFS-HRS; 13.9 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	157.8	368.56

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 168 CFS-HRS; 13.9 ACRE-FEET.

```
 OPERATION RUNOFF   XSECTION   6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.12                         125.4                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.51 WATERSHED INCHES;     129 CFS-HRS;      10.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   7

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.18                         271.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.69 WATERSHED INCHES;     297 CFS-HRS;      24.6 ACRE-FEET.


 OPERATION REACH    XSECTION   8

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.25                         270.1                        358.08

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.69 WATERSHED INCHES;     297 CFS-HRS;      24.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   9

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.13                         158.1                       (RUNOFF)
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                     PASS   1   JOB NO.   1                    PAGE   3


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.67 WATERSHED INCHES;     174 CFS-HRS;      14.4 ACRE-FEET.

 *** MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
               STARTS  4.00 FEET BELOW ASSUMED CREST ELEVATION AT   368.00.
               THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME.                ***


 OPERATION RESVOR   STRUCTURE 21

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.50                          57.6                        376.21

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.31 WATERSHED INCHES;     157 CFS-HRS;      12.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  10

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.97                          19.4                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.17 WATERSHED INCHES;      14 CFS-HRS;       1.1 ACRE-FEET.
```

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.63	52.7	355.74

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.30 WATERSHED INCHES; 156 CFS-HRS; 12.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	115.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.52 WATERSHED INCHES; 92 CFS-HRS; 7.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	318.1	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.65 WATERSHED INCHES; 390 CFS-HRS; 32.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	41.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.75 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	327.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.80 WATERSHED INCHES; 545 CFS-HRS; 45.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	350.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.80 WATERSHED INCHES; 580 CFS-HRS; 47.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

```
   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.19                          350.1                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.80 WATERSHED INCHES;     580 CFS-HRS;      47.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
              CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION  16.       ***


 OPERATION REACH    XSECTION  16

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.19                          350.1                        333.80
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                     PASS   1   JOB NO.   1                    PAGE   5


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.80 WATERSHED INCHES;     580 CFS-HRS;      47.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  17

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.98                           64.5                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.60 WATERSHED INCHES;      49 CFS-HRS;       4.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  18

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.03                           91.1                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.01 WATERSHED INCHES;      81 CFS-HRS;       6.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  19

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.98                          119.7                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.50 WATERSHED INCHES;      91 CFS-HRS;       7.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  20

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                          153.1                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.85 WATERSHED INCHES;     130 CFS-HRS;      10.8 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  21
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	271.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.70 WATERSHED INCHES; 221 CFS-HRS; 18.3 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
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OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	542.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.99 WATERSHED INCHES; 798 CFS-HRS; 66.0 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	492.6	316.40

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.99 WATERSHED INCHES; 798 CFS-HRS; 65.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	85.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.53 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

*** WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	80.3	363.97

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.53 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	121.4	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.48 WATERSHED INCHES; 120 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	199.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	180.2	319.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	108.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.63 WATERSHED INCHES; 101 CFS-HRS; 8.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	590.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.94 WATERSHED INCHES; 899 CFS-HRS; 74.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	753.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 1101 CFS-HRS; 91.0 ACRE-FEET.

1

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	175.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.47 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	160.5	313.37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.47 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	28.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS
WITH .38 AC-FT (.07 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 377.43. ***

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	12.8	380.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.51 WATERSHED INCHES; 19 CFS-HRS; 1.6 ACRE-FEET.

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	12.7	338.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 19 CFS-HRS; 1.6 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
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OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	84.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 77 CFS-HRS; 6.4 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS
WITH .95 AC-FT (.05 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 353.80. ***

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	64.4	357.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.70 WATERSHED INCHES; 66 CFS-HRS; 5.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	71.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	71.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	71.6	330.63

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 1 JOB NO. 1 PAGE 10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	92.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 72 CFS-HRS; 6.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	137.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.54 WATERSHED INCHES; 157 CFS-HRS; 13.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	83.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.32 WATERSHED INCHES; 84 CFS-HRS; 7.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	828.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.88 WATERSHED INCHES; 1186 CFS-HRS; 98.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	987.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.94 WATERSHED INCHES; 1341 CFS-HRS; 110.8 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 1 JOB NO. 1 PAGE 11

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	1103.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.98 WATERSHED INCHES; 1493 CFS-HRS; 123.4 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	1051.8	291.33

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.98 WATERSHED INCHES; 1492 CFS-HRS; 123.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	71.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.48 WATERSHED INCHES; 76 CFS-HRS; 6.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.15	83.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.30 WATERSHED INCHES; 93 CFS-HRS; 7.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	154.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.37 WATERSHED INCHES; 169 CFS-HRS; 14.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 1 JOB NO. 1 PAGE 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	99.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.76 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	1092.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.97 WATERSHED INCHES; 1576 CFS-HRS; 130.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	1230.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.90 WATERSHED INCHES; 1745 CFS-HRS; 144.2 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.33	1192.9	286.34

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.90 WATERSHED INCHES; 1745 CFS-HRS; 144.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	23.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

3.13 WATERSHED INCHES; 18 CFS-HRS; 1.5 ACRE-FEET.

OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	23.5	288.79

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.13 WATERSHED INCHES; 18 CFS-HRS; 1.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	17.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.12 WATERSHED INCHES; 15 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	57.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.33 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.33	1210.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.88 WATERSHED INCHES; 1793 CFS-HRS; 148.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	40.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.13 WATERSHED INCHES; 32 CFS-HRS; 2.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	1220.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.88 WATERSHED INCHES; 1825 CFS-HRS; 150.8 ACRE-FEET.

1

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	44.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.22 WATERSHED INCHES; 38 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	1234.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.86 WATERSHED INCHES; 1863 CFS-HRS; 154.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	27.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.21 WATERSHED INCHES; 25 CFS-HRS; 2.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	1246.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 1888 CFS-HRS; 156.0 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	1192.9	250.66

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 1887 CFS-HRS; 155.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 64
1
TR20 ---------- SCS -

Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	21.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	12.9	334.73

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.55	12.5	300.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	101.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.84 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	42.6	295.61
14.73	4.1	287.82

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.83 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
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OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	49.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.99 WATERSHED INCHES; 110 CFS-HRS; 9.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	173.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.79 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	195.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.88 WATERSHED INCHES; 250 CFS-HRS; 20.6 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	137.2	248.86

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.87 WATERSHED INCHES; 250 CFS-HRS; 20.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	37.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.39 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	15.9	266.88

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.37 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	15.5	247.89

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.39 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	181.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.01 WATERSHED INCHES; 143 CFS-HRS; 11.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	1225.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.77 WATERSHED INCHES; 2030 CFS-HRS; 167.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	152.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.92 WATERSHED INCHES; 276 CFS-HRS; 22.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	1361.5	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.79 WATERSHED INCHES; 2305 CFS-HRS; 190.5 ACRE-FEET.

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.48	1360.5	230.87

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.79 WATERSHED INCHES; 2305 CFS-HRS; 190.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	97.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.30 WATERSHED INCHES; 76 CFS-HRS; 6.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.48	1375.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.77 WATERSHED INCHES; 2381 CFS-HRS; 196.7 ACRE-FEET.

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 OPERATION REACH    XSECTION  80

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.55                        1369.5                        216.77

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.77 WATERSHED INCHES;    2380 CFS-HRS;     196.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  81

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.99                         123.3                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.74 WATERSHED INCHES;      91 CFS-HRS;       7.5 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                    PASS   1   JOB NO.   1                     PAGE  19


 OPERATION ADDHYD   XSECTION  82

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.55                        1383.1                        (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.77 WATERSHED INCHES;    2471 CFS-HRS;     204.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  83

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                          53.0                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.02 WATERSHED INCHES;      41 CFS-HRS;       3.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  84

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.55                        1390.1                        (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.75 WATERSHED INCHES;    2512 CFS-HRS;     207.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  85

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.09                         182.1                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.24 WATERSHED INCHES;     171 CFS-HRS;      14.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  86
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   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.54                         1431.8                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.71 WATERSHED INCHES;    2683 CFS-HRS;     221.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  87
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
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   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.96                           50.3                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.58 WATERSHED INCHES;      37 CFS-HRS;       3.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  88

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.54                         1436.6                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.72 WATERSHED INCHES;    2720 CFS-HRS;     224.8 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  88
    STARTING TIME =   .00       RAIN DEPTH =  7.28       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =50            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.12                           99.6                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.89 WATERSHED INCHES;     106 CFS-HRS;       8.8 ACRE-FEET.


 OPERATION REACH    XSECTION   2

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.18                           99.4                         390.78

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.89 WATERSHED INCHES;     106 CFS-HRS;       8.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	184.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.01 WATERSHED INCHES; 188 CFS-HRS; 15.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	278.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.96 WATERSHED INCHES; 293 CFS-HRS; 24.3 ACRE-FEET.

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 11,
VALUE EXTRAPOLATED. ***

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	275.5	384.86

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 293 CFS-HRS; 24.2 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	275.2	369.06

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 292 CFS-HRS; 24.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	226.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.53 WATERSHED INCHES; 234 CFS-HRS; 19.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 7
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	483.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.75 WATERSHED INCHES; 526 CFS-HRS; 43.5 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	483.6	358.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.76 WATERSHED INCHES; 526 CFS-HRS; 43.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	252.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.94 WATERSHED INCHES; 281 CFS-HRS; 23.2 ACRE-FEET.

*** MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.34	150.2	378.07

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.44 WATERSHED INCHES; 258 CFS-HRS; 21.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	36.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.62	115.2	359.83

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.42 WATERSHED INCHES; 257 CFS-HRS; 21.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	207.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.55 WATERSHED INCHES; 167 CFS-HRS; 13.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	575.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.70 WATERSHED INCHES; 693 CFS-HRS; 57.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	71.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.84 WATERSHED INCHES; 60 CFS-HRS; 5.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	650.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.87 WATERSHED INCHES; 949 CFS-HRS; 78.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	683.7	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 2 JOB NO. 1 PAGE 24

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.87 WATERSHED INCHES; 1009 CFS-HRS; 83.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	683.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.87 WATERSHED INCHES; 1009 CFS-HRS; 83.4 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	683.7	335.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.87 WATERSHED INCHES; 1009 CFS-HRS; 83.4 ACRE-FEET.

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 OPERATION RUNOFF   XSECTION  17

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.98                         102.0                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.84 WATERSHED INCHES;      80 CFS-HRS;       6.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  18

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.03                         140.4                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.31 WATERSHED INCHES;     127 CFS-HRS;      10.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  19

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.98                         191.6                       (RUNOFF)
1
 TR20 ------------------------------------------------------------------------ SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                    PASS   2   JOB NO.   1                     PAGE  25


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.74 WATERSHED INCHES;     150 CFS-HRS;      12.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  20

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                         237.6                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.12 WATERSHED INCHES;     207 CFS-HRS;      17.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  21

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.99                         427.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.95 WATERSHED INCHES;     356 CFS-HRS;      29.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  22

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.06                         992.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.09 WATERSHED INCHES;    1360 CFS-HRS;     112.4 ACRE-FEET.


 OPERATION REACH    XSECTION  23
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	903.0	317.23

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.09 WATERSHED INCHES; 1359 CFS-HRS; 112.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	154.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
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*** WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	149.0	365.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.56 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	220.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.50 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	367.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.52 WATERSHED INCHES; 366 CFS-HRS; 30.2 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	352.5	319.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.53 WATERSHED INCHES; 366 CFS-HRS; 30.3 ACRE-FEET.

```
 OPERATION RUNOFF   XSECTION  28

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.08                         193.2                       (RUNOFF)
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                    PASS   2   JOB NO.   1                     PAGE  27


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.68 WATERSHED INCHES;     181 CFS-HRS;      15.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  29

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.15                        1066.6                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.04 WATERSHED INCHES;    1540 CFS-HRS;     127.3 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  30

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.17                        1411.1                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.93 WATERSHED INCHES;    1907 CFS-HRS;     157.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  31

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.05                         281.6                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.71 WATERSHED INCHES;     255 CFS-HRS;      21.1 ACRE-FEET.


 OPERATION REACH    XSECTION  32

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.14                         258.6                         314.26

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.71 WATERSHED INCHES;     255 CFS-HRS;      21.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  33

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.99                          42.3                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.68 WATERSHED INCHES;      36 CFS-HRS;       3.0 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
```

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS
WITH .48 AC-FT (.09 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 378.00. ***

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	33.1	380.82

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.60 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. ***

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	33.1	338.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.60 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	126.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.67 WATERSHED INCHES; 118 CFS-HRS; 9.8 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS
WITH 1.02 AC-FT (.06 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 354.09. ***

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	104.8	358.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.99 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

1

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	137.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.90 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	137.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.90 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	137.5	330.91

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.90 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	149.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.64 WATERSHED INCHES; 119 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	272.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.78 WATERSHED INCHES; 256 CFS-HRS; 21.2 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 2 JOB NO. 1 PAGE 30

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	136.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.53 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	1536.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.97 WATERSHED INCHES; 2047 CFS-HRS; 169.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	1793.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.04 WATERSHED INCHES; 2302 CFS-HRS; 190.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	2011.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.09 WATERSHED INCHES; 2551 CFS-HRS; 210.8 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	1935.8	292.37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.09 WATERSHED INCHES; 2550 CFS-HRS; 210.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	130.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.51 WATERSHED INCHES; 139 CFS-HRS; 11.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	157.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.26 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	288.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.37 WATERSHED INCHES; 311 CFS-HRS; 25.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	173.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.85 WATERSHED INCHES; 147 CFS-HRS; 12.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	2013.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.08 WATERSHED INCHES; 2696 CFS-HRS; 222.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	2276.9	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 2 JOB NO. 1 PAGE 32

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 3008 CFS-HRS; 248.6 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.30	2225.6	287.89

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 3007 CFS-HRS; 248.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	39.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.30 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 53. ***

OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	39.3	289.06

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.30 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

```
 OPERATION RUNOFF   XSECTION  54

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.04                         28.4                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.29 WATERSHED INCHES;      25 CFS-HRS;       2.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  55

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.04                        106.3                        (RUNOFF)
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                    PASS   2   JOB NO.   1                     PAGE  33


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.30 WATERSHED INCHES;      89 CFS-HRS;       7.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  56

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.30                        2260.2                        (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.97 WATERSHED INCHES;    3097 CFS-HRS;     255.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  57

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.00                         66.4                        (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.30 WATERSHED INCHES;      54 CFS-HRS;       4.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  58

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.30                        2276.6                        (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.97 WATERSHED INCHES;    3151 CFS-HRS;     260.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  59

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.05                         83.9                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.16 WATERSHED INCHES;      71 CFS-HRS;       5.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  60
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.29	2306.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 3222 CFS-HRS; 266.3 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 2 JOB NO. 1 PAGE 34

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	51.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.14 WATERSHED INCHES; 46 CFS-HRS; 3.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.29	2330.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.94 WATERSHED INCHES; 3269 CFS-HRS; 270.1 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	2258.4	251.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.94 WATERSHED INCHES; 3267 CFS-HRS; 270.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	33.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	25.1	335.70

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.88 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION REACH XSECTION 65
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.46 24.6 301.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.03 175.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 146 CFS-HRS; 12.1 ACRE-FEET.

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.22 82.5 297.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 146 CFS-HRS; 12.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.32 99.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.13 WATERSHED INCHES; 188 CFS-HRS; 15.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.02 299.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.89 WATERSHED INCHES; 246 CFS-HRS; 20.3 ACRE-FEET.

1

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.04 363.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 433 CFS-HRS; 35.8 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	273.1	249.25

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 433 CFS-HRS; 35.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	59.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.59 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	50.9	267.90

*** WARNING - STRUCTURE 63, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK
(50.93) EXCEEDS ADJACENT COORDINATE (48.04) BY 6 %. ***

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.61 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	46.5	248.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.58 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
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OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	351.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.88 WATERSHED INCHES; 276 CFS-HRS; 22.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	2324.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.83 WATERSHED INCHES; 3543 CFS-HRS; 292.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	299.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.04 WATERSHED INCHES; 477 CFS-HRS; 39.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	2585.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.86 WATERSHED INCHES; 4019 CFS-HRS; 332.1 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. ***

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	2585.2	232.01

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.86 WATERSHED INCHES; 4019 CFS-HRS; 332.1 ACRE-FEET.

1

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	181.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.26 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	2618.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.83 WATERSHED INCHES; 4159 CFS-HRS; 343.7 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	2587.7	219.38

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.83 WATERSHED INCHES; 4159 CFS-HRS; 343.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	213.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.82 WATERSHED INCHES; 160 CFS-HRS; 13.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	2615.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.83 WATERSHED INCHES; 4319 CFS-HRS; 356.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 2 JOB NO. 1 PAGE 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	103.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.89 WATERSHED INCHES; 79 CFS-HRS; 6.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	2630.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.81 WATERSHED INCHES; 4397 CFS-HRS; 363.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	343.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.18 WATERSHED INCHES; 321 CFS-HRS; 26.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	2728.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.76 WATERSHED INCHES; 4718 CFS-HRS; 389.9 ACRE-FEET.

```
 OPERATION RUNOFF   XSECTION  87

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.96                         80.0                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.81 WATERSHED INCHES;      60 CFS-HRS;       4.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  88

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.44                       2737.6                       (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                    PASS   2   JOB NO.   1                     PAGE  40


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   4.77 WATERSHED INCHES;    4777 CFS-HRS;     394.8 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  88
    STARTING TIME =   .00       RAIN DEPTH =  8.53       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =99            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.12                       122.5                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.05 WATERSHED INCHES;     131 CFS-HRS;      10.8 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION   2.       ***


 OPERATION REACH    XSECTION   2

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.12                       122.5                         390.96

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.05 WATERSHED INCHES;     131 CFS-HRS;      10.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                       226.4                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.19 WATERSHED INCHES;     232 CFS-HRS;      19.1 ACRE-FEET.
```

```
 OPERATION ADDHYD   XSECTION   4
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                    PASS   3   JOB NO.   1                     PAGE  41


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.11                         348.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.14 WATERSHED INCHES;     363 CFS-HRS;      30.0 ACRE-FEET.

 *** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 11,
               VALUE EXTRAPOLATED.                                        ***


 OPERATION RESVOR   STRUCTURE 11

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.13                         346.0                       385.70

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.12 WATERSHED INCHES;     362 CFS-HRS;      29.9 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION   5.       ***


 OPERATION REACH    XSECTION   5

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.13                         346.0                       369.29

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.12 WATERSHED INCHES;     362 CFS-HRS;      29.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.12                         279.0                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.67 WATERSHED INCHES;     292 CFS-HRS;      24.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   7

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.12                         624.6                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.91 WATERSHED INCHES;     653 CFS-HRS;      54.0 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                    PASS   3   JOB NO.   1                     PAGE  42
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*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 8. ***

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	624.6	359.15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.91 WATERSHED INCHES; 653 CFS-HRS; 54.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	300.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.15 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

*** MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00.
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME. ***

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 21, TRUNCATED AT 400 POINTS
WITH 2.39 AC-FT (.05 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 370.17. ***

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.38	157.4	379.28

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.54 WATERSHED INCHES; 310 CFS-HRS; 25.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	46.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.20 WATERSHED INCHES; 33 CFS-HRS; 2.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.78	129.4	360.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.53 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	257.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.68 WATERSHED INCHES; 209 CFS-HRS; 17.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	838.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.85 WATERSHED INCHES; 862 CFS-HRS; 71.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	87.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.00 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	892.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.01 WATERSHED INCHES; 1170 CFS-HRS; 96.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	970.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.01 WATERSHED INCHES; 1244 CFS-HRS; 102.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	970.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.01 WATERSHED INCHES; 1244 CFS-HRS; 102.8 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

*** WARNING - XSECTION 16, INFLOW EXCEEDS MAX TABLE DISCHARGE,

EXTRAPOLATION USED. ***

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	970.8	336.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.01 WATERSHED INCHES; 1244 CFS-HRS; 102.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	122.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.08 WATERSHED INCHES; 96 CFS-HRS; 8.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	166.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.55 WATERSHED INCHES; 152 CFS-HRS; 12.6 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 45

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	230.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.95 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	283.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.36 WATERSHED INCHES; 249 CFS-HRS; 20.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	511.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.18 WATERSHED INCHES; 430 CFS-HRS; 35.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	1417.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.25 WATERSHED INCHES; 1669 CFS-HRS; 137.9 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	1309.2	317.71

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.24 WATERSHED INCHES; 1668 CFS-HRS; 137.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	192.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

*** WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	185.8	365.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.70 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	273.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 272 CFS-HRS; 22.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	457.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	444.6	320.01

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 47

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	238.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.83 WATERSHED INCHES; 225 CFS-HRS; 18.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	1528.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.19 WATERSHED INCHES; 1893 CFS-HRS; 156.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	1955.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.08 WATERSHED INCHES; 2351 CFS-HRS; 194.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	337.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.92 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	305.4	314.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.92 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	49.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS
WITH .53 AC-FT (.10 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 378.25. ***

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	38.7	381.12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.74 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. ***

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	38.7	338.33

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.74 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	149.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 141 CFS-HRS; 11.6 ACRE-FEET.

*** MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS
WITH 1.05 AC-FT (.06 WATERSHED INCHES) FLOOD STORAGE
REMAINING IN RESERVOIR AT ELEV. 354.18. ***

OPERATION RESVOR STRUCTURE 33

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 49

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	148.8	358.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.24 WATERSHED INCHES; 128 CFS-HRS; 10.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	187.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.12 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	187.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.12 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	187.4	331.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.12 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	179.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.85 WATERSHED INCHES; 145 CFS-HRS; 12.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 39
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	346.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.00 WATERSHED INCHES; 310 CFS-HRS; 25.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	165.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.74 WATERSHED INCHES; 171 CFS-HRS; 14.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	2113.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 2522 CFS-HRS; 208.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	2419.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.20 WATERSHED INCHES; 2831 CFS-HRS; 233.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	2678.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.26 WATERSHED INCHES; 3134 CFS-HRS; 259.0 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	2587.5	292.98

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 51

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.25 WATERSHED INCHES; 3133 CFS-HRS; 258.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	161.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	195.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.37 WATERSHED INCHES; 218 CFS-HRS; 18.0 ACRE-FEET.

```
 OPERATION ADDHYD   XSECTION  47

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.14                        357.2                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.48 WATERSHED INCHES;     391 CFS-HRS;      32.3 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  48

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.03                        214.0                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.02 WATERSHED INCHES;     182 CFS-HRS;      15.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  49

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.21                       2703.2                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.24 WATERSHED INCHES;    3315 CFS-HRS;     273.9 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                    PASS   3   JOB NO.   1                     PAGE  52


 OPERATION ADDHYD   XSECTION  50

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.20                       3041.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.15 WATERSHED INCHES;    3706 CFS-HRS;     306.2 ACRE-FEET.


 OPERATION REACH    XSECTION  51

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.28                       2967.5                        288.76

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.15 WATERSHED INCHES;    3705 CFS-HRS;     306.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  52

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.98                         47.5                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.49 WATERSHED INCHES;      36 CFS-HRS;       3.0 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION  53.       ***
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OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	47.5	289.15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.49 WATERSHED INCHES; 36 CFS-HRS; 3.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	34.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.48 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 53

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	133.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.42 WATERSHED INCHES; 113 CFS-HRS; 9.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	3014.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 3818 CFS-HRS; 315.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	80.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.49 WATERSHED INCHES; 67 CFS-HRS; 5.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	3035.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.13 WATERSHED INCHES; 3884 CFS-HRS; 321.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS) 12.04 | PEAK DISCHARGE(CFS) 105.8 | PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.27 WATERSHED INCHES; 90 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 54

PEAK TIME(HRS) 12.27 | PEAK DISCHARGE(CFS) 3077.1 | PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.11 WATERSHED INCHES; 3975 CFS-HRS; 328.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS) 12.06 | PEAK DISCHARGE(CFS) 65.0 | PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.24 WATERSHED INCHES; 59 CFS-HRS; 4.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS) 12.27 | PEAK DISCHARGE(CFS) 3113.1 | PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 4033 CFS-HRS; 333.3 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS) 12.36 | PEAK DISCHARGE(CFS) 3020.1 | PEAK ELEVATION(FEET) 252.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 4032 CFS-HRS; 333.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS) 12.18 | PEAK DISCHARGE(CFS) 40.0 | PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.10 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS) 12.36 | PEAK DISCHARGE(CFS) 30.8 | PEAK ELEVATION(FEET) 336.17

```
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- All Combined SAs- MGMT          VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                    PASS   3   JOB NO.   1                     PAGE  55


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.10 WATERSHED INCHES;      50 CFS-HRS;       4.2 ACRE-FEET.


 OPERATION REACH    XSECTION  65

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.44                         30.4                         301.14

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.09 WATERSHED INCHES;      50 CFS-HRS;       4.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  66

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.03                         215.6                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  6.12 WATERSHED INCHES;     181 CFS-HRS;      15.0 ACRE-FEET.

 *** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 62,
               VALUE EXTRAPOLATED.                                          ***

 *** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
               TIME INCREMENT OF   .043 HOURS.                              ***

 *** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
               FIRST NEGATIVE VALUE IS      0 CFS.                          ***


 OPERATION RESVOR   STRUCTURE 62

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.20                         109.4                        298.82

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  6.12 WATERSHED INCHES;     181 CFS-HRS;      15.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  67

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.24                         127.6                        (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  6.31 WATERSHED INCHES;     231 CFS-HRS;      19.1 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- All Combined SAs- MGMT          VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                    PASS   3   JOB NO.   1                     PAGE  56


 OPERATION RUNOFF   XSECTION  68
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PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.02 367.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 304 CFS-HRS; 25.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.04 447.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.16 WATERSHED INCHES; 535 CFS-HRS; 44.2 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.25 350.7 249.42

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.16 WATERSHED INCHES; 535 CFS-HRS; 44.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
11.95 71.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.79 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.00 71.9 268.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.81 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION REACH XSECTION 72
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 57

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.08 64.0 248.45

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.80 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.01 449.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.96 WATERSHED INCHES; 352 CFS-HRS; 29.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	3108.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 4384 CFS-HRS; 362.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	382.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.21 WATERSHED INCHES; 588 CFS-HRS; 48.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	3445.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.01 WATERSHED INCHES; 4971 CFS-HRS; 410.8 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. ***

OPERATION REACH XSECTION 77
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	3445.0	232.52

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.01 WATERSHED INCHES; 4971 CFS-HRS; 410.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	227.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.37 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	3488.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 5148 CFS-HRS; 425.4 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	3450.3	220.19

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 5147 CFS-HRS; 425.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	263.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 198 CFS-HRS; 16.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	3484.6	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- MGMT VERSION
07/01/** SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr) 2.04TEST
13:19:56 PASS 3 JOB NO. 1 PAGE 59

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 5345 CFS-HRS; 441.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	131.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.96 WATERSHED INCHES; 100 CFS-HRS; 8.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	3504.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.96 WATERSHED INCHES; 5445 CFS-HRS; 450.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	432.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.29 WATERSHED INCHES; 405 CFS-HRS; 33.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	3636.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.91 WATERSHED INCHES; 5851 CFS-HRS; 483.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	95.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.05 WATERSHED INCHES; 72 CFS-HRS; 6.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	3647.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.92 WATERSHED INCHES; 5923 CFS-HRS; 489.5 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .060 HOURS							
ALTERNATE 1 STORM 10							
STRUCTURE 11	RESVOR	.09	2.85	383.46	12.16	159	1766.7
XSECTION 8	REACH	.17	2.69	358.08	12.25	270	1588.2
STRUCTURE 21	RESVOR	.07	3.31	376.21	12.50	58	828.6

STRUCTURE 22	RESVOR	.07	3.30	355.74	12.63	53	757.1
STRUCTURE 23	RESVOR	.32	2.80	---	12.19	350	1093.8
XSECTION 23	REACH	.41	2.99	316.40	12.18	493	1202.4
STRUCTURE 31	RESVOR	.05	2.53	363.97	12.16	80	1600.0
STRUCTURE 32	RESVOR	.01	3.51	380.27	12.18	13	1300.0
STRUCTURE 33	RESVOR	.03	3.70	357.31	12.14	64	2133.3
STRUCTURE 34	RESVOR	.04	3.66	---	12.17	72	1800.0
XSECTION 44	REACH	.78	2.98	291.33	12.26	1052	1348.7
XSECTION 51	REACH	.93	2.90	286.34	12.33	1193	1282.8
XSECTION 63	REACH	1.03	2.85	250.66	12.43	1193	1158.3
STRUCTURE 61	RESVOR	.01	3.62	334.73	12.44	13	1300.0
STRUCTURE 62	RESVOR	.05	2.83	295.61	12.25	43	860.0
STRUCTURE 63	RESVOR	.01	3.37	266.88	12.11	16	1600.0
XSECTION 77	REACH	1.28	2.79	230.87	12.48	1361	1063.3
XSECTION 88	ADDHYD	1.55	2.72	---	12.54	1437	927.1

RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 50

STRUCTURE 11	RESVOR	.09	4.95	384.86	12.15	276	3066.7
XSECTION 8	REACH	.17	4.76	358.77	12.23	484	2847.1
STRUCTURE 21	RESVOR	.07	5.44	378.07	12.34	150	2142.9
STRUCTURE 22	RESVOR	.07	5.42	359.83	12.62	115	1642.9
STRUCTURE 23	RESVOR	.32	4.87	---	12.20	684	2137.5

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 1 STORM 50

XSECTION 23	REACH	.41	5.09	317.23	12.19	903	2202.4
STRUCTURE 31	RESVOR	.05	4.56	365.27	12.13	149	2980.0
STRUCTURE 32	RESVOR	.01	5.60	380.82	12.09	33	3300.0
STRUCTURE 33	RESVOR	.03	5.99	358.09	12.12	105	3500.0
STRUCTURE 34	RESVOR	.04	5.90	---	12.11	137	3425.0
XSECTION 44	REACH	.78	5.09	292.37	12.24	1936	2482.1
XSECTION 51	REACH	.93	4.99	287.89	12.30	2226	2393.5
XSECTION 63	REACH	1.03	4.94	251.68	12.39	2258	2192.2
STRUCTURE 61	RESVOR	.01	5.88	335.70	12.37	25	2500.0
STRUCTURE 62	RESVOR	.05	4.95	297.75	12.22	83	1660.0
STRUCTURE 63	RESVOR	.01	5.61	267.90	12.03	51	5100.0

XSECTION	77	REACH	1.28	4.86	232.01	12.37	2585	2019.5
XSECTION	88	ADDHYD	1.55	4.77	---	12.44	2738	1766.5

RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 99

STRUCTURE	11	RESVOR	.09	6.12	385.70	12.13	346	3844.4
XSECTION	8	REACH	.17	5.91	359.15	12.12	625	3676.5
STRUCTURE	21	RESVOR	.07	6.54	379.28	12.38	157	2242.9
STRUCTURE	22	RESVOR	.07	6.53	360.94	12.78	129	1842.9
STRUCTURE	23	RESVOR	.32	6.01	---	12.09	971	3034.4
XSECTION	23	REACH	.41	6.24	317.71	12.15	1309	3192.7
STRUCTURE	31	RESVOR	.05	5.70	365.78	12.13	186	3720.0
STRUCTURE	32	RESVOR	.01	6.74	381.12	12.09	39	3900.0
STRUCTURE	33	RESVOR	.03	7.24	358.21	12.07	149	4966.7
STRUCTURE	34	RESVOR	.04	7.12	---	12.07	187	4675.0
XSECTION	44	REACH	.78	6.25	292.98	12.22	2588	3317.9
XSECTION	51	REACH	.93	6.15	288.76	12.28	2967	3190.3
XSECTION	63	REACH	1.03	6.09	252.27	12.36	3020	2932.0

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)

ALTERNATE 1 STORM 99

STRUCTURE	61	RESVOR	.01	7.10	336.17	12.36	31	3100.0
STRUCTURE	62	RESVOR	.05	6.12	298.82	12.20	109	2180.0
STRUCTURE	63	RESVOR	.01	6.81	268.09	12.00	72	7200.0
XSECTION	77	REACH	1.28	6.01	232.52	12.35	3445	2691.4
XSECTION	88	ADDHYD	1.55	5.92	---	12.41	3647	2352.9

1

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	HYDROGRAPH INFLOW TIME (HR)	HYDROGRAPH OUTFLOW PEAK (CFS)	HYDROGRAPH OUTFLOW TIME (HR)	ROUTING Q-A EQ. COEFF (X)	ROUTING Q-A EQ. POWER (M)	ROUTING LENGTH FACTOR (k*)	ROUTING PEAK RATIO Q/I (Q*)	ROUTING ATT-KIN COEFF (C)
BASEFLOW IS	.0 CFS										
ALTERNATE	1	STORM	10								
2	1170		58	12.1	57	12.2	.27	2.00	.006	.985	.84?
5	797		158	12.2	157	12.2	1.93	1.26	.019	.997	.90?
8	1221		271	12.2	270	12.2	1.28	1.44	.012	.994	.91?
16	920		350	12.2	350	12.2	3.82	1.47	.001	1.000	1.00?
23	1379		541	12.1	493	12.2	.64	1.29	.043	.910	.46
27	1021		198	12.1	180	12.2	.69	1.31	.054	.908	.53
32	1603		175	12.1	159	12.1	1.37	1.31	.061	.909	.54
34	583		13	12.2	13	12.2	1.14	1.62	.005	.988	.92?
37	934		71	12.2	71	12.2	2.35	1.53	.004	1.000	1.00?
44	1428		1095	12.2	1048	12.2	.27	1.45	.026	.957	.56
51	1275		1230	12.2	1184	12.3	.44	1.37	.024	.963	.61
53	652		23	12.0	23	12.1	2.05	1.40	.019	.999	.97?
63	1959		1243	12.3	1191	12.4	.41	1.42	.030	.958	.50
65	1283		13	12.4	12	12.5	2.48	1.39	.013	.974	.63
70	2166		194	12.1	137	12.3	1.85	1.05	.184	.705	.22
72	1081		16	12.1	15	12.2	1.53	1.49	.014	.977	.66
77	884		1361	12.4	1361	12.5	1.91	1.22	.010	.999	.97?
80	1296		1375	12.5	1369	12.5	4.05	1.13	.017	.995	.84?
ALTERNATE	1	STORM	50								
2	1170		100	12.1	99	12.2	.27	2.00	.004	.998	.97?
5	797		273	12.2	273	12.2	1.80	1.29	.015	1.000	.98?
8	1221		483	12.2	483	12.2	1.30	1.43	.010	1.000	.99?
16	920		682	12.2	682	12.2	4.41	1.41	.001	1.000	1.00?
23	1379		992	12.1	903	12.2	.75	1.26	.045	.910	.49
27	1021		367	12.1	350	12.2	.37	1.47	.027	.954	.68?
32	1603		280	12.1	256	12.1	1.58	1.25	.064	.914	.54
34	583		33	12.1	33	12.1	1.15	1.61	.006	1.000	1.00?

1

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC	REACH	FLOOD PLAIN	HYDROGRAPH INFLOW PEAK	HYDROGRAPH INFLOW TIME	HYDROGRAPH OUTFLOW PEAK	HYDROGRAPH OUTFLOW TIME	ROUTING Q-A EQ. COEFF	ROUTING Q-A EQ. POWER	ROUTING LENGTH	ROUTING PEAK RATIO	ROUTING ATT-KIN

ID	LENGTH (FT)	LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)	FACTOR (k*)	Q/I (Q*)	COEFF (C)
ALTERNATE 1 STORM 50											
37	934		137	12.1	137	12.1	2.47	1.51	.004	1.000	1.00?
44	1428		1998	12.1	1936	12.2	.25	1.46	.021	.969	.65
51	1275		2260	12.2	2226	12.3	.43	1.38	.021	.985	.69?
53	652		39	12.0	39	12.0	2.06	1.39	.015	1.000	1.00?
63	1959		2328	12.3	2245	12.4	.36	1.44	.023	.965	.59
65	1283		25	12.4	25	12.5	2.51	1.37	.014	.979	.70?
70	2166		361	12.1	272	12.2	1.13	1.18	.132	.755	.28
72	1081		48	12.0	46	12.1	1.70	1.41	.026	.962	.77?
77	884		2583	12.4	2583	12.4	1.65	1.25	.008	1.000	1.00?
80	1296		2617	12.4	2576	12.5	6.06	1.01	.033	.984	.72?
ALTERNATE 1 STORM 99											
2	1170		122	12.1	122	12.1	.25	2.00	.003	1.000	1.00?
5	797		345	12.1	345	12.1	1.76	1.29	.014	1.000	1.00?
8	1221		624	12.1	624	12.1	1.33	1.43	.010	1.000	1.00?
16	920		962	12.1	962	12.1	4.88	1.38	.002	1.000	1.00?
23	1379		1414	12.1	1292	12.1	.63	1.29	.045	.914	.53
27	1021		457	12.1	444	12.2	.32	1.50	.022	.971	.73?
32	1603		335	12.1	302	12.1	1.91	1.18	.076	.900	.51
34	583		38	12.1	38	12.1	1.15	1.60	.006	1.000	1.00?
37	934		185	12.1	185	12.1	2.54	1.49	.005	1.000	1.00?
44	1428		2675	12.1	2573	12.2	.26	1.46	.021	.962	.69?
51	1275		3029	12.2	2958	12.3	.44	1.37	.021	.977	.72?
53	652		47	12.0	47	12.0	2.07	1.39	.014	1.000	1.00?
63	1959		3086	12.2	3020	12.4	.35	1.44	.023	.978	.63
65	1283		31	12.4	30	12.4	2.52	1.37	.014	.985	.73?
70	2166		443	12.1	350	12.2	.91	1.24	.109	.791	.31

1

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
ALTERNATE 1 STORM 99											
72	1081		72	12.0	63	12.1	1.66	1.33	.045	.876	.72?
77	884		3442	12.4	3442	12.4	1.15	1.32	.006	1.000	1.00?
80	1296		3484	12.4	3450	12.4	5.04	1.05	.031	.990	.75?

1

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
STRUCTURE 63		.01			
ALTERNATE	1		16	51	72
STRUCTURE 62		.05			
ALTERNATE	1		43	83	109
STRUCTURE 61		.01			
ALTERNATE	1		13	25	31
STRUCTURE 34		.04			
ALTERNATE	1		72	137	187
STRUCTURE 33		.03			
ALTERNATE	1		64	105	149
STRUCTURE 32		.01			
ALTERNATE	1		13	33	39
STRUCTURE 31		.05			
ALTERNATE	1		80	149	186
STRUCTURE 23		.32			
ALTERNATE	1		350	684	971
STRUCTURE 22		.07			
ALTERNATE	1		53	115	129
STRUCTURE 21		.07			
ALTERNATE	1		58	150	157
STRUCTURE 11		.09			
ALTERNATE	1		159	276	346
XSECTION 8		.17			
ALTERNATE	1		270	484	625

```
 XSECTION   23          .41
 ---------------------------
    ALTERNATE    1                493       903      1309

 XSECTION   44          .78
 ---------------------------
1
 TR20 ------------------------------------------------------------------------ SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST
 13:19:56                    SUMMARY, JOB NO.   1                      PAGE  68


                            SUMMARY TABLE 3
                            ---------------
      STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
      QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

 XSECTION/          DRAINAGE
 STRUCTURE            AREA       STORM NUMBERS.....
   ID               (SQ MI)         10        50        99


 XSECTION   44          .78
 ---------------------------
    ALTERNATE    1                1052      1936      2588

 XSECTION   51          .93
 ---------------------------
    ALTERNATE    1                1193      2226      2967

 XSECTION   63         1.03
 ---------------------------
    ALTERNATE    1                1193      2258      3020

 XSECTION   77         1.28
 ---------------------------
    ALTERNATE    1                1361      2585      3445

 XSECTION   88         1.55
 ---------------------------
    ALTERNATE    1                1437      2738      3647
1
 TR20 ------------------------------------------------------------------------ SCS -
              Ellicott City Flood Study- All Combined SAs- MGMT         VERSION
 07/01/**   SML SWM CN not reduced-EXIST COND.- 10,50,100 yr (24hr)     2.04TEST



 END OF  1 JOBS IN THIS RUN
```

SAMGMT.OUT
FILES

```
INPUT  = samgmt.dat                                , GIVEN DATA FILE
OUTPUT = samgmt.OUT                                , DATED 07/01/**,13:19:56

         FILES GENERATED - DATED 07/01/**,13:19:56

                          NONE!


      TOTAL NUMBER OF WARNINGS =  32,  MESSAGES =  10

                *** TR-20 RUN COMPLETED ***
```

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                        NOPLOTS
TITLE     Ellicott City Flood Study- All Combined SAs- No MGMT
TITLE     EXISTING COND.- 10,50,100 yr (24hr)
 2 XSECTN   002                  1.0      389.50
 8                            389.00        0.00        0.00
 8                            389.25        1.65        1.06
 8                            389.50        6.25        2.75
 8                            389.75       14.40        5.06
 8                            390.00       26.75        8.00
 8                            390.25       45.54       14.33
 8                            390.50       68.67       15.00
 8                            390.75       96.11       18.88
 8                            391.00      127.89       23.00
 8                            391.25      164.08       27.38
 8                            391.50      204.77       32.00
 8                            391.75      250.06       36.88
 9 ENDTBL
 2 XSECTN   005                  1.0      367.00
 8                            366.00        0.00        0.00
 8                            366.50        3.51        1.5
 8                            367.00       13.55        4.00
 8                            367.50       30.53        9.00
 8                            367.75       47.87       13.00
 8                            368.00       72.23       18.00
 8                            368.25      104.79       23.98
 8                            368.50      146.13       30.94
 8                            368.75      197.14       38.86
 8                            369.00      258.63       47.75
 8                            369.25      331.41       57.61
 8                            369.50      416.25       68.44
 9 ENDTBL
 3 STRUCT      11
 9 ENDTBL
 2 XSECTN   008                  1.0      330.00
 8                            356.00        0.00        0.00
 8                            356.50       20.21        6.94
 8                            357.00       68.51       15.75
 8                            357.50      144.11       26.44
 8                            358.00      248.93       39.00
 8                            358.50      389.07       53.25
 8                            359.00      561.31       69.00
 8                            359.50      767.14       86.25
 8                            360.00     1008.16      105.00
 8                            361.00     1375.68      147.50
 8                            361.50     1604.19      171.38
 9 ENDTBL
 2 XSECTN   016                  1.0      333.08
 8                            331.08        0.00        0.00
 8                            332.08       80.21        8.00
 8                            333.08      225.50       16.00
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8                            333.58      310.09       20.00
```

```
  8                                334.08       399.94        24.00
  8                                334.58       493.86        28.00
  8                                335.08       590.97        32.00
  8                                335.58       690.67        36.00
  8                                336.08       792.47        40.00
  8                                336.58       896.02        44.00
  9 ENDTBL
  2 XSECTN    023                    1.0       314.40
  8                                313.22         0.00         0.00
  8                                313.51         1.10         0.89
  8                                313.81         3.51         1.84
  8                                314.10        16.22         5.61
  8                                314.40        34.66         9.74
  8                                314.68        48.28        24.71
  8                                314.96        79.66        42.09
  8                                315.24       126.64        61.87
  8                                315.52       189.07        84.06
  8                                315.80       267.27       108.64
  8                                316.08       361.75       135.63
  8                                316.36       473.14       165.02
  8                                316.64       602.11       196.81
  8                                316.92       749.37       231.00
  8                                317.20       878.70       277.25
  8                                317.48      1103.89       329.14
  8                                317.76      1358.10       382.70
  8                                318.04      1640.58       437.94
  8                                318.32      1950.87       494.86
  8                                318.60      2288.69       553.45
  9 ENDTBL
  3 STRUCT       21
  9 ENDTBL
  3 STRUCT       22
  9 ENDTBL
  3 STRUCT       23
  9 ENDTBL
  2 XSECTN    027                    1.0       317.00
  8                                316.00         0.00         0.00
  8                                316.50         2.68         2.59
  8                                317.00        10.37         6.88
  8                                317.50        24.26        12.84
  8                                318.00        45.55        20.50
  8                                318.50        70.64        34.75
  8                                319.00       137.01        60.50
  8                                319.25       200.57        76.25
  8                                319.50       273.06        92.00
  8                                319.75       353.76       107.75
  8                                320.00       442.13       123.50
  8                                320.50       640.03       155.00
  8                                321.00       863.72       186.50
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  9 ENDTBL
  2 XSECTN    032                    1.0       313.00
  8                                310.00         0.00         0.00
  8                                311.00        12.25         5.50
  8                                312.00        52.16        16.00
  8                                312.50        83.38        23.13
  8                                313.00       123.94        31.50
  8                                313.25       148.02        36.16
```

```
  8                              313.50      174.79       41.13
  8                              313.75      204.34       46.41
  8                              314.00      236.81       52.00
  8                              314.50      278.65       65.75
  8                              315.00      353.72       84.00
  9 ENDTBL
  2 XSECTN    034                  1.0      338.50
  8                              338.00        0.00        0.00
  8                              338.10        4.87        2.46
  8                              338.25       22.73        6.38
  8                              338.50       73.99       13.53
  8                              338.75      149.34       21.45
  8                              339.00      247.95       30.13
  8                              339.50      515.65       49.78
  9 ENDTBL
  2 XSECTN    037                  1.0      331.00
  8                              330.00        0.00        0.00
  8                              330.25       14.29        3.25
  8                              330.50       46.85        7.00
  8                              330.75       95.34       11.25
  8                              331.00      159.64       16.00
  8                              331.25      240.13       21.25
  8                              331.50      337.44       27.00
  8                              331.75      452.26       33.25
  8                              332.00      585.36       40.00
  8                              332.50      875.33       55.81
  8                              333.00     1272.05       75.25
  9 ENDTBL
  2 XSECTN    044                  1.0      288.90
  8                              287.68        0.00        0.00
  8                              287.99        1.15        0.94
  8                              288.29        3.69        1.95
  8                              288.60       17.06        5.98
  8                              288.90       36.44       10.37
  8                              289.19       63.07       39.25
  8                              289.47      121.85       69.50
  8                              289.76      206.05      101.12
  8                              290.05      313.23      134.09
  8                              290.33      442.07      168.42
  8                              290.62      591.78      204.12
  8                              290.91      761.87      241.18
  8                              291.19      952.02      279.60
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              291.48     1162.04      319.38
  8                              291.77     1391.84      360.52
  8                              292.05     1641.40      403.02
  8                              292.34     1910.74      446.89
  8                              292.63     2199.92      492.11
  8                              292.91     2509.04      538.70
  8                              293.20     2838.22      586.65
  9 ENDTBL
  3 STRUCT       31
  9 ENDTBL
  3 STRUCT       32
  9 ENDTBL
  3 STRUCT       33
  9 ENDTBL
  3 STRUCT       34
```

```
  9 ENDTBL
  2 XSECTN   051                  1.0      282.40
  8                            281.10        0.00        0.00
  8                            281.42        1.24        1.09
  8                            281.75        3.96        2.26
  8                            282.07       18.30        6.92
  8                            282.40       39.09       12.00
  8                            282.88       67.33       37.27
  8                            283.36      131.17       65.87
  8                            283.84      225.10       97.78
  8                            284.32      348.01      133.01
  8                            284.80      499.91      171.56
  8                            285.28      681.29      213.43
  8                            285.76      892.92      258.61
  8                            286.24     1135.70      307.11
  8                            286.72     1410.63      358.94
  8                            287.20     1718.74      414.08
  8                            287.68     2061.13      472.54
  8                            288.16     2438.87      534.31
  8                            288.64     2853.08      599.41
  8                            289.12     3301.76      667.84
  8                            289.60     3785.91      739.78
  9 ENDTBL
  2 XSECTN   053                  1.0      289.00
  8                            288.00        0.00        0.00
  8                            288.50        9.00        2.88
  8                            289.00       34.26        7.50
  8                            289.50       79.27       13.88
  8                            290.00      147.75       22.00
  8                            290.50      227.49       31.94
  8                            291.00      332.02       43.75
  8                            291.50      463.75       57.44
  8                            291.75      540.56       64.98
  8                            292.00      625.07       73.00
  9 ENDTBL
1


 **********80-80 LIST OF INPUT DATA (CONTINUED)**********

  2 XSECTN   063                  1.0      248.40
  8                            247.07        0.00        0.00
  8                            247.41        1.85        1.14
  8                            247.74        5.93        2.35
  8                            248.07       27.43        7.18
  8                            248.40       58.61       12.46
  8                            248.67       89.70       40.04
  8                            248.95      158.39       68.99
  8                            249.22      256.90       99.30
  8                            249.49      382.40      130.99
  8                            249.77      533.43      164.04
  8                            250.04      709.09      198.46
  8                            250.31      908.86      234.24
  8                            250.59     1132.40      271.40
  8                            250.86     1379.55      309.92
  8                            251.13     1650.25      349.81
  8                            251.41     1944.49      391.07
  8                            251.68     2262.35      433.69
  8                            251.95     2603.94      477.69
  8                            252.23     2969.40      523.05
  8                            252.50     3358.93      569.78
  9 ENDTBL
```

```
  3 STRUCT       61
  9 ENDTBL
  3 STRUCT       62
  8                          287.30         0.00         0.00
  8                          288.00         5.45         0.01
  8                          289.00         9.05         0.05
  8                          290.00        11.60         0.13
  8                          292.00        15.35         0.50
  8                          294.00        18.40         1.19
  8                          294.30        18.92         1.26
  8                          294.50        20.73         1.40
  8                          295.00        36.40         1.60
  8                          295.40        38.00         1.80
  8                          296.00        51.10         2.15
  8                          297.00        69.60         2.75
  8                          298.00        86.80         3.44
  8                          298.68        98.50         3.91
  8                          298.80       107.56         4.00
  9 ENDTBL
  3 STRUCT       63
  9 ENDTBL
  2 XSECTN   065                  1.0       300.50
  8                          300.00         0.00         0.00
  8                          300.10         0.29         0.23
  8                          300.25         1.47         0.69
  8                          300.40         3.55         1.28
  8                          300.50         5.48         1.75
  8                          300.60         7.88         2.28
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                          300.75        12.45         3.19
  8                          300.90        18.28         4.23
  8                          301.00        22.91         5.00
  8                          301.10        28.18         5.83
  8                          301.25        37.36         7.19
  8                          301.40        48.14         8.68
  8                          301.50        56.26         9.75
  9 ENDTBL
  2 XSECTN   070                  1.0       248.40
  8                          247.07         0.00         0.00
  8                          247.41         1.85         1.14
  8                          247.74         5.93         2.35
  8                          248.07        27.43         7.18
  8                          248.40        58.61        12.46
  8                          248.67        89.70        40.04
  8                          248.95       158.39        68.99
  8                          249.22       256.90        99.30
  8                          249.49       382.40       130.99
  8                          249.77       533.43       164.04
  8                          250.04       709.09       198.46
  8                          250.31       908.86       234.24
  8                          250.59      1132.40       271.40
  8                          250.86      1379.55       309.92
  8                          251.13      1650.25       349.81
  8                          251.41      1944.49       391.07
  8                          251.68      2262.35       433.69
  8                          251.95      2603.94       477.69
  8                          252.23      2969.40       523.05
  8                          252.50      3358.93       569.78
```

```
  9 ENDTBL
  2 XSECTN   072                  1.0      248.40
  8                            247.07        0.00        0.00
  8                            247.41        1.85        1.14
  8                            247.74        5.93        2.35
  8                            248.07       27.43        7.18
  8                            248.40       58.61       12.46
  8                            248.67       89.70       40.04
  8                            248.95      158.39       68.99
  8                            249.22      256.90       99.30
  8                            249.49      382.40      130.99
  8                            249.77      533.43      164.04
  8                            250.04      709.09      198.46
  8                            250.31      908.86      234.24
  8                            250.59     1132.40      271.40
  8                            250.86     1379.55      309.92
  8                            251.13     1650.25      349.81
  8                            251.41     1944.49      391.07
  8                            251.68     2262.35      433.69
  8                            251.95     2603.94      477.69
  8                            252.23     2969.40      523.05
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                            252.50     3358.93      569.78
  9 ENDTBL
  2 XSECTN   077                  1.0      229.00
  8                            226.00        0.00        0.00
  8                            226.50       11.73        5.31
  8                            227.00       42.97       13.25
  8                            227.50       96.50       23.81
  8                            228.00      175.93       37.00
  8                            228.50      258.13       54.25
  8                            229.00      385.22       77.00
  8                            229.50      561.82      105.25
  8                            230.00      793.74      139.00
  8                            230.50     1079.38      179.94
  8                            231.00     1462.49      229.75
  8                            231.50     1953.75      288.44
  8                            232.00     2564.16      356.00
  8                            232.50     3408.70      429.13
  8                            233.00     4351.01      504.50
  9 ENDTBL
  2 XSECTN   080                  1.0      212.00
  8                            210.50        0.00        0.00
  8                            210.75        4.72        2.23
  8                            211.00       15.68        4.92
  8                            211.25       32.36        8.06
  8                            211.50       54.93       11.67
  8                            211.75       83.70       15.73
  8                            212.00      119.05       20.25
  8                            212.25      163.87       25.14
  8                            212.50      215.35       30.31
  8                            212.75      273.55       35.77
  8                            213.00      338.57       41.50
  8                            214.00      669.42       67.25
  8                            215.00      806.07       99.00
  8                            216.00     1088.03      138.25
  8                            217.00     1451.30      187.50
  8                            218.00     1978.93      249.25
```

```
  8                                  219.00     2262.06      340.00
  8                                  220.00     3115.20      476.25
  8                                  221.00     4892.67      639.25
  9 ENDTBL
  6 RUNOFF 1 001        1        0.0336      79.478       0.4051          DA1
  6 REACH  3 002   1    2        1170.0                        1
  6 RUNOFF 1 003        1        0.0580      80.559       0.3751          DA2
  6 ADDHYD 4 004   1 2 3                                      1          DA1+2
  6 RESVOR 2    11 3   1                                      1        1 SWMF10
  6 REACH  3 005   1    2         797.0                        1
  6 RUNOFF 1 006        3        0.0798      76.270       0.3921          DA3
  6 ADDHYD 4 007   2 3 4                                      1          DA12+3
  6 REACH  3 008   4    7        1221.0                        1        1 SA1-SA2
  6 RUNOFF 1 009        1        0.0734      88.594       0.4221          DA1
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 RESVOR 2    21 1   2                                      1        1 SWMF13
  6 RUNOFF 1 010        3        0.0097      72.249       0.1281          DA7
  6 RESVOR 2    22 2 3 4                                      1        1 HWY STOR
  6 RUNOFF 1 011        2        0.0569      76.394       0.2201          DA2
  6 ADDHYD 4 012   7 2 3                                      1          SA1+DA2
  6 RUNOFF 1 013        5        0.0193      79.025       0.2481          DA3
  6 ADDHYD 4 014   4 3 6                                      1          DA17+2
  6 ADDHYD 4 015   6 5 3                                      1          DA172+3
  6 RESVOR 2    23 3   1                                      1        1 HWYSTOR2
  6 REACH  3 016   1    2         920.0                        1
  6 RUNOFF 1 017        3        0.0211      87.900       0.1641          DA4
  6 RUNOFF 1 018        4        0.0313      91.880       0.2551          DA5
  6 RUNOFF 1 019        5        0.0404      86.883       0.1681          DA6
  6 ADDHYD 4 020   3 4 6                                      1          DA4+5
  6 ADDHYD 4 021   6 5 1                                      1          DA123+6
  6 ADDHYD 4 022   2 1 3                                      1          DA45+6
  6 REACH  3 023   3    7        1379.0                        1        1 SA2-SA3
  6 RUNOFF 1 024        1        0.0505      76.581       0.3401          DA1
  6 RESVOR 2    31 1   2                                      1        1 SWMF3
  6 RUNOFF 1 025        3        0.0748      75.950       0.3581          DA2
  6 ADDHYD 4 026   2 3 4                                      1          DA1+2
  6 REACH  3 027   4    1        1021.0                        1
  6 RUNOFF 1 028        2        0.0599      77.623       0.3231          DA3
  6 ADDHYD 4 029   7 2 3                                      1          SA2+DA3
  6 ADDHYD 4 030   1 3 5                                      1          DA12+3
  6 RUNOFF 1 031        1        0.0692      86.658       0.2761          DA4
  6 REACH  3 032   1    6        1603.0                        1
  6 RUNOFF 1 033        2        0.0084      95.000       0.1921          DA5
  6 RESVOR 2    32 2   3                                      1        1 SWMF11
  6 REACH  3 034   3    7         583.0                        1
  6 RUNOFF 1 035        1        0.0275      94.963       0.2481          DA6
  6 RESVOR 2    33 1   2                                      1        1 SWMF8
  6 ADDHYD 4 036   7 2 1                                      1          DA5+6
  6 RESVOR 2    34 1   2                                      1        1 HWAYSTOR
  6 REACH  3 037   2    4         934.0                        1
  6 RUNOFF 1 038        1        0.0328      86.132       0.1901          DA7
  6 ADDHYD 4 039   4 1 3                                      1          DA56+7
  6 RUNOFF 1 040        2        0.0393      85.125       0.3671          DA8
  6 ADDHYD 4 041   5 2 1                                      1          DA3+8
  6 ADDHYD 4 042   6 1 2                                      1          DA4+8
  6 ADDHYD 4 043   3 2 1                                      1          DA7+8
  6 REACH  3 044   1    7        1428.0                        1        1 SA3-SA4
  6 RUNOFF 1 045        1        0.0477      75.971       0.4121          DA1
```

```
  6 RUNOFF 1 046       2       0.0628      73.766       0.4401           DA2
  6 ADDHYD 4 047   1 2 3                                    1           DA1+2
  6 RUNOFF 1 048       1       0.0469      79.166       0.2491           DA3
  6 ADDHYD 4 049   7 1 2                                    1           SA3+DA3
  6 ADDHYD 4 050   2 3 4                                    1           DA12+3
  6 REACH  3 051   4   7       1275.0                       1         1 SA4-SA5
  6 RUNOFF 1 052       1       0.0087      83.161       0.1631           DA1
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 REACH  3 053   1   5        652.0                       1
  6 RUNOFF 1 054       1       0.0072      83.054       0.2561           DA2
  6 RUNOFF 1 055       2       0.0322      74.166       0.2491           DA3
  6 ADDHYD 4 056   7 2 4                                    1           SA4+DA3
  6 ADDHYD 4 057   5 1 3                                    1           DA1+2
  6 ADDHYD 4 058   4 3 5                                    1           DA12+3
  6 RUNOFF 1 059       1       0.0266      72.902       0.2611           DA4
  6 ADDHYD 4 060   5 1 2                                    1           DA123+4
  6 RUNOFF 1 061       3       0.0173      72.707       0.2971           DA5
  6 ADDHYD 4 062   2 3 6                                    1           DA1234+5
  6 REACH  3 063   6   7       1959.0                       1         1 SA5-SA6
  6 RUNOFF 1 064       1       0.0110      88.119       0.5211           DA1
  6 RESVOR 2    61 1   2                                    1         1 SWMF19
  6 REACH  3 065   2   3       1283.0                       1
  6 RUNOFF 1 066       1       0.0458      80.006       0.2391           DA2
  6 RESVOR 2    62 1   2                                    1         1 SWMF18
  6 ADDHYD 4 067   3 2 4                                    1           DA1+2
  6 RUNOFF 1 068       5       0.0778      79.468       0.2281           DA3
  6 ADDHYD 4 069   4 5 1                                    1           DA12+3
  6 REACH  3 070   1   2       2166.0                       1
  6 RUNOFF 1 071       1       0.0119      85.744       0.1221           DA4
  6 RESVOR 2    63 1   3                                    1         1 SWMF2
  6 REACH  3 072   3   4       1081.0                       1
  6 RUNOFF 1 073       5       0.1100      70.291       0.2051           DA5
  6 ADDHYD 4 074   7 5 1                                    1           SA5+DA5
  6 ADDHYD 4 075   2 4 6                                    1           DA123+4
  6 ADDHYD 4 076   1 6 2                                    1           DA12345
  6 REACH  3 077   2   7        884.0                       1         1 SA6-SA7
  6 RUNOFF 1 078       2       0.0510      73.827       0.1971           DA1
  6 ADDHYD 4 079   7 2 1                                    1           SA6+DA1
  6 REACH  3 080   1   2       1296.0                       1
  6 RUNOFF 1 081       3       0.0513      78.929       0.1621           DA3
  6 ADDHYD 4 082   2 3 4                                    1           DA1+3
  6 RUNOFF 1 083       1       0.0313      70.330       0.1861           DA2
  6 ADDHYD 4 084   4 1 2                                    1           DA13+2
  6 RUNOFF 1 085       3       0.1187      73.092       0.3211           DA4
  6 ADDHYD 4 086   2 3 1                                    1           DA123+4
  6 RUNOFF 1 087       4       0.0159      87.661       0.1421           DA5
  6 ADDHYD 4 088   1 4 7                                    1         1 DA1234+5
    ENDATA
  7 INCREM 6                      .06
  7 COMPUT 7 001   088             0.0        4.94         1.02 2  1   10
    ENDCMP 1
  7 COMPUT 7 001   088             0.0        7.28         1.02 2  1   50
    ENDCMP 1
  7 COMPUT 7 001   088             0.0        8.53         1.02 2  1   99
    ENDCMP 1
    ENDJOB 2
```

**********END OF 80-80 LIST**********

```
1
 TR20 ------------------------------------------------------------------- SCS -
           Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)              2.04TEST
 13:25:45                    PASS   1   JOB NO.   1                    PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .060 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  88
    STARTING TIME =   .00       RAIN DEPTH =  4.94       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =10            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.13                         57.7                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.79 WATERSHED INCHES;      61 CFS-HRS;       5.0 ACRE-FEET.


 OPERATION REACH    XSECTION   2

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.20                         57.0                         390.37

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.79 WATERSHED INCHES;      61 CFS-HRS;       5.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.11                        107.5                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.89 WATERSHED INCHES;     108 CFS-HRS;       8.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.14                        160.1                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.85 WATERSHED INCHES;     169 CFS-HRS;      13.9 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 11
1
 TR20 ------------------------------------------------------------------- SCS -
           Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)              2.04TEST
 13:25:45                    PASS   1   JOB NO.   1                    PAGE   2


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.14                        160.1                       (NULL)
```

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 169 CFS-HRS; 13.9 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	159.1	368.56

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 169 CFS-HRS; 13.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	125.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.51 WATERSHED INCHES; 129 CFS-HRS; 10.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	277.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.69 WATERSHED INCHES; 298 CFS-HRS; 24.6 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	275.6	358.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.69 WATERSHED INCHES; 298 CFS-HRS; 24.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	158.1	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 3

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.67 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	158.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.67 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.97	19.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.17 WATERSHED INCHES; 14 CFS-HRS; 1.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	158.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.67 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	115.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.52 WATERSHED INCHES; 92 CFS-HRS; 7.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	326.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.65 WATERSHED INCHES; 390 CFS-HRS; 32.3 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 4

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	41.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.75 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	481.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.90 WATERSHED INCHES; 564 CFS-HRS; 46.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

```
   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.14                          512.0                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.89 WATERSHED INCHES;     598 CFS-HRS;      49.5 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 23

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.14                          512.0                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.89 WATERSHED INCHES;     598 CFS-HRS;      49.5 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION  16.       ***


 OPERATION REACH    XSECTION  16

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.14                          512.0                        334.67

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.89 WATERSHED INCHES;     598 CFS-HRS;      49.5 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 13:25:45                   PASS   1   JOB NO.   1                     PAGE   5


 OPERATION RUNOFF   XSECTION  17

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.98                           64.5                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.60 WATERSHED INCHES;      49 CFS-HRS;       4.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  18

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.03                           91.1                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.01 WATERSHED INCHES;      81 CFS-HRS;       6.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  19

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.98                          119.7                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.50 WATERSHED INCHES;      91 CFS-HRS;       7.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  20
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	153.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.85 WATERSHED INCHES; 130 CFS-HRS; 10.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	271.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.70 WATERSHED INCHES; 221 CFS-HRS; 18.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	722.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.07 WATERSHED INCHES; 820 CFS-HRS; 67.8 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	661.5	316.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.07 WATERSHED INCHES; 820 CFS-HRS; 67.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	85.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.53 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	85.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.53 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	121.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.48 WATERSHED INCHES; 120 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	206.9	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 7

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	191.5	319.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	108.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.63 WATERSHED INCHES; 101 CFS-HRS; 8.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	753.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.01 WATERSHED INCHES; 921 CFS-HRS; 76.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	942.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.91 WATERSHED INCHES; 1123 CFS-HRS; 92.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	175.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.47 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 8

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	160.5	313.37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.47 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	28.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	28.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. ***

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	28.1	338.28

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	84.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 77 CFS-HRS; 6.4 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 9

OPERATION RESVOR STRUCTURE 33

```
   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.03                          84.6                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.35 WATERSHED INCHES;      77 CFS-HRS;       6.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  36

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.02                         112.1                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.35 WATERSHED INCHES;     101 CFS-HRS;       8.3 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 34

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.02                         112.1                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.35 WATERSHED INCHES;     101 CFS-HRS;       8.3 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION  37.       ***


 OPERATION REACH    XSECTION  37

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.02                         112.1                        330.82

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.35 WATERSHED INCHES;     101 CFS-HRS;       8.3 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  38

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.00                          92.7                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.42 WATERSHED INCHES;      72 CFS-HRS;       6.0 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 13:25:45                    PASS   1   JOB NO.   1                     PAGE  10


 OPERATION ADDHYD   XSECTION  39

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                         204.3                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.91 WATERSHED INCHES;     173 CFS-HRS;      14.3 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  40
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	83.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.32 WATERSHED INCHES; 84 CFS-HRS; 7.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	1019.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.93 WATERSHED INCHES; 1208 CFS-HRS; 99.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	1178.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.98 WATERSHED INCHES; 1363 CFS-HRS; 112.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	1306.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.07 WATERSHED INCHES; 1536 CFS-HRS; 126.9 ACRE-FEET.

OPERATION REACH XSECTION 44

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	1244.3	291.58

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.07 WATERSHED INCHES; 1536 CFS-HRS; 126.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	71.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.48 WATERSHED INCHES; 76 CFS-HRS; 6.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	83.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.30 WATERSHED INCHES; 93 CFS-HRS; 7.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	154.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.37 WATERSHED INCHES; 169 CFS-HRS; 14.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	99.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.76 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	1290.0	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.05 WATERSHED INCHES; 1620 CFS-HRS; 133.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	1432.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.97 WATERSHED INCHES; 1789 CFS-HRS; 147.8 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.31	1390.4	286.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.97 WATERSHED INCHES; 1789 CFS-HRS; 147.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	23.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.13 WATERSHED INCHES; 18 CFS-HRS; 1.5 ACRE-FEET.

```
 OPERATION REACH    XSECTION  53

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.04                         23.5                         288.79

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.13 WATERSHED INCHES;      18 CFS-HRS;       1.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  54

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.04                         17.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.12 WATERSHED INCHES;      15 CFS-HRS;       1.2 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)              2.04TEST
 13:25:45                   PASS   1   JOB NO.   1                     PAGE  13


 OPERATION RUNOFF   XSECTION  55

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.05                         57.7                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.33 WATERSHED INCHES;      48 CFS-HRS;       4.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  56

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.31                        1409.0                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.95 WATERSHED INCHES;    1837 CFS-HRS;     151.8 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  57

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.04                         40.6                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.13 WATERSHED INCHES;      32 CFS-HRS;       2.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  58

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.31                        1419.7                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.95 WATERSHED INCHES;    1869 CFS-HRS;     154.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  59
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```
   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.05                          44.7                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.22 WATERSHED INCHES;      38 CFS-HRS;       3.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  60
1
 TR20 ------------------------------------------------------------------- SCS -
           Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)              2.04TEST
 13:25:45                   PASS   1   JOB NO.   1                     PAGE  14


   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.30                         1435.6                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.93 WATERSHED INCHES;    1908 CFS-HRS;     157.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  61

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.07                          27.2                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.21 WATERSHED INCHES;      25 CFS-HRS;       2.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  62

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.30                         1447.6                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.92 WATERSHED INCHES;    1932 CFS-HRS;     159.7 ACRE-FEET.


 OPERATION REACH    XSECTION  63

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.41                         1386.5                        250.87

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.92 WATERSHED INCHES;    1932 CFS-HRS;     159.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  64

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.19                          21.1                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.62 WATERSHED INCHES;      26 CFS-HRS;       2.1 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 61

   PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.19                          21.1                        (NULL)
```

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	20.5	300.95

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	101.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.84 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	42.6	295.61
14.73	4.1	287.82

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.83 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	63.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.99 WATERSHED INCHES; 110 CFS-HRS; 9.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 16

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.03	173.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.79 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	203.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.88 WATERSHED INCHES; 250 CFS-HRS; 20.6 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.30	144.9	248.89

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.87 WATERSHED INCHES; 250 CFS-HRS; 20.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	37.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.39 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	37.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.39 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	35.1	248.15

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.38 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	181.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

2.01 WATERSHED INCHES; 143 CFS-HRS; 11.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	1420.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.83 WATERSHED INCHES; 2075 CFS-HRS; 171.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	153.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.91 WATERSHED INCHES; 276 CFS-HRS; 22.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	1562.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.84 WATERSHED INCHES; 2351 CFS-HRS; 194.3 ACRE-FEET.

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	1561.8	231.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.84 WATERSHED INCHES; 2351 CFS-HRS; 194.3 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 18

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	97.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.30 WATERSHED INCHES; 76 CFS-HRS; 6.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	1577.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.82 WATERSHED INCHES; 2426 CFS-HRS; 200.5 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.53	1569.6	217.22

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.82 WATERSHED INCHES; 2426 CFS-HRS; 200.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	123.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.74 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.53	1583.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.82 WATERSHED INCHES; 2517 CFS-HRS; 208.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	53.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.02 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.53	1590.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.80 WATERSHED INCHES; 2558 CFS-HRS; 211.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	182.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.24 WATERSHED INCHES; 171 CFS-HRS; 14.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.52	1634.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.76 WATERSHED INCHES; 2729 CFS-HRS; 225.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	50.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.58 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.52	1638.9	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 1 JOB NO. 1 PAGE 20

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.76 WATERSHED INCHES; 2766 CFS-HRS; 228.6 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 88
STARTING TIME = .00 RAIN DEPTH = 7.28 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS
ALTERNATE NO. = 1 STORM NO. =50 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	99.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.89 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	99.4	390.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.89 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	184.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

5.01 WATERSHED INCHES; 188 CFS-HRS; 15.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	278.0	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.96 WATERSHED INCHES; 293 CFS-HRS; 24.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	278.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.96 WATERSHED INCHES; 293 CFS-HRS; 24.3 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	277.7	369.07

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.97 WATERSHED INCHES; 294 CFS-HRS; 24.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	226.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.53 WATERSHED INCHES; 234 CFS-HRS; 19.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	492.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.76 WATERSHED INCHES; 527 CFS-HRS; 43.6 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	492.2	358.80

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.76 WATERSHED INCHES; 527 CFS-HRS; 43.6 ACRE-FEET.

1

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	252.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.94 WATERSHED INCHES; 281 CFS-HRS; 23.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	252.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.94 WATERSHED INCHES; 281 CFS-HRS; 23.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	36.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	252.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.94 WATERSHED INCHES; 281 CFS-HRS; 23.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	207.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.55 WATERSHED INCHES; 167 CFS-HRS; 13.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 12
1
TR20 ---------- SCS -

Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	592.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

4.71 WATERSHED INCHES; 694 CFS-HRS; 57.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	71.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.84 WATERSHED INCHES; 60 CFS-HRS; 5.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	843.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.01 WATERSHED INCHES; 975 CFS-HRS; 80.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	898.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.00 WATERSHED INCHES; 1035 CFS-HRS; 85.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	898.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.00 WATERSHED INCHES; 1035 CFS-HRS; 85.6 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

*** WARNING - XSECTION 16, INFLOW EXCEEDS MAX TABLE DISCHARGE,
EXTRAPOLATION USED. ***

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 2 JOB NO. 1 PAGE 24

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	898.0	336.59

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.00 WATERSHED INCHES; 1035 CFS-HRS; 85.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

11.98	102.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.84 WATERSHED INCHES; 80 CFS-HRS; 6.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	140.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.31 WATERSHED INCHES; 127 CFS-HRS; 10.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	191.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 150 CFS-HRS; 12.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	237.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 207 CFS-HRS; 17.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	427.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.95 WATERSHED INCHES; 356 CFS-HRS; 29.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	1231.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.21 WATERSHED INCHES; 1392 CFS-HRS; 115.0 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	1136.5	317.52

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

5.21 WATERSHED INCHES; 1392 CFS-HRS; 115.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	154.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	154.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	220.0	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.50 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	373.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.53 WATERSHED INCHES; 366 CFS-HRS; 30.2 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	360.8	319.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.53 WATERSHED INCHES; 366 CFS-HRS; 30.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	193.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.68 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	1300.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.15 WATERSHED INCHES; 1573 CFS-HRS; 130.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	1659.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.02 WATERSHED INCHES; 1939 CFS-HRS; 160.2 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
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OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	281.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 255 CFS-HRS; 21.1 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	258.6	314.26

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 255 CFS-HRS; 21.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	42.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 36 CFS-HRS; 3.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	42.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 36 CFS-HRS; 3.0 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. ***

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	42.3	338.35

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 36 CFS-HRS; 3.0 ACRE-FEET.

1

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	126.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.67 WATERSHED INCHES; 118 CFS-HRS; 9.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	126.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.67 WATERSHED INCHES; 118 CFS-HRS; 9.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	168.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.67 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	168.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.67 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	168.3	331.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.67 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

1

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	149.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.64 WATERSHED INCHES; 119 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	317.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.18 WATERSHED INCHES; 274 CFS-HRS; 22.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	136.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.53 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	1787.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.05 WATERSHED INCHES; 2079 CFS-HRS; 171.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	2044.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.11 WATERSHED INCHES; 2334 CFS-HRS; 192.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 43
1
TR20 ---------- SCS -

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	2246.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

5.21 WATERSHED INCHES; 2608 CFS-HRS; 215.5 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	2170.6	292.60

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.21 WATERSHED INCHES; 2608 CFS-HRS; 215.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	130.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.51 WATERSHED INCHES; 139 CFS-HRS; 11.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	157.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.26 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	288.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.37 WATERSHED INCHES; 311 CFS-HRS; 25.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	173.6	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.85 WATERSHED INCHES; 147 CFS-HRS; 12.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	2255.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.19 WATERSHED INCHES; 2755 CFS-HRS; 227.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	2531.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.09 WATERSHED INCHES; 3067 CFS-HRS; 253.4 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.29	2470.0	288.20

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.09 WATERSHED INCHES; 3067 CFS-HRS; 253.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	39.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.30 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 53. ***

OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	39.3	289.06

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.30 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	28.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.29 WATERSHED INCHES; 25 CFS-HRS; 2.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	106.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.30 WATERSHED INCHES; 89 CFS-HRS; 7.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	2506.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.06 WATERSHED INCHES; 3156 CFS-HRS; 260.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	66.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.30 WATERSHED INCHES; 54 CFS-HRS; 4.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	2524.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.07 WATERSHED INCHES; 3210 CFS-HRS; 265.3 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
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OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	83.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.16 WATERSHED INCHES; 71 CFS-HRS; 5.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.28	2556.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.04 WATERSHED INCHES; 3282 CFS-HRS; 271.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	51.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.14 WATERSHED INCHES; 46 CFS-HRS; 3.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

12.28	2580.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.03 WATERSHED INCHES; 3328 CFS-HRS; 275.0 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	2503.9	251.87

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.03 WATERSHED INCHES; 3328 CFS-HRS; 275.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 2 JOB NO. 1 PAGE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	33.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	33.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	32.8	301.18

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.87 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	175.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 146 CFS-HRS; 12.1 ACRE-FEET.

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	82.5	297.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.95 WATERSHED INCHES; 146 CFS-HRS; 12.1 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 2 JOB NO. 1 PAGE 35

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	115.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.13 WATERSHED INCHES; 188 CFS-HRS; 15.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	299.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.89 WATERSHED INCHES; 246 CFS-HRS; 20.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	378.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 433 CFS-HRS; 35.8 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	288.5	249.29

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 433 CFS-HRS; 35.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	59.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.59 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63
1
TR20 ---------- SCS -

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	59.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.59 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	57.1	248.38

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.60 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	351.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.88 WATERSHED INCHES; 276 CFS-HRS; 22.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	2572.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.92 WATERSHED INCHES; 3603 CFS-HRS; 297.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.24	302.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.04 WATERSHED INCHES; 476 CFS-HRS; 39.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	2846.5	(NULL)

1
TR20 ---------- SCS -

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.93 WATERSHED INCHES; 4080 CFS-HRS; 337.2 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,

CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. ***

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	2846.5	232.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.93 WATERSHED INCHES; 4080 CFS-HRS; 337.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	181.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.26 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.36	2880.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.91 WATERSHED INCHES; 4220 CFS-HRS; 348.7 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	2844.2	219.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.91 WATERSHED INCHES; 4220 CFS-HRS; 348.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	213.9	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.82 WATERSHED INCHES; 160 CFS-HRS; 13.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	2871.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.90 WATERSHED INCHES; 4380 CFS-HRS; 361.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	103.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.89 WATERSHED INCHES; 79 CFS-HRS; 6.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	2887.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.88 WATERSHED INCHES; 4458 CFS-HRS; 368.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	343.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.18 WATERSHED INCHES; 321 CFS-HRS; 26.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	2988.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.83 WATERSHED INCHES; 4779 CFS-HRS; 394.9 ACRE-FEET.

1

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	80.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 60 CFS-HRS; 4.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	2998.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.84 WATERSHED INCHES; 4838 CFS-HRS; 399.8 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

```
 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  88
    STARTING TIME =   .00       RAIN DEPTH =  8.53       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =99            RAIN TABLE NO. = 2


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.12                         122.5                      (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.05 WATERSHED INCHES;     131 CFS-HRS;      10.8 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION   2.       ***


 OPERATION REACH    XSECTION   2

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.12                         122.5                        390.96
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 03/22/**             EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
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    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.05 WATERSHED INCHES;     131 CFS-HRS;      10.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                         226.4                      (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.19 WATERSHED INCHES;     232 CFS-HRS;      19.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.11                         348.4                      (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.14 WATERSHED INCHES;     363 CFS-HRS;      30.0 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 11

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.11                         348.4                      (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.14 WATERSHED INCHES;     363 CFS-HRS;      30.0 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION   5.       ***
```

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	348.4	369.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.14 WATERSHED INCHES; 363 CFS-HRS; 30.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	279.0	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.67 WATERSHED INCHES; 292 CFS-HRS; 24.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	627.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.92 WATERSHED INCHES; 655 CFS-HRS; 54.1 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 8. ***

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	627.3	359.16

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.92 WATERSHED INCHES; 655 CFS-HRS; 54.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	300.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.15 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	300.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.15 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	46.5	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.20 WATERSHED INCHES; 33 CFS-HRS; 2.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	300.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.15 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	257.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.68 WATERSHED INCHES; 209 CFS-HRS; 17.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	851.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.86 WATERSHED INCHES; 863 CFS-HRS; 71.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	87.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.00 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	1142.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.17 WATERSHED INCHES; 1202 CFS-HRS; 99.3 ACRE-FEET.

1

```
 OPERATION ADDHYD   XSECTION  15

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.08                        1225.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.16 WATERSHED INCHES;    1277 CFS-HRS;     105.5 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE 23

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.08                        1225.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.16 WATERSHED INCHES;    1277 CFS-HRS;     105.5 ACRE-FEET.

 *** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
               CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION  16.       ***

 *** WARNING - XSECTION  16, INFLOW EXCEEDS MAX TABLE DISCHARGE,
               EXTRAPOLATION USED.                                          ***


 OPERATION REACH    XSECTION  16

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.08                        1225.5                        338.17

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.16 WATERSHED INCHES;    1277 CFS-HRS;     105.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  17

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.98                         122.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.08 WATERSHED INCHES;      96 CFS-HRS;       8.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  18

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.03                         166.6                       (RUNOFF)
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 03/22/**              EXISTING COND.- 10,50,100 yr (24hr)               2.04TEST
 13:25:45                    PASS   3   JOB NO.   1                     PAGE  44


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.55 WATERSHED INCHES;     152 CFS-HRS;      12.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  19

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
```

11.98 230.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.95 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	283.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.36 WATERSHED INCHES; 249 CFS-HRS; 20.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	511.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.18 WATERSHED INCHES; 430 CFS-HRS; 35.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	1678.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.39 WATERSHED INCHES; 1707 CFS-HRS; 141.1 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	1561.5	317.96

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.39 WATERSHED INCHES; 1707 CFS-HRS; 141.0 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
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OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	192.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	192.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

5.71 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	273.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 272 CFS-HRS; 22.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	466.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	453.9	320.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	238.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.83 WATERSHED INCHES; 225 CFS-HRS; 18.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	1782.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.32 WATERSHED INCHES; 1932 CFS-HRS; 159.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	2227.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.18 WATERSHED INCHES; 2390 CFS-HRS; 197.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	337.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.92 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.15	305.4	314.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.92 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	49.7	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 3 JOB NO. 1 PAGE 47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	49.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. ***

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	49.7	338.38

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	149.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 141 CFS-HRS; 11.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	149.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 141 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	198.1	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 3 JOB NO. 1 PAGE 48

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 183 CFS-HRS; 15.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	198.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 183 CFS-HRS; 15.2 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	198.1	331.12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.92 WATERSHED INCHES; 183 CFS-HRS; 15.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	179.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.85 WATERSHED INCHES; 145 CFS-HRS; 12.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	376.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.41 WATERSHED INCHES; 329 CFS-HRS; 27.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	165.3	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.74 WATERSHED INCHES; 171 CFS-HRS; 14.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	2387.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.22 WATERSHED INCHES; 2561 CFS-HRS; 211.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	2692.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.28 WATERSHED INCHES; 2870 CFS-HRS; 237.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	2941.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.38 WATERSHED INCHES; 3198 CFS-HRS; 264.3 ACRE-FEET.

*** WARNING - XSECTION 44, INFLOW EXCEEDS MAX TABLE DISCHARGE,
EXTRAPOLATION USED. ***

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	2856.5	293.22

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.38 WATERSHED INCHES; 3198 CFS-HRS; 264.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	161.8	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	195.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.37 WATERSHED INCHES; 218 CFS-HRS; 18.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	357.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.48 WATERSHED INCHES; 391 CFS-HRS; 32.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	214.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.02 WATERSHED INCHES; 182 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	2970.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.36 WATERSHED INCHES; 3380 CFS-HRS; 279.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	3312.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.26 WATERSHED INCHES; 3771 CFS-HRS; 311.7 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 3 JOB NO. 1 PAGE 51

OPERATION REACH XSECTION 51

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	3236.7	289.05

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

6.26 WATERSHED INCHES; 3771 CFS-HRS; 311.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	47.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.49 WATERSHED INCHES; 36 CFS-HRS; 3.0 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 53. ***

OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	47.5	289.15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.49 WATERSHED INCHES; 36 CFS-HRS; 3.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	34.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.48 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	133.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.42 WATERSHED INCHES; 113 CFS-HRS; 9.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	3289.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.23 WATERSHED INCHES; 3884 CFS-HRS; 321.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	80.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

6.49 WATERSHED INCHES; 67 CFS-HRS; 5.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	3312.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.24 WATERSHED INCHES; 3951 CFS-HRS; 326.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	105.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.27 WATERSHED INCHES; 90 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	3355.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.21 WATERSHED INCHES; 4041 CFS-HRS; 333.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 61
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	65.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.24 WATERSHED INCHES; 59 CFS-HRS; 4.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	3388.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.19 WATERSHED INCHES; 4099 CFS-HRS; 338.8 ACRE-FEET.

*** WARNING - XSECTION 63, INFLOW EXCEEDS MAX TABLE DISCHARGE,
EXTRAPOLATION USED. ***

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	3290.2	252.45

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

6.19 WATERSHED INCHES; 4099 CFS-HRS; 338.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	40.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.10 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	40.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.10 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION REACH XSECTION 65

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 3 JOB NO. 1 PAGE 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	39.4	301.28

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.09 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	215.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

*** WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 62,
VALUE EXTRAPOLATED. ***

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	109.4	298.82

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.12 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	146.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.31 WATERSHED INCHES; 231 CFS-HRS; 19.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	367.7	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 3 JOB NO. 1 PAGE 55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 304 CFS-HRS; 25.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	465.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.16 WATERSHED INCHES; 535 CFS-HRS; 44.2 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	369.3	249.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.16 WATERSHED INCHES; 535 CFS-HRS; 44.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	71.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.79 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.95	71.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.79 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.03 66.2 248.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.81 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 3 JOB NO. 1 PAGE 56

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	449.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.96 WATERSHED INCHES; 352 CFS-HRS; 29.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.35	3381.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.07 WATERSHED INCHES; 4451 CFS-HRS; 367.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.23	390.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.21 WATERSHED INCHES; 587 CFS-HRS; 48.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.34	3735.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 5039 CFS-HRS; 416.4 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. ***

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.34	3735.8	232.67

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 5039 CFS-HRS; 416.4 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 3 JOB NO. 1 PAGE 57

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	227.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.37 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.34	3780.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 5216 CFS-HRS; 431.0 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	3743.7	220.35

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 5215 CFS-HRS; 431.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	263.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 198 CFS-HRS; 16.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	3778.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 5414 CFS-HRS; 447.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 83
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 PASS 3 JOB NO. 1 PAGE 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	131.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.96 WATERSHED INCHES; 100 CFS-HRS; 8.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	3799.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.03 WATERSHED INCHES; 5514 CFS-HRS; 455.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	432.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.29 WATERSHED INCHES; 405 CFS-HRS; 33.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	3936.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 5919 CFS-HRS; 489.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	95.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.05 WATERSHED INCHES; 72 CFS-HRS; 6.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	3947.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.99 WATERSHED INCHES; 5991 CFS-HRS; 495.1 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:

F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 2, ARC 2							
MAIN TIME INCREMENT .060 HOURS							
ALTERNATE 1 STORM 10							
STRUCTURE 11	RESVOR	.09	2.85	---	12.14	160	1777.8
XSECTION 8	REACH	.17	2.69	358.10	12.23	276	1623.5
STRUCTURE 21	RESVOR	.07	3.67	---	12.13	158	2257.1
STRUCTURE 22	RESVOR	.07	3.67	---	12.13	158	2257.1
STRUCTURE 23	RESVOR	.32	2.89	---	12.14	512	1600.0
XSECTION 23	REACH	.41	3.07	316.75	12.18	661	1612.2
STRUCTURE 31	RESVOR	.05	2.53	---	12.09	86	1720.0
STRUCTURE 32	RESVOR	.01	4.35	---	11.99	28	2800.0
STRUCTURE 33	RESVOR	.03	4.35	---	12.03	85	2833.3
STRUCTURE 34	RESVOR	.04	4.35	---	12.02	112	2800.0
XSECTION 44	REACH	.78	3.07	291.58	12.24	1244	1594.9
XSECTION 51	REACH	.93	2.97	286.68	12.31	1390	1494.6
XSECTION 63	REACH	1.03	2.92	250.87	12.41	1386	1345.6
STRUCTURE 61	RESVOR	.01	3.62	---	12.19	21	2100.0
STRUCTURE 62	RESVOR	.05	2.83	295.61	12.25	43	860.0
STRUCTURE 63	RESVOR	.01	3.39	---	11.95	37	3700.0
XSECTION 77	REACH	1.28	2.84	231.10	12.46	1562	1220.3
XSECTION 88	ADDHYD	1.55	2.76	---	12.52	1639	1057.4
RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 50							
STRUCTURE 11	RESVOR	.09	4.96	---	12.13	278	3088.9
XSECTION 8	REACH	.17	4.76	358.80	12.22	492	2894.1
STRUCTURE 21	RESVOR	.07	5.94	---	12.12	252	3600.0
STRUCTURE 22	RESVOR	.07	5.94	---	12.12	252	3600.0
STRUCTURE 23	RESVOR	.32	5.00	---	12.13	898	2806.3

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 SUMMARY, JOB NO. 1 PAGE 61

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 1 STORM 50

XSECTION	23	REACH	.41	5.21	317.52	12.18	1137	2773.2
STRUCTURE	31	RESVOR	.05	4.57	---	12.09	154	3080.0
STRUCTURE	32	RESVOR	.01	6.68	---	11.99	42	4200.0
STRUCTURE	33	RESVOR	.03	6.67	---	12.03	127	4233.3
STRUCTURE	34	RESVOR	.04	6.67	---	12.02	168	4200.0
XSECTION	44	REACH	.78	5.21	292.60	12.22	2171	2783.3
XSECTION	51	REACH	.93	5.09	288.20	12.29	2470	2655.9
XSECTION	63	REACH	1.03	5.03	251.87	12.37	2504	2431.1
STRUCTURE	61	RESVOR	.01	5.87	---	12.18	33	3300.0
STRUCTURE	62	RESVOR	.05	4.95	297.75	12.22	83	1660.0
STRUCTURE	63	RESVOR	.01	5.59	---	11.95	60	6000.0
XSECTION	77	REACH	1.28	4.93	232.17	12.36	2847	2224.2
XSECTION	88	ADDHYD	1.55	4.84	---	12.43	2998	1934.2

RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 99

STRUCTURE	11	RESVOR	.09	6.14	---	12.11	348	3866.7
XSECTION	8	REACH	.17	5.92	359.16	12.11	627	3688.2
STRUCTURE	21	RESVOR	.07	7.15	---	12.12	300	4285.7
STRUCTURE	22	RESVOR	.07	7.15	---	12.12	300	4285.7
STRUCTURE	23	RESVOR	.32	6.16	---	12.08	1226	3831.3
XSECTION	23	REACH	.41	6.39	317.96	12.15	1562	3809.8
STRUCTURE	31	RESVOR	.05	5.71	---	12.09	192	3840.0
STRUCTURE	32	RESVOR	.01	7.92	---	11.99	50	5000.0
STRUCTURE	33	RESVOR	.03	7.92	---	12.03	149	4966.7
STRUCTURE	34	RESVOR	.04	7.92	---	12.02	198	4950.0
XSECTION	44	REACH	.78	6.38	293.22	12.21	2857	3662.8
XSECTION	51	REACH	.93	6.26	289.05	12.27	3237	3480.6
XSECTION	63	REACH	1.03	6.19	252.45	12.35	3290	3194.2

1

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)

ALTERNATE 1 STORM 99

STRUCTURE	61	RESVOR	.01	7.10	---	12.18	40	4000.0
STRUCTURE	62	RESVOR	.05	6.12	298.82	12.20	109	2180.0
STRUCTURE	63	RESVOR	.01	6.79	---	11.95	72	7200.0

```
 XSECTION  77  REACH      1.28     6.09     232.67     12.34     3736   2918.8
 XSECTION  88  ADDHYD     1.55     5.99        ---     12.40     3948   2547.1
1
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 03/22/**            EXISTING COND.- 10,50,100 yr (24hr)                2.04TEST
 13:25:45                  SUMMARY, JOB NO.   1                         PAGE  63
```

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	HYDROGRAPH INFLOW TIME (HR)	HYDROGRAPH OUTFLOW PEAK (CFS)	HYDROGRAPH OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 10											
2	1170		58	12.1	57	12.2	.27	2.00	.006	.985	.84?
5	797		159	12.1	158	12.2	1.93	1.26	.019	.990	.90?
8	1221		276	12.2	275	12.2	1.28	1.44	.013	.996	.91?
16	920		509	12.1	509	12.1	4.11	1.44	.002	1.000	1.00?
23	1379		722	12.1	661	12.2	.59	1.31	.052	.916	.50
27	1021		206	12.1	190	12.2	.65	1.32	.053	.925	.54
32	1603		175	12.1	159	12.1	1.37	1.31	.061	.909	.54
34	583		28	12.0	28	12.0	1.14	1.61	.008	1.000	1.00?
37	934		111	12.0	111	12.0	2.42	1.52	.005	1.000	1.00?
44	1428		1302	12.1	1244	12.2	.26	1.46	.030	.956	.59
51	1275		1426	12.2	1388	12.3	.43	1.37	.027	.974	.63
53	652		23	12.0	23	12.1	2.05	1.40	.019	.999	.97?
63	1959		1448	12.3	1386	12.4	.39	1.43	.032	.958	.52
65	1283		21	12.2	20	12.3	2.50	1.38	.023	.969	.68?
70	2166		203	12.1	145	12.3	1.83	1.06	.191	.713	.22
72	1081		37	11.9	34	12.0	1.68	1.41	.040	.926	.74?
77	884		1560	12.4	1559	12.5	1.87	1.23	.011	1.000	.98?
80	1296		1574	12.5	1569	12.5	4.26	1.11	.020	.997	.84?
ALTERNATE 1 STORM 50											
2	1170		100	12.1	99	12.2	.27	2.00	.004	.998	.97?
5	797		278	12.1	277	12.2	1.80	1.29	.015	.999	.98?
8	1221		489	12.2	489	12.2	1.31	1.43	.010	1.000	.99?
16	920		897	12.1	897	12.1	4.77	1.38	.002	1.000	1.00?
23	1379		1231	12.1	1136	12.2	.68	1.28	.052	.923	.51
27	1021		370	12.1	361	12.2	.36	1.47	.027	.975	.68?
32	1603		280	12.1	256	12.1	1.58	1.25	.064	.914	.54
34	583		42	12.0	42	12.0	1.16	1.60	.006	1.000	1.00?

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1
 TR20 ------------------------------------------------------------------- SCS -
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SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	HYDROGRAPH INFLOW TIME (HR)	HYDROGRAPH OUTFLOW PEAK (CFS)	HYDROGRAPH OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
ALTERNATE 1 STORM 50											
37	934		167	12.0	167	12.0	2.52	1.50	.005	1.000	1.00?
44	1428		2242	12.1	2164	12.2	.25	1.46	.023	.965	.66
51	1275		2519	12.2	2467	12.3	.43	1.37	.022	.980	.70?
53	652		39	12.0	39	12.0	2.06	1.39	.015	1.000	1.00?
63	1959		2569	12.3	2500	12.4	.35	1.44	.025	.973	.60
65	1283		33	12.2	33	12.2	2.52	1.37	.020	.977	.73?
70	2166		377	12.1	287	12.2	1.08	1.20	.133	.762	.29
72	1081		59	11.9	56	12.0	1.71	1.39	.035	.945	.78?
77	884		2847	12.4	2847	12.4	1.47	1.27	.008	1.000	1.00?
80	1296		2881	12.4	2838	12.4	6.25	1.01	.036	.985	.71?
ALTERNATE 1 STORM 99											
2	1170		122	12.1	122	12.1	.25	2.00	.003	1.000	1.00?
5	797		348	12.1	348	12.1	1.76	1.29	.014	1.000	1.00?
8	1221		627	12.1	627	12.1	1.33	1.43	.010	1.000	1.00?
16	920		1218	12.1	1218	12.1	5.27	1.35	.002	1.000	1.00?
23	1379		1674	12.1	1546	12.1	.57	1.31	.049	.924	.56
27	1021		461	12.1	453	12.2	.32	1.50	.022	.985	.73?
32	1603		335	12.1	302	12.1	1.91	1.18	.076	.900	.51
34	583		50	12.0	50	12.0	1.17	1.60	.006	1.000	1.00?
37	934		197	12.0	197	12.0	2.56	1.49	.004	1.000	1.00?
44	1428		2941	12.1	2830	12.2	.26	1.46	.023	.962	.70?
51	1275		3307	12.2	3212	12.3	.44	1.37	.023	.971	.73?
53	652		47	12.0	47	12.0	2.07	1.39	.014	1.000	1.00?
63	1959		3372	12.2	3289	12.4	.35	1.44	.024	.975	.64
65	1283		40	12.2	39	12.2	2.54	1.36	.018	.981	.76?
70	2166		463	12.1	369	12.2	.87	1.25	.110	.796	.32

1
TR20 ---------- SCS -

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;

SATOT.OUT
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	INFLOW TIME (HR)	OUTFLOW PEAK (CFS)	OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
ALTERNATE 1 STORM 99											
72	1081		71	11.9	65	12.1	1.68	1.29	.056	.910	.66
77	884		3724	12.4	3724	12.4	1.07	1.33	.006	1.000	1.00?
80	1296		3766	12.4	3743	12.4	4.22	1.08	.029	.994	.77?

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 SUMMARY, JOB NO. 1 PAGE 66

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
STRUCTURE 63	.01			
ALTERNATE 1		37	60	72
STRUCTURE 62	.05			
ALTERNATE 1		43	83	109
STRUCTURE 61	.01			
ALTERNATE 1		21	33	40
STRUCTURE 34	.04			
ALTERNATE 1		112	168	198
STRUCTURE 33	.03			
ALTERNATE 1		85	127	149
STRUCTURE 32	.01			
ALTERNATE 1		28	42	50
STRUCTURE 31	.05			
ALTERNATE 1		86	154	192
STRUCTURE 23	.32			
ALTERNATE 1		512	898	1226

STRUCTURE	22	.07			
ALTERNATE	1		158	252	300
STRUCTURE	21	.07			
ALTERNATE	1		158	252	300
STRUCTURE	11	.09			
ALTERNATE	1		160	278	348
XSECTION	8	.17			
ALTERNATE	1		276	492	627
XSECTION	23	.41			
ALTERNATE	1		661	1137	1562
XSECTION	44	.78			

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST
13:25:45 SUMMARY, JOB NO. 1 PAGE 67

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 10	50	99
XSECTION	44	.78			
ALTERNATE	1		1244	2171	2857
XSECTION	51	.93			
ALTERNATE	1		1390	2470	3237
XSECTION	63	1.03			
ALTERNATE	1		1386	2504	3290
XSECTION	77	1.28			
ALTERNATE	1		1562	2847	3736
XSECTION	88	1.55			
ALTERNATE	1		1639	2998	3948

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
03/22/** EXISTING COND.- 10,50,100 yr (24hr) 2.04TEST

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST

FILES

INPUT = satot.dat , GIVEN DATA FILE
OUTPUT = satot.OUT , DATED 03/22/**,13:25:45

FILES GENERATED - DATED 03/22/**,13:25:45

NONE!

TOTAL NUMBER OF WARNINGS = 27, MESSAGES =   0

*** TR-20 RUN COMPLETED ***

1

**********80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY**********

```
JOB TR-20                                                        NOPLOTS
TITLE     Ellicott City Flood Study- All Combined SAs- No MGMT
TITLE     EXISTING COND.- Tropical Storm Lee (6,24hr)
 2 XSECTN   002                  1.0      389.50
 8                            389.00        0.00        0.00
 8                            389.25        1.65        1.06
 8                            389.50        6.25        2.75
 8                            389.75       14.40        5.06
 8                            390.00       26.75        8.00
 8                            390.25       45.54       14.33
 8                            390.50       68.67       15.00
 8                            390.75       96.11       18.88
 8                            391.00      127.89       23.00
 8                            391.25      164.08       27.38
 8                            391.50      204.77       32.00
 8                            391.75      250.06       36.88
 9 ENDTBL
 2 XSECTN   005                  1.0      367.00
 8                            366.00        0.00        0.00
 8                            366.50        3.51        1.5
 8                            367.00       13.55        4.00
 8                            367.50       30.53        9.00
 8                            367.75       47.87       13.00
 8                            368.00       72.23       18.00
 8                            368.25      104.79       23.98
 8                            368.50      146.13       30.94
 8                            368.75      197.14       38.86
 8                            369.00      258.63       47.75
 8                            369.25      331.41       57.61
 8                            369.50      416.25       68.44
 9 ENDTBL
 3 STRUCT      11
 9 ENDTBL
 2 XSECTN   008                  1.0      330.00
 8                            356.00        0.00        0.00
 8                            356.50       20.21        6.94
 8                            357.00       68.51       15.75
 8                            357.50      144.11       26.44
 8                            358.00      248.93       39.00
 8                            358.50      389.07       53.25
 8                            359.00      561.31       69.00
 8                            359.50      767.14       86.25
 8                            360.00     1008.16      105.00
 8                            361.00     1375.68      147.50
 8                            361.50     1604.19      171.38
 9 ENDTBL
 2 XSECTN   016                  1.0      333.08
 8                            331.08        0.00        0.00
 8                            332.08       80.21        8.00
 8                            333.08      225.50       16.00
```

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8                            333.58      310.09       20.00
```

```
  8                                334.08      399.94       24.00
  8                                334.58      493.86       28.00
  8                                335.08      590.97       32.00
  8                                335.58      690.67       36.00
  8                                336.08      792.47       40.00
  8                                336.58      896.02       44.00
  9 ENDTBL
  2 XSECTN    023                    1.0      314.40
  8                                313.22        0.00        0.00
  8                                313.51        1.10        0.89
  8                                313.81        3.51        1.84
  8                                314.10       16.22        5.61
  8                                314.40       34.66        9.74
  8                                314.68       48.28       24.71
  8                                314.96       79.66       42.09
  8                                315.24      126.64       61.87
  8                                315.52      189.07       84.06
  8                                315.80      267.27      108.64
  8                                316.08      361.75      135.63
  8                                316.36      473.14      165.02
  8                                316.64      602.11      196.81
  8                                316.92      749.37      231.00
  8                                317.20      878.70      277.25
  8                                317.48     1103.89      329.14
  8                                317.76     1358.10      382.70
  8                                318.04     1640.58      437.94
  8                                318.32     1950.87      494.86
  8                                318.60     2288.69      553.45
  9 ENDTBL
  3 STRUCT       21
  9 ENDTBL
  3 STRUCT       22
  9 ENDTBL
  3 STRUCT       23
  9 ENDTBL
  2 XSECTN    027                    1.0      317.00
  8                                316.00        0.00        0.00
  8                                316.50        2.68        2.59
  8                                317.00       10.37        6.88
  8                                317.50       24.26       12.84
  8                                318.00       45.55       20.50
  8                                318.50       70.64       34.75
  8                                319.00      137.01       60.50
  8                                319.25      200.57       76.25
  8                                319.50      273.06       92.00
  8                                319.75      353.76      107.75
  8                                320.00      442.13      123.50
  8                                320.50      640.03      155.00
  8                                321.00      863.72      186.50
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  9 ENDTBL
  2 XSECTN    032                    1.0      313.00
  8                                310.00        0.00        0.00
  8                                311.00       12.25        5.50
  8                                312.00       52.16       16.00
  8                                312.50       83.38       23.13
  8                                313.00      123.94       31.50
  8                                313.25      148.02       36.16
```

```
  8                              313.50      174.79       41.13
  8                              313.75      204.34       46.41
  8                              314.00      236.81       52.00
  8                              314.50      278.65       65.75
  8                              315.00      353.72       84.00
  9 ENDTBL
  2 XSECTN    034                  1.0      338.50
  8                              338.00        0.00        0.00
  8                              338.10        4.87        2.46
  8                              338.25       22.73        6.38
  8                              338.50       73.99       13.53
  8                              338.75      149.34       21.45
  8                              339.00      247.95       30.13
  8                              339.50      515.65       49.78
  9 ENDTBL
  2 XSECTN    037                  1.0      331.00
  8                              330.00        0.00        0.00
  8                              330.25       14.29        3.25
  8                              330.50       46.85        7.00
  8                              330.75       95.34       11.25
  8                              331.00      159.64       16.00
  8                              331.25      240.13       21.25
  8                              331.50      337.44       27.00
  8                              331.75      452.26       33.25
  8                              332.00      585.36       40.00
  8                              332.50      875.33       55.81
  8                              333.00     1272.05       75.25
  9 ENDTBL
  2 XSECTN    044                  1.0      288.90
  8                              287.68        0.00        0.00
  8                              287.99        1.15        0.94
  8                              288.29        3.69        1.95
  8                              288.60       17.06        5.98
  8                              288.90       36.44       10.37
  8                              289.19       63.07       39.25
  8                              289.47      121.85       69.50
  8                              289.76      206.05      101.12
  8                              290.05      313.23      134.09
  8                              290.33      442.07      168.42
  8                              290.62      591.78      204.12
  8                              290.91      761.87      241.18
  8                              291.19      952.02      279.60
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                              291.48     1162.04      319.38
  8                              291.77     1391.84      360.52
  8                              292.05     1641.40      403.02
  8                              292.34     1910.74      446.89
  8                              292.63     2199.92      492.11
  8                              292.91     2509.04      538.70
  8                              293.20     2838.22      586.65
  9 ENDTBL
  3 STRUCT       31
  9 ENDTBL
  3 STRUCT       32
  9 ENDTBL
  3 STRUCT       33
  9 ENDTBL
  3 STRUCT       34
```

```
  9 ENDTBL
  2 XSECTN   051                  1.0      282.40
  8                            281.10        0.00        0.00
  8                            281.42        1.24        1.09
  8                            281.75        3.96        2.26
  8                            282.07       18.30        6.92
  8                            282.40       39.09       12.00
  8                            282.88       67.33       37.27
  8                            283.36      131.17       65.87
  8                            283.84      225.10       97.78
  8                            284.32      348.01      133.01
  8                            284.80      499.91      171.56
  8                            285.28      681.29      213.43
  8                            285.76      892.92      258.61
  8                            286.24     1135.70      307.11
  8                            286.72     1410.63      358.94
  8                            287.20     1718.74      414.08
  8                            287.68     2061.13      472.54
  8                            288.16     2438.87      534.31
  8                            288.64     2853.08      599.41
  8                            289.12     3301.76      667.84
  8                            289.60     3785.91      739.78
  9 ENDTBL
  2 XSECTN   053                  1.0      289.00
  8                            288.00        0.00        0.00
  8                            288.50        9.00        2.88
  8                            289.00       34.26        7.50
  8                            289.50       79.27       13.88
  8                            290.00      147.75       22.00
  8                            290.50      227.49       31.94
  8                            291.00      332.02       43.75
  8                            291.50      463.75       57.44
  8                            291.75      540.56       64.98
  8                            292.00      625.07       73.00
  9 ENDTBL
1


 **********80-80 LIST OF INPUT DATA (CONTINUED)**********

  2 XSECTN   063                  1.0      248.40
  8                            247.07        0.00        0.00
  8                            247.41        1.85        1.14
  8                            247.74        5.93        2.35
  8                            248.07       27.43        7.18
  8                            248.40       58.61       12.46
  8                            248.67       89.70       40.04
  8                            248.95      158.39       68.99
  8                            249.22      256.90       99.30
  8                            249.49      382.40      130.99
  8                            249.77      533.43      164.04
  8                            250.04      709.09      198.46
  8                            250.31      908.86      234.24
  8                            250.59     1132.40      271.40
  8                            250.86     1379.55      309.92
  8                            251.13     1650.25      349.81
  8                            251.41     1944.49      391.07
  8                            251.68     2262.35      433.69
  8                            251.95     2603.94      477.69
  8                            252.23     2969.40      523.05
  8                            252.50     3358.93      569.78
  9 ENDTBL
```

```
  3 STRUCT       61
  9 ENDTBL
  3 STRUCT       62
  8                          287.30         0.00         0.00
  8                          288.00         5.45         0.01
  8                          289.00         9.05         0.05
  8                          290.00        11.60         0.13
  8                          292.00        15.35         0.50
  8                          294.00        18.40         1.19
  8                          294.30        18.92         1.26
  8                          294.50        20.73         1.40
  8                          295.00        36.40         1.60
  8                          295.40        38.00         1.80
  8                          296.00        51.10         2.15
  8                          297.00        69.60         2.75
  8                          298.00        86.80         3.44
  8                          298.68        98.50         3.91
  8                          298.80       107.56         4.00
  9 ENDTBL
  3 STRUCT       63
  9 ENDTBL
  2 XSECTN    065               1.0       300.50
  8                          300.00         0.00         0.00
  8                          300.10         0.29         0.23
  8                          300.25         1.47         0.69
  8                          300.40         3.55         1.28
  8                          300.50         5.48         1.75
  8                          300.60         7.88         2.28
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                          300.75        12.45         3.19
  8                          300.90        18.28         4.23
  8                          301.00        22.91         5.00
  8                          301.10        28.18         5.83
  8                          301.25        37.36         7.19
  8                          301.40        48.14         8.68
  8                          301.50        56.26         9.75
  9 ENDTBL
  2 XSECTN    070               1.0       248.40
  8                          247.07         0.00         0.00
  8                          247.41         1.85         1.14
  8                          247.74         5.93         2.35
  8                          248.07        27.43         7.18
  8                          248.40        58.61        12.46
  8                          248.67        89.70        40.04
  8                          248.95       158.39        68.99
  8                          249.22       256.90        99.30
  8                          249.49       382.40       130.99
  8                          249.77       533.43       164.04
  8                          250.04       709.09       198.46
  8                          250.31       908.86       234.24
  8                          250.59      1132.40       271.40
  8                          250.86      1379.55       309.92
  8                          251.13      1650.25       349.81
  8                          251.41      1944.49       391.07
  8                          251.68      2262.35       433.69
  8                          251.95      2603.94       477.69
  8                          252.23      2969.40       523.05
  8                          252.50      3358.93       569.78
```

```
  9 ENDTBL
  2 XSECTN   072                  1.0      248.40
  8                            247.07        0.00        0.00
  8                            247.41        1.85        1.14
  8                            247.74        5.93        2.35
  8                            248.07       27.43        7.18
  8                            248.40       58.61       12.46
  8                            248.67       89.70       40.04
  8                            248.95      158.39       68.99
  8                            249.22      256.90       99.30
  8                            249.49      382.40      130.99
  8                            249.77      533.43      164.04
  8                            250.04      709.09      198.46
  8                            250.31      908.86      234.24
  8                            250.59     1132.40      271.40
  8                            250.86     1379.55      309.92
  8                            251.13     1650.25      349.81
  8                            251.41     1944.49      391.07
  8                            251.68     2262.35      433.69
  8                            251.95     2603.94      477.69
  8                            252.23     2969.40      523.05
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8                            252.50     3358.93      569.78
  9 ENDTBL
  2 XSECTN   077                  1.0      229.00
  8                            226.00        0.00        0.00
  8                            226.50       11.73        5.31
  8                            227.00       42.97       13.25
  8                            227.50       96.50       23.81
  8                            228.00      175.93       37.00
  8                            228.50      258.13       54.25
  8                            229.00      385.22       77.00
  8                            229.50      561.82      105.25
  8                            230.00      793.74      139.00
  8                            230.50     1079.38      179.94
  8                            231.00     1462.49      229.75
  8                            231.50     1953.75      288.44
  8                            232.00     2564.16      356.00
  8                            232.50     3408.70      429.13
  8                            233.00     4351.01      504.50
  9 ENDTBL
  2 XSECTN   080                  1.0      212.00
  8                            210.50        0.00        0.00
  8                            210.75        4.72        2.23
  8                            211.00       15.68        4.92
  8                            211.25       32.36        8.06
  8                            211.50       54.93       11.67
  8                            211.75       83.70       15.73
  8                            212.00      119.05       20.25
  8                            212.25      163.87       25.14
  8                            212.50      215.35       30.31
  8                            212.75      273.55       35.77
  8                            213.00      338.57       41.50
  8                            214.00      669.42       67.25
  8                            215.00      806.07       99.00
  8                            216.00     1088.03      138.25
  8                            217.00     1451.30      187.50
  8                            218.00     1978.93      249.25
```

```
  8                              219.00     2262.06      340.00
  8                              220.00     3115.20      476.25
  8                              221.00     4892.67      639.25
  9 ENDTBL
  5 RAINFL 5              0.2500
  8              0.0000      0.0000      0.0000      0.0000      0.0136
  8              0.0629      0.0629      0.0629      0.0629      0.0629
  8              0.0629      0.0629      0.0629      0.0629      0.0629
  8              0.0629      0.0629      0.0629      0.0641      0.0641
  8              0.0678      0.0764      0.0764      0.0789      0.0789
  8              0.0789      0.0789      0.0814      0.0863      0.0875
  8              0.0900      0.0900      0.0912      0.1245      0.1245
  8              0.1245      0.1245      0.1270      0.1270      0.1270
  8              0.1270      0.1270      0.1319      0.1319      0.1319
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  8              0.1862      0.2639      0.4057      0.5425      0.5746
  8              0.6387      0.7028      0.7349      0.7386      0.7781
  8              0.8064      0.8101      0.8163      0.8224      0.8261
  8              0.8286      0.8311      0.8323      0.8323      0.8323
  8              0.8348      0.8372      0.8372      0.8372      0.8372
  8              0.8372      0.8385      0.8385      0.8385      0.8385
  8              0.8385      0.8422      0.8422      0.8459      0.8471
  8              0.8471      0.8483      0.8483      0.8483      0.8483
  8              0.8483      0.8496      0.8829      0.9051      0.9383
  8              0.9482      0.9556      0.9667      0.9778      0.9864
  8              1.0000      1.0000      1.0000      1.0000      1.0000
  9 ENDTBL
  5 RAINFL 6              0.2500
  8              0.0000      0.0773      0.1879      0.3898      0.5847
  8              0.6304      0.7217      0.8130      0.8586      0.8639
  8              0.9201      0.9605      0.9658      0.9745      0.9833
  8              0.9886      0.9921      0.9956      0.9974      0.9974
  8              1.0000      1.0000      1.0000      1.0000      1.0000
  9 ENDTBL
  6 RUNOFF 1 001       1      0.0336      79.478      0.4051          DA1
  6 REACH  3 002   1   2      1170.0                       1
  6 RUNOFF 1 003       1      0.0580      80.559      0.3751          DA2
  6 ADDHYD 4 004   1 2 3                                  1          DA1+2
  6 RESVOR 2    11 3   1                                  1        1 SWMF10
  6 REACH  3 005   1   2       797.0                       1
  6 RUNOFF 1 006       3      0.0798      76.270      0.3921          DA3
  6 ADDHYD 4 007   2 3 4                                  1          DA12+3
  6 REACH  3 008   4   7      1221.0                       1        1 SA1-SA2
  6 RUNOFF 1 009       1      0.0734      88.594      0.4221          DA1
  6 RESVOR 2    21 1   2                                  1        1 SWMF13
  6 RUNOFF 1 010       3      0.0097      72.249      0.1281          DA7
  6 RESVOR 2    22 2 3 4                                  1        1 HWY STOR
  6 RUNOFF 1 011       2      0.0569      76.394      0.2201          DA2
  6 ADDHYD 4 012   7 2 3                                  1          SA1+DA2
  6 RUNOFF 1 013       5      0.0193      79.025      0.2481          DA3
  6 ADDHYD 4 014   4 3 6                                  1          DA17+2
  6 ADDHYD 4 015   6 5 3                                  1          DA172+3
  6 RESVOR 2    23 3   1                                  1        1 HWYSTOR2
  6 REACH  3 016   1   2       920.0                       1
  6 RUNOFF 1 017       3      0.0211      87.900      0.1641          DA4
  6 RUNOFF 1 018       4      0.0313      91.880      0.2551          DA5
  6 RUNOFF 1 019       5      0.0404      86.883      0.1681          DA6
  6 ADDHYD 4 020   3 4 6                                  1          DA4+5
```

```
  6 ADDHYD 4 021   6 5 1                                    1           DA123+6
  6 ADDHYD 4 022   2 1 3                                    1           DA45+6
  6 REACH  3 023   3   7       1379.0                       1         1 SA2-SA3
  6 RUNOFF 1 024       1       0.0505      76.581       0.3401         DA1
  6 RESVOR 2    31 1   2                                    1         1 SWMF3
  6 RUNOFF 1 025       3       0.0748      75.950       0.3581         DA2
  6 ADDHYD 4 026   2 3 4                                    1           DA1+2
1


 **********80-80 LIST OF INPUT DATA (CONTINUED)**********

  6 REACH  3 027   4   1       1021.0                       1
  6 RUNOFF 1 028       2       0.0599      77.623       0.3231         DA3
  6 ADDHYD 4 029   7 2 3                                    1           SA2+DA3
  6 ADDHYD 4 030   1 3 5                                    1           DA12+3
  6 RUNOFF 1 031       1       0.0692      86.658       0.2761         DA4
  6 REACH  3 032   1   6       1603.0                       1
  6 RUNOFF 1 033       2       0.0084      95.000       0.1921         DA5
  6 RESVOR 2    32 2   3                                    1         1 SWMF11
  6 REACH  3 034   3   7        583.0                       1
  6 RUNOFF 1 035       1       0.0275      94.963       0.2481         DA6
  6 RESVOR 2    33 1   2                                    1         1 SWMF8
  6 ADDHYD 4 036   7 2 1                                    1           DA5+6
  6 RESVOR 2    34 1   2                                    1         1 HWAYSTOR
  6 REACH  3 037   2   4        934.0                       1
  6 RUNOFF 1 038       1       0.0328      86.132       0.1901         DA7
  6 ADDHYD 4 039   4 1 3                                    1           DA56+7
  6 RUNOFF 1 040       2       0.0393      85.125       0.3671         DA8
  6 ADDHYD 4 041   5 2 1                                    1           DA3+8
  6 ADDHYD 4 042   6 1 2                                    1           DA4+8
  6 ADDHYD 4 043   3 2 1                                    1           DA7+8
  6 REACH  3 044   1   7       1428.0                       1         1 SA3-SA4
  6 RUNOFF 1 045       1       0.0477      75.971       0.4121         DA1
  6 RUNOFF 1 046       2       0.0628      73.766       0.4401         DA2
  6 ADDHYD 4 047   1 2 3                                    1           DA1+2
  6 RUNOFF 1 048       1       0.0469      79.166       0.2491         DA3
  6 ADDHYD 4 049   7 1 2                                    1           SA3+DA3
  6 ADDHYD 4 050   2 3 4                                    1           DA12+3
  6 REACH  3 051   4   7       1275.0                       1         1 SA4-SA5
  6 RUNOFF 1 052       1       0.0087      83.161       0.1631         DA1
  6 REACH  3 053   1   5        652.0                       1
  6 RUNOFF 1 054       1       0.0072      83.054       0.2561         DA2
  6 RUNOFF 1 055       2       0.0322      74.166       0.2491         DA3
  6 ADDHYD 4 056   7 2 4                                    1           SA4+DA3
  6 ADDHYD 4 057   5 1 3                                    1           DA1+2
  6 ADDHYD 4 058   4 3 5                                    1           DA12+3
  6 RUNOFF 1 059       1       0.0266      72.902       0.2611         DA4
  6 ADDHYD 4 060   5 1 2                                    1           DA123+4
  6 RUNOFF 1 061       3       0.0173      72.707       0.2971         DA5
  6 ADDHYD 4 062   2 3 6                                    1           DA1234+5
  6 REACH  3 063   6   7       1959.0                       1         1 SA5-SA6
  6 RUNOFF 1 064       1       0.0110      88.119       0.5211         DA1
  6 RESVOR 2    61 1   2                                    1         1 SWMF19
  6 REACH  3 065   2   3       1283.0                       1
  6 RUNOFF 1 066       1       0.0458      80.006       0.2391         DA2
  6 RESVOR 2    62 1   2                                    1         1 SWMF18
  6 ADDHYD 4 067   3 2 4                                    1           DA1+2
  6 RUNOFF 1 068       5       0.0778      79.468       0.2281         DA3
  6 ADDHYD 4 069   4 5 1                                    1           DA12+3
  6 REACH  3 070   1   2       2166.0                       1
  6 RUNOFF 1 071       1       0.0119      85.744       0.1221         DA4
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 6 RESVOR 2    63 1   3                                        1         1 SWMF2
 6 REACH  3 072   3   4       1081.0                           1
 6 RUNOFF 1 073       5       0.1100      70.291       0.2051             DA5
 6 ADDHYD 4 074   7 5 1                                        1           SA5+DA5
 6 ADDHYD 4 075   2 4 6                                        1           DA123+4
 6 ADDHYD 4 076   1 6 2                                        1           DA12345
 6 REACH  3 077   2   7        884.0                           1         1 SA6-SA7
 6 RUNOFF 1 078       2       0.0510      73.827       0.1971             DA1
 6 ADDHYD 4 079   7 2 1                                        1           SA6+DA1
 6 REACH  3 080   1   2       1296.0                           1
 6 RUNOFF 1 081       3       0.0513      78.929       0.1621             DA3
 6 ADDHYD 4 082   2 3 4                                        1           DA1+3
 6 RUNOFF 1 083       1       0.0313      70.330       0.1861             DA2
 6 ADDHYD 4 084   4 1 2                                        1           DA13+2
 6 RUNOFF 1 085       3       0.1187      73.092       0.3211             DA4
 6 ADDHYD 4 086   2 3 1                                        1           DA123+4
 6 RUNOFF 1 087       4       0.0159      87.661       0.1421             DA5
 6 ADDHYD 4 088   1 4 7                                        1         1 DA1234+5
   ENDATA
 7 INCREM 6                      .06
 7 COMPUT 7 001   088            0.0        8.11         1.05 2  1   24
   ENDCMP 1
 7 COMPUT 7 001   088            0.0        5.70         1.06 2  1   06
   ENDCMP 1
   ENDJOB 2
```

**********END OF 80-80 LIST**********

1

```
 TR20 ------------------------------------------------------------------- SCS -
             Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 07/08/**        EXISTING COND.- Tropical Storm Lee (6,24hr)           2.04TEST
 08:05:38                    PASS   1   JOB NO.   1                    PAGE   1


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .060 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  88
    STARTING TIME =   .00       RAIN DEPTH =  8.11       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .060 HOURS
    ALTERNATE NO. = 1           STORM NO. =24            RAIN TABLE NO. = 5


 OPERATION RUNOFF   XSECTION   1

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        8.39                          3.2                        (RUNOFF)
       12.06                         68.5                        (RUNOFF)
       12.78                         38.2                        (RUNOFF)
       13.72                         19.7                        (RUNOFF)
       16.55                          1.4                        (RUNOFF)
       19.14                          1.4                        (RUNOFF)
       19.65                          1.6                        (RUNOFF)
       22.33                         18.3                        (RUNOFF)
       23.30                          7.1                        (RUNOFF)
       23.82                          7.4                        (RUNOFF)
```

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 123 CFS-HRS; 10.1 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.45	3.2	389.33
12.13	68.3	390.50
12.84	38.2	390.15
13.79	19.7	389.86
16.61	1.4	389.21
19.20	1.4	389.21
19.72	1.6	389.25
22.40	18.3	389.83
23.36	7.1	389.53
23.88	7.4	389.53

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 123 CFS-HRS; 10.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 1 JOB NO. 1 PAGE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.37	6.8	(RUNOFF)
12.05	124.2	(RUNOFF)
12.77	67.1	(RUNOFF)
13.70	35.0	(RUNOFF)
19.12	2.6	(RUNOFF)
19.63	3.0	(RUNOFF)
21.96	28.2	(RUNOFF)
22.32	32.6	(RUNOFF)
23.29	12.3	(RUNOFF)
23.81	13.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.79 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.39	9.7	(NULL)
12.07	190.5	(NULL)
12.79	104.9	(NULL)
13.73	54.2	(NULL)
16.56	3.8	(NULL)
19.15	3.9	(NULL)
19.66	4.5	(NULL)
22.34	50.4	(NULL)
23.31	19.4	(NULL)
23.83	20.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.39	9.7	(NULL)
12.07	190.5	(NULL)
12.79	104.9	(NULL)
13.73	54.2	(NULL)
16.56	3.8	(NULL)
19.15	3.9	(NULL)
19.66	4.5	(NULL)
22.34	50.4	(NULL)
23.31	19.4	(NULL)
23.83	20.3	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 1 JOB NO. 1 PAGE 3

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.46	9.6	366.80
12.14	190.2	368.72
12.86	104.8	368.25
13.80	54.1	367.81
16.62	3.8	366.51
19.21	3.9	366.52
19.73	4.5	366.55
22.41	50.3	367.77
23.38	19.4	367.17
23.89	20.2	367.20

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.38	4.9	(RUNOFF)
12.06	151.5	(RUNOFF)
12.78	86.7	(RUNOFF)
13.71	45.6	(RUNOFF)
16.54	3.2	(RUNOFF)
19.13	3.4	(RUNOFF)
19.64	3.9	(RUNOFF)
22.33	42.7	(RUNOFF)
23.29	16.4	(RUNOFF)
23.81	17.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.28 WATERSHED INCHES; 272 CFS-HRS; 22.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 1 JOB NO. 1 PAGE 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.43	14.0	(NULL)
12.10	338.9	(NULL)
12.82	190.9	(NULL)
13.76	98.8	(NULL)
16.58	6.9	(NULL)
19.17	7.0	(NULL)
19.69	8.1	(NULL)
22.37	92.2	(NULL)
23.33	35.7	(NULL)
23.85	36.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.53 WATERSHED INCHES; 612 CFS-HRS; 50.5 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.50	14.0	356.35
12.16	338.4	358.32
12.88	190.8	357.72
13.83	98.7	357.20
16.65	6.9	356.17
19.24	7.0	356.17
19.75	8.1	356.20
22.43	92.0	357.16
23.40	35.7	356.66
23.91	37.0	356.67

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.53 WATERSHED INCHES; 612 CFS-HRS; 50.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.40	4.6	(RUNOFF)
5.37	3.2	(RUNOFF)
8.39	16.2	(RUNOFF)
12.05	177.5	(RUNOFF)
12.77	91.9	(RUNOFF)
13.73	46.0	(RUNOFF)
19.66	3.7	(RUNOFF)
22.34	42.0	(RUNOFF)
23.30	16.2	(RUNOFF)
23.82	16.8	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.73 WATERSHED INCHES; 319 CFS-HRS; 26.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.40	4.6	(NULL)
5.37	3.2	(NULL)
8.39	16.2	(NULL)
12.05	177.5	(NULL)
12.77	91.9	(NULL)
13.73	46.0	(NULL)
19.66	3.7	(NULL)
22.34	42.0	(NULL)
23.30	16.2	(NULL)
23.82	16.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.73 WATERSHED INCHES; 319 CFS-HRS; 26.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.97	19.4	(RUNOFF)
12.70	10.4	(RUNOFF)
13.50	6.5	(RUNOFF)
14.30	1.1	(RUNOFF)
21.75	5.7	(RUNOFF)
22.23	5.9	(RUNOFF)
23.73	2.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.81 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.40	4.6	(NULL)
5.37	3.2	(NULL)
8.39	16.2	(NULL)
12.05	177.5	(NULL)
12.77	91.9	(NULL)
13.73	46.0	(NULL)
19.66	3.7	(NULL)
22.34	42.0	(NULL)
23.30	16.2	(NULL)
23.82	16.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.73 WATERSHED INCHES; 319 CFS-HRS; 26.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.28	4.9	(RUNOFF)

11.99	119.9	(RUNOFF)
12.74	63.8	(RUNOFF)
13.57	36.9	(RUNOFF)
14.42	6.4	(RUNOFF)
19.54	3.4	(RUNOFF)
21.82	31.4	(RUNOFF)
22.26	33.7	(RUNOFF)
23.24	12.0	(RUNOFF)
23.76	13.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.30 WATERSHED INCHES; 195 CFS-HRS; 16.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.46	15.2	(NULL)
12.08	433.5	(NULL)
12.79	250.5	(NULL)
13.78	128.2	(NULL)
16.57	8.9	(NULL)
19.18	8.0	(NULL)
19.71	9.9	(NULL)
22.32	118.8	(NULL)
23.32	47.1	(NULL)
23.80	48.0	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.47 WATERSHED INCHES; 806 CFS-HRS; 66.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.30	2.3	(RUNOFF)
12.00	42.6	(RUNOFF)
12.75	22.4	(RUNOFF)
13.59	12.5	(RUNOFF)
14.36	2.2	(RUNOFF)
19.56	1.1	(RUNOFF)
21.84	10.6	(RUNOFF)
22.27	11.5	(RUNOFF)
23.25	4.1	(RUNOFF)
23.77	4.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.61 WATERSHED INCHES; 70 CFS-HRS; 5.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.42	30.9	(NULL)
12.07	610.5	(NULL)
12.79	342.3	(NULL)
13.77	173.6	(NULL)

16.56	12.0	(NULL)
19.16	11.2	(NULL)
19.69	13.6	(NULL)
22.33	160.8	(NULL)
23.31	63.4	(NULL)
23.81	64.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.78 WATERSHED INCHES; 1125 CFS-HRS; 93.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	32.4	(NULL)
12.06	651.6	(NULL)
12.78	364.5	(NULL)
13.76	184.1	(NULL)
16.56	12.9	(NULL)
19.15	11.9	(NULL)
19.67	14.4	(NULL)
22.32	171.9	(NULL)
23.31	67.4	(NULL)
23.80	69.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 1195 CFS-HRS; 98.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	32.4	(NULL)
12.06	651.6	(NULL)
12.78	364.5	(NULL)
13.76	184.1	(NULL)
16.56	12.9	(NULL)
19.15	11.9	(NULL)
19.67	14.4	(NULL)
22.32	171.9	(NULL)
23.31	67.4	(NULL)
23.80	69.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 1195 CFS-HRS; 98.8 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

OPERATION REACH XSECTION 16

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	32.4	331.48
12.06	651.6	335.38
12.78	364.5	333.88
13.76	184.1	332.80
16.56	12.9	331.24
19.15	11.9	331.23
19.67	14.4	331.26
22.32	171.9	332.71
23.31	67.4	331.92
23.80	69.3	331.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 1195 CFS-HRS; 98.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.25	1.7	(RUNOFF)
8.26	7.1	(RUNOFF)
11.97	56.1	(RUNOFF)
12.70	27.0	(RUNOFF)
13.53	15.9	(RUNOFF)
14.36	2.6	(RUNOFF)
21.78	13.5	(RUNOFF)
22.24	14.0	(RUNOFF)
23.20	4.8	(RUNOFF)
23.74	5.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.66 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.30	5.9	(RUNOFF)
8.30	12.0	(RUNOFF)
11.98	85.2	(RUNOFF)
12.73	40.5	(RUNOFF)
13.60	22.0	(RUNOFF)
14.34	4.0	(RUNOFF)
21.85	18.3	(RUNOFF)
22.28	19.9	(RUNOFF)
23.25	7.1	(RUNOFF)
23.77	8.0	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 144 CFS-HRS; 11.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.26	12.5	(RUNOFF)

11.97	105.9	(RUNOFF)
12.70	51.3	(RUNOFF)
13.53	30.2	(RUNOFF)
14.36	5.0	(RUNOFF)
19.51	2.8	(RUNOFF)
21.78	25.6	(RUNOFF)
22.24	26.7	(RUNOFF)
23.20	9.1	(RUNOFF)
23.74	11.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.54 WATERSHED INCHES; 170 CFS-HRS; 14.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.29	7.5	(NULL)
8.28	18.8	(NULL)
11.97	141.4	(NULL)
12.72	67.5	(NULL)
13.57	37.5	(NULL)
14.35	6.6	(NULL)
21.81	31.1	(NULL)
22.26	33.7	(NULL)
23.23	11.9	(NULL)
23.75	13.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.94 WATERSHED INCHES; 235 CFS-HRS; 19.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.28	9.8	(NULL)
8.27	31.2	(NULL)
11.97	247.3	(NULL)
12.71	118.8	(NULL)
13.55	67.5	(NULL)
14.36	11.6	(NULL)
21.80	56.7	(NULL)
22.25	60.3	(NULL)
23.22	21.0	(NULL)
23.74	24.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.77 WATERSHED INCHES; 405 CFS-HRS; 33.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.31	56.7	(NULL)
12.03	886.6	(NULL)
12.76	483.1	(NULL)
13.73	239.6	(NULL)

16.53	17.1	(NULL)
19.08	16.4	(NULL)
19.59	19.2	(NULL)
22.28	229.2	(NULL)
23.27	88.3	(NULL)
23.77	92.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.99 WATERSHED INCHES; 1600 CFS-HRS; 132.2 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.48	49.6	314.69
12.19	846.3	317.13
12.89	478.3	316.37
13.89	234.5	315.68
16.69	16.1	314.10
19.26	14.3	314.06
19.77	18.1	314.13
22.44	222.4	315.64
23.43	87.4	315.01
23.92	90.2	315.02

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.99 WATERSHED INCHES; 1600 CFS-HRS; 132.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.35	3.6	(RUNOFF)
12.04	100.2	(RUNOFF)
12.77	55.6	(RUNOFF)
13.67	29.7	(RUNOFF)
19.10	2.4	(RUNOFF)
19.61	2.6	(RUNOFF)
21.92	24.5	(RUNOFF)
22.31	28.1	(RUNOFF)
23.28	10.5	(RUNOFF)
23.80	11.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.32 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.35	3.6	(NULL)
12.04	100.2	(NULL)
12.77	55.6	(NULL)
13.67	29.7	(NULL)
19.10	2.4	(NULL)
19.61	2.6	(NULL)
21.92	24.5	(NULL)

22.31	28.1	(NULL)
23.28	10.5	(NULL)
23.80	11.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.32 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.36	4.6	(RUNOFF)
12.05	144.5	(RUNOFF)
12.77	81.3	(RUNOFF)
13.68	43.3	(RUNOFF)
19.11	3.3	(RUNOFF)
19.62	3.7	(RUNOFF)
21.95	35.3	(RUNOFF)
22.31	40.8	(RUNOFF)
23.28	15.4	(RUNOFF)
23.81	16.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.25 WATERSHED INCHES; 253 CFS-HRS; 20.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.35	8.2	(NULL)
12.05	244.7	(NULL)
12.77	136.9	(NULL)
13.68	73.0	(NULL)
19.11	5.7	(NULL)
19.62	6.3	(NULL)
21.93	59.6	(NULL)
22.31	68.8	(NULL)
23.28	25.9	(NULL)
23.80	27.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.28 WATERSHED INCHES; 427 CFS-HRS; 35.3 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.45	7.6	316.82
12.14	238.5	319.38
12.86	135.6	318.99
13.79	71.2	318.50
16.61	5.1	316.65
19.20	5.2	316.67
19.72	5.9	316.71
22.40	67.1	318.43
23.37	25.7	317.53
23.88	27.1	317.57

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.28 WATERSHED INCHES; 427 CFS-HRS; 35.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.34	5.2	(RUNOFF)
12.04	123.6	(RUNOFF)
12.77	67.1	(RUNOFF)
13.65	36.2	(RUNOFF)
19.09	3.0	(RUNOFF)
19.60	3.1	(RUNOFF)
21.91	29.8	(RUNOFF)
22.30	33.8	(RUNOFF)
23.27	12.5	(RUNOFF)
23.80	13.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.44 WATERSHED INCHES; 210 CFS-HRS; 17.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.47	52.8	(NULL)
12.16	945.5	(NULL)
12.84	540.6	(NULL)
13.85	262.3	(NULL)
16.66	17.9	(NULL)
19.23	15.9	(NULL)
19.74	20.4	(NULL)
22.41	250.9	(NULL)
23.40	99.3	(NULL)
23.88	101.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.92 WATERSHED INCHES; 1811 CFS-HRS; 149.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.47	60.3	(NULL)
12.16	1183.3	(NULL)
12.85	676.1	(NULL)
13.84	332.6	(NULL)
16.65	22.9	(NULL)
19.22	21.2	(NULL)
19.73	26.3	(NULL)

22.41	317.5	(NULL)
23.39	125.0	(NULL)
23.88	128.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.79 WATERSHED INCHES; 2237 CFS-HRS; 184.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.31	17.2	(RUNOFF)
12.00	174.3	(RUNOFF)
12.75	86.5	(RUNOFF)
13.62	46.7	(RUNOFF)
19.06	4.0	(RUNOFF)
19.57	4.1	(RUNOFF)
21.86	38.7	(RUNOFF)
22.29	42.4	(RUNOFF)
23.26	15.4	(RUNOFF)
23.78	17.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.51 WATERSHED INCHES; 291 CFS-HRS; 24.0 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	15.4	311.08
12.09	171.2	313.47
12.83	85.5	312.53
13.74	44.5	311.81
19.16	3.5	310.29
19.68	3.8	310.31
21.99	36.4	311.60
22.37	41.2	311.72
23.35	15.3	311.08
23.86	16.6	311.11

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.51 WATERSHED INCHES; 291 CFS-HRS; 24.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.27	3.4	(RUNOFF)
5.26	1.0	(RUNOFF)
8.27	4.4	(RUNOFF)
11.91	23.7	(RUNOFF)
12.71	11.1	(RUNOFF)
13.55	6.4	(RUNOFF)
14.43	1.1	(RUNOFF)
21.80	5.3	(RUNOFF)
22.25	5.6	(RUNOFF)
23.75	2.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.27	3.4	(NULL)
5.26	1.0	(NULL)
8.27	4.4	(NULL)
11.91	23.7	(NULL)
12.71	11.1	(NULL)
13.55	6.4	(NULL)
14.43	1.1	(NULL)
21.80	5.3	(NULL)
22.25	5.6	(NULL)
23.75	2.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. ***

OPERATION REACH XSECTION 34

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.27	3.4	338.07
5.26	1.0	338.02
8.27	4.4	338.09
11.91	23.7	338.25
12.71	11.1	338.15
13.55	6.4	338.11
14.43	1.1	338.02
21.80	5.3	338.10
22.25	5.6	338.11
23.75	2.3	338.05

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.30	10.0	(RUNOFF)
8.30	12.9	(RUNOFF)
11.97	77.3	(RUNOFF)
12.73	36.1	(RUNOFF)
13.59	19.8	(RUNOFF)
14.36	3.5	(RUNOFF)
21.84	16.3	(RUNOFF)
22.27	17.6	(RUNOFF)
23.25	6.3	(RUNOFF)
23.77	7.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 133 CFS-HRS; 11.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.30	10.0	(NULL)
8.30	12.9	(NULL)
11.97	77.3	(NULL)
12.73	36.1	(NULL)
13.59	19.8	(NULL)
14.36	3.5	(NULL)
21.84	16.3	(NULL)
22.27	17.6	(NULL)
23.25	6.3	(NULL)
23.77	7.1	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 133 CFS-HRS; 11.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.29	13.3	(NULL)
8.29	17.2	(NULL)
11.97	101.2	(NULL)
12.73	47.3	(NULL)
13.58	26.1	(NULL)
14.37	4.6	(NULL)
21.83	21.5	(NULL)
22.27	23.2	(NULL)
23.24	8.2	(NULL)
23.76	9.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.29	13.3	(NULL)
8.29	17.2	(NULL)
11.97	101.2	(NULL)
12.73	47.3	(NULL)
13.58	26.1	(NULL)
14.37	4.6	(NULL)
21.83	21.5	(NULL)
22.27	23.2	(NULL)
23.24	8.2	(NULL)
23.76	9.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.29	13.3	330.23
8.29	17.2	330.27
11.97	101.2	330.77
12.73	47.3	330.50
13.58	26.1	330.34
14.37	4.6	330.08
21.83	21.5	330.31
22.27	23.2	330.32
23.24	8.2	330.14
23.76	9.4	330.16

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.50 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.27	9.1	(RUNOFF)
11.97	84.4	(RUNOFF)
12.71	41.3	(RUNOFF)
13.55	23.9	(RUNOFF)
14.43	4.0	(RUNOFF)
19.01	2.2	(RUNOFF)
21.79	20.2	(RUNOFF)
22.25	21.2	(RUNOFF)
23.21	7.4	(RUNOFF)
23.74	8.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.45 WATERSHED INCHES; 136 CFS-HRS; 11.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.29	14.7	(NULL)
8.28	26.3	(NULL)
11.97	185.6	(NULL)
12.72	88.5	(NULL)
13.56	49.8	(NULL)
14.39	8.6	(NULL)
21.81	41.7	(NULL)
22.26	44.4	(NULL)
23.23	15.6	(NULL)
23.75	18.1	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.00 WATERSHED INCHES; 310 CFS-HRS; 25.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.36	7.3	(RUNOFF)
12.04	92.7	(RUNOFF)
12.77	47.8	(RUNOFF)
13.69	24.7	(RUNOFF)
16.54	1.7	(RUNOFF)
19.12	1.9	(RUNOFF)
19.63	2.1	(RUNOFF)
22.32	22.8	(RUNOFF)
23.28	8.6	(RUNOFF)
23.81	9.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.33 WATERSHED INCHES; 161 CFS-HRS; 13.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.46	66.1	(NULL)
12.15	1263.8	(NULL)
12.84	723.2	(NULL)
13.83	354.6	(NULL)
16.64	24.3	(NULL)
19.21	22.7	(NULL)
19.72	28.2	(NULL)
22.40	338.9	(NULL)
23.38	133.4	(NULL)
23.87	137.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.82 WATERSHED INCHES; 2398 CFS-HRS; 198.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 42
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.45	80.6	(NULL)
12.14	1430.9	(NULL)
12.83	808.6	(NULL)
13.81	397.7	(NULL)
16.63	27.4	(NULL)
19.20	26.0	(NULL)
19.71	31.8	(NULL)
22.39	379.9	(NULL)
23.38	148.7	(NULL)
23.87	153.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.89 WATERSHED INCHES; 2688 CFS-HRS; 222.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	92.6	(NULL)
12.10	1567.7	(NULL)
12.78	892.3	(NULL)
13.78	437.0	(NULL)
16.60	29.7	(NULL)
19.18	27.5	(NULL)
19.69	34.6	(NULL)
22.36	414.1	(NULL)
23.34	163.3	(NULL)
23.83	167.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.99 WATERSHED INCHES; 2998 CFS-HRS; 247.8 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.50	88.0	289.31
12.19	1539.4	291.94
12.82	892.0	291.10
13.87	431.5	290.31
16.69	28.9	288.78
19.28	26.2	288.74
19.79	33.7	288.86
22.44	408.5	290.26
23.42	162.8	289.61
23.91	165.5	289.62

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.98 WATERSHED INCHES; 2997 CFS-HRS; 247.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.39	2.7	(RUNOFF)
12.07	88.6	(RUNOFF)
12.79	51.6	(RUNOFF)
13.72	27.0	(RUNOFF)
16.55	1.9	(RUNOFF)
19.65	2.2	(RUNOFF)
22.34	25.2	(RUNOFF)
23.30	9.8	(RUNOFF)
23.82	10.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.25 WATERSHED INCHES; 162 CFS-HRS; 13.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.41	2.1	(RUNOFF)
12.10	108.8	(RUNOFF)
12.79	65.2	(RUNOFF)
13.74	34.1	(RUNOFF)
16.56	2.4	(RUNOFF)
19.16	2.4	(RUNOFF)
19.67	2.8	(RUNOFF)
22.35	32.0	(RUNOFF)
23.31	12.6	(RUNOFF)
23.82	13.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.99 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 1 JOB NO. 1 PAGE 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.40	4.8	(NULL)
12.09	197.0	(NULL)
12.79	116.8	(NULL)
13.73	61.1	(NULL)
16.56	4.2	(NULL)
19.15	4.3	(NULL)
19.66	5.0	(NULL)
22.34	57.2	(NULL)
23.31	22.4	(NULL)
23.82	23.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.10 WATERSHED INCHES; 364 CFS-HRS; 30.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.30	5.8	(RUNOFF)
12.00	103.6	(RUNOFF)
12.75	54.6	(RUNOFF)
13.59	30.4	(RUNOFF)
14.36	5.5	(RUNOFF)
19.56	2.8	(RUNOFF)
21.84	25.7	(RUNOFF)
22.28	27.9	(RUNOFF)
23.25	10.1	(RUNOFF)
23.77	11.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 170 CFS-HRS; 14.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.45	22.8	(NULL)
8.49	89.7	(NULL)
12.18	1603.7	(NULL)
13.85	452.8	(NULL)
16.67	29.9	(NULL)
19.28	26.9	(NULL)
19.78	35.1	(NULL)
22.42	427.2	(NULL)
23.39	172.0	(NULL)
23.87	173.2	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.96 WATERSHED INCHES; 3168 CFS-HRS; 261.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.45	22.8	(NULL)
8.49	93.8	(NULL)
12.16	1790.2	(NULL)
13.83	510.6	(NULL)
16.66	33.7	(NULL)
19.26	30.3	(NULL)
19.76	39.7	(NULL)
22.40	482.4	(NULL)
23.37	194.2	(NULL)
23.86	195.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.86 WATERSHED INCHES; 3531 CFS-HRS; 291.8 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.54	21.8	282.12
8.58	90.6	283.05
12.25	1766.6	287.27
13.92	505.8	284.82
16.75	33.1	282.31
19.35	29.3	282.24
19.85	39.1	282.40
22.49	478.0	284.73
23.45	193.9	283.68
23.94	194.5	283.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.86 WATERSHED INCHES; 3530 CFS-HRS; 291.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 52
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)		PEAK ELEVATION(FEET)
8.26	2.0		(RUNOFF)
11.97	21.5		(RUNOFF)
12.70	10.7		(RUNOFF)
13.53	6.4		(RUNOFF)
14.34	1.0	*	(RUNOFF)
21.77	5.4		(RUNOFF)
22.24	5.6		(RUNOFF)
23.74	2.3		(RUNOFF)

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.10 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)		PEAK ELEVATION(FEET)
8.32	1.9		288.11
12.03	21.5		288.75
12.76	10.7		288.53
13.59	6.3		288.35
14.40	1.0	*	288.06
21.84	5.4		288.30
22.30	5.6		288.31
23.80	2.3		288.13

* FIRST POINT OF FLAT PEAK

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.30	1.3	(RUNOFF)
12.00	17.2	(RUNOFF)
12.75	8.7	(RUNOFF)
13.59	4.8	(RUNOFF)
21.85	4.0	(RUNOFF)
22.28	4.4	(RUNOFF)
23.77	1.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.08 WATERSHED INCHES; 28 CFS-HRS; 2.3 ACRE-FEET.

1

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	63.4	(RUNOFF)
12.75	34.9	(RUNOFF)
13.59	19.8	(RUNOFF)
14.36	3.6	(RUNOFF)

19.05	1.7	(RUNOFF)
19.56	1.8	(RUNOFF)
21.84	16.8	(RUNOFF)
22.28	18.4	(RUNOFF)
23.25	6.6	(RUNOFF)
23.77	7.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.04 WATERSHED INCHES; 105 CFS-HRS; 8.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.54	21.8	(NULL)
8.58	90.8	(NULL)
10.83	16.5	(NULL)
12.24	1796.2	(NULL)
13.90	516.4	(NULL)
16.74	33.5	(NULL)
19.84	39.8	(NULL)
22.48	487.9	(NULL)
23.41	199.8	(NULL)
23.91	198.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.83 WATERSHED INCHES; 3635 CFS-HRS; 300.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.31	3.3	(NULL)
12.02	38.4	(NULL)
12.75	19.4	(NULL)
13.59	11.2	(NULL)
14.40	1.9	(NULL)
19.57	1.0	(NULL)
21.84	9.4	(NULL)
22.29	10.0	(NULL)
23.25	3.5	(NULL)
23.79	4.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.09 WATERSHED INCHES; 62 CFS-HRS; 5.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.54	21.8	(NULL)
8.58	91.1	(NULL)
10.83	16.5	(NULL)
12.24	1813.1	(NULL)
13.89	522.9	(NULL)
16.73	33.7	(NULL)
19.83	40.2	(NULL)

22.47	493.0	(NULL)
23.38	203.0	(NULL)
23.88	201.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.84 WATERSHED INCHES; 3697 CFS-HRS; 305.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	50.3	(RUNOFF)
12.75	28.1	(RUNOFF)
13.60	15.8	(RUNOFF)
14.31	2.9	(RUNOFF)
19.06	1.4	(RUNOFF)
19.57	1.4	(RUNOFF)
21.85	13.5	(RUNOFF)
22.28	14.8	(RUNOFF)
23.25	5.4	(RUNOFF)
23.77	6.1	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.89 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.54	21.8	(NULL)
5.53	14.2	(NULL)
8.58	91.3	(NULL)
10.83	16.6	(NULL)
12.23	1839.6	(NULL)
13.88	533.4	(NULL)
16.72	34.1	(NULL)
19.83	40.8	(NULL)
22.45	502.3	(NULL)
23.86	206.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 3781 CFS-HRS; 312.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	32.0	(RUNOFF)
12.76	18.1	(RUNOFF)
13.63	10.0	(RUNOFF)
21.88	8.4	(RUNOFF)
22.29	9.5	(RUNOFF)
23.78	3.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.87 WATERSHED INCHES; 54 CFS-HRS; 4.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.54	21.8	(NULL)
5.53	14.2	(NULL)
8.58	91.4	(NULL)
10.83	16.6	(NULL)
12.22	1859.6	(NULL)
13.87	540.9	(NULL)
16.71	34.5	(NULL)
19.82	41.3	(NULL)
22.44	509.3	(NULL)
23.84	209.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.79 WATERSHED INCHES; 3836 CFS-HRS; 317.0 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.65	20.5	247.96
5.64	13.6	247.86
8.68	86.9	248.65
10.94	15.9	247.89
12.33	1826.6	251.30
13.96	534.6	249.77
16.82	33.6	248.14
19.92	40.6	248.21
22.55	503.4	249.71
23.92	209.0	249.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.79 WATERSHED INCHES; 3832 CFS-HRS; 316.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.45	2.0	(RUNOFF)
12.10	25.1	(RUNOFF)
12.77	13.8	(RUNOFF)
13.78	6.7	(RUNOFF)
22.38	6.0	(RUNOFF)
23.84	2.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.45	2.0	(NULL)
12.10	25.1	(NULL)
12.77	13.8	(NULL)
13.78	6.7	(NULL)
22.38	6.0	(NULL)
23.84	2.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.53	2.0	300.29
12.18	24.8	301.04
12.84	13.8	300.78
13.86	6.6	300.55
22.46	6.0	300.52
23.92	2.4	300.32

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.68 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.29	6.3	(RUNOFF)
12.00	103.6	(RUNOFF)
12.74	53.6	(RUNOFF)
13.58	30.3	(RUNOFF)
14.37	5.4	(RUNOFF)
19.55	2.7	(RUNOFF)
21.83	25.6	(RUNOFF)
22.27	27.7	(RUNOFF)
23.25	9.9	(RUNOFF)
23.76	11.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.72 WATERSHED INCHES; 169 CFS-HRS; 14.0 ACRE-FEET.

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.33	5.8	288.10
10.56	1.3	287.46

12.17	69.2	296.98
13.71	27.5	294.71
15.60	1.1	287.44
16.48	2.1	287.57
19.07	2.6	287.64
19.58	2.7	287.65
22.46	16.0	292.45

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.73 WATERSHED INCHES; 169 CFS-HRS; 14.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.37	7.2	(NULL)
12.17	94.0	(NULL)
12.75	67.4	(NULL)
13.75	33.5	(NULL)
15.59	1.6	(NULL)
16.52	2.4	(NULL)
19.07	2.8	(NULL)
19.58	3.1	(NULL)
22.46	22.0	(NULL)
23.80	14.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.91 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 1 JOB NO. 1 PAGE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.29	10.3	(RUNOFF)
11.99	175.1	(RUNOFF)
12.74	90.7	(RUNOFF)
13.58	51.8	(RUNOFF)
14.38	9.0	(RUNOFF)
19.55	4.7	(RUNOFF)
21.83	43.6	(RUNOFF)
22.26	47.1	(RUNOFF)
23.25	16.8	(RUNOFF)
23.76	19.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 284 CFS-HRS; 23.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.30	16.8	(NULL)
12.03	258.8	(NULL)
12.73	158.1	(NULL)
13.61	82.4	(NULL)
19.05	7.4	(NULL)
19.56	7.7	(NULL)

21.85	57.8	(NULL)
22.27	68.0	(NULL)
23.10	32.7	(NULL)
23.76	33.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 501 CFS-HRS; 41.4 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.52	11.4	247.82
10.76	2.2	247.44
12.23	219.1	249.12
13.82	78.6	248.57
16.69	5.1	247.67
19.26	4.7	247.64
19.77	6.0	247.74
20.44	2.3	247.45
22.46	60.7	248.42
23.92	31.8	248.12

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 1 JOB NO. 1 PAGE 33

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.76 WATERSHED INCHES; 501 CFS-HRS; 41.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.23	3.4	(RUNOFF)
11.97	31.1	(RUNOFF)
12.69	15.0	(RUNOFF)
13.50	9.1	(RUNOFF)
14.29	1.5	(RUNOFF)
21.75	7.8	(RUNOFF)
22.23	8.1	(RUNOFF)
23.73	3.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.40 WATERSHED INCHES; 49 CFS-HRS; 4.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.23	3.4	(NULL)
11.97	31.1	(NULL)
12.69	15.0	(NULL)
13.50	9.1	(NULL)
14.29	1.5	(NULL)
21.75	7.8	(NULL)
22.23	8.1	(NULL)
23.73	3.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.40 WATERSHED INCHES; 49 CFS-HRS; 4.1 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.31	3.4	247.53
12.03	30.8	248.11
12.76	15.0	247.88
13.58	8.9	247.79
14.41	1.5	247.34
21.83	7.6	247.77
22.30	7.9	247.77
23.79	3.2	247.52

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.39 WATERSHED INCHES; 49 CFS-HRS; 4.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	199.7	(RUNOFF)
12.74	112.2	(RUNOFF)
13.56	66.7	(RUNOFF)
14.44	11.5	(RUNOFF)
19.02	6.1	(RUNOFF)
19.54	6.3	(RUNOFF)
21.80	57.8	(RUNOFF)
22.25	61.8	(RUNOFF)
23.23	21.9	(RUNOFF)
23.75	25.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.59 WATERSHED INCHES; 326 CFS-HRS; 26.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.65	20.5	(NULL)
5.64	13.6	(NULL)
7.43	11.5	(NULL)
8.68	86.9	(NULL)
12.34	1898.4	(NULL)
13.85	560.4	(NULL)
16.81	33.9	(NULL)
19.88	41.8	(NULL)
22.52	526.7	(NULL)
23.74	232.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.67 WATERSHED INCHES; 4158 CFS-HRS; 343.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 75
1
TR20 ---------- SCS -

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.50	11.8	(NULL)
10.74	2.3	(NULL)
12.20	232.3	(NULL)
13.78	85.4	(NULL)
16.65	5.4	(NULL)
19.25	4.9	(NULL)
19.75	6.3	(NULL)
20.38	2.4	(NULL)
22.41	65.3	(NULL)
23.84	34.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.81 WATERSHED INCHES; 550 CFS-HRS; 45.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.65	20.8	(NULL)
5.64	14.4	(NULL)
8.67	95.6	(NULL)
10.92	17.5	(NULL)
12.32	2113.6	(NULL)
13.83	645.4	(NULL)
16.78	38.5	(NULL)
19.85	47.6	(NULL)
22.49	589.9	(NULL)
23.76	265.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.69 WATERSHED INCHES; 4707 CFS-HRS; 389.0 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. ***

OPERATION REACH XSECTION 77
1
TR20 ---------- SCS -

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.65	20.8	226.64
5.64	14.4	226.54
8.67	95.6	227.49
10.92	17.5	226.59
12.32	2113.6	231.63
13.83	645.4	229.68
16.78	38.5	226.93
19.85	47.6	227.04
22.49	589.9	229.56
23.76	265.8	228.53

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

5.69 WATERSHED INCHES; 4707 CFS-HRS; 389.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	102.2	(RUNOFF)
12.73	55.3	(RUNOFF)
13.55	32.7	(RUNOFF)
14.44	5.6	(RUNOFF)
19.02	3.0	(RUNOFF)
19.53	3.1	(RUNOFF)
21.80	28.2	(RUNOFF)
22.25	30.0	(RUNOFF)
23.22	10.5	(RUNOFF)
23.75	12.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.00 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.65	20.8	(NULL)
5.64	14.4	(NULL)
8.67	95.7	(NULL)
10.92	17.5	(NULL)
12.33	2147.7	(NULL)
13.78	669.7	(NULL)
16.77	38.7	(NULL)
19.84	48.5	(NULL)
22.43	602.6	(NULL)
23.75	278.2	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 4872 CFS-HRS; 402.6 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.73	20.4	211.07
5.71	14.3	210.97
7.51	12.6	210.93
8.74	94.4	211.83
12.40	2143.7	218.58
16.84	38.5	211.32
18.23	11.3	210.90
19.91	48.3	211.43
22.53	602.4	213.80
23.82	277.6	212.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 4868 CFS-HRS; 402.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
8.26	7.2	(RUNOFF)
11.97	117.3	(RUNOFF)
12.71	60.1	(RUNOFF)
13.53	36.1	(RUNOFF)
14.36	6.0	(RUNOFF)
19.51	3.4	(RUNOFF)
21.77	31.0	(RUNOFF)
22.24	32.4	(RUNOFF)
23.20	11.1	(RUNOFF)
23.74	13.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.60 WATERSHED INCHES; 185 CFS-HRS; 15.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 1 JOB NO. 1 PAGE 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.73	20.4	(NULL)
5.72	14.4	(NULL)
7.51	13.0	(NULL)
8.74	94.4	(NULL)
12.41	2194.9	(NULL)
16.84	38.6	(NULL)
18.23	11.3	(NULL)
19.89	48.7	(NULL)
22.50	613.0	(NULL)
23.78	289.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.66 WATERSHED INCHES; 5053 CFS-HRS; 417.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	57.5	(RUNOFF)
12.72	32.1	(RUNOFF)
13.55	19.3	(RUNOFF)
14.43	3.3	(RUNOFF)
19.01	1.8	(RUNOFF)
19.53	1.8	(RUNOFF)
21.79	16.8	(RUNOFF)
22.25	17.8	(RUNOFF)
23.21	6.2	(RUNOFF)
23.74	7.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.59 WATERSHED INCHES; 93 CFS-HRS; 7.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

1.73	20.4	(NULL)
5.72	14.4	(NULL)
7.51	13.0	(NULL)
8.74	94.4	(NULL)
12.42	2221.2	(NULL)
16.84	38.6	(NULL)
18.23	11.3	(NULL)
19.87	49.1	(NULL)
22.46	620.8	(NULL)
23.77	296.6	(NULL)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.63 WATERSHED INCHES; 5146 CFS-HRS; 425.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	217.8	(RUNOFF)
12.77	124.2	(RUNOFF)
13.65	67.9	(RUNOFF)
16.51	4.8	(RUNOFF)
19.09	5.6	(RUNOFF)
19.60	5.9	(RUNOFF)
21.91	56.4	(RUNOFF)
22.30	64.3	(RUNOFF)
23.27	23.9	(RUNOFF)
23.79	26.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.91 WATERSHED INCHES; 376 CFS-HRS; 31.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.73	20.4	(NULL)
5.72	14.4	(NULL)
7.51	13.0	(NULL)
8.74	94.8	(NULL)
12.42	2321.0	(NULL)
16.77	40.0	(NULL)
18.22	11.5	(NULL)
19.62	54.7	(NULL)
22.40	677.0	(NULL)
23.78	322.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.58 WATERSHED INCHES; 5523 CFS-HRS; 456.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.24	1.3	(RUNOFF)
8.25	5.3	(RUNOFF)
11.97	42.4	(RUNOFF)
12.69	20.4	(RUNOFF)
13.51	12.1	(RUNOFF)
14.33	2.0	(RUNOFF)
21.76	10.3	(RUNOFF)
22.23	10.7	(RUNOFF)
23.19	3.6	(RUNOFF)
23.73	4.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.63 WATERSHED INCHES; 68 CFS-HRS; 5.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.73	20.4	(NULL)
5.72	14.7	(NULL)
7.51	13.3	(NULL)
8.74	94.8	(NULL)
12.43	2339.7	(NULL)
16.77	40.0	(NULL)
18.22	11.5	(NULL)
19.61	55.4	(NULL)
22.39	682.1	(NULL)
23.77	326.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.59 WATERSHED INCHES; 5591 CFS-HRS; 462.0 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 88
STARTING TIME = .00 RAIN DEPTH = 5.70 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS
ALTERNATE NO. = 1 STORM NO. = 6 RAIN TABLE NO. = 6

OPERATION RUNOFF XSECTION 1
1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	55.5	(RUNOFF)
1.79	35.9	(RUNOFF)
2.72	19.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.17	55.1	390.35
1.86	35.8	390.12
2.79	19.0	389.84

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	102.7	(RUNOFF)
1.79	63.8	(RUNOFF)
2.70	34.0	(RUNOFF)
5.11	1.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.56 WATERSHED INCHES; 133 CFS-HRS; 11.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	155.1	(NULL)
1.80	99.1	(NULL)
2.73	52.5	(NULL)
5.13	2.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.52 WATERSHED INCHES; 208 CFS-HRS; 17.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11
1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	155.1	(NULL)
1.80	99.1	(NULL)
2.73	52.5	(NULL)
5.13	2.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.52 WATERSHED INCHES; 208 CFS-HRS; 17.2 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.17	154.7	368.54
1.87	99.0	368.21
2.80	52.3	367.80
5.20	2.0	366.29

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.52 WATERSHED INCHES; 208 CFS-HRS; 17.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	118.9	(RUNOFF)
1.79	80.5	(RUNOFF)
2.71	43.7	(RUNOFF)
5.12	1.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.15 WATERSHED INCHES; 162 CFS-HRS; 13.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.14	270.1	(NULL)
1.83	178.7	(NULL)
2.76	95.1	(NULL)
5.16	3.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.35 WATERSHED INCHES; 370 CFS-HRS; 30.6 ACRE-FEET.

OPERATION REACH XSECTION 8

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 2 JOB NO. 1 PAGE 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.20	269.1	358.07
1.90	178.5	357.66
2.83	94.9	357.17
5.22	3.6	356.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.35 WATERSHED INCHES; 370 CFS-HRS; 30.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	159.5	(RUNOFF)
1.78	89.9	(RUNOFF)
2.73	45.8	(RUNOFF)
5.13	1.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.40 WATERSHED INCHES; 209 CFS-HRS; 17.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	159.5	(NULL)
1.78	89.9	(NULL)
2.73	45.8	(NULL)
5.13	1.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.40 WATERSHED INCHES; 209 CFS-HRS; 17.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	15.5	(RUNOFF)
1.71	9.6	(RUNOFF)
2.50	6.1	(RUNOFF)
3.45	1.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.77 WATERSHED INCHES; 17 CFS-HRS; 1.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	159.5	(NULL)
1.78	89.9	(NULL)
2.73	45.8	(NULL)
5.13	1.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.40 WATERSHED INCHES; 209 CFS-HRS; 17.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.01	99.6	(RUNOFF)
1.74	59.9	(RUNOFF)
2.57	35.2	(RUNOFF)
3.47	6.2	(RUNOFF)
5.03	1.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.16 WATERSHED INCHES; 116 CFS-HRS; 9.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.12	332.7	(NULL)
1.81	233.1	(NULL)
2.78	122.6	(NULL)
5.13	4.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.30 WATERSHED INCHES; 486 CFS-HRS; 40.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	36.0	(RUNOFF)

1.74	21.1	(RUNOFF)
2.59	12.1	(RUNOFF)
3.47	2.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.41 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 2 JOB NO. 1 PAGE 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	491.7	(NULL)
1.80	322.9	(NULL)
2.77	167.8	(NULL)
5.13	6.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.57 WATERSHED INCHES; 695 CFS-HRS; 57.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	524.7	(NULL)
1.79	343.9	(NULL)
2.76	178.3	(NULL)
5.11	6.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.56 WATERSHED INCHES; 737 CFS-HRS; 60.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	524.7	(NULL)
1.79	343.9	(NULL)
2.76	178.3	(NULL)
5.11	6.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.56 WATERSHED INCHES; 737 CFS-HRS; 60.9 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. ***

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.10	524.7	334.74
1.79	343.9	333.77
2.76	178.3	332.75
5.11	6.4	331.16

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.56 WATERSHED INCHES; 737 CFS-HRS; 60.9 ACRE-FEET.

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 2 JOB NO. 1 PAGE 46

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.98	51.9	(RUNOFF)
1.71	26.6	(RUNOFF)
2.53	15.7	(RUNOFF)
3.46	2.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.32 WATERSHED INCHES; 59 CFS-HRS; 4.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 18

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.00	81.6	(RUNOFF)
1.73	40.2	(RUNOFF)
2.60	22.0	(RUNOFF)
3.47	3.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.76 WATERSHED INCHES; 96 CFS-HRS; 7.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	97.1	(RUNOFF)
1.71	50.4	(RUNOFF)
2.53	29.7	(RUNOFF)
3.46	5.0	(RUNOFF)
5.01	1.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.21 WATERSHED INCHES; 110 CFS-HRS; 9.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	134.3	(NULL)
1.72	66.8	(NULL)
2.57	37.1	(NULL)
3.46	6.5	(NULL)
5.03	1.7	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 2 JOB NO. 1 PAGE 47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.58 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	233.0	(NULL)
1.72	117.1	(NULL)
2.55	66.7	(NULL)
3.46	11.5	(NULL)
5.02	3.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.42 WATERSHED INCHES; 265 CFS-HRS; 21.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.04	732.6	(NULL)
1.77	459.5	(NULL)
2.74	233.7	(NULL)
5.05	9.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.75 WATERSHED INCHES; 1002 CFS-HRS; 82.8 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.15	694.6	316.82
1.85	453.5	316.31
2.83	228.1	315.66
5.15	8.5	313.92

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.75 WATERSHED INCHES; 1002 CFS-HRS; 82.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.07	79.9	(RUNOFF)
1.78	52.0	(RUNOFF)
2.67	28.6	(RUNOFF)
5.09	1.2	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.18 WATERSHED INCHES; 103 CFS-HRS; 8.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.07	79.9	(NULL)
1.78	52.0	(NULL)
2.67	28.6	(NULL)
5.09	1.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.18 WATERSHED INCHES; 103 CFS-HRS; 8.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	113.4	(RUNOFF)
1.78	75.5	(RUNOFF)
2.68	41.4	(RUNOFF)
5.10	1.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.12 WATERSHED INCHES; 150 CFS-HRS; 12.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.08	193.3	(NULL)
1.78	127.5	(NULL)
2.67	69.9	(NULL)
5.10	2.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.14 WATERSHED INCHES; 254 CFS-HRS; 21.0 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.18	183.6	319.18
1.87	125.5	318.91
2.80	67.6	318.44
5.19	2.6	316.49

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.14 WATERSHED INCHES; 254 CFS-HRS; 21.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.06	100.1	(RUNOFF)
1.78	63.1	(RUNOFF)
2.66	34.6	(RUNOFF)
5.08	1.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.28 WATERSHED INCHES; 127 CFS-HRS; 10.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	786.4	(NULL)

1.83	515.1	(NULL)
2.81	259.2	(NULL)
5.13	9.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.69 WATERSHED INCHES; 1129 CFS-HRS; 93.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.14	967.3	(NULL)
1.84	640.1	(NULL)
2.81	326.8	(NULL)
5.15	12.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.58 WATERSHED INCHES; 1383 CFS-HRS; 114.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	157.9	(RUNOFF)
1.75	84.1	(RUNOFF)
2.61	46.2	(RUNOFF)
3.46	8.4	(RUNOFF)
5.06	2.0	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.19 WATERSHED INCHES; 187 CFS-HRS; 15.5 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	152.7	313.29
1.84	83.3	312.50
2.74	43.7	311.79
5.15	1.8	310.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.19 WATERSHED INCHES; 187 CFS-HRS; 15.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.96	23.3	(RUNOFF)
1.72	11.1	(RUNOFF)
2.55	6.3	(RUNOFF)
3.46	1.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.11 WATERSHED INCHES; 28 CFS-HRS; 2.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.96	23.3	(NULL)
1.72	11.1	(NULL)
2.55	6.3	(NULL)
3.46	1.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.11 WATERSHED INCHES; 28 CFS-HRS; 2.3 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. ***

OPERATION REACH XSECTION 34

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.96	23.3	338.25
1.72	11.1	338.15
2.55	6.3	338.11
3.46	1.1	338.02

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.11 WATERSHED INCHES; 28 CFS-HRS; 2.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	75.8	(RUNOFF)
1.73	36.1	(RUNOFF)
2.59	19.8	(RUNOFF)
3.47	3.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.10 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	75.8	(NULL)
1.73	36.1	(NULL)
2.59	19.8	(NULL)
3.47	3.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.10 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	99.4	(NULL)
1.72	47.2	(NULL)
2.58	26.0	(NULL)

3.47	4.6	(NULL)
5.04	1.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.10 WATERSHED INCHES; 118 CFS-HRS; 9.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	99.4	(NULL)
1.72	47.2	(NULL)
2.58	26.0	(NULL)
3.47	4.6	(NULL)
5.04	1.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.10 WATERSHED INCHES; 118 CFS-HRS; 9.8 ACRE-FEET.

*** WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. ***

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	99.4	330.77
1.72	47.2	330.50
2.58	26.0	330.34
3.47	4.6	330.08
5.04	1.1	330.02

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.10 WATERSHED INCHES; 118 CFS-HRS; 9.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 38

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	77.8	(RUNOFF)
1.72	40.3	(RUNOFF)
2.55	23.5	(RUNOFF)
3.46	4.0	(RUNOFF)
5.02	1.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.13 WATERSHED INCHES; 88 CFS-HRS; 7.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 39

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	177.2	(NULL)
1.72	87.5	(NULL)
2.57	49.2	(NULL)
3.47	8.6	(NULL)
5.03	2.2	(NULL)

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1
 TR20 ---------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 07/08/**         EXISTING COND.- Tropical Storm Lee (6,24hr)           2.04TEST
 08:05:38                    PASS   2   JOB NO.   1                     PAGE  53


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.64 WATERSHED INCHES;     206 CFS-HRS;      17.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  40

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        1.06                          80.8                       (RUNOFF)
        1.78                          46.2                       (RUNOFF)
        2.68                          24.3                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  4.03 WATERSHED INCHES;     102 CFS-HRS;       8.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  41

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        1.14                         1043.5                       (NULL)
        1.84                          685.7                       (NULL)
        2.80                          349.7                       (NULL)
        5.14                           13.2                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.60 WATERSHED INCHES;    1485 CFS-HRS;     122.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  42

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        1.13                         1195.6                       (NULL)
        1.84                          769.0                       (NULL)
        2.79                          392.8                       (NULL)
        5.15                           15.0                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.66 WATERSHED INCHES;    1672 CFS-HRS;     138.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  43

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
        1.10                         1328.7                       (NULL)
        1.80                          850.1                       (NULL)
        2.77                          431.9                       (NULL)
        5.12                           16.4                       (NULL)
1
 TR20 ---------------------------------------------------------------------- SCS -
            Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 07/08/**         EXISTING COND.- Tropical Storm Lee (6,24hr)           2.04TEST
 08:05:38                    PASS   2   JOB NO.   1                     PAGE  54


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.75 WATERSHED INCHES;    1878 CFS-HRS;     155.2 ACRE-FEET.
```

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.20	1289.1	291.64
1.89	844.1	291.03
2.86	426.6	290.30
5.21	15.8	288.57

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.75 WATERSHED INCHES; 1878 CFS-HRS; 155.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.11	68.8	(RUNOFF)
1.80	47.6	(RUNOFF)
2.72	25.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.12 WATERSHED INCHES; 96 CFS-HRS; 7.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	80.8	(RUNOFF)
1.81	59.4	(RUNOFF)
2.74	32.4	(RUNOFF)
5.14	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.91 WATERSHED INCHES; 118 CFS-HRS; 9.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.12	149.5	(NULL)
1.80	107.0	(NULL)
2.73	58.1	(NULL)
5.13	2.3	(NULL)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
08:05:38 PASS 2 JOB NO. 1 PAGE 55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.00 WATERSHED INCHES; 214 CFS-HRS; 17.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	87.8	(RUNOFF)
1.74	51.5	(RUNOFF)
2.59	29.4	(RUNOFF)
3.47	5.3	(RUNOFF)
5.05	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.43 WATERSHED INCHES; 104 CFS-HRS; 8.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.19	1343.4	(NULL)
1.86	889.9	(NULL)
2.84	447.2	(NULL)
5.19	16.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.73 WATERSHED INCHES; 1982 CFS-HRS; 163.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.18	1486.9	(NULL)
1.85	996.2	(NULL)
2.83	502.6	(NULL)
5.18	18.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.64 WATERSHED INCHES; 2195 CFS-HRS; 181.4 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.27	1456.5	286.79
1.92	992.6	285.96
2.92	497.4	284.79
5.26	18.2	282.07

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.64 WATERSHED INCHES; 2195 CFS-HRS; 181.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	19.5	(RUNOFF)
1.72	10.4	(RUNOFF)
2.53	6.2	(RUNOFF)
3.46	1.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.83 WATERSHED INCHES; 21 CFS-HRS; 1.8 ACRE-FEET.

OPERATION REACH XSECTION 53

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.05	19.5	288.71
1.78	10.4	288.53

2.59	6.2	288.34
3.52	1.0	288.06

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.83 WATERSHED INCHES; 21 CFS-HRS; 1.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	15.1	(RUNOFF)
1.74	8.4	(RUNOFF)
2.60	4.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.82 WATERSHED INCHES; 18 CFS-HRS; 1.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.03	50.7	(RUNOFF)
1.75	32.2	(RUNOFF)
2.59	18.8	(RUNOFF)
3.47	3.4	(RUNOFF)

1
TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.95 WATERSHED INCHES; 61 CFS-HRS; 5.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.27	1479.9	(NULL)
1.90	1018.6	(NULL)
2.90	507.3	(NULL)
5.25	18.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.62 WATERSHED INCHES; 2257 CFS-HRS; 186.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.03	34.2	(NULL)
1.76	18.7	(NULL)
2.59	10.9	(NULL)
3.49	1.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.82 WATERSHED INCHES; 39 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

1.26	1493.8	(NULL)
1.88	1034.0	(NULL)
2.89	513.9	(NULL)
5.24	18.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.62 WATERSHED INCHES; 2296 CFS-HRS; 189.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.04	39.4	(RUNOFF)
1.76	25.8	(RUNOFF)
2.60	15.0	(RUNOFF)
3.47	2.8	(RUNOFF)

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.83 WATERSHED INCHES; 49 CFS-HRS; 4.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.26	1513.5	(NULL)
1.85	1057.8	(NULL)
2.88	523.7	(NULL)
5.23	18.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.60 WATERSHED INCHES; 2345 CFS-HRS; 193.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.06	24.8	(RUNOFF)
1.77	16.6	(RUNOFF)
2.64	9.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.81 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.25	1528.1	(NULL)
1.84	1073.9	(NULL)
2.87	530.8	(NULL)
5.22	19.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.59 WATERSHED INCHES; 2376 CFS-HRS; 196.3 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.37	1485.0	250.97
2.97	522.7	249.75
5.26	19.0	247.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.59 WATERSHED INCHES; 2376 CFS-HRS; 196.3 ACRE-FEET.

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OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	22.1	(RUNOFF)
1.79	13.4	(RUNOFF)
2.78	6.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.13	22.1	(NULL)
1.79	13.4	(NULL)
2.78	6.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.21	21.8	300.98
1.87	13.3	300.77
2.87	6.5	300.54

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.35 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.02	88.8	(RUNOFF)
1.74	51.1	(RUNOFF)
2.59	29.3	(RUNOFF)
3.47	5.2	(RUNOFF)
5.04	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.51 WATERSHED INCHES; 104 CFS-HRS; 8.6 ACRE-FEET.

*** WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE
TIME INCREMENT OF .043 HOURS. ***

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*** WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES
FIRST NEGATIVE VALUE IS 0 CFS. ***

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.21	49.4	295.92
1.84	47.5	295.84
2.73	26.2	294.67
5.06	1.3	287.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.51 WATERSHED INCHES; 104 CFS-HRS; 8.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.21	71.3	(NULL)
1.84	60.8	(NULL)
2.76	32.3	(NULL)
5.07	1.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.67 WATERSHED INCHES; 135 CFS-HRS; 11.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.01	149.5	(RUNOFF)
1.74	86.3	(RUNOFF)
2.58	49.9	(RUNOFF)
3.47	8.8	(RUNOFF)
5.03	2.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 174 CFS-HRS; 14.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.04	205.8	(NULL)
1.76	146.2	(NULL)
2.61	79.2	(NULL)
5.04	3.7	(NULL)

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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

3.55 WATERSHED INCHES; 308 CFS-HRS; 25.5 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.28	157.8	248.95
1.92	142.2	248.88
2.83	75.6	248.55
5.15	3.6	247.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.55 WATERSHED INCHES; 308 CFS-HRS; 25.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.96	28.2	(RUNOFF)
1.71	14.8	(RUNOFF)
2.50	9.1	(RUNOFF)
3.45	1.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.96	28.2	(NULL)
1.71	14.8	(NULL)
2.50	9.1	(NULL)
3.45	1.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.09 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.04	27.9	248.08
1.77	14.7	247.87
2.58	8.8	247.78
3.51	1.5	247.34

1

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.10 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.01	155.2	(RUNOFF)
1.74	102.2	(RUNOFF)
2.56	62.2	(RUNOFF)

3.47	11.0	(RUNOFF)
5.02	2.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.59 WATERSHED INCHES; 184 CFS-HRS; 15.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.38	1554.2	(NULL)
2.89	542.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.49 WATERSHED INCHES; 2560 CFS-HRS; 211.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.25	167.3	(NULL)
1.84	155.1	(NULL)
2.79	82.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.59 WATERSHED INCHES; 340 CFS-HRS; 28.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.38	1714.3	(NULL)
2.87	623.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 2900 CFS-HRS; 239.6 ACRE-FEET.

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OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.44	1714.2	231.26
2.93	623.4	229.63

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.50 WATERSHED INCHES; 2900 CFS-HRS; 239.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.00	83.2	(RUNOFF)
1.73	51.4	(RUNOFF)
2.55	30.9	(RUNOFF)
3.47	5.4	(RUNOFF)
5.02	1.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.91 WATERSHED INCHES; 96 CFS-HRS; 7.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.44	1756.9	(NULL)
2.88	636.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.48 WATERSHED INCHES; 2995 CFS-HRS; 247.5 ACRE-FEET.

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.51	1751.8	217.57
2.94	635.9	213.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.48 WATERSHED INCHES; 2996 CFS-HRS; 247.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 81
1
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.99	102.1	(RUNOFF)
1.72	57.3	(RUNOFF)
2.53	34.8	(RUNOFF)
3.46	5.8	(RUNOFF)
5.01	1.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.40 WATERSHED INCHES; 113 CFS-HRS; 9.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.52	1805.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.48 WATERSHED INCHES; 3108 CFS-HRS; 256.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.00	45.2	(RUNOFF)
1.73	29.3	(RUNOFF)
2.55	18.1	(RUNOFF)
3.46	3.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.60 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.52	1832.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.46 WATERSHED INCHES; 3161 CFS-HRS; 261.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.07	167.1	(RUNOFF)
1.78	114.2	(RUNOFF)
2.66	64.2	(RUNOFF)
5.08	2.7	(RUNOFF)

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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.85 WATERSHED INCHES; 218 CFS-HRS; 18.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.52	1929.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.41 WATERSHED INCHES; 3379 CFS-HRS; 279.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
.97	39.1	(RUNOFF)
1.71	20.1	(RUNOFF)
2.51	12.1	(RUNOFF)
3.45	2.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
4.30 WATERSHED INCHES; 44 CFS-HRS; 3.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
1.53	1949.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.42 WATERSHED INCHES; 3423 CFS-HRS; 282.9 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2
1
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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 8.11 inches AND 23.80 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 5, ARC 2							
MAIN TIME INCREMENT .060 HOURS							
ALTERNATE 1 STORM 24							
STRUCTURE 11	RESVOR	.09	5.74	---	12.07	191	2122.2
XSECTION 8	REACH	.17	5.53	358.32	12.16	338	1988.2
STRUCTURE 21	RESVOR	.07	6.73	---	12.05	177	2528.6
STRUCTURE 22	RESVOR	.07	6.73	---	12.05	177	2528.6
STRUCTURE 23	RESVOR	.32	5.77	---	12.06	652	2037.5
XSECTION 23	REACH	.41	5.99	317.13	12.19	846	2063.4
STRUCTURE 31	RESVOR	.05	5.32	---	12.04	100	2000.0
STRUCTURE 32	RESVOR	.01	7.50	---	11.91	24	2400.0
STRUCTURE 33	RESVOR	.03	7.50	---	11.97	77	2566.7
STRUCTURE 34	RESVOR	.04	7.50	---	11.97	101	2525.0
XSECTION 44	REACH	.78	5.98	291.94	12.19	1539	1973.1
XSECTION 51	REACH	.93	5.86	287.27	12.25	1767	1900.0
XSECTION 63	REACH	1.03	5.79	251.30	12.33	1827	1773.8
STRUCTURE 61	RESVOR	.01	6.68	---	12.10	25	2500.0
STRUCTURE 62	RESVOR	.05	5.73	296.98	12.17	69	1380.0
STRUCTURE 63	RESVOR	.01	6.40	---	11.97	31	3100.0
XSECTION 77	REACH	1.28	5.69	231.63	12.32	2114	1651.6
XSECTION 88	ADDHYD	1.55	5.59	---	12.43	2340	1509.7
RAINFALL OF 5.70 inches AND 5.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 6, ARC 2							
ALTERNATE 1 STORM 6							
STRUCTURE 11	RESVOR	.09	3.52	---	1.11	155	1722.2
XSECTION 8	REACH	.17	3.35	358.07	1.20	269	1582.4
STRUCTURE 21	RESVOR	.07	4.40	---	1.08	159	2271.4
STRUCTURE 22	RESVOR	.07	4.40	---	1.08	159	2271.4
STRUCTURE 23	RESVOR	.32	3.56	---	1.10	525	1640.6

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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:

F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 1 STORM 6							
XSECTION 23	REACH	.41	3.75	316.82	1.15	695	1695.1
STRUCTURE 31	RESVOR	.05	3.18	---	1.07	80	1600.0
STRUCTURE 32	RESVOR	.01	5.11	---	.96	23	2300.0
STRUCTURE 33	RESVOR	.03	5.10	---	.99	76	2533.3
STRUCTURE 34	RESVOR	.04	5.10	---	.99	99	2475.0
XSECTION 44	REACH	.78	3.75	291.64	1.20	1289	1652.6
XSECTION 51	REACH	.93	3.64	286.79	1.27	1457	1566.7
XSECTION 63	REACH	1.03	3.59	250.97	1.37	1485	1441.7
STRUCTURE 61	RESVOR	.01	4.35	---	1.13	22	2200.0
STRUCTURE 62	RESVOR	.05	3.51	295.92	1.21	49	980.0
STRUCTURE 63	RESVOR	.01	4.09	---	.96	28	2800.0
XSECTION 77	REACH	1.28	3.50	231.26	1.44	1714	1339.1
XSECTION 88	ADDHYD	1.55	3.42	---	1.53	1949	1257.4

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SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFLOW PEAK (CFS)	HYDROGRAPH INFLOW TIME (HR)	HYDROGRAPH OUTFLOW PEAK (CFS)	HYDROGRAPH OUTFLOW TIME (HR)	ROUTING PARAMETERS Q-A EQ. COEFF (X)	Q-A EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
BASEFLOW IS .0 CFS											
ALTERNATE 1 STORM 24											
2	1170		68	12.1	68	12.1	.30	2.00	.002	.997	.91?
5	797		190	12.1	190	12.1	1.88	1.27	.009	.997	.93?
8	1221		338	12.1	338	12.2	1.29	1.44	.006	.999	.94?
16	920		652	12.1	652	12.1	4.36	1.41	.001	1.000	1.00?
23	1379		878	12.1	846	12.2	.78	1.25	.034	.964	.47
27	1021		244	12.1	238	12.1	.52	1.38	.019	.974	.59
32	1603		174	12.0	170	12.1	1.37	1.31	.027	.975	.54
34	583		24	11.9	24	11.9	1.14	1.62	.003	1.000	1.00?
37	934		101	12.0	101	12.0	2.40	1.52	.002	1.000	1.00?
44	1428		1565	12.1	1538	12.2	.26	1.46	.013	.983	.61

51	1275	1787	12.2	1766	12.2	.43	1.38	.013	.988	.66
53	652	21	12.0	21	12.1	2.05	1.40	.007	1.000	.96?
63	1959	1857	12.2	1821	12.3	.37	1.44	.015	.981	.56
65	1283	25	12.1	25	12.2	2.51	1.37	.012	.992	.70?
70	2166	256	12.1	219	12.2	1.38	1.13	.091	.855	.25
72	1081	30	12.0	30	12.1	1.66	1.42	.013	.998	.72?
77	884	2112	12.3	2112	12.3	1.75	1.24	.006	1.000	1.00?
80	1296	2145	12.3	2142	12.4	5.17	1.06	.018	.999	.77?

ALTERNATE 1 STORM 6

2	1170	55	1.1	55	1.1	.26	2.00	.004	.988	.82?
5	797	154	1.1	154	1.2	1.93	1.26	.014	.996	.90?
8	1221	270	1.1	269	1.2	1.28	1.44	.009	.997	.91?
16	920	524	1.1	524	1.1	4.13	1.43	.001	1.000	1.00?
23	1379	728	1.0	694	1.1	.59	1.31	.040	.954	.50
27	1021	193	1.1	183	1.2	.69	1.30	.039	.945	.52
32	1603	158	1.0	152	1.1	1.36	1.31	.043	.960	.54
34	583	23	1.0	23	1.0	1.14	1.62	.005	1.000	1.00?

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SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.
QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;
LENGTH FACTOR - VALUE K* GREATER THAN 1.0;
ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

			HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
		FLOOD	INFLOW		OUTFLOW		Q-A EQ.			PEAK	ATT-
XSEC ID	REACH LENGTH (FT)	PLAIN LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)	LENGTH FACTOR (k*)	RATIO Q/I (Q*)	KIN COEFF (C)

ALTERNATE 1 STORM 6

37	934	98	1.0	98	1.0	2.40	1.52	.004	1.000	1.00?
44	1428	1322	1.1	1289	1.2	.26	1.46	.022	.975	.59
51	1275	1482	1.2	1456	1.3	.43	1.37	.021	.982	.63
53	652	19	1.0	19	1.1	2.05	1.40	.012	.999	.95?
63	1959	1528	1.3	1484	1.4	.38	1.43	.025	.971	.53
65	1283	22	1.1	22	1.2	2.50	1.38	.019	.986	.69?
70	2166	204	1.0	157	1.3	1.82	1.06	.153	.773	.22
72	1081	28	1.0	28	1.0	1.66	1.42	.023	.988	.71?
77	884	1714	1.4	1714	1.4	1.84	1.23	.009	1.000	.99?
80	1296	1757	1.4	1751	1.5	4.31	1.11	.018	.997	.84?

1

TR20 ---------- SCS -
Ellicott City Flood Study- All Combined SAs- No MGMT VERSION
07/08/** EXISTING COND.- Tropical Storm Lee (6,24hr) 2.04TEST
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SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 6	24
STRUCTURE 63		.01		
ALTERNATE	1		28	31
STRUCTURE 62		.05		
ALTERNATE	1		49	69
STRUCTURE 61		.01		
ALTERNATE	1		22	25
STRUCTURE 34		.04		
ALTERNATE	1		99	101
STRUCTURE 33		.03		
ALTERNATE	1		76	77
STRUCTURE 32		.01		
ALTERNATE	1		23	24
STRUCTURE 31		.05		
ALTERNATE	1		80	100
STRUCTURE 23		.32		
ALTERNATE	1		525	652
STRUCTURE 22		.07		
ALTERNATE	1		159	177
STRUCTURE 21		.07		
ALTERNATE	1		159	177
STRUCTURE 11		.09		
ALTERNATE	1		155	191
XSECTION 8		.17		
ALTERNATE	1		269	338
XSECTION 23		.41		
ALTERNATE	1		695	846
XSECTION 44		.78		

```
 ---------------------------
1
 TR20 ------------------------------------------------------------------------ SCS -
             Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 07/08/**         EXISTING COND.- Tropical Storm Lee (6,24hr)           2.04TEST
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                            SUMMARY TABLE 3
                            ---------------
      STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
      QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

 XSECTION/          DRAINAGE
 STRUCTURE            AREA       STORM NUMBERS.....
   ID                (SQ MI)          6        24


 XSECTION   44          .78
 ---------------------------
    ALTERNATE    1                1289      1539

 XSECTION   51          .93
 ---------------------------
    ALTERNATE    1                1457      1767

 XSECTION   63         1.03
 ---------------------------
    ALTERNATE    1                1485      1827

 XSECTION   77         1.28
 ---------------------------
    ALTERNATE    1                1714      2114

 XSECTION   88         1.55
 ---------------------------
    ALTERNATE    1                1949      2340
1
 TR20 ------------------------------------------------------------------------ SCS -
             Ellicott City Flood Study- All Combined SAs- No MGMT       VERSION
 07/08/**         EXISTING COND.- Tropical Storm Lee (6,24hr)           2.04TEST



 END OF  1 JOBS IN THIS RUN
```

```
                    SCS  TR-20,  VERSION 2.04TEST
                                  FILES

     INPUT  = SATOTTSL.DAT                          , GIVEN DATA FILE
     OUTPUT = SATOTTSL.OUT                          , DATED 07/08/**,08:05:38

               FILES GENERATED - DATED 07/08/**,08:05:38
```

NONE!

TOTAL NUMBER OF WARNINGS = 11, MESSAGES = 0

*** TR-20 RUN COMPLETED ***