

Subarea Hydrograph Computation

Title: Design Point 14

Description: 24 Hour
100 Yr

Hydrograph No.: 18
Branch No.: 4

Subarea drainage area (acres): 8.84
Total upstream drainage area (acres): 1.32
Percent impervious area: 30
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 68

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 6.85

Channel routing method: Channel storage

Reach length (ft)= 220
Slope (ft/ft)= .0951
Manning's n= .013

Channel type is circular: Diameter (inches)= 18

		Unit hydrograph				
Time	0.00	0.91	1.82	2.73	3.64	
Discharge	0.0000	1.32	4.40	8.37	13.65	
Time	4.55	5.47	6.38	7.29	8.20	
Discharge	20.69	29.06	36.10	40.95	43.59	
Time	9.11	10.02	10.93	11.84	12.75	
Discharge	44.03	43.59	40.95	37.87	34.34	
Time	13.66	14.58	15.49	16.40	17.31	
Discharge	29.94	24.66	20.25	17.17	14.53	
Time	18.22	20.04	21.86	23.69	25.51	
Discharge	12.33	9.11	6.47	4.71	3.74	
Time	27.33	29.15	30.97	32.80	34.62	
Discharge	2.91	2.20	1.54	0.9687	0.4403	
Time	36.44					
Discharge	0.0000					

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*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious  erv.  erv.  Hydro- Upstream  Hyd.
        Loss Excess Loss Excess graph   Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
10.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
20.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
30.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
40.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
50.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
60.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
70.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
80.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
90.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
100.00 0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
110.00 0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.01
120.00 0.01  0.01  0.00  0.01  0.00    0.01    0.00    0.01
130.00 0.01  0.01  0.00  0.01  0.00    0.02    0.00    0.02
140.00 0.01  0.01  0.00  0.00  0.00    0.02    0.01    0.03
150.00 0.01  0.01  0.00  0.00  0.00    0.03    0.01    0.03
160.00 0.01  0.01  0.00  0.00  0.00    0.03    0.01    0.04
170.00 0.01  0.01  0.00  0.00  0.00    0.03    0.01    0.04
180.00 0.01  0.01  0.00  0.00  0.00    0.04    0.01    0.05
190.00 0.01  0.01  0.00  0.00  0.00    0.04    0.01    0.05
200.00 0.01  0.01  0.00  0.00  0.00    0.04    0.01    0.06
210.00 0.01  0.01  0.00  0.00  0.00    0.05    0.01    0.06
220.00 0.01  0.01  0.00  0.01  0.01    0.05    0.01    0.07
230.00 0.02  0.02  0.00  0.01  0.01    0.09    0.02    0.12
240.00 0.02  0.02  0.00  0.01  0.01    0.14    0.04    0.18
250.00 0.02  0.02  0.00  0.01  0.01    0.19    0.05    0.24
260.00 0.02  0.02  0.00  0.01  0.01    0.21    0.06    0.27
270.00 0.02  0.02  0.00  0.01  0.01    0.23    0.06    0.29
280.00 0.02  0.02  0.00  0.01  0.02    0.24    0.06    0.30
290.00 0.03  0.03  0.00  0.01  0.03    0.25    0.07    0.32
300.00 0.04  0.04  0.00  0.01  0.04    0.38    0.10    0.48
310.00 0.07  0.07  0.00  0.01  0.06    0.55    0.15    0.69
320.00 0.48  0.48  0.00  0.03  0.44    0.93    0.25    1.18
330.00 0.88  0.76  0.12  0.02  0.86    5.99    1.62    7.61
340.00 0.88  0.55  0.33  0.01  0.87   16.23    3.74   19.98
350.00 0.48  0.24  0.24  0.00  0.47   24.88    4.82   29.69
360.00 0.07  0.03  0.04  0.00  0.07   18.62    3.31   21.93
370.00 0.07  0.03  0.04  0.00  0.07    5.92    0.98    6.91
380.00 0.06  0.03  0.03  0.00  0.06    3.22    0.54    3.76
390.00 0.04  0.02  0.02  0.00  0.04    2.31    0.39    2.71
400.00 0.04  0.02  0.02  0.00  0.04    1.79    0.30    2.10
410.00 0.04  0.02  0.02  0.00  0.04    1.69    0.29    1.98
420.00 0.03  0.01  0.02  0.00  0.03    1.46    0.25    1.70
430.00 0.03  0.01  0.02  0.00  0.03    1.19    0.20    1.39
440.00 0.03  0.01  0.02  0.00  0.03    1.14    0.19    1.33
*****
Totals 3.53  2.61  0.92  0.23  3.30

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Runoff volume= 1.204545 acre-ft
 Total volume= 1.445585 acre-ft
 Peak discharge (cfs)= 29.69464

Subarea Hydrograph Computation

Title: Design Point 15

Description: 24 Hour
100 Yr

Hydrograph No.: 19
Branch No.: 4

Subarea drainage area (acres): 2.75
Total upstream drainage area (acres): 10.16
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 68

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 8.5

Channel routing method: Channel storage

Reach length (ft)= 235
Slope (ft/ft)= .005
Manning's n= .016

Channel type is trapezoidal: Bottom width (ft)= 0
Sideslope (H to 1V)= 25

Unit hydrograph					
Time	0.00	1.01	2.02	3.03	4.04
Discharge	0.0000	0.3706	1.24	2.35	3.83
Time	5.05	6.06	7.07	8.08	9.09
Discharge	5.81	8.15	10.13	11.49	12.23
Time	10.10	11.11	12.12	13.13	14.14
Discharge	12.35	12.23	11.49	10.62	9.64
Time	15.15	16.16	17.17	18.18	19.19
Discharge	8.40	6.92	5.68	4.82	4.08
Time	20.20	22.22	24.24	26.26	28.28
Discharge	3.46	2.56	1.82	1.32	1.05
Time	30.30	32.32	34.34	36.36	38.38
Discharge	0.8154	0.6177	0.4324	0.2718	0.1235
Time	40.40				
Discharge	0.0000				

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*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
10.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
20.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
30.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
40.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
50.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
60.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
70.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
80.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
90.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
100.00 0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
110.00 0.01  0.01  0.00  0.01  0.00    0.00    0.01    0.01
120.00 0.01  0.01  0.00  0.01  0.00    0.00    0.01    0.02
130.00 0.01  0.01  0.00  0.01  0.00    0.01    0.02    0.03
140.00 0.01  0.01  0.00  0.00  0.00    0.01    0.03    0.03
150.00 0.01  0.01  0.00  0.00  0.00    0.01    0.03    0.04
160.00 0.01  0.01  0.00  0.00  0.00    0.01    0.04    0.05
170.00 0.01  0.01  0.00  0.00  0.00    0.01    0.04    0.06
180.00 0.01  0.01  0.00  0.00  0.00    0.02    0.05    0.06
190.00 0.01  0.01  0.00  0.00  0.00    0.02    0.05    0.07
200.00 0.01  0.01  0.00  0.00  0.00    0.02    0.06    0.07
210.00 0.01  0.01  0.00  0.00  0.00    0.02    0.06    0.08
220.00 0.01  0.01  0.00  0.01  0.01    0.02    0.07    0.09
230.00 0.02  0.02  0.00  0.01  0.01    0.04    0.12    0.15
240.00 0.02  0.02  0.00  0.01  0.01    0.05    0.18    0.23
250.00 0.02  0.02  0.00  0.01  0.01    0.07    0.24    0.32
260.00 0.02  0.02  0.00  0.01  0.01    0.08    0.27    0.36
270.00 0.02  0.02  0.00  0.01  0.01    0.09    0.29    0.38
280.00 0.02  0.02  0.00  0.01  0.02    0.10    0.30    0.40
290.00 0.03  0.03  0.00  0.01  0.03    0.10    0.32    0.42
300.00 0.04  0.04  0.00  0.01  0.04    0.15    0.48    0.63
310.00 0.07  0.07  0.00  0.01  0.06    0.21    0.69    0.90
320.00 0.48  0.48  0.00  0.03  0.44    0.36    1.18    1.54
330.00 0.88  0.76  0.12  0.02  0.86    2.23    7.61    9.84
340.00 0.88  0.55  0.33  0.01  0.87    5.70   19.98   25.68
350.00 0.48  0.24  0.24  0.00  0.47    8.30   29.69   37.99
360.00 0.07  0.03  0.04  0.00  0.07    6.36   21.93   28.29
370.00 0.07  0.03  0.04  0.00  0.07    2.30    6.91    9.21
380.00 0.06  0.03  0.03  0.00  0.06    1.14    3.76    4.89
390.00 0.04  0.02  0.02  0.00  0.04    0.77    2.71    3.47
400.00 0.04  0.02  0.02  0.00  0.04    0.60    2.10    2.69
410.00 0.04  0.02  0.02  0.00  0.04    0.55    1.98    2.53
420.00 0.03  0.01  0.02  0.00  0.03    0.48    1.70    2.18
430.00 0.03  0.01  0.02  0.00  0.03    0.39    1.39    1.79
440.00 0.03  0.01  0.02  0.00  0.03    0.37    1.33    1.70
*****
Totals 3.53  2.61  0.92  0.23  3.30

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Runoff volume= .4187272 acre-ft
Total volume= 1.864313 acre-ft
Peak discharge (cfs)= 37.99302

Subarea Hydrograph Computation

Title: Design Point 16

Description: 24 Hour
100 Yr

Hydrograph No.: 20
Branch No.: 4

Subarea drainage area (acres): 4.47
Total upstream drainage area (acres): 12.91
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 68

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 7.78

Channel routing method: Channel storage

Reach length (ft)= .01
Slope (ft/ft)= .001
Manning's n= .05

Channel type is trapezoidal: Bottom width (ft)= 0
Sideslope (H to 1V)= 100

		Unit hydrograph				
Time	0.00	0.97	1.93	2.90	3.87	
Discharge	0.0000	0.6294	2.10	3.99	6.50	
Time	4.83	5.80	6.77	7.73	8.70	
Discharge	9.86	13.85	17.20	19.51	20.77	
Time	9.67	10.63	11.60	12.57	13.54	
Discharge	20.98	20.77	19.51	18.04	16.36	
Time	14.50	15.47	16.44	17.40	18.37	
Discharge	14.27	11.75	9.65	8.18	6.92	
Time	19.34	21.27	23.20	25.14	27.07	
Discharge	5.87	4.34	3.08	2.24	1.78	
Time	29.00	30.94	32.87	34.80	36.74	
Discharge	1.38	1.05	0.7343	0.4615	0.2098	
Time	38.67					
Discharge	0.0000					

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv.  erv.  Hydro- Upstream  Hyd.
        Loss Excess Loss Excess graph   Hyd.
*****
 0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00
10.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00
20.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00
30.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00
40.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00
50.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00
60.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00
70.00   0.01   0.01   0.00   0.01   0.00   0.00   0.00   0.00
80.00   0.01   0.01   0.00   0.01   0.00   0.00   0.00   0.00
90.00   0.01   0.01   0.00   0.01   0.00   0.00   0.00   0.00
100.00  0.01   0.01   0.00   0.01   0.00   0.00   0.00   0.00
110.00  0.01   0.01   0.00   0.01   0.00   0.00   0.01   0.01
120.00  0.01   0.01   0.00   0.01   0.00   0.01   0.02   0.02
130.00  0.01   0.01   0.00   0.01   0.00   0.01   0.03   0.04
140.00  0.01   0.01   0.00   0.00   0.00   0.01   0.03   0.05
150.00  0.01   0.01   0.00   0.00   0.00   0.02   0.04   0.06
160.00  0.01   0.01   0.00   0.00   0.00   0.02   0.05   0.07
170.00  0.01   0.01   0.00   0.00   0.00   0.02   0.06   0.08
180.00  0.01   0.01   0.00   0.00   0.00   0.02   0.06   0.09
190.00  0.01   0.01   0.00   0.00   0.00   0.03   0.07   0.10
200.00  0.01   0.01   0.00   0.00   0.00   0.03   0.07   0.10
210.00  0.01   0.01   0.00   0.00   0.00   0.03   0.08   0.11
220.00  0.01   0.01   0.00   0.01   0.01   0.03   0.09   0.12
230.00  0.02   0.02   0.00   0.01   0.01   0.06   0.15   0.21
240.00  0.02   0.02   0.00   0.01   0.01   0.09   0.23   0.32
250.00  0.02   0.02   0.00   0.01   0.01   0.12   0.32   0.44
260.00  0.02   0.02   0.00   0.01   0.01   0.14   0.36   0.49
270.00  0.02   0.02   0.00   0.01   0.01   0.15   0.38   0.53
280.00  0.02   0.02   0.00   0.01   0.02   0.16   0.40   0.56
290.00  0.03   0.03   0.00   0.01   0.03   0.16   0.42   0.58
300.00  0.04   0.04   0.00   0.01   0.04   0.24   0.63   0.87
310.00  0.07   0.07   0.00   0.01   0.06   0.35   0.90   1.25
320.00  0.48   0.48   0.00   0.03   0.44   0.60   1.54   2.13
330.00  0.88   0.76   0.12   0.02   0.86   3.76   9.84   13.60
340.00  0.88   0.55   0.33   0.01   0.87   9.53   25.68   35.21
350.00  0.48   0.24   0.24   0.00   0.47   13.72   37.99   51.71
360.00  0.07   0.03   0.04   0.00   0.07   10.29   28.29   38.58
370.00  0.07   0.03   0.04   0.00   0.07   3.52   9.21   12.72
380.00  0.06   0.03   0.03   0.00   0.06   1.79   4.89   6.68
390.00  0.04   0.02   0.02   0.00   0.04   1.24   3.47   4.71
400.00  0.04   0.02   0.02   0.00   0.04   0.97   2.69   3.66
410.00  0.04   0.02   0.02   0.00   0.04   0.90   2.53   3.43
420.00  0.03   0.01   0.02   0.00   0.03   0.78   2.18   2.96
430.00  0.03   0.01   0.02   0.00   0.03   0.64   1.79   2.42
440.00  0.03   0.01   0.02   0.00   0.03   0.60   1.70   2.31
*****
Totals  3.53  2.61  0.92  0.23  3.30

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Runoff volume= .6849564 acre-ft
Total volume= 2.549269 acre-ft
Peak discharge (cfs)= 51.71463

Subarea Hydrograph Computation

Title: Design Point 17

Description: 24 Hour
100 Yr

Hydrograph No.: 21
Branch No.: 4

Subarea drainage area (acres): .63
Total upstream drainage area (acres): 17.38
Percent impervious area: 100
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 68

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 5

Channel routing method: Channel storage

Reach length (ft)= 61
Slope (ft/ft)= .0277
Manning's n= .013

Channel type is circular: Diameter (inches)= 24

Unit hydrograph					
Time	0.00	0.80	1.60	2.40	3.20
Discharge	0.0000	0.1072	0.3573	0.6789	1.11
Time	4.00	4.80	5.60	6.40	7.20
Discharge	1.68	2.36	2.93	3.32	3.54
Time	8.00	8.80	9.60	10.40	11.20
Discharge	3.57	3.54	3.32	3.07	2.79
Time	12.00	12.80	13.60	14.40	15.20
Discharge	2.43	2.00	1.64	1.39	1.18
Time	16.00	17.60	19.20	20.80	22.40
Discharge	1.00	0.7397	0.5253	0.3823	0.3037
Time	24.00	25.60	27.20	28.80	30.40
Discharge	0.2358	0.1787	0.1251	0.0786	0.0357
Time	32.00				
Discharge	0.0000				

Time	Rain	Perv- ious Loss	Perv- ious Excess	Imp- erv. Loss	Imp- erv. Excess	Subarea Hydro- graph	Routed Upstream Hyd.	Total Hyd.
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00
80.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00
90.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00
100.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00
110.00	0.01	0.01	0.00	0.01	0.00	0.00	0.01	0.01
120.00	0.01	0.01	0.00	0.01	0.00	0.00	0.02	0.02
130.00	0.01	0.01	0.00	0.01	0.00	0.00	0.04	0.04
140.00	0.01	0.01	0.00	0.00	0.00	0.00	0.05	0.05
150.00	0.01	0.01	0.00	0.00	0.00	0.01	0.06	0.07
160.00	0.01	0.01	0.00	0.00	0.00	0.01	0.07	0.08
170.00	0.01	0.01	0.00	0.00	0.00	0.01	0.08	0.09
180.00	0.01	0.01	0.00	0.00	0.00	0.01	0.09	0.10
190.00	0.01	0.01	0.00	0.00	0.00	0.01	0.10	0.11
200.00	0.01	0.01	0.00	0.00	0.00	0.01	0.10	0.11
210.00	0.01	0.01	0.00	0.00	0.00	0.01	0.11	0.12
220.00	0.01	0.01	0.00	0.01	0.01	0.01	0.12	0.13
230.00	0.02	0.02	0.00	0.01	0.01	0.02	0.21	0.23
240.00	0.02	0.02	0.00	0.01	0.01	0.03	0.32	0.35
250.00	0.02	0.02	0.00	0.01	0.01	0.04	0.44	0.48
260.00	0.02	0.02	0.00	0.01	0.01	0.05	0.49	0.54
270.00	0.02	0.02	0.00	0.01	0.01	0.05	0.53	0.58
280.00	0.02	0.02	0.00	0.01	0.02	0.05	0.56	0.61
290.00	0.03	0.03	0.00	0.01	0.03	0.06	0.58	0.63
300.00	0.04	0.04	0.00	0.01	0.04	0.09	0.87	0.96
310.00	0.07	0.07	0.00	0.01	0.06	0.13	1.25	1.38
320.00	0.48	0.48	0.00	0.03	0.44	0.22	2.12	2.34
330.00	0.88	0.76	0.12	0.02	0.86	1.45	0.00	1.45
340.00	0.88	0.55	0.33	0.01	0.87	2.96	0.00	2.96
350.00	0.48	0.24	0.24	0.00	0.47	3.20	40.13	43.33
360.00	0.07	0.03	0.04	0.00	0.07	1.95	40.13	42.08
370.00	0.07	0.03	0.04	0.00	0.07	0.49	40.13	40.62
380.00	0.06	0.03	0.03	0.00	0.06	0.29	40.13	40.42
390.00	0.04	0.02	0.02	0.00	0.04	0.22	39.64	39.86
400.00	0.04	0.02	0.02	0.00	0.04	0.17	28.26	28.43
410.00	0.04	0.02	0.02	0.00	0.04	0.16	25.40	25.57
420.00	0.03	0.01	0.02	0.00	0.03	0.14	20.66	20.80
430.00	0.03	0.01	0.02	0.00	0.03	0.11	15.37	15.48
440.00	0.03	0.01	0.02	0.00	0.03	0.11	14.17	14.28

Totals	3.53	2.61	0.92	0.23	3.30			

Runoff volume= .1656962 acre-ft
 Total volume= 4.368499 acre-ft
 Peak discharge (cfs)= 43.33274

Subarea Hydrograph Computation

Title: Design Point 18

Description: 24 Hour
100 Yr

Hydrograph No.: 22
Branch No.: 4

Subarea drainage area (acres): 28.34
Total upstream drainage area (acres): 18.01
Percent impervious area: 45
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 68

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 11.11

Channel routing method: Channel storage

Reach length (ft)= 58
Slope (ft/ft)= .0405
Manning's n= .013

Channel type is circular: Diameter (inches)= 24

Unit hydrograph					
Time	0.00	1.17	2.33	3.50	4.67
Discharge	0.0000	3.31	11.02	20.94	34.17
Time	5.83	7.00	8.17	9.33	10.50
Discharge	51.81	72.75	90.39	102.51	109.13
Time	11.67	12.83	14.00	15.17	16.33
Discharge	110.23	109.13	102.51	94.80	85.98
Time	17.50	18.67	19.83	21.00	22.17
Discharge	74.96	61.73	50.71	42.99	36.38
Time	23.33	25.67	28.00	30.33	32.66
Discharge	30.86	22.82	16.20	11.79	9.37
Time	35.00	37.33	39.66	42.00	44.33
Discharge	7.28	5.51	3.86	2.43	1.10
Time	46.66				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious  erv.  erv.  Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph   Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 10.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 20.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 30.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 40.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 50.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 60.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 70.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
 80.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
 90.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
100.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
110.00  0.01  0.01  0.00  0.01  0.00    0.02    0.01    0.03
120.00  0.01  0.01  0.00  0.01  0.00    0.04    0.02    0.07
130.00  0.01  0.01  0.00  0.01  0.00    0.07    0.04    0.11
140.00  0.01  0.01  0.00  0.00  0.00    0.09    0.05    0.15
150.00  0.01  0.01  0.00  0.00  0.00    0.12    0.07    0.18
160.00  0.01  0.01  0.00  0.00  0.00    0.14    0.08    0.22
170.00  0.01  0.01  0.00  0.00  0.00    0.16    0.09    0.24
180.00  0.01  0.01  0.00  0.00  0.00    0.18    0.10    0.27
190.00  0.01  0.01  0.00  0.00  0.00    0.20    0.11    0.30
200.00  0.01  0.01  0.00  0.00  0.00    0.21    0.11    0.32
210.00  0.01  0.01  0.00  0.00  0.00    0.22    0.12    0.34
220.00  0.01  0.01  0.00  0.01  0.01    0.24    0.13    0.37
230.00  0.02  0.02  0.00  0.01  0.01    0.39    0.23    0.63
240.00  0.02  0.02  0.00  0.01  0.01    0.60    0.35    0.95
250.00  0.02  0.02  0.00  0.01  0.01    0.84    0.48    1.32
260.00  0.02  0.02  0.00  0.01  0.01    0.98    0.54    1.52
270.00  0.02  0.02  0.00  0.01  0.01    1.06    0.58    1.64
280.00  0.02  0.02  0.00  0.01  0.02    1.12    0.61    1.73
290.00  0.03  0.03  0.00  0.01  0.03    1.17    0.63    1.80
300.00  0.04  0.04  0.00  0.01  0.04    1.65    0.96    2.61
310.00  0.07  0.07  0.00  0.01  0.06    2.38    1.38    3.76
320.00  0.48  0.48  0.00  0.03  0.44    3.95    2.34    6.28
330.00  0.88  0.76  0.12  0.02  0.86   22.83    1.45   24.27
340.00  0.88  0.55  0.33  0.01  0.87   58.61    2.96   61.57
350.00  0.48  0.24  0.24  0.00  0.47   86.14   43.33  129.47
360.00  0.07  0.03  0.04  0.00  0.07   71.40   42.08  113.49
370.00  0.07  0.03  0.04  0.00  0.07   31.65   40.62   72.26
380.00  0.06  0.03  0.03  0.00  0.06   14.91   40.42   55.33
390.00  0.04  0.02  0.02  0.00  0.04    9.36   39.86   49.22
400.00  0.04  0.02  0.02  0.00  0.04    6.62   28.43   35.05
410.00  0.04  0.02  0.02  0.00  0.04    5.96   25.57   31.53
420.00  0.03  0.01  0.02  0.00  0.03    5.21   20.80   26.01
430.00  0.03  0.01  0.02  0.00  0.03    4.31   15.48   19.79
440.00  0.03  0.01  0.02  0.00  0.03    3.98   14.28   18.25
*****
Totals  3.53  2.61  0.92  0.23  3.30

```

Runoff volume= 4.611276 acre-ft
Total volume= 8.979774 acre-ft
Peak discharge (cfs)= 129.4706

Subarea Hydrograph Computation

Title: Design Point 19

Description: 24 Hour
100 Yr

Hydrograph No.: 23
Branch No.: 4

Subarea drainage area (acres): .89
Total upstream drainage area (acres): 46.35
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 68

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 9.09

Channel routing method: Channel storage

Reach length (ft)= 440
Slope (ft/ft)= .04
Manning's n= .013

Channel type is circular: Diameter (inches)= 30

	Unit hydrograph				
Time	0.00	1.05	2.09	3.14	4.18
Discharge	0.0000	0.1159	0.3863	0.7340	1.20
Time	5.23	6.27	7.32	8.36	9.41
Discharge	1.82	2.55	3.17	3.59	3.82
Time	10.45	11.50	12.54	13.59	14.64
Discharge	3.86	3.82	3.59	3.32	3.01
Time	15.68	16.73	17.77	18.82	19.86
Discharge	2.63	2.16	1.78	1.51	1.27
Time	20.91	23.00	25.09	27.18	29.27
Discharge	1.08	0.7996	0.5679	0.4133	0.3284
Time	31.36	33.45	35.54	37.63	39.73
Discharge	0.2550	0.1931	0.1352	0.0850	0.0386
Time	41.82				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 10.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 20.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 30.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 40.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 50.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 60.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 70.00  0.01  0.01  0.00  0.01  0.00  0.00  0.00  0.00
 80.00  0.01  0.01  0.00  0.01  0.00  0.00  0.00  0.00
 90.00  0.01  0.01  0.00  0.01  0.00  0.00  0.00  0.00
100.00  0.01  0.01  0.00  0.01  0.00  0.00  0.00  0.00
110.00  0.01  0.01  0.00  0.01  0.00  0.00  0.03  0.03
120.00  0.01  0.01  0.00  0.01  0.00  0.00  0.06  0.06
130.00  0.01  0.01  0.00  0.01  0.00  0.00  0.10  0.11
140.00  0.01  0.01  0.00  0.00  0.00  0.00  0.14  0.14
150.00  0.01  0.01  0.00  0.00  0.00  0.00  0.18  0.18
160.00  0.01  0.01  0.00  0.00  0.00  0.00  0.22  0.22
170.00  0.01  0.01  0.00  0.00  0.00  0.00  0.24  0.25
180.00  0.01  0.01  0.00  0.00  0.00  0.00  0.27  0.27
190.00  0.01  0.01  0.00  0.00  0.00  0.01  0.30  0.31
200.00  0.01  0.01  0.00  0.00  0.00  0.01  0.32  0.32
210.00  0.01  0.01  0.00  0.00  0.00  0.01  0.34  0.35
220.00  0.01  0.01  0.00  0.01  0.01  0.01  0.37  0.38
230.00  0.02  0.02  0.00  0.01  0.01  0.01  0.60  0.61
240.00  0.02  0.02  0.00  0.01  0.01  0.02  0.91  0.93
250.00  0.02  0.02  0.00  0.01  0.01  0.02  1.28  1.30
260.00  0.02  0.02  0.00  0.01  0.01  0.03  1.51  1.53
270.00  0.02  0.02  0.00  0.01  0.01  0.03  1.63  1.66
280.00  0.02  0.02  0.00  0.01  0.02  0.03  1.72  1.75
290.00  0.03  0.03  0.00  0.01  0.03  0.03  1.80  1.83
300.00  0.04  0.04  0.00  0.01  0.04  0.05  2.56  2.60
310.00  0.07  0.07  0.00  0.01  0.06  0.07  3.68  3.75
320.00  0.48  0.48  0.00  0.03  0.44  0.11  6.16  6.28
330.00  0.88  0.76  0.12  0.02  0.86  0.70 23.64 24.33
340.00  0.88  0.55  0.33  0.01  0.87  1.80 60.37 62.17
350.00  0.48  0.24  0.24  0.00  0.47  2.65 87.43 90.08
360.00  0.07  0.03  0.04  0.00  0.07  2.07 87.43 89.51
370.00  0.07  0.03  0.04  0.00  0.07  0.79 87.43 88.22
380.00  0.06  0.03  0.03  0.00  0.06  0.39 87.43 87.82
390.00  0.04  0.02  0.02  0.00  0.04  0.26 49.38 49.64
400.00  0.04  0.02  0.02  0.00  0.04  0.19 35.51 35.71
410.00  0.04  0.02  0.02  0.00  0.04  0.18 31.65 31.83
420.00  0.03  0.01  0.02  0.00  0.03  0.16 26.20 26.36
430.00  0.03  0.01  0.02  0.00  0.03  0.13 20.03 20.16
440.00  0.03  0.01  0.02  0.00  0.03  0.12 18.31 18.43
*****
Totals  3.53  2.61  0.92  0.23  3.30

```

Runoff volume= .1353259 acre-ft
 Total volume= 8.813675 acre-ft
 Peak discharge (cfs)= 90.07974

Subarea Hydrograph Computation

Title: Design Point 20

Description: 24 Hour
100 Yr

Hydrograph No.: 24
Branch No.: 4

Subarea drainage area (acres): .9
Total upstream drainage area (acres): 47.24
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 68

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 7.64

Channel routing method: Channel storage

Reach length (ft)= 30
Slope (ft/ft)= .04
Manning's n= .013

Channel type is circular: Diameter (inches)= 30

	Unit hydrograph				
Time	0.00	0.96	1.92	2.88	3.83
Discharge	0.0000	0.1278	0.4261	0.8096	1.32
Time	4.79	5.75	6.71	7.67	8.63
Discharge	2.00	2.81	3.49	3.96	4.22
Time	9.58	10.54	11.50	12.46	13.42
Discharge	4.26	4.22	3.96	3.66	3.32
Time	14.38	15.33	16.29	17.25	18.21
Discharge	2.90	2.39	1.96	1.66	1.41
Time	19.17	21.08	23.00	24.92	26.84
Discharge	1.19	0.8820	0.6264	0.4559	0.3622
Time	28.75	30.67	32.59	34.50	36.42
Discharge	0.2812	0.2131	0.1491	0.0937	0.0426
Time	38.34				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious  erv.  erv.  Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph   Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 10.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 20.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 30.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 40.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 50.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 60.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 70.00  0.01  0.01  0.00  0.01  0.00  0.00  0.00  0.00
 80.00  0.01  0.01  0.00  0.01  0.00  0.00  0.00  0.00
 90.00  0.01  0.01  0.00  0.01  0.00  0.00  0.00  0.00
100.00  0.01  0.01  0.00  0.01  0.00  0.00  0.03  0.03
110.00  0.01  0.01  0.00  0.01  0.00  0.00  0.25  0.25
120.00  0.01  0.01  0.00  0.01  0.00  0.00  0.62  0.62
130.00  0.01  0.01  0.00  0.01  0.00  0.00  1.06  1.06
140.00  0.01  0.01  0.00  0.00  0.00  0.00  1.49  1.49
150.00  0.01  0.01  0.00  0.00  0.00  0.00  2.17  2.18
160.00  0.01  0.01  0.00  0.00  0.00  0.00  2.87  2.87
170.00  0.01  0.01  0.00  0.00  0.00  0.00  3.36  3.36
180.00  0.01  0.01  0.00  0.00  0.00  0.01  3.89  3.90
190.00  0.01  0.01  0.00  0.00  0.00  0.01  4.48  4.48
200.00  0.01  0.01  0.00  0.00  0.00  0.01  4.82  4.83
210.00  0.01  0.01  0.00  0.00  0.00  0.01  5.25  5.26
220.00  0.01  0.01  0.00  0.01  0.01  0.01  5.76  5.76
230.00  0.02  0.02  0.00  0.01  0.01  0.01  11.37  11.38
240.00  0.02  0.02  0.00  0.01  0.01  0.02  20.41  20.42
250.00  0.02  0.02  0.00  0.01  0.01  0.02  37.53  37.55
260.00  0.02  0.02  0.00  0.01  0.01  0.03  50.25  50.28
270.00  0.02  0.02  0.00  0.01  0.01  0.03  57.35  57.38
280.00  0.02  0.02  0.00  0.01  0.02  0.03  62.42  62.45
290.00  0.03  0.03  0.00  0.01  0.03  0.03  66.48  66.52
300.00  0.04  0.04  0.00  0.01  0.04  0.05  87.43  87.48
310.00  0.07  0.07  0.00  0.01  0.06  0.07  87.43  87.50
320.00  0.48  0.48  0.00  0.03  0.44  0.12  87.43  87.55
330.00  0.88  0.76  0.12  0.02  0.86  0.76  87.43  88.19
340.00  0.88  0.55  0.33  0.01  0.87  1.93  53.62  55.55
350.00  0.48  0.24  0.24  0.00  0.47  2.77  87.43  90.20
360.00  0.07  0.03  0.04  0.00  0.07  2.07  87.43  89.50
370.00  0.07  0.03  0.04  0.00  0.07  0.70  87.43  88.13
380.00  0.06  0.03  0.03  0.00  0.06  0.36  87.43  87.79
390.00  0.04  0.02  0.02  0.00  0.04  0.25  0.00  0.25
400.00  0.04  0.02  0.02  0.00  0.04  0.19  87.43  87.63
410.00  0.04  0.02  0.02  0.00  0.04  0.18  87.43  87.61
420.00  0.03  0.01  0.02  0.00  0.03  0.16  87.43  87.59
430.00  0.03  0.01  0.02  0.00  0.03  0.13  87.43  87.56
440.00  0.03  0.01  0.02  0.00  0.03  0.12  87.43  87.55
*****
Totals  3.53  2.61  0.92  0.23  3.30

```

Runoff volume= .1380995 acre-ft
 Total volume= 20.63838 acre-ft
 Peak discharge (cfs)= 90.20361

Subarea Hydrograph Computation

Title: Design Point 22

Description: 24 Hour
100 Yr

Hydrograph No.: 25
Branch No.: 4

Subarea drainage area (acres): 1.17
Total upstream drainage area (acres): 48.14
Percent impervious area: 85
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 68

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 10.37

Channel routing method: Channel storage

Reach length (ft)= 900
Slope (ft/ft)= .03
Manning's n= .013

Channel type is circular: Diameter (inches)= 30

Unit hydrograph					
Time	0.00	1.12	2.24	3.37	4.49
Discharge	0.0000	0.1419	0.4731	0.8988	1.47
Time	5.61	6.73	7.86	8.98	10.10
Discharge	2.22	3.12	3.88	4.40	4.68
Time	11.22	12.34	13.47	14.59	15.71
Discharge	4.73	4.68	4.40	4.07	3.69
Time	16.83	17.96	19.08	20.20	21.32
Discharge	3.22	2.65	2.18	1.85	1.56
Time	22.44	24.69	26.93	29.18	31.42
Discharge	1.32	0.9793	0.6954	0.5062	0.4021
Time	33.67	35.91	38.15	40.40	42.64
Discharge	0.3122	0.2365	0.1656	0.1041	0.0473
Time	44.89				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ous  ous  erv.  erv.  Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph   Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 10.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 20.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 30.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 40.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 50.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 60.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 70.00  0.01  0.01  0.00  0.01  0.00  0.00  0.00  0.00
 80.00  0.01  0.01  0.00  0.01  0.00  0.00  0.00  0.00
 90.00  0.01  0.01  0.00  0.01  0.00  0.00  0.00  0.00
100.00  0.01  0.01  0.00  0.01  0.00  0.00  0.03  0.03
110.00  0.01  0.01  0.00  0.01  0.00  0.00  0.19  0.20
120.00  0.01  0.01  0.00  0.01  0.00  0.00  0.52  0.52
130.00  0.01  0.01  0.00  0.01  0.00  0.01  0.94  0.94
140.00  0.01  0.01  0.00  0.00  0.00  0.01  1.42  1.43
150.00  0.01  0.01  0.00  0.00  0.00  0.01  2.07  2.08
160.00  0.01  0.01  0.00  0.00  0.00  0.01  2.77  2.78
170.00  0.01  0.01  0.00  0.00  0.00  0.01  3.29  3.30
180.00  0.01  0.01  0.00  0.00  0.00  0.01  3.82  3.83
190.00  0.01  0.01  0.00  0.00  0.00  0.02  4.40  4.41
200.00  0.01  0.01  0.00  0.00  0.00  0.02  4.78  4.79
210.00  0.01  0.01  0.00  0.00  0.00  0.02  5.21  5.23
220.00  0.01  0.01  0.00  0.01  0.01  0.02  5.71  5.73
230.00  0.02  0.02  0.00  0.01  0.01  0.03  10.76  10.79
240.00  0.02  0.02  0.00  0.01  0.01  0.05  19.58  19.63
250.00  0.02  0.02  0.00  0.01  0.01  0.07  36.22  36.28
260.00  0.02  0.02  0.00  0.01  0.01  0.08  49.31  49.39
270.00  0.02  0.02  0.00  0.01  0.01  0.08  56.84  56.92
280.00  0.02  0.02  0.00  0.01  0.02  0.09  62.04  62.13
290.00  0.03  0.03  0.00  0.01  0.03  0.09  66.18  66.27
300.00  0.04  0.04  0.00  0.01  0.04  0.13  75.72  75.85
310.00  0.07  0.07  0.00  0.01  0.06  0.19  75.72  75.91
320.00  0.48  0.48  0.00  0.03  0.44  0.32  75.72  76.03
330.00  0.88  0.76  0.12  0.02  0.86  1.87  75.72  77.59
340.00  0.88  0.55  0.33  0.01  0.87  4.24  75.72  79.96
350.00  0.48  0.24  0.24  0.00  0.47  5.30  75.72  81.02
360.00  0.07  0.03  0.04  0.00  0.07  3.95  75.72  79.66
370.00  0.07  0.03  0.04  0.00  0.07  1.61  75.72  77.33
380.00  0.06  0.03  0.03  0.00  0.06  0.74  75.72  76.46
390.00  0.04  0.02  0.02  0.00  0.04  0.47  75.72  76.18
400.00  0.04  0.02  0.02  0.00  0.04  0.33  75.72  76.05
410.00  0.04  0.02  0.02  0.00  0.04  0.30  75.72  76.02
420.00  0.03  0.01  0.02  0.00  0.03  0.26  75.72  75.98
430.00  0.03  0.01  0.02  0.00  0.03  0.22  75.72  75.93
440.00  0.03  0.01  0.02  0.00  0.03  0.20  75.72  75.92
*****
Totals  3.53  2.61  0.92  0.23  3.30

```

Runoff volume= .2844507 acre-ft
 Total volume= 20.03545 acre-ft
 Peak discharge (cfs)= 81.01734

Subarea Hydrograph Computation

Title: Design point 21

Description: 24 Hour
100 Yr

Hydrograph No.: 26
Branch No.: 5

Subarea drainage area (acres): 10.89
Total upstream drainage area (acres): 0
Percent impervious area: 85
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 69

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 10.11

		Unit hydrograph				
Time	0.00	1.11	2.21	3.32	4.43	
Discharge	0.0000	1.34	4.47	8.48	13.84	
Time	5.53	6.64	7.75	8.85	9.96	
Discharge	20.99	29.47	36.62	41.53	44.21	
Time	11.07	12.17	13.28	14.39	15.49	
Discharge	44.65	44.21	41.53	38.40	34.83	
Time	16.60	17.71	18.81	19.92	21.03	
Discharge	30.36	25.01	20.54	17.41	14.74	
Time	22.13	24.35	26.56	28.77	30.98	
Discharge	12.50	9.24	6.56	4.78	3.80	
Time	33.20	35.41	37.62	39.84	42.05	
Discharge	2.95	2.23	1.56	0.9824	0.4465	
Time	44.26					
Discharge	0.0000					

Time	Rain	Perv- ious Loss	Perv- ious Excess	Imp- erv. Loss	Imp- erv. Excess	Subarea Hydro- graph	Routed Upstream Hyd.	Total Hyd.
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00
80.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00
90.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00
100.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00
110.00	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.01
120.00	0.01	0.01	0.00	0.01	0.00	0.03	0.00	0.03
130.00	0.01	0.01	0.00	0.01	0.00	0.05	0.00	0.05
140.00	0.01	0.01	0.00	0.00	0.00	0.07	0.00	0.07
150.00	0.01	0.01	0.00	0.00	0.00	0.09	0.00	0.09
160.00	0.01	0.01	0.00	0.00	0.00	0.10	0.00	0.10
170.00	0.01	0.01	0.00	0.00	0.00	0.12	0.00	0.12
180.00	0.01	0.01	0.00	0.00	0.00	0.13	0.00	0.13
190.00	0.01	0.01	0.00	0.00	0.00	0.14	0.00	0.14
200.00	0.01	0.01	0.00	0.00	0.00	0.15	0.00	0.15
210.00	0.01	0.01	0.00	0.00	0.00	0.16	0.00	0.16
220.00	0.01	0.01	0.00	0.01	0.01	0.18	0.00	0.18
230.00	0.02	0.02	0.00	0.01	0.01	0.30	0.00	0.30
240.00	0.02	0.02	0.00	0.01	0.01	0.45	0.00	0.45
250.00	0.02	0.02	0.00	0.01	0.01	0.63	0.00	0.63
260.00	0.02	0.02	0.00	0.01	0.01	0.72	0.00	0.72
270.00	0.02	0.02	0.00	0.01	0.01	0.78	0.00	0.78
280.00	0.02	0.02	0.00	0.01	0.02	0.82	0.00	0.82
290.00	0.03	0.03	0.00	0.01	0.03	0.86	0.00	0.86
300.00	0.04	0.04	0.00	0.01	0.04	1.23	0.00	1.23
310.00	0.07	0.07	0.00	0.01	0.06	1.78	0.00	1.78
320.00	0.48	0.48	0.00	0.03	0.44	2.97	0.00	2.97
330.00	0.88	0.76	0.12	0.02	0.86	17.72	0.00	17.72
340.00	0.88	0.55	0.33	0.01	0.87	39.94	0.00	39.94
350.00	0.48	0.24	0.24	0.00	0.47	49.58	0.00	49.58
360.00	0.07	0.03	0.04	0.00	0.07	36.57	0.00	36.57
370.00	0.07	0.03	0.04	0.00	0.07	14.62	0.00	14.62
380.00	0.06	0.03	0.03	0.00	0.06	6.79	0.00	6.79
390.00	0.04	0.02	0.02	0.00	0.04	4.29	0.00	4.29
400.00	0.04	0.02	0.02	0.00	0.04	3.10	0.00	3.10
410.00	0.04	0.02	0.02	0.00	0.04	2.81	0.00	2.81
420.00	0.03	0.01	0.02	0.00	0.03	2.44	0.00	2.44
430.00	0.03	0.01	0.02	0.00	0.03	2.01	0.00	2.01
440.00	0.03	0.01	0.02	0.00	0.03	1.87	0.00	1.87
Totals	3.53	2.61	0.92	0.23	3.30			

Runoff volume= 2.652514 acre-ft
 Total volume= 2.652514 acre-ft
 Peak discharge (cfs)= 49.5769

Branch Confluence

Title: Design Point 22

Description: 24 Hour
100 Yr

Hydrograph No.: 27
Branch No.: 2

Combined Branches: 2 3 4 5

```

*****
Time          Flow *    Time          Flow *    Time          Flow
*****
10.00         0.00 *    160.00         3.06 *    310.00         81.51
20.00         0.00 *    170.00         3.62 *    320.00         85.71
30.00         0.00 *    180.00         4.19 *    330.00        140.95
40.00         0.00 *    190.00         4.81 *    340.00        242.24
50.00         0.00 *    200.00         5.21 *    350.00        309.19
60.00         0.00 *    210.00         5.67 *    360.00        259.98
70.00         0.00 *    220.00         6.21 *    370.00        152.00
80.00         0.00 *    230.00        11.59 *    380.00        112.27
90.00         0.00 *    240.00        20.84 *    390.00         98.94
100.00        0.03 *    250.00        37.99 *    400.00         92.39
110.00        0.23 *    260.00        51.40 *    410.00         90.59
120.00        0.60 *    270.00        59.15 *    420.00         88.57
130.00        1.08 *    280.00        64.54 *    430.00         86.31
140.00        1.62 *    290.00        68.84 *    440.00         85.54
150.00        2.32 *    300.00        79.64 *
*****

```

Channel Routing

Title: Design Point 22 Routed Thru Pipe

Description: 24 Hour
100 Yr

Hydrograph No.: 28
Branch No.: 2

Channel routing method: Channel storage

Reach length (ft)= 205
Slope (ft/ft)= .0616
Manning's n= .013

Channel type is circular: Diameter (inches)= 36

Routed Hydrograph

```
*****
Time      Flow *   Time      Flow *   Time      Flow
*****
10.00     0.00 *   160.00     3.05 *   310.00    172.88
20.00     0.00 *   170.00     3.61 *   320.00    171.13
30.00     0.00 *   180.00     4.17 *   330.00    176.38
40.00     0.00 *   190.00     4.79 *   340.00    176.43
50.00     0.00 *   200.00     5.20 *   350.00    176.43
60.00     0.00 *   210.00     5.66 *   360.00    176.43
70.00     0.00 *   220.00     6.20 *   370.00    176.43
80.00     0.00 *   230.00    11.48 *   380.00    176.43
90.00     0.00 *   240.00    20.70 *   390.00    176.43
100.00    0.03 *   250.00    37.76 *   400.00    176.43
110.00    0.22 *   260.00    51.44 *   410.00    176.43
120.00    0.59 *   270.00    64.27 *   420.00    176.43
130.00    1.07 *   280.00   176.43 *   430.00    176.43
140.00    1.60 *   290.00   176.43 *   440.00    176.43
150.00    2.29 *   300.00   173.59 *
*****
```

Channel capacity was exceeded.

Maximum ponded storage at channel inlet (cubic-ft)= 156679

Channel Routing

Title: Design Point 22 Routed Thru Channel

Description: 24 Hour
100 Yr

Hydrograph No.: 29
Branch No.: 2

Channel routing method: Channel storage

Reach length (ft)= 415
Slope (ft/ft)= .0372
Manning's n= .035

Channel type is trapezoidal: Bottom width (ft)= 3
Sideslope (H to 1V)= 2

Routed Hydrograph

```
*****
Time      Flow *   Time      Flow *   Time      Flow
*****
10.00     0.00 *   160.00     3.05 *   310.00    172.88
20.00     0.00 *   170.00     3.61 *   320.00    171.13
30.00     0.00 *   180.00     4.17 *   330.00    176.38
40.00     0.00 *   190.00     4.79 *   340.00    176.43
50.00     0.00 *   200.00     5.20 *   350.00    176.43
60.00     0.00 *   210.00     5.66 *   360.00    176.43
70.00     0.00 *   220.00     6.20 *   370.00    176.43
80.00     0.00 *   230.00    11.48 *   380.00    176.43
90.00     0.00 *   240.00    20.70 *   390.00    176.43
100.00    0.03 *   250.00    37.76 *   400.00    176.43
110.00    0.22 *   260.00    51.44 *   410.00    176.43
120.00    0.59 *   270.00    64.27 *   420.00    176.43
130.00    1.07 *   280.00   176.43 *   430.00    176.43
140.00    1.60 *   290.00   176.43 *   440.00    176.43
150.00    2.29 *   300.00   173.59 *
*****
```

Subarea Hydrograph Computation

Title: Design Point 23

Description: 24 Hour
100 Yr

Hydrograph No.: 30
Branch No.: 3

Subarea drainage area (acres): 8.92
Total upstream drainage area (acres): 0
Percent impervious area: 85
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 68

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 8.01

	Unit hydrograph				
Time	0.00	0.98	1.96	2.94	3.92
Discharge	0.0000	1.24	4.13	7.84	12.80
Time	4.90	5.88	6.86	7.84	8.83
Discharge	19.40	27.24	33.85	38.39	40.86
Time	9.81	10.79	11.77	12.75	13.73
Discharge	41.28	40.86	38.39	35.50	32.19
Time	14.71	15.69	16.67	17.65	18.63
Discharge	28.07	23.11	18.99	16.10	13.62
Time	19.61	21.57	23.53	25.50	27.46
Discharge	11.56	8.54	6.07	4.42	3.51
Time	29.42	31.38	33.34	35.30	37.26
Discharge	2.72	2.06	1.44	0.9081	0.4128
Time	39.22				
Discharge	0.0000				

```

*****
Time    Rain    Perv-   Perv-   Imp-   Imp-   Subarea   Routed   Total
          ious   ious   erv.   erv.   Hydro-   Upstream  Hyd.
          Loss Excess Loss Excess   graph   Hyd.
*****
 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
10.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
20.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
30.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
40.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
50.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
60.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
70.00    0.01    0.01    0.00    0.01    0.00    0.00    0.00    0.00
80.00    0.01    0.01    0.00    0.01    0.00    0.00    0.00    0.00
90.00    0.01    0.01    0.00    0.01    0.00    0.00    0.00    0.00
100.00   0.01    0.01    0.00    0.01    0.00    0.00    0.00    0.00
110.00   0.01    0.01    0.00    0.01    0.00    0.01    0.00    0.01
120.00   0.01    0.01    0.00    0.01    0.00    0.03    0.00    0.03
130.00   0.01    0.01    0.00    0.01    0.00    0.05    0.00    0.05
140.00   0.01    0.01    0.00    0.00    0.00    0.06    0.00    0.06
150.00   0.01    0.01    0.00    0.00    0.00    0.07    0.00    0.07
160.00   0.01    0.01    0.00    0.00    0.00    0.09    0.00    0.09
170.00   0.01    0.01    0.00    0.00    0.00    0.10    0.00    0.10
180.00   0.01    0.01    0.00    0.00    0.00    0.11    0.00    0.11
190.00   0.01    0.01    0.00    0.00    0.00    0.12    0.00    0.12
200.00   0.01    0.01    0.00    0.00    0.00    0.13    0.00    0.13
210.00   0.01    0.01    0.00    0.00    0.00    0.14    0.00    0.14
220.00   0.01    0.01    0.00    0.01    0.01    0.15    0.00    0.15
230.00   0.02    0.02    0.00    0.01    0.01    0.26    0.00    0.26
240.00   0.02    0.02    0.00    0.01    0.01    0.38    0.00    0.38
250.00   0.02    0.02    0.00    0.01    0.01    0.53    0.00    0.53
260.00   0.02    0.02    0.00    0.01    0.01    0.60    0.00    0.60
270.00   0.02    0.02    0.00    0.01    0.01    0.65    0.00    0.65
280.00   0.02    0.02    0.00    0.01    0.02    0.68    0.00    0.68
290.00   0.03    0.03    0.00    0.01    0.03    0.71    0.00    0.71
300.00   0.04    0.04    0.00    0.01    0.04    1.05    0.00    1.05
310.00   0.07    0.07    0.00    0.01    0.06    1.52    0.00    1.52
320.00   0.48    0.48    0.00    0.03    0.44    2.57    0.00    2.57
330.00   0.88    0.76    0.12    0.02    0.86    16.17    0.00    16.17
340.00   0.88    0.55    0.33    0.01    0.87    35.19    0.00    35.19
350.00   0.48    0.24    0.24    0.00    0.47    41.79    0.00    41.79
360.00   0.07    0.03    0.04    0.00    0.07    28.65    0.00    28.65
370.00   0.07    0.03    0.04    0.00    0.07    9.61    0.00    9.61
380.00   0.04    0.03    0.03    0.00    0.06    4.66    0.00    4.66
390.00   0.04    0.02    0.02    0.00    0.04    3.17    0.00    3.17
400.00   0.04    0.02    0.02    0.00    0.04    2.46    0.00    2.46
410.00   0.04    0.02    0.02    0.00    0.04    2.28    0.00    2.28
420.00   0.03    0.01    0.02    0.00    0.03    1.96    0.00    1.96
430.00   0.03    0.01    0.02    0.00    0.03    1.61    0.00    1.61
440.00   0.03    0.01    0.02    0.00    0.03    1.52    0.00    1.52
*****
Totals   3.53    2.61    0.92    0.23    3.30

```

Runoff volume= 2.180296 acre-ft
Total volume= 2.180296 acre-ft
Peak discharge (cfs)= 41.78952

Branch Confluence

Title: Design Point 23 Combined

Description: 24 Hour
100 Yr

Hydrograph No.: 31
Branch No.: 2

Combined Branches: 2 3

```

*****
Time          Flow *    Time          Flow *    Time          Flow
*****
10.00          0.00 *   160.00          3.13 *   310.00          174.40
20.00          0.00 *   170.00          3.70 *   320.00          173.70
30.00          0.00 *   180.00          4.28 *   330.00          192.55
40.00          0.00 *   190.00          4.91 *   340.00          211.62
50.00          0.00 *   200.00          5.33 *   350.00          218.22
60.00          0.00 *   210.00          5.80 *   360.00          205.09
70.00          0.00 *   220.00          6.34 *   370.00          186.05
80.00          0.00 *   230.00         11.73 *   380.00          181.09
90.00          0.00 *   240.00         21.08 *   390.00          179.60
100.00         0.03 *   250.00         38.29 *   400.00          178.89
110.00         0.24 *   260.00         52.04 *   410.00          178.71
120.00         0.62 *   270.00         64.91 *   420.00          178.40
130.00         1.11 *   280.00        177.11 *   430.00          178.04
140.00         1.65 *   290.00        177.14 *   440.00          177.95
150.00         2.36 *   300.00        174.65 *
*****

```


Channel Routing

Title: Design Point 23 Routed Thru Pipe

Description: 24 Hour
100 Yr

Hydrograph No.: 32
Branch No.: 2

Channel routing method: Channel storage

Reach length (ft)= 438
Slope (ft/ft)= .0245
Manning's n= .013

Channel type is circular: Diameter (inches)= 42

Routed Hydrograph

```
*****
Time          Flow *   Time          Flow *   Time          Flow
*****
10.00         0.00 *   160.00        3.08 *   310.00        167.84
20.00         0.00 *   170.00        3.66 *   320.00        167.84
30.00         0.00 *   180.00        4.24 *   330.00        167.84
40.00         0.00 *   190.00        4.87 *   340.00        167.84
50.00         0.00 *   200.00        5.30 *   350.00        167.84
60.00         0.00 *   210.00        5.77 *   360.00        167.84
70.00         0.00 *   220.00        6.31 *   370.00        167.84
80.00         0.00 *   230.00       11.45 *   380.00        167.84
90.00         0.00 *   240.00       20.63 *   390.00        167.84
100.00        0.03 *   250.00       37.60 *   400.00        167.84
110.00        0.21 *   260.00       51.54 *   410.00        167.84
120.00        0.57 *   270.00       64.45 *   420.00        167.84
130.00        1.05 *   280.00      167.84 *   430.00        167.84
140.00        1.59 *   290.00      167.84 *   440.00        167.84
150.00        2.28 *   300.00      167.84 *
*****
```

Channel capacity was exceeded.

Maximum ponded storage at channel inlet (cubic-ft)= 168287.5

Subarea Hydrograph Computation

Title: Design Point 29

Description: 24 Hour
100 Yr

Hydrograph No.: 33
Branch No.: 2

Subarea drainage area (acres): 2.26
Total upstream drainage area (acres): 126.44
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 78.5

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 10.1

Channel routing method: Channel storage

Reach length (ft)= 600
Slope (ft/ft)= .0235
Manning's n= .013

Channel type is trapezoidal: Bottom width (ft)= 4.5
Sideslope (H to 1V)= .88

		Unit hydrograph				
Time	0.00	1.11	2.21	3.32	4.42	
Discharge	0.0000	0.2782	0.9272	1.76	2.87	
Time	5.53	6.64	7.74	8.85	9.95	
Discharge	4.36	6.12	7.60	8.62	9.18	
Time	11.06	12.17	13.27	14.38	15.48	
Discharge	9.27	9.18	8.62	7.97	7.23	
Time	16.59	17.70	18.80	19.91	21.01	
Discharge	6.30	5.19	4.27	3.62	3.06	
Time	22.12	24.33	26.54	28.76	30.97	
Discharge	2.60	1.92	1.36	0.9921	0.7881	
Time	33.18	35.39	37.60	39.82	42.03	
Discharge	0.6119	0.4636	0.3245	0.2040	0.0927	
Time	44.24					
Discharge	0.0000					

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 10.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 20.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 30.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 40.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 50.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 60.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 70.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
 80.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
 90.00  0.01  0.01  0.00  0.01  0.00    0.00    0.00    0.00
100.00  0.01  0.01  0.00  0.01  0.00    0.00    0.03    0.03
110.00  0.01  0.01  0.00  0.01  0.00    0.00    0.21    0.21
120.00  0.01  0.01  0.00  0.01  0.00    0.00    0.57    0.58
130.00  0.01  0.01  0.00  0.01  0.00    0.00    1.05    1.06
140.00  0.01  0.01  0.00  0.00  0.00    0.01    1.59    1.60
150.00  0.01  0.01  0.00  0.00  0.00    0.01    2.28    2.29
160.00  0.01  0.01  0.00  0.00  0.00    0.01    3.08    3.09
170.00  0.01  0.01  0.00  0.00  0.00    0.01    3.66    3.68
180.00  0.01  0.01  0.00  0.00  0.00    0.01    4.24    4.26
190.00  0.01  0.01  0.00  0.00  0.00    0.01    4.87    4.89
200.00  0.01  0.01  0.00  0.00  0.00    0.01    5.30    5.31
210.00  0.01  0.01  0.00  0.00  0.00    0.02    5.77    5.78
220.00  0.01  0.01  0.00  0.01  0.01    0.02    6.31    6.32
230.00  0.02  0.02  0.00  0.01  0.01    0.03   11.45   11.48
240.00  0.02  0.02  0.00  0.01  0.01    0.04   20.63   20.67
250.00  0.02  0.02  0.00  0.01  0.01    0.06   37.60   37.66
260.00  0.02  0.02  0.00  0.01  0.01    0.07   51.54   51.61
270.00  0.02  0.02  0.00  0.01  0.01    0.07   64.45   64.52
280.00  0.02  0.02  0.00  0.01  0.02    0.08  167.84  167.92
290.00  0.03  0.03  0.00  0.01  0.03    0.08  167.84  167.92
300.00  0.04  0.04  0.00  0.01  0.04    0.12  167.84  167.96
310.00  0.07  0.07  0.00  0.01  0.06    0.17  167.84  168.01
320.00  0.48  0.44  0.04  0.03  0.44    0.28  167.84  168.12
330.00  0.88  0.54  0.34  0.02  0.86    1.89  167.84  169.73
340.00  0.88  0.35  0.53  0.01  0.87    5.69  167.84  173.53
350.00  0.48  0.14  0.34  0.00  0.47    8.23  167.84  176.07
360.00  0.07  0.02  0.05  0.00  0.07    6.48  167.84  174.32
370.00  0.07  0.02  0.05  0.00  0.07    2.65  167.84  170.49
380.00  0.06  0.01  0.04  0.00  0.06    1.26  167.84  169.10
390.00  0.04  0.01  0.03  0.00  0.04    0.81  167.84  168.65
400.00  0.04  0.01  0.03  0.00  0.04    0.59  167.84  168.43
410.00  0.04  0.01  0.03  0.00  0.04    0.53  167.84  168.37
420.00  0.03  0.01  0.02  0.00  0.03    0.46  167.84  168.30
430.00  0.03  0.01  0.02  0.00  0.03    0.38  167.84  168.22
440.00  0.03  0.01  0.02  0.00  0.03    0.36  167.84  168.20
*****
Totals  3.53  1.98  1.56  0.23  3.30

```

Runoff volume= .4168306 acre-ft
Total volume= 41.65529 acre-ft
Peak discharge (cfs)= 176.0674

Hydrology 24 Hour -- 100 Year Storm

SUMMARY TABLE

UNITS
Flow: cubic feet per second
Time: minutes
Volume: acre-feet
Area: acres
Stage: feet
Pipe size: inches

Hyd. Brch	Peak	Time	Volume	Basin	Maximum	Pipe
No. No.	Flow	of		Area	Stage	size

Peak						

1	1	1.9	350.00	0.10	0.38	
2	2	29.7	350.00	1.58	6.90	
3	2	17.5	350.00	0.79	6.90	
4	2	52.6	350.00	2.64	14.88	
5	3	6.2	350.00	0.33	2.21	
6	3	11.0	350.00	0.60	3.94	24
7	3	27.1	350.00	1.40	9.83	24
8	3	72.0	350.00	3.81	27.65	36
9	3	79.0	350.00	4.18	29.99	36
10	3	100.4	350.00	5.31	37.16	
11	2	153.0	350.00	7.95	52.04	36
12	3	3.9	350.00	0.19	0.78	18
13	3	4.8	350.00	0.24	0.96	
14	2	157.8	350.00	8.19	53.00	36
15	3	20.8	350.00	1.02	4.32	
16	2	178.6	350.00	9.21	57.32	
17	4	4.8	350.00	0.24	1.32	18
18	4	29.7	350.00	1.45	10.16	
19	4	38.0	350.00	1.86	12.91	
20	4	51.7	350.00	2.55	17.38	24
21	4	43.3	350.00	4.37	18.01	24
22	4	129.5	350.00	8.98	46.35	30
23	4	90.1	350.00	8.81	47.24	30
24	4	90.2	350.00	20.64	48.14	30
25	4	81.0	350.00	20.04	49.31	
26	5	49.6	350.00	2.65	10.89	
27	2	309.2	350.00	31.90	117.52	
28	2	176.4	280.00	43.02	117.52	36
29	2	176.4	280.00	43.02	117.52	
30	3	41.8	350.00	2.18	8.92	
31	2	218.2	350.00	45.20	126.44	
32	2	167.8	280.00	41.24	126.44	42
33	2	176.1	350.00	41.66	128.70	

Hydrology
2 Hour -- 10 Year Storm

Date: 05-03-1989
Project: T-Gap Sub basin 2 Drainage Study
Description: Templeton Heights Filing No. 1
Existing Design Points using
New City/County Criteria 24 hr Storm

Units: Drainage area	acres
Precipitation depth	inches
Length, elevation	feet
Flow	cubic feet per second
Storage volume	acre-feet
Time	minutes

Beginning time: 0
Ending time: 240
Time interval: 10
Number of intervals: 25

Total Precipitation (inches): 2.06
Total Storm Duration (hours): 2

Precipitation Distribution:

Time	0.00	5.00	10.00	15.00	20.00
Unit depth	0.0000	0.0173	0.0320	0.0709	0.1296
Time	25.00	30.00	35.00	40.00	45.00
Unit depth	0.2161	0.1037	0.0484	0.0372	0.0328
Time	50.00	55.00	60.00	65.00	70.00
Unit depth	0.0277	0.0277	0.0277	0.0277	0.0277
Time	75.00	80.00	85.00	90.00	95.00
Unit depth	0.0277	0.0216	0.0164	0.0164	0.0164
Time	100.00	105.00	110.00	115.00	120.00
Unit depth	0.0164	0.0164	0.0164	0.0147	0.0112

SCS curve number equation initial abstraction coefficient: .2

Subarea Hydrograph Computation

Title: Design Point 1

Description: 2 Hour Storm
10 Yr

Hydrograph No.: 1
Branch No.: 1

Subarea drainage area (acres): .38
Total upstream drainage area (acres): 0
Percent impervious area: 100
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 97

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 5

	Unit hydrograph				
Time	0.00	0.80	1.60	2.40	3.20
Discharge	0.0000	0.0647	0.2155	0.4095	0.6681
Time	4.00	4.80	5.60	6.40	7.20
Discharge	1.01	1.42	1.77	2.00	2.13
Time	8.00	8.80	9.60	10.40	11.20
Discharge	2.16	2.13	2.00	1.85	1.68
Time	12.00	12.80	13.60	14.40	15.20
Discharge	1.47	1.21	0.9914	0.8406	0.7113
Time	16.00	17.60	19.20	20.80	22.40
Discharge	0.6035	0.4461	0.3168	0.2306	0.1832
Time	24.00	25.60	27.20	28.80	30.40
Discharge	0.1423	0.1078	0.0754	0.0474	0.0216
Time	32.00				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
10.00  0.10  0.10  0.00  0.09  0.01  0.00  0.00  0.00
20.00  0.41  0.15  0.26  0.10  0.32  0.03  0.00  0.03
30.00  0.66  0.06  0.60  0.03  0.63  0.62  0.00  0.62
40.00  0.18  0.01  0.17  0.00  0.17  1.30  0.00  1.30
50.00  0.12  0.00  0.12  0.00  0.12  0.51  0.00  0.51
60.00  0.11  0.00  0.11  0.00  0.11  0.30  0.00  0.30
70.00  0.11  0.00  0.11  0.00  0.11  0.25  0.00  0.25
80.00  0.10  0.00  0.10  0.00  0.10  0.25  0.00  0.25
90.00  0.07  0.00  0.07  0.00  0.07  0.23  0.00  0.23
100.00 0.07  0.00  0.07  0.00  0.07  0.16  0.00  0.16
110.00 0.07  0.00  0.07  0.00  0.07  0.15  0.00  0.15
120.00 0.05  0.00  0.05  0.00  0.05  0.15  0.00  0.15
130.00 0.00  0.00  0.00  0.00  0.00  0.12  0.00  0.12
140.00 0.00  0.00  0.00  0.00  0.00  0.02  0.00  0.02
150.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
160.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
170.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
180.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
190.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
200.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
210.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
220.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
230.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
240.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
*****
Totals 2.06  0.33  1.73  0.23  1.83

```

```

Runoff volume= 5.634546E-02 acre-ft
Total volume= 5.634546E-02 acre-ft
Peak discharge (cfs)= 1.29957

```


Subarea Hydrograph Computation

Title: Design Point 2

Description: 2 Hour
10 Yr

Hydrograph No.: 2
Branch No.: 2

Subarea drainage area (acres): 6.9
Total upstream drainage area (acres): 0
Percent impervious area: 12
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 97

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 13.5

		Unit hydrograph				
Time	0.00	1.31	2.62	3.93	5.24	
Discharge	0.0000	0.7170	2.39	4.54	7.41	
Time	6.55	7.86	9.17	10.48	11.79	
Discharge	11.23	15.77	19.60	22.23	23.66	
Time	13.10	14.41	15.72	17.03	18.34	
Discharge	23.90	23.66	22.23	20.55	18.64	
Time	19.65	20.96	22.27	23.58	24.89	
Discharge	16.25	13.38	10.99	9.32	7.89	
Time	26.20	28.82	31.44	34.06	36.68	
Discharge	6.69	4.95	3.51	2.56	2.03	
Time	39.30	41.92	44.54	47.16	49.78	
Discharge	1.58	1.19	0.8365	0.5258	0.2390	
Time	52.40					
Discharge	0.0000					

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
20.00  0.41  0.15  0.26  0.10  0.32    0.12    0.00    0.12
30.00  0.66  0.06  0.60  0.03  0.63    5.84    0.00    5.84
40.00  0.18  0.01  0.17  0.00  0.17   17.06    0.00   17.06
50.00  0.12  0.00  0.12  0.00  0.12   14.12    0.00   14.12
60.00  0.11  0.00  0.11  0.00  0.11    8.18    0.00    8.18
70.00  0.11  0.00  0.11  0.00  0.11    5.90    0.00    5.90
80.00  0.10  0.00  0.10  0.00  0.10    4.98    0.00    4.98
90.00  0.07  0.00  0.07  0.00  0.07    4.52    0.00    4.52
100.00 0.07  0.00  0.07  0.00  0.07    3.61    0.00    3.61
110.00 0.07  0.00  0.07  0.00  0.07    3.05    0.00    3.05
120.00 0.05  0.00  0.05  0.00  0.05    2.90    0.00    2.90
130.00 0.00  0.00  0.00  0.00  0.00    2.55    0.00    2.55
140.00 0.00  0.00  0.00  0.00  0.00    1.21    0.00    1.21
150.00 0.00  0.00  0.00  0.00  0.00    0.34    0.00    0.34
160.00 0.00  0.00  0.00  0.00  0.00    0.09    0.00    0.09
170.00 0.00  0.00  0.00  0.00  0.00    0.01    0.00    0.01
180.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals 2.06  0.33  1.73  0.23  1.83

```

```

Runoff volume= 1.026038 acre-ft
Total volume= 1.026038 acre-ft
Peak discharge (cfs)= 17.05883

```

Hydrograph Diversion

Title: Design Point 2 Diversion

Description: 2 Hour
10 Yr

Hydrograph No.: 3
Branch No.: 2

Hydrograph Diversion Table

Inflow	11.60	19.10	20.30	29.70
Diversion	7.48	10.39	10.94	12.18

Diverted hydrograph

```
*****
Time      Flow %      Time      Flow %      Time      Flow
*****
10.00     0.00 %    100.00     2.33 %    190.00     0.00
20.00     0.08 %    110.00     1.97 %    200.00     0.00
30.00     3.77 %    120.00     1.87 %    210.00     0.00
40.00     9.28 %    130.00     1.64 %    220.00     0.00
50.00     7.68 %    140.00     0.78 %    230.00     0.00
60.00     5.28 %    150.00     0.22 %    240.00     0.00
70.00     3.80 %    160.00     0.06 %
80.00     3.21 %    170.00     0.01 %
90.00     2.92 %    180.00     0.00 %
*****
```

Remaining hydrograph

```

*****
Time      Flow *      Time      Flow *      Time      Flow
*****
10.00      0.00 *    100.00      1.28 *    190.00      0.00
20.00      0.04 *    110.00      1.08 *    200.00      0.00
30.00      2.08 *    120.00      1.03 *    210.00      0.00
40.00      7.78 *    130.00      0.91 *    220.00      0.00
50.00      6.44 *    140.00      0.43 *    230.00      0.00
60.00      2.91 *    150.00      0.12 *    240.00      0.00
70.00      2.10 *    160.00      0.03 *
80.00      1.77 *    170.00      0.00 *
90.00      1.61 *    180.00      0.00 *
*****

```

Subarea Hydrograph Computation

Title: Design Point 3

Description: 2 Hour
10 Yr

Hydrograph No.: 4
Branch No.: 2

Subarea drainage area (acres): 7.98
Total upstream drainage area (acres): 6.9
Percent impervious area: 20
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 97

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 6.72

Channel routing method: Channel storage

Reach length (ft)= 2300
Slope (ft/ft)= .0634
Manning's n= .016

Channel type is trapezoidal: Bottom width (ft)= 0
Sideslope (H to 1V)= 25

Unit hydrograph					
Time	0.00	0.90	1.81	2.71	3.61
Discharge	0.0000	1.20	4.01	7.62	12.43
Time	4.52	5.42	6.32	7.23	8.13
Discharge	18.84	26.46	32.87	37.28	39.69
Time	9.03	9.94	10.84	11.74	12.64
Discharge	40.09	39.69	37.28	34.48	31.27
Time	13.55	14.45	15.35	16.26	17.16
Discharge	27.26	22.45	18.44	15.64	13.23
Time	18.06	19.87	21.68	23.48	25.29
Discharge	11.23	8.30	5.89	4.29	3.41
Time	27.10	28.90	30.71	32.52	34.32
Discharge	2.65	2.00	1.40	0.8820	0.4009
Time	36.13				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious  erv.  erv.  Hydro- Upstream  Hyd.
        Loss Excess Loss Excess graph   Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
20.00  0.41  0.15  0.26  0.10  0.32    0.25    0.02    0.27
30.00  0.66  0.06  0.60  0.03  0.63   10.92    0.94   11.86
40.00  0.18  0.01  0.17  0.00  0.17   26.20    4.30   30.50
50.00  0.12  0.00  0.12  0.00  0.12   12.08    6.56   18.64
60.00  0.11  0.00  0.11  0.00  0.11    7.14    4.57   11.71
70.00  0.11  0.00  0.11  0.00  0.11    5.64    2.99    8.63
80.00  0.10  0.00  0.10  0.00  0.10    5.49    2.19    7.68
90.00  0.07  0.00  0.07  0.00  0.07    5.01    1.81    6.82
100.00 0.07  0.00  0.07  0.00  0.07    3.61    1.52    5.13
110.00 0.07  0.00  0.07  0.00  0.07    3.33    1.26    4.58
120.00 0.05  0.00  0.05  0.00  0.05    3.28    1.11    4.38
130.00 0.00  0.00  0.00  0.00  0.00    2.73    0.99    3.72
140.00 0.00  0.00  0.00  0.00  0.00    0.54    0.72    1.25
150.00 0.00  0.00  0.00  0.00  0.00    0.09    0.37    0.46
160.00 0.00  0.00  0.00  0.00  0.00    0.00    0.15    0.15
170.00 0.00  0.00  0.00  0.00  0.00    0.00    0.05    0.05
180.00 0.00  0.00  0.00  0.00  0.00    0.00    0.01    0.01
190.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals 2.06  0.33  1.73  0.23  1.83

```

Runoff volume= 1.188571 acre-ft
Total volume= 1.595675 acre-ft
Peak discharge (cfs)= 30.49506

Subarea Hydrograph Computation

Title: Design Point 4

Description: 2 Hour
10 Yr

Hydrograph No.: 5
Branch No.: 3

Subarea drainage area (acres): 2.21
Total upstream drainage area (acres): 0
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 11.48

	Unit hydrograph				
Time	0.00	1.19	2.38	3.57	4.76
Discharge	0.0000	0.2531	0.8435	1.60	2.61
Time	5.94	7.13	8.32	9.51	10.70
Discharge	3.96	5.57	6.92	7.84	8.35
Time	11.89	13.08	14.27	15.45	16.64
Discharge	8.44	8.35	7.84	7.25	6.58
Time	17.83	19.02	20.21	21.40	22.59
Discharge	5.74	4.72	3.88	3.29	2.78
Time	23.78	26.15	28.53	30.91	33.29
Discharge	2.36	1.75	1.24	0.9026	0.7170
Time	35.66	38.04	40.42	42.80	45.17
Discharge	0.5567	0.4218	0.2952	0.1856	0.0844
Time	47.55				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv.  erv.  Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph      Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
 20.00  0.41  0.39  0.03  0.10  0.32    0.04    0.00    0.04
 30.00  0.66  0.36  0.30  0.03  0.63    1.15    0.00    1.15
 40.00  0.18  0.07  0.11  0.00  0.17    4.00    0.00    4.00
 50.00  0.12  0.04  0.08  0.00  0.12    2.95    0.00    2.95
 60.00  0.11  0.03  0.08  0.00  0.11    1.82    0.00    1.82
 70.00  0.11  0.03  0.08  0.00  0.11    1.42    0.00    1.42
 80.00  0.10  0.03  0.08  0.00  0.10    1.28    0.00    1.28
 90.00  0.07  0.02  0.05  0.00  0.07    1.19    0.00    1.19
100.00  0.07  0.02  0.05  0.00  0.07    0.93    0.00    0.93
110.00  0.07  0.02  0.05  0.00  0.07    0.81    0.00    0.81
120.00  0.05  0.01  0.04  0.00  0.05    0.79    0.00    0.79
130.00  0.00  0.00  0.00  0.00  0.00    0.68    0.00    0.68
140.00  0.00  0.00  0.00  0.00  0.00    0.26    0.00    0.26
150.00  0.00  0.00  0.00  0.00  0.00    0.07    0.00    0.07
160.00  0.00  0.00  0.00  0.00  0.00    0.01    0.00    0.01
170.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
180.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals  2.06  1.11  0.95  0.23  1.83

```

```

Runoff volume= .2398283 acre-ft
Total volume= .2398283 acre-ft
Peak discharge (cfs)= 3.997074

```


Subarea Hydrograph Computation

Title: Design Point 5

Description: 2 Hour
10 Yr

Hydrograph No.: 6
Branch No.: 3

Subarea drainage area (acres): 1.73
Total upstream drainage area (acres): 2.21
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 11.7

Channel routing method: Channel storage

Reach length (ft)= 400
Slope (ft/ft)= .16
Manning's n= .035

Channel type is trapezoidal: Bottom width (ft)= 1
Sideslope (H to 1V)= 4

Unit hydrograph					
Time	0.00	1.20	2.40	3.61	4.81
Discharge	0.0000	0.1959	0.6531	1.24	2.02
Time	6.01	7.21	8.41	9.62	10.82
Discharge	3.07	4.31	5.36	6.07	6.47
Time	12.02	13.22	14.42	15.63	16.83
Discharge	6.53	6.47	6.07	5.62	5.09
Time	18.03	19.23	20.43	21.64	22.84
Discharge	4.44	3.66	3.00	2.55	2.16
Time	24.04	26.44	28.85	31.25	33.66
Discharge	1.83	1.35	0.9600	0.6988	0.5551
Time	36.06	38.46	40.87	43.27	45.68
Discharge	0.4310	0.3265	0.2286	0.1437	0.0653
Time	48.08				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious  erv.  erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph      Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
20.00  0.41  0.39  0.03  0.10  0.32    0.03    0.04    0.08
30.00  0.66  0.36  0.30  0.03  0.63    0.89    1.15    2.04
40.00  0.18  0.07  0.11  0.00  0.17    3.10    4.00    7.09
50.00  0.12  0.04  0.08  0.00  0.12    2.33    2.95    5.28
60.00  0.11  0.03  0.08  0.00  0.11    1.44    1.82    3.27
70.00  0.11  0.03  0.08  0.00  0.11    1.12    1.42    2.53
80.00  0.10  0.03  0.08  0.00  0.10    1.00    1.28    2.28
90.00  0.07  0.02  0.05  0.00  0.07    0.94    1.19    2.13
100.00 0.07  0.02  0.05  0.00  0.07    0.73    0.93    1.67
110.00 0.07  0.02  0.05  0.00  0.07    0.64    0.81    1.45
120.00 0.05  0.01  0.04  0.00  0.05    0.62    0.79    1.41
130.00 0.00  0.00  0.00  0.00  0.00    0.54    0.68    1.22
140.00 0.00  0.00  0.00  0.00  0.00    0.21    0.26    0.48
150.00 0.00  0.00  0.00  0.00  0.00    0.05    0.07    0.12
160.00 0.00  0.00  0.00  0.00  0.00    0.01    0.01    0.03
170.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
180.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals 2.06  1.11  0.95  0.23  1.83

```

```

Runoff volume= .1881548 acre-ft
Total volume= .4279831 acre-ft
Peak discharge (cfs)= 7.093369

```

Subarea Hydrograph Computation

Title: Design Point 6

Description: 2 Hour
10 Yr

Hydrograph No.: 7
Branch No.: 3

Subarea drainage area (acres): 5.89
Total upstream drainage area (acres): 3.94
Percent impervious area: 31
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 8.64

Channel routing method: Channel storage

Reach length (ft)= 265
Slope (ft/ft)= .071
Manning's n= .013

Channel type is circular: Diameter (inches)= 24

Unit hydrograph					
Time	0.00	1.02	2.04	3.06	4.07
Discharge	0.0000	0.7873	2.62	4.99	8.14
Time	5.09	6.11	7.13	8.15	9.17
Discharge	12.33	17.32	21.52	24.41	25.98
Time	10.18	11.20	12.22	13.24	14.26
Discharge	26.24	25.98	24.41	22.57	20.47
Time	15.28	16.29	17.31	18.33	19.35
Discharge	17.85	14.70	12.07	10.23	8.66
Time	20.37	22.40	24.44	26.48	28.52
Discharge	7.35	5.43	3.86	2.81	2.23
Time	30.55	32.59	34.63	36.66	38.70
Discharge	1.73	1.31	0.9185	0.5773	0.2624
Time	40.74				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
20.00  0.41  0.39  0.03  0.10  0.32    0.11    0.08    0.19
30.00  0.66  0.36  0.30  0.03  0.63    3.10    2.04    5.14
40.00  0.18  0.07  0.11  0.00  0.17   11.37    7.09   18.46
50.00  0.12  0.04  0.08  0.00  0.12    6.75    5.28   12.03
60.00  0.11  0.03  0.08  0.00  0.11    4.28    3.27    7.55
70.00  0.11  0.03  0.08  0.00  0.11    3.38    2.53    5.92
80.00  0.10  0.03  0.08  0.00  0.10    3.30    2.28    5.57
90.00  0.07  0.02  0.05  0.00  0.07    3.07    2.13    5.20
100.00 0.07  0.02  0.05  0.00  0.07    2.30    1.67    3.97
110.00 0.07  0.02  0.05  0.00  0.07    2.09    1.45    3.54
120.00 0.05  0.01  0.04  0.00  0.05    2.05    1.41    3.46
130.00 0.00  0.00  0.00  0.00  0.00    1.75    1.22    2.97
140.00 0.00  0.00  0.00  0.00  0.00    0.47    0.48    0.95
150.00 0.00  0.00  0.00  0.00  0.00    0.09    0.12    0.21
160.00 0.00  0.00  0.00  0.00  0.00    0.00    0.03    0.03
170.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
180.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals 2.06  1.11  0.95  0.23  1.83

```

```

Runoff volume= .6075212 acre-ft
Total volume= 1.035504 acre-ft
Peak discharge (cfs)= 18.46458

```

Subarea Hydrograph Computation

Title: Design Point 7

Description: 2 Hour
10 Yr

Hydrograph No.: 8
Branch No.: 3

Subarea drainage area (acres): 17.82
Total upstream drainage area (acres): 9.83
Percent impervious area: 31
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 11.44

Channel routing method: Channel storage

Reach length (ft)= 141
Slope (ft/ft)= .0629
Manning's n= .013

Channel type is circular: Diameter (inches)= 24

Unit hydrograph					
Time	0.00	1.19	2.37	3.56	4.75
Discharge	0.0000	2.04	6.82	12.95	21.13
Time	5.93	7.12	8.30	9.49	10.68
Discharge	32.03	44.98	55.89	63.38	67.47
Time	11.86	13.05	14.24	15.42	16.61
Discharge	68.15	67.47	63.38	58.61	53.16
Time	17.80	18.98	20.17	21.36	22.54
Discharge	46.34	38.17	31.35	26.58	22.49
Time	23.73	26.10	28.47	30.85	33.22
Discharge	19.08	14.11	10.02	7.29	5.79
Time	35.59	37.96	40.34	42.71	45.08
Discharge	4.50	3.41	2.39	1.50	0.6815
Time	47.46				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious  erv.  erv. Hydro- Upstream  Hyd.
        Loss Excess Loss Excess graph      Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
20.00  0.41  0.39  0.03  0.10  0.32    0.28    0.19    0.47
30.00  0.66  0.36  0.30  0.03  0.63    7.77    5.14   12.91
40.00  0.18  0.07  0.11  0.00  0.17   29.80   18.46   48.26
50.00  0.12  0.04  0.08  0.00  0.12   22.34   12.03   34.37
60.00  0.11  0.03  0.08  0.00  0.11   14.03    7.55   21.58
70.00  0.11  0.03  0.08  0.00  0.11   11.03    5.92   16.95
80.00  0.10  0.03  0.08  0.00  0.10   10.00    5.57   15.57
90.00  0.07  0.02  0.05  0.00  0.07    9.36    5.20   14.56
100.00 0.07  0.02  0.05  0.00  0.07    7.33    3.97   11.29
110.00 0.07  0.02  0.05  0.00  0.07    6.42    3.54    9.96
120.00 0.05  0.01  0.04  0.00  0.05    6.22    3.46    9.68
130.00 0.00  0.00  0.00  0.00  0.00    5.41    2.97    8.38
140.00 0.00  0.00  0.00  0.00  0.00    2.08    0.95    3.03
150.00 0.00  0.00  0.00  0.00  0.00    0.52    0.21    0.73
160.00 0.00  0.00  0.00  0.00  0.00    0.11    0.03    0.15
170.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
180.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals 2.06  1.11  0.95  0.23  1.83

```

```

Runoff volume= 1.827871 acre-ft
Total volume=  2.863375 acre-ft
Peak discharge (cfs)= 48.26271

```

Subarea Hydrograph Computation

Title: Design Point 8

Description: 2 Hour
10 Yr

Hydrograph No.: 9
Branch No.: 3

Subarea drainage area (acres): 2.34
Total upstream drainage area (acres): 27.65
Percent impervious area: 42
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 10.72

Channel routing method: Channel storage

Reach length (ft)= 214
Slope (ft/ft)= .0122
Manning's n= .013

Channel type is circular: Diameter (inches)= 36

	Unit hydrograph				
Time	0.00	1.14	2.29	3.43	4.57
Discharge	0.0000	0.2786	0.9288	1.76	2.88
Time	5.72	6.86	8.00	9.15	10.29
Discharge	4.37	6.13	7.62	8.64	9.19
Time	11.43	12.58	13.72	14.86	16.00
Discharge	9.29	9.19	8.64	7.99	7.24
Time	17.15	18.29	19.43	20.58	21.72
Discharge	6.32	5.20	4.27	3.62	3.06
Time	22.86	25.15	27.44	29.72	32.01
Discharge	2.60	1.92	1.37	0.9938	0.7895
Time	34.30	36.58	38.87	41.16	43.44
Discharge	0.6130	0.4644	0.3251	0.2043	0.0929
Time	45.73				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
 10.00  0.10  0.10  0.00  0.09  0.01  0.00  0.00  0.00
 20.00  0.41  0.39  0.03  0.10  0.32  0.05  0.47  0.52
 30.00  0.66  0.36  0.30  0.03  0.63  1.37 12.91 14.28
 40.00  0.18  0.07  0.11  0.00  0.17  4.54 48.26 52.80
 50.00  0.12  0.04  0.08  0.00  0.12  3.11 34.37 37.48
 60.00  0.11  0.03  0.08  0.00  0.11  1.91 21.58 23.49
 70.00  0.11  0.03  0.08  0.00  0.11  1.49 16.95 18.43
 80.00  0.10  0.03  0.08  0.00  0.10  1.36 15.57 16.93
 90.00  0.07  0.02  0.05  0.00  0.07  1.27 14.56 15.83
100.00  0.07  0.02  0.05  0.00  0.07  0.98 11.29 12.27
110.00  0.07  0.02  0.05  0.00  0.07  0.86  9.96 10.82
120.00  0.05  0.01  0.04  0.00  0.05  0.84  9.68 10.52
130.00  0.00  0.00  0.00  0.00  0.00  0.73  8.38  9.11
140.00  0.00  0.00  0.00  0.00  0.00  0.26  3.03  3.28
150.00  0.00  0.00  0.00  0.00  0.00  0.06  0.73  0.79
160.00  0.00  0.00  0.00  0.00  0.00  0.01  0.15  0.16
170.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
180.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
190.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
200.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
210.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
220.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
230.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
240.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
*****
Totals  2.06  1.11  0.95  0.23  1.83

```

Runoff volume= .2594375 acre-ft
 Total volume= 3.122813 acre-ft
 Peak discharge (cfs)= 52.79945

Subarea Hydrograph Computation

Title: Design Point 9

Description: 2 Hour
10 Yr

Hydrograph No.: 10
Branch No.: 3

Subarea drainage area (acres): 7.17
Total upstream drainage area (acres): 29.99
Percent impervious area: 42
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 9.19

Channel routing method: Channel storage

Reach length (ft)= 123
Slope (ft/ft)= .0122
Manning's n= .013

Channel type is circular: Diameter (inches)= 36

	Unit hydrograph				
Time	0.00	1.05	2.10	3.15	4.21
Discharge	0.0000	0.9283	3.09	5.88	9.59
Time	5.26	6.31	7.36	8.41	9.46
Discharge	14.54	20.42	25.37	28.78	30.63
Time	10.51	11.57	12.62	13.67	14.72
Discharge	30.94	30.63	28.78	26.61	24.14
Time	15.77	16.82	17.87	18.93	19.98
Discharge	21.04	17.33	14.23	12.07	10.21
Time	21.03	23.13	25.23	27.34	29.44
Discharge	8.66	6.41	4.55	3.31	2.63
Time	31.54	33.64	35.75	37.85	39.95
Discharge	2.04	1.55	1.08	0.6808	0.3094
Time	42.06				
Discharge	0.0000				

Time	Rain	Perv- ious Loss	Perv- ious Excess	Imp- erv. Loss	Imp- erv. Excess	Subarea Hydro- graph	Routed Upstream Hyd.	Total Hyd.
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10.00	0.10	0.10	0.00	0.09	0.01	0.00	0.00	0.00
20.00	0.41	0.39	0.03	0.10	0.32	0.18	0.52	0.70
30.00	0.66	0.36	0.30	0.03	0.63	4.65	14.28	18.93
40.00	0.18	0.07	0.11	0.00	0.17	14.94	52.80	67.74
50.00	0.12	0.04	0.08	0.00	0.12	9.02	37.48	46.49
60.00	0.11	0.03	0.08	0.00	0.11	5.59	23.49	29.08
70.00	0.11	0.03	0.08	0.00	0.11	4.36	18.43	22.80
80.00	0.10	0.03	0.08	0.00	0.10	4.17	16.93	21.10
90.00	0.07	0.02	0.05	0.00	0.07	3.87	15.83	19.71
100.00	0.07	0.02	0.05	0.00	0.07	2.92	12.27	15.19
110.00	0.07	0.02	0.05	0.00	0.07	2.62	10.82	13.45
120.00	0.05	0.01	0.04	0.00	0.05	2.57	10.52	13.09
130.00	0.00	0.00	0.00	0.00	0.00	2.19	9.11	11.30
140.00	0.00	0.00	0.00	0.00	0.00	0.64	3.28	3.92
150.00	0.00	0.00	0.00	0.00	0.00	0.13	0.79	0.92
160.00	0.00	0.00	0.00	0.00	0.00	0.01	0.16	0.17
170.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
190.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
210.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
230.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
240.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Totals	2.06	1.11	0.95	0.23	1.83			

Runoff volume= .7970315 acre-ft
 Total volume= 3.919845 acre-ft
 Peak discharge (cfs)= 67.73803

Branch Confluence

Title: Design Point 9 Combined

Description: 2 Hour
10 Yr

Hydrograph No.: 11
Branch No.: 2

Combined Branches: 2 3

```
*****
Time      Flow %      Time      Flow %      Time      Flow
*****
10.00      0.00 %    100.00      20.32 %    190.00      0.00
20.00      0.97 %    110.00      18.03 %    200.00      0.00
30.00     30.78 %    120.00      17.47 %    210.00      0.00
40.00     98.23 %    130.00      15.02 %    220.00      0.00
50.00     65.13 %    140.00       5.18 %    230.00      0.00
60.00     40.79 %    150.00       1.38 %    240.00      0.00
70.00     31.43 %    160.00       0.32 %
80.00     28.79 %    170.00       0.05 %
90.00     26.53 %    180.00       0.01 %
*****
```

Subarea Hydrograph Computation

Title: Design Point 10

Description: 2 Hour
10 Yr

Hydrograph No.: 12
Branch No.: 3

Subarea drainage area (acres): .78
Total upstream drainage area (acres): 0
Percent impervious area: 67
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 97

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 5

Channel routing method: Channel storage

Reach length (ft)= 44
Slope (ft/ft)= .022
Manning's n= .013

Channel type is circular: Diameter (inches)= 36

Unit hydrograph						
Time	0.00	0.80	1.60	2.40	3.20	
Discharge	0.0000	0.1327	0.4424	0.8406	1.37	
Time	4.00	4.80	5.60	6.40	7.20	
Discharge	2.08	2.92	3.63	4.11	4.38	
Time	8.00	8.80	9.60	10.40	11.20	
Discharge	4.42	4.38	4.11	3.80	3.45	
Time	12.00	12.80	13.60	14.40	15.20	
Discharge	3.01	2.48	2.04	1.73	1.46	
Time	16.00	17.60	19.20	20.80	22.40	
Discharge	1.24	0.9158	0.6503	0.4734	0.3760	
Time	24.00	25.60	27.20	28.80	30.40	
Discharge	0.2920	0.2212	0.1548	0.0973	0.0442	
Time	32.00					
Discharge	0.0000					

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
10.00  0.10  0.10  0.00  0.09  0.01  0.00  0.00  0.00
20.00  0.41  0.15  0.26  0.10  0.32  0.04  0.00  0.04
30.00  0.66  0.06  0.60  0.03  0.63  1.19  0.00  1.19
40.00  0.18  0.01  0.17  0.00  0.17  2.62  0.00  2.62
50.00  0.12  0.00  0.12  0.00  0.12  1.04  0.00  1.04
60.00  0.11  0.00  0.11  0.00  0.11  0.61  0.00  0.61
70.00  0.11  0.00  0.11  0.00  0.11  0.52  0.00  0.52
80.00  0.10  0.00  0.10  0.00  0.10  0.51  0.00  0.51
90.00  0.07  0.00  0.07  0.00  0.07  0.46  0.00  0.46
100.00 0.07  0.00  0.07  0.00  0.07  0.33  0.00  0.33
110.00 0.07  0.00  0.07  0.00  0.07  0.31  0.00  0.31
120.00 0.05  0.00  0.05  0.00  0.05  0.31  0.00  0.31
130.00 0.00  0.00  0.00  0.00  0.00  0.25  0.00  0.25
140.00 0.00  0.00  0.00  0.00  0.00  0.03  0.00  0.03
150.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
160.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
170.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
180.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
190.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
200.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
210.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
220.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
230.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
240.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
*****
Totals 2.06  0.33  1.73  0.23  1.83

```

```

Runoff volume= .1135021 acre-ft
Total volume= .1135021 acre-ft
Peak discharge (cfs)= 2.621097

```

Subarea Hydrograph Computation

Title: Design Point 11

Description: 2 Hour
10 Yr

Hydrograph No.: 13
Branch No.: 3

Subarea drainage area (acres): .18
Total upstream drainage area (acres): .78
Percent impervious area: 80
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 97

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 6.46

Channel routing method: Channel storage

Reach length (ft)= 16
Slope (ft/ft)= .02
Manning's n= .013

Channel type is circular: Diameter (inches)= 18

Unit hydrograph					
Time	0.00	0.89	1.78	2.66	3.55
Discharge	0.0000	0.0276	0.0920	0.1748	0.2853
Time	4.44	5.33	6.21	7.10	7.99
Discharge	0.4325	0.6073	0.7545	0.8558	0.9110
Time	8.88	9.76	10.65	11.54	12.43
Discharge	0.9202	0.9110	0.8558	0.7914	0.7177
Time	13.31	14.20	15.09	15.98	16.86
Discharge	0.6257	0.5153	0.4233	0.3589	0.3037
Time	17.75	19.53	21.30	23.08	24.85
Discharge	0.2576	0.1905	0.1353	0.0985	0.0782
Time	26.63	28.40	30.18	31.95	33.73
Discharge	0.0607	0.0460	0.0322	0.0202	0.0092
Time	35.50				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious  erv.  erv.  Hydro- Upstream  Hyd.
        Loss Excess Loss Excess graph   Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
20.00  0.41  0.15  0.26  0.10  0.32    0.01    0.04    0.05
30.00  0.66  0.06  0.60  0.03  0.63    0.28    1.19    1.47
40.00  0.18  0.01  0.17  0.00  0.17    0.61    2.62    3.23
50.00  0.12  0.00  0.12  0.00  0.12    0.27    1.04    1.32
60.00  0.11  0.00  0.11  0.00  0.11    0.16    0.61    0.77
70.00  0.11  0.00  0.11  0.00  0.11    0.13    0.52    0.65
80.00  0.10  0.00  0.10  0.00  0.10    0.12    0.51    0.64
90.00  0.07  0.00  0.07  0.00  0.07    0.11    0.46    0.58
100.00 0.07  0.00  0.07  0.00  0.07    0.08    0.33    0.41
110.00 0.07  0.00  0.07  0.00  0.07    0.08    0.31    0.38
120.00 0.05  0.00  0.05  0.00  0.05    0.07    0.31    0.38
130.00 0.00  0.00  0.00  0.00  0.00    0.06    0.25    0.31
140.00 0.00  0.00  0.00  0.00  0.00    0.01    0.03    0.05
150.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
160.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
170.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
180.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals 2.06  0.33  1.73  0.23  1.83

```

Runoff volume= 2.761151E-02 acre-ft
 Total volume= .1411135 acre-ft
 Peak discharge (cfs)= 3.233691

Branch Confluence

Title: Design Point 11 Combined

Description: 2 Hour
10 Yr

Hydrograph No.: 14
Branch No.: 2

Combined Branches: 2 3

```

*****
Time      Flow %      Time      Flow %      Time      Flow
*****
10.00      0.00 %    100.00      20.73 %    190.00      0.00
20.00      1.03 %    110.00      18.42 %    200.00      0.00
30.00     32.25 %    120.00      17.85 %    210.00      0.00
40.00    101.47 %    130.00      15.33 %    220.00      0.00
50.00     66.45 %    140.00       5.22 %    230.00      0.00
60.00     41.57 %    150.00      1.38 %    240.00      0.00
70.00     32.08 %    160.00      0.32 %
80.00     29.42 %    170.00      0.05 %
90.00     27.11 %    180.00      0.01 %
*****

```


Subarea Hydrograph Computation

Title: Design Point 12

Description: 2 Hour
10 Yr

Hydrograph No.: 15
Branch No.: 3

Subarea drainage area (acres): 4.32
Total upstream drainage area (acres): 0
Percent impervious area: 15
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 97

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 8.14

Channel routing method: Channel storage

Reach length (ft)= 1000
Slope (ft/ft)= .0373
Manning's n= .013

Channel type is circular: Diameter (inches)= 36

	Unit hydrograph				
Time	0.00	0.99	1.98	2.97	3.95
Discharge	0.0000	0.5950	1.98	3.77	6.15
Time	4.94	5.93	6.92	7.91	8.90
Discharge	9.32	13.09	16.26	18.44	19.63
Time	9.88	10.87	11.86	12.85	13.84
Discharge	19.83	19.63	18.44	17.06	15.47
Time	14.83	15.81	16.80	17.79	18.78
Discharge	13.49	11.11	9.12	7.73	6.54
Time	19.77	21.74	23.72	25.70	27.68
Discharge	5.55	4.11	2.92	2.12	1.69
Time	29.65	31.63	33.61	35.58	37.56
Discharge	1.31	0.9916	0.6941	0.4363	0.1983
Time	39.54				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv.  erv.  Hydro- Upstream  Hyd.
        Loss Excess Loss Excess graph      Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
 20.00  0.41  0.15  0.26  0.10  0.32    0.12    0.00    0.12
 30.00  0.64  0.06  0.60  0.03  0.63    5.43    0.00    5.43
 40.00  0.18  0.01  0.17  0.00  0.17   13.45    0.00   13.45
 50.00  0.12  0.00  0.12  0.00  0.12    6.95    0.00    6.95
 60.00  0.11  0.00  0.11  0.00  0.11    4.06    0.00    4.06
 70.00  0.11  0.00  0.11  0.00  0.11    3.06    0.00    3.06
 80.00  0.10  0.00  0.10  0.00  0.10    2.95    0.00    2.95
 90.00  0.07  0.00  0.07  0.00  0.07    2.70    0.00    2.70
100.00  0.07  0.00  0.07  0.00  0.07    1.99    0.00    1.99
110.00  0.07  0.00  0.07  0.00  0.07    1.80    0.00    1.80
120.00  0.05  0.00  0.05  0.00  0.05    1.76    0.00    1.76
130.00  0.00  0.00  0.00  0.00  0.00    1.48    0.00    1.48
140.00  0.00  0.00  0.00  0.00  0.00    0.37    0.00    0.37
150.00  0.00  0.00  0.00  0.00  0.00    0.07    0.00    0.07
160.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
170.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
180.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals  2.04  0.33  1.73  0.23  1.83

```

```

Runoff volume= .6359107 acre-ft
Total volume= .6359107 acre-ft
Peak discharge (cfs)= 13.453

```

Branch Confluence

Title: Design Point 12

Description: 2 Hour
10 Yr

Hydrograph No.: 16
Branch No.: 2

Combined Branches: 2 3

Time	Flow *	Time	Flow *	Time	Flow

10.00	0.00 *	100.00	22.71 *	190.00	0.00
20.00	1.15 *	110.00	20.21 *	200.00	0.00
30.00	37.68 *	120.00	19.61 *	210.00	0.00
40.00	114.92 *	130.00	16.81 *	220.00	0.00
50.00	73.40 *	140.00	5.59 *	230.00	0.00
60.00	45.63 *	150.00	1.45 *	240.00	0.00
70.00	35.13 *	160.00	0.32 *		
80.00	32.37 *	170.00	0.05 *		
90.00	29.81 *	180.00	0.01 *		

Subarea Hydrograph Computation

Title: Design Point 13

Description: 2 Hour
10 Yr

Hydrograph No.: 17
Branch No.: 4

Subarea drainage area (acres): 1.32
Total upstream drainage area (acres): 0
Percent impervious area: 54
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 6.31

Unit hydrograph					
Time	0.00	0.88	1.76	2.64	3.51
Discharge	0.0000	0.2045	0.6817	1.30	2.11
Time	4.39	5.27	6.15	7.03	7.91
Discharge	3.20	4.50	5.59	6.34	6.75
Time	8.79	9.66	10.54	11.42	12.30
Discharge	6.82	6.75	6.34	5.86	5.32
Time	13.18	14.06	14.94	15.81	16.69
Discharge	4.64	3.82	3.14	2.66	2.25
Time	17.57	19.33	21.09	22.84	24.60
Discharge	1.91	1.41	1.00	0.7294	0.5795
Time	26.36	28.12	29.87	31.63	33.39
Discharge	0.4499	0.3409	0.2386	0.1500	0.0682
Time	35.14				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
 20.00  0.41  0.39  0.03  0.10  0.32    0.05    0.00    0.05
 30.00  0.66  0.36  0.30  0.03  0.63    1.22    0.00    1.22
 40.00  0.18  0.07  0.11  0.00  0.17    3.37    0.00    3.37
 50.00  0.12  0.04  0.08  0.00  0.12    1.59    0.00    1.59
 60.00  0.11  0.03  0.08  0.00  0.11    0.98    0.00    0.98
 70.00  0.11  0.03  0.08  0.00  0.11    0.81    0.00    0.81
 80.00  0.10  0.03  0.08  0.00  0.10    0.80    0.00    0.80
 90.00  0.07  0.02  0.05  0.00  0.07    0.73    0.00    0.73
100.00  0.07  0.02  0.05  0.00  0.07    0.53    0.00    0.53
110.00  0.07  0.02  0.05  0.00  0.07    0.49    0.00    0.49
120.00  0.05  0.01  0.04  0.00  0.05    0.49    0.00    0.49
130.00  0.00  0.00  0.00  0.00  0.00    0.41    0.00    0.41
140.00  0.00  0.00  0.00  0.00  0.00    0.07    0.00    0.07
150.00  0.00  0.00  0.00  0.00  0.00    0.01    0.00    0.01
160.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
170.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
180.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals  2.06  1.11  0.95  0.23  1.83

```

```

Runoff volume= .1589828 acre-ft
Total volume= .1589828 acre-ft
Peak discharge (cfs)= 3.366433

```

Subarea Hydrograph Computation

Title: Design Point 14

Description: 2 Hour
10 Yr

Hydrograph No.: 18
Branch No.: 4

Subarea drainage area (acres): 8.84
Total upstream drainage area (acres): 1.32
Percent impervious area: 30
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 6.85

Channel routing method: Channel storage

Reach length (ft)= 220
Slope (ft/ft)= .0951
Manning's n= .013

Channel type is circular: Diameter (inches)= 18

		Unit hydrograph				
Time	0.00	0.91	1.82	2.73	3.64	
Discharge	0.0000	1.32	4.40	8.37	13.65	
Time	4.55	5.47	6.38	7.29	8.20	
Discharge	20.69	29.06	36.10	40.95	43.59	
Time	9.11	10.02	10.93	11.84	12.75	
Discharge	44.03	43.59	40.95	37.87	34.34	
Time	13.66	14.58	15.49	16.40	17.31	
Discharge	29.94	24.66	20.25	17.17	14.53	
Time	18.22	20.04	21.86	23.69	25.51	
Discharge	12.33	9.11	6.47	4.71	3.74	
Time	27.33	29.15	30.97	32.80	34.62	
Discharge	2.91	2.20	1.54	0.9687	0.4403	
Time	36.44					
Discharge	0.0000					

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
 20.00  0.41  0.39  0.03  0.10  0.32    0.18    0.05    0.23
 30.00  0.66  0.36  0.30  0.03  0.63    5.02    1.22    6.24
 40.00  0.18  0.07  0.11  0.00  0.17   18.30    3.37   21.67
 50.00  0.12  0.04  0.08  0.00  0.12    9.50    1.59   11.09
 60.00  0.11  0.03  0.08  0.00  0.11    6.10    0.98    7.08
 70.00  0.11  0.03  0.08  0.00  0.11    5.02    0.81    5.83
 80.00  0.10  0.03  0.08  0.00  0.10    4.99    0.80    5.79
 90.00  0.07  0.02  0.05  0.00  0.07    4.62    0.73    5.36
100.00  0.07  0.02  0.05  0.00  0.07    3.37    0.53    3.90
110.00  0.07  0.02  0.05  0.00  0.07    3.13    0.49    3.62
120.00  0.05  0.01  0.04  0.00  0.05    3.11    0.49    3.59
130.00  0.00  0.00  0.00  0.00  0.00    2.60    0.41    3.01
140.00  0.00  0.00  0.00  0.00  0.00    0.52    0.07    0.60
150.00  0.00  0.00  0.00  0.00  0.00    0.09    0.01    0.10
160.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
170.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
180.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals  2.06  1.11  0.95  0.23  1.83

```

Runoff volume= .916682 acre-ft
 Total volume= 1.075665 acre-ft
 Peak discharge (cfs)= 21.66682

Subarea Hydrograph Computation

Title: Design Point 15

Description: 2 Hour
10 Yr

Hydrograph No.: 19
Branch No.: 4

Subarea drainage area (acres): 2.75
Total upstream drainage area (acres): 10.16
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 8.5

Channel routing method: Channel storage

Reach length (ft)= 235
Slope (ft/ft)= .005
Manning's n= .016

Channel type is trapezoidal: Bottom width (ft)= 0
Sideslope (H to 1V)= 25

Unit hydrograph					
Time	0.00	1.01	2.02	3.03	4.04
Discharge	0.0000	0.3706	1.24	2.35	3.83
Time	5.05	6.06	7.07	8.08	9.09
Discharge	5.81	8.15	10.13	11.49	12.23
Time	10.10	11.11	12.12	13.13	14.14
Discharge	12.35	12.23	11.49	10.62	9.64
Time	15.15	16.16	17.17	18.18	19.19
Discharge	8.40	6.92	5.68	4.82	4.08
Time	20.20	22.22	24.24	26.26	28.28
Discharge	3.46	2.56	1.82	1.32	1.05
Time	30.30	32.32	34.34	36.36	38.38
Discharge	0.8154	0.6177	0.4324	0.2718	0.1235
Time	40.40				
Discharge	0.0000				


```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
 10.00  0.10  0.10  0.00  0.09  0.01      0.00      0.00      0.00
 20.00  0.41  0.39  0.03  0.10  0.32      0.07      0.23      0.30
 30.00  0.66  0.36  0.30  0.03  0.63      1.75      6.24      7.99
 40.00  0.18  0.07  0.11  0.00  0.17      5.76     21.67     27.42
 50.00  0.12  0.04  0.08  0.00  0.12      3.31     11.09     14.40
 60.00  0.11  0.03  0.08  0.00  0.11      2.07      7.08      9.15
 70.00  0.11  0.03  0.08  0.00  0.11      1.62      5.83      7.45
 80.00  0.10  0.03  0.08  0.00  0.10      1.58      5.79      7.37
 90.00  0.07  0.02  0.05  0.00  0.07      1.47      5.36      6.82
100.00  0.07  0.02  0.05  0.00  0.07      1.10      3.90      5.00
110.00  0.07  0.02  0.05  0.00  0.07      0.99      3.62      4.62
120.00  0.05  0.01  0.04  0.00  0.05      0.98      3.59      4.57
130.00  0.00  0.00  0.00  0.00  0.00      0.83      3.01      3.84
140.00  0.00  0.00  0.00  0.00  0.00      0.22      0.60      0.81
150.00  0.00  0.00  0.00  0.00  0.00      0.04      0.10      0.14
160.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
170.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
180.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
190.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
200.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
210.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
220.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
230.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
240.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
*****
Totals  2.06  1.11  0.95  0.23  1.83

```

Runoff volume= .2999557 acre-ft
 Total volume= 1.37562 acre-ft
 Peak discharge (cfs)= 27.4249

Subarea Hydrograph Computation

Title: Design Point 16

Description: 2 Hour
10 Yr

Hydrograph No.: 20
Branch No.: 4

Subarea drainage area (acres): 4.47
Total upstream drainage area (acres): 12.91
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 7.78

Channel routing method: Channel storage

Reach length (ft)= .01
Slope (ft/ft)= .001
Manning's n= .05

Channel type is trapezoidal: Bottom width (ft)= 0
Sideslope (H to 1V)= 100

		Unit hydrograph				
Time	0.00	0.97	1.93	2.90	3.87	
Discharge	0.0000	0.6294	2.10	3.99	6.50	
Time	4.83	5.80	6.77	7.73	8.70	
Discharge	9.86	13.85	17.20	19.51	20.77	
Time	9.67	10.63	11.60	12.57	13.54	
Discharge	20.98	20.77	19.51	18.04	16.36	
Time	14.50	15.47	16.44	17.40	18.37	
Discharge	14.27	11.75	9.65	8.18	6.92	
Time	19.34	21.27	23.20	25.14	27.07	
Discharge	5.87	4.34	3.08	2.24	1.78	
Time	29.00	30.94	32.87	34.80	36.74	
Discharge	1.38	1.05	0.7343	0.4615	0.2098	
Time	38.67					
Discharge	0.0000					

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
 10.00  0.10  0.10  0.00  0.09  0.01      0.00      0.00      0.00
 20.00  0.41  0.39  0.03  0.10  0.32      0.11      0.30      0.41
 30.00  0.66  0.36  0.30  0.03  0.63      2.96      7.99     10.95
 40.00  0.18  0.07  0.11  0.00  0.17      9.65     27.42     37.08
 50.00  0.12  0.04  0.08  0.00  0.12      5.27     14.40     19.66
 60.00  0.11  0.03  0.08  0.00  0.11      3.30      9.15     12.45
 70.00  0.11  0.03  0.08  0.00  0.11      2.62      7.45     10.07
 80.00  0.10  0.03  0.08  0.00  0.10      2.58      7.37      9.95
 90.00  0.07  0.02  0.05  0.00  0.07      2.40      6.82      9.22
100.00  0.07  0.02  0.05  0.00  0.07      1.77      5.00      6.77
110.00  0.07  0.02  0.05  0.00  0.07      1.62      4.62      6.24
120.00  0.05  0.01  0.04  0.00  0.05      1.60      4.57      6.17
130.00  0.00  0.00  0.00  0.00  0.00      1.35      3.84      5.19
140.00  0.00  0.00  0.00  0.00  0.00      0.32      0.81      1.13
150.00  0.00  0.00  0.00  0.00  0.00      0.06      0.14      0.19
160.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
170.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
180.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
190.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
200.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
210.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
220.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
230.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
240.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
*****
Totals  2.06  1.11  0.95  0.23  1.83

```

Runoff volume= .4904492 acre-ft
 Total volume= 1.86607 acre-ft
 Peak discharge (cfs)= 37.07661

Subarea Hydrograph Computation

Title: Design Point 17

Description: 2 Hour
10 Yr

Hydrograph No.: 21
Branch No.: 4

Subarea drainage area (acres): .63
Total upstream drainage area (acres): 17.38
Percent impervious area: 100
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area: SCS curve number: 98

Pervious area: SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 5

Channel routing method: Channel storage

Reach length (ft)= 61
Slope (ft/ft)= .0277
Manning's n= .013

Channel type is circular: Diameter (inches)= 24

Unit hydrograph					
Time	0.00	0.80	1.60	2.40	3.20
Discharge	0.0000	0.1072	0.3573	0.6789	1.11
Time	4.00	4.80	5.60	6.40	7.20
Discharge	1.68	2.36	2.93	3.32	3.54
Time	8.00	8.80	9.60	10.40	11.20
Discharge	3.57	3.54	3.32	3.07	2.79
Time	12.00	12.80	13.60	14.40	15.20
Discharge	2.43	2.00	1.64	1.39	1.18
Time	16.00	17.60	19.20	20.80	22.40
Discharge	1.00	0.7397	0.5253	0.3823	0.3037
Time	24.00	25.60	27.20	28.80	30.40
Discharge	0.2358	0.1787	0.1251	0.0786	0.0357
Time	32.00				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph      Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
 10.00  0.10  0.10  0.00  0.09  0.01      0.00      0.00      0.00
 20.00  0.41  0.39  0.03  0.10  0.32      0.04      0.41      0.46
 30.00  0.66  0.36  0.30  0.03  0.63      1.02     10.95     11.97
 40.00  0.18  0.07  0.11  0.00  0.17      2.15     37.08     39.23
 50.00  0.12  0.04  0.08  0.00  0.12      0.85     19.66     20.52
 60.00  0.11  0.03  0.08  0.00  0.11      0.50     12.45     12.95
 70.00  0.11  0.03  0.08  0.00  0.11      0.42     10.07     10.50
 80.00  0.10  0.03  0.08  0.00  0.10      0.42      9.95     10.37
 90.00  0.07  0.02  0.05  0.00  0.07      0.38      9.22      9.60
100.00  0.07  0.02  0.05  0.00  0.07      0.26      6.77      7.03
110.00  0.07  0.02  0.05  0.00  0.07      0.25      6.24      6.49
120.00  0.05  0.01  0.04  0.00  0.05      0.25      6.17      6.42
130.00  0.00  0.00  0.00  0.00  0.00      0.20      5.19      5.39
140.00  0.00  0.00  0.00  0.00  0.00      0.03      1.13      1.16
150.00  0.00  0.00  0.00  0.00  0.00      0.00      0.19      0.20
160.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
170.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
180.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
190.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
200.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
210.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
220.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
230.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
240.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
*****
Totals=  2.06  1.11  0.95  0.23  1.83

```

Runoff volume= 9.341482E-02 acre-ft
 Total volume= 1.959485 acre-ft
 Peak discharge (cfs)= 39.23116

Subarea Hydrograph Computation

Title: Design Point 18

Description: 2 Hour
10 Yr

Hydrograph No.: 22
Branch No.: 4

Subarea drainage area (acres): 28.34
Total upstream drainage area (acres): 18.01
Percent impervious area: 45
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 11.11

Channel routing method: Channel storage

Reach length (ft)= 55
Slope (ft/ft)= .0405
Manning's n= .013

Channel type is circular: Diameter (inches)= 24

Unit hydrograph					
Time	0.00	1.17	2.33	3.50	4.67
Discharge	0.0000	3.31	11.02	20.94	34.17
Time	5.83	7.00	8.17	9.33	10.50
Discharge	51.81	72.75	90.39	102.51	109.13
Time	11.67	12.83	14.00	15.17	16.33
Discharge	110.23	109.13	102.51	94.80	85.98
Time	17.50	18.67	19.83	21.00	22.17
Discharge	74.96	61.73	50.71	42.99	36.38
Time	23.33	25.67	28.00	30.33	32.66
Discharge	30.86	22.82	16.20	11.79	9.37
Time	35.00	37.33	39.66	42.00	44.33
Discharge	7.28	5.51	3.86	2.43	1.10
Time	46.66				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious  erv.  erv.  Hydro- Upstream  Hyd.
        Loss Excess Loss Excess graph   Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
 20.00  0.41  0.39  0.03  0.10  0.32    0.67    0.46    1.12
 30.00  0.66  0.36  0.30  0.03  0.63   17.07   11.97   29.05
 40.00  0.18  0.07  0.11  0.00  0.17   55.24   39.23   94.48
 50.00  0.12  0.04  0.08  0.00  0.12   38.82   20.52   59.33
 60.00  0.11  0.03  0.08  0.00  0.11   23.74   12.95   36.69
 70.00  0.11  0.03  0.08  0.00  0.11   18.40   10.50   28.89
 80.00  0.10  0.03  0.08  0.00  0.10   16.64   10.37   27.01
 90.00  0.07  0.02  0.05  0.00  0.07   15.51    9.60   25.11
100.00  0.07  0.02  0.05  0.00  0.07   12.03    7.03   19.06
110.00  0.07  0.02  0.05  0.00  0.07   10.56    6.49   17.05
120.00  0.05  0.01  0.04  0.00  0.05   10.23    6.42   16.65
130.00  0.00  0.00  0.00  0.00  0.00    8.86    5.39   14.25
140.00  0.00  0.00  0.00  0.00  0.00    3.28    1.16    4.43
150.00  0.00  0.00  0.00  0.00  0.00    0.80    0.20    0.99
160.00  0.00  0.00  0.00  0.00  0.00    0.17    0.00    0.17
170.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
180.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals  2.06  1.11  0.95  0.23  1.83

```

Runoff volume= 3.195776 acre-ft
 Total volume= 5.155261 acre-ft
 Peak discharge (cfs)= 94.4756

Subarea Hydrograph Computation

Title: Design Point 19

Description: 2 Hour
10 Yr

Hydrograph No.: 23
Branch No.: 4

Subarea drainage area (acres): .89
Total upstream drainage area (acres): 46.35
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 9.09

Channel routing method: Channel storage

Reach length (ft)= 440
Slope (ft/ft)= .04
Manning's n= .013

Channel type is circular: Diameter (inches)= 30

Unit hydrograph						
Time	0.00	1.05	2.09	3.14	4.18	
Discharge	0.0000	0.1159	0.3863	0.7340	1.20	
Time	5.23	6.27	7.32	8.36	9.41	
Discharge	1.82	2.55	3.17	3.59	3.82	
Time	10.45	11.50	12.54	13.59	14.64	
Discharge	3.86	3.82	3.59	3.32	3.01	
Time	15.68	16.73	17.77	18.82	19.86	
Discharge	2.63	2.16	1.78	1.51	1.27	
Time	20.91	23.00	25.09	27.18	29.27	
Discharge	1.08	0.7996	0.5679	0.4133	0.3284	
Time	31.36	33.45	35.54	37.63	39.73	
Discharge	0.2550	0.1931	0.1352	0.0850	0.0386	
Time	41.82					
Discharge	0.0000					


```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
10.00  0.10  0.10  0.00  0.09  0.01  0.00  0.00  0.00
20.00  0.41  0.39  0.03  0.10  0.32  0.02  0.99  1.01
30.00  0.66  0.36  0.30  0.03  0.63  0.55 28.06 28.60
40.00  0.18  0.07  0.11  0.00  0.17  1.81 87.43 89.25
50.00  0.12  0.04  0.08  0.00  0.12  1.09 60.47 61.57
60.00  0.11  0.03  0.08  0.00  0.11  0.68 37.44 38.12
70.00  0.11  0.03  0.08  0.00  0.11  0.53 29.17 29.70
80.00  0.10  0.03  0.08  0.00  0.10  0.51 27.07 27.59
90.00  0.07  0.02  0.05  0.00  0.07  0.48 25.17 25.65
100.00 0.07  0.02  0.05  0.00  0.07  0.36 19.30 19.66
110.00 0.07  0.02  0.05  0.00  0.07  0.32 17.13 17.45
120.00 0.05  0.01  0.04  0.00  0.05  0.32 16.67 16.98
130.00 0.00  0.00  0.00  0.00  0.00  0.27 14.35 14.62
140.00 0.00  0.00  0.00  0.00  0.00  0.08  5.02  5.10
150.00 0.00  0.00  0.00  0.00  0.00  0.02  1.28  1.29
160.00 0.00  0.00  0.00  0.00  0.00  0.00  0.27  0.27
170.00 0.00  0.00  0.00  0.00  0.00  0.00  0.02  0.02
180.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
190.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
200.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
210.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
220.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
230.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
240.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
*****
Totals 2.06  1.11  0.95  0.23  1.83

```

Runoff volume= 9.699227E-02 acre-ft
Total volume= 5.19096 acre-ft
Peak discharge (cfs)= 89.24519

Subarea Hydrograph Computation

Title: Design Point 20

Description: 2 Hour
10 Yr

Hydrograph No.: 24
Branch No.: 4

Subarea drainage area (acres): .9
Total upstream drainage area (acres): 47.24
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 7.64

Channel routing method: Channel storage

Reach length (ft)= 30
Slope (ft/ft)= .04
Manning's n= .013

Channel type is circular: Diameter (inches)= 30

Unit hydrograph					
Time	0.00	0.96	1.92	2.88	3.83
Discharge	0.0000	0.1278	0.4261	0.8096	1.32
Time	4.79	5.75	6.71	7.67	8.63
Discharge	2.00	2.81	3.49	3.96	4.22
Time	9.58	10.54	11.50	12.46	13.42
Discharge	4.26	4.22	3.96	3.66	3.32
Time	14.38	15.33	16.29	17.25	18.21
Discharge	2.90	2.39	1.96	1.66	1.41
Time	19.17	21.08	23.00	24.92	26.84
Discharge	1.19	0.8820	0.6264	0.4559	0.3622
Time	28.75	30.67	32.59	34.50	36.42
Discharge	0.2812	0.2131	0.1491	0.0937	0.0426
Time	38.34				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
10.00  0.10  0.10  0.00  0.09  0.01  0.00  0.00  0.00
20.00  0.41  0.39  0.03  0.10  0.32  0.02  22.29  22.32
30.00  0.66  0.36  0.30  0.03  0.63  0.60  87.43  88.03
40.00  0.18  0.07  0.11  0.00  0.17  1.95  87.43  89.39
50.00  0.12  0.04  0.08  0.00  0.12  1.06  0.00  1.06
60.00  0.11  0.03  0.08  0.00  0.11  0.66  0.00  0.66
70.00  0.11  0.03  0.08  0.00  0.11  0.53  87.43  87.96
80.00  0.10  0.03  0.08  0.00  0.10  0.52  87.43  87.95
90.00  0.07  0.02  0.05  0.00  0.07  0.48  87.43  87.91
100.00 0.07  0.02  0.05  0.00  0.07  0.36  87.43  87.79
110.00 0.07  0.02  0.05  0.00  0.07  0.33  87.43  87.76
120.00 0.05  0.01  0.04  0.00  0.05  0.32  87.43  87.75
130.00 0.00  0.00  0.00  0.00  0.00  0.27  87.43  87.70
140.00 0.00  0.00  0.00  0.00  0.00  0.06  87.43  87.49
150.00 0.00  0.00  0.00  0.00  0.00  0.01  43.82  43.83
160.00 0.00  0.00  0.00  0.00  0.00  0.00  4.37  4.37
170.00 0.00  0.00  0.00  0.00  0.00  0.00  0.27  0.27
180.00 0.00  0.00  0.00  0.00  0.00  0.00  0.01  0.01
190.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
200.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
210.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
220.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
230.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
240.00 0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
*****
Totals 2.06  1.11  0.95  0.23  1.83

```

Runoff volume= 9.887563E-02 acre-ft
Total volume= 13.11616 acre-ft
Peak discharge (cfs)= 87.3866

Subarea Hydrograph Computation

Title: Design Point 22

Description: 2 Hour
10 Yr

Hydrograph No.: 25
Branch No.: 4

Subarea drainage area (acres): 1.17
Total upstream drainage area (acres): 48.14
Percent impervious area: 85
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 10.37

Channel routing method: Channel storage

Reach length (ft)= 900

Slope (ft/ft)= .03

Manning's n= .013

Channel type is circular: Diameter (inches)= 30

Unit hydrograph					
Time	0.00	1.12	2.24	3.37	4.49
Discharge	0.0000	0.1419	0.4731	0.8988	1.47
Time	5.61	6.73	7.86	8.98	10.10
Discharge	2.22	3.12	3.88	4.40	4.68
Time	11.22	12.34	13.47	14.59	15.71
Discharge	4.73	4.68	4.40	4.07	3.69
Time	16.83	17.96	19.08	20.20	21.32
Discharge	3.22	2.65	2.18	1.85	1.56
Time	22.44	24.69	26.93	29.18	31.42
Discharge	1.32	0.9793	0.6954	0.5062	0.4021
Time	33.67	35.91	38.15	40.40	42.64
Discharge	0.3122	0.2365	0.1656	0.1041	0.0473
Time	44.89				
Discharge	0.0000				

```

*****
Time   Rain   Perv-   Perv-   Imp-   Imp-   Subarea   Routed   Total
        ious   ious   erv.   erv.   Hydro-   Upstream   Hyd.
        Loss Excess Loss Excess   graph   Hyd.
*****
  0.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
 10.00   0.10   0.10   0.00   0.09   0.01       0.00       0.00       0.00
 20.00   0.41   0.39   0.03   0.10   0.32       0.06      20.27      20.33
 30.00   0.66   0.36   0.30   0.03   0.63       1.30      75.72      77.02
 40.00   0.18   0.07   0.11   0.00   0.17       3.22      75.72      78.94
 50.00   0.12   0.04   0.08   0.00   0.12       1.99      10.76      12.75
 60.00   0.11   0.03   0.08   0.00   0.11       1.16       0.81       1.96
 70.00   0.11   0.03   0.08   0.00   0.11       0.87      75.72      76.58
 80.00   0.10   0.03   0.08   0.00   0.10       0.78      75.72      76.50
 90.00   0.07   0.02   0.05   0.00   0.07       0.72      75.72      76.44
100.00   0.07   0.02   0.05   0.00   0.07       0.55      75.72      76.27
110.00   0.07   0.02   0.05   0.00   0.07       0.48      75.72      76.20
120.00   0.05   0.01   0.04   0.00   0.05       0.47      75.72      76.19
130.00   0.00   0.00   0.00   0.00   0.00       0.40      75.72      76.12
140.00   0.00   0.00   0.00   0.00   0.00       0.14      75.72      75.85
150.00   0.00   0.00   0.00   0.00   0.00       0.03      75.72      75.75
160.00   0.00   0.00   0.00   0.00   0.00       0.01      75.72      75.72
170.00   0.00   0.00   0.00   0.00   0.00       0.00       1.14       1.14
180.00   0.00   0.00   0.00   0.00   0.00       0.00       0.10       0.10
190.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
200.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
210.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
220.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
230.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
240.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
*****
Totals   2.06   1.11   0.95   0.23   1.83

```

Runoff volume= .1674703 acre-ft
 Total volume= 13.1382 acre-ft
 Peak discharge (cfs)= 78.93995

Subarea Hydrograph Computation

Title: Design point 21

Description: 2 Hour
10 Yr

Hydrograph No.: 26
Branch No.: 5

Subarea drainage area (acres): 10.89
Total upstream drainage area (acres): 0
Percent impervious area: 85
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 10.11

Unit hydrograph					
Time	0.00	1.11	2.21	3.32	4.43
Discharge	0.0000	1.34	4.47	8.48	13.84
Time	5.53	6.64	7.75	8.85	9.96
Discharge	20.99	29.47	36.62	41.53	44.21
Time	11.07	12.17	13.28	14.39	15.49
Discharge	44.65	44.21	41.53	38.40	34.83
Time	16.60	17.71	18.81	19.92	21.03
Discharge	30.36	25.01	20.54	17.41	14.74
Time	22.13	24.35	26.56	28.77	30.98
Discharge	12.50	9.24	6.56	4.78	3.80
Time	33.20	35.41	37.62	39.84	42.05
Discharge	2.95	2.23	1.56	0.9824	0.4465
Time	44.26				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00   0.00   0.00   0.00
 10.00  0.10  0.10  0.00  0.09  0.01   0.00   0.00   0.00
 20.00  0.41  0.39  0.03  0.10  0.32   0.52   0.00   0.52
 30.00  0.66  0.36  0.30  0.03  0.63  12.31   0.00  12.31
 40.00  0.18  0.07  0.11  0.00  0.17  30.35   0.00  30.35
 50.00  0.12  0.04  0.08  0.00  0.12  18.36   0.00  18.36
 60.00  0.11  0.03  0.08  0.00  0.11  10.68   0.00  10.68
 70.00  0.11  0.03  0.08  0.00  0.11   8.00   0.00   8.00
 80.00  0.10  0.03  0.08  0.00  0.10   7.27   0.00   7.27
 90.00  0.07  0.02  0.05  0.00  0.07   6.70   0.00   6.70
100.00  0.07  0.02  0.05  0.00  0.07   5.08   0.00   5.08
110.00  0.07  0.02  0.05  0.00  0.07   4.49   0.00   4.49
120.00  0.05  0.01  0.04  0.00  0.05   4.35   0.00   4.35
130.00  0.00  0.00  0.00  0.00  0.00   3.72   0.00   3.72
140.00  0.00  0.00  0.00  0.00  0.00   1.22   0.00   1.22
150.00  0.00  0.00  0.00  0.00  0.00   0.28   0.00   0.28
160.00  0.00  0.00  0.00  0.00  0.00   0.05   0.00   0.05
170.00  0.00  0.00  0.00  0.00  0.00   0.00   0.00   0.00
180.00  0.00  0.00  0.00  0.00  0.00   0.00   0.00   0.00
190.00  0.00  0.00  0.00  0.00  0.00   0.00   0.00   0.00
200.00  0.00  0.00  0.00  0.00  0.00   0.00   0.00   0.00
210.00  0.00  0.00  0.00  0.00  0.00   0.00   0.00   0.00
220.00  0.00  0.00  0.00  0.00  0.00   0.00   0.00   0.00
230.00  0.00  0.00  0.00  0.00  0.00   0.00   0.00   0.00
240.00  0.00  0.00  0.00  0.00  0.00   0.00   0.00   0.00
*****
Totals  2.06  1.11  0.95  0.23  1.83

```

Runoff volume= 1.561386 acre-ft
 Total volume= 1.561386 acre-ft
 Peak discharge (cfs)= 30.34835

Branch Confluence

Title: Design Point 22

Description: 2 Hour
10 Yr

Hydrograph No.: 27
Branch No.: 2

Combined Branches: 2 3 4 5

```

*****
Time      Flow *    Time      Flow *    Time      Flow
*****
10.00      0.00 *   100.00     104.06 *   190.00      0.01
20.00     22.00 *   110.00     100.90 *   200.00      0.00
30.00    127.00 *   120.00     100.14 *   210.00      0.00
40.00    224.21 *   130.00      96.65 *   220.00      0.00
50.00    104.51 *   140.00     82.66 *   230.00      0.00
60.00     58.27 *   150.00     77.48 *   240.00      0.00
70.00    119.72 *   160.00     76.09 *
80.00    116.14 *   170.00      1.19 *
90.00    112.94 *   180.00      0.12 *
*****

```


Channel Routing

Title: Design Point 22 Routed Thru Pipe

Description: 2 Hour
10 Yr

Hydrograph No.: 28
Branch No.: 2

Channel routing method: Channel storage

Reach length (ft)= 205
Slope (ft/ft)= .0616
Manning's n= .013

Channel type is circular: Diameter (inches)= 36

Routed Hydrograph

```
*****
Time          Flow *    Time          Flow *    Time          Flow
*****
10.00          0.00 *   100.00        176.43 *   190.00          0.01
20.00         21.65 *   110.00        176.43 *   200.00          0.00
30.00        175.05 *   120.00        176.43 *   210.00          0.00
40.00        176.43 *   130.00        176.43 *   220.00          0.00
50.00        152.68 *   140.00        176.43 *   230.00          0.00
60.00        175.65 *   150.00        176.43 *   240.00          0.00
70.00        176.43 *   160.00        176.43 *
80.00        176.43 *   170.00          2.78 *
90.00        176.43 *   180.00          0.16 *
*****
```

Channel capacity was exceeded.

Maximum ponded storage at channel inlet (cubic-ft)= 12770.99

Channel Routing

Title: Design Point 22 Routed Thru Channel

Description: 2 Hour
10 Yr

Hydrograph No.: 29
Branch No.: 2

Channel routing method: Channel storage

Reach length (ft)= 415
Slope (ft/ft)= .0372
Manning's n= .035

Channel type is trapezoidal: Bottom width (ft)= 3
Sideslope (H to 1V)= 2

Routed Hydrograph

```
*****
Time          Flow *    Time          Flow *    Time          Flow
*****
10.00          0.00 *    100.00         176.43 *    190.00          0.01
20.00         21.65 *    110.00         176.43 *    200.00          0.00
30.00        175.05 *    120.00         176.43 *    210.00          0.00
40.00        176.43 *    130.00         176.43 *    220.00          0.00
50.00        152.68 *    140.00         176.43 *    230.00          0.00
60.00        175.65 *    150.00         176.43 *    240.00          0.00
70.00        176.43 *    160.00         176.43 *
80.00        176.43 *    170.00           2.78 *
90.00        176.43 *    180.00           0.16 *
*****
```

Subarea Hydrograph Computation

Title: Design Point 23

Description: 2 Hour
10 Yr

Hydrograph No.: 30
Branch No.: 3

Subarea drainage area (acres): 8.92
Total upstream drainage area (acres): 0
Percent impervious area: 85
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 8.01

	Unit hydrograph				
Time	0.00	0.98	1.96	2.94	3.92
Discharge	0.0000	1.24	4.13	7.84	12.80
Time	4.90	5.88	6.86	7.84	8.83
Discharge	19.40	27.24	33.85	38.39	40.86
Time	9.81	10.79	11.77	12.75	13.73
Discharge	41.28	40.86	38.39	35.50	32.19
Time	14.71	15.69	16.67	17.65	18.63
Discharge	28.07	23.11	18.99	16.10	13.62
Time	19.61	21.57	23.53	25.50	27.46
Discharge	11.56	8.54	6.07	4.42	3.51
Time	29.42	31.38	33.34	35.30	37.26
Discharge	2.72	2.06	1.44	0.9081	0.4128
Time	39.22				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
20.00  0.41  0.39  0.03  0.10  0.32    0.49    0.00    0.49
30.00  0.66  0.36  0.30  0.03  0.63   11.40    0.00   11.40
40.00  0.18  0.07  0.11  0.00  0.17   26.86    0.00   26.86
50.00  0.12  0.04  0.08  0.00  0.12   13.76    0.00   13.76
60.00  0.11  0.03  0.08  0.00  0.11    8.06    0.00    8.06
70.00  0.11  0.03  0.08  0.00  0.11    6.12    0.00    6.12
80.00  0.10  0.03  0.08  0.00  0.10    5.92    0.00    5.92
90.00  0.07  0.02  0.05  0.00  0.07    5.43    0.00    5.43
100.00 0.07  0.02  0.05  0.00  0.07    3.99    0.00    3.99
110.00 0.07  0.02  0.05  0.00  0.07    3.62    0.00    3.62
120.00 0.05  0.01  0.04  0.00  0.05    3.55    0.00    3.55
130.00 0.00  0.00  0.00  0.00  0.00    2.99    0.00    2.99
140.00 0.00  0.00  0.00  0.00  0.00    0.73    0.00    0.73
150.00 0.00  0.00  0.00  0.00  0.00    0.13    0.00    0.13
160.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
170.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
180.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals 2.06  1.11  0.95  0.23  1.83

```

Runoff volume= 1.281666 acre-ft
Total volume= 1.281666 acre-ft
Peak discharge (cfs)= 26.86279

Branch Confluence

Title: Design Point 23 Combined

Description: 2 Hour
10 Yr

Hydrograph No.: 31
Branch No.: 2

Combined Branches: 2 3

```
*****
Time      Flow *    Time      Flow *    Time      Flow
*****
10.00      0.00 *   100.00     180.43 *   190.00      0.01
20.00     22.14 *   110.00     180.05 *   200.00      0.00
30.00    186.46 *   120.00     179.98 *   210.00      0.00
40.00    203.30 *   130.00     179.42 *   220.00      0.00
50.00    166.45 *   140.00     177.16 *   230.00      0.00
60.00    183.71 *   150.00     176.56 *   240.00      0.00
70.00    182.55 *   160.00     176.43 *
80.00    182.35 *   170.00       2.78 *
90.00    181.87 *   180.00       0.16 *
*****
```

Channel Routing

Title: Design Point 23 Routed Thru Pipe

Description: 2 Hour
10 Yr

Hydrograph No.: 32
Branch No.: 2

Channel routing method: Channel storage

Reach length (ft)= 438
Slope (ft/ft)= .0245
Manning's n= .013

Channel type is circular: Diameter (inches)= 42

Routed Hydrograph

```
*****
Time          Flow %    Time          Flow %    Time          Flow
*****
10.00          0.00 %   100.00        167.84 %   190.00          0.03
20.00         21.08 %   110.00        167.84 %   200.00          0.00
30.00        167.84 %   120.00        167.84 %   210.00          0.00
40.00        167.84 %   130.00        167.84 %   220.00          0.00
50.00        167.84 %   140.00        167.84 %   230.00          0.00
60.00        167.84 %   150.00        167.84 %   240.00          0.00
70.00        167.84 %   160.00        167.84 %
80.00        167.84 %   170.00        167.84 %
90.00        167.84 %   180.00          0.77 %
*****
```

Channel capacity was exceeded.

Maximum ponded storage at channel inlet (cubic-ft)= 104672

Subarea Hydrograph Computation

Title: Design Point 29

Description: 2 Hour
10 Yr

Hydrograph No.: 33
Branch No.: 2

Subarea drainage area (acres): 2.26
Total upstream drainage area (acres): 126.44
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 90.4

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 10.1

Channel routing method: Channel storage

Reach length (ft)= 600
Slope (ft/ft)= .0235
Manning's n= .013

Channel type is trapezoidal: Bottom width (ft)= 4.5
Sideslope (H to 1V)= .88

		Unit hydrograph				
Time	0.00	1.11	2.21	3.32	4.42	
Discharge	0.0000	0.2782	0.9272	1.76	2.87	
Time	5.53	6.64	7.74	8.85	9.95	
Discharge	4.36	6.12	7.60	8.62	9.18	
Time	11.06	12.17	13.27	14.38	15.48	
Discharge	9.27	9.18	8.62	7.97	7.23	
Time	16.59	17.70	18.80	19.91	21.01	
Discharge	6.30	5.19	4.27	3.62	3.06	
Time	22.12	24.33	26.54	28.76	30.97	
Discharge	2.60	1.92	1.36	0.9921	0.7881	
Time	33.18	35.39	37.60	39.82	42.03	
Discharge	0.6119	0.4636	0.3245	0.2040	0.0927	
Time	44.24					
Discharge	0.0000					

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious  erv.  erv.  Hydro- Upstream  Hyd.
        Loss Excess Loss Excess graph      Hyd.
*****
 0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
10.00  0.10  0.10  0.00  0.09  0.01    0.00    0.00    0.00
20.00  0.41  0.35  0.07  0.10  0.32    0.05   21.08   21.13
30.00  0.66  0.27  0.39  0.03  0.63    1.53  167.84  169.37
40.00  0.18  0.04  0.13  0.00  0.17    5.03  167.84  172.87
50.00  0.12  0.03  0.10  0.00  0.12    3.22  167.84  171.06
60.00  0.11  0.02  0.09  0.00  0.11    1.97  167.84  169.81
70.00  0.11  0.02  0.09  0.00  0.11    1.52  167.84  169.36
80.00  0.10  0.02  0.08  0.00  0.10    1.40  167.84  169.24
90.00  0.07  0.01  0.06  0.00  0.07    1.30  167.84  169.14
100.00 0.07  0.01  0.06  0.00  0.07    0.99  167.84  168.83
110.00 0.07  0.01  0.06  0.00  0.07    0.88  167.84  168.72
120.00 0.05  0.01  0.05  0.00  0.05    0.86  167.84  168.70
130.00 0.00  0.00  0.00  0.00  0.00    0.73  167.84  168.57
140.00 0.00  0.00  0.00  0.00  0.00    0.24  167.84  168.08
150.00 0.00  0.00  0.00  0.00  0.00    0.05  167.84  167.90
160.00 0.00  0.00  0.00  0.00  0.00    0.01  167.84  167.85
170.00 0.00  0.00  0.00  0.00  0.00    0.00  167.84  167.84
180.00 0.00  0.00  0.00  0.00  0.00    0.00    0.77    0.77
190.00 0.00  0.00  0.00  0.00  0.00    0.00    0.03    0.03
200.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00 0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals 2.06  0.89  1.17  0.23  1.83

```

Runoff volume= .2724682 acre-ft
Total volume= 35.25048 acre-ft
Peak discharge (cfs)= 172.866

Hydrology

2 Hour -- 10 Year Storm

SUMMARY TABLE

```

                                UNITS
Flow:          cubic feet per second
Time:          minutes
Volume:        acre-feet
Area:          acres
Stage:         feet
Pipe size:     inches

```

Hyd. No.	Brch No.	Peak Flow	Time of Peak	Volume	Basin Area	Maximum Stage	Pipe size
1	1	1.3	40.00	0.06	0.38		
2	2	17.1	40.00	1.03	6.90		
3	2	7.8	40.00	0.41	6.90		
4	2	30.5	40.00	1.60	14.88		
5	3	4.0	40.00	0.24	2.21		
6	3	7.1	40.00	0.43	3.94		24
7	3	18.5	40.00	1.04	9.83		24
8	3	48.3	40.00	2.86	27.65		36
9	3	52.8	40.00	3.12	29.99		36
10	3	67.7	40.00	3.92	37.16		
11	2	98.2	40.00	5.52	52.04		36
12	3	2.6	40.00	0.11	0.78		18
13	3	3.2	40.00	0.14	0.96		
14	2	101.5	40.00	5.66	53.00		36
15	3	13.5	40.00	0.64	4.32		
16	2	114.9	40.00	6.29	57.32		
17	4	3.4	40.00	0.16	1.32		18
18	4	21.7	40.00	1.08	10.16		
19	4	27.4	40.00	1.38	12.91		
20	4	37.1	40.00	1.87	17.38		24
21	4	39.2	40.00	1.96	18.01		24
22	4	94.5	40.00	5.16	46.35		30
23	4	89.2	40.00	5.19	47.24		30
24	4	89.4	40.00	13.12	48.14		30
25	4	78.9	40.00	13.14	49.31		
26	5	30.3	40.00	1.56	10.89		
27	2	224.2	40.00	20.99	117.52		
28	2	176.4	40.00	34.00	117.52		36
29	2	176.4	40.00	34.00	117.52		
30	3	26.9	40.00	1.28	8.92		
31	2	203.3	40.00	35.29	126.44		
32	2	167.8	30.00	34.98	126.44		42
33	2	172.9	40.00	35.25	128.70		

Hydrology
2 Hour - 100 Year Storm

Date: 05-03-1989
Project: T-Gap Sub basin 2 Drainage Study
Description: Templeton Heights Filing No. 1
Existing Design Points using
New City/County Criteria 24 hr Storm

Units: Drainage area	acres
Precipitation depth	inches
Length, elevation	feet
Flow	cubic feet per second
Storage volume	acre-feet
Time	minutes

Beginning time: 0
Ending time: 240
Time interval: 10
Number of intervals: 25

Total Precipitation (inches): 3.05
Total Storm Duration (hours): 2

Precipitation Distribution:

Time	0.00	5.00	10.00	15.00	20.00
Unit depth	0.0000	0.0087	0.0260	0.0398	0.0692
Time	25.00	30.00	35.00	40.00	45.00
Unit depth	0.1211	0.2163	0.1211	0.0692	0.0536
Time	50.00	55.00	60.00	65.00	70.00
Unit depth	0.0433	0.0346	0.0346	0.0346	0.0173
Time	75.00	80.00	85.00	90.00	95.00
Unit depth	0.0173	0.0104	0.0104	0.0104	0.0104
Time	100.00	105.00	110.00	115.00	120.00
Unit depth	0.0104	0.0104	0.0104	0.0104	0.0104

SCS curve number equation initial abstraction coefficient: .2

Subarea Hydrograph Computation

Title: Design Point 1

Description: 2 Hour Storm
10 Yr

Hydrograph No.: 1
Branch No.: 1

Subarea drainage area (acres): .38
Total upstream drainage area (acres): 0
Percent impervious area: 100
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 97

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 5

Unit hydrograph					
Time	0.00	0.80	1.60	2.40	3.20
Discharge	0.0000	0.0647	0.2155	0.4095	0.6681
Time	4.00	4.80	5.60	6.40	7.20
Discharge	1.01	1.42	1.77	2.00	2.13
Time	8.00	8.80	9.60	10.40	11.20
Discharge	2.16	2.13	2.00	1.85	1.68
Time	12.00	12.80	13.60	14.40	15.20
Discharge	1.47	1.21	0.9914	0.8406	0.7113
Time	16.00	17.60	19.20	20.80	22.40
Discharge	0.6035	0.4461	0.3168	0.2306	0.1832
Time	24.00	25.60	27.20	28.80	30.40
Discharge	0.1423	0.1078	0.0754	0.0474	0.0216
Time	32.00				
Discharge	0.0000				

```

*****
Time   Rain   Perv-   Perv-   Imp-   Imp-   Subarea   Routed   Total
        ious   ious   erv.   erv.   Hydro-   Upstream   Hyd.
        Loss Excess Loss Excess   graph
*****
  0.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
 10.00   0.11   0.10   0.01   0.09   0.02       0.00       0.00       0.00
 20.00   0.33   0.13   0.20   0.09   0.25       0.03       0.00       0.03
 30.00   1.03   0.08   0.95   0.04   0.99       0.48       0.00       0.48
 40.00   0.58   0.01   0.57   0.01   0.57       1.97       0.00       1.97
 50.00   0.30   0.00   0.29   0.00   0.29       1.38       0.00       1.38
 60.00   0.21   0.00   0.21   0.00   0.21       0.75       0.00       0.75
 70.00   0.16   0.00   0.16   0.00   0.16       0.50       0.00       0.50
 80.00   0.08   0.00   0.08   0.00   0.08       0.37       0.00       0.37
 90.00   0.06   0.00   0.06   0.00   0.06       0.21       0.00       0.21
100.00   0.06   0.00   0.06   0.00   0.06       0.15       0.00       0.15
110.00   0.06   0.00   0.06   0.00   0.06       0.14       0.00       0.14
120.00   0.06   0.00   0.06   0.00   0.06       0.14       0.00       0.14
130.00   0.00   0.00   0.00   0.00   0.00       0.14       0.00       0.14
140.00   0.00   0.00   0.00   0.00   0.00       0.02       0.00       0.02
150.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
160.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
170.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
180.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
190.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
200.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
210.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
220.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
230.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
240.00   0.00   0.00   0.00   0.00   0.00       0.00       0.00       0.00
*****
Totals   3.05   0.34   2.71   0.23   2.82

```

Runoff volume= 8.658633E-02 acre-ft
Total volume= 8.658633E-02 acre-ft
Peak discharge (cfs)= 1.968545

Subarea Hydrograph Computation

Title: Design Point 2

Description: 2 Hour
10 Yr

Hydrograph No.: 2
Branch No.: 2

Subarea drainage area (acres): 6.9
Total upstream drainage area (acres): 0
Percent impervious area: 12
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area: SCS curve number: 98

Pervious area: SCS curve number: 97

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 13.5

Unit hydrograph					
Time	0.00	1.31	2.62	3.93	5.24
Discharge	0.0000	0.7170	2.39	4.54	7.41
Time	6.55	7.86	9.17	10.48	11.79
Discharge	11.23	15.77	19.60	22.23	23.66
Time	13.10	14.41	15.72	17.03	18.34
Discharge	23.90	23.66	22.23	20.55	18.64
Time	19.65	20.96	22.27	23.58	24.89
Discharge	16.25	13.38	10.99	9.32	7.89
Time	26.20	28.82	31.44	34.06	36.68
Discharge	6.69	4.95	3.51	2.56	2.03
Time	39.30	41.92	44.54	47.16	49.78
Discharge	1.58	1.19	0.8365	0.5258	0.2390
Time	52.40				
Discharge	0.0000				

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv. Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph      Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 10.00  0.11  0.10  0.01  0.09  0.02    0.00    0.00    0.00
 20.00  0.33  0.13  0.20  0.09  0.25    0.14    0.00    0.14
 30.00  1.03  0.08  0.95  0.04  0.99    4.49    0.00    4.49
 40.00  0.58  0.01  0.57  0.01  0.57   23.43    0.00   23.43
 50.00  0.30  0.00  0.29  0.00  0.29   27.67    0.00   27.67
 60.00  0.21  0.00  0.21  0.00  0.21   19.37    0.00   19.37
 70.00  0.15  0.00  0.16  0.00  0.16   12.83    0.00   12.83
 80.00  0.08  0.00  0.08  0.00  0.08    8.85    0.00    8.85
 90.00  0.06  0.00  0.06  0.00  0.06    5.65    0.00    5.65
100.00  0.04  0.00  0.04  0.00  0.04    3.67    0.00    3.67
110.00  0.04  0.00  0.04  0.00  0.04    2.94    0.00    2.94
120.00  0.06  0.00  0.06  0.00  0.06    2.73    0.00    2.73
130.00  0.00  0.00  0.00  0.00  0.00    2.69    0.00    2.69
140.00  0.00  0.00  0.00  0.00  0.00    1.35    0.00    1.35
150.00  0.00  0.00  0.00  0.00  0.00    0.38    0.00    0.38
160.00  0.00  0.00  0.00  0.00  0.00    0.11    0.00    0.11
170.00  0.00  0.00  0.00  0.00  0.00    0.01    0.00    0.01
180.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
190.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals  3.05  0.34  2.71  0.23  2.82

```

Runoff volume= 1.602044 acre-ft
 Total volume= 1.602044 acre-ft
 Peak discharge (cfs)= 27.67084

Hydrograph Diversion

Title: Design Point 2 Diversion

Description: 2 Hour
10 Yr

Hydrograph No.: 3
Branch No.: 2

Hydrograph Diversion Table

Inflow	11.60	19.10	20.30	29.70
Diversion	7.48	10.39	10.94	12.18

Diverted hydrograph

```

*****
Time          Flow %      Time          Flow %      Time          Flow
*****
10.00          0.00 %    100.00          2.37 %    190.00          0.00
20.00          0.09 %    110.00          1.90 %    200.00          0.00
30.00          2.90 %    120.00          1.76 %    210.00          0.00
40.00          9.61 %    130.00          1.73 %    220.00          0.00
50.00         11.35 %    140.00          0.87 %    230.00          0.00
60.00         10.44 %    150.00          0.24 %    240.00          0.00
70.00          6.98 %    160.00          0.07 %
80.00          5.71 %    170.00          0.01 %
90.00          3.65 %    180.00          0.00 %
*****

```

Remaining hydrograph

Time	Flow *	Time	Flow *	Time	Flow

10.00	0.00 *	100.00	1.30 *	190.00	0.00
20.00	0.05 *	110.00	1.04 *	200.00	0.00
30.00	1.60 *	120.00	0.97 *	210.00	0.00
40.00	13.82 *	130.00	0.95 *	220.00	0.00
50.00	16.32 *	140.00	0.48 *	230.00	0.00
60.00	8.93 *	150.00	0.13 *	240.00	0.00
70.00	5.85 *	160.00	0.04 *		
80.00	3.14 *	170.00	0.00 *		
90.00	2.01 *	180.00	0.00 *		

Subarea Hydrograph Computation

Title: Design Point 3

Description: 2 Hour
10 Yr

Hydrograph No.: 4
Branch No.: 2

Subarea drainage area (acres): 7.98
Total upstream drainage area (acres): 6.9
Percent impervious area: 20
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 97

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 6.72

Channel routing method: Channel storage

Reach length (ft)= 2300

Slope (ft/ft)= .0634

Manning's n= .016

Channel type is trapezoidal: Bottom width (ft)= 0
Sideslope (H to 1V)= 25

		Unit hydrograph				
Time	0.00	0.90	1.81	2.71	3.61	
Discharge	0.0000	1.20	4.01	7.62	12.43	
Time	4.52	5.42	6.32	7.23	8.13	
Discharge	18.84	26.46	32.87	37.28	39.69	
Time	9.03	9.94	10.84	11.74	12.64	
Discharge	40.09	39.69	37.28	34.48	31.27	
Time	13.55	14.45	15.35	16.26	17.16	
Discharge	27.26	22.45	18.44	15.64	13.23	
Time	18.06	19.87	21.68	23.48	25.29	
Discharge	11.23	8.30	5.89	4.29	3.41	
Time	27.10	28.90	30.71	32.52	34.32	
Discharge	2.65	2.00	1.40	0.8820	0.4009	
Time	36.13					
Discharge	0.0000					

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv.  Hydro- Upstream Hyd.
        Loss Excess Loss Excess graph      Hyd.
*****
  0.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
 10.00  0.11  0.10  0.01  0.09  0.02    0.00    0.00    0.00
 20.00  0.33  0.13  0.20  0.09  0.25    0.29    0.02    0.32
 30.00  1.03  0.08  0.95  0.04  0.99    8.36    0.73    9.09
 40.00  0.58  0.01  0.57  0.01  0.57   39.39    7.89   47.28
 50.00  0.30  0.00  0.29  0.00  0.29   30.53   14.79   45.32
 60.00  0.21  0.00  0.21  0.00  0.21   17.69   11.64   29.32
 70.00  0.16  0.00  0.16  0.00  0.16   11.54    7.30   18.84
 80.00  0.08  0.00  0.08  0.00  0.08    8.36    4.59   12.96
 90.00  0.06  0.00  0.06  0.00  0.06    4.92    3.03    7.95
100.00  0.06  0.00  0.06  0.00  0.06    3.42    1.97    5.39
110.00  0.06  0.00  0.06  0.00  0.06    3.13    1.37    4.50
120.00  0.06  0.00  0.06  0.00  0.06    3.09    1.10    4.19
130.00  0.00  0.00  0.00  0.00  0.00    3.10    1.00    4.09
140.00  0.00  0.00  0.00  0.00  0.00    0.61    0.76    1.37
150.00  0.00  0.00  0.00  0.00  0.00    0.10    0.40    0.50
160.00  0.00  0.00  0.00  0.00  0.00    0.00    0.16    0.16
170.00  0.00  0.00  0.00  0.00  0.00    0.00    0.06    0.06
180.00  0.00  0.00  0.00  0.00  0.00    0.00    0.02    0.02
190.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
200.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
210.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
220.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
230.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
240.00  0.00  0.00  0.00  0.00  0.00    0.00    0.00    0.00
*****
Totals  3.05  0.34  2.71  0.23  2.82

```

Runoff volume= 1.853027 acre-ft
 Total volume= 2.63561 acre-ft
 Peak discharge (cfs)= 47.27505

Subarea Hydrograph Computation

Title: Design Point 4

Description: 2 Hour
10 Yr

Hydrograph No.: 5
Branch No.: 3

Subarea drainage area (acres): 2.21
Total upstream drainage area (acres): 0
Percent impervious area: 39
Total precipitation multiplication factor: 1
Hydrograph base flow (cfs): 0

Impervious area; SCS curve number: 98

Pervious area; SCS curve number: 87

Computation method selection: SCS Dimensionless Hydrograph

Time of concentration (minutes)= 11.48

Unit hydrograph						
Time	0.00	1.19	2.38	3.57	4.76	
Discharge	0.0000	0.2531	0.8435	1.60	2.61	
Time	5.94	7.13	8.32	9.51	10.70	
Discharge	3.96	5.57	6.92	7.84	8.35	
Time	11.89	13.08	14.27	15.45	16.64	
Discharge	8.44	9.35	7.84	7.25	6.58	
Time	17.83	19.02	20.21	21.40	22.59	
Discharge	5.74	4.72	3.88	3.29	2.78	
Time	23.78	26.15	28.53	30.91	33.29	
Discharge	2.36	1.75	1.24	0.9026	0.7170	
Time	35.66	38.04	40.42	42.80	45.17	
Discharge	0.5567	0.4218	0.2952	0.1856	0.0844	
Time	47.55					
Discharge	0.0000					

```

*****
Time   Rain Perv- Perv- Imp- Imp- Subarea Routed Total
        ious ious erv. erv.  Hydrom- Upstream  Hyd.
        Loss Excess Loss Excess graph      Hyd.
*****
 0.00   0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
10.00   0.11  0.11  0.00  0.09  0.02      0.00      0.00      0.00
20.00   0.33  0.32  0.01  0.09  0.25      0.05      0.00      0.05
30.00   1.03  0.53  0.50  0.04  0.99      0.86      0.00      0.86
40.00   0.58  0.15  0.43  0.01  0.57      5.98      0.00      5.98
50.00   0.30  0.06  0.24  0.00  0.29      6.80      0.00      6.80
60.00   0.21  0.04  0.18  0.00  0.21      4.79      0.00      4.79
70.00   0.16  0.02  0.13  0.00  0.16      3.29      0.00      3.29
80.00   0.08  0.01  0.07  0.00  0.08      2.34      0.00      2.34
90.00   0.06  0.01  0.05  0.00  0.06      1.47      0.00      1.47
100.00  0.06  0.01  0.05  0.00  0.06      0.98      0.00      0.98
110.00  0.06  0.01  0.06  0.00  0.06      0.83      0.00      0.83
120.00  0.06  0.01  0.06  0.00  0.06      0.79      0.00      0.79
130.00  0.00  0.00  0.00  0.00  0.00      0.78      0.00      0.78
140.00  0.00  0.00  0.00  0.00  0.00      0.31      0.00      0.31
150.00  0.00  0.00  0.00  0.00  0.00      0.08      0.00      0.08
160.00  0.00  0.00  0.00  0.00  0.00      0.02      0.00      0.02
170.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
180.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
190.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
200.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
210.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
220.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
230.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
240.00  0.00  0.00  0.00  0.00  0.00      0.00      0.00      0.00
*****
Totals  3.05  1.27  1.78  0.23  2.82

```

Runoff volume= .4045105 acre-ft
Total volume= .4045105 acre-ft
Peak discharge (cfs)= 6.803233