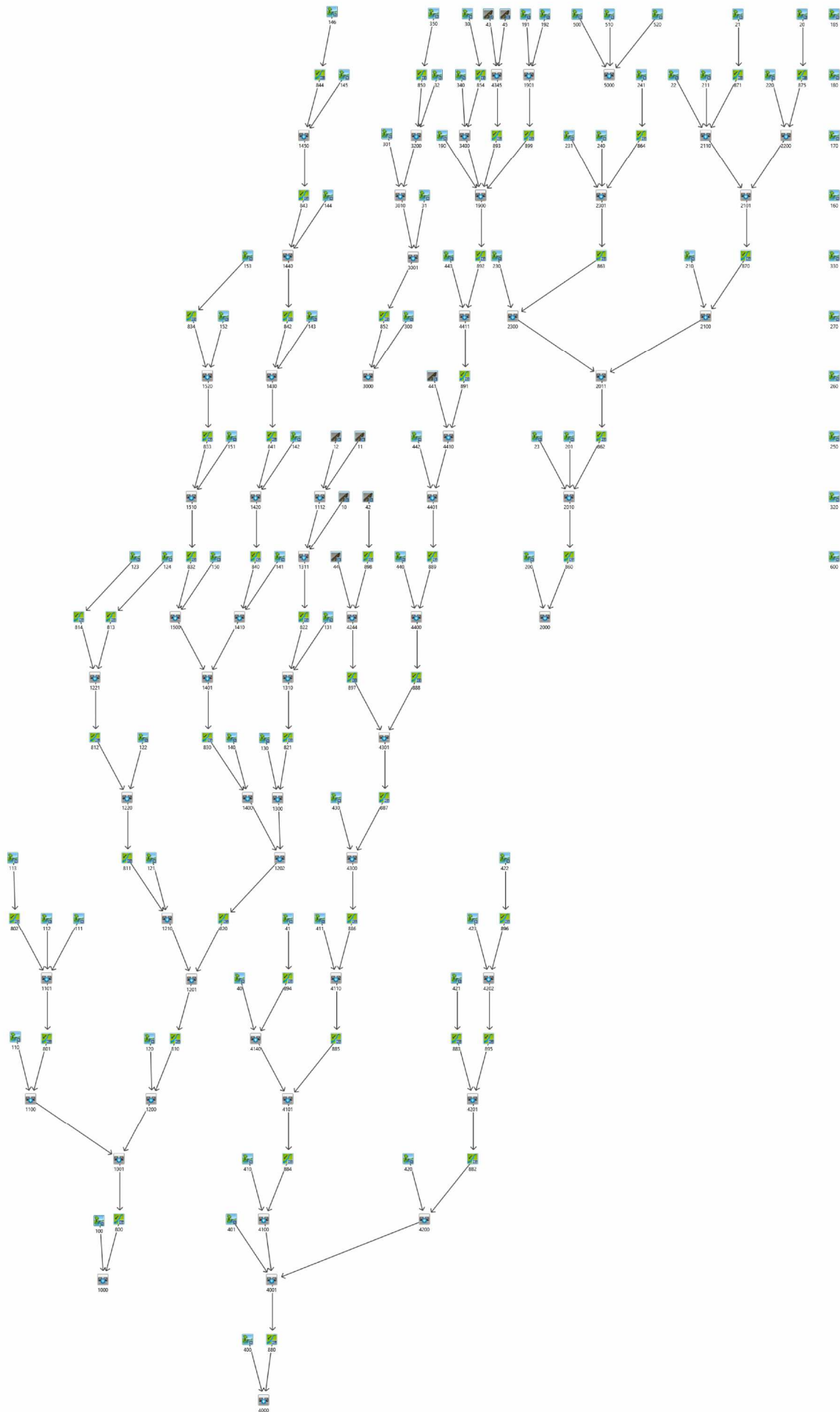


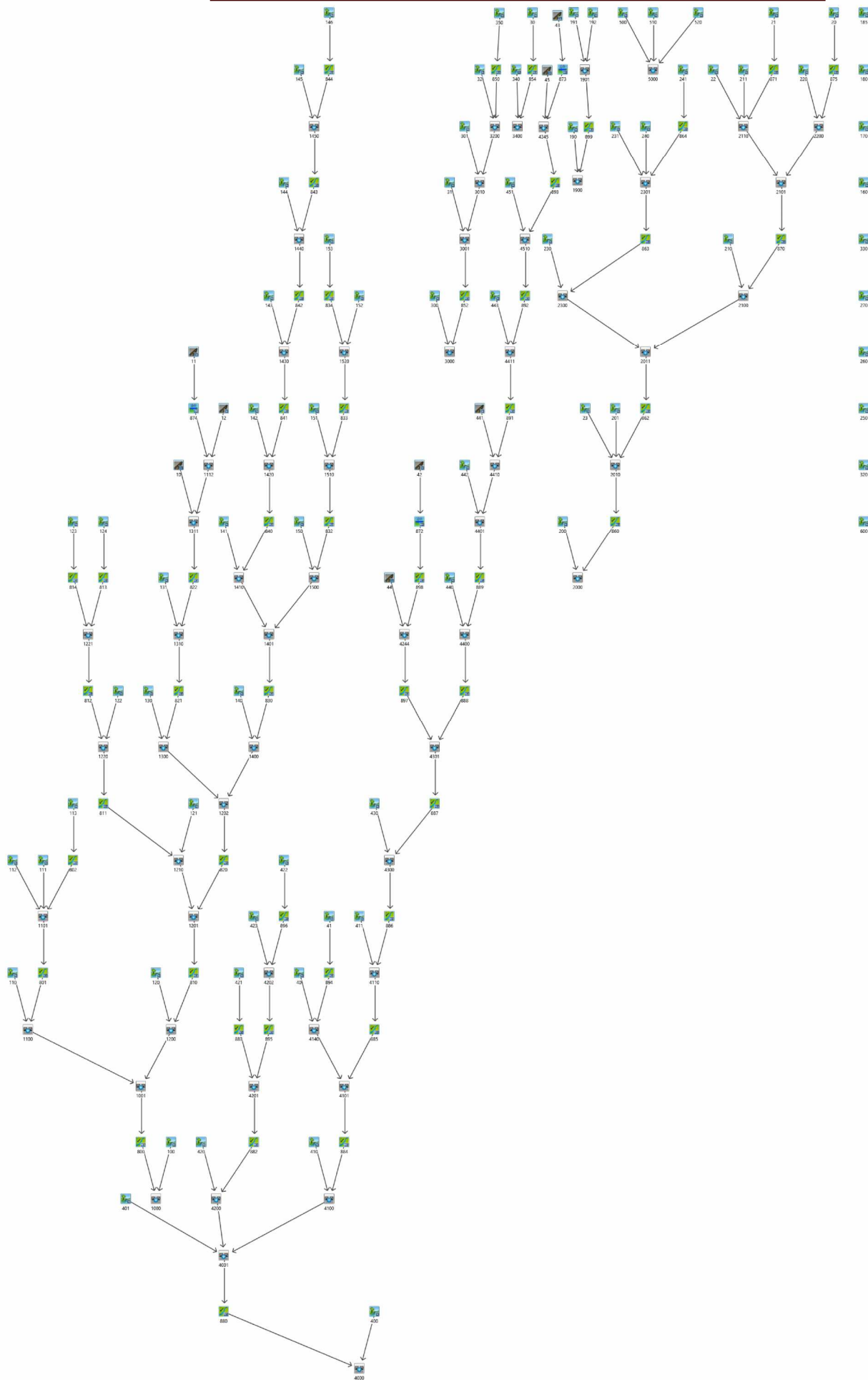
APPENDIX F4

Existing Conditions Hydrologic Model Input/Output and Flow Results

Model Without SWM Infrastructure - Output



Model With SWM Infrastructure - Output



Model Without SWM Infrastructure - Output

=====

V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSSS UUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y M M O O
O O T T H H Y Y M M O O
000 T T H H Y Y M M 000

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\V02\voin.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\80
c8081e-a04f-46fc-8ddc-c049828e391e\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\80
c8081e-a04f-46fc-8ddc-c049828e391e\sce

DATE: 10-17-2025 TIME: 02:15:23

USER:

COMMENTS: _____

** SIMULATION : 1 **

READ STORM	Filename: C:\Users\wraymond\AppData\Local\Temp\35eb7828-247c-431e-8f8f-00c8304cf789\8249d174

| Ptotal= 25.00 mm | Comments: Chicago-25mm4hr

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	1.08	4.31	2.17	5.82	3.25	2.08
0.08	1.65	1.17	4.31	2.25	4.52	3.33	2.08
0.17	1.65	1.25	6.37	2.33	4.52	3.42	1.92
0.25	1.82	1.33	6.37	2.42	3.72	3.50	1.92
0.33	1.82	1.42	13.83	2.50	3.72	3.58	1.79
0.42	2.04	1.50	13.83	2.58	3.19	3.67	1.79
0.50	2.04	1.58	53.25	2.67	3.19	3.75	1.68
0.58	2.33	1.67	53.25	2.75	2.80	3.83	1.68
0.67	2.33	1.75	16.08	2.83	2.80	3.92	1.58
0.75	2.72	1.83	16.08	2.92	2.50	4.00	1.58
0.83	2.72	1.92	8.40	3.00	2.50		
0.92	3.31	2.00	8.40	3.08	2.27		
1.00	3.31	2.08	5.82	3.17	2.27		

CALIB	Area (ha)=	2.00	Curve Number (CN)=	79.5
NASHYD (0185)	Ia (mm)=	6.54	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.36		

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.016 (i)
TIME TO PEAK (hrs)= 2.250
RUNOFF VOLUME (mm)= 4.058
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.162

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	6.80	Curve Number (CN)=	82.4
NASHYD (0180)	Ia (mm)=	8.13	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.85		

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.031 (i)
TIME TO PEAK (hrs)= 3.000
RUNOFF VOLUME (mm)= 4.001
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.160

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	5.80	Curve Number (CN)=	82.4
NASHYD (0170)	Ia (mm)=	8.13	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.69		

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.030 (i)
TIME TO PEAK (hrs)= 2.750
RUNOFF VOLUME (mm)= 4.001
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.160

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	16.30	Curve Number (CN)=	83.2
NASHYD (0160)	Ia (mm)=	7.69	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	1.15		

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.067 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 4.368
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.175

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	22.30	Curve Number (CN)=	82.2
NASHYD (0330)	Ia (mm)=	8.25	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.60		

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.120 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 3.910
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.156

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	2.50	Curve Number (CN)=	81.0
NASHYD (0270)	Ia (mm)=	5.95	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.24		

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.029 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 4.611
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.184

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	7.00	Curve Number (CN)=	83.7
NASHYD (0260)	Ia (mm)=	7.41	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.43		

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.056 (i)
TIME TO PEAK (hrs)= 2.333
RUNOFF VOLUME (mm)= 4.614
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.185

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	10.70	Curve Number (CN)=	81.9
NASHYD (0250)	Ia (mm)=	8.42	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.54		

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.059 (i)
TIME TO PEAK (hrs)= 2.500
RUNOFF VOLUME (mm)= 3.780
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.151

Model Without SWM Infrastructure - Output

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0320) | Area (ha)= 11.70 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.45
|
|
```

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.082 (i)
TIME TO PEAK (hrs)= 2.333
RUNOFF VOLUME (mm)= 4.273
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.171

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0420) | Area (ha)= 25.80 Curve Number (CN)= 83.6
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.12
|
|
```

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 0.113 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 4.562
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0423) | Area (ha)= 23.90 Curve Number (CN)= 84.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.20 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.80
|
|
```

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 0.137 (i)
TIME TO PEAK (hrs)= 2.917
RUNOFF VOLUME (mm)= 4.814
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.193

0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0422)	6.90	0.04	2.58	4.46	0.18	0.43
OUTFLOW: ID= 1 (0896)	6.90	0.04	2.75	4.46	0.18	0.43

```
-----
| ADD HYD ( 4202) |
| 1 + 2 = 3 |
|
| ID1= 1 ( 0423): 23.90 0.137 2.92 4.81
| + ID2= 2 ( 0896): 6.90 0.042 2.75 4.46
| =====
| ID = 3 ( 4202): 30.80 0.179 2.83 4.74
|
|
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0895) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|
|
```

Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.170E+01	0.0	0.28	4.09
0.24	212.03	.679E+01	0.0	0.44	2.58

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0422) | Area (ha)= 6.90 Curve Number (CN)= 83.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.61
|
|
```

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.043 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 4.464
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.179

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0896) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|
|
```

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03

0.36	212.15	.153E+02	0.1	0.58	1.97
0.48	212.27	.272E+02	0.3	0.70	1.62
0.61	212.40	.424E+02	0.5	0.82	1.40
0.73	212.52	.134E+03	1.0	0.53	2.16
0.85	212.64	.375E+03	2.8	0.52	2.20
0.97	212.76	.687E+03	6.1	0.60	1.89
1.09	212.88	.107E+04	11.0	0.71	1.61
1.21	213.00	.148E+04	17.8	0.83	1.38
1.33	213.12	.192E+04	26.1	0.93	1.22
1.45	213.24	.238E+04	35.9	1.03	1.11
1.57	213.36	.288E+04	47.3	1.13	1.01
1.70	213.49	.340E+04	60.1	1.21	0.94
1.82	213.61	.395E+04	74.5	1.29	0.88
1.94	213.73	.452E+04	90.5	1.37	0.83
2.06	213.85	.512E+04	109.2	1.46	0.78
2.18	213.97	.573E+04	130.3	1.56	0.73
2.37	214.16	.694E+04	168.2	1.66	0.69

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4202)	30.80	0.18	2.83	4.74	0.40
OUTFLOW: ID= 1 (0895)	30.80	0.18	2.83	4.74	0.61

```
-----
| CALIB
| NASHYD ( 0421) | Area (ha)= 10.40 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.37
|
|
```

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)= 0.080 (i)
TIME TO PEAK (hrs)= 2.250
RUNOFF VOLUME (mm)= 4.181
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.167

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0883) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|
|
```

Distance	Elevation	Manning
0.00	206.00	0.0400

Model Without SWM Infrastructure - Output

33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.344E+01	0.0	0.19	78.41
0.07	204.57	.137E+02	0.0	0.30	49.40
0.11	204.61	.309E+02	0.0	0.39	37.70
0.14	204.64	.550E+02	0.0	0.47	31.12
0.18	204.68	.859E+02	0.1	0.55	26.82
0.22	204.72	.124E+03	0.1	0.62	23.75
0.25	204.75	.168E+03	0.1	0.69	21.43
0.29	204.79	.220E+03	0.2	0.75	19.60
0.33	204.83	.278E+03	0.3	0.81	18.12
0.36	204.86	.344E+03	0.3	0.87	16.89
0.40	204.90	.416E+03	0.4	0.93	15.85
0.43	204.93	.559E+03	0.6	0.89	16.61
0.47	204.97	.986E+03	0.8	0.71	20.75
0.51	205.01	.165E+04	1.2	0.65	22.49
0.54	205.04	.248E+04	1.9	0.66	22.28
0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

<---- hydrograph ---->						<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
INFLOW : ID= 2 (0421)	10.40	0.08	2.25	4.18	0.21	0.60	
OUTFLOW: ID= 1 (0883)	10.40	0.06	2.67	4.14	0.19	0.56	

ADD HYD (4201)				
1 + 2 = 3				
ID1= 1 (0883):	10.40	0.061	2.67	4.14
+ ID2= 2 (0895):	30.80	0.179	2.83	4.74
=====				
ID = 3 (4201):	41.20	0.237	2.75	4.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0882)			
IN= 2----> OUT= 1			
Routing time step (min)'= 5.00			
<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52
0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20
0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

<---- hydrograph ---->						<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
INFLOW : ID= 2 (4201)	41.20	0.24	2.75	4.58	0.19	0.17	
OUTFLOW: ID= 1 (0882)	41.20	0.19	3.25	4.58	0.17	0.16	

ADD HYD (4200)				
1 + 2 = 3				
ID1= 1 (0420):	25.80	0.113	3.33	4.56
+ ID2= 2 (0882):	41.20	0.194	3.25	4.58
=====				
ID = 3 (4200):	67.00	0.307	3.25	4.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0440)			
ID= 1 DT= 5.0 min			
Area	(ha)=	31.60	Curve Number (CN)= 84.4
Ia	(mm)=	7.04	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=		1.16	

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW	(cms)=	0.148 (i)
TIME TO PEAK	(hrs)=	3.417
RUNOFF VOLUME	(mm)=	4.970
TOTAL RAINFALL	(mm)=	25.000
RUNOFF COEFFICIENT	=	0.199

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0442)			
ID= 1 DT= 5.0 min			
Area	(ha)=	2.40	Curve Number (CN)= 84.9
Ia	(mm)=	6.77	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=		0.41	

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW	(cms)=	0.023 (i)
TIME TO PEAK	(hrs)=	2.250
RUNOFF VOLUME	(mm)=	5.241
TOTAL RAINFALL	(mm)=	25.000
RUNOFF COEFFICIENT	=	0.210

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0443)			
ID= 1 DT= 5.0 min			
Area	(ha)=	21.30	Curve Number (CN)= 83.9
Ia	(mm)=	7.31	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=		0.59	

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW	(cms)=	0.144 (i)
TIME TO PEAK	(hrs)=	2.583
RUNOFF VOLUME	(mm)=	4.711
TOTAL RAINFALL	(mm)=	25.000
RUNOFF COEFFICIENT	=	0.188

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0451)			
ID= 1 DT= 5.0 min			
Area	(ha)=	12.30	Curve Number (CN)= 84.3
Ia	(mm)=	7.09	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=		0.57	

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW	(cms)=	0.089 (i)
TIME TO PEAK	(hrs)=	2.500
RUNOFF VOLUME	(mm)=	4.919
TOTAL RAINFALL	(mm)=	25.000
RUNOFF COEFFICIENT	=	0.197

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0043)			
ID= 1 DT= 5.0 min			
Area	(ha)=	22.90	
Total Imp(hrs)=		49.00	Dir. Conn.(%)= 40.00

IMPERVIOUS			PERVIOUS (i)		
Surface Area	(ha)=	11.22			11.68
Dep. Storage	(mm)=	1.00			8.92
Average Slope	(%)=	1.00			2.00
Length	(m)=	390.73			40.00
Mannings n	=	0.013			0.250

Max.Eff.Inten.(mm/hr)=	53.25	3.72
over (min)	5.00	35.00
Storage Coeff. (min)=	7.45 (ii)	33.77 (ii)
Unit Hyd. Tpeak (min)=	5.00	35.00
Unit Hyd. peak (cms)=	0.17	0.03

TOTALS			
PEAK FLOW	(cms)=	1.08	0.06
TIME TO PEAK	(hrs)=	1.75	2.42
RUNOFF VOLUME	(mm)=	24.00	3.25
TOTAL RAINFALL	(mm)=	25.00	25.00

Model Without SWM Infrastructure - Output

RUNOFF COEFFICIENT = 0.96 0.13 0.46

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0045) ID= 1 DT= 5.0 min	Area (ha)= 1.30 Total Imp(%)= 65.00 Dir. Conn.(%)= 35.00	IMPERVIOUS 0.84 0.46	PERVIOUS (i) 8.92 2.00
Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n =	53.25 5.00 3.15 (ii) 5.00 0.27	16.93 20.00 17.51 (ii) 20.00 0.06	
Max.Eff.Inten.(mm/hr)= over (min) Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)=			
PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT =	0.07 1.75 24.00 25.00 0.96	0.01 2.00 5.98 25.00 0.24	0.069 (iii) 1.75 12.28 25.00 0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4345) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043): + ID2= 2 (0045):	22.90 1.30	1.084 0.069	1.75 1.75	11.55 12.28

ID = 3 (4345): 24.20 1.153 1.75 11.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893) IN= 2----> OUT= 1	Routing time step (min)'= 5.00
<----- DATA FOR SECTION (1.1) ----->	
Distance Elevation Manning	
0.00 208.29 0.0300	
3.73 208.14 0.0300 /0.0350	Main Channel
5.30 207.52 0.0350	Main Channel
6.93 208.18 0.0350 /0.0300	Main Channel
8.96 208.27 0.0300	
14.71 208.30 0.0300	
23.86 208.59 0.0300	

<----- TRAVEL TIME TABLE ----->	
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME	
(m) (m) (cu.m.) (cms) (m/s) (min)	
0.04 207.56 .596E+00 0.0 0.09 30.15	
0.08 207.60 .238E+01 0.0 0.14 18.99	
0.12 207.64 .536E+01 0.0 0.18 14.49	
0.16 207.68 .954E+01 0.0 0.22 11.96	
0.19 207.71 .149E+02 0.0 0.26 10.31	
0.23 207.75 .215E+02 0.0 0.29 9.13	
0.27 207.79 .292E+02 0.1 0.32 8.24	
0.31 207.83 .381E+02 0.1 0.35 7.54	
0.35 207.87 .483E+02 0.1 0.38 6.97	
0.39 207.91 .596E+02 0.2 0.41 6.50	
0.43 207.95 .721E+02 0.2 0.43 6.10	
0.47 207.99 .858E+02 0.2 0.46 5.75	
0.50 208.02 .101E+03 0.3 0.49 5.45	
0.54 208.06 .117E+03 0.4 0.51 5.19	
0.58 208.10 .134E+03 0.5 0.53 4.96	
0.62 208.14 .153E+03 0.5 0.56 4.75	
0.67 208.19 .183E+03 0.7 0.59 4.48	
0.72 208.24 .229E+03 0.9 0.61 4.36	
0.77 208.29 .300E+03 1.1 0.60 4.44	

**** WARNING: TRAVEL TIME TABLE EXCEEDED	
<----- hydrograph ----->	<-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL	
(ha) (cms) (hrs) (mm) (m) (m/s)	
INFLOW : ID= 2 (4345) 24.20 1.15 1.75 11.59 0.72 0.61	
OUTFLOW: ID= 1 (0893) 24.20 0.98 1.83 11.59 0.74 0.60	

ADD HYD (4510) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0451): + ID2= 2 (0893):	12.30 24.20	0.089 0.984	2.50 1.83	4.92 9.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0892) IN= 2----> OUT= 1	Routing time step (min)'= 5.00
<----- DATA FOR SECTION (1.1) ----->	
Distance Elevation Manning	
0.00 214.06 0.0500	
6.27 213.95 0.0500	
20.38 214.11 0.0500	
25.18 213.97 0.0500 /0.0350	Main Channel
28.59 211.79 0.0350	Main Channel
32.89 214.16 0.0350 /0.0500	Main Channel
42.61 212.54 0.0500	
59.11 212.41 0.0500	
84.10 212.83 0.0500	
100.76 213.78 0.0500	

<----- TRAVEL TIME TABLE ----->	
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME	
(m) (m) (cu.m.) (cms) (m/s) (min)	
0.12 211.91 .279E+01 0.0 0.48 3.92	
0.24 212.03 .112E+02 0.1 0.76 2.47	
0.36 212.15 .251E+02 0.2 0.99 1.89	
0.48 212.27 .446E+02 0.5 1.20 1.56	
0.61 212.40 .697E+02 0.9 1.40 1.34	
0.73 212.52 .220E+03 1.8 0.91 2.07	
0.85 212.64 .616E+03 4.9 0.89 2.11	
0.97 212.76 .113E+04 10.4 1.04 1.81	
1.09 212.88 .175E+04 18.9 1.21 1.54	
1.21 213.00 .243E+04 30.5 1.42 1.32	
1.33 213.12 .315E+04 44.8 1.60 1.17	
1.45 213.24 .392E+04 61.6 1.77 1.06	
1.57 213.36 .473E+04 81.0 1.93 0.97	
1.70 213.49 .558E+04 103.1 2.08 0.90	
1.82 213.61 .648E+04 127.8 2.22 0.85	
1.94 213.73 .742E+04 155.2 2.35 0.80	
2.06 213.85 .841E+04 187.2 2.50 0.75	
2.18 213.97 .941E+04 223.3 2.67 0.70	
2.37 214.16 .114E+05 288.4 2.85 0.66	

<----- hydrograph ----->	<-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL	
(ha) (cms) (hrs) (mm) (m) (m/s)	
INFLOW : ID= 2 (4510) 36.50 1.00 1.83 9.34 0.62 1.29	
OUTFLOW: ID= 1 (0892) 36.50 0.99 1.83 9.34 0.62 1.30	

ADD HYD (4411) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0443): + ID2= 2 (0892):	21.30 36.50	0.144 0.988	2.58 1.83	4.71 9.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0891) IN= 2----> OUT= 1	Routing time step (min)'= 5.00
<----- DATA FOR SECTION (1.1) ----->	
Distance Elevation Manning	
0.00 206.70 0.0400	
2.35 206.02 0.0400 /0.0350	Main Channel
5.23 205.19 0.0350	Main Channel
5.34 205.67 0.0350	Main Channel
19.05 206.06 0.0350 /0.0400	Main Channel
21.11 206.05 0.0400	
22.02 206.13 0.0400 /0.0350	
40.10 206.15 0.0350	
56.50 206.04 0.0350	

<----- TRAVEL TIME TABLE ----->	
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME	
(m) (m) (cu.m.) (cms) (m/s) (min)	
0.04 205.23 .621E+00 0.0 0.10 29.40	
0.09 205.28 .248E+01 0.0 0.16 18.52	
0.13 205.32 .559E+01 0.0 0.21 14.13	
0.17 205.36 .994E+01 0.0 0.25 11.67	
0.22 205.41 .155E+02 0.0 0.29 10.05	
0.26 205.45 .224E+02 0.0 0.33 8.90	
0.31 205.50 .304E+02 0.1 0.37 8.03	
0.35 205.54 .398E+02 0.1 0.40 7.35	
0.39 205.58 .503E+02 0.1 0.43 6.79	
0.44 205.63 .621E+02 0.2 0.46 6.33	

Model Without SWM Infrastructure - Output

0.48	205.67	.752E+02	0.2	0.49	5.97
0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (	4411)	57.80	1.01	1.83	7.63	0.74	0.47
OUTFLOW: ID= 1 (	0891)	57.80	0.86	1.92	7.63	0.71	0.45

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB	
STANDHYD (0441)	
ID= 1 DT= 5.0 min	

Area (ha)=	3.00
Total Imp(%)=	45.00
Dir. Conn.(%)=	35.00

	IMPERVIOUS (ha)=	PERVIOUS (i) (mm)=
Surface Area	1.35	1.65
Dep. Storage	1.00	3.58
Average Slope	2.00	2.00
Length	141.42	40.00
Mannings n	0.013	0.250

Max.Eff.Inten.(mm/hr)=	53.25	16.56
over (min)	5.00	20.00
Storage Coeff. (min)=	3.29 (ii)	17.78 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.27	0.06

TOTALS

PEAK FLOW (cms)=	0.15	0.04	0.164 (iii)
TIME TO PEAK (hrs)=	1.75	2.00	
RUNOFF VOLUME (mm)=	24.00	8.48	13.91
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.34	0.56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

0.31	205.50	.133E+03	0.1	0.33	38.94
0.35	205.54	.174E+03	0.1	0.36	35.63
0.39	205.58	.220E+03	0.1	0.39	32.93
0.44	205.63	.272E+03	0.1	0.42	30.70
0.48	205.67	.329E+03	0.2	0.44	28.96
0.52	205.71	.418E+03	0.2	0.36	35.92
0.57	205.76	.563E+03	0.3	0.34	37.36
0.61	205.80	.765E+03	0.4	0.35	36.28
0.66	205.85	.102E+04	0.5	0.37	34.31
0.70	205.89	.134E+04	0.7	0.40	32.17
0.74	205.93	.171E+04	0.9	0.43	30.13
0.79	205.98	.214E+04	1.3	0.45	28.27
0.83	206.02	.263E+04	1.6	0.48	26.60

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (	4401)	63.20	0.96	1.92	7.84	0.74	0.43
OUTFLOW: ID= 1 (	0889)	63.20	0.55	2.42	7.83	0.67	0.38

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (4400)	
1 + 2 = 3	

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0440):	31.60	0.148	3.42	4.97
+ ID2= 2 (0889):	63.20	0.549	2.42	7.83

=====

ID = 3 (4400):	94.80	0.644	2.58	6.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0888)	
IN= 2--> OUT= 1	

Routing time step (min)'= 5.00

	Distance	Elevation	Manning
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 / 0.0350	Main Channel
43.44	208.24	0.0350	Main Channel
45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	Main Channel
77.43	209.05	0.0400	
128.85	209.70	0.0400	

ADD HYD (4410)	
1 + 2 = 3	

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0441):	3.00	0.164	1.75	13.91
+ ID2= 2 (0891):	57.80	0.863	1.92	7.63

=====

ID = 3 (4410):	60.80	0.951	1.92	7.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4401)	
1 + 2 = 3	

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (4410):	60.80	0.951	1.92	7.94
+ ID2= 2 (0442):	2.40	0.023	2.25	5.24

=====

ID = 3 (4401):	63.20	0.964	1.92	7.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0889)	
IN= 2--> OUT= 1	

Routing time step (min)'= 5.00

	Distance	Elevation	Manning
0.00	206.70	0.0400	
2.35	206.02	0.0400 / 0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 / 0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 / 0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.272E+01	0.0	0.09	142.50
0.09	205.28	.109E+02	0.0	0.14	89.77
0.13	205.32	.245E+02	0.0	0.19	68.51
0.17	205.36	.435E+02	0.0	0.23	56.55
0.22	205.41	.679E+02	0.0	0.26	48.73
0.26	205.45	.978E+02	0.0	0.30	43.16

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	208.30	.519E+01	0.0	0.09	43.50
0.13	208.37	.208E+02	0.0	0.15	27.40
0.19	208.43	.467E+02	0.0	0.19	20.91
0.25	208.49	.830E+02	0.1	0.24	17.26
0.32	208.56	.130E+03	0.1	0.27	14.88
0.38	208.62	.187E+03	0.2	0.31	13.17
0.46	208.70	.365E+03	0.5	0.31	13.03
0.54	208.78	.674E+03	0.9	0.32	12.89
0.62	208.86	.113E+04	1.5	0.33	12.23
0.70	208.94	.176E+04	2.5	0.35	11.61
0.78	209.02	.258E+04	3.9	0.37	10.95
0.86	209.10	.358E+04	5.8	0.40	10.27
0.94	209.18	.475E+04	8.2	0.42	9.62
1.02	209.26	.608E+04	11.2	0.45	9.04
1.10	209.34	.758E+04	14.8	0.48	8.53
1.18	209.42	.927E+04	18.8	0.50	8.21
1.26	209.50	.112E+05	23.6	0.52	7.88
1.34	209.58	.133E+05	29.3	0.54	7.57
1.42	209.66	.157E+05	35.9	0.56	7.26

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (	4400)	94.80	0.64	2.58	6.88	0.49
OUTFLOW: ID= 1 (	0888)	94.80	0.62	2.92	6.87	0.49

CALIB	
STANDHYD (0042)	
ID= 1 DT= 5.0 min	

Area (ha)=	20.50
Total Imp(%)=	83.00
Dir. Conn.(%)=	70.00

	IMPERVIOUS (ha)=	PERVIOUS (i) (mm)=
Surface Area	17.01	3.49
Dep. Storage	1.00	6.98
Average Slope	2.00	2.00
Length	369.68	40.00
Mannings n	0.013	0.250

Max.Eff.Inten.(mm/hr)=	53.25	20.71
over (min)	5.00	20.00
Storage Coeff. (min)=	5.85 (ii)	19.10 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.20	0.06

TOTALS

Model Without SWM Infrastructure - Output

PEAK FLOW (cms)= 1.83 0.11 1.861 (iii)
TIME TO PEAK (hrs)= 1.75 2.00 1.75
RUNOFF VOLUME (mm)= 24.00 7.32 19.00
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.29 0.76

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0898)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	101.50	0.0500			
1.00	100.70	0.0500			
1.50	100.55	0.0500 / 0.0300	Main Channel		
2.00	99.50	0.0300	Main Channel		
3.50	99.60	0.0300	Main Channel		
4.50	100.65	0.0300 / 0.0500	Main Channel		
6.00	101.45	0.0500			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.10	99.60	.152E+02	0.0	0.19	18.79
0.19	99.69	.482E+02	0.1	0.37	9.79
0.29	99.79	.840E+02	0.2	0.49	7.32
0.38	99.88	.123E+03	0.3	0.59	6.12
0.48	99.98	.164E+03	0.5	0.67	5.38
0.57	100.07	.208E+03	0.7	0.74	4.87
0.67	100.17	.255E+03	0.9	0.80	4.49
0.76	100.26	.305E+03	1.2	0.86	4.19
0.86	100.36	.358E+03	1.5	0.91	3.95
0.95	100.45	.413E+03	1.8	0.96	3.75
1.05	100.55	.471E+03	2.2	1.00	3.58
1.16	100.66	.547E+03	2.7	1.07	3.35
1.28	100.78	.635E+03	3.4	1.14	3.14
1.39	100.89	.732E+03	4.1	1.20	2.99
1.50	101.00	.838E+03	4.9	1.25	2.86
1.61	101.11	.952E+03	5.8	1.30	2.76
1.72	101.22	.107E+04	6.7	1.34	2.67
1.84	101.34	.120E+04	7.7	1.38	2.60
1.95	101.45	.134E+04	8.8	1.41	2.54

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0042) 20.50 1.86 1.75 19.00 0.96 0.96
OUTFLOW: ID= 1 (0898) 20.50 1.65 1.75 18.99 0.90 0.93

CALIB					
STANDHYD (0044)					
ID= 1 DT= 5.0 min					
Area	(ha)=	8.90			
Total Imp(%)	=	41.00	Dir. Conn.(%)	=	20.00
IMPERVIOUS PERVIOUS (i)					
Surface Area	(ha)=	3.65	5.25		
Dep. Storage	(mm)=	1.00	8.00		
Average Slope	(%)=	2.00	2.00		
Length	(m)=	243.58	40.00		
Mannings n	=	0.013	0.250		
Max.Eff.Inten.(mm/hr)=		53.25	8.28		
over (min)		5.00	25.00		
Storage Coeff. (min)=		4.55 (ii)	23.67 (ii)		
Unit Hyd. Tpeak (min)=		5.00	25.00		
Unit Hyd. peak (cms)=		0.23	0.05		
TOTALS					
PEAK FLOW	(cms)=	0.24	0.06	0.252 (iii)	
TIME TO PEAK	(hrs)=	1.75	2.17	1.75	
RUNOFF VOLUME	(mm)=	24.00	4.66	8.53	
TOTAL RAINFALL	(mm)=	25.00	25.00	25.00	
RUNOFF COEFFICIENT	=	0.96	0.19	0.34	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4244)					
1 + 2 = 3					
AREA	QPEAK	TPEAK	R.V.		
(ha)	(cms)	(hrs)	(mm)		
ID1= 1 (0044):	8.90	0.252	1.75	8.53	
+ ID2= 2 (0898):	20.50	1.647	1.75	18.99	

=====

ID = 3 (4244): 29.40 1.899 1.75 15.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0897)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 / 0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		
32.89	214.16	0.0350 / 0.0500	Main Channel		
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.140E+02	0.0	0.17	55.64
0.24	212.03	.559E+02	0.0	0.27	35.05
0.36	212.15	.126E+03	0.1	0.35	26.75
0.48	212.27	.224E+03	0.2	0.43	22.08
0.61	212.40	.350E+03	0.3	0.49	19.03
0.73	212.52	.110E+04	0.6	0.32	29.36
0.85	212.64	.309E+04	1.7	0.31	29.92
0.97	212.76	.566E+04	3.7	0.37	25.67
1.09	212.88	.878E+04	6.7	0.43	21.92
1.21	213.00	.122E+05	10.8	0.50	18.80
1.33	213.12	.158E+05	15.8	0.57	16.63
1.45	213.24	.196E+05	21.8	0.63	15.03
1.57	213.36	.237E+05	28.7	0.68	13.79
1.70	213.49	.280E+05	36.4	0.73	12.81
1.82	213.61	.325E+05	45.2	0.78	12.00
1.94	213.73	.372E+05	54.9	0.83	11.31
2.06	213.85	.422E+05	66.2	0.89	10.62
2.18	213.97	.472E+05	79.0	0.94	9.97
2.37	214.16	.571E+05	102.0	1.01	9.34
<---- hydrograph ----> <-pipe / channel->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4244)	29.40	1.90	1.75	15.82	0.86
OUTFLOW: ID= 1 (0897)	29.40	0.80	2.00	15.81	0.75

ADD HYD (4301)					
1 + 2 = 3					
AREA	QPEAK	TPEAK	R.V.		
(ha)	(cms)	(hrs)	(mm)		
ID1= 1 (0888):	94.80	0.623	2.92	6.87	
+ ID2= 2 (0897):	29.40	0.798	2.00	15.81	
=====					
ID = 3 (4301):	124.20	1.248	2.33	8.99	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0887)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.52	0.0400			
61.99	209.23	0.0400			
76.86	209.20	0.0400			
82.03	209.20	0.0400 / 0.0350	Main Channel		
86.30	208.87	0.0350	Main Channel		
89.86	209.20	0.0350 / 0.0300	Main Channel		
96.27	209.24	0.0300			
103.53	209.40	0.0300			
127.96	209.50	0.0300			
158.58	209.70	0.0300			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.143E+01	0.0	0.09	20.80
0.07	208.94	.572E+01	0.0	0.14	13.11
0.10	208.97	.129E+02	0.0	0.18	10.00
0.13	209.00	.229E+02	0.0	0.22	8.26
0.17	209.04	.357E+02	0.1	0.26	7.11
0.20	209.07	.514E+02	0.1	0.29	6.30
0.23	209.10	.700E+02	0.2	0.32	5.69
0.26	209.13	.915E+02	0.3	0.35	5.20
0.30	209.17	.116E+03	0.4	0.38	4.81
0.33	209.20	.143E+03	0.5	0.41	4.48
0.37	209.24	.239E+03	0.8	0.37	5.02
0.40	209.27	.396E+03	1.3	0.35	5.26
0.44	209.31	.589E+03	1.9	0.36	5.13
0.47	209.34	.818E+03	2.8	0.38	4.89
0.51	209.38	.108E+04	3.9	0.40	4.63
0.54	209.41	.139E+04	5.2	0.41	4.46

Model Without SWM Infrastructure - Output

0.58	209.45	.175E+04	6.7	0.43	4.33		
0.61	209.48	.218E+04	8.7	0.44	4.17		
0.65	209.52	.266E+04	11.2	0.46	3.98		

<---- hydrograph ----> <-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
INFLOW : ID= 2 (4301)	124.20	1.25	2.33	8.99	0.40	0.35	
OUTFLOW: ID= 1 (0887)	124.20	1.23	2.50	8.99	0.40	0.35	

CALIB
NASHYD (0430)
ID= 1 DT= 5.0 min

Area (ha)=	19.80	Curve Number (CN)=	83.6
Ia (mm)=	7.47	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.13		

Unit Hyd Qpeak (cms)= 0.669

PEAK FLOW (cms)= 0.086 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 4.562
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4300)
1 + 2 = 3

AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0430):	19.80	0.086	3.42	4.56
+ ID2= 2 (0887):	124.20	1.234	2.50	8.99
=====				
ID = 3 (4300):	144.00	1.290	2.50	8.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0886)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	209.20	0.0400
100.00	206.26	0.0400
111.30	206.19	0.0400 /0.0350 Main Channel

112.02	205.76	0.0350	Main Channel
113.82	205.37	0.0350	Main Channel
115.62	206.03	0.0350 /0.0400	Main Channel
117.77	207.30	0.0400	
120.56	207.40	0.0400	
124.41	207.31	0.0400	
129.31	207.24	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	205.46	.110E+02	0.0	0.11	51.32
0.19	205.56	.438E+02	0.0	0.17	32.33
0.28	205.65	.986E+02	0.1	0.23	24.67
0.38	205.75	.175E+03	0.1	0.27	20.37
0.47	205.84	.271E+03	0.3	0.33	16.94
0.57	205.94	.379E+03	0.4	0.38	14.73
0.66	206.03	.501E+03	0.6	0.42	13.19
0.76	206.13	.644E+03	0.9	0.48	11.58
0.86	206.23	.845E+03	1.3	0.51	10.89
0.96	206.33	.140E+04	1.9	0.46	12.13
1.06	206.43	.209E+04	2.9	0.46	12.20
1.16	206.53	.290E+04	4.1	0.47	11.82
1.26	206.63	.383E+04	5.6	0.49	11.31
1.37	206.74	.489E+04	7.6	0.52	10.78
1.47	206.84	.607E+04	9.8	0.54	10.28
1.57	206.94	.737E+04	12.5	0.57	9.81
1.67	207.04	.879E+04	15.6	0.60	9.38
1.77	207.14	.103E+05	19.2	0.62	8.99
1.87	207.24	.120E+05	23.2	0.65	8.63

<---- hydrograph ----> <-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (4300)	144.00	1.29	2.50	8.38	0.86	0.51
OUTFLOW: ID= 1 (0886)	144.00	1.24	2.67	8.38	0.84	0.51

CALIB
NASHYD (0411)
ID= 1 DT= 5.0 min

Area (ha)=	4.50	Curve Number (CN)=	86.7
Ia (mm)=	5.84	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.11		

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 6.316

TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.253

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4110)
1 + 2 = 3

AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0411):	4.50	0.028	3.25	6.32
+ ID2= 2 (0886):	144.00	1.238	2.67	8.38
=====				
ID = 3 (4110):	148.50	1.261	2.67	8.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0885)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	208.48	0.0500
43.69	207.97	0.0500
66.92	207.94	0.0500
76.98	208.01	0.0500
87.94	208.25	0.0500
89.93	208.44	0.0500 /0.0350 Main Channel
92.70	208.20	0.0350 Main Channel
95.51	207.28	0.0350 Main Channel
98.26	208.25	0.0350 Main Channel

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	207.33	.134E+01	0.0	0.06	52.81
0.10	207.38	.536E+01	0.0	0.10	33.27
0.15	207.43	.121E+02	0.0	0.13	25.39
0.19	207.47	.214E+02	0.0	0.15	20.96
0.24	207.52	.335E+02	0.0	0.18	18.06
0.29	207.57	.483E+02	0.1	0.20	15.99
0.34	207.62	.657E+02	0.1	0.22	14.43
0.39	207.67	.858E+02	0.1	0.24	13.20
0.44	207.72	.109E+03	0.1	0.26	12.21
0.48	207.76	.134E+03	0.2	0.28	11.38
0.53	207.81	.162E+03	0.3	0.30	10.68
0.58	207.86	.193E+03	0.3	0.32	10.08
0.63	207.91	.227E+03	0.4	0.34	9.55
0.68	207.96	.295E+03	0.5	0.32	10.12

0.73	208.01	.613E+03	0.7	0.22	14.89
0.78	208.06	.103E+04	1.0	0.20	16.42
0.82	208.10	.150E+04	1.5	0.20	16.27
0.87	208.15	.204E+04	2.2	0.21	15.61
0.92	208.20	.264E+04	3.0	0.22	14.84

<---- hydrograph ----> <-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (4110)	148.50	1.26	2.67	8.32	0.80	0.20
OUTFLOW: ID= 1 (0885)	148.50	1.16	3.08	8.31	0.79	0.20

CALIB
NASHYD (0041)
ID= 1 DT= 5.0 min

Area (ha)=	25.40	Curve Number (CN)=	83.6
Ia (mm)=	7.47	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.21		

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.106 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 4.562
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0894)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 /0.0350 Main Channel
28.59	211.79	0.0350 Main Channel
32.89	214.16	0.0350 /0.0500 Main Channel
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME

Model Without SWM Infrastructure - Output

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.523E+01	0.0	0.10	36.03
0.24	212.03	.209E+02	0.0	0.15	22.70
0.36	212.15	.471E+02	0.0	0.20	17.32
0.48	212.27	.837E+02	0.1	0.25	14.30
0.61	212.40	.131E+03	0.2	0.29	12.32
0.73	212.52	.412E+03	0.4	0.18	19.01
0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62
1.09	212.88	.328E+04	3.9	0.25	14.19
1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0041)	25.40	0.11	3.50	4.56	0.50	0.25
OUTFLOW: ID= 1 (0894)	25.40	0.10	3.67	4.56	0.49	0.25

CALIB			
NASHYD (0040)	Area (ha)=	37.50	Curve Number (CN)= 84.2
ID= 1 DT= 5.0 min	Ia (mm)=	7.14	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.98	

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 0.191 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 4.868
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.195

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.

0.63	203.62	.934E+03	1.3	0.53	11.56
0.68	203.67	.129E+04	1.7	0.50	12.36
0.73	203.72	.184E+04	2.3	0.47	13.20
0.79	203.78	.270E+04	3.4	0.47	13.22
0.85	203.84	.412E+04	5.1	0.45	13.57
0.92	203.91	.583E+04	7.3	0.47	13.24
0.98	203.97	.783E+04	10.3	0.49	12.69
1.04	204.03	.101E+05	13.9	0.51	12.15

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4101)	211.40	1.44	3.08	7.25	0.64	0.52
OUTFLOW: ID= 1 (0884)	211.40	1.40	3.33	7.25	0.63	0.53

CALIB			
NASHYD (0410)	Area (ha)=	8.50	Curve Number (CN)= 85.5
ID= 1 DT= 5.0 min	Ia (mm)=	6.46	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.94	

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.052 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 5.579
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.223

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4100)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0410):	8.50	0.052	3.08	5.58
+ ID2= 2 (0884):	211.40	1.403	3.33	7.25
=====				
ID = 3 (4100):	219.90	1.453	3.33	7.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0401)	Area (ha)=	23.00	Curve Number (CN)= 83.1
ID= 1 DT= 5.0 min	Ia (mm)=	7.74	# of Linear Res.(N)= 3.00

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0040):	37.50	0.191	3.17	4.87
+ ID2= 2 (0894):	25.40	0.103	3.67	4.56
ID = 3 (4140):	62.90	0.286	3.33	4.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4101)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
ID1= 1 (4140):	62.90	0.286	3.33	4.74
+ ID2= 2 (0885):	148.50	1.158	3.08	8.31
ID = 3 (4101):	211.40	1.438	3.08	7.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0884)			
IN= 2----> OUT= 1	Routing time step (min)'=	5.00	

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	204.63	0.0400	
45.24	204.34	0.0400	
94.52	203.98	0.0400	
140.93	203.58	0.0400	
148.77	203.72	0.0400 / 0.0350	Main Channel
154.30	202.99	0.0350	Main Channel
158.02	203.77	0.0350 / 0.0400	Main Channel
174.30	203.79	0.0400	
222.94	204.38	0.0400	
285.62	204.03	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.620E+01	0.0	0.11	58.30
0.10	203.09	.248E+02	0.0	0.17	36.73
0.16	203.15	.558E+02	0.0	0.22	28.03
0.21	203.20	.992E+02	0.1	0.27	23.14
0.26	203.25	.155E+03	0.1	0.31	19.94
0.31	203.30	.223E+03	0.2	0.35	17.66
0.37	203.36	.304E+03	0.3	0.39	15.93
0.42	203.41	.397E+03	0.5	0.42	14.58
0.47	203.46	.502E+03	0.6	0.46	13.47
0.52	203.51	.620E+03	0.8	0.49	12.56
0.57	203.56	.750E+03	1.1	0.52	11.79

U.H. Tp(hrs)= 0.78

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.119 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 4.323
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.173

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4001)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
ID1= 1 (0401):	23.00	0.119	2.83	4.32
+ ID2= 2 (4100):	219.90	1.453	3.33	7.19
ID = 3 (4001):	242.90	1.561	3.25	6.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4001)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
ID1= 3 (4001):	242.90	1.561	3.25	6.91
+ ID2= 2 (4200):	67.00	0.307	3.25	4.57
ID = 1 (4001):	309.90	1.867	3.25	6.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0880)			
IN= 2----> OUT= 1	Routing time step (min)'=	5.00	

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	204.63	0.0400	
45.24	204.34	0.0400	
94.52	203.98	0.0400	
140.93	203.58	0.0400	
148.77	203.72	0.0400 / 0.0350	Main Channel
154.30	202.99	0.0350	Main Channel
158.02	203.77	0.0350 / 0.0400	Main Channel
174.30	203.79	0.0400	

Model Without SWM Infrastructure - Output

222.94 204.38 0.0400
285.62 204.03 0.0400

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	203.04	.647E+01	0.0	0.11	59.17
0.10	203.09	.259E+02	0.0	0.17	37.28
0.16	203.15	.582E+02	0.0	0.23	28.45
0.21	203.20	.103E+03	0.1	0.27	23.48
0.26	203.25	.162E+03	0.1	0.32	20.24
0.31	203.30	.233E+03	0.2	0.36	17.92
0.37	203.36	.317E+03	0.3	0.40	16.17
0.42	203.41	.414E+03	0.5	0.43	14.79
0.47	203.46	.524E+03	0.6	0.47	13.68
0.52	203.51	.647E+03	0.8	0.50	12.75
0.57	203.56	.782E+03	1.1	0.54	11.96
0.63	203.62	.974E+03	1.4	0.55	11.73
0.68	203.67	.135E+04	1.8	0.51	12.55
0.73	203.72	.192E+04	2.4	0.48	13.39
0.79	203.78	.282E+04	3.5	0.48	13.41
0.85	203.84	.430E+04	5.2	0.47	13.77
0.92	203.91	.608E+04	7.5	0.48	13.44
0.98	203.97	.816E+04	10.6	0.50	12.88
1.04	204.03	.105E+05	14.2	0.52	12.33

<--- hydrograph --->				<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4001)	309.90	1.87	3.25	6.41	0.68
OUTFLOW: ID= 1 (0880)	309.90	1.82	3.58	6.41	0.51

ADD HYD (4000)				
1	2	3	AREA (ha)	QPEAK (cms)
ID1= 1 (0400):	27.60	0.144	3.00	4.66
+ ID2= 2 (0880):	309.90	1.820	3.58	6.41
=====				
ID = 3 (4000):	337.50	1.946	3.58	6.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0200)	Area (ha)	TPEAK (hrs)	Curve Number (CN)=	R.V. (mm)
ID= 1 DT= 5.0 min	25.60	8.25	82.2	3.00
U.H. Tp(hrs)= 0.79				

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 0.117 (i)
TIME TO PEAK (hrs)= 2.917
RUNOFF VOLUME (mm)= 3.910
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.156

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0023)	Area (ha)	TPEAK (hrs)	Curve Number (CN)=	R.V. (mm)
ID= 1 DT= 5.0 min	7.00	8.25	83.0	3.00
U.H. Tp(hrs)= 0.73				

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.037 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 4.274
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.171

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0022)	Area (ha)	TPEAK (hrs)	Curve Number (CN)=	R.V. (mm)
ID= 1 DT= 5.0 min	3.40	5.38	82.5	3.00
U.H. Tp(hrs)= 0.73				

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.037 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 4.274
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.171

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

U.H. Tp(hrs)= 0.20

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.051 (i)
TIME TO PEAK (hrs)= 1.917
RUNOFF VOLUME (mm)= 5.227
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.209

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0211)	Area (ha)	TPEAK (hrs)	Curve Number (CN)=	R.V. (mm)
ID= 1 DT= 5.0 min	17.30	8.76	81.3	3.00
U.H. Tp(hrs)= 1.02				

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.061 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 3.532
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.141

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0021)	Area (ha)	TPEAK (hrs)	Curve Number (CN)=	R.V. (mm)
ID= 1 DT= 5.0 min	47.60	6.93	84.6	3.00
U.H. Tp(hrs)= 0.93				

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 0.263 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 5.078
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.203

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0871)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42
0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

<--- hydrograph --->				<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0021)	47.60	0.26	3.08	5.08	0.13
OUTFLOW: ID= 1 (0871)	47.60	0.21	3.67	5.07	0.12

ADD HYD (2110)				
1	2	3	AREA (ha)	QPEAK (cms)
ID1= 1 (0211):	17.30	0.061	3.33	3.53

Model Without SWM Infrastructure - Output

```
+ ID2= 2 ( 0022):    3.40    0.051    1.92    5.23
=====
ID = 3 ( 2110):    20.70    0.072    3.17    3.81
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 2110) |
| 3 + 2 = 1 |
|
| AREA    QPEAK    TPEAK    R.V.
| (ha)    (cms)    (hrs)    (mm)
|-----|
| ID1= 3 ( 2110):  20.70    0.072    3.17    3.81
| + ID2= 2 ( 0871):  47.60    0.215    3.67    5.07
|=====|
| ID = 1 ( 2110):  68.30    0.282    3.58    4.69
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0220) |
| ID= 1 DT= 5.0 min |
|-----|
| Area (ha)= 20.30   Curve Number (CN)= 81.6
| Ia (mm)= 8.59     # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.85
```

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 0.083 (i)
TIME TO PEAK (hrs)= 3.000
RUNOFF VOLUME (mm)= 3.655
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.146

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0020) |
| ID= 1 DT= 5.0 min |
|-----|
| Area (ha)= 12.60   Curve Number (CN)= 82.4
| Ia (mm)= 8.13     # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.72
```

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.063 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 4.001
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.160

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0875) |
| IN= 2--> OUT= 1 |
|
| Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance    Elevation    Manning
0.00        206.00        0.0400
33.24       205.47        0.0400
44.39       205.59        0.0400
48.71       205.45        0.0400 /0.0350 Main Channel
51.02       204.50        0.0350 Main Channel
54.33       205.44        0.0350 /0.0400 Main Channel
55.90       204.97        0.0400
62.96       204.91        0.0400
102.92      205.20        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)        (m/s)       (min)
0.04      204.54    .311E+01    0.0           0.15        87.07
0.07      204.57    .124E+02    0.0           0.24        54.85
0.11      204.61    .280E+02    0.0           0.32        41.86
0.14      204.64    .497E+02    0.0           0.39        34.56
0.18      204.68    .777E+02    0.0           0.45        29.78
0.22      204.72    .112E+03    0.1           0.50        26.37
0.25      204.75    .152E+03    0.1           0.56        23.80
0.29      204.79    .199E+03    0.2           0.61        21.77
0.33      204.83    .252E+03    0.2           0.66        20.12
0.36      204.86    .311E+03    0.3           0.71        18.76
0.40      204.90    .376E+03    0.4           0.76        17.60
0.43      204.93    .505E+03    0.5           0.72        18.44
0.47      204.97    .892E+03    0.6           0.58        23.04
0.51      205.01    .149E+04    1.0           0.53        24.97
0.54      205.04    .225E+04    1.5           0.54        24.74
0.58      205.08    .315E+04    2.2           0.56        23.71
0.61      205.11    .421E+04    3.1           0.59        22.46
0.65      205.15    .543E+04    4.3           0.63        21.21
0.69      205.19    .679E+04    5.6           0.66        20.05
```

```
<---- hydrograph ----> <-pipe / channel->
                        AREA    QPEAK    TPEAK    R.V.    MAX DEPTH    MAX VEL
                        (ha)    (cms)    (hrs)    (mm)    (m)          (m/s)
INFLOW : ID= 2 ( 0020)  12.60    0.06    2.83    4.00    0.21        0.49
OUTFLOW: ID= 1 ( 0875)  12.60    0.05    3.25    3.97    0.20        0.47
```

```
| ADD HYD ( 2200) |
| 1 + 2 = 3 |
|
| AREA    QPEAK    TPEAK    R.V.
| (ha)    (cms)    (hrs)    (mm)
|-----|
| ID1= 1 ( 0220):  20.30    0.083    3.00    3.65
| + ID2= 2 ( 0875):  12.60    0.055    3.25    3.97
|=====|
| ID = 3 ( 2200):  32.90    0.137    3.17    3.77
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 2101) |
| 1 + 2 = 3 |
|
| AREA    QPEAK    TPEAK    R.V.
| (ha)    (cms)    (hrs)    (mm)
|-----|
| ID1= 1 ( 2110):  68.30    0.282    3.58    4.69
| + ID2= 2 ( 2200):  32.90    0.137    3.17    3.77
|=====|
| ID = 3 ( 2101):  101.20    0.410    3.50    4.39
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0870) |
| IN= 2--> OUT= 1 |
|
| Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance    Elevation    Manning
0.00        209.52        0.0400
61.99       209.23        0.0400
76.86       209.20        0.0400
82.03       209.20        0.0400 /0.0350 Main Channel
86.30       208.87        0.0350 Main Channel
89.86       209.20        0.0350 /0.0300 Main Channel
96.27       209.24        0.0300
103.53      209.40        0.0300
127.96      209.50        0.0300
158.58      209.70        0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)        (m/s)       (min)
0.03      208.90    .560E+01    0.0           0.10        69.11
0.07      208.94    .224E+02    0.0           0.17        43.54
0.10      208.97    .504E+02    0.0           0.22        33.23
0.13      209.00    .896E+02    0.1           0.26        27.43
0.17      209.04    .140E+03    0.1           0.31        23.64
0.20      209.07    .202E+03    0.2           0.35        20.93
0.23      209.10    .274E+03    0.2           0.38        18.89
0.26      209.13    .358E+03    0.3           0.42        17.28
0.30      209.17    .454E+03    0.5           0.45        15.97
```

```
| ADD HYD ( 2100) |
| 1 + 2 = 3 |
|
| AREA    QPEAK    TPEAK    R.V.
| (ha)    (cms)    (hrs)    (mm)
|-----|
| ID1= 1 ( 0210):  9.10    0.048    2.67    3.96
| + ID2= 2 ( 0870):  101.20    0.400    3.75    4.39
|=====|
| ID = 3 ( 2100):  110.30    0.431    3.67    4.35
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
```

Model Without SWM Infrastructure - Output

| NASHYD (0230) | Area (ha)= 24.70 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.82

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 0.121 (i)
TIME TO PEAK (hrs)= 2.917
RUNOFF VOLUME (mm)= 4.229
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.169

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0231) | Area (ha)= 29.50 Curve Number (CN)= 81.9
| ID= 1 DT= 5.0 min | Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.89

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 0.122 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 3.781
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.151

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0240) | Area (ha)= 10.10 Curve Number (CN)= 82.0
| ID= 1 DT= 5.0 min | Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.74

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.047 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 3.825
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.153

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |

| NASHYD (0241) | Area (ha)= 26.70 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.75

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 0.128 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 3.956
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.158

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0864) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .118E+02 0.0 0.27 29.62
0.24 212.03 .471E+02 0.0 0.42 18.66
0.36 212.15 .106E+03 0.1 0.56 14.24
0.48 212.27 .188E+03 0.3 0.67 11.76
0.61 212.40 .294E+03 0.5 0.78 10.13
0.73 212.52 .928E+03 1.0 0.51 15.63
0.85 212.64 .260E+04 2.7 0.50 15.93
0.97 212.76 .477E+04 5.8 0.58 13.67
1.09 212.88 .739E+04 10.6 0.68 11.67
1.21 213.00 .103E+05 17.1 0.79 10.01
1.33 213.12 .133E+05 25.0 0.89 8.85
1.45 213.24 .165E+05 34.4 0.99 8.00
1.57 213.36 .200E+05 45.3 1.08 7.34
1.70 213.49 .236E+05 57.6 1.16 6.82
1.82 213.61 .274E+05 71.4 1.24 6.39
1.94 213.73 .314E+05 86.8 1.31 6.02

2.06 213.85 .355E+05 104.6 1.40 5.66
2.18 213.97 .398E+05 124.9 1.49 5.31
2.37 214.16 .481E+05 161.2 1.59 4.97

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0241) 26.70 0.13 2.83 3.96 0.37 0.56
OUTFLOW: ID= 1 (0864) 26.70 0.12 3.08 3.95 0.36 0.56

| ADD HYD (2301) |
| 1 + 2 = 3 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0231): 29.50 0.122 3.08 3.78
+ ID2= 2 (0240): 10.10 0.047 2.83 3.82
=====

ID = 3 (2301): 39.60 0.167 3.00 3.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (2301) |
| 3 + 2 = 1 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 (2301): 39.60 0.167 3.00 3.79
+ ID2= 2 (0864): 26.70 0.124 3.08 3.95
=====

ID = 1 (2301): 66.30 0.291 3.00 3.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0863) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 /0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 /0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 /0.0350
40.10 206.15 0.0350

56.50 206.04 0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .138E+01 0.0 0.11 58.11
0.09 205.28 .551E+01 0.0 0.18 36.61
0.13 205.32 .124E+02 0.0 0.23 27.94
0.17 205.36 .220E+02 0.0 0.28 23.06
0.22 205.41 .344E+02 0.0 0.33 19.87
0.26 205.45 .496E+02 0.0 0.37 17.60
0.31 205.50 .675E+02 0.1 0.41 15.88
0.35 205.54 .882E+02 0.1 0.45 14.53
0.39 205.58 .112E+03 0.1 0.48 13.43
0.44 205.63 .138E+03 0.2 0.52 12.52
0.48 205.67 .167E+03 0.2 0.55 11.81
0.52 205.71 .212E+03 0.2 0.44 14.65
0.57 205.76 .285E+03 0.3 0.43 15.23
0.61 205.80 .388E+03 0.4 0.44 14.79
0.66 205.85 .519E+03 0.6 0.47 13.99
0.70 205.89 .679E+03 0.9 0.50 13.12
0.74 205.93 .868E+03 1.2 0.53 12.29
0.79 205.98 .109E+04 1.6 0.56 11.53
0.83 206.02 .133E+04 2.0 0.60 10.85

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (2301) 66.30 0.29 3.00 3.86 0.56 0.43
OUTFLOW: ID= 1 (0863) 66.30 0.27 3.42 3.86 0.54 0.44

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

| ADD HYD (2300) |
| 1 + 2 = 3 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0230): 24.70 0.121 2.92 4.23
+ ID2= 2 (0863): 66.30 0.273 3.42 3.86
=====

ID = 3 (2300): 91.00 0.385 3.33 3.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (2011) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.

Model Without SWM Infrastructure - Output

```
-----
              (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 2100):  110.30  0.431    3.67    4.35
+ ID2= 2 ( 2300):   91.00  0.385    3.33    3.96
=====
ID = 3 ( 2011):   201.30  0.805    3.50    4.17
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0862)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          204.63        0.0400
45.24         204.34        0.0400
94.52         203.98        0.0400
140.93        203.58        0.0400
148.77        203.72        0.0400 / 0.0350 Main Channel
154.30        202.99        0.0350 Main Channel
158.02        203.77        0.0350 / 0.0400 Main Channel
174.30        203.79        0.0400
222.94        204.38        0.0400
285.62        204.03        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.05  203.04  .465E+01    0.0            0.10          47.86
0.10  203.09  .186E+02    0.0            0.15          30.15
0.16  203.15  .418E+02    0.0            0.20          23.01
0.21  203.20  .744E+02    0.1            0.24          18.99
0.26  203.25  .116E+03    0.1            0.28          16.37
0.31  203.30  .167E+03    0.2            0.32          14.50
0.37  203.36  .228E+03    0.3            0.35          13.08
0.42  203.41  .297E+03    0.4            0.39          11.97
0.47  203.46  .376E+03    0.6            0.42          11.06
0.52  203.51  .465E+03    0.8            0.45          10.31
0.57  203.56  .562E+03    1.0            0.48          9.68
0.63  203.62  .700E+03    1.2            0.49          9.49
0.68  203.67  .969E+03    1.6            0.45          10.15
0.73  203.72  .138E+04    2.1            0.43          10.83
0.79  203.78  .203E+04    3.1            0.43          10.85
0.85  203.84  .309E+04    4.6            0.41          11.14
0.92  203.91  .437E+04    6.7            0.42          10.87
0.98  203.97  .586E+04    9.4            0.44          10.42
1.04  204.03  .757E+04    12.7           0.46          9.97
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH  MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)         (m/s)
```

```
INFLOW : ID= 2 ( 2011) 201.30 0.80 3.50 4.17 0.53 0.45
OUTFLOW: ID= 1 ( 0862) 201.30 0.79 3.58 4.17 0.53 0.45
```

```
-----
| CALIB
| NASHYD ( 0201)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 8.20 Curve Number (CN)= 82.6
Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.60
```

Unit Hyd Qpeak (cms)= 0.522

```
PEAK FLOW      (cms)= 0.047 (i)
TIME TO PEAK   (hrs)= 2.583
RUNOFF VOLUME  (mm)= 4.090
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.164
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 2010)|
| 1 + 2 = 3 |
-----
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0201):  8.20  0.047  2.58  4.09
+ ID2= 2 ( 0023):  7.00  0.037  2.83  4.27
=====
ID = 3 ( 2010):  15.20  0.083  2.67  4.17
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2010)|
| 3 + 2 = 1 |
-----
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 2010):  15.20  0.083  2.67  4.17
+ ID2= 2 ( 0862):  201.30  0.795  3.58  4.17
=====
ID = 1 ( 2010):  216.50  0.852  3.58  4.17
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0860)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          208.48        0.0500
43.69         207.97        0.0500
66.92         207.94        0.0500
76.98         208.01        0.0500
87.94         208.25        0.0500
89.93         208.44        0.0500 / 0.0350 Main Channel
92.70         208.20        0.0350 Main Channel
95.51         207.28        0.0350 Main Channel
98.26         208.25        0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.05  207.33  .155E+01    0.0            0.16          23.32
0.10  207.38  .620E+01    0.0            0.25          14.69
0.15  207.43  .140E+02    0.0            0.33          11.21
0.19  207.47  .248E+02    0.0            0.40          9.26
0.24  207.52  .388E+02    0.1            0.47          7.98
0.29  207.57  .558E+02    0.1            0.53          7.06
0.34  207.62  .760E+02    0.2            0.59          6.37
0.39  207.67  .992E+02    0.3            0.64          5.83
0.44  207.72  .126E+03    0.4            0.69          5.39
0.48  207.76  .155E+03    0.5            0.74          5.03
0.53  207.81  .188E+03    0.7            0.79          4.72
0.58  207.86  .223E+03    0.8            0.84          4.45
0.63  207.91  .262E+03    1.0            0.88          4.22
0.68  207.96  .341E+03    1.3            0.83          4.47
0.73  208.01  .708E+03    1.8            0.57          6.58
0.78  208.06  .119E+04    2.7            0.51          7.25
0.82  208.10  .174E+04    4.0            0.52          7.19
0.87  208.15  .236E+04    5.7            0.54          6.89
0.92  208.20  .305E+04    7.8            0.57          6.55
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH  MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)         (m/s)
INFLOW : ID= 2 ( 2010) 216.50 0.85 3.58 4.17 0.59 0.84
OUTFLOW: ID= 1 ( 0860) 216.50 0.85 3.67 4.17 0.58 0.84
```

```
-----
| ADD HYD ( 2000)|
| 1 + 2 = 3 |
-----
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0200):  25.60  0.117  2.92  3.91
+ ID2= 2 ( 0860):  216.50  0.851  3.67  4.17
```

```
=====
ID = 3 ( 2000):  242.10  0.949  3.58  4.14
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0300)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 36.80 Curve Number (CN)= 83.1
Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.90
```

Unit Hyd Qpeak (cms)= 1.562

```
PEAK FLOW      (cms)= 0.174 (i)
TIME TO PEAK   (hrs)= 3.083
RUNOFF VOLUME  (mm)= 4.323
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.173
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0031)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 3.00 Curve Number (CN)= 82.5
Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.62
```

Unit Hyd Qpeak (cms)= 0.185

```
PEAK FLOW      (cms)= 0.023 (i)
TIME TO PEAK   (hrs)= 2.583
RUNOFF VOLUME  (mm)= 5.237
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.209
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0350)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 1.50 Curve Number (CN)= 83.2
Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.38
```

Unit Hyd Qpeak (cms)= 0.151

```
PEAK FLOW      (cms)= 0.012 (i)
TIME TO PEAK   (hrs)= 2.250
RUNOFF VOLUME  (mm)= 4.367
TOTAL RAINFALL (mm)= 25.000
```

Model Without SWM Infrastructure - Output

RUNOFF COEFFICIENT = 0.175

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0850)			Routing time step (min)'= 5.00		
IN= 2--> OUT= 1					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.00	0.0400			
33.24	205.47	0.0400			
44.39	205.59	0.0400			
48.71	205.45	0.0400 / 0.0350	Main Channel		
51.02	204.50	0.0350	Main Channel		
54.33	205.44	0.0350 / 0.0400	Main Channel		
55.90	204.97	0.0400			
62.96	204.91	0.0400			
102.92	205.20	0.0400			
<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.300E+01	0.0	0.15	86.75
0.07	204.57	.120E+02	0.0	0.24	54.65
0.11	204.61	.270E+02	0.0	0.31	41.70
0.14	204.64	.480E+02	0.0	0.37	34.42
0.18	204.68	.750E+02	0.0	0.43	29.67
0.22	204.72	.108E+03	0.1	0.49	26.27
0.25	204.75	.147E+03	0.1	0.54	23.71
0.29	204.79	.192E+03	0.1	0.59	21.69
0.33	204.83	.243E+03	0.2	0.64	20.05
0.36	204.86	.300E+03	0.3	0.69	18.69
0.40	204.90	.363E+03	0.3	0.73	17.54
0.43	204.93	.488E+03	0.4	0.70	18.37
0.47	204.97	.860E+03	0.6	0.56	22.95
0.51	205.01	.144E+04	1.0	0.52	24.88
0.54	205.04	.217E+04	1.5	0.52	24.65
0.58	205.08	.304E+04	2.1	0.54	23.62
0.61	205.11	.407E+04	3.0	0.57	22.38
0.65	205.15	.524E+04	4.1	0.61	21.13
0.69	205.19	.656E+04	5.5	0.64	19.97
<---- hydrograph ----> <-pipe / channel->					
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)
INFLOW : ID= 2 (0350)	1.50	0.01	2.25	4.37	0.11
OUTFLOW: ID= 1 (0850)	1.50	0.01	2.83	4.06	0.09

CALIB			
NASHYD (0032)		Area (ha)=	28.00
ID= 1 DT= 5.0 min		Ia (mm)=	7.58
-----		U.H. Tp(hrs)=	0.95
		Curve Number (CN)=	83.4
		# of Linear Res.(N)=	3.00

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.133 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 4.464
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.179

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3200)					
1 + 2 = 3					
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0032):	28.00	0.133	3.08	4.46	
+ ID2= 2 (0850):	1.50	0.007	2.83	4.06	
=====					
ID = 3 (3200):	29.50	0.140	3.08	4.44	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0301)		Area (ha)=	59.40	Curve Number (CN)=	82.7
ID= 1 DT= 5.0 min		Ia (mm)=	7.97	# of Linear Res.(N)=	3.00
-----		U.H. Tp(hrs)=	1.23		

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 0.221 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 4.134
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.165

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3010)					

1 + 2 = 3					
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0301):	59.40	0.221	3.58	4.13	
+ ID2= 2 (3200):	29.50	0.140	3.08	4.44	
=====					
ID = 3 (3010):	88.90	0.355	3.33	4.24	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (3001)					
1 + 2 = 3					
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (3010):	88.90	0.355	3.33	4.24	
+ ID2= 2 (0031):	3.00	0.023	2.58	5.24	
=====					
ID = 3 (3001):	91.90	0.370	3.33	4.27	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0852)					
IN= 2--> OUT= 1		Routing time step (min)'= 5.00			
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.20	0.0400			
100.00	206.26	0.0400			
111.30	206.19	0.0400 / 0.0350	Main Channel		
112.02	205.76	0.0350	Main Channel		
113.82	205.37	0.0350	Main Channel		
115.62	206.03	0.0350 / 0.0400	Main Channel		
117.77	207.30	0.0400			
120.56	207.40	0.0400			
124.41	207.31	0.0400			
129.31	207.24	0.0400			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	205.46	.132E+02	0.0	0.21	32.83
0.19	205.56	.529E+02	0.0	0.33	20.68
0.28	205.65	.119E+03	0.1	0.43	15.78
0.38	205.75	.212E+03	0.3	0.52	13.03
0.47	205.84	.327E+03	0.5	0.62	10.84
0.57	205.94	.458E+03	0.8	0.72	9.42
0.66	206.03	.604E+03	1.2	0.80	8.44
0.76	206.13	.777E+03	1.7	0.91	7.41
0.86	206.23	.102E+04	2.4	0.97	6.97
0.96	206.33	.168E+04	3.6	0.87	7.76

1.06	206.43	.252E+04	5.4	0.87	7.80
1.16	206.53	.350E+04	7.7	0.89	7.56
1.26	206.63	.463E+04	10.7	0.93	7.24
1.37	206.74	.590E+04	14.3	0.98	6.90
1.47	206.84	.732E+04	18.6	1.03	6.58
1.57	206.94	.889E+04	23.6	1.08	6.28
1.67	207.04	.106E+05	29.5	1.13	6.00
1.77	207.14	.125E+05	36.1	1.17	5.75
1.87	207.24	.145E+05	43.7	1.22	5.52

<---- hydrograph ----> <-pipe / channel->					
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)
INFLOW : ID= 2 (3001)	91.90	0.37	3.33	4.27	0.42
OUTFLOW: ID= 1 (0852)	91.90	0.37	3.50	4.27	0.41

ADD HYD (3000)					
1 + 2 = 3					
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0300):	36.80	0.174	3.08	4.32	
+ ID2= 2 (0852):	91.90	0.366	3.50	4.27	
=====					
ID = 3 (3000):	128.70	0.531	3.33	4.28	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0030)		Area (ha)=	1.10	Curve Number (CN)=	81.5
ID= 1 DT= 5.0 min		Ia (mm)=	5.76	# of Linear Res.(N)=	3.00
-----		U.H. Tp(hrs)=	0.30		

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 4.812
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.192

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0854)					
IN= 2--> OUT= 1					
Routing time step (min)'= 5.00					

Model Without SWM Infrastructure - Output

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	TIME	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

<---- hydrograph ---->

<-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0030)	1.10	0.01	2.08	4.81	0.10
OUTFLOW: ID= 1 (0854)	1.10	0.01	2.25	4.80	0.10

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.113 (i)
TIME TO PEAK (hrs)= 2.750
RUNOFF VOLUME (mm)= 4.181
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.167

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3400)

1	2	3	AREA	QPEAK	TPEAK	R.V.
			(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0340):	21.00	0.113	2.75	4.18		
+ ID2= 2 (0854):	1.10	0.011	2.25	4.80		
ID = 3 (3400):	22.10	0.120	2.67	4.21		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB

NASHYD (0123)	Area	(ha)=	24.60	Curve Number	(CN)=	82.9
ID= 1 DT= 5.0 min	Ia	(mm)=	7.85	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.93				

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 0.111 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 4.229
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.169

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0814)

IN= 2----> OUT= 1 Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
		0.0350

32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	TIME	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40
0.85	212.64	.204E+04	2.7	0.49	12.63
0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

<---- hydrograph ---->

<-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0123)	24.60	0.11	3.08	4.23	0.35
OUTFLOW: ID= 1 (0814)	24.60	0.11	3.25	4.23	0.34

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0813)

IN= 2----> OUT= 1 Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 / 0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	TIME	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.78
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25

<---- hydrograph ---->

<-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0124)	24.30	0.23	2.42	5.76	0.45
OUTFLOW: ID= 1 (0813)	24.30	0.20	2.67	5.75	0.43

Model Without SWM Infrastructure - Output

```
| ADD HYD ( 1221) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0813): 24.30 0.199 2.67 5.75
+ ID2= 2 ( 0814): 24.60 0.110 3.25 4.23
=====
ID = 3 ( 1221): 48.90 0.292 2.83 4.98
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0812) |
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.49        0.0400
35.71         208.88        0.0400
53.04         208.89        0.0400
64.12         208.50        0.0400 /0.0350 Main Channel
70.77         208.05        0.0350 Main Channel
74.98         208.02        0.0350 Main Channel
83.40         208.38        0.0350 /0.0400 Main Channel
88.06         208.63        0.0400
94.94         209.13        0.0400
105.88        209.54        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.07       208.09      .533E+02     0.1            0.24          12.01
0.14       208.16      .150E+03     0.3            0.37          7.63
0.22       208.24      .280E+03     0.8            0.47          5.98
0.29       208.31      .444E+03     1.5            0.56          5.04
0.36       208.38      .642E+03     2.4            0.64          4.42
0.44       208.46      .896E+03     4.0            0.75          3.76
0.52       208.54      .119E+04     6.0            0.86          3.29
0.60       208.62      .153E+04     8.6            0.96          2.96
0.68       208.70      .192E+04     11.7           1.04          2.73
0.76       208.78      .235E+04     15.4           1.11          2.55
0.84       208.86      .283E+04     19.6           1.18          2.41
0.92       208.94      .351E+04     24.2           1.17          2.41
0.99       209.01      .435E+04     30.6           1.19          2.37
1.07       209.09      .528E+04     38.0           1.22          2.31
1.15       209.17      .628E+04     46.4           1.26          2.26
1.23       209.25      .737E+04     55.9           1.29          2.20
1.31       209.33      .855E+04     66.6           1.33          2.14
```

```
47.70       206.24      0.0350 /0.0450 Main Channel
60.54       206.32      0.0450
80.11       206.99      0.0450
102.29      207.42      0.0450 /0.0400
132.78      206.84      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.06       206.01      .147E+02     0.0            0.14          60.26
0.12       206.07      .590E+02     0.0            0.22          37.96
0.18       206.13      .133E+03     0.1            0.29          28.97
0.26       206.21      .302E+03     0.2            0.36          22.81
0.34       206.29      .671E+03     0.5            0.39          21.40
0.42       206.37      .151E+04     1.2            0.39          20.95
0.50       206.45      .254E+04     2.3            0.45          18.38
0.58       206.53      .376E+04     3.7            0.49          16.98
0.66       206.61      .544E+04     5.6            0.51          16.11
0.74       206.69      .764E+04     8.4            0.54          15.19
0.83       206.78      .104E+05     12.1           0.58          14.27
0.91       206.86      .134E+05     17.4           0.64          12.84
0.99       206.94      .166E+05     23.6           0.71          11.71
1.07       207.02      .201E+05     30.7           0.76          10.88
1.15       207.10      .239E+05     38.8           0.81          10.26
1.23       207.18      .280E+05     48.0           0.85          9.72
1.31       207.26      .325E+05     58.5           0.89          9.26
1.39       207.34      .373E+05     70.3           0.94          8.84
1.47       207.42      .424E+05     83.4           0.98          8.48
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)        (m/s)
INFLOW : ID= 2 ( 1220) 80.70 0.47 3.00 5.13 0.33 0.38
OUTFLOW: ID= 1 ( 0811) 80.70 0.43 3.42 5.12 0.32 0.38
```

```
| CALIB
| NASHYD ( 0121) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 16.10 Curve Number (CN)= 86.5
Ia (mm)= 5.94 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.114 (i)
TIME TO PEAK (hrs)= 2.917
RUNOFF VOLUME (mm)= 6.189
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.248

```
1.39 209.41 .982E+04 78.7 1.36 2.08
1.47 209.49 .112E+05 92.1 1.40 2.03
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)        (m/s)
INFLOW : ID= 2 ( 1221) 48.90 0.29 2.83 4.98 0.13 0.34
OUTFLOW: ID= 1 ( 0812) 48.90 0.29 2.92 4.98 0.13 0.34
```

```
| CALIB
| NASHYD ( 0122) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 31.80 Curve Number (CN)= 85.1
Ia (mm)= 6.67 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.96
```

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 0.182 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 5.350
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.214

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1220) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0122): 31.80 0.182 3.08 5.35
+ ID2= 2 ( 0812): 48.90 0.291 2.92 4.98
=====
ID = 3 ( 1220): 80.70 0.472 3.00 5.13
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0811) |
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.50        0.0400
29.68         206.77        0.0400
43.70         206.13        0.0400 /0.0350 Main Channel
44.99         205.95        0.0350 Main Channel
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1210) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0121): 16.10 0.114 2.92 6.19
+ ID2= 2 ( 0811): 80.70 0.429 3.42 5.12
=====
ID = 3 ( 1210): 96.80 0.534 3.33 5.30
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0146) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 12.80 Curve Number (CN)= 83.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.55
```

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.080 (i)
TIME TO PEAK (hrs)= 2.500
RUNOFF VOLUME (mm)= 4.274
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.171

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0844) |
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          208.29        0.0300
3.73          208.14        0.0300 /0.0350 Main Channel
5.30          207.52        0.0350 Main Channel
6.93          208.18        0.0350 /0.0300 Main Channel
8.96          208.27        0.0300
14.71         208.30        0.0300
23.86         208.59        0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04       207.56      .107E+01     0.0            0.13          37.04
```

Model Without SWM Infrastructure - Output

0.08	207.60	.430E+01	0.0	0.20	23.33
0.12	207.64	.966E+01	0.0	0.27	17.81
0.16	207.68	.172E+02	0.0	0.32	14.70
0.19	207.71	.268E+02	0.0	0.38	12.67
0.23	207.75	.387E+02	0.1	0.42	11.22
0.27	207.79	.526E+02	0.1	0.47	10.12
0.31	207.83	.687E+02	0.1	0.51	9.26
0.35	207.87	.870E+02	0.2	0.56	8.56
0.39	207.91	.107E+03	0.2	0.60	7.98
0.43	207.95	.130E+03	0.3	0.64	7.49
0.47	207.99	.155E+03	0.4	0.67	7.07
0.50	208.02	.181E+03	0.5	0.71	6.70
0.54	208.06	.210E+03	0.6	0.75	6.38
0.58	208.10	.242E+03	0.7	0.78	6.09
0.62	208.14	.275E+03	0.8	0.82	5.83
0.67	208.19	.329E+03	1.0	0.87	5.50
0.72	208.24	.413E+03	1.3	0.89	5.36
0.77	208.29	.540E+03	1.7	0.87	5.45

<---- hydrograph <----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (0146)	12.80	0.08	2.50	4.27	0.26
OUTFLOW: ID= 1 (0844)	12.80	0.08	2.67	4.27	0.26

CALIB					
NASHYD (0145)	Area (ha)=	12.60	Curve Number (CN)=	83.3	
ID= 1 DT= 5.0 min	Ia (mm)=	7.63	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.59			

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.079 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 4.418
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.177

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1450)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0145):	12.60	0.079	2.58	4.42	

+ ID2= 2 (0844): 12.80 0.078 2.67 4.27
=====

ID = 3 (1450): 25.40 0.156 2.67 4.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0843)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) <----->					
Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 / 0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		
32.89	214.16	0.0350 / 0.0500	Main Channel		
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			

<----- TRAVEL TIME TABLE <----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.144E+02	0.0	0.23	42.45
0.24	212.03	.578E+02	0.0	0.36	26.74
0.36	212.15	.130E+03	0.1	0.48	20.41
0.48	212.27	.231E+03	0.2	0.58	16.85
0.61	212.40	.361E+03	0.4	0.67	14.52
0.73	212.52	.114E+04	0.8	0.43	22.41
0.85	212.64	.319E+04	2.3	0.43	22.83
0.97	212.76	.585E+04	5.0	0.50	19.59
1.09	212.88	.907E+04	9.0	0.58	16.72
1.21	213.00	.126E+05	14.6	0.68	14.34
1.33	213.12	.163E+05	21.4	0.77	12.69
1.45	213.24	.203E+05	29.5	0.85	11.47
1.57	213.36	.245E+05	38.8	0.92	10.52
1.70	213.49	.289E+05	49.3	0.99	9.77
1.82	213.61	.336E+05	61.2	1.06	9.15
1.94	213.73	.385E+05	74.3	1.13	8.63
2.06	213.85	.436E+05	89.6	1.20	8.11
2.18	213.97	.488E+05	106.9	1.28	7.61
2.37	214.16	.590E+05	138.1	1.36	7.13

<---- hydrograph <----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (1450)	25.40	0.16	2.67	4.34	0.41
OUTFLOW: ID= 1 (0843)	25.40	0.14	2.92	4.33	0.40

CALIB					
NASHYD (0144)	Area (ha)=	28.60	Curve Number (CN)=	82.9	
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.97			

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.126 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 4.229
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.169

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1440)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0144):	28.60	0.126	3.17	4.23	
+ ID2= 2 (0843):	25.40	0.140	2.92	4.33	
=====					
ID = 3 (1440):	54.00	0.265	3.00	4.28	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0842)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					

<----- DATA FOR SECTION (1.1) <----->					
Distance	Elevation	Manning			
0.00	206.70	0.0400			
2.35	206.02	0.0400 / 0.0350	Main Channel		
5.23	205.19	0.0350	Main Channel		
5.34	205.67	0.0350	Main Channel		
19.05	206.06	0.0350 / 0.0400	Main Channel		
21.11	206.05	0.0400			
22.02	206.13	0.0400 / 0.0350			
40.10	206.15	0.0350			
56.50	206.04	0.0350			

<----- TRAVEL TIME TABLE <----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.149E+01	0.0	0.09	81.67
0.09	205.28	.594E+01	0.0	0.14	51.45
0.13	205.32	.134E+02	0.0	0.18	39.26
0.17	205.36	.238E+02	0.0	0.22	32.41
0.22	205.41	.371E+02	0.0	0.25	27.93
0.26	205.45	.535E+02	0.0	0.28	24.73
0.31	205.50	.728E+02	0.1	0.31	22.32
0.35	205.54	.950E+02	0.1	0.34	20.42
0.39	205.58	.120E+03	0.1	0.37	18.87
0.44	205.63	.149E+03	0.1	0.40	17.59
0.48	205.67	.180E+03	0.2	0.42	16.60
0.52	205.71	.228E+03	0.2	0.34	20.59
0.57	205.76	.308E+03	0.2	0.33	21.41
0.61	205.80	.418E+03	0.3	0.34	20.79
0.66	205.85	.560E+03	0.5	0.36	19.66
0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24

<---- hydrograph <----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (1440)	54.00	0.27	3.00	4.28	0.58
OUTFLOW: ID= 1 (0842)	54.00	0.24	3.50	4.27	0.57

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB					
NASHYD (0143)	Area (ha)=	27.70	Curve Number (CN)=	82.9	
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.07			

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)= 0.115 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 4.229
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.169

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)					

Model Without SWM Infrastructure - Output

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0143):	27.70	0.115	3.33	4.23
+ ID2= 2 (0842):	54.00	0.239	3.50	4.27
=====				
ID = 3 (1430):	81.70	0.353	3.42	4.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0841)		Routing time step (min)'= 5.00	
IN= 2----> OUT= 1			
<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 / 0.0350	Main Channel
43.44	208.24	0.0350	Main Channel
45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	
77.43	209.05	0.0400	
128.85	209.70	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	208.30	.216E+02	0.0	0.15	113.45
0.13	208.37	.864E+02	0.0	0.24	71.47
0.19	208.43	.194E+03	0.1	0.31	54.54
0.25	208.49	.345E+03	0.1	0.38	45.02
0.32	208.56	.540E+03	0.2	0.44	38.80
0.38	208.62	.777E+03	0.4	0.49	34.36
0.46	208.70	.152E+04	0.7	0.50	33.99
0.54	208.78	.281E+04	1.4	0.50	33.61
0.62	208.86	.469E+04	2.5	0.53	31.90
0.70	208.94	.734E+04	4.0	0.56	30.28
0.78	209.02	.107E+05	6.3	0.59	28.55
0.86	209.10	.149E+05	9.3	0.63	26.78
0.94	209.18	.198E+05	13.1	0.68	25.09
1.02	209.26	.253E+05	17.9	0.72	23.58
1.10	209.34	.315E+05	23.6	0.76	22.24
1.18	209.42	.386E+05	30.0	0.79	21.42
1.26	209.50	.465E+05	37.7	0.82	20.56
1.34	209.58	.554E+05	46.8	0.86	19.73
1.42	209.66	.652E+05	57.3	0.90	18.94

<---- hydrograph ---->			<-pipe / channel->		
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)

INFLOW : ID= 2 (1430)	81.70	0.35	3.42	4.26	0.37	0.48
OUTFLOW: ID= 1 (0841)	81.70	0.31	4.00	4.25	0.35	0.47

CALIB				
NASHYD (0142)	Area (ha)= 27.10	Curve Number (CN)= 82.9		
ID= 1 DT= 5.0 min	Ia (mm)= 7.85	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.22			

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 0.104 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 4.229
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.169

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0142):	27.10	0.104	3.58	4.23
+ ID2= 2 (0841):	81.70	0.313	4.00	4.25
=====				
ID = 3 (1420):	108.80	0.413	3.92	4.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)	Routing time step (min)'= 5.00
IN= 2---> OUT= 1	
<----- DATA FOR SECTION (1.1) ----->	
Distance	Elevation Manning
0.00	209.52 0.0400
61.99	209.23 0.0400
76.86	209.20 0.0400
82.03	209.20 0.0400 /0.0350 Main Channel
86.30	208.87 0.0350 Main Channel
89.86	209.20 0.0350 /0.0300 Main Channel
96.27	209.24 0.0300
103.53	209.40 0.0300
127.96	209.50 0.0300
158.58	209.70 0.0300

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.03	208.90	.706E+01	0.0	0.08	110.24
0.07	208.94	.282E+02	0.0	0.13	69.44
0.10	208.97	.636E+02	0.0	0.17	53.00
0.13	209.00	.113E+03	0.0	0.21	43.75
0.17	209.04	.177E+03	0.1	0.24	37.70
0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75
0.37	209.24	.118E+04	0.7	0.34	26.61
0.40	209.27	.196E+04	1.2	0.33	27.88
0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61
0.58	209.45	.865E+04	6.3	0.40	22.94
0.61	209.48	.108E+05	8.1	0.41	22.09
0.65	209.52	.132E+05	10.4	0.43	21.10

<---- hydrograph ---->			<-pipe / channel->		
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1420)	108.80	0.41	3.92	4.25	0.31
OUTFLOW: ID= 1 (0840)	108.80	0.39	4.33	4.24	0.30

CALIB				
NASHYD (0141)	Area (ha)= 8.10	Curve Number (CN)= 83.6		
ID= 1 DT= 5.0 min	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.78			

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.044 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 4.562
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1410)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0141):	8.10	0.044	2.83	4.56
+ ID2= 2 (0840):	108.80	0.395	4.33	4.24
=====				
ID = 3 (1410):	116.90	0.419	4.25	4.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0151)	Area (ha)= 24.60	Curve Number (CN)= 82.8		
ID= 1 DT= 5.0 min	Ia (mm)= 7.91	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.00			

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.105 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 4.181
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.167

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0153)	Area (ha)= 33.30	Curve Number (CN)= 82.6		
ID= 1 DT= 5.0 min	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.08			

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 0.133 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 4.091
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.164

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)	Routing time step (min)'= 5.00
IN= 2----> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning

Model Without SWM Infrastructure - Output

0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.125E+02	0.0	0.21	40.70
0.24	212.03	.501E+02	0.0	0.33	25.64
0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48
0.85	212.64	.277E+04	2.1	0.39	21.89
0.97	212.76	.507E+04	4.5	0.45	18.78
1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0153)	33.30	0.13	3.33	4.09	0.40
OUTFLOW: ID= 1 (0834)	33.30	0.13	3.67	4.09	0.45

CALIB	
NASHYD (0152)	Area (ha)= 16.20
ID= 1 DT= 5.0 min	Ia (mm)= 8.02
	U.H. Tp(hrs)= 0.93

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.071 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 4.090
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.164

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1520)					
1	+	2	=	3	
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0152):		16.20	0.071	3.08	4.09
+ ID2= 2 (0834):		33.30	0.129	3.67	4.09
=====					
ID = 3 (1520):		49.50	0.195	3.50	4.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0833)	
IN= 2----> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.49	0.0400			
35.71	208.88	0.0400			
53.04	208.89	0.0400			
64.12	208.50	0.0400 / 0.0350	Main Channel		
70.77	208.05	0.0350	Main Channel		
74.98	208.02	0.0350	Main Channel		
83.40	208.38	0.0350 / 0.0400	Main Channel		
88.06	208.63	0.0400			
94.94	209.13	0.0400			
105.88	209.54	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.232E+03	0.1	0.19	65.23
0.14	208.16	.652E+03	0.3	0.30	41.42
0.22	208.24	.122E+04	0.6	0.38	32.47
0.29	208.31	.193E+04	1.2	0.45	27.40
0.36	208.38	.279E+04	1.9	0.51	24.03
0.44	208.46	.389E+04	3.2	0.60	20.41
0.52	208.54	.516E+04	4.8	0.69	17.88
0.60	208.62	.664E+04	6.9	0.77	16.07
0.68	208.70	.833E+04	9.4	0.83	14.80
0.76	208.78	.102E+05	12.3	0.89	13.84

0.84	208.86	.123E+05	15.7	0.94	13.07
0.92	208.94	.153E+05	19.4	0.94	13.11
0.99	209.01	.189E+05	24.5	0.96	12.89
1.07	209.09	.229E+05	30.4	0.98	12.57
1.15	209.17	.273E+05	37.1	1.01	12.25
1.23	209.25	.320E+05	44.7	1.03	11.94
1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1520)	49.50	0.19	3.50	4.09	0.12
OUTFLOW: ID= 1 (0833)	49.50	0.16	4.25	4.08	0.23

ADD HYD (1510)					
1	+	2	=	3	
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0151):		24.60	0.105	3.25	4.18
+ ID2= 2 (0833):		49.50	0.160	4.25	4.08
=====					
ID = 3 (1510):		74.10	0.247	3.92	4.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0832)	
IN= 2----> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.50	0.0400			
29.68	206.77	0.0400			
43.70	206.13	0.0400 / 0.0350	Main Channel		
44.99	205.95	0.0350	Main Channel		
47.70	206.24	0.0350 / 0.0450	Main Channel		
60.54	206.32	0.0450			
80.11	206.99	0.0450			
102.29	207.42	0.0450 / 0.0400			
132.78	206.84	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	206.01	.158E+02	0.0	0.16	56.30

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1510)	74.10	0.25	3.92	4.12	0.26
OUTFLOW: ID= 1 (0832)	74.10	0.24	4.25	4.11	0.25

CALIB	
NASHYD (0150)	Area (ha)= 6.60
ID= 1 DT= 5.0 min	Ia (mm)= 7.41
	U.H. Tp(hrs)= 0.96

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.032 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 4.614
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.185

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1500)					
1	+	2	=	3	
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0150):		6.60	0.032	3.08	4.61

Model Without SWM Infrastructure - Output

```
+ ID2= 2 ( 0832):   74.10   0.241   4.25   4.11
=====
ID = 3 ( 1500):   80.70   0.264   4.17   4.15
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 1401)|
| 1 + 2 = 3 |
=====
ID1= 1 ( 1410):   116.90   0.419   4.25   4.26
+ ID2= 2 ( 1500):   80.70   0.264   4.17   4.15
=====
ID = 3 ( 1401):   197.60   0.683   4.25   4.22
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0830)|
| IN= 2--> OUT= 1 |
=====
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
   0.00         207.71         0.0400
  58.83         206.71         0.0400
  66.88         206.59         0.0400 /0.0350 Main Channel
  72.32         206.34         0.0350 Main Channel
  77.68         206.55         0.0350 /0.0800 Main Channel
  82.85         206.54         0.0800
  90.20         206.02         0.0800
  94.03         206.48         0.0800
  99.83         206.40         0.0800 /0.0400
 114.32         206.50         0.0400
 136.07         206.86         0.0400
 174.41         207.56         0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)     (m)   (cu.m.)   (cms)      (m/s)     (min)
0.08   206.10 .561E+02   0.0         0.05      276.21
0.15   206.17 .224E+03   0.0         0.08      174.00
0.23   206.25 .505E+03   0.1         0.11      132.79
0.30   206.32 .898E+03   0.1         0.13      109.61
0.38   206.40 .147E+04   0.3         0.15       96.03
0.45   206.47 .291E+04   0.5         0.14      104.34
0.53   206.55 .555E+04   1.1         0.17       85.95
0.61   206.63 .948E+04   2.5         0.23       62.05
0.70   206.72 .142E+05   4.7         0.29       50.17
0.78   206.80 .196E+05   7.6         0.34       42.88
0.87   206.89 .258E+05  11.4         0.38       37.80
```

```
0.95   206.97 .327E+05   16.0        0.43       33.99
1.04   207.06 .403E+05   21.6        0.47       31.05
1.12   207.14 .485E+05   28.2        0.51       28.69
1.20   207.22 .575E+05   35.9        0.54       26.74
1.29   207.31 .672E+05   44.6        0.58       25.11
1.37   207.39 .776E+05   54.6        0.61       23.71
1.46   207.48 .887E+05   65.7        0.65       22.49
1.54   207.56 .101E+06   78.2        0.68       21.43
```

```
<---- hydrograph ----> <-pipe / channel->
Area (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm) MAX DEPTH (m) MAX VEL (m/s)
INFLOW : ID= 2 ( 1401) 197.60 0.68 4.25 4.22 0.48 0.15
OUTFLOW: ID= 1 ( 0830) 197.60 0.46 5.33 4.21 0.45 0.14
```

```
| CALIB
| NASHYD ( 0140)|
| ID= 1 DT= 5.0 min |
=====
Area (ha)= 18.30 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.34
```

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.072 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 4.562
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1400)|
| 1 + 2 = 3 |
=====
ID1= 1 ( 0140):   18.30   0.072   3.67   4.56
+ ID2= 2 ( 0830):  197.60   0.457   5.33   4.21
=====
ID = 3 ( 1400):  215.90   0.501   5.17   4.24
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0131)|
| ID= 1 DT= 5.0 min |
=====
Area (ha)= 28.70 Curve Number (CN)= 82.1
Ia (mm)= 8.30 # of Linear Res.(N)= 3.00
```

U.H. Tp(hrs)= 1.11

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 0.106 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 3.869
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.155

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| STANDHYD ( 0011)|
| ID= 1 DT= 5.0 min |
=====
Area (ha)= 132.00
Total Imp(%)= 57.10 Dir. Conn.(%)= 45.00
```

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 75.37 56.63
Dep. Storage (mm)= 1.00 8.95
Average Slope (%)= 1.00 1.00
Length (m)= 938.08 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 40.86 4.77
over (min)= 15.00 45.00
Storage Coeff. (min)= 14.00 (ii) 43.36 (ii)
Unit Hyd. Tpeak (min)= 15.00 45.00
Unit Hyd. peak (cms)= 0.08 0.03

TOTALS
PEAK FLOW (cms)= 4.65 0.34 4.727 (iii)
TIME TO PEAK (hrs)= 1.92 2.58 1.92
RUNOFF VOLUME (mm)= 24.00 3.69 12.83
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.15 0.51

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| STANDHYD ( 0012)|
| ID= 1 DT= 5.0 min |
=====
Area (ha)= 17.50
Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00
```

IMPERVIOUS PERVIOUS (i)

Surface Area (ha)= 14.00 3.50
Dep. Storage (mm)= 1.00 8.94
Average Slope (%)= 1.00 1.00
Length (m)= 341.57 40.00
Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 53.25 8.02
over (min)= 5.00 35.00
Storage Coeff. (min)= 6.87 (ii) 30.70 (ii)
Unit Hyd. Tpeak (min)= 5.00 35.00
Unit Hyd. peak (cms)= 0.18 0.04
TOTALS
PEAK FLOW (cms)= 1.48 0.04 1.489 (iii)
TIME TO PEAK (hrs)= 1.75 2.33 1.75
RUNOFF VOLUME (mm)= 24.00 4.62 18.18
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.18 0.73

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1112)|
| 1 + 2 = 3 |
=====
ID1= 1 ( 0011):   132.00   4.727   1.92  12.83
+ ID2= 2 ( 0012):   17.50   1.489   1.75  18.18
=====
ID = 3 ( 1112):   149.50   5.507   1.92  13.46
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| STANDHYD ( 0010)|
| ID= 1 DT= 5.0 min |
=====
Area (ha)= 12.90
Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00
```

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 10.32 2.58
Dep. Storage (mm)= 1.00 8.94
Average Slope (%)= 1.00 1.00
Length (m)= 293.26 40.00
Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 53.25 8.02

Model Without SWM Infrastructure - Output

```
over (min)      5.00      35.00
Storage Coeff. (min)= 6.27 (ii) 30.10 (ii)
Unit Hyd. Tpeak (min)= 5.00      35.00
Unit Hyd. peak  (cms)= 0.19      0.04

PEAK FLOW (cms)= 1.13      0.03      1.130 (iii)
TIME TO PEAK (hrs)= 1.75      2.33      1.75
RUNOFF VOLUME (mm)= 24.00      4.62      18.18
TOTAL RAINFALL (mm)= 25.00      25.00      25.00
RUNOFF COEFFICIENT = 0.96      0.18      0.73
```

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1311)|
| 1 + 2 = 3 |
-----
          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0010): 12.90   1.130   1.75   18.18
+ ID2= 2 ( 1112): 149.50  5.507   1.92   13.46
=====
ID = 3 ( 1311): 162.40  6.218   1.83   13.83
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0822)|
| IN= 2----> OUT= 1 |
-----
          Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       207.71      0.0400
58.83      206.71      0.0400
66.88      206.59      0.0400 / 0.0350 Main Channel
72.32      206.34      0.0350 Main Channel
77.68      206.55      0.0350 / 0.0800 Main Channel
82.85      206.54      0.0800
90.20      206.02      0.0800
94.03      206.48      0.0800
99.83      206.40      0.0800 / 0.0400
114.32     206.50      0.0400
136.07     206.86      0.0400
174.41     207.56      0.0400
```

<----- TRAVEL TIME TABLE ----->

```
66.88      206.59      0.0400 / 0.0350 Main Channel
72.32      206.34      0.0350 Main Channel
77.68      206.55      0.0350 / 0.0800 Main Channel
82.85      206.54      0.0800
90.20      206.02      0.0800
94.03      206.48      0.0800
99.83      206.40      0.0800 / 0.0400
114.32     206.50      0.0400
136.07     206.86      0.0400
174.41     207.56      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)     (m)     (cu.m.)   (cms)        (m/s)      (min)
0.08    206.10  .569E+02  0.0           0.06       234.14
0.15    206.17  .227E+03  0.0           0.10       147.50
0.23    206.25  .512E+03  0.1           0.13       112.56
0.30    206.32  .910E+03  0.2           0.16       92.92
0.38    206.40  .149E+04  0.3           0.18       81.40
0.45    206.47  .295E+04  0.6           0.17       88.45
0.53    206.55  .562E+04  1.3           0.20       72.86
0.61    206.63  .960E+04  3.0           0.28       52.60
0.70    206.72  .143E+05  5.6           0.35       42.53
0.78    206.80  .199E+05  9.1           0.40       36.35
0.87    206.89  .261E+05  13.6          0.46       32.05
0.95    206.97  .331E+05  19.1          0.51       28.81
1.04    207.06  .408E+05  25.8          0.56       26.32
1.12    207.14  .492E+05  33.7          0.61       24.32
1.20    207.22  .583E+05  42.9          0.65       22.67
1.29    207.31  .681E+05  53.3          0.69       21.28
1.37    207.39  .786E+05  65.2          0.73       20.10
1.46    207.48  .899E+05  78.6          0.77       19.07
1.54    207.56  .102E+06  93.4          0.81       18.16
```

```
<---- hydrograph ----> <-pipe / channel->
          AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
          (ha)   (cms)   (hrs)   (mm)   (m)          (m/s)
INFLOW : ID= 2 ( 1310) 191.10  3.91  2.00  12.33  0.64  0.30
OUTFLOW: ID= 1 ( 0821) 191.10  1.95  2.67  12.32  0.56  0.23
```

```
-----
| CALIB
| NASHYD ( 0130)|
| ID= 1 DT= 5.0 min |
-----
          Area (ha)= 26.70 Curve Number (CN)= 81.7
          Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
          U.H. Tp(hrs)= 1.32
```

Unit Hyd Qpeak (cms)= 0.773

```
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)     (m)     (cu.m.)   (cms)        (m/s)      (min)
0.08    206.10  .337E+02  0.0           0.07       124.18
0.15    206.17  .135E+03  0.0           0.11       78.23
0.23    206.25  .303E+03  0.1           0.15       59.70
0.30    206.32  .539E+03  0.2           0.18       49.28
0.38    206.40  .885E+03  0.3           0.20       43.17
0.45    206.47  .175E+04  0.6           0.19       46.91
0.53    206.55  .333E+04  1.4           0.23       38.64
0.61    206.63  .569E+04  3.4           0.31       27.90
0.70    206.72  .851E+04  6.3           0.39       22.56
0.78    206.80  .118E+05  10.2          0.45       19.28
0.87    206.89  .155E+05  15.2          0.51       17.00
0.95    206.97  .196E+05  21.4          0.57       15.28
1.04    207.06  .242E+05  28.9          0.63       13.96
1.12    207.14  .292E+05  37.7          0.68       12.90
1.20    207.22  .346E+05  47.9          0.73       12.02
1.29    207.31  .404E+05  59.6          0.77       11.29
1.37    207.39  .466E+05  72.9          0.82       10.66
1.46    207.48  .533E+05  87.8          0.86       10.11
1.54    207.56  .604E+05  104.5         0.91       9.63
```

```
<---- hydrograph ----> <-pipe / channel->
          AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
          (ha)   (cms)   (hrs)   (mm)   (m)          (m/s)
INFLOW : ID= 2 ( 1311) 162.40  6.22  1.83  13.83  0.70  0.38
OUTFLOW: ID= 1 ( 0822) 162.40  3.90  2.00  13.83  0.63  0.32
```

```
-----
| ADD HYD ( 1310)|
| 1 + 2 = 3 |
-----
          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0131): 28.70   0.106   3.42   3.87
+ ID2= 2 ( 0822): 162.40  3.898   2.00  13.83
=====
ID = 3 ( 1310): 191.10  3.914   2.00  12.33
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0821)|
| IN= 2----> OUT= 1 |
-----
          Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       207.71      0.0400
58.83      206.71      0.0400
```

```
PEAK FLOW (cms)= 0.085 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 3.698
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.148
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1300)|
| 1 + 2 = 3 |
-----
          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0130): 26.70   0.085   3.75   3.70
+ ID2= 2 ( 0821): 191.10  1.952   2.67  12.32
=====
ID = 3 ( 1300): 217.80  2.006   2.75  11.27
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 1202)|
| 1 + 2 = 3 |
-----
          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 1300): 217.80  2.006   2.75  11.27
+ ID2= 2 ( 1400): 215.90  0.501   5.17  4.24
=====
ID = 3 ( 1202): 433.70  2.103   2.83  7.77
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0820)|
| IN= 2----> OUT= 1 |
-----
          Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       206.54      0.0450
43.13      205.35      0.0450
67.41      205.27      0.0450
86.35      205.38      0.0450 / 0.0350 Main Channel
90.47      204.70      0.0350 Main Channel
93.03      205.16      0.0350 / 0.0400 Main Channel
101.99     205.21      0.0400
151.82     204.97      0.0400
252.14     206.45      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
```

Model Without SWM Infrastructure - Output

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.681E+01	0.0	0.08	28.42
0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80
0.37	205.07	.292E+03	0.3	0.12	18.72
0.46	205.16	.859E+03	0.9	0.14	16.44
0.55	205.25	.182E+04	2.3	0.17	13.44
0.64	205.34	.311E+04	4.7	0.21	11.04
0.74	205.44	.487E+04	8.4	0.24	9.67
0.83	205.53	.676E+04	13.3	0.27	8.48
0.92	205.62	.877E+04	19.3	0.30	7.58
1.01	205.71	.109E+05	26.4	0.33	6.90
1.10	205.80	.132E+05	34.5	0.36	6.36
1.20	205.90	.155E+05	43.8	0.39	5.92
1.29	205.99	.181E+05	54.1	0.42	5.56
1.38	206.08	.207E+05	65.6	0.44	5.25
1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

<---- hydrograph >---->

<-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (1202)	433.70	2.10	2.83	7.77	0.54	0.17
OUTFLOW: ID= 1 (0820)	433.70	2.02	3.25	7.77	0.54	0.17

ADD HYD (1201)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1210):	96.80	0.534	3.33	5.30
+ ID2= 2 (0820):	433.70	2.019	3.25	7.77
=====				
ID = 3 (1201):	530.50	2.551	3.25	7.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0810)		
IN= 2----> OUT= 1	Routing time step (min)'= 5.00	
<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.229E+02	0.0	0.07	106.67
0.18	204.88	.915E+02	0.0	0.12	67.20
0.28	204.98	.208E+03	0.1	0.15	51.82
0.37	205.07	.981E+03	0.2	0.11	70.28
0.46	205.16	.288E+04	0.8	0.13	61.71
0.55	205.25	.610E+04	2.0	0.15	50.43
0.64	205.34	.105E+05	4.2	0.19	41.45
0.74	205.44	.163E+05	7.5	0.21	36.28
0.83	205.53	.227E+05	11.9	0.24	31.82
0.92	205.62	.294E+05	17.2	0.27	28.46
1.01	205.71	.366E+05	23.6	0.30	25.89
1.10	205.80	.442E+05	30.9	0.32	23.87
1.20	205.90	.522E+05	39.1	0.35	22.23
1.29	205.99	.606E+05	48.4	0.37	20.87
1.38	206.08	.694E+05	58.7	0.39	19.72
1.47	206.17	.786E+05	70.0	0.41	18.74
1.57	206.27	.883E+05	82.3	0.43	17.88
1.66	206.36	.983E+05	95.7	0.45	17.12
1.75	206.45	.109E+06	110.2	0.47	16.45

	<----- hydrograph ----->			<-pipe / channel->		
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1201)	530.50	2.55	3.25	7.32	0.57	0.16
OUTFLOW: ID= 1 (0810)	530.50	2.15	4.25	7.32	0.56	0.16

CALIB	Area	(ha)=	9.00	Curve Number	(CN)= 84.0
NASHYD (0120)	Ia	(mm)=	7.25	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	1.16			

Unit Hyd Qpeak	(cms)=	0.296
PEAK FLOW	(cms)=	0.040 (i)
TIME TO PEAK	(hrs)=	3.417
RUNOFF VOLUME	(mm)=	4.764
TOTAL RAINFALL	(mm)=	25.000

RUNOFF COEFFICIENT = 0.191

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1200)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0120):	9.00	0.040	3.42	4.76
+ ID2= 2 (0810):	530.50	2.152	4.25	7.32
=====				
ID = 3 (1200):	539.50	2.187	4.25	7.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area	(ha)=	13.50	Curve Number	(CN)= 82.5
NASHYD (0113)	Ia	(mm)=	8.08	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.87			

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW	(cms)=	0.061 (i)
TIME TO PEAK	(hrs)=	3.000
RUNOFF VOLUME	(mm)=	4.044
TOTAL RAINFALL	(mm)=	25.000
RUNOFF COEFFICIENT		= 0.162

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0802)	Routing time step (min) '= 5.00
IN= 2----> OUT= 1	

<----- DATA FOR SECTION (1.1) >----->		
Distance	Elevation	Manning
0.00	208.29	0.0300
3.73	208.14	0.0300 /0.0350
5.30	207.52	0.0350
6.93	208.18	0.0350 /0.0300
8.96	208.27	0.0300
14.71	208.30	0.0300
23.86	208.59	0.0300

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)

0.04	207.56	.448E+01	0.0	0.12	164.32
0.08	207.60	.179E+02	0.0	0.19	103.51
0.12	207.64	.403E+02	0.0	0.25	79.00
0.16	207.68	.716E+02	0.0	0.30	65.21
0.19	207.71	.112E+03	0.0	0.35	56.20
0.23	207.75	.161E+03	0.1	0.40	49.76
0.27	207.79	.219E+03	0.1	0.44	44.90
0.31	207.83	.287E+03	0.1	0.48	41.08
0.35	207.87	.363E+03	0.2	0.52	37.98
0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88
0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79
0.77	208.29	.225E+04	1.6	0.82	24.20

	<---- hydrograph ---->			<-pipe / channel->		
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0113)	13.50	0.06	3.00	4.04	0.24	0.41
OUTFLOW: ID= 1 (0802)	13.50	0.05	3.75	3.98	0.22	0.38

CALIB	Area	(ha)=	30.50	Curve Number	(CN)= 82.8
NASHYD (0112)	Ia	(mm)=	7.91	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	1.60			

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW	(cms)=	0.098 (i)
TIME TO PEAK	(hrs)=	4.083
RUNOFF VOLUME	(mm)=	4.181
TOTAL RAINFALL	(mm)=	25.000
RUNOFF COEFFICIENT		= 0.167

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area	(ha)=	45.50	Curve Number	(CN)= 82.3
NASHYD (0111)	Ia	(mm)=	8.19	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	1.33			

Model Without SWM Infrastructure - Output

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 0.154 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 3.956
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.158

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----  
| ADD HYD ( 1101)|  
| 1 + 2 = 3 |  
-----  
ID1= 1 ( 0111): 45.50 0.154 3.75 3.96  
+ ID2= 2 ( 0112): 30.50 0.098 4.08 4.18  
=====
```

ID = 3 (1101): 76.00 0.251 3.92 4.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----  
| ADD HYD ( 1101)|  
| 3 + 2 = 1 |  
-----  
ID1= 3 ( 1101): 76.00 0.251 3.92 4.05  
+ ID2= 2 ( 0802): 13.50 0.048 3.75 3.98  
=====
```

ID = 1 (1101): 89.50 0.298 3.83 4.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----  
| ROUTE CHN( 0801)|  
| IN= 2--> OUT= 1 |  
-----  
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->  
Distance Elevation Manning  
0.00 209.66 0.0400  
19.50 209.34 0.0400  
37.91 208.66 0.0400  
41.73 208.62 0.0400 / 0.0350 Main Channel  
43.44 208.24 0.0350 Main Channel  
45.75 208.62 0.0350 / 0.0450 Main Channel  
54.00 208.79 0.0450 / 0.0400  
77.43 209.05 0.0400  
128.85 209.70 0.0400
```

```
<----- TRAVEL TIME TABLE ----->  
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME  
(m) (m) (cu.m.) (cms) (m/s) (min)  
0.06 208.30 .104E+02 0.0 0.10 83.26  
0.13 208.37 .415E+02 0.0 0.16 52.45  
0.19 208.43 .934E+02 0.0 0.20 40.03  
0.25 208.49 .166E+03 0.1 0.25 33.04  
0.32 208.56 .259E+03 0.2 0.29 28.47  
0.38 208.62 .373E+03 0.2 0.32 25.22  
0.46 208.70 .729E+03 0.5 0.33 24.94  
0.54 208.78 .135E+04 0.9 0.33 24.67  
0.62 208.86 .225E+04 1.6 0.35 23.41  
0.70 208.94 .352E+04 2.6 0.37 22.23  
0.78 209.02 .516E+04 4.1 0.39 20.96  
0.86 209.10 .716E+04 6.1 0.41 19.65  
0.94 209.18 .949E+04 8.6 0.44 18.42  
1.02 209.26 .122E+05 11.7 0.47 17.31  
1.10 209.34 .152E+05 15.5 0.50 16.32  
1.18 209.42 .185E+05 19.7 0.52 15.72  
1.26 209.50 .224E+05 24.7 0.54 15.09  
1.34 209.58 .266E+05 30.6 0.56 14.48  
1.42 209.66 .313E+05 37.5 0.59 13.90
```

```
<---- hydrograph ----> <-pipe / channel->  
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL  
(ha) (cms) (hrs) (mm) (m) (m/s)  
INFLOW : ID= 2 ( 1101) 89.50 0.30 3.83 4.04 0.40 0.32  
OUTFLOW: ID= 1 ( 0801) 89.50 0.29 4.33 4.03 0.39 0.32
```

```
-----  
| CALIB  
| NASHYD ( 0110)| Area (ha)= 11.90 Curve Number (CN)= 83.4  
|ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.68
```

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.069 (i)
TIME TO PEAK (hrs)= 2.750
RUNOFF VOLUME (mm)= 4.464
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.179

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----  
| ADD HYD ( 1100)|  
| 1 + 2 = 3 |  
-----  
ID1= 1 ( 0110): 11.90 0.069 2.75 4.46  
+ ID2= 2 ( 0801): 89.50 0.285 4.33 4.03  
=====
```

ID = 3 (1100): 101.40 0.319 4.17 4.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----  
| ADD HYD ( 1001)|  
| 1 + 2 = 3 |  
-----  
ID1= 1 ( 1100): 101.40 0.319 4.17 4.08  
+ ID2= 2 ( 1200): 539.50 2.187 4.25 7.27  
=====
```

ID = 3 (1001): 640.90 2.505 4.25 6.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----  
| ROUTE CHN( 0800)|  
| IN= 2--> OUT= 1 |  
-----  
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->  
Distance Elevation Manning  
0.00 206.54 0.0450  
43.13 205.35 0.0450  
67.41 205.27 0.0450  
86.35 205.38 0.0450 / 0.0350 Main Channel  
90.47 204.70 0.0350 Main Channel  
93.03 205.16 0.0350 / 0.0400 Main Channel  
101.99 205.21 0.0400  
151.82 204.97 0.0400  
252.14 206.45 0.0400
```

```
<----- TRAVEL TIME TABLE ----->  
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME  
(m) (m) (cu.m.) (cms) (m/s) (min)  
0.09 204.79 .255E+02 0.0 0.16 54.50  
0.18 204.88 .102E+03 0.0 0.25 34.33  
0.28 204.98 .232E+03 0.1 0.33 26.47  
0.37 205.07 .109E+04 0.5 0.24 35.91  
0.46 205.16 .321E+04 1.7 0.27 31.53  
0.55 205.25 .680E+04 4.4 0.33 25.77  
0.64 205.34 .116E+05 9.2 0.41 21.18  
0.74 205.44 .182E+05 16.4 0.47 18.54  
0.83 205.53 .253E+05 25.9 0.53 16.26
```

```
0.92 205.62 .328E+05 37.6 0.59 14.54  
1.01 205.71 .408E+05 51.4 0.65 13.23  
1.10 205.80 .492E+05 67.3 0.71 12.19  
1.20 205.90 .581E+05 85.3 0.76 11.36  
1.29 205.99 .675E+05 105.5 0.81 10.66  
1.38 206.08 .773E+05 127.9 0.86 10.08  
1.47 206.17 .876E+05 152.5 0.90 9.57  
1.57 206.27 .983E+05 179.4 0.94 9.13  
1.66 206.36 .109E+06 208.6 0.99 8.75  
1.75 206.45 .121E+06 240.2 1.03 8.41
```

```
<---- hydrograph ----> <-pipe / channel->  
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL  
(ha) (cms) (hrs) (mm) (m) (m/s)  
INFLOW : ID= 2 ( 1001) 640.90 2.51 4.25 6.77 0.49 0.29  
OUTFLOW: ID= 1 ( 0800) 640.90 2.40 4.67 6.77 0.48 0.29
```

```
-----  
| CALIB  
| NASHYD ( 0100)| Area (ha)= 54.70 Curve Number (CN)= 83.2  
|ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 1.23
```

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 0.216 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 4.368
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.175

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----  
| ADD HYD ( 1000)|  
| 1 + 2 = 3 |  
-----  
ID1= 1 ( 0100): 54.70 0.216 3.58 4.37  
+ ID2= 2 ( 0800): 640.90 2.398 4.67 6.77  
=====
```

ID = 3 (1000): 695.60 2.567 4.58 6.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----  
| CALIB
```

Model Without SWM Infrastructure - Output

```
| NASHYD ( 0190) | Area (ha)= 12.30 Curve Number (CN)= 83.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.31 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.83
```

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.067 (i)
TIME TO PEAK (hrs)= 2.917
RUNOFF VOLUME (mm)= 4.711
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.188

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB |
| NASHYD ( 0191) | Area (ha)= 20.10 Curve Number (CN)= 82.0
| ID= 1 DT= 5.0 min | Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.94
```

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.081 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 3.825
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.153

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB |
| NASHYD ( 0192) | Area (ha)= 28.30 Curve Number (CN)= 80.3
| ID= 1 DT= 5.0 min | Ia (mm)= 6.23 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.06
```

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 0.123 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 4.345
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.174

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1901) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
|-----| (ha) (cms) (hrs) (mm)
ID1= 1 ( 0191): 20.10 0.081 3.17 3.82
+ ID2= 2 ( 0192): 28.30 0.123 3.25 4.35
=====
ID = 3 ( 1901): 48.40 0.204 3.17 4.13
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0899) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .349E+02 0.1 0.18 10.46
0.14 208.16 .981E+02 0.2 0.28 6.64
0.22 208.24 .183E+03 0.6 0.36 5.21
0.29 208.31 .291E+03 1.1 0.42 4.40
0.36 208.38 .420E+03 1.8 0.48 3.85
0.44 208.46 .586E+03 3.0 0.57 3.27
0.52 208.54 .777E+03 4.5 0.65 2.87
0.60 208.62 .999E+03 6.5 0.72 2.58
0.68 208.70 .125E+04 8.8 0.78 2.37
0.76 208.78 .154E+04 11.5 0.84 2.22
0.84 208.86 .185E+04 14.7 0.89 2.10
0.92 208.94 .230E+04 18.2 0.88 2.10
0.99 209.01 .285E+04 23.0 0.90 2.07
1.07 209.09 .345E+04 28.5 0.92 2.02
1.15 209.17 .411E+04 34.8 0.94 1.96
1.23 209.25 .482E+04 42.0 0.97 1.91
1.31 209.33 .559E+04 50.0 1.00 1.86
1.39 209.41 .643E+04 59.1 1.02 1.81
1.47 209.49 .732E+04 69.1 1.05 1.76
```

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1901)	48.40	0.20	3.17	4.13	0.13	0.25
OUTFLOW: ID= 1 (0899)	48.40	0.20	3.25	4.13	0.13	0.25

```
| ADD HYD ( 1900) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
|-----| (ha) (cms) (hrs) (mm)
ID1= 1 ( 0190): 12.30 0.067 2.92 4.71
+ ID2= 2 ( 0899): 48.40 0.204 3.25 4.13
=====
ID = 3 ( 1900): 60.70 0.268 3.17 4.25
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB |
| NASHYD ( 0500) | Area (ha)= 7.60 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.48
```

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.050 (i)
TIME TO PEAK (hrs)= 2.417
RUNOFF VOLUME (mm)= 4.181
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.167

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB |
| NASHYD ( 0510) | Area (ha)= 12.70 Curve Number (CN)= 81.7
| ID= 1 DT= 5.0 min | Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.059 (i)
TIME TO PEAK (hrs)= 2.750
RUNOFF VOLUME (mm)= 3.697
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.148

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB |
| NASHYD ( 0520) | Area (ha)= 17.30 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.083 (i)
TIME TO PEAK (hrs)= 2.917
RUNOFF VOLUME (mm)= 4.044
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.162

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 5000) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
|-----| (ha) (cms) (hrs) (mm)
ID1= 1 ( 0500): 7.60 0.050 2.42 4.18
+ ID2= 2 ( 0510): 12.70 0.059 2.75 3.70
=====
ID = 3 ( 5000): 20.30 0.106 2.58 3.88
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 5000) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
|-----| (ha) (cms) (hrs) (mm)
ID1= 3 ( 5000): 20.30 0.106 2.58 3.88
+ ID2= 2 ( 0520): 17.30 0.083 2.92 4.04
=====
ID = 1 ( 5000): 37.60 0.186 2.75 3.95
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB |
| NASHYD ( 0600) | Area (ha)= 2.50 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.212

Model Without SWM Infrastructure - Output

PEAK FLOW (cms)= 0.017 (i)
TIME TO PEAK (hrs)= 2.417
RUNOFF VOLUME (mm)= 4.043
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.162

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

COMMENTS: _____

** SIMULATION : 2 **

READ STORM	Filename: C:\Users\wraymond\AppData\Local\Temp\35eb7828-247c-431e-8f8f-00c8304cf789\5dc4d1b7
Ptotal= 45.20 mm	Comments: 2yr12hrAES

FINISH
=====

V V I SSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\59
9cb8af-aa15-40a5-b46c-ea198f823345\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\59
9cb8af-aa15-40a5-b46c-ea198f823345\sce

DATE: 10-17-2025 TIME: 02:15:11

USER:

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.08	6.78	6.17	1.36	9.25	0.00
0.08	5.88	3.17	6.78	6.25	1.36	9.33	0.00
0.17	5.88	3.25	6.78	6.33	1.36	9.42	0.00
0.25	5.88	3.33	6.78	6.42	1.36	9.50	0.00
0.33	5.88	3.42	6.78	6.50	1.36	9.58	0.00
0.42	5.88	3.50	6.78	6.58	1.36	9.67	0.00
0.50	5.88	3.58	6.78	6.67	1.36	9.75	0.00
0.58	5.88	3.67	6.78	6.75	1.36	9.83	0.00
0.67	5.88	3.75	6.78	6.83	1.36	9.92	0.00
0.75	5.88	3.83	6.78	6.92	1.36	10.00	0.00
0.83	5.88	3.92	6.78	7.00	1.36	10.08	0.00
0.92	5.88	4.00	6.78	7.08	0.45	10.17	0.00
1.00	5.88	4.08	6.33	7.17	0.45	10.25	0.00
1.08	11.75	4.17	6.33	7.25	0.45	10.33	0.00
1.17	11.75	4.25	6.33	7.33	0.45	10.42	0.00
1.25	11.75	4.33	6.33	7.42	0.45	10.50	0.00
1.33	11.75	4.42	6.33	7.50	0.45	10.58	0.00
1.42	11.75	4.50	6.33	7.58	0.45	10.67	0.00
1.50	11.75	4.58	6.33	7.67	0.45	10.75	0.00
1.58	11.75	4.67	6.33	7.75	0.45	10.83	0.00
1.67	11.75	4.75	6.33	7.83	0.45	10.92	0.00
1.75	11.75	4.83	6.33	7.92	0.45	11.00	0.00
1.83	11.75	4.92	6.33	8.00	0.45	11.08	0.00
1.92	11.75	5.00	6.33	8.08	0.00	11.17	0.00
2.00	11.75	5.08	3.62	8.17	0.00	11.25	0.00
2.08	9.04	5.17	3.62	8.25	0.00	11.33	0.00
2.17	9.04	5.25	3.62	8.33	0.00	11.42	0.00
2.25	9.04	5.33	3.62	8.42	0.00	11.50	0.00
2.33	9.04	5.42	3.62	8.50	0.00	11.58	0.00
2.42	9.04	5.50	3.62	8.58	0.00	11.67	0.00
2.50	9.04	5.58	3.62	8.67	0.00	11.75	0.00
2.58	9.04	5.67	3.62	8.75	0.00	11.83	0.00

2.67	9.04	5.75	3.62	8.83	0.00	11.92	0.00
2.75	9.04	5.83	3.62	8.92	0.00	12.00	0.00
2.83	9.04	5.92	3.62	9.00	0.00		
2.92	9.04	6.00	3.62	9.08	0.00		
3.00	9.04	6.08	1.36	9.17	0.00		

TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.047
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.333

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0185)	Area (ha)= 2.00 Curve Number (CN)= 79.5
ID= 1 DT= 5.0 min	Ia (mm)= 6.54 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.36

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 14.346
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.317

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0160)	Area (ha)= 16.30 Curve Number (CN)= 83.2
ID= 1 DT= 5.0 min	Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.15

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.156 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 15.845
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.351

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0180)	Area (ha)= 6.80 Curve Number (CN)= 82.4
ID= 1 DT= 5.0 min	Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.85

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.065 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.047
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.333

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0330)	Area (ha)= 22.30 Curve Number (CN)= 82.2
ID= 1 DT= 5.0 min	Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.60

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.217 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 14.847
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.328

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0170)	Area (ha)= 5.80 Curve Number (CN)= 82.4
ID= 1 DT= 5.0 min	Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.69

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.057 (i)

CALIB	
NASHYD (0270)	Area (ha)= 2.50 Curve Number (CN)= 81.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.95 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.24

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.026 (i)

Model Without SWM Infrastructure - Output

TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 15.573
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.345

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0260)	Area (ha)=	7.00	Curve Number (CN)= 83.7
ID= 1 DT= 5.0 min	Ia (mm)=	7.41	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.43	

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.074 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 16.365
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.362

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0250)	Area (ha)=	10.70	Curve Number (CN)= 81.9
ID= 1 DT= 5.0 min	Ia (mm)=	8.42	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.54	

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.103 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 14.559
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.322

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0320)	Area (ha)=	11.70	Curve Number (CN)= 83.0
ID= 1 DT= 5.0 min	Ia (mm)=	7.80	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.45	

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.120 (i)

TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 15.641
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.346

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0420)	Area (ha)=	25.80	Curve Number (CN)= 83.6
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.12	

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 0.253 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 16.258
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.360

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0423)	Area (ha)=	23.90	Curve Number (CN)= 84.1
ID= 1 DT= 5.0 min	Ia (mm)=	7.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.80	

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 0.251 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 16.786
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.371

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0422)	Area (ha)=	6.90	Curve Number (CN)= 83.4
ID= 1 DT= 5.0 min	Ia (mm)=	7.58	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.61	

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.071 (i)

TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 16.050
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.355

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0896)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03
0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

<---- hydrograph ---->				<-pipe / channel-->		
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)	
INFLOW : ID= 2 (0422)	6.90	0.07	5.17	16.05	0.22	0.49

OUTFLOW: ID= 1 (0896) 6.90 0.07 5.25 16.05 0.22 0.49

ADD HYD (4202)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0423):	23.90	0.251	5.17	16.79
+ ID2= 2 (0896):	6.90	0.071	5.25	16.05
ID = 3 (4202):	30.80	0.322	5.17	16.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0895)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.170E+01	0.0	0.28	4.09
0.24	212.03	.679E+01	0.0	0.44	2.58
0.36	212.15	.153E+02	0.1	0.58	1.97
0.48	212.27	.272E+02	0.3	0.70	1.62
0.61	212.40	.424E+02	0.5	0.82	1.40
0.73	212.52	.134E+03	1.0	0.53	2.16
0.85	212.64	.375E+03	2.8	0.52	2.20
0.97	212.76	.687E+03	6.1	0.60	1.89
1.09	212.88	.107E+04	11.0	0.71	1.61
1.21	213.00	.148E+04	17.8	0.83	1.38
1.33	213.12	.192E+04	26.1	0.93	1.22
1.45	213.24	.238E+04	35.9	1.03	1.11
1.57	213.36	.288E+04	47.3	1.13	1.01
1.70	213.49	.340E+04	60.1	1.21	0.94

Model Without SWM Infrastructure - Output

1.82	213.61	.395E+04	74.5	1.29	0.88
1.94	213.73	.452E+04	90.5	1.37	0.83
2.06	213.85	.512E+04	109.2	1.46	0.78
2.18	213.97	.573E+04	130.3	1.56	0.73
2.37	214.16	.694E+04	168.2	1.66	0.69

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4202)	30.80	0.32	5.17	16.62	0.51	0.72
OUTFLOW: ID= 1 (0895)	30.80	0.32	5.25	16.62	0.51	0.72

CALIB						
NASHYD (0421)	Area (ha)=	10.40	Curve Number (CN)=	82.8		
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.37				

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)=	0.106 (i)
TIME TO PEAK (hrs)=	5.083
RUNOFF VOLUME (mm)=	15.439
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT	= 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0883)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350 Main Channel
51.02	204.50	0.0350 Main Channel
54.33	205.44	0.0350 / 0.0400 Main Channel
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)

70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52
0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20
0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4201)	41.20	0.43	5.25	16.31	0.25	0.20
OUTFLOW: ID= 1 (0882)	41.20	0.42	5.33	16.30	0.25	0.20

ADD HYD (4200)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0420):	25.80	0.253	5.42	16.26		
+ ID2= 2 (0882):	41.20	0.419	5.33	16.30		
ID = 3 (4200):	67.00	0.672	5.33	16.29		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

0.04	204.54	.344E+01	0.0	0.19	78.41
0.07	204.57	.137E+02	0.0	0.30	49.40
0.11	204.61	.309E+02	0.0	0.39	37.70
0.14	204.64	.550E+02	0.0	0.47	31.12
0.18	204.68	.859E+02	0.1	0.55	26.82
0.22	204.72	.124E+03	0.1	0.62	23.75
0.25	204.75	.168E+03	0.1	0.69	21.43
0.29	204.79	.220E+03	0.2	0.75	19.60
0.33	204.83	.278E+03	0.3	0.81	18.12
0.36	204.86	.344E+03	0.3	0.87	16.89
0.40	204.90	.416E+03	0.4	0.93	15.85
0.43	204.93	.559E+03	0.6	0.89	16.61
0.47	204.97	.986E+03	0.8	0.71	20.75
0.51	205.01	.165E+04	1.2	0.65	22.49
0.54	205.04	.248E+04	1.9	0.66	22.28
0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0421)	10.40	0.11	5.08	15.44	0.23	0.65
OUTFLOW: ID= 1 (0883)	10.40	0.10	5.17	15.40	0.23	0.65

ADD HYD (4201)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		

ID1= 1 (0883):	10.40	0.105	5.17	15.40
+ ID2= 2 (0895):	30.80	0.322	5.25	16.62
ID = 3 (4201):	41.20	0.427	5.25	16.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0882)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 / 0.0350 Main Channel

CALIB						
NASHYD (0440)	Area (ha)=	31.60	Curve Number (CN)=	84.4		
ID= 1 DT= 5.0 min	Ia (mm)=	7.04	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.16				

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)=	0.322 (i)
TIME TO PEAK (hrs)=	5.417
RUNOFF VOLUME (mm)=	17.110
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT	= 0.379

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB						
NASHYD (0442)	Area (ha)=	2.40	Curve Number (CN)=	84.9		
ID= 1 DT= 5.0 min	Ia (mm)=	6.77	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.41				

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)=	0.027 (i)
TIME TO PEAK (hrs)=	3.333
RUNOFF VOLUME (mm)=	17.662
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT	= 0.391

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB						
NASHYD (0443)	Area (ha)=	21.30	Curve Number (CN)=	83.9		
ID= 1 DT= 5.0 min	Ia (mm)=	7.31	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.59				

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)=	0.225 (i)
TIME TO PEAK (hrs)=	5.167
RUNOFF VOLUME (mm)=	16.571
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT	= 0.367

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0451)
| ID= 1 DT= 5.0 min
|-----
Area (ha)= 12.30 Curve Number (CN)= 84.3
Ia (mm)= 7.09 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.57

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 0.133 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 17.003
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.376
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| STANDHYD ( 0043)
| ID= 1 DT= 5.0 min
|-----
Area (ha)= 22.90 Total Imp(%)= 49.00 Dir. Conn.(%)= 40.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 11.22 11.68
Dep. Storage (mm)= 1.00 8.92
Average Slope (%)= 1.00 2.00
Length (m)= 390.73 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 11.75 3.66
over (min) 15.00 45.00
Storage Coeff. (min)= 13.63 (ii) 40.12 (ii)
Unit Hyd. Tpeak (min)= 15.00 45.00
Unit Hyd. peak (cms)= 0.08 0.03

*TOTALS*
PEAK FLOW (cms)= 0.30 0.11 0.316 (iii)
TIME TO PEAK (hrs)= 2.08 5.25 2.17
RUNOFF VOLUME (mm)= 44.20 12.47 25.16
TOTAL RAINFALL (mm)= 45.20 45.20 45.20
RUNOFF COEFFICIENT = 0.98 0.28 0.56
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
|-----
```

```
| STANDHYD ( 0045) | Area (ha)= 1.30
| ID= 1 DT= 5.0 min | Total Imp(%)= 65.00 Dir. Conn.(%)= 35.00
|-----
```

```
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.84 0.46
Dep. Storage (mm)= 1.00 8.92
Average Slope (%)= 1.00 2.00
Length (m)= 93.09 40.00
Mannings n = 0.013 0.250
```

```
Max.Eff.Inten.(mm/hr)= 11.75 8.50
over (min) 5.00 25.00
Storage Coeff. (min)= 5.76 (ii) 24.68 (ii)
Unit Hyd. Tpeak (min)= 5.00 25.00
Unit Hyd. peak (cms)= 0.20 0.05

*TOTALS*
PEAK FLOW (cms)= 0.01 0.01 0.021 (iii)
TIME TO PEAK (hrs)= 2.08 3.33 3.08
RUNOFF VOLUME (mm)= 44.20 18.45 27.45
TOTAL RAINFALL (mm)= 45.20 45.20 45.20
RUNOFF COEFFICIENT = 0.98 0.41 0.61
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4345) |
| 1 + 2 = 3 |
|-----
ID1= 1 ( 0043): 22.90 0.316 2.17 25.16
+ ID2= 2 ( 0045): 1.30 0.021 3.08 27.45
=====
ID = 3 ( 4345): 24.20 0.336 2.08 25.28
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0893) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 / 0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
```

```
6.93 208.18 0.0350 / 0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV. TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .596E+00 0.0 0.09 30.15
0.08 207.60 .238E+01 0.0 0.14 18.99
0.12 207.64 .536E+01 0.0 0.18 14.49
0.16 207.68 .954E+01 0.0 0.22 11.96
0.19 207.71 .149E+02 0.0 0.26 10.31
0.23 207.75 .215E+02 0.0 0.29 9.13
0.27 207.79 .292E+02 0.1 0.32 8.24
0.31 207.83 .381E+02 0.1 0.35 7.54
0.35 207.87 .483E+02 0.1 0.38 6.97
0.39 207.91 .596E+02 0.2 0.41 6.50
0.43 207.95 .721E+02 0.2 0.43 6.10
0.47 207.99 .858E+02 0.2 0.46 5.75
0.50 208.02 .101E+03 0.3 0.49 5.45
0.54 208.06 .117E+03 0.4 0.51 5.19
0.58 208.10 .134E+03 0.5 0.53 4.96
0.62 208.14 .153E+03 0.5 0.56 4.75
0.67 208.19 .183E+03 0.7 0.59 4.48
0.72 208.24 .229E+03 0.9 0.61 4.36
0.77 208.29 .300E+03 1.1 0.60 4.44

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4345) 24.20 0.34 2.08 25.28 0.52 0.49
OUTFLOW: ID= 1 ( 0893) 24.20 0.33 2.17 25.28 0.52 0.49
```

```
-----
| ADD HYD ( 4510) |
| 1 + 2 = 3 |
|-----
ID1= 1 ( 0451): 12.30 0.133 5.17 17.00
+ ID2= 2 ( 0893): 24.20 0.334 2.17 25.28
=====
ID = 3 ( 4510): 36.50 0.443 3.17 22.49
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0892) |
|-----
```

```
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV. TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .279E+01 0.0 0.48 3.92
0.24 212.03 .112E+02 0.1 0.76 2.47
0.36 212.15 .251E+02 0.2 0.99 1.89
0.48 212.27 .446E+02 0.5 1.20 1.56
0.61 212.40 .697E+02 0.9 1.40 1.34
0.73 212.52 .220E+03 1.8 0.91 2.07
0.85 212.64 .616E+03 4.9 0.89 2.11
0.97 212.76 .113E+04 10.4 1.04 1.81
1.09 212.88 .175E+04 18.9 1.21 1.54
1.21 213.00 .243E+04 30.5 1.42 1.32
1.33 213.12 .315E+04 44.8 1.60 1.17
1.45 213.24 .392E+04 61.6 1.77 1.06
1.57 213.36 .473E+04 81.0 1.93 0.97
1.70 213.49 .558E+04 103.1 2.08 0.90
1.82 213.61 .648E+04 127.8 2.22 0.85
1.94 213.73 .742E+04 155.2 2.35 0.80
2.06 213.85 .841E+04 187.2 2.50 0.75
2.18 213.97 .941E+04 223.3 2.67 0.70
2.37 214.16 .114E+05 288.4 2.85 0.66
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4510) 36.50 0.44 3.17 22.49 0.47 1.17
OUTFLOW: ID= 1 ( 0892) 36.50 0.44 3.25 22.49 0.47 1.17
```

```
-----
| ADD HYD ( 4411) |
| 1 + 2 = 3 |
|-----
AREA QPEAK TPEAK R.V.
```

Model Without SWM Infrastructure - Output

```
-----
              (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0443): 21.30  0.225  5.17  16.57
+ ID2= 2 ( 0892): 36.50  0.444  3.25  22.49
=====
ID = 3 ( 4411):  57.80  0.645  5.08  20.31
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0891)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.70      0.0400
2.35          206.02      0.0400 / 0.0350 Main Channel
5.23          205.19      0.0350 Main Channel
5.34          205.67      0.0350 Main Channel
19.05         206.06      0.0350 / 0.0400 Main Channel
21.11         206.05      0.0400
22.02         206.13      0.0400 / 0.0350
40.10         206.15      0.0350
56.50         206.04      0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04        205.23      .621E+00      0.0            0.10          29.40
0.09        205.28      .248E+01      0.0            0.16          18.52
0.13        205.32      .559E+01      0.0            0.21          14.13
0.17        205.36      .994E+01      0.0            0.25          11.67
0.22        205.41      .155E+02      0.0            0.29          10.05
0.26        205.45      .224E+02      0.0            0.33          8.90
0.31        205.50      .304E+02      0.1            0.37          8.03
0.35        205.54      .398E+02      0.1            0.40          7.35
0.39        205.58      .503E+02      0.1            0.43          6.79
0.44        205.63      .621E+02      0.2            0.46          6.33
0.48        205.67      .752E+02      0.2            0.49          5.97
0.52        205.71      .954E+02      0.2            0.40          7.41
0.57        205.76      .129E+03      0.3            0.38          7.71
0.61        205.80      .175E+03      0.4            0.39          7.48
0.66        205.85      .234E+03      0.6            0.41          7.08
0.70        205.89      .306E+03      0.8            0.44          6.64
0.74        205.93      .391E+03      1.0            0.47          6.22
0.79        205.98      .490E+03      1.4            0.50          5.83
0.83        206.02      .601E+03      1.8            0.53          5.49

<----- hydrograph -----> <--pipe / channel-->
              AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
              (ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4411)  57.80      0.64      5.08      20.31      0.67            0.43
```

OUTFLOW: ID= 1 (0891) 57.80 0.64 5.17 20.31 0.67 0.43

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| CALIB
| STANDHYD ( 0441)|
| ID= 1 DT= 5.0 min|
-----
Area (ha)= 3.00
Total Imp(%)= 45.00 Dir. Conn.(%)= 35.00

IMPERVIOUS      PERVIOUS (i)
Surface Area (ha)= 1.35      1.65
Dep. Storage (mm)= 1.00      3.58
Average Slope (%)= 2.00      2.00
Length (m)= 141.42      40.00
Mannings n = 0.013      0.250

Max.Eff.Inten.(mm/hr)= 11.75      6.62
over (min) = 5.00      30.00
Storage Coeff. (min)= 6.02 (ii) 26.93 (ii)
Unit Hyd. Tpeak (min)= 5.00      30.00
Unit Hyd. peak (cms)= 0.19      0.04

*TOTALS*
PEAK FLOW (cms)= 0.03      0.03      0.054 (iii)
TIME TO PEAK (hrs)= 2.08      3.33      3.08
RUNOFF VOLUME (mm)= 44.20      23.05      30.45
TOTAL RAINFALL (mm)= 45.20      45.20      45.20
RUNOFF COEFFICIENT = 0.98      0.51      0.67
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4410)|
| 1 + 2 = 3 |
-----
              AREA      QPEAK      TPEAK      R.V.
              (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0441):  3.00      0.054      3.08      30.45
+ ID2= 2 ( 0891): 57.80      0.643      5.17      20.31
=====
ID = 3 ( 4410):  60.80      0.688      3.42      20.81
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 4401)|
| 1 + 2 = 3 |
-----
              AREA      QPEAK      TPEAK      R.V.
              (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 4410):  60.80      0.688      3.42      20.81
+ ID2= 2 ( 0442):  2.40      0.027      3.33      17.66
=====
ID = 3 ( 4401):  63.20      0.715      3.42      20.69
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0889)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.70      0.0400
2.35          206.02      0.0400 / 0.0350 Main Channel
5.23          205.19      0.0350 Main Channel
5.34          205.67      0.0350 Main Channel
19.05         206.06      0.0350 / 0.0400 Main Channel
21.11         206.05      0.0400
22.02         206.13      0.0400 / 0.0350
40.10         206.15      0.0350
56.50         206.04      0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04        205.23      .272E+01      0.0            0.09          142.50
0.09        205.28      .109E+02      0.0            0.14          89.77
0.13        205.32      .245E+02      0.0            0.19          68.51
0.17        205.36      .435E+02      0.0            0.23          56.55
0.22        205.41      .679E+02      0.0            0.26          48.73
0.26        205.45      .978E+02      0.0            0.30          43.16
0.31        205.50      .133E+03      0.1            0.33          38.94
0.35        205.54      .174E+03      0.1            0.36          35.63
0.39        205.58      .220E+03      0.1            0.39          32.93
0.44        205.63      .272E+03      0.1            0.42          30.70
0.48        205.67      .329E+03      0.2            0.44          28.96
0.52        205.71      .418E+03      0.2            0.36          35.92
0.57        205.76      .563E+03      0.3            0.34          37.36
0.61        205.80      .765E+03      0.4            0.35          36.28
0.66        205.85      .102E+04      0.5            0.37          34.31
0.70        205.89      .134E+04      0.7            0.40          32.17
0.74        205.93      .171E+04      0.9            0.43          30.13
0.79        205.98      .214E+04      1.3            0.45          28.27
0.83        206.02      .263E+04      1.6            0.48          26.60

<----- hydrograph -----> <--pipe / channel-->
```

INFLOW : ID= 2 (4401) 63.20 0.72 3.42 20.69 0.70 0.40
OUTFLOW: ID= 1 (0889) 63.20 0.71 5.17 20.68 0.70 0.40

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| ADD HYD ( 4400)|
| 1 + 2 = 3 |
-----
              AREA      QPEAK      TPEAK      R.V.
              (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0440):  31.60      0.322      5.42      17.11
+ ID2= 2 ( 0889): 63.20      0.706      5.17      20.68
=====
ID = 3 ( 4400):  94.80      1.026      5.25      19.49
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0888)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.66      0.0400
19.50         209.34      0.0400
37.91         208.66      0.0400
41.73         208.62      0.0400 / 0.0350 Main Channel
43.44         208.24      0.0350 Main Channel
45.75         208.62      0.0350 / 0.0450 Main Channel
54.00         208.79      0.0450 / 0.0400
77.43         209.05      0.0400
128.85        209.70      0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.06        208.30      .519E+01      0.0            0.09          43.50
0.13        208.37      .208E+02      0.0            0.15          27.40
0.19        208.43      .467E+02      0.0            0.19          20.91
0.25        208.49      .830E+02      0.1            0.24          17.26
0.32        208.56      .130E+03      0.1            0.27          14.88
0.38        208.62      .187E+03      0.2            0.31          13.17
0.46        208.70      .365E+03      0.5            0.31          13.03
0.54        208.78      .674E+03      0.9            0.32          12.89
0.62        208.86      .113E+04      1.5            0.33          12.23
0.70        208.94      .176E+04      2.5            0.35          11.61
0.78        209.02      .258E+04      3.9            0.37          10.95
```

Model Without SWM Infrastructure - Output

0.86	209.10	.358E+04	5.8	0.40	10.27
0.94	209.18	.475E+04	8.2	0.42	9.62
1.02	209.26	.608E+04	11.2	0.45	9.04
1.10	209.34	.758E+04	14.8	0.48	8.53
1.18	209.42	.927E+04	18.8	0.50	8.21
1.26	209.50	.112E+05	23.6	0.52	7.88
1.34	209.58	.133E+05	29.3	0.54	7.57
1.42	209.66	.157E+05	35.9	0.56	7.26

<--- hydrograph <--->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4400)	94.80	1.03	5.25	19.49	0.56
OUTFLOW: ID= 1 (0888)	94.80	1.02	5.42	19.49	0.56

CALIB	Area (ha)=	20.50
STANDHYD (0042)	Total Imp(%)=	83.00
ID= 1 DT= 5.0 min	Dir. Conn.(%)=	70.00

IMPERVIOUS		PERVIOUS (i)
Surface Area (ha)=	17.01	3.49
Dep. Storage (mm)=	1.00	6.98
Average Slope (%)=	2.00	2.00
Length (m)=	369.68	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	11.75	9.20
over (min)	10.00	30.00
Storage Coeff. (min)=	10.71 (ii)	29.03 (ii)
Unit Hyd. Tpeak (min)=	10.00	30.00
Unit Hyd. peak (cms)=	0.11	0.04

TOTALS		
PEAK FLOW (cms)=	0.47	0.08
TIME TO PEAK (hrs)=	2.08	3.33
RUNOFF VOLUME (mm)=	44.20	21.09
TOTAL RAINFALL (mm)=	45.20	45.20
RUNOFF COEFFICIENT =	0.98	0.47

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0898)	Routing time step (min)'= 5.00
IN= 2---> OUT= 1	

<----- DATA FOR SECTION (1.1) <----->		
Distance	Elevation	Manning
0.00	101.50	0.0500
1.00	100.70	0.0500
1.50	100.55	0.0500 /0.0300
2.00	99.50	0.0300
3.50	99.60	0.0300
4.50	100.65	0.0300 /0.0500
6.00	101.45	0.0500

TRAVEL TIME TABLE <----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.10	99.60	.152E+02	0.0	0.19	18.79
0.19	99.69	.482E+02	0.1	0.37	9.79
0.29	99.79	.840E+02	0.2	0.49	7.32
0.38	99.88	.123E+03	0.3	0.59	6.12
0.48	99.98	.164E+03	0.5	0.67	5.38
0.57	100.07	.208E+03	0.7	0.74	4.87
0.67	100.17	.255E+03	0.9	0.80	4.49
0.76	100.26	.305E+03	1.2	0.86	4.19
0.86	100.36	.358E+03	1.5	0.91	3.95
0.95	100.45	.413E+03	1.8	0.96	3.75
1.05	100.55	.471E+03	2.2	1.00	3.58
1.16	100.66	.547E+03	2.7	1.07	3.35
1.28	100.78	.635E+03	3.4	1.14	3.14
1.39	100.89	.732E+03	4.1	1.20	2.99
1.50	101.00	.838E+03	4.9	1.25	2.86
1.61	101.11	.952E+03	5.8	1.30	2.76
1.72	101.22	.107E+04	6.7	1.34	2.67
1.84	101.34	.120E+04	7.7	1.38	2.60
1.95	101.45	.134E+04	8.8	1.41	2.54

<--- hydrograph <--->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0042)	20.50	0.51	2.08	37.27	0.48
OUTFLOW: ID= 1 (0898)	20.50	0.51	2.08	37.26	0.48

CALIB	Area (ha)=	8.90
STANDHYD (0044)	Total Imp(%)=	41.00
ID= 1 DT= 5.0 min	Dir. Conn.(%)=	20.00

IMPERVIOUS	PERVIOUS (i)

Surface Area (ha)=	3.65	5.25
Dep. Storage (mm)=	1.00	8.00
Average Slope (%)=	2.00	2.00
Length (m)=	243.58	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	11.75	5.21
over (min)	10.00	35.00
Storage Coeff. (min)=	8.34 (ii)	31.35 (ii)
Unit Hyd. Tpeak (min)=	10.00	35.00
Unit Hyd. peak (cms)=	0.13	0.03
PEAK FLOW (cms)=	0.06	0.07
TIME TO PEAK (hrs)=	2.08	5.08
RUNOFF VOLUME (mm)=	44.20	15.69
TOTAL RAINFALL (mm)=	45.20	45.20
RUNOFF COEFFICIENT =	0.98	0.35

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4244)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0044):	8.90	0.105	3.08	21.39
+ ID2= 2 (0898):	20.50	0.509	2.08	37.26
ID = 3 (4244):	29.40	0.593	2.08	32.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0897)	Routing time step (min)'= 5.00
IN= 2---> OUT= 1	

<----- DATA FOR SECTION (1.1) <----->		
Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 /0.0350
28.59	211.79	0.0350

32.89	214.16	0.0350 /0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

TRAVEL TIME TABLE <----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.140E+02	0.0	0.17	55.64
0.24	212.03	.559E+02	0.0	0.27	35.05
0.36	212.15	.126E+03	0.1	0.35	26.75
0.48	212.27	.224E+03	0.2	0.43	22.08
0.61	212.40	.350E+03	0.3	0.49	19.03
0.73	212.52	.110E+04	0.6	0.32	29.36
0.85	212.64	.309E+04	1.7	0.31	29.92
0.97	212.76	.566E+04	3.7	0.37	25.67
1.09	212.88	.878E+04	6.7	0.43	21.92
1.21	213.00	.122E+05	10.8	0.50	18.80
1.33	213.12	.158E+05	15.8	0.57	16.63
1.45	213.24	.196E+05	21.8	0.63	15.03
1.57	213.36	.237E+05	28.7	0.68	13.79
1.70	213.49	.280E+05	36.4	0.73	12.81
1.82	213.61	.325E+05	45.2	0.78	12.00
1.94	213.73	.372E+05	54.9	0.83	11.31
2.06	213.85	.422E+05	66.2	0.89	10.62
2.18	213.97	.472E+05	79.0	0.94	9.97
2.37	214.16	.571E+05	102.0	1.01	9.34

<--- hydrograph <--->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4244)	29.40	0.59	2.08	32.46	0.71
OUTFLOW: ID= 1 (0897)	29.40	0.53	3.25	32.45	0.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4301)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0888):	94.80	1.021	5.42	19.49
+ ID2= 2 (0897):	29.40	0.532	3.25	32.45
ID = 3 (4301):	124.20	1.454	5.25	22.55

Model Without SWM Infrastructure - Output

```
| ROUTE CHN( 0887) |
| IN= 2--> OUT= 1 |
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.52          0.0400
61.99         209.23          0.0400
76.86         209.20          0.0400
82.03         209.20          0.0400 /0.0350 Main Channel
86.30         208.87          0.0350 Main Channel
89.86         209.20          0.0350 /0.0300 Main Channel
96.27         209.24          0.0300
103.53        209.40          0.0300
127.96        209.50          0.0300
158.58        209.70          0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.03        208.90      .143E+01      0.0             0.09          20.80
0.07        208.94      .572E+01      0.0             0.14          13.11
0.10        208.97      .129E+02      0.0             0.18          10.00
0.13        209.00      .229E+02      0.0             0.22          8.26
0.17        209.04      .357E+02      0.1             0.26          7.11
0.20        209.07      .514E+02      0.1             0.29          6.30
0.23        209.10      .700E+02      0.2             0.32          5.69
0.26        209.13      .915E+02      0.3             0.35          5.20
0.30        209.17      .116E+03      0.4             0.38          4.81
0.33        209.20      .143E+03      0.5             0.41          4.48
0.37        209.24      .239E+03      0.8             0.37          5.02
0.40        209.27      .396E+03      1.3             0.35          5.26
0.44        209.31      .589E+03      1.9             0.36          5.13
0.47        209.34      .818E+03      2.8             0.38          4.89
0.51        209.38      .108E+04      3.9             0.40          4.63
0.54        209.41      .139E+04      5.2             0.41          4.46
0.58        209.45      .175E+04      6.7             0.43          4.33
0.61        209.48      .218E+04      8.7             0.44          4.17
0.65        209.52      .266E+04      11.2            0.46          3.98

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4301) 124.20 1.45 5.25 22.55 0.41 0.35
OUTFLOW: ID= 1 ( 0887) 124.20 1.45 5.33 22.55 0.41 0.35
```

```
| CALIB
| NASHYD ( 0430) | Area (ha)= 19.80 Curve Number (CN)= 83.6
```

```
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
| IN= 2--> OUT= 1 | U.H. Tp(hrs)= 1.13
```

```
Unit Hyd Qpeak (cms)= 0.669

PEAK FLOW (cms)= 0.194 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 16.258
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.360
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4300) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0430): 19.80 0.194 5.42 16.26
+ ID2= 2 ( 0887): 124.20 1.453 5.33 22.55
=====
ID = 3 ( 4300): 144.00 1.647 5.33 21.69
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0886) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.20          0.0400
100.00         206.26          0.0400
111.30         206.19          0.0400 /0.0350 Main Channel
112.02         205.76          0.0350 Main Channel
113.82         205.37          0.0350 Main Channel
115.62         206.03          0.0350 /0.0400 Main Channel
117.77         207.30          0.0400
120.56         207.40          0.0400
124.41         207.31          0.0400
129.31         207.24          0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.09        205.46      .110E+02      0.0             0.11          51.32
0.19        205.56      .438E+02      0.0             0.17          32.33
0.28        205.65      .986E+02      0.1             0.23          24.67
0.38        205.75      .175E+03      0.1             0.27          20.37
0.47        205.84      .271E+03      0.3             0.33          16.94
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0885) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          208.48          0.0500
43.69         207.97          0.0500
66.92         207.94          0.0500
76.98         208.01          0.0500
87.94         208.25          0.0500
89.93         208.44          0.0500 /0.0350 Main Channel
92.70         208.20          0.0350 Main Channel
95.51         207.28          0.0350 Main Channel
98.26         208.25          0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.05        207.33      .134E+01      0.0             0.06          52.81
0.10        207.38      .536E+01      0.0             0.10          33.27
0.15        207.43      .121E+02      0.0             0.13          25.39
0.19        207.47      .214E+02      0.0             0.15          20.96
0.24        207.52      .335E+02      0.0             0.18          18.06
0.29        207.57      .483E+02      0.1             0.20          15.99
0.34        207.62      .657E+02      0.1             0.22          14.43
0.39        207.67      .858E+02      0.1             0.24          13.20
0.44        207.72      .109E+03      0.1             0.26          12.21
0.48        207.76      .134E+03      0.2             0.28          11.38
0.53        207.81      .162E+03      0.3             0.30          10.68
0.58        207.86      .193E+03      0.3             0.32          10.08
0.63        207.91      .227E+03      0.4             0.34          9.55
0.68        207.96      .295E+03      0.5             0.32          10.12
0.73        208.01      .613E+03      0.7             0.22          14.89
0.78        208.06      .103E+04      1.0             0.20          16.42
0.82        208.10      .150E+04      1.5             0.20          16.27
0.87        208.15      .204E+04      2.2             0.21          15.61
0.92        208.20      .264E+04      3.0             0.22          14.84
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4110) 148.50 1.69 5.42 21.63 0.84 0.20
OUTFLOW: ID= 1 ( 0885) 148.50 1.68 5.50 21.63 0.84 0.20
```

```
| CALIB
| NASHYD ( 0411) | Area (ha)= 4.50 Curve Number (CN)= 86.7
| ID= 1 DT= 5.0 min | Ia (mm)= 5.84 # of Linear Res.(N)= 3.00
| IN= 2--> OUT= 1 | U.H. Tp(hrs)= 1.11
```

```
Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW (cms)= 0.052 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 19.779
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.438
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4110) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0411): 4.50 0.052 5.33 19.78
+ ID2= 2 ( 0886): 144.00 1.637 5.42 21.69
=====
ID = 3 ( 4110): 148.50 1.689 5.42 21.63
```

Model Without SWM Infrastructure - Output

```
| CALIB
| NASHYD ( 0041) | Area (ha)= 25.40 Curve Number (CN)= 83.6
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.21
```

Unit Hyd Qpeak (cms)= 0.802

```
PEAK FLOW (cms)= 0.245 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 16.258
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.360
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0894) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .523E+01 0.0 0.10 36.03
0.24 212.03 .209E+02 0.0 0.15 22.70
0.36 212.15 .471E+02 0.0 0.20 17.32
0.48 212.27 .837E+02 0.1 0.25 14.30
0.61 212.40 .131E+03 0.2 0.29 12.32
0.73 212.52 .412E+03 0.4 0.18 19.01
0.85 212.64 .115E+04 1.0 0.18 19.37
0.97 212.76 .212E+04 2.1 0.21 16.62
1.09 212.88 .328E+04 3.9 0.25 14.19
1.21 213.00 .455E+04 6.2 0.29 12.17
1.33 213.12 .591E+04 9.1 0.33 10.77
1.45 213.24 .734E+04 12.6 0.36 9.73
1.57 213.36 .886E+04 16.5 0.39 8.93
1.70 213.49 .105E+05 21.0 0.42 8.29
1.82 213.61 .122E+05 26.1 0.45 7.77
```

ID = 3 (4101): 211.40 2.298 5.42 20.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0884) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 204.63 0.0400
45.24 204.34 0.0400
94.52 203.98 0.0400
140.93 203.58 0.0400
148.77 203.72 0.0400 /0.0350 Main Channel
154.30 202.99 0.0350 Main Channel
158.02 203.77 0.0350 /0.0400 Main Channel
174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 203.04 .620E+01 0.0 0.11 58.30
0.10 203.09 .248E+02 0.0 0.17 36.73
0.16 203.15 .558E+02 0.0 0.22 28.03
0.21 203.20 .992E+02 0.1 0.27 23.14
0.26 203.25 .155E+03 0.1 0.31 19.94
0.31 203.30 .223E+03 0.2 0.35 17.66
0.37 203.36 .304E+03 0.3 0.39 15.93
0.42 203.41 .397E+03 0.5 0.42 14.58
0.47 203.46 .502E+03 0.6 0.46 13.47
0.52 203.51 .620E+03 0.8 0.49 12.56
0.57 203.56 .750E+03 1.1 0.52 11.79
0.63 203.62 .934E+03 1.3 0.53 11.56
0.68 203.67 .129E+04 1.7 0.50 12.36
0.73 203.72 .184E+04 2.3 0.47 13.20
0.79 203.78 .270E+04 3.4 0.47 13.22
0.85 203.84 .412E+04 5.1 0.45 13.57
0.92 203.91 .583E+04 7.3 0.47 13.24
0.98 203.97 .783E+04 10.3 0.49 12.69
1.04 204.03 .101E+05 13.9 0.51 12.15
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4101) 211.40 2.30 5.42 20.14 0.73 0.47
OUTFLOW: ID= 1 ( 0884) 211.40 2.28 5.75 20.14 0.73 0.47
```

```
1.94 213.73 .139E+05 31.7 0.48 7.33
2.06 213.85 .158E+05 38.2 0.51 6.88
2.18 213.97 .177E+05 45.6 0.54 6.45
2.37 214.16 .214E+05 58.9 0.58 6.05
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0041) 25.40 0.25 5.50 16.26 0.65 0.24
OUTFLOW: ID= 1 ( 0894) 25.40 0.24 5.67 16.26 0.65 0.24
```

Unit Hyd Qpeak (cms)= 1.462

```
PEAK FLOW (cms)= 0.389 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 16.898
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.374
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4140) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0040): 37.50 0.389 5.25 16.90
+ ID2= 2 ( 0894): 25.40 0.240 5.67 16.26
=====
ID = 3 ( 4140): 62.90 0.623 5.33 16.64
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 4101) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 4140): 62.90 0.623 5.33 16.64
+ ID2= 2 ( 0885): 148.50 1.676 5.50 21.63
=====
```

Unit Hyd Qpeak (cms)= 0.345

```
PEAK FLOW (cms)= 0.095 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 18.343
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.406
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4100) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0410): 8.50 0.095 5.25 18.34
+ ID2= 2 ( 0884): 211.40 2.279 5.75 20.14
=====
ID = 3 ( 4100): 219.90 2.369 5.58 20.07
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0401) | Area (ha)= 23.00 Curve Number (CN)= 83.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 1.126

```
PEAK FLOW (cms)= 0.230 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.746
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.348
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4001) |
```

Model Without SWM Infrastructure - Output

```
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
-----
| ID1= 1 ( 0401): 23.00 0.230 5.17 15.75
+ ID2= 2 ( 4100): 219.90 2.369 5.58 20.07
=====
ID = 3 ( 4001): 242.90 2.590 5.50 19.66
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 4001) | AREA QPEAK TPEAK R.V.
| 3 + 2 = 1 | (ha) (cms) (hrs) (mm)
-----
ID1= 3 ( 4001): 242.90 2.590 5.50 19.66
+ ID2= 2 ( 4200): 67.00 0.672 5.33 16.29
=====
ID = 1 ( 4001): 309.90 3.258 5.50 18.93
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0880) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 204.63 0.0400
45.24 204.34 0.0400
94.52 203.98 0.0400
140.93 203.58 0.0400
148.77 203.72 0.0400 /0.0350 Main Channel
154.30 202.99 0.0350 Main Channel
158.02 203.77 0.0350 /0.0400 Main Channel
174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 203.04 .647E+01 0.0 0.11 59.17
0.10 203.09 .259E+02 0.0 0.17 37.28
0.16 203.15 .582E+02 0.0 0.23 28.45
0.21 203.20 .103E+03 0.1 0.27 23.48
0.26 203.25 .162E+03 0.1 0.32 20.24
0.31 203.30 .233E+03 0.2 0.36 17.92
0.37 203.36 .317E+03 0.3 0.40 16.17
0.42 203.41 .414E+03 0.5 0.43 14.79
0.47 203.46 .524E+03 0.6 0.47 13.68
0.52 203.51 .647E+03 0.8 0.50 12.75
```

```
0.57 203.56 .782E+03 1.1 0.54 11.96
0.63 203.62 .974E+03 1.4 0.55 11.73
0.68 203.67 .135E+04 1.8 0.51 12.55
0.73 203.72 .192E+04 2.4 0.48 13.39
0.79 203.78 .282E+04 3.5 0.48 13.41
0.85 203.84 .430E+04 5.2 0.47 13.77
0.92 203.91 .608E+04 7.5 0.48 13.44
0.98 203.97 .816E+04 10.6 0.50 12.88
1.04 204.03 .105E+05 14.2 0.52 12.33
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4001) 309.90 3.26 5.50 18.93 0.78 0.48
OUTFLOW: ID= 1 ( 0880) 309.90 3.23 5.67 18.93 0.78 0.48
```

```
-----
| CALIB |
| NASHYD ( 0400) | Area (ha)= 27.60 Curve Number (CN)= 83.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.88
```

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 0.284 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 16.469
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.364

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4000) | AREA QPEAK TPEAK R.V.
| 1 + 2 = 3 | (ha) (cms) (hrs) (mm)
-----
ID1= 1 ( 0400): 27.60 0.284 5.25 16.47
+ ID2= 2 ( 0880): 309.90 3.234 5.67 18.93
=====
ID = 3 ( 4000): 337.50 3.504 5.67 18.73
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0200) | Area (ha)= 25.60 Curve Number (CN)= 82.2
```

```
| ID= 1 DT= 5.0 min | Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.79
```

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 0.244 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 14.848
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.328

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0023) | Area (ha)= 7.00 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.73
```

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.070 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.641
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.346

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0022) | Area (ha)= 3.40 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.20
```

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.039 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 16.890
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.374

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0211) | Area (ha)= 17.30 Curve Number (CN)= 81.3
```

```
| ID= 1 DT= 5.0 min | Ia (mm)= 8.76 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.02
```

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.152 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 13.998
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.310

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0021) | Area (ha)= 47.60 Curve Number (CN)= 84.6
| ID= 1 DT= 5.0 min | Ia (mm)= 6.93 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 0.507 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 17.331
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.383

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0871) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
```

Model Without SWM Infrastructure - Output

0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42
0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (0021)		47.60	0.51	5.25	17.33	0.18
OUTFLOW: ID= 1 (0871)		47.60	0.49	5.50	17.32	0.18

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID1= 1 (0211):		17.30	0.152	5.42	14.00	
+ ID2= 2 (0022):		3.40	0.039	3.08	16.89	
ID = 3 (2110):		20.70	0.186	5.08	14.47	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID1= 3 (2110):		20.70	0.186	5.08	14.47	
+ ID2= 2 (0871):		47.60	0.494	5.50	17.32	
ID = 1 (2110):		68.30	0.672	5.33	16.46	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		20.30	0.85	8.59	14.276	0.18
		U.H.	TP(hrs)			

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW	(cms)=	0.186 (i)
TIME TO PEAK	(hrs)=	5.250
RUNOFF VOLUME	(mm)=	14.276
TOTAL RAINFALL	(mm)=	45.200
RUNOFF COEFFICIENT		= 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW	(cms)=	0.122 (i)
TIME TO PEAK	(hrs)=	5.167
RUNOFF VOLUME	(mm)=	15.047
TOTAL RAINFALL	(mm)=	45.200
RUNOFF COEFFICIENT		= 0.333

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
ID= 1 DT= 5.0 min		12.60	0.72	8.13	15.047	0.18
		U.H.	TP(hrs)			

Routing time step (min)'= 5.00

		<---- hydrograph <---->			<-pipe / channel->	

Model Without SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0210)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 9.10 Curve Number (CN)= 82.3
Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.64
```

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW (cms)= 0.089 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 14.947
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 2100)|
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0210): 9.10 0.089 5.17 14.95
+ ID2= 2 ( 0870): 101.20 0.966 5.58 15.84
=====
ID = 3 ( 2100): 110.30 1.048 5.50 15.76
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0230)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 24.70 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.82
```

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 0.244 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.544
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.344

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0231)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 29.50 Curve Number (CN)= 81.9
Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 0.274 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 14.559
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.322

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0240)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 10.10 Curve Number (CN)= 82.0
Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.74
```

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.096 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 14.657
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.324

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0241)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 26.70 Curve Number (CN)= 82.3
Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.75
```

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 0.257 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 14.947
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0864)|
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .118E+02 0.0 0.27 29.62
0.24 212.03 .471E+02 0.0 0.42 18.66
0.36 212.15 .106E+03 0.1 0.56 14.24
0.48 212.27 .188E+03 0.3 0.67 11.76
0.61 212.40 .294E+03 0.5 0.78 10.13
0.73 212.52 .928E+03 1.0 0.51 15.63
0.85 212.64 .260E+04 2.7 0.50 15.93
0.97 212.76 .477E+04 5.8 0.58 13.67
1.09 212.88 .739E+04 10.6 0.68 11.67
1.21 213.00 .103E+05 17.1 0.79 10.01
1.33 213.12 .133E+05 25.0 0.89 8.85
1.45 213.24 .165E+05 34.4 0.99 8.00
1.57 213.36 .200E+05 45.3 1.08 7.34
1.70 213.49 .236E+05 57.6 1.16 6.82
1.82 213.61 .274E+05 71.4 1.24 6.39
1.94 213.73 .314E+05 86.8 1.31 6.02
2.06 213.85 .355E+05 104.6 1.40 5.66
2.18 213.97 .398E+05 124.9 1.49 5.31
2.37 214.16 .481E+05 161.2 1.59 4.97
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0241) 26.70 0.26 5.25 14.95 0.48 0.66
OUTFLOW: ID= 1 ( 0864) 26.70 0.26 5.33 14.95 0.47 0.66
```

```
-----
| ADD HYD ( 2301)|
-----
```

```
-----
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0231): 29.50 0.274 5.25 14.56
+ ID2= 2 ( 0240): 10.10 0.096 5.25 14.66
=====
ID = 3 ( 2301): 39.60 0.370 5.25 14.58
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2301)|
| 3 + 2 = 1 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 2301): 39.60 0.370 5.25 14.58
+ ID2= 2 ( 0864): 26.70 0.256 5.33 14.95
=====
ID = 1 ( 2301): 66.30 0.626 5.25 14.73
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0863)|
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 / 0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 / 0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .138E+01 0.0 0.11 58.11
0.09 205.28 .551E+01 0.0 0.18 36.61
0.13 205.32 .124E+02 0.0 0.23 27.94
0.17 205.36 .220E+02 0.0 0.28 23.06
0.22 205.41 .344E+02 0.0 0.33 19.87
0.26 205.45 .496E+02 0.0 0.37 17.60
0.31 205.50 .675E+02 0.1 0.41 15.88
0.35 205.54 .882E+02 0.1 0.45 14.53
0.39 205.58 .112E+03 0.1 0.48 13.43
0.44 205.63 .138E+03 0.2 0.52 12.52
0.48 205.67 .167E+03 0.2 0.55 11.81
```

Model Without SWM Infrastructure - Output

0.52	205.71	.212E+03	0.2	0.44	14.65
0.57	205.76	.285E+03	0.3	0.43	15.23
0.61	205.80	.388E+03	0.4	0.44	14.79
0.66	205.85	.519E+03	0.6	0.47	13.99
0.70	205.89	.679E+03	0.9	0.50	13.12
0.74	205.93	.868E+03	1.2	0.53	12.29
0.79	205.98	.109E+04	1.6	0.56	11.53
0.83	206.02	.133E+04	2.0	0.60	10.85

		<---- hydrograph ---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (2301)	66.30	0.63	5.25	14.73	0.66	0.47
OUTFLOW: ID= 1 (0863)	66.30	0.62	5.42	14.73	0.66	0.47

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (2300)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0230):	24.70	0.244	5.25	15.54	
+ ID2= 2 (0863):	66.30	0.621	5.42	14.73	
=====					
ID = 3 (2300):	91.00	0.863	5.33	14.95	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2011)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (2100):	110.30	1.048	5.50	15.76	
+ ID2= 2 (2300):	91.00	0.863	5.33	14.95	
=====					
ID = 3 (2011):	201.30	1.909	5.42	15.40	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0862)	
IN= 2----> OUT= 1	
Routing time step (min)'	5.00

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	204.63	0.0400
45.24	204.34	0.0400

RUNOFF VOLUME (mm)= 15.243
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.337

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2010)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0201):	8.20	0.081	5.17	15.24	
+ ID2= 2 (0023):	7.00	0.070	5.17	15.64	
=====					
ID = 3 (2010):	15.20	0.151	5.17	15.43	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2010)					
3 + 2 = 1					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 3 (2010):	15.20	0.151	5.17	15.43	
+ ID2= 2 (0862):	201.30	1.892	5.58	15.39	
=====					
ID = 1 (2010):	216.50	2.035	5.50	15.40	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0860)	
IN= 2----> OUT= 1	
Routing time step (min)'	5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	208.48	0.0500		
43.69	207.97	0.0500		
66.92	207.94	0.0500		
76.98	208.01	0.0500		
87.94	208.25	0.0500		
89.93	208.44	0.0500 / 0.0350	Main Channel	
92.70	208.20	0.0350	Main Channel	
95.51	207.28	0.0350	Main Channel	
98.26	208.25	0.0350	Main Channel	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	207.33	.155E+01	0.0	0.16	23.32

94.52	203.98	0.0400		
140.93	203.58	0.0400		
148.77	203.72	0.0400 / 0.0350	Main Channel	
154.30	202.99	0.0350	Main Channel	
158.02	203.77	0.0350 / 0.0400	Main Channel	
174.30	203.79	0.0400		
222.94	204.38	0.0400		
285.62	204.03	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.465E+01	0.0	0.10	47.86
0.10	203.09	.186E+02	0.0	0.15	30.15
0.16	203.15	.418E+02	0.0	0.20	23.01
0.21	203.20	.744E+02	0.1	0.24	18.99
0.26	203.25	.116E+03	0.1	0.28	16.37
0.31	203.30	.167E+03	0.2	0.32	14.50
0.37	203.36	.228E+03	0.3	0.35	13.08
0.42	203.41	.297E+03	0.4	0.39	11.97
0.47	203.46	.376E+03	0.6	0.42	11.06
0.52	203.51	.465E+03	0.8	0.45	10.31
0.57	203.56	.562E+03	1.0	0.48	9.68
0.63	203.62	.700E+03	1.2	0.49	9.49
0.68	203.67	.969E+03	1.6	0.45	10.15
0.73	203.72	.138E+04	2.1	0.43	10.83
0.79	203.78	.203E+04	3.1	0.43	10.85
0.85	203.84	.309E+04	4.6	0.41	11.14
0.92	203.91	.437E+04	6.7	0.42	10.87
0.98	203.97	.586E+04	9.4	0.44	10.42
1.04	204.03	.757E+04	12.7	0.46	9.97

		<---- hydrograph ---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (2011)	201.30	1.91	5.42	15.40	0.71	0.44
OUTFLOW: ID= 1 (0862)	201.30	1.89	5.58	15.39	0.71	0.44

CALIB	
NASHYD (0201)	
ID= 1 DT= 5.0 min	
Area (ha)=	8.20
Ia (mm)=	8.02
U.H. Tp(hrs)=	0.60
Curve Number (CN)=	82.6
# of Linear Res.(N)=	3.00

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.081 (i)
TIME TO PEAK (hrs)= 5.167

0.10	207.38	.620E+01	0.0	0.25	14.69
0.15	207.43	.140E+02	0.0	0.33	11.21
0.19	207.47	.248E+02	0.0	0.40	9.26
0.24	207.52	.388E+02	0.1	0.47	7.98
0.29	207.57	.558E+02	0.1	0.53	7.06
0.34	207.62	.760E+02	0.2	0.59	6.37
0.39	207.67	.992E+02	0.3	0.64	5.83
0.44	207.72	.126E+03	0.4	0.69	5.39
0.48	207.76	.155E+03	0.5	0.74	5.03
0.53	207.81	.188E+03	0.7	0.79	4.72
0.58	207.86	.223E+03	0.8	0.84	4.45
0.63	207.91	.262E+03	1.0	0.88	4.22
0.68	207.96	.341E+03	1.3	0.83	4.47
0.73	208.01	.708E+03	1.8	0.57	6.58
0.78	208.06	.119E+04	2.7	0.51	7.25
0.82	208.10	.174E+04	4.0	0.52	7.19
0.87	208.15	.236E+04	5.7	0.54	6.89
0.92	208.20	.305E+04	7.8	0.57	6.55

		<---- hydrograph ---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (2010)	216.50	2.03	5.50	15.40	0.74	0.55
OUTFLOW: ID= 1 (0860)	216.50	2.03	5.67	15.40	0.74	0.55

ADD HYD (2000)	
1 + 2 = 3	
ID1= 1 (0200):	25.60 0.244 5.25 14.85
+ ID2= 2 (0860):	216.50 2.028 5.67 15.40
=====	
ID = 3 (2000):	242.10 2.261 5.58 15.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0300)	
ID= 1 DT= 5.0 min	
Area (ha)=	36.80
Ia (mm)=	7.74
U.H. Tp(hrs)=	0.90
Curve Number (CN)=	83.1
# of Linear Res.(N)=	3.00

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 0.364 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.746

Model Without SWM Infrastructure - Output

TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.348

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0031)	Area (ha)=	3.00	Curve Number (CN)=	82.5
ID= 1 DT= 5.0 min	Ia (mm)=	5.38	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.62		

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.031 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 16.922
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.374

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0350)	Area (ha)=	1.50	Curve Number (CN)=	83.2
ID= 1 DT= 5.0 min	Ia (mm)=	7.69	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.38		

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.016 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 15.842
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.350

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0850)				
IN= 2---> OUT= 1	Routing time step (min)='	5.00		

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.00	0.0400		
33.24	205.47	0.0400		
44.39	205.59	0.0400		
48.71	205.45	0.0400 / 0.0350	Main Channel	
51.02	204.50	0.0350	Main Channel	

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3200)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0032):	28.00	0.279	5.25	16.05
+ ID2= 2 (0850):	1.50	0.015	5.25	15.52
=====				
ID = 3 (3200):	29.50	0.294	5.25	16.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0301)	Area (ha)=	59.40	Curve Number (CN)=	82.7
ID= 1 DT= 5.0 min	Ia (mm)=	7.97	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.23		

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 0.543 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 15.339
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.339

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3010)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0301):	59.40	0.543	5.50	15.34
+ ID2= 2 (3200):	29.50	0.294	5.25	16.02
=====				
ID = 3 (3010):	88.90	0.835	5.42	15.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (3001)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (3010):	88.90	0.835	5.42	15.57
+ ID2= 2 (0031):	3.00	0.031	5.17	16.92

54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.300E+01	0.0	0.15	86.75
0.07	204.57	.120E+02	0.0	0.24	54.65
0.11	204.61	.270E+02	0.0	0.31	41.70
0.14	204.64	.480E+02	0.0	0.37	34.42
0.18	204.68	.750E+02	0.0	0.43	29.67
0.22	204.72	.108E+03	0.1	0.49	26.27
0.25	204.75	.147E+03	0.1	0.54	23.71
0.29	204.79	.192E+03	0.1	0.59	21.69
0.33	204.83	.243E+03	0.2	0.64	20.05
0.36	204.86	.300E+03	0.3	0.69	18.69
0.40	204.90	.363E+03	0.3	0.73	17.54
0.43	204.93	.488E+03	0.4	0.70	18.37
0.47	204.97	.860E+03	0.6	0.56	22.95
0.51	205.01	.144E+04	1.0	0.52	24.88
0.54	205.04	.217E+04	1.5	0.52	24.65
0.58	205.08	.304E+04	2.1	0.54	23.62
0.61	205.11	.407E+04	3.0	0.57	22.38
0.65	205.15	.524E+04	4.1	0.61	21.13
0.69	205.19	.656E+04	5.5	0.64	19.97

<---- hydrograph ---->						<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)	
INFLOW : ID= 2 (0350)	1.50	0.02	5.08	15.84	0.12	0.33	
OUTFLOW: ID= 1 (0850)	1.50	0.02	5.25	15.52	0.12	0.33	

CALIB				
NASHYD (0032)	Area (ha)=	28.00	Curve Number (CN)=	83.4
ID= 1 DT= 5.0 min	Ia (mm)=	7.58	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.95		

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.279 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 16.050
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.355

=====

ID = 3 (3001): 91.90 0.865 5.42 15.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0852)				
IN= 2---> OUT= 1	Routing time step (min)='	5.00		

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.20	0.0400		
100.00	206.26	0.0400		
111.30	206.19	0.0400 / 0.0350	Main Channel	
112.02	205.76	0.0350	Main Channel	
113.82	205.37	0.0350	Main Channel	
115.62	206.03	0.0350 / 0.0400	Main Channel	
117.77	207.30	0.0400		
120.56	207.40	0.0400		
124.41	207.31	0.0400		
129.31	207.24	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	205.46	.132E+02	0.0	0.21	32.83
0.19	205.56	.529E+02	0.0	0.33	20.68
0.28	205.65	.119E+03	0.1	0.43	15.78
0.38	205.75	.212E+03	0.3	0.52	13.03
0.47	205.84	.327E+03	0.5	0.62	10.84
0.57	205.94	.458E+03	0.8	0.72	9.42
0.66	206.03	.604E+03	1.2	0.80	8.44
0.76	206.13	.777E+03	1.7	0.91	7.41
0.86	206.23	.102E+04	2.4	0.97	6.97
0.96	206.33	.168E+04	3.6	0.87	7.76
1.06	206.43	.252E+04	5.4	0.87	7.80
1.16	206.53	.350E+04	7.7	0.89	7.56
1.26	206.63	.463E+04	10.7	0.93	7.24
1.37	206.74	.590E+04	14.3	0.98	6.90
1.47	206.84	.732E+04	18.6	1.03	6.58
1.57	206.94	.889E+04	23.6	1.08	6.28
1.67	207.04	.106E+05	29.5	1.13	6.00
1.77	207.14	.125E+05	36.1	1.17	5.75
1.87	207.24	.145E+05	43.7	1.22	5.52

<---- hydrograph ---->						<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)	
INFLOW : ID= 2 (3001)	91.90	0.87	5.42	15.61	0.58	0.73	
OUTFLOW: ID= 1 (0852)	91.90	0.86	5.50	15.61	0.58	0.73	

Model Without SWM Infrastructure - Output

| ADD HYD (3000) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0300):	36.80	0.364	5.25	15.75
+ ID2= 2 (0852):	91.90	0.863	5.50	15.61
=====				
ID = 3 (3000):	128.70	1.223	5.42	15.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB
| NASHYD (0030) |
| ID= 1 DT= 5.0 min |

Area (ha)=	1.10	Curve Number (CN)=	81.5
Ia (mm)=	5.76	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.30		

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)=	0.011 (i)
TIME TO PEAK (hrs)=	3.167
RUNOFF VOLUME (mm)=	16.013
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT	= 0.354

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0854) |
| IN= 2--> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.00	0.0400		
33.24	205.47	0.0400		
44.39	205.59	0.0400		
48.71	205.45	0.0400 / 0.0350	Main Channel	
51.02	204.50	0.0350	Main Channel	
54.33	205.44	0.0350 / 0.0400	Main Channel	
55.90	204.97	0.0400		
62.96	204.91	0.0400		
102.92	205.20	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)

ID1= 1 (0340):	21.00	0.209	5.17	15.44
+ ID2= 2 (0854):	1.10	0.011	3.25	16.00
=====				
ID = 3 (3400):	22.10	0.220	5.17	15.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB
| NASHYD (0123) |
| ID= 1 DT= 5.0 min |

Area (ha)=	24.60	Curve Number (CN)=	82.9
Ia (mm)=	7.85	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.93		

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)=	0.240 (i)
TIME TO PEAK (hrs)=	5.250
RUNOFF VOLUME (mm)=	15.544
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT	= 0.344

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0814) |
| IN= 2--> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40
0.85	212.64	.204E+04	2.7	0.49	12.63

0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0030)	1.10	0.01	3.17	16.01	0.10	0.35
OUTFLOW: ID= 1 (0854)	1.10	0.01	3.25	16.00	0.10	0.35

| CALIB
| NASHYD (0340) |
| ID= 1 DT= 5.0 min |

Area (ha)=	21.00	Curve Number (CN)=	82.8
Ia (mm)=	7.91	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.69		

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)=	0.209 (i)
TIME TO PEAK (hrs)=	5.167
RUNOFF VOLUME (mm)=	15.441
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT	= 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (3400) |
| 1 + 2 = 3 |

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0123)	24.60	0.24	5.25	15.54	0.46	0.64
OUTFLOW: ID= 1 (0814)	24.60	0.24	5.42	15.54	0.46	0.64

| CALIB
| NASHYD (0124) |
| ID= 1 DT= 5.0 min |

Area (ha)=	24.30	Curve Number (CN)=	85.8
Ia (mm)=	6.30	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.51		

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)=	0.282 (i)
TIME TO PEAK (hrs)=	3.417
RUNOFF VOLUME (mm)=	18.695
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT	= 0.414

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0813) |
| IN= 2--> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	

Model Without SWM Infrastructure - Output

42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.78
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25

<---- hydrograph ---->				<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (0124)	24.30	0.28	3.42	18.70	0.50	0.67
OUTFLOW: ID= 1 (0813)	24.30	0.28	5.17	18.69	0.49	0.67

ADD HYD (1221)						
1	2	3	AREA	QPEAK	TPEAK	R.V.
			(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0813):	24.30	0.280	5.17	18.69		
+ ID2= 2 (0814):	24.60	0.239	5.42	15.54		
=====						
ID = 3 (1221):	48.90	0.518	5.25	17.11		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0812)

IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.533E+02	0.1	0.24	12.01
0.14	208.16	.150E+03	0.3	0.37	7.63
0.22	208.24	.280E+03	0.8	0.47	5.98
0.29	208.31	.444E+03	1.5	0.56	5.04
0.36	208.38	.642E+03	2.4	0.64	4.42
0.44	208.46	.896E+03	4.0	0.75	3.76
0.52	208.54	.119E+04	6.0	0.86	3.29
0.60	208.62	.153E+04	8.6	0.96	2.96
0.68	208.70	.192E+04	11.7	1.04	2.73
0.76	208.78	.235E+04	15.4	1.11	2.55
0.84	208.86	.283E+04	19.6	1.18	2.41
0.92	208.94	.351E+04	24.2	1.17	2.41
0.99	209.01	.435E+04	30.6	1.19	2.37
1.07	209.09	.528E+04	38.0	1.22	2.31
1.15	209.17	.628E+04	46.4	1.26	2.26
1.23	209.25	.737E+04	55.9	1.29	2.20
1.31	209.33	.855E+04	66.6	1.33	2.14
1.39	209.41	.982E+04	78.7	1.36	2.08
1.47	209.49	.112E+05	92.1	1.40	2.03

<---- hydrograph ---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (1221)	48.90	0.52	5.25	17.11	0.17 0.41
OUTFLOW: ID= 1 (0812)	48.90	0.52	5.33	17.11	0.17 0.41

CALIB
NASHYD (0122)
ID= 1 DT= 5.0 min | Area (ha)= 31.80 Curve Number (CN)= 85.1
Ia (mm)= 6.67 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.96

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 0.346 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 17.886
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.396

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1220)						
1 + 2 = 3			AREA	QPEAK	TPEAK	R.V.
			(ha)	(cms)	(hrs)	(mm)
ID1= 1 (	0122):		31.80	0.346	5.25	17.89
+ ID2= 2 (	0812):		48.90	0.517	5.33	17.11
=====						
ID = 3 (	1220):		80.70	0.862	5.25	17.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0811)
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 / 0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 / 0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 / 0.0400	
132.78	206.84	0.0400	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	206.01	.147E+02	0.0	0.14	60.26
0.12	206.07	.590E+02	0.0	0.22	37.96
0.18	206.13	.133E+03	0.1	0.29	28.97
0.26	206.21	.302E+03	0.2	0.36	22.81
0.34	206.29	.671E+03	0.5	0.39	21.40
0.42	206.37	.151E+04	1.2	0.39	20.95
0.50	206.45	.254E+04	2.3	0.45	18.38

0.58	206.53	.376E+04	3.7	0.49	16.98
0.66	206.61	.544E+04	5.6	0.51	16.11
0.74	206.69	.764E+04	8.4	0.54	15.19
0.83	206.78	.104E+05	12.1	0.58	14.27
0.91	206.86	.134E+05	17.4	0.64	12.84
0.99	206.94	.166E+05	23.6	0.71	11.71
1.07	207.02	.201E+05	30.7	0.76	10.88
1.15	207.10	.239E+05	38.8	0.81	10.26
1.23	207.18	.280E+05	48.0	0.85	9.72
1.31	207.26	.325E+05	58.5	0.89	9.26
1.39	207.34	.373E+05	70.3	0.94	8.84
1.47	207.42	.424E+05	83.4	0.98	8.48

<--- hydrograph --->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (1220)	80.70	0.86	5.25	17.41	0.38 0.39
OUTFLOW: ID= 1 (0811)	80.70	0.85	5.50	17.41	0.38 0.39

CALIB
NASHYD (0121)
ID= 1 DT= 5.0 min | Area (ha)= 16.10 Curve Number (CN)= 86.5
Ia (mm)= 5.94 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.89

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.189 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 19.535
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.432

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1210)						
1	2	3	AREA	QPEAK	TPEAK	R.V.
			(ha)	(cms)	(hrs)	(mm)
ID1= 1	(0121):		16.10	0.189	5.17	19.53
+ ID2= 2	(0811):		80.70	0.852	5.50	17.41
=====						
ID = 3	(1210):		96.80	1.038	5.42	17.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model Without SWM Infrastructure - Output

CALIB			
NASHYD (0146)	Area (ha)= 12.80	Curve Number (CN)= 83.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.55		

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.130 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.641
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.346

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0844)	Routing time step (min)'= 5.00
IN= 2---> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 /0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 /0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.04	207.56	.107E+01	0.0	0.13	37.04
0.08	207.60	.430E+01	0.0	0.20	23.33
0.12	207.64	.966E+01	0.0	0.27	17.81
0.16	207.68	.172E+02	0.0	0.32	14.70
0.19	207.71	.268E+02	0.0	0.38	12.67
0.23	207.75	.387E+02	0.1	0.42	11.22
0.27	207.79	.526E+02	0.1	0.47	10.12
0.31	207.83	.687E+02	0.1	0.51	9.26
0.35	207.87	.870E+02	0.2	0.56	8.56
0.39	207.91	.107E+03	0.2	0.60	7.98
0.43	207.95	.130E+03	0.3	0.64	7.49
0.47	207.99	.155E+03	0.4	0.67	7.07
0.50	208.02	.181E+03	0.5	0.71	6.70
0.54	208.06	.210E+03	0.6	0.75	6.38
0.58	208.10	.242E+03	0.7	0.78	6.09
0.62	208.14	.275E+03	0.8	0.82	5.83
0.67	208.19	.329E+03	1.0	0.87	5.50

28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 /0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.12	211.91	.144E+02	0.0	0.23	42.45
0.24	212.03	.578E+02	0.0	0.36	26.74
0.36	212.15	.130E+03	0.1	0.48	20.41
0.48	212.27	.231E+03	0.2	0.58	16.85
0.61	212.40	.361E+03	0.4	0.67	14.52
0.73	212.52	.114E+04	0.8	0.43	22.41
0.85	212.64	.319E+04	2.3	0.43	22.83
0.97	212.76	.585E+04	5.0	0.50	19.59
1.09	212.88	.907E+04	9.0	0.58	16.72
1.21	213.00	.126E+05	14.6	0.68	14.34
1.33	213.12	.163E+05	21.4	0.77	12.69
1.45	213.24	.203E+05	29.5	0.85	11.47
1.57	213.36	.245E+05	38.8	0.92	10.52
1.70	213.49	.289E+05	49.3	0.99	9.77
1.82	213.61	.336E+05	61.2	1.06	9.15
1.94	213.73	.385E+05	74.3	1.13	8.63
2.06	213.85	.436E+05	89.6	1.20	8.11
2.18	213.97	.488E+05	106.9	1.28	7.61
2.37	214.16	.590E+05	138.1	1.36	7.13

<---- hydrograph ---->				<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1450)	25.40	0.26	5.17	15.79	0.50
OUTFLOW: ID= 1 (0843)	25.40	0.26	5.25	15.78	0.50

CALIB			
NASHYD (0144)	Area (ha)= 28.60	Curve Number (CN)= 82.9	
ID= 1 DT= 5.0 min	Ia (mm)= 7.85	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.97		

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.277 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 15.544
TOTAL RAINFALL (mm)= 45.200

0.72	208.24	.413E+03	1.3	0.89	5.36
0.77	208.29	.540E+03	1.7	0.87	5.45

<---- hydrograph ---->				<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0146)	12.80	0.13	5.17	15.64	0.32
OUTFLOW: ID= 1 (0844)	12.80	0.13	5.25	15.64	0.31

CALIB			
NASHYD (0145)	Area (ha)= 12.60	Curve Number (CN)= 83.3	
ID= 1 DT= 5.0 min	Ia (mm)= 7.63	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.59		

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.129 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.950
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.353

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1450)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0145):	12.60	0.129	5.17	15.95	
+ ID2= 2 (0844):	12.80	0.129	5.25	15.64	
=====					
ID = 3 (1450):	25.40	0.259	5.17	15.79	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0843)	Routing time step (min)'= 5.00
IN= 2---> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 /0.0350	Main Channel

RUNOFF COEFFICIENT = 0.344

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1440)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0144):	28.60	0.277	5.33	15.54	
+ ID2= 2 (0843):	25.40	0.257	5.25	15.78	
=====					
ID = 3 (1440):	54.00	0.533	5.33	15.66	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0842)	Routing time step (min)'= 5.00
IN= 2---> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.70	0.0400	
2.35	206.02	0.0400 /0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 /0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 /0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.04	205.23	.149E+01	0.0	0.09	81.67
0.09	205.28	.594E+01	0.0	0.14	51.45
0.13	205.32	.134E+02	0.0	0.18	39.26
0.17	205.36	.238E+02	0.0	0.22	32.41
0.22	205.41	.371E+02	0.0	0.25	27.93
0.26	205.45	.535E+02	0.0	0.28	24.73
0.31	205.50	.728E+02	0.1	0.31	22.32
0.35	205.54	.950E+02	0.1	0.34	20.42
0.39	205.58	.120E+03	0.1	0.37	18.87
0.44	205.63	.149E+03	0.1	0.40	17.59
0.48	205.67	.180E+03	0.2	0.42	16.60
0.52	205.71	.228E+03	0.2	0.34	20.59
0.57	205.76	.308E+03	0.2	0.33	21.41
0.61	205.80	.418E+03	0.3	0.34	20.79
0.66	205.85	.560E+03	0.5	0.36	19.66

Model Without SWM Infrastructure - Output

0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1440)	54.00	0.53	5.33	15.66	0.67	0.36
OUTFLOW: ID= 1 (0842)	54.00	0.53	5.50	15.65	0.67	0.36

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB						
NASHYD (0143)	Area (ha)=	27.70	Curve Number (CN)=	82.9		
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.07				

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW	(cms)=	0.264 (i)
TIME TO PEAK	(hrs)=	5.417
RUNOFF VOLUME	(mm)=	15.544
TOTAL RAINFALL	(mm)=	45.200
RUNOFF COEFFICIENT	=	0.344

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0143):	27.70	0.264	5.42	15.54		
+ ID2= 2 (0842):	54.00	0.527	5.50	15.65		
ID = 3 (1430):	81.70	0.791	5.42	15.62		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0841)						
IN= 2---> OUT= 1	Routing time step (min)='	5.00				

Distance	Elevation	Manning
0.00	209.66	0.0400

RUNOFF VOLUME	(mm)=	15.544
TOTAL RAINFALL	(mm)=	45.200
RUNOFF COEFFICIENT	=	0.344

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0142):	27.10	0.251	5.50	15.54		
+ ID2= 2 (0841):	81.70	0.762	5.83	15.61		
ID = 3 (1420):	108.80	1.010	5.75	15.59		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)						
IN= 2---> OUT= 1	Routing time step (min)='	5.00				

Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350 Main Channel
86.30	208.87	0.0350 Main Channel
89.86	209.20	0.0350 / 0.0300 Main Channel
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.03	208.90	.706E+01	0.0	0.08	110.24
0.07	208.94	.282E+02	0.0	0.13	69.44
0.10	208.97	.636E+02	0.0	0.17	53.00
0.13	209.00	.113E+03	0.0	0.21	43.75
0.17	209.04	.177E+03	0.1	0.24	37.70
0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75
0.37	209.24	.118E+04	0.7	0.34	26.61
0.40	209.27	.196E+04	1.2	0.33	27.88

19.50	209.34	0.0400
37.91	208.66	0.0400
41.73	208.62	0.0400 / 0.0350 Main Channel
43.44	208.24	0.0350 Main Channel
45.75	208.62	0.0350 / 0.0450 Main Channel
54.00	208.79	0.0450 / 0.0400
77.43	209.05	0.0400
128.85	209.70	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	208.30	.216E+02	0.0	0.15	113.45
0.13	208.37	.864E+02	0.0	0.24	71.47
0.19	208.43	.194E+03	0.1	0.31	54.54
0.25	208.49	.345E+03	0.1	0.38	45.02
0.32	208.56	.540E+03	0.2	0.44	38.00
0.38	208.62	.777E+03	0.4	0.49	34.36
0.46	208.70	.152E+04	0.7	0.50	33.99
0.54	208.78	.281E+04	1.4	0.50	33.61
0.62	208.86	.469E+04	2.5	0.53	31.90
0.70	208.94	.734E+04	4.0	0.56	30.28
0.78	209.02	.107E+05	6.3	0.59	28.55
0.86	209.10	.149E+05	9.3	0.63	26.78
0.94	209.18	.198E+05	13.1	0.68	25.09
1.02	209.26	.253E+05	17.9	0.72	23.58
1.10	209.34	.315E+05	23.6	0.76	22.24
1.18	209.42	.386E+05	30.0	0.79	21.42
1.26	209.50	.465E+05	37.7	0.82	20.56
1.34	209.58	.554E+05	46.8	0.86	19.73
1.42	209.66	.652E+05	57.3	0.90	18.94

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1430)	81.70	0.79	5.42	15.62	0.47	0.50
OUTFLOW: ID= 1 (0841)	81.70	0.76	5.83	15.61	0.46	0.50

CALIB						
NASHYD (0142)	Area (ha)=	27.10	Curve Number (CN)=	82.9		
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.22				

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW	(cms)=	0.251 (i)
TIME TO PEAK	(hrs)=	5.500

0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61
0.58	209.45	.865E+04	6.3	0.40	22.94
0.61	209.48	.108E+05	8.1	0.41	22.09
0.65	209.52	.132E+05	10.4	0.43	21.10

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1420)	108.80	1.01	5.75	15.59	0.39	0.33
OUTFLOW: ID= 1 (0840)	108.80	0.98	6.25	15.59	0.39	0.33

CALIB						
NASHYD (0141)	Area (ha)=	8.10	Curve Number (CN)=	83.6		
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.78				

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW	(cms)=	0.083 (i)
TIME TO PEAK	(hrs)=	5.167
RUNOFF VOLUME	(mm)=	16.258
TOTAL RAINFALL	(mm)=	45.200
RUNOFF COEFFICIENT	=	0.360

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1410)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0141):	8.10	0.083	5.17	16.26		
+ ID2= 2 (0840):	108.80	0.982	6.25	15.59		
ID = 3 (1410):	116.90	1.049	6.17	15.63		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB						
NASHYD (0151)	Area (ha)=	24.60	Curve Number (CN)=	82.8		
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.00				

Model Without SWM Infrastructure - Output

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.236 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 15.441
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0153)	Area (ha)= 33.30	Curve Number (CN)= 82.6	
ID= 1 DT= 5.0 min	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.08		

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 0.312 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 15.243
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.337

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.125E+02	0.0	0.21	40.70
0.24	212.03	.501E+02	0.0	0.33	25.64

0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48
0.85	212.64	.277E+04	2.1	0.39	21.89
0.97	212.76	.507E+04	4.5	0.45	18.78
1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

<---- hydrograph ---->						<-pipe / channel-->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)	
INFLOW : ID= 2 (0153)	33.30	0.31	5.42	15.24	0.56	0.57	
OUTFLOW: ID= 1 (0834)	33.30	0.31	5.58	15.24	0.56	0.57	

CALIB			
NASHYD (0152)	Area (ha)= 16.20	Curve Number (CN)= 82.6	
ID= 1 DT= 5.0 min	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.93		

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.155 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.243
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.337

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1520)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0152):	16.20	0.155	5.25	15.24
+ ID2= 2 (0834):	33.30	0.309	5.58	15.24

ID = 3 (1520): 49.50 0.463 5.42 15.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0833)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.232E+03	0.1	0.19	65.23
0.14	208.16	.652E+03	0.3	0.30	41.42
0.22	208.24	.122E+04	0.6	0.38	32.47
0.29	208.31	.193E+04	1.2	0.45	27.40
0.36	208.38	.279E+04	1.9	0.51	24.03
0.44	208.46	.389E+04	3.2	0.60	20.41
0.52	208.54	.516E+04	4.8	0.69	17.88
0.60	208.62	.664E+04	6.9	0.77	16.07
0.68	208.70	.833E+04	9.4	0.83	14.80
0.76	208.78	.102E+05	12.3	0.89	13.84
0.84	208.86	.123E+05	15.7	0.94	13.07
0.92	208.94	.153E+05	19.4	0.94	13.11
0.99	209.01	.189E+05	24.5	0.96	12.89
1.07	209.09	.229E+05	30.4	0.98	12.57
1.15	209.17	.273E+05	37.1	1.01	12.25
1.23	209.25	.320E+05	44.7	1.03	11.94
1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

<---- hydrograph ---->						<-pipe / channel-->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)	
INFLOW : ID= 2 (1520)	49.50	0.46	5.42	15.24	0.18	0.34	
OUTFLOW: ID= 1 (0833)	49.50	0.45	5.83	15.24	0.18	0.33	

ADD HYD (1510)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0151):	24.60	0.236	5.33	15.44
+ ID2= 2 (0833):	49.50	0.446	5.83	15.24
ID = 3 (1510):	74.10	0.674	5.67	15.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0832)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 / 0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 / 0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 / 0.0400	
132.78	206.84	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	206.01	.158E+02	0.0	0.16	56.30
0.12	206.07	.633E+02	0.0	0.25	35.47
0.18	206.13	.142E+03	0.1	0.33	27.07
0.26	206.21	.324E+03	0.3	0.42	21.31
0.34	206.29	.720E+03	0.6	0.44	20.00
0.42	206.37	.162E+04	1.4	0.45	19.57
0.50	206.45	.272E+04	2.6	0.52	17.17
0.58	206.53	.404E+04	4.2	0.56	15.86
0.66	206.61	.584E+04	6.5	0.59	15.05
0.74	206.69	.820E+04	9.6	0.63	14.19
0.83	206.78	.111E+05	13.9	0.67	13.34
0.91	206.86	.143E+05	19.9	0.74	12.00
0.99	206.94	.178E+05	27.1	0.81	10.94
1.07	207.02	.215E+05	35.3	0.87	10.16
1.15	207.10	.256E+05	44.5	0.93	9.59
1.23	207.18	.301E+05	55.1	0.98	9.09
1.31	207.26	.349E+05	67.2	1.03	8.65

Model Without SWM Infrastructure - Output

1.39 207.34 .400E+05 80.7 1.07 8.26
1.47 207.42 .455E+05 95.8 1.12 7.92

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1510) 74.10 0.67 5.67 15.30 0.35 0.44
OUTFLOW: ID= 1 (0832) 74.10 0.66 5.92 15.30 0.35 0.44

CALIB
NASHYD (0150)
ID= 1 DT= 5.0 min
Area (ha)= 6.60 Curve Number (CN)= 83.7
Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.96

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.067 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 16.366
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.362

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1500)
1 + 2 = 3
ID1= 1 (0150): 6.60 0.067 5.25 16.37
+ ID2= 2 (0832): 74.10 0.664 5.92 15.30
=====

ID = 3 (1500): 80.70 0.726 5.83 15.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1401)
1 + 2 = 3
ID1= 1 (1410): 116.90 1.049 6.17 15.63
+ ID2= 2 (1500): 80.70 0.726 5.83 15.39
=====

ID = 3 (1401): 197.60 1.770 6.08 15.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0830)
IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 207.71 0.0400
58.83 206.71 0.0400
66.88 206.59 0.0400 /0.0350 Main Channel
72.32 206.34 0.0350 Main Channel
77.68 206.55 0.0350 /0.0800 Main Channel
82.85 206.54 0.0800
90.20 206.02 0.0800
94.03 206.48 0.0800
99.83 206.40 0.0800 /0.0400
114.32 206.50 0.0400
136.07 206.86 0.0400
174.41 207.56 0.0400

TRAVEL TIME TABLE
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.08 206.10 .561E+02 0.0 0.05 276.21
0.15 206.17 .224E+03 0.0 0.08 174.00
0.23 206.25 .505E+03 0.1 0.11 132.79
0.30 206.32 .898E+03 0.1 0.13 109.61
0.38 206.40 .147E+04 0.3 0.15 96.03
0.45 206.47 .291E+04 0.5 0.14 104.34
0.53 206.55 .555E+04 1.1 0.17 85.95
0.61 206.63 .948E+04 2.5 0.23 62.05
0.70 206.72 .142E+05 4.7 0.29 50.17
0.78 206.80 .196E+05 7.6 0.34 42.88
0.87 206.89 .258E+05 11.4 0.38 37.80
0.95 206.97 .327E+05 16.0 0.43 33.99
1.04 207.06 .403E+05 21.6 0.47 31.05
1.12 207.14 .485E+05 28.2 0.51 28.69
1.20 207.22 .575E+05 35.9 0.54 26.74
1.29 207.31 .672E+05 44.6 0.58 25.11
1.37 207.39 .776E+05 54.6 0.61 23.71
1.46 207.48 .887E+05 65.7 0.65 22.49
1.54 207.56 .101E+06 78.2 0.68 21.43

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1401) 197.60 1.77 6.08 15.53 0.57 0.19
OUTFLOW: ID= 1 (0830) 197.60 1.54 6.83 15.52 0.56 0.18

CALIB
NASHYD (0140)
ID= 1 DT= 5.0 min
Area (ha)= 18.30 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.34

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.172 (i)
TIME TO PEAK (hrs)= 5.583
RUNOFF VOLUME (mm)= 16.258
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.360

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400)
1 + 2 = 3
ID1= 1 (0140): 18.30 0.172 5.58 16.26
+ ID2= 2 (0830): 197.60 1.542 6.83 15.52
=====

ID = 3 (1400): 215.90 1.687 6.75 15.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0131)
ID= 1 DT= 5.0 min
Area (ha)= 28.70 Curve Number (CN)= 82.1
Ia (mm)= 8.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.11

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 0.260 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 14.755
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.326

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0011)
Area (ha)= 132.00

ID= 1 DT= 5.0 min | Total Imp(%)= 57.10 Dir. Conn.(%)= 45.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 75.37 56.63
Dep. Storage (mm)= 1.00 8.95
Average Slope (%)= 1.00 1.00
Length (m)= 938.08 40.00
Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 11.75 4.21
over (min) 25.00 55.00
Storage Coeff. (min)= 23.05 (ii) 53.89 (ii)
Unit Hyd. Tpeak (min)= 25.00 55.00
Unit Hyd. peak (cms)= 0.05 0.02
TOTALS
PEAK FLOW (cms)= 1.82 0.60 1.942 (iii)
TIME TO PEAK (hrs)= 2.17 5.33 2.33
RUNOFF VOLUME (mm)= 44.20 13.50 27.32
TOTAL RAINFALL (mm)= 45.20 45.20 45.20
RUNOFF COEFFICIENT = 0.98 0.30 0.60

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0012)
ID= 1 DT= 5.0 min
Area (ha)= 17.50
Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 14.00 3.50
Dep. Storage (mm)= 1.00 8.94
Average Slope (%)= 1.00 1.00
Length (m)= 341.57 40.00
Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 11.75 5.65
over (min) 15.00 40.00
Storage Coeff. (min)= 12.57 (ii) 39.99 (ii)
Unit Hyd. Tpeak (min)= 15.00 40.00
Unit Hyd. peak (cms)= 0.08 0.03
TOTALS
PEAK FLOW (cms)= 0.40 0.05 0.412 (iii)
TIME TO PEAK (hrs)= 2.08 5.17 2.08
RUNOFF VOLUME (mm)= 44.20 15.59 35.62
TOTAL RAINFALL (mm)= 45.20 45.20 45.20

Model Without SWM Infrastructure - Output

RUNOFF COEFFICIENT = 0.98 0.35 0.79

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112)				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	132.00	1.942	2.33	27.32
+ ID2= 2 (0012):	17.50	0.412	2.08	35.62
=====				
ID = 3 (1112):	149.50	2.334	2.25	28.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0010)			
ID= 1 DT= 5.0 min	Area (ha)=	12.90	
	Total Imp(%)=	80.00	Dir. Conn.(%)= 70.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	10.32	2.58
Dep. Storage (mm)=	1.00	8.94
Average Slope (%)=	1.00	1.00
Length (m)=	293.26	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.(mm/hr)=	11.75	5.65	
over (min)	10.00	40.00	
Storage Coeff. (min)=	11.47 (ii)	38.89 (ii)	
Unit Hyd. Tpeak (min)=	10.00	40.00	
Unit Hyd. peak (cms)=	0.10	0.03	
TOTALS			
PEAK FLOW (cms)=	0.29	0.04	0.305 (iii)
TIME TO PEAK (hrs)=	2.08	5.17	2.08
RUNOFF VOLUME (mm)=	44.20	15.59	35.62
TOTAL RAINFALL (mm)=	45.20	45.20	45.20
RUNOFF COEFFICIENT =	0.98	0.35	0.79

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311)				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	12.90	0.305	2.08	35.62
+ ID2= 2 (1112):	149.50	2.334	2.25	28.29
=====				
ID = 3 (1311):	162.40	2.623	2.17	28.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822)				
IN= 2----> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	207.71	0.0400		
58.83	206.71	0.0400		
66.88	206.59	0.0400 / 0.0350	Main Channel	
72.32	206.34	0.0350	Main Channel	
77.68	206.55	0.0350 / 0.0800	Main Channel	
82.85	206.54	0.0800		
90.20	206.02	0.0800		
94.03	206.48	0.0800		
99.83	206.40	0.0800 / 0.0400		
114.32	206.50	0.0400		
136.07	206.86	0.0400		
174.41	207.56	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.337E+02	0.0	0.07	124.18
0.15	206.17	.135E+03	0.0	0.11	78.23
0.23	206.25	.303E+03	0.1	0.15	59.70
0.30	206.32	.539E+03	0.2	0.18	49.28
0.38	206.40	.885E+03	0.3	0.20	43.17
0.45	206.47	.175E+04	0.6	0.19	46.91
0.53	206.55	.333E+04	1.4	0.23	38.64
0.61	206.63	.569E+04	3.4	0.31	27.90
0.70	206.72	.851E+04	6.3	0.39	22.56
0.78	206.80	.118E+05	10.2	0.45	19.28
0.87	206.89	.155E+05	15.2	0.51	17.00
0.95	206.97	.196E+05	21.4	0.57	15.28
1.04	207.06	.242E+05	28.9	0.63	13.96
1.12	207.14	.292E+05	37.7	0.68	12.90

1.20	207.22	.346E+05	47.9	0.73	12.02
1.29	207.31	.404E+05	59.6	0.77	11.29
1.37	207.39	.466E+05	72.9	0.82	10.66
1.46	207.48	.533E+05	87.8	0.86	10.11
1.54	207.56	.604E+05	104.5	0.91	9.63

<---- hydrograph ---->				
AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (1311)	162.40	2.62	2.17	28.87
OUTFLOW: ID= 1 (0822)	162.40	2.46	3.17	28.86

ADD HYD (1310)				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0131):	28.70	0.260	5.42	14.76
+ ID2= 2 (0822):	162.40	2.458	3.17	28.86
=====				
ID = 3 (1310):	191.10	2.596	3.25	26.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0821)			
IN= 2----> OUT= 1			
Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	207.71	0.0400		
58.83	206.71	0.0400		
66.88	206.59	0.0400 / 0.0350	Main Channel	
72.32	206.34	0.0350	Main Channel	
77.68	206.55	0.0350 / 0.0800	Main Channel	
82.85	206.54	0.0800		
90.20	206.02	0.0800		
94.03	206.48	0.0800		
99.83	206.40	0.0800 / 0.0400		
114.32	206.50	0.0400		
136.07	206.86	0.0400		
174.41	207.56	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50

CALIB			
NASHYD (0130)			
ID= 1 DT= 5.0 min	Area (ha)=	26.70	Curve Number (CN)= 81.7
	Ia (mm)=	8.53	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.32	

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)=	0.226 (i)
TIME TO PEAK (hrs)=	5.667
RUNOFF VOLUME (mm)=	14.372
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT =	0.318

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1300)				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0130):	26.70	0.226	5.67	14.37
+ ID2= 2 (0821):	191.10	2.372	5.17	26.74

Model Without SWM Infrastructure - Output

=====

ID = 3 (1300): 217.80 2.590 5.17 25.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1202)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1300):	217.80	2.590	5.17	25.22
+ ID2= 2 (1400):	215.90	1.687	6.75	15.59
=====				
ID = 3 (1202):	433.70	3.955	5.92	20.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0820)	Routing time step (min)'
IN= 2---> OUT= 1	5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.54	0.0450		
43.13	205.35	0.0450		
67.41	205.27	0.0450		
86.35	205.38	0.0450 / 0.0350	Main Channel	
90.47	204.70	0.0350	Main Channel	
93.03	205.16	0.0350 / 0.0400	Main Channel	
101.99	205.21	0.0400		
151.82	204.97	0.0400		
252.14	206.45	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.681E+01	0.0	0.08	28.42
0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80
0.37	205.07	.292E+03	0.3	0.12	18.72
0.46	205.16	.859E+03	0.9	0.14	16.44
0.55	205.25	.182E+04	2.3	0.17	13.44
0.64	205.34	.311E+04	4.7	0.21	11.04
0.74	205.44	.487E+04	8.4	0.24	9.67
0.83	205.53	.676E+04	13.3	0.27	8.48
0.92	205.62	.877E+04	19.3	0.30	7.58
1.01	205.71	.109E+05	26.4	0.33	6.90
1.10	205.80	.132E+05	34.5	0.36	6.36
1.20	205.90	.155E+05	43.8	0.39	5.92
1.29	205.99	.181E+05	54.1	0.42	5.56
1.38	206.08	.207E+05	65.6	0.44	5.25

0.64	205.34	.105E+05	4.2	0.19	41.45
0.74	205.44	.163E+05	7.5	0.21	36.28
0.83	205.53	.227E+05	11.9	0.24	31.82
0.92	205.62	.294E+05	17.2	0.27	28.46
1.01	205.71	.366E+05	23.6	0.30	25.89
1.10	205.80	.442E+05	30.9	0.32	23.87
1.20	205.90	.522E+05	39.1	0.35	22.23
1.29	205.99	.606E+05	48.4	0.37	20.87
1.38	206.08	.694E+05	58.7	0.39	19.72
1.47	206.17	.786E+05	70.0	0.41	18.74
1.57	206.27	.883E+05	82.3	0.43	17.88
1.66	206.36	.983E+05	95.7	0.45	17.12
1.75	206.45	.109E+06	110.2	0.47	16.45

<---- hydrograph ---->					<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (1201)	530.50	4.94	5.83	19.94	0.66	
OUTFLOW: ID= 1 (0810)	530.50	4.70	6.25	19.94	0.66	

CALIB	Area	(ha)=	9.00	Curve Number (CN)=	84.0
NASHYD (0120)	Ia	(mm)=	7.25	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=		1.16		

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.090 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 16.682
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.369

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1200)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0120):	9.00	0.090	5.42	16.68
+ ID2= 2 (0810):	530.50	4.701	6.25	19.94
=====				
ID = 3 (1200):	539.50	4.783	6.25	19.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

<---- hydrograph ---->					<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (1202)	433.70	3.95	5.92	20.43	0.62	
OUTFLOW: ID= 1 (0820)	433.70	3.94	5.83	20.43	0.62	

ADD HYD (1201)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1210):	96.80	1.038	5.42	17.76
+ ID2= 2 (0820):	433.70	3.935	5.83	20.43
=====				
ID = 3 (1201):	530.50	4.941	5.83	19.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0810)	Routing time step (min)'
IN= 2---> OUT= 1	5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.54	0.0450		
43.13	205.35	0.0450		
67.41	205.27	0.0450		
86.35	205.38	0.0450 / 0.0350	Main Channel	
90.47	204.70	0.0350	Main Channel	
93.03	205.16	0.0350 / 0.0400	Main Channel	
101.99	205.21	0.0400		
151.82	204.97	0.0400		
252.14	206.45	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.229E+02	0.0	0.07	106.67
0.18	204.88	.915E+02	0.0	0.12	67.20
0.28	204.98	.208E+03	0.1	0.15	51.82
0.37	205.07	.981E+03	0.2	0.11	70.28
0.46	205.16	.288E+04	0.8	0.13	61.71
0.55	205.25	.610E+04	2.0	0.15	50.43

CALIB	Area	(ha)=	13.50	Curve Number (CN)=	82.5
NASHYD (0113)	Ia	(mm)=	8.08	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=		0.87		

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.130 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.142
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.335

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0802)	Routing time step (min)'
IN= 2---> OUT= 1	5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	208.29	0.0300		
3.73	208.14	0.0300 / 0.0350	Main Channel	
5.30	207.52	0.0350	Main Channel	
6.93	208.18	0.0350 / 0.0300	Main Channel	
8.96	208.27	0.0300		
14.71	208.30	0.0300		
23.86	208.59	0.0300		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.448E+01	0.0	0.12	164.32
0.08	207.60	.179E+02	0.0	0.19	103.51
0.12	207.64	.403E+02	0.0	0.25	79.00
0.16	207.68	.716E+02	0.0	0.30	65.21
0.19	207.71	.112E+03	0.0	0.35	56.20
0.23	207.75	.161E+03	0.1	0.40	49.76
0.27	207.79	.219E+03	0.1	0.44	44.90
0.31	207.83	.287E+03	0.1	0.48	41.08
0.35	207.87	.363E+03	0.2	0.52	37.98
0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88

Model Without SWM Infrastructure - Output

0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79
0.77	208.29	.225E+04	1.6	0.82	24.20

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (	0113)	13.50	0.13	5.25	15.14	0.32	0.50
OUTFLOW: ID= 1 (	0802)	13.50	0.12	5.58	15.07	0.32	0.49

CALIB					
NASHYD (0112)	Area (ha)=	30.50	Curve Number (CN)=	82.8	
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.60			

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 0.260 (i)
TIME TO PEAK (hrs)= 6.000
RUNOFF VOLUME (mm)= 15.441
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0111)	Area (ha)=	45.50	Curve Number (CN)=	82.3	
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.33			

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 0.399 (i)
TIME TO PEAK (hrs)= 5.667
RUNOFF VOLUME (mm)= 14.947
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	

0.94	209.18	.949E+04	8.6	0.44	18.42
1.02	209.26	.122E+05	11.7	0.47	17.31
1.10	209.34	.152E+05	15.5	0.50	16.32
1.18	209.42	.185E+05	19.7	0.52	15.72
1.26	209.50	.224E+05	24.7	0.54	15.09
1.34	209.58	.266E+05	30.6	0.56	14.48
1.42	209.66	.313E+05	37.5	0.59	13.90

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (	1101)	89.50	0.78	5.75	15.13	0.52	0.33
OUTFLOW: ID= 1 (	0801)	89.50	0.76	6.17	15.13	0.51	0.33

CALIB					
NASHYD (0110)	Area (ha)=	11.90	Curve Number (CN)=	83.4	
ID= 1 DT= 5.0 min	Ia (mm)=	7.58	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.68			

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.122 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 16.050
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.355

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
ID1= 1 (0110):	11.90	0.122	5.17	16.05	
+ ID2= 2 (0801):	89.50	0.762	6.17	15.13	
ID = 3 (1100):	101.40	0.860	6.00	15.24	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0111):	45.50	0.399	5.67	14.95
+ ID2= 2 (0112):	30.50	0.260	6.00	15.44
ID = 3 (1101):	76.00	0.656	5.75	15.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)					
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 3 (1101):	76.00	0.656	5.75	15.15	
+ ID2= 2 (0802):	13.50	0.124	5.58	15.07	
ID = 1 (1101):	89.50	0.780	5.75	15.13	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801)				
IN= 2----> OUT= 1	Routing time step (min)=	5.00		

Distance	Elevation	Manning
0.00	209.66	0.0400
19.50	209.34	0.0400
37.91	208.66	0.0400
41.73	208.62	0.0400 / 0.0350
43.44	208.24	0.0350
45.75	208.62	0.0350 / 0.0450
54.00	208.79	0.0450 / 0.0400
77.43	209.05	0.0400
128.85	209.70	0.0400

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.104E+02	0.0	0.10	83.26
0.13	208.37	.415E+02	0.0	0.16	52.45
0.19	208.43	.934E+02	0.0	0.20	40.03
0.25	208.49	.166E+03	0.1	0.25	33.04
0.32	208.56	.259E+03	0.2	0.29	28.47
0.38	208.62	.373E+03	0.2	0.32	25.22
0.46	208.70	.729E+03	0.5	0.33	24.94
0.54	208.78	.135E+04	0.9	0.33	24.67
0.62	208.86	.225E+04	1.6	0.35	23.41
0.70	208.94	.352E+04	2.6	0.37	22.23
0.78	209.02	.516E+04	4.1	0.39	20.96
0.86	209.10	.716E+04	6.1	0.41	19.65

ID1= 1 (1100):	101.40	0.860	6.00	15.24
+ ID2= 2 (1200):	539.50	4.783	6.25	19.88
ID = 3 (1001):	640.90	5.638	6.17	19.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)				
IN= 2----> OUT= 1	Routing time step (min)=	5.00		

Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 / 0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 / 0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.255E+02	0.0	0.16	54.50
0.18	204.88	.102E+03	0.0	0.25	34.33
0.28	204.98	.232E+03	0.1	0.33	26.47
0.37	205.07	.109E+04	0.5	0.24	35.91
0.46	205.16	.321E+04	1.7	0.27	31.53
0.55	205.25	.680E+04	4.4	0.33	25.77
0.64	205.34	.116E+05	9.2	0.41	21.18
0.74	205.44	.182E+05	16.4	0.47	18.54
0.83	205.53	.253E+05	25.9	0.53	16.26
0.92	205.62	.328E+05	37.6	0.59	14.54
1.01	205.71	.408E+05	51.4	0.65	13.23
1.10	205.80	.492E+05	67.3	0.71	12.19
1.20	205.90	.581E+05	85.3	0.76	11.36
1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75
1.75	206.45	.121E+06	240.2	1.03	8.41

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (	1001)	5.64	6.17	19.15	0.58	0.35
OUTFLOW: ID= 1 (	0800)	5.56	6.50	19.15	0.57	0.35

Model Without SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0100)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 54.70 Curve Number (CN)= 83.2
Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.23
```

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 0.515 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 15.845
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.351

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1000)|
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0100): 54.70 0.515 5.50 15.84
+ ID2= 2 ( 0800): 640.90 5.561 6.50 19.15
=====
ID = 3 ( 1000): 695.60 6.018 6.42 18.89
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0190)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 12.30 Curve Number (CN)= 83.9
Ia (mm)= 7.31 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.83
```

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.128 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 16.572
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.367

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0191)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 20.10 Curve Number (CN)= 82.0
Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.94
```

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.186 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 14.657
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.324

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0192)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 28.30 Curve Number (CN)= 80.3
Ia (mm)= 6.23 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.06
```

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 0.255 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 14.994
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.332

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1901)|
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0191): 20.10 0.186 5.33 14.66
+ ID2= 2 ( 0192): 28.30 0.255 5.33 14.99
=====
ID = 3 ( 1901): 48.40 0.442 5.33 14.85
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0899)|
| IN= 2---> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
```

0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 / 0.0350 Main Channel
70.77	208.05	0.0350 Main Channel
74.98	208.02	0.0350 Main Channel
83.40	208.38	0.0350 / 0.0400 Main Channel
88.06	208.63	0.0400
94.94	209.13	0.0400
105.88	209.54	0.0400

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .349E+02 0.1 0.18 10.46
0.14 208.16 .981E+02 0.2 0.28 6.64
0.22 208.24 .183E+03 0.6 0.36 5.21
0.29 208.31 .291E+03 1.1 0.42 4.40
0.36 208.38 .420E+03 1.8 0.48 3.85
0.44 208.46 .586E+03 3.0 0.57 3.27
0.52 208.54 .777E+03 4.5 0.65 2.87
0.60 208.62 .999E+03 6.5 0.72 2.58
0.68 208.70 .125E+04 8.8 0.78 2.37
0.76 208.78 .154E+04 11.5 0.84 2.22
0.84 208.86 .185E+04 14.7 0.89 2.10
0.92 208.94 .230E+04 18.2 0.88 2.10
0.99 209.01 .285E+04 23.0 0.90 2.07
1.07 209.09 .345E+04 28.5 0.92 2.02
1.15 209.17 .411E+04 34.8 0.94 1.96
1.23 209.25 .482E+04 42.0 0.97 1.91
1.31 209.33 .559E+04 50.0 1.00 1.86
1.39 209.41 .643E+04 59.1 1.02 1.81
1.47 209.49 .732E+04 69.1 1.05 1.76
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1901)	48.40	0.44	5.33	14.85	0.19	0.32
OUTFLOW: ID= 1 (0899)	48.40	0.44	5.42	14.85	0.18	0.32

```
-----
| ADD HYD ( 1900)|
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0190): 12.30 0.128 5.25 16.57
+ ID2= 2 ( 0899): 48.40 0.441 5.42 14.85
=====
```

ID = 3 (1900): 60.70 0.568 5.33 15.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0500)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 7.60 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.48
```

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.077 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.440
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0510)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 12.70 Curve Number (CN)= 81.7
Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.119 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 14.372
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.318

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0520)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 17.30 Curve Number (CN)= 82.5
Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.168 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.142
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.335

Model Without SWM Infrastructure - Output

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 5000) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0500): 7.60 0.077 5.17 15.44
+ ID2= 2 ( 0510): 12.70 0.119 5.17 14.37
=====
ID = 3 ( 5000): 20.30 0.196 5.17 14.77
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 5000) |
| 3 + 2 = 1 |
=====
ID1= 3 ( 5000): 20.30 0.196 5.17 14.77
+ ID2= 2 ( 0520): 17.30 0.168 5.25 15.14
=====
ID = 1 ( 5000): 37.60 0.364 5.17 14.94
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0600) | Area (ha)= 2.50 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.025 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 15.140
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.335

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
V V I SSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U AAAAA L
```

```
V V I SS U U A A L
VV I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y Y M M O O
000 T T H H Y M M 000
```

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voain.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\VH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\8a
fe9a4f-b08d-46df-9ffa-4715969c81da\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\VH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\8a
fe9a4f-b08d-46df-9ffa-4715969c81da\sce

DATE: 10-17-2025

TIME: 02:15:13

USER:

COMMENTS: _____

```
*****
** SIMULATION : 3 **
*****
```

```
| READ STORM | Filename: C:\Users\wraymond\AppData
| | ata\Local\Temp\
| | 35eb7828-247c-431e-8f8f-00c8304cf789\3bbce17f
| Ptotal= 63.40 mm | Comments: 5yr12hrAES
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.08	9.51	6.17	1.90	9.25	0.00
0.08	8.24	3.17	9.51	6.25	1.90	9.33	0.00

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0180) | Area (ha)= 6.80 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.85
```

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.114 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.891
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0170) | Area (ha)= 5.80 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.098 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.891
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0160) | Area (ha)= 16.30 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.15
```

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.274 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 29.006
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.458

0.17	8.24	3.25	9.51	6.33	1.90	9.42	0.00
0.25	8.24	3.33	9.51	6.42	1.90	9.50	0.00
0.33	8.24	3.42	9.51	6.50	1.90	9.58	0.00
0.42	8.24	3.50	9.51	6.58	1.90	9.67	0.00
0.50	8.24	3.58	9.51	6.67	1.90	9.75	0.00
0.58	8.24	3.67	9.51	6.75	1.90	9.83	0.00
0.67	8.24	3.75	9.51	6.83	1.90	9.92	0.00
0.75	8.24	3.83	9.51	6.92	1.90	10.00	0.00
0.83	8.24	3.92	9.51	7.00	1.90	10.08	0.00
0.92	8.24	4.00	9.51	7.08	0.63	10.17	0.00
1.00	8.24	4.08	8.88	7.17	0.63	10.25	0.00
1.08	16.48	4.17	8.88	7.25	0.63	10.33	0.00
1.17	16.48	4.25	8.88	7.33	0.63	10.42	0.00
1.25	16.48	4.33	8.88	7.42	0.63	10.50	0.00
1.33	16.48	4.42	8.88	7.50	0.63	10.58	0.00
1.42	16.48	4.50	8.88	7.58	0.63	10.67	0.00
1.50	16.48	4.58	8.88	7.67	0.63	10.75	0.00
1.58	16.48	4.67	8.88	7.75	0.63	10.83	0.00
1.67	16.48	4.75	8.88	7.83	0.63	10.92	0.00
1.75	16.48	4.83	8.88	7.92	0.63	11.00	0.00
1.83	16.48	4.92	8.88	8.00	0.63	11.08	0.00
1.92	16.48	5.00	8.88	8.08	0.00	11.17	0.00
2.00	16.48	5.08	5.07	8.17	0.00	11.25	0.00
2.08	12.68	5.17	5.07	8.25	0.00	11.33	0.00
2.17	12.68	5.25	5.07	8.33	0.00	11.42	0.00
2.25	12.68	5.33	5.07	8.42	0.00	11.50	0.00
2.33	12.68	5.42	5.07	8.50	0.00	11.58	0.00
2.42	12.68	5.50	5.07	8.58	0.00	11.67	0.00
2.50	12.68	5.58	5.07	8.67	0.00	11.75	0.00
2.58	12.68	5.67	5.07	8.75	0.00	11.83	0.00
2.67	12.68	5.75	5.07	8.83	0.00	11.92	0.00
2.75	12.68	5.83	5.07	8.92	0.00	12.00	0.00
2.83	12.68	5.92	5.07	9.00	0.00		
2.92	12.68	6.00	5.07	9.08	0.00		
3.00	12.68	6.08	1.90	9.17	0.00		

```
| CALIB
| NASHYD ( 0185) | Area (ha)= 2.00 Curve Number (CN)= 79.5
| ID= 1 DT= 5.0 min | Ia (mm)= 6.54 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.36
```

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.034 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 26.418
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.417

Model Without SWM Infrastructure - Output

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0330)	Area (ha)= 22.30	Curve Number (CN)= 82.2	
ID= 1 DT= 5.0 min	Ia (mm)= 8.25	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.60		

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.374 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 27.611
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.436

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0270)	Area (ha)= 2.50	Curve Number (CN)= 81.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.95	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.24		

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.047 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 28.176
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.444

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0260)	Area (ha)= 7.00	Curve Number (CN)= 83.7	
ID= 1 DT= 5.0 min	Ia (mm)= 7.41	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.43		

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.133 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 29.724
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.469

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0423)	Area (ha)= 23.90	Curve Number (CN)= 84.1	
ID= 1 DT= 5.0 min	Ia (mm)= 7.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.80		

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 0.428 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 30.305
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.478

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0422)	Area (ha)= 6.90	Curve Number (CN)= 83.4	
ID= 1 DT= 5.0 min	Ia (mm)= 7.58	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.61		

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.123 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 29.290
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.462

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0896)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0250)	Area (ha)= 10.70	Curve Number (CN)= 81.9	
ID= 1 DT= 5.0 min	Ia (mm)= 8.42	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.54		

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.179 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 27.203
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.429

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0320)	Area (ha)= 11.70	Curve Number (CN)= 83.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.45		

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.214 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 28.721
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.453

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0420)	Area (ha)= 25.80	Curve Number (CN)= 83.6	
ID= 1 DT= 5.0 min	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.12		

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 0.443 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 29.578
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.467

62.96 204.91 0.0400
102.92 205.20 0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03
0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

<---- hydrograph ---->					
	AREA	OPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (0422)	6.90	0.12	3.58	29.29	0.27 0.56
OUTFLOW: ID= 1 (0896)	6.90	0.12	3.67	29.29	0.27 0.56

ADD HYD (4202)				
1 + 2 = 3				
	AREA	OPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0423):	23.90	0.428	4.42	30.30
+ ID2= 2 (0896):	6.90	0.123	3.67	29.29
=====				
ID = 3 (4202):	30.80	0.549	4.33	30.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0895)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

Model Without SWM Infrastructure - Output

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          214.06      0.0500
6.27          213.95      0.0500
20.38         214.11      0.0500
25.18         213.97      0.0500 / 0.0350 Main Channel
28.59         211.79      0.0350 Main Channel
32.89         214.16      0.0350 / 0.0500 Main Channel
42.61         212.54      0.0500
59.11         212.41      0.0500
84.10         212.83      0.0500
100.76        213.78      0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)        (m)        (cu.m.)      (cms)          (m/s)         (min)
0.12       211.91      .170E+01      0.0            0.28          4.09
0.24       212.03      .679E+01      0.0            0.44          2.58
0.36       212.15      .153E+02      0.1            0.58          1.97
0.48       212.27      .272E+02      0.3            0.70          1.62
0.61       212.40      .424E+02      0.5            0.82          1.40
0.73       212.52      .134E+03      1.0            0.53          2.16
0.85       212.64      .375E+03      2.8            0.52          2.20
0.97       212.76      .687E+03      6.1            0.60          1.89
1.09       212.88      .107E+04      11.0           0.71          1.61
1.21       213.00      .148E+04      17.8           0.83          1.38
1.33       213.12      .192E+04      26.1           0.93          1.22
1.45       213.24      .238E+04      35.9           1.03          1.11
1.57       213.36      .288E+04      47.3           1.13          1.01
1.70       213.49      .340E+04      60.1           1.21          0.94
1.82       213.61      .395E+04      74.5           1.29          0.88
1.94       213.73      .452E+04      90.5           1.37          0.83
2.06       213.85      .512E+04      109.2          1.46          0.78
2.18       213.97      .573E+04      130.3          1.56          0.73
2.37       214.16      .694E+04      168.2          1.66          0.69

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4202) 30.80 0.55 4.33 30.08 0.62 0.78
OUTFLOW: ID= 1 ( 0895) 30.80 0.55 4.42 30.08 0.62 0.78
```

```
-----
| CALIB |
| NASHYD ( 0421) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 10.40 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.37
```

```
Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)= 0.192 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 28.439
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.449
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0883) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.00      0.0400
33.24         205.47      0.0400
44.39         205.59      0.0400
48.71         205.45      0.0400 / 0.0350 Main Channel
51.02         204.50      0.0350 Main Channel
54.33         205.44      0.0350 / 0.0400 Main Channel
55.90         204.97      0.0400
62.96         204.91      0.0400
102.92        205.20      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)        (m)        (cu.m.)      (cms)          (m/s)         (min)
0.04       204.54      .344E+01      0.0            0.19          78.41
0.07       204.57      .137E+02      0.0            0.30          49.40
0.11       204.61      .309E+02      0.0            0.39          37.70
0.14       204.64      .550E+02      0.0            0.47          31.12
0.18       204.68      .859E+02      0.1            0.55          26.82
0.22       204.72      .124E+03      0.1            0.62          23.75
0.25       204.75      .168E+03      0.1            0.69          21.43
0.29       204.79      .220E+03      0.2            0.75          19.60
0.33       204.83      .278E+03      0.3            0.81          18.12
0.36       204.86      .344E+03      0.3            0.87          16.89
0.40       204.90      .416E+03      0.4            0.93          15.85
0.43       204.93      .559E+03      0.6            0.89          16.61
0.47       204.97      .986E+03      0.8            0.71          20.75
0.51       205.01      .165E+04      1.2            0.65          22.49
0.54       205.04      .248E+04      1.9            0.66          22.28
0.58       205.08      .349E+04      2.7            0.69          21.35
0.61       205.11      .466E+04      3.8            0.73          20.23
0.65       205.15      .600E+04      5.2            0.77          19.10
0.69       205.19      .751E+04      6.9            0.82          18.05
```

<---- hydrograph ----> <-pipe / channel->

```
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 0421) 10.40 0.19 3.25 28.44 0.29 0.76
OUTFLOW: ID= 1 ( 0883) 10.40 0.19 3.42 28.40 0.29 0.75
```

```
-----
| ADD HYD ( 4201) |
| 1 + 2 = 3 |
|-----|
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0883): 10.40 0.186 3.42 28.40
+ ID2= 2 ( 0895): 30.80 0.549 4.42 30.08
=====
ID = 3 ( 4201): 41.20 0.727 5.17 29.65
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0882) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.49      0.0400
35.71         208.88      0.0400
53.04         208.89      0.0400
64.12         208.50      0.0400 / 0.0350 Main Channel
70.77         208.05      0.0350 Main Channel
74.98         208.02      0.0350 Main Channel
83.40         208.38      0.0350 / 0.0400 Main Channel
88.06         208.63      0.0400
94.94         209.13      0.0400
105.88        209.54      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)        (m)        (cu.m.)      (cms)          (m/s)         (min)
0.07       208.09      .971E+02      0.0            0.09          55.71
0.14       208.16      .273E+03      0.1            0.15          35.37
0.22       208.24      .510E+03      0.3            0.19          27.73
0.29       208.31      .808E+03      0.6            0.22          23.40
0.36       208.38      .117E+04      0.9            0.25          20.52
0.44       208.46      .163E+04      1.6            0.30          17.43
0.52       208.54      .216E+04      2.4            0.34          15.27
0.60       208.62      .278E+04      3.4            0.38          13.72
0.68       208.70      .348E+04      4.6            0.41          12.64
0.76       208.78      .427E+04      6.0            0.44          11.82
0.84       208.86      .514E+04      7.7            0.46          11.16
```

```
-----
| ADD HYD ( 4200) |
| 1 + 2 = 3 |
|-----|
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0420): 25.80 0.443 5.25 29.58
+ ID2= 2 ( 0882): 41.20 0.724 5.25 29.65
=====
ID = 3 ( 4200): 67.00 1.167 5.25 29.62
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0440) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 31.60 Curve Number (CN)= 84.4
Ia (mm)= 7.04 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.16
```

```
Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 0.558 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 30.747
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.485
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0442) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 2.40 Curve Number (CN)= 84.9
Ia (mm)= 6.77 # of Linear Res.(N)= 3.00
```

Model Without SWM Infrastructure - Output

U.H. Tp(hrs)= 0.41

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.049 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 31.497
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.497

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0443)	Area (ha)= 21.30	Curve Number (CN)= 83.9	
ID= 1 DT= 5.0 min	Ia (mm)= 7.31	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.59		

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)= 0.392 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 30.010
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.473

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0451)	Area (ha)= 12.30	Curve Number (CN)= 84.3	
ID= 1 DT= 5.0 min	Ia (mm)= 7.09	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.57		

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 0.233 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 30.601
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.483

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0043)	Area (ha)= 22.90		
ID= 1 DT= 5.0 min	Total Imp(%)= 49.00	Dir. Conn.(%)= 40.00	

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4345)				
1 + 2 = 3				
ID1= 1 (0043):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
+ ID2= 2 (0045):	22.90	0.501	3.08	39.16
	1.30	0.034	2.08	42.76
ID = 3 (4345):	24.20	0.534	3.08	39.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893)	
IN= 2----> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	208.29	0.0300
3.73	208.14	0.0300 / 0.0350 Main Channel
5.30	207.52	0.0350 Main Channel
6.93	208.18	0.0350 / 0.0300 Main Channel
8.96	208.27	0.0300
14.71	208.30	0.0300
23.86	208.59	0.0300

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45

IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	11.22
Dep. Storage (mm)=	1.00
Average Slope (%)=	1.00
Length (m)=	390.73
Mannings n =	0.013

Max.Eff.Inten.(mm/hr)=	16.48	6.83
over (min)	10.00	35.00
Storage Coeff. (min)=	11.90 (ii)	32.55 (ii)
Unit Hyd. Tpeak (min)=	10.00	35.00
Unit Hyd. peak (cms)=	0.10	0.03

PEAK FLOW (cms)=	0.42	0.20	*TOTALS* 0.501 (iii)
TIME TO PEAK (hrs)=	2.08	5.08	3.08
RUNOFF VOLUME (mm)=	62.40	23.66	39.16
TOTAL RAINFALL (mm)=	63.40	63.40	63.40
RUNOFF COEFFICIENT =	0.98	0.37	0.62

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0045)	Area (ha)= 1.30		
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00	Dir. Conn.(%)= 35.00	

IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.84
Dep. Storage (mm)=	1.00
Average Slope (%)=	1.00
Length (m)=	93.09
Mannings n =	0.013

Max.Eff.Inten.(mm/hr)=	16.48	14.73
over (min)	5.00	25.00
Storage Coeff. (min)=	5.03 (ii)	20.22 (ii)
Unit Hyd. Tpeak (min)=	5.00	25.00
Unit Hyd. peak (cms)=	0.21	0.05

PEAK FLOW (cms)=	0.02	0.02	*TOTALS* 0.034 (iii)
TIME TO PEAK (hrs)=	2.08	3.25	2.08
RUNOFF VOLUME (mm)=	62.40	32.19	42.76
TOTAL RAINFALL (mm)=	63.40	63.40	63.40
RUNOFF COEFFICIENT =	0.98	0.51	0.67

0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4345)	24.20	0.53	3.08	39.35	0.62
OUTFLOW: ID= 1 (0893)	24.20	0.53	3.08	39.35	0.62

ADD HYD (4510)			
1 + 2 = 3			
ID1= 1 (0451):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)
+ ID2= 2 (0893):	12.30	0.233	3.42
	24.20	0.530	3.08
ID = 3 (4510):	36.50	0.754	3.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0892)	
IN= 2----> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350 Main Channel
28.59	211.79	0.0350 Main Channel
32.89	214.16	0.0350 / 0.0500 Main Channel
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.279E+01	0.0	0.48	3.92
0.24	212.03	.112E+02	0.1	0.76	2.47
0.36	212.15	.251E+02	0.2	0.99	1.89

Model Without SWM Infrastructure - Output

0.48	212.27	.446E+02	0.5	1.20	1.56
0.61	212.40	.697E+02	0.9	1.40	1.34
0.73	212.52	.220E+03	1.8	0.91	2.07
0.85	212.64	.616E+03	4.9	0.89	2.11
0.97	212.76	.113E+04	10.4	1.04	1.81
1.09	212.88	.175E+04	18.9	1.21	1.54
1.21	213.00	.243E+04	30.5	1.42	1.32
1.33	213.12	.315E+04	44.8	1.60	1.17
1.45	213.24	.392E+04	61.6	1.77	1.06
1.57	213.36	.473E+04	81.0	1.93	0.97
1.70	213.49	.558E+04	103.1	2.08	0.90
1.82	213.61	.648E+04	127.8	2.22	0.85
1.94	213.73	.742E+04	155.2	2.35	0.80
2.06	213.85	.841E+04	187.2	2.50	0.75
2.18	213.97	.941E+04	223.3	2.67	0.70
2.37	214.16	.114E+05	288.4	2.85	0.66

<---- hydrograph <---->						<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
INFLOW : ID= 2 (4510)	36.50	0.75	3.17	36.40	0.57	1.34	
OUTFLOW: ID= 1 (0892)	36.50	0.75	3.17	36.40	0.57	1.33	

<---- hydrograph <---->						<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
ID1= 1 (0443):	21.30	0.392	3.50	30.01			
+ ID2= 2 (0892):	36.50	0.755	3.17	36.40			
=====							
ID = 3 (4411):	57.80	1.133	3.25	34.05			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

<---- DATA FOR SECTION (1.1) <---->					
Distance	Elevation	Manning			
0.00	206.70	0.0400	0.0350	Main Channel	
2.35	206.02	0.0400	0.0350	Main Channel	
5.23	205.19	0.0350	0.0350	Main Channel	
5.34	205.67	0.0350	0.0350	Main Channel	
19.05	206.06	0.0350	0.0400	Main Channel	
21.11	206.05	0.0400			
22.02	206.13	0.0400	0.0350		

Unit Hyd. peak (cms)=	0.21	0.05	
PEAK FLOW (cms)=	0.05	0.05	0.087 (iii)
TIME TO PEAK (hrs)=	2.08	3.17	2.08
RUNOFF VOLUME (mm)=	62.40	38.22	46.68
TOTAL RAINFALL (mm)=	63.40	63.40	63.40
RUNOFF COEFFICIENT =	0.98	0.60	0.74

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

<---- hydrograph <---->						<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
ID1= 1 (0441):	3.00	0.087	2.08	46.68			
+ ID2= 2 (0891):	57.80	1.127	3.33	34.04			
=====							
ID = 3 (4410):	60.80	1.203	3.25	34.67			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

<---- DATA FOR SECTION (1.1) <---->					
Distance	Elevation	Manning			
0.00	206.70	0.0400			
2.35	206.02	0.0400	0.0350	Main Channel	
5.23	205.19	0.0350	0.0350	Main Channel	
5.34	205.67	0.0350	0.0350	Main Channel	
19.05	206.06	0.0350	0.0400	Main Channel	

40.10	206.15	0.0350
56.50	206.04	0.0350

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.621E+00	0.0	0.10	29.40
0.09	205.28	.248E+01	0.0	0.16	18.52
0.13	205.32	.559E+01	0.0	0.21	14.13
0.17	205.36	.994E+01	0.0	0.25	11.67
0.22	205.41	.155E+02	0.0	0.29	10.05
0.26	205.45	.224E+02	0.0	0.33	8.90
0.31	205.50	.304E+02	0.1	0.37	8.03
0.35	205.54	.398E+02	0.1	0.40	7.35
0.39	205.58	.503E+02	0.1	0.43	6.79
0.44	205.63	.621E+02	0.2	0.46	6.33
0.48	205.67	.752E+02	0.2	0.49	5.97
0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

<---- hydrograph <---->						<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
INFLOW : ID= 2 (4411)	57.80	1.13	3.25	34.05	0.75	0.48	
OUTFLOW: ID= 1 (0891)	57.80	1.13	3.33	34.04	0.75	0.48	

CALIB			
STANDHYD (0441)	Area (ha)=	3.00	
ID= 1 DT= 5.0 min	Total Imp(%)=	45.00	Dir. Conn.(%)= 35.00

IMPERVIOUS		PERVIOUS (i)	
Surface Area (ha)=	1.35	1.65	
Dep. Storage (mm)=	1.00	3.58	
Average Slope (%)=	2.00	2.00	
Length (m)=	141.42	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	16.48	11.26	
over (min)=	5.00	25.00	
Storage Coeff. (min)=	5.25 (ii)	22.16 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	

21.11	206.05	0.0400
22.02	206.13	0.0400 / 0.0350
40.10	206.15	0.0350
56.50	206.04	0.0350

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.272E+01	0.0	0.09	142.50
0.09	205.28	.109E+02	0.0	0.14	89.77
0.13	205.32	.245E+02	0.0	0.19	68.51
0.17	205.36	.435E+02	0.0	0.23	56.55
0.22	205.41	.679E+02	0.0	0.26	48.73
0.26	205.45	.978E+02	0.0	0.30	43.16
0.31	205.50	.133E+03	0.1	0.33	38.94
0.35	205.54	.174E+03	0.1	0.36	35.63
0.39	205.58	.220E+03	0.1	0.39	32.93
0.44	205.63	.272E+03	0.1	0.42	30.70
0.48	205.67	.329E+03	0.2	0.44	28.96
0.52	205.71	.418E+03	0.2	0.36	35.92
0.57	205.76	.563E+03	0.3	0.34	37.36
0.61	205.80	.765E+03	0.4	0.35	36.28
0.66	205.85	.102E+04	0.5	0.37	34.31
0.70	205.89	.134E+04	0.7	0.40	32.17
0.74	205.93	.171E+04	0.9	0.43	30.13
0.79	205.98	.214E+04	1.3	0.45	28.27
0.83	206.02	.263E+04	1.6	0.48	26.60

<---- hydrograph <---->						<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
INFLOW : ID= 2 (4401)	63.20	1.25	3.25	34.55	0.78	0.45	
OUTFLOW: ID= 1 (0889)	63.20	1.19	3.83	34.53	0.78	0.45	

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

<---- hydrograph <---->						<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
ID1= 1 (0440):	31.60	0.558	5.25	30.75			
+ ID2= 2 (0889):	63.20	1.194	3.83	34.53			
=====							
ID = 3 (4400):	94.80	1.721	5.08	33.27			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model Without SWM Infrastructure - Output

```
| ROUTE CHN( 0888)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.66 0.0400
19.50 209.34 0.0400
37.91 208.66 0.0400
41.73 208.62 0.0400 / 0.0350 Main Channel
43.44 208.24 0.0350 Main Channel
45.75 208.62 0.0350 / 0.0450 Main Channel
54.00 208.79 0.0450 / 0.0400
77.43 209.05 0.0400
128.85 209.70 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 208.30 .519E+01 0.0 0.09 43.50
0.13 208.37 .208E+02 0.0 0.15 27.40
0.19 208.43 .467E+02 0.0 0.19 20.91
0.25 208.49 .830E+02 0.1 0.24 17.26
0.32 208.56 .130E+03 0.1 0.27 14.88
0.38 208.62 .187E+03 0.2 0.31 13.17
0.46 208.70 .365E+03 0.5 0.31 13.03
0.54 208.78 .674E+03 0.9 0.32 12.89
0.62 208.86 .113E+04 1.5 0.33 12.23
0.70 208.94 .176E+04 2.5 0.35 11.61
0.78 209.02 .258E+04 3.9 0.37 10.95
0.86 209.10 .358E+04 5.8 0.40 10.27
0.94 209.18 .475E+04 8.2 0.42 9.62
1.02 209.26 .608E+04 11.2 0.45 9.04
1.10 209.34 .758E+04 14.8 0.48 8.53
1.18 209.42 .927E+04 18.8 0.50 8.21
1.26 209.50 .112E+05 23.6 0.52 7.88
1.34 209.58 .133E+05 29.3 0.54 7.57
1.42 209.66 .157E+05 35.9 0.56 7.26
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4400) 94.80 1.72 5.08 33.27 0.63 0.34
OUTFLOW: ID= 1 ( 0888) 94.80 1.72 5.17 33.27 0.63 0.34
```

```
| CALIB
| STANDHYD ( 0042)|
| ID= 1 DT= 5.0 min |
Area (ha)= 20.50
Total Imp(%)= 83.00 Dir. Conn.(%)= 70.00
```

```
-----
Surface Area (ha)= 17.01 3.49
Dep. Storage (mm)= 1.00 6.98
Average Slope (%)= 2.00 2.00
Length (m)= 369.68 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 16.48 15.70
over (min) 10.00 25.00
Storage Coeff. (min)= 9.35 (ii) 24.16 (ii)
Unit Hyd. Tpeak (min)= 10.00 25.00
Unit Hyd. peak (cms)= 0.12 0.05

*TOTALS*
PEAK FLOW (cms)= 0.66 0.14 0.762 (iii)
TIME TO PEAK (hrs)= 2.08 3.17 2.08
RUNOFF VOLUME (mm)= 62.40 35.74 54.40
TOTAL RAINFALL (mm)= 63.40 63.40 63.40
RUNOFF COEFFICIENT = 0.98 0.56 0.86
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0898)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 101.50 0.0500
1.00 100.70 0.0500
1.50 100.55 0.0500 / 0.0300 Main Channel
2.00 99.50 0.0300 Main Channel
3.50 99.60 0.0300 Main Channel
4.50 100.65 0.0300 / 0.0500 Main Channel
6.00 101.45 0.0500

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.10 99.60 .152E+02 0.0 0.19 18.79
0.19 99.69 .482E+02 0.1 0.37 9.79
0.29 99.79 .840E+02 0.2 0.49 7.32
0.38 99.88 .123E+03 0.3 0.59 6.12
0.48 99.98 .164E+03 0.5 0.67 5.38
0.57 100.07 .208E+03 0.7 0.74 4.87
```

CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4244)|
| 1 + 2 = 3 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0044): 8.90 0.185 3.08 35.15
+ ID2= 2 ( 0898): 20.50 0.755 2.08 54.40
=====
ID = 3 ( 4244): 29.40 0.910 2.08 48.57
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0897)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .140E+02 0.0 0.17 55.64
0.24 212.03 .559E+02 0.0 0.27 35.05
0.36 212.15 .126E+03 0.1 0.35 26.75
0.48 212.27 .224E+03 0.2 0.43 22.08
0.61 212.40 .350E+03 0.3 0.49 19.03
0.73 212.52 .110E+04 0.6 0.32 29.36
0.85 212.64 .309E+04 1.7 0.31 29.92
0.97 212.76 .566E+04 3.7 0.37 25.67
1.09 212.88 .878E+04 6.7 0.43 21.92
1.21 213.00 .122E+05 10.8 0.50 18.80
1.33 213.12 .158E+05 15.8 0.57 16.63
1.45 213.24 .196E+05 21.8 0.63 15.03
1.57 213.36 .237E+05 28.7 0.68 13.79
```

```
| CALIB
| STANDHYD ( 0044)|
| ID= 1 DT= 5.0 min |
Area (ha)= 8.90
Total Imp(%)= 41.00 Dir. Conn.(%)= 20.00
```

```
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 3.65 5.25
Dep. Storage (mm)= 1.00 8.00
Average Slope (%)= 2.00 2.00
Length (m)= 243.58 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 16.48 9.52
over (min) 5.00 30.00
Storage Coeff. (min)= 7.28 (ii) 25.36 (ii)
Unit Hyd. Tpeak (min)= 5.00 30.00
Unit Hyd. peak (cms)= 0.17 0.04

*TOTALS*
PEAK FLOW (cms)= 0.08 0.13 0.185 (iii)
TIME TO PEAK (hrs)= 2.08 3.33 3.08
RUNOFF VOLUME (mm)= 62.40 28.34 35.15
TOTAL RAINFALL (mm)= 63.40 63.40 63.40
RUNOFF COEFFICIENT = 0.98 0.45 0.55
```

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

Model Without SWM Infrastructure - Output

1.70	213.49	.280E+05	36.4	0.73	12.81
1.82	213.61	.325E+05	45.2	0.78	12.00
1.94	213.73	.372E+05	54.9	0.83	11.31
2.06	213.85	.422E+05	66.2	0.89	10.62
2.18	213.97	.472E+05	79.0	0.94	9.97
2.37	214.16	.571E+05	102.0	1.01	9.34
<---- hydrograph ----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m) (m/s)
INFLOW : ID= 2 (4244)	29.40	0.91	2.08	48.57	0.76 0.32
OUTFLOW: ID= 1 (0897)	29.40	0.81	3.17	48.56	0.75 0.32

ADD HYD (4301)					
1 + 2 = 3					
ID1= 1 (0888):	94.80	1.720	5.17	33.27	
+ ID2= 2 (0897):	29.40	0.809	3.17	48.56	
=====					
ID = 3 (4301):	124.20	2.386	4.33	36.89	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0887)	Routing time step (min)'= 5.00
IN= 2---> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.52	0.0400			
61.99	209.23	0.0400			
76.86	209.20	0.0400			
82.03	209.20	0.0400 / 0.0350	Main Channel		
86.30	208.87	0.0350	Main Channel		
89.86	209.20	0.0350 / 0.0300	Main Channel		
96.27	209.24	0.0300			
103.53	209.40	0.0300			
127.96	209.50	0.0300			
158.58	209.70	0.0300			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.143E+01	0.0	0.09	20.80
0.07	208.94	.572E+01	0.0	0.14	13.11
0.10	208.97	.129E+02	0.0	0.18	10.00

ID = 3 (4300): 144.00 2.710 4.67 35.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0886)		Routing time step (min)'= 5.00
IN= 2---> OUT= 1		

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.20	0.0400			
100.00	206.26	0.0400			
111.30	206.19	0.0400 / 0.0350	Main Channel		
112.02	205.76	0.0350	Main Channel		
113.82	205.37	0.0350	Main Channel		
115.62	206.03	0.0350 / 0.0400	Main Channel		
117.77	207.30	0.0400			
120.56	207.40	0.0400			
124.41	207.31	0.0400			
129.31	207.24	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	205.46	.110E+02	0.0	0.11	51.32
0.19	205.56	.438E+02	0.0	0.17	32.33
0.28	205.65	.986E+02	0.1	0.23	24.67
0.38	205.75	.175E+03	0.1	0.27	20.37
0.47	205.84	.271E+03	0.3	0.33	16.94
0.57	205.94	.379E+03	0.4	0.38	14.73
0.66	206.03	.501E+03	0.6	0.42	13.19
0.76	206.13	.644E+03	0.9	0.48	11.58
0.86	206.23	.845E+03	1.3	0.51	10.89
0.96	206.33	.140E+04	1.9	0.46	12.13
1.06	206.43	.209E+04	2.9	0.46	12.20
1.16	206.53	.290E+04	4.1	0.47	11.82
1.26	206.63	.383E+04	5.6	0.49	11.31
1.37	206.74	.489E+04	7.6	0.52	10.78
1.47	206.84	.607E+04	9.8	0.54	10.28
1.57	206.94	.737E+04	12.5	0.57	9.81
1.67	207.04	.879E+04	15.6	0.60	9.38
1.77	207.14	.103E+05	19.2	0.62	8.99
1.87	207.24	.120E+05	23.2	0.65	8.63

<---- hydrograph ----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m) (m/s)
INFLOW : ID= 2 (4300)	144.00	2.71	4.67	35.88	1.05 0.46
OUTFLOW: ID= 1 (0886)	144.00	2.71	4.92	35.88	1.05 0.46

0.13	209.00	.229E+02	0.0	0.22	8.26
0.17	209.04	.357E+02	0.1	0.26	7.11
0.20	209.07	.514E+02	0.1	0.29	6.30
0.23	209.10	.700E+02	0.2	0.32	5.69
0.26	209.13	.915E+02	0.3	0.35	5.20
0.30	209.17	.116E+03	0.4	0.38	4.81
0.33	209.20	.143E+03	0.5	0.41	4.48
0.37	209.24	.239E+03	0.8	0.37	5.02
0.40	209.27	.396E+03	1.3	0.35	5.26
0.44	209.31	.589E+03	1.9	0.36	5.13
0.47	209.34	.818E+03	2.8	0.38	4.89
0.51	209.38	.108E+04	3.9	0.40	4.63
0.54	209.41	.139E+04	5.2	0.41	4.46
0.58	209.45	.175E+04	6.7	0.43	4.33
0.61	209.48	.218E+04	8.7	0.44	4.17
0.65	209.52	.266E+04	11.2	0.46	3.98

<---- hydrograph ----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m) (m/s)
INFLOW : ID= 2 (4301)	124.20	2.39	4.33	36.89	0.46 0.37
OUTFLOW: ID= 1 (0887)	124.20	2.39	4.42	36.89	0.46 0.37

CALIB			
NASHYD (0430)	Area (ha)=	19.80	Curve Number (CN)= 83.6
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.13	

Unit Hyd Qpeak (cms)= 0.669

PEAK FLOW (cms)= 0.340 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 29.578
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.467

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4300)					
1 + 2 = 3					
ID1= 1 (0430):	19.80	0.340	5.25	29.58	
+ ID2= 2 (0887):	124.20	2.385	4.42	36.89	
=====					

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW (cms)= 0.088 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 34.324
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.541

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4110)					
1 + 2 = 3					
ID1= 1 (0411):	4.50	0.088	5.17	34.32	
+ ID2= 2 (0886):	144.00	2.706	4.92	35.88	
=====					
ID = 3 (4110):	148.50	2.794	4.92	35.84	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0885)	Routing time step (min)'= 5.00
IN= 2---> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	208.48	0.0500			
43.69	207.97	0.0500			
66.92	207.94	0.0500			
76.98	208.01	0.0500			
87.94	208.25	0.0500			
89.93	208.44	0.0500 / 0.0350	Main Channel		
92.70	208.20	0.0350	Main Channel		
95.51	207.28	0.0350	Main Channel		
98.26	208.25	0.0350	Main Channel		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	207.33	.134E+01	0.0	0.06	52.81

Model Without SWM Infrastructure - Output

0.10	207.38	.536E+01	0.0	0.10	33.27
0.15	207.43	.121E+02	0.0	0.13	25.39
0.19	207.47	.214E+02	0.0	0.15	20.96
0.24	207.52	.335E+02	0.0	0.18	18.06
0.29	207.57	.483E+02	0.1	0.20	15.99
0.34	207.62	.657E+02	0.1	0.22	14.43
0.39	207.67	.858E+02	0.1	0.24	13.20
0.44	207.72	.109E+03	0.1	0.26	12.21
0.48	207.76	.134E+03	0.2	0.28	11.38
0.53	207.81	.162E+03	0.3	0.30	10.68
0.58	207.86	.193E+03	0.3	0.32	10.08
0.63	207.91	.227E+03	0.4	0.34	9.55
0.68	207.96	.295E+03	0.5	0.32	10.12
0.73	208.01	.613E+03	0.7	0.22	14.89
0.78	208.06	.103E+04	1.0	0.20	16.42
0.82	208.10	.150E+04	1.5	0.20	16.27
0.87	208.15	.204E+04	2.2	0.21	15.61
0.92	208.20	.264E+04	3.0	0.22	14.84

<---- hydrograph <---->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4110)	148.50	2.79	4.92	35.84	0.91
OUTFLOW: ID= 1 (0885)	148.50	2.79	5.33	35.83	0.91

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB					
NASHYD (0041)	Area (ha)=	25.40	Curve Number (CN)=	83.6	
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.21			

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.431 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 29.578
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.467

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0894)					
IN= 2----> OUT= 1	Routing time step (min)'=	5.00			

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 /0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		
32.89	214.16	0.0350 /0.0500	Main Channel		
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.523E+01	0.0	0.10	36.03
0.24	212.03	.209E+02	0.0	0.15	22.70
0.36	212.15	.471E+02	0.0	0.20	17.32
0.48	212.27	.837E+02	0.1	0.25	14.30
0.61	212.40	.131E+03	0.2	0.29	12.32
0.73	212.52	.412E+03	0.4	0.18	19.01
0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62
1.09	212.88	.328E+04	3.9	0.25	14.19
1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

<---- hydrograph <---->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0041)	25.40	0.43	5.33	29.58	0.74
OUTFLOW: ID= 1 (0894)	25.40	0.42	5.50	29.58	0.74

Unit Hyd Qpeak (cms)= 1.462

CALIB					
NASHYD (0040)	Area (ha)=	37.50	Curve Number (CN)=	84.2	
ID= 1 DT= 5.0 min	Ia (mm)=	7.14	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.98			

PEAK FLOW (cms)= 0.669 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 30.457
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.480

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0040):	37.50	0.669	5.17	30.46	
+ ID2= 2 (0894):	25.40	0.423	5.50	29.58	
=====					
ID = 3 (4140):	62.90	1.085	5.25	30.10	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4101)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (4140):	62.90	1.085	5.25	30.10	
+ ID2= 2 (0885):	148.50	2.786	5.33	35.83	
=====					
ID = 3 (4101):	211.40	3.871	5.33	34.13	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0884)					
IN= 2----> OUT= 1	Routing time step (min)'=	5.00			

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning			
0.00	204.63	0.0400			
45.24	204.34	0.0400			
94.52	203.98	0.0400			
140.93	203.58	0.0400			
148.77	203.72	0.0400 /0.0350	Main Channel		
154.30	202.99	0.0350	Main Channel		
158.02	203.77	0.0350 /0.0400	Main Channel		
174.30	203.79	0.0400			
222.94	204.38	0.0400			
285.62	204.03	0.0400			

<---- hydrograph <---->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4101)	211.40	3.87	5.33	34.13	0.81
OUTFLOW: ID= 1 (0884)	211.40	3.85	5.50	34.13	0.81

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.160 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 32.416
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.511

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

ADD HYD (4100)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0410):	8.50	0.160	5.08	32.42
+ ID2= 2 (0884):	211.40	3.855	5.50	34.13
ID = 3 (4100):	219.90	4.011	5.42	34.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	23.00	Curve Number (CN)=	83.1
NASHVD (0401)	Ia (mm)=	7.74	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.78		

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW	(cms)=	0.397 (i)
TIME TO PEAK	(hrs)=	5.167
RUNOFF VOLUME	(mm)=	28.868
TOTAL RAINFALL	(mm)=	63.400
RUNOFF COEFFICIENT	=	0.455

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0401)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0401):	23.00	0.397	5.17	28.87
+ ID2= 2 (4100):	219.90	4.011	5.42	34.06
=====				
ID = 3 (4001):	242.90	4.399	5.42	33.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4001)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 (4001):	242.90	4.399	5.42	33.57
+ ID2= 2 (4200):	67.00	1.167	5.25	29.62
=====				
ID = 1 (4001):	309.90	5.563	5.33	32.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0880) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

```

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
    0.00      204.63      0.0400
   45.24      204.34      0.0400
   94.52      203.98      0.0400
  140.93      203.58      0.0400
  148.77      203.72      0.0400 / 0.0350 Main Channel
  154.30      202.99      0.0350 Main Channel
  158.02      203.77      0.0350 / 0.0400 Main Channel
  174.30      203.79      0.0400
  222.94      204.38      0.0400
  285.62      204.03      0.0400

```

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m)	(cms)	(m/s)	(min)
0.05	203.04	.647E+01	0.0	0.11	59.17
0.10	203.09	.259E+02	0.0	0.17	37.28
0.16	203.15	.582E+02	0.0	0.23	28.45
0.21	203.20	.103E+03	0.1	0.27	23.48
0.26	203.25	.162E+03	0.1	0.32	20.24
0.31	203.30	.233E+03	0.2	0.36	17.92
0.37	203.36	.317E+03	0.3	0.40	16.17
0.42	203.41	.414E+03	0.5	0.43	14.79
0.47	203.46	.524E+03	0.6	0.47	13.68
0.52	203.51	.647E+03	0.8	0.50	12.75
0.57	203.56	.782E+03	1.1	0.54	11.96
0.63	203.62	.974E+03	1.4	0.55	11.73
0.68	203.67	.135E+04	1.8	0.51	12.55
0.73	203.72	.192E+04	2.4	0.48	13.39
0.79	203.78	.282E+04	3.5	0.48	13.41
0.85	203.84	.430E+04	5.2	0.47	13.77
0.92	203.91	.608E+04	7.5	0.48	13.44
0.98	203.97	.816E+04	10.6	0.50	12.88
1.04	204.03	.105E+05	14.2	0.52	12.33

		<---- hydrograph <---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4001	309.90	5.56	5.33	32.71	0.86	0.47
OUTFLOW: ID= 1 (0880)	309.90	5.54	5.50	32.71	0.86	0.47

| CALIB

NASHYD (0400)	Area (ha)=	27.60	Curve Number (CN)=	83.8
ID= 1 DT= 5.0 min	Ia (mm)=	7.36	# of Linear Res.(N)=	3.00
-----	U.H. Tp(hrs)=	0.88		

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW	(cms)=	0.488 (i)
TIME TO PEAK	(hrs)=	5.167
RUNOFF VOLUME	(mm)=	29.869
TOTAL RAINFALL	(mm)=	63.400
RUNOFF COEFFICIENT	=	0.471

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4000)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R. V. (mm)
ID1= 1 (0400):	27.60	0.488	5.17	29.87
+ ID2= 2 (0800):	309.90	5.538	5.50	32.71
=====				
ID = 3 (4000):	337.50	6.015	5.42	32.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0200)	Area (ha)=	25.60	Curve Number (CN)= 82.2
ID= 1 DT= 5.0 min	Ia (mm)=	8.25	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.79	

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 0.428 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.612
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.436

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0023)	Area (ha)=	7.00	Curve Number (CN)= 83.0
ID= 1 DT= 5.0 min	Ia (mm)=	7.80	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.73	

Unit Hyd Qpeak (cms)= 0.366

```

PEAK FLOW      (cms)=  0.121 (i)
TIME TO PEAK   (hrs)=  5.083
RUNOFF VOLUME  (mm)= 28.723
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.453

```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0022)	Area (ha)=	3.40	Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min	Ia (mm)=	5.38	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.20	

Unit Hyd Qpeak (cms)= 0.649

```

PEAK FLOW      (cms)=    0.069 (i)
TIME TO PEAK   (hrs)=    3.083
RUNOFF VOLUME   (mm)=   30.026
TOTAL RAINFALL  (mm)=   63.400
RUNOFF COEFFICIENT =    0.474

```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
NASHYD (0211)	Area (ha)= 17.30	Curve Number (CN)= 81.3
ID= 1 DT= 5.0 min	Ia (mm)= 8.76	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.02	

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW	(cms)=	0.274 (i)
TIME TO PEAK	(hrs)=	5.250
RUNOFF VOLUME	(mm)=	26.406
TOTAL RAINFALL	(mm)=	63.400
RUNOFF COEFFICIENT	=	0.416

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0021)	Area (ha)=	47.60	Curve Number (CN)= 84.6
ID= 1 DT= 5.0 min	Ia (mm)=	6.93	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.93	

Unit Hyd Qpeak (cms)= 1.955

Model Without SWM Infrastructure - Output

PEAK FLOW (cms)= 0.865 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 31.048
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.490

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0871)							
IN= 2---> OUT= 1							
Routing time step (min)'= 5.00							
<----- DATA FOR SECTION (1.1) ----->							
Distance	Elevation	Manning					
0.00	209.49	0.0400					
35.71	208.88	0.0400					
53.04	208.89	0.0400					
64.12	208.50	0.0400 / 0.0350	Main Channel				
70.77	208.05	0.0350	Main Channel				
74.98	208.02	0.0350	Main Channel				
83.40	208.38	0.0350 / 0.0400	Main Channel				
88.06	208.63	0.0400					
94.94	209.13	0.0400					
105.88	209.54	0.0400					
<----- TRAVEL TIME TABLE ----->							
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME		
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)		
0.07	208.09	.241E+03	0.1	0.21	60.89		
0.14	208.16	.678E+03	0.3	0.33	38.66		
0.22	208.24	.127E+04	0.7	0.42	30.30		
0.29	208.31	.201E+04	1.3	0.50	25.57		
0.36	208.38	.290E+04	2.2	0.57	22.42		
0.44	208.46	.405E+04	3.5	0.67	19.05		
0.52	208.54	.537E+04	5.4	0.77	16.69		
0.60	208.62	.690E+04	7.7	0.85	15.00		
0.68	208.70	.866E+04	10.4	0.93	13.82		
0.76	208.78	.106E+05	13.7	0.99	12.91		
0.84	208.86	.128E+05	17.5	1.05	12.19		
0.92	208.94	.159E+05	21.6	1.05	12.24		
0.99	209.01	.197E+05	27.2	1.06	12.03		
1.07	209.09	.238E+05	33.9	1.09	11.74		
1.15	209.17	.284E+05	41.4	1.12	11.43		
1.23	209.25	.333E+05	49.8	1.15	11.14		
1.31	209.33	.386E+05	59.4	1.18	10.84		
1.39	209.41	.444E+05	70.1	1.21	10.55		
1.47	209.49	.506E+05	82.1	1.25	10.27		
<---- hydrograph ----> <-pipe /							

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0021)	47.60	0.87	5.17	31.05	0.24	0.44
OUTFLOW: ID= 1 (0871)	47.60	0.86	5.33	31.04	0.23	0.44

ADD HYD (2110)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0211):	17.30	0.274	5.25	26.41	
+ ID2= 2 (0022):	3.40	0.069	3.08	30.03	
=====					
ID = 3 (2110):	20.70	0.333	5.08	27.00	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2110)					
3 + 2 = 1					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 3 (2110):	20.70	0.333	5.08	27.00	
+ ID2= 2 (0871):	47.60	0.858	5.33	31.04	
=====					
ID = 1 (2110):	68.30	1.186	5.08	29.82	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0220)					
ID= 1 DT= 5.0 min					

Area	(ha)=	20.30	Curve Number	(CN)=	81.6
Ia	(mm)=	8.59	# of Linear Res.(N)=	3.00	
U.H. Tp(hrs)=	0.85				

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 0.330 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 26.802
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.423

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					

NASHYD (0020)					
ID= 1 DT= 5.0 min					

Area	(ha)=	12.60	Curve Number	(CN)=	82.4
Ia	(mm)=	8.13	# of Linear Res.(N)=	3.00	
U.H. Tp(hrs)=	0.72				

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.212 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.891
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)					
IN= 2---> OUT= 1		Routing time step (min)'= 5.00			
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.00	0.0400			
33.24	205.47	0.0400			
44.39	205.59	0.0400			
48.71	205.45	0.0400 / 0.0350	Main Channel		
51.02	204.50	0.0350	Main Channel		
54.33	205.44	0.0350 / 0.0400	Main Channel		
55.90	204.97	0.0400			
62.96	204.91	0.0400			
102.92	205.20	0.0400			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56
0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46

0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.05

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0020)	12.60	0.21	5.17	27.89	0.33	0.66
OUTFLOW: ID= 1 (0875)	12.60	0.21	5.25	27.85	0.33	0.66

ADD HYD (2200)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0220):	20.30	0.330	5.17	26.80	
+ ID2= 2 (0875):	12.60	0.212	5.25	27.85	
=====					
ID = 3 (2200):	32.90	0.542	5.17	27.21	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (2110):	68.30	1.186	5.08	29.82	
+ ID2= 2 (2200):	32.90	0.542	5.17	27.21	
=====					
ID = 3 (2101):	101.20	1.728	5.17	28.97	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)					
IN= 2---> OUT= 1					
Routing time step (min)'= 5.00					

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.52	0.0400		
61.99	209.23	0.0400		
76.86	209.20	0.0400		
82.03	209.20	0.0400 / 0.0350	Main Channel	
86.30	208.87	0.0350	Main Channel	
89.86	209.20	0.0350 / 0.0300	Main Channel	
96.27	209.24	0.0300		
103.53	209.40	0.0300		
127.96	209.50	0.0300		

Model Without SWM Infrastructure - Output

158.58 209.70 0.0300

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23
<---- hydrograph ----> <-pipe / channel-->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (2101)	101.20	1.73	5.17	28.97	0.41
OUTFLOW: ID= 1 (0870)	101.20	1.71	5.33	28.96	0.41
					0.42

ADD HYD (2100)				
1	2	3		

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0210):	9.10	0.153	5.08	27.75
+ ID2= 2 (0870):	101.20	1.715	5.33	28.96
=====				
ID = 3 (2100):	110.30	1.865	5.25	28.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0230)				
ID= 1 DT= 5.0 min	Area	(ha)=	Curve Number	(CN)= 82.9
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.82		

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 0.423 (i)

TIME TO PEAK (hrs)= 5.167

RUNOFF VOLUME (mm)= 28.587

TOTAL RAINFALL (mm)= 63.400

RUNOFF COEFFICIENT = 0.451

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0231)				
ID= 1 DT= 5.0 min	Area	(ha)=	Curve Number	(CN)= 81.9
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.89		

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 0.484 (i)

TIME TO PEAK (hrs)= 5.167

RUNOFF VOLUME (mm)= 27.204

TOTAL RAINFALL (mm)= 63.400

RUNOFF COEFFICIENT = 0.429

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0240)				
ID= 1 DT= 5.0 min	Area	(ha)=	Curve Number	(CN)= 82.0
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.74		

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.168 (i)

TIME TO PEAK (hrs)= 5.167

RUNOFF VOLUME (mm)= 27.342

TOTAL RAINFALL (mm)= 63.400

RUNOFF COEFFICIENT = 0.431

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0241)				
ID= 1 DT= 5.0 min	Area	(ha)=	Curve Number	(CN)= 82.3
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.75		

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 0.448 (i)

TIME TO PEAK (hrs)= 5.167

RUNOFF VOLUME (mm)= 27.751

TOTAL RAINFALL (mm)= 63.400

RUNOFF COEFFICIENT = 0.438

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0864)				
IN= 2----> OUT= 1				
Routing time step (min)'= 5.00				

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 / 0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		
32.89	214.16	0.0350 / 0.0500	Main Channel		
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.118E+02	0.0	0.27	29.62
0.24	212.03	.471E+02	0.0	0.42	18.66

0.36	212.15	.106E+03	0.1	0.56	14.24
0.48	212.27	.188E+03	0.3	0.67	11.76
0.61	212.40	.294E+03	0.5	0.78	10.13
0.73	212.52	.928E+03	1.0	0.51	15.63
0.85	212.64	.260E+04	2.7	0.50	15.93
0.97	212.76	.477E+04	5.8	0.58	13.67
1.09	212.88	.739E+04	10.6	0.68	11.67
1.21	213.00	.103E+05	17.1	0.79	10.01
1.33	213.12	.133E+05	25.0	0.89	8.85
1.45	213.24	.165E+05	34.4	0.99	8.00
1.57	213.36	.200E+05	45.3	1.08	7.34
1.70	213.49	.236E+05	57.6	1.16	6.82
1.82	213.61	.274E+05	71.4	1.24	6.39
1.94	213.73	.314E+05	86.8	1.31	6.02
2.06	213.85	.355E+05	104.6	1.40	5.66
2.18	213.97	.398E+05	124.9	1.49	5.31
2.37	214.16	.481E+05	161.2	1.59	4.97

<----- hydrograph ----> <-pipe / channel-->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (0241)	26.70	0.45	5.17	27.75	0.59
OUTFLOW: ID= 1 (0864)	26.70	0.45	5.17	27.75	0.59

ADD HYD (2301)				
1	2	3		

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0231):	29.50	0.484	5.17	27.20
+ ID2= 2 (0240):	10.10	0.168	5.17	27.34
=====				
ID = 3 (2301):	39.60	0.652	5.17	27.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2301)				
1	2	3		

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (2301):	39.60	0.652	5.17	27.24
+ ID2= 2 (0864):	26.70	0.448	5.17	27.75
=====				
ID = 1 (2301):	66.30	1.100	5.17	27.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model Without SWM Infrastructure - Output

```
ROUTE CHN( 0863)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.70        0.0400
2.35          206.02        0.0400 / 0.0350 Main Channel
5.23          205.19        0.0350 Main Channel
5.34          205.67        0.0350 Main Channel
19.05         206.06        0.0350 / 0.0400 Main Channel
21.11         206.05        0.0400
22.02         206.13        0.0400 / 0.0350
40.10         206.15        0.0350
56.50         206.04        0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04        205.23      .138E+01      0.0            0.11          58.11
0.09        205.28      .551E+01      0.0            0.18          36.61
0.13        205.32      .124E+02      0.0            0.23          27.94
0.17        205.36      .220E+02      0.0            0.28          23.06
0.22        205.41      .344E+02      0.0            0.33          19.87
0.26        205.45      .496E+02      0.0            0.37          17.60
0.31        205.50      .675E+02      0.1            0.41          15.88
0.35        205.54      .882E+02      0.1            0.45          14.53
0.39        205.58      .112E+03      0.1            0.48          13.43
0.44        205.63      .138E+03      0.2            0.52          12.52
0.48        205.67      .167E+03      0.2            0.55          11.81
0.52        205.71      .212E+03      0.2            0.44          14.65
0.57        205.76      .285E+03      0.3            0.43          15.23
0.61        205.80      .388E+03      0.4            0.44          14.79
0.66        205.85      .519E+03      0.6            0.47          13.99
0.70        205.89      .679E+03      0.9            0.50          13.12
0.74        205.93      .868E+03      1.2            0.53          12.29
0.79        205.98      .109E+04      1.6            0.56          11.53
0.83        206.02      .133E+04      2.0            0.60          10.85

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 2301) 66.30      1.10      5.17      27.45      0.73          0.52
OUTFLOW: ID= 1 ( 0863) 66.30      1.10      5.25      27.44      0.73          0.52

**** WARNING:  COMPUTATIONS FAILED TO CONVERGE.
```

```
ADD HYD ( 2300)
1 + 2 = 3

AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0230): 24.70      0.423      5.17      28.59
+ ID2= 2 ( 0863): 66.30      1.097      5.25      27.44
=====
ID = 3 ( 2300): 91.00      1.519      5.25      27.75
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ADD HYD ( 2011)
1 + 2 = 3

AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 2100): 110.30      1.865      5.25      28.86
+ ID2= 2 ( 2300): 91.00      1.519      5.25      27.75
=====
ID = 3 ( 2011): 201.30      3.384      5.25      28.36
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0862)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          204.63        0.0400
45.24         204.34        0.0400
94.52         203.98        0.0400
140.93        203.58        0.0400
148.77        203.72        0.0400 / 0.0350 Main Channel
154.30        202.99        0.0350 Main Channel
158.02        203.77        0.0350 / 0.0400 Main Channel
174.30        203.79        0.0400
222.94        204.38        0.0400
285.62        204.03        0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.05        203.04      .465E+01      0.0            0.10          47.86
0.10        203.09      .186E+02      0.0            0.15          30.15
0.16        203.15      .418E+02      0.0            0.20          23.01
0.21        203.20      .744E+02      0.1            0.24          18.99
0.26        203.25      .116E+03      0.1            0.28          16.37
0.31        203.30      .167E+03      0.2            0.32          14.50
0.37        203.36      .228E+03      0.3            0.35          13.08
0.42        203.41      .297E+03      0.4            0.39          11.97
0.47        203.46      .376E+03      0.6            0.42          11.06
```

```
0.52        203.51      .465E+03      0.8            0.45          10.31
0.57        203.56      .562E+03      1.0            0.48          9.68
0.63        203.62      .700E+03      1.2            0.49          9.49
0.68        203.67      .969E+03      1.6            0.45          10.15
0.73        203.72      .138E+04      2.1            0.43          10.83
0.79        203.78      .203E+04      3.1            0.43          10.85
0.85        203.84      .309E+04      4.6            0.41          11.14
0.92        203.91      .437E+04      6.7            0.42          10.87
0.98        203.97      .586E+04      9.4            0.44          10.42
1.04        204.03      .757E+04      12.7           0.46          9.97

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 2011) 201.30      3.38      5.25      28.36      0.80          0.42
OUTFLOW: ID= 1 ( 0862) 201.30      3.37      5.42      28.36      0.80          0.42
```

```
CALIB
NASHYD ( 0201)
ID= 1 DT= 5.0 min

Area      (ha)= 8.20      Curve Number (CN)= 82.6
Ia        (mm)= 8.02      # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.60
```

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.141 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 28.166
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.444

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ADD HYD ( 2010)
1 + 2 = 3

AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0201): 8.20      0.141      3.58      28.17
+ ID2= 2 ( 0023): 7.00      0.121      5.08      28.72
=====
ID = 3 ( 2010): 15.20      0.260      5.08      28.42
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ADD HYD ( 2010)
3 + 2 = 1

AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 2010): 15.20      0.260      5.08      28.42
+ ID2= 2 ( 0862): 201.30      3.368      5.42      28.36
=====
ID = 1 ( 2010): 216.50      3.621      5.33      28.36
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0860)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          208.48        0.0500
43.69         207.97        0.0500
66.92         207.94        0.0500
76.98         208.01        0.0500
87.94         208.25        0.0500
89.93         208.44        0.0500 / 0.0350 Main Channel
92.70         208.20        0.0350 Main Channel
95.51         207.28        0.0350 Main Channel
98.26         208.25        0.0350 Main Channel

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.05        207.33      .155E+01      0.0            0.16          23.32
0.10        207.38      .620E+01      0.0            0.25          14.69
0.15        207.43      .140E+02      0.0            0.33          11.21
0.19        207.47      .248E+02      0.0            0.40          9.26
0.24        207.52      .388E+02      0.1            0.47          7.98
0.29        207.57      .558E+02      0.1            0.53          7.06
0.34        207.62      .760E+02      0.2            0.59          6.37
0.39        207.67      .992E+02      0.3            0.64          5.83
0.44        207.72      .126E+03      0.4            0.69          5.39
0.48        207.76      .155E+03      0.5            0.74          5.03
0.53        207.81      .188E+03      0.7            0.79          4.72
0.58        207.86      .223E+03      0.8            0.84          4.45
0.63        207.91      .262E+03      1.0            0.88          4.22
0.68        207.96      .341E+03      1.3            0.83          4.47
0.73        208.01      .708E+03      1.8            0.57          6.58
0.78        208.06      .119E+04      2.7            0.51          7.25
0.82        208.10      .174E+04      4.0            0.52          7.19
0.87        208.15      .236E+04      5.7            0.54          6.89
0.92        208.20      .305E+04      7.8            0.57          6.55
```

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL

Model Without SWM Infrastructure - Output

(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (2010) 216.50 3.62 5.33 28.36 0.81 0.52
OUTFLOW: ID= 1 (0860) 216.50 3.62 5.42 28.36 0.81 0.52

ADD HYD (2000)
1 + 2 = 3
ID1= 1 (0200): AREA (ha) 25.60 QPEAK (cms) 0.428 TPEAK (hrs) 5.17 R.V. (mm) 27.61
+ ID2= 2 (0860): 216.50 3.616 5.42 28.36
ID = 3 (2000): 242.10 4.036 5.33 28.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0300) Area (ha)= 36.80 Curve Number (CN)= 83.1
ID= 1 DT= 5.0 min Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.90

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 0.633 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 28.868
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.455

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0031) Area (ha)= 3.00 Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.62

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.054 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 30.082
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.474

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

0.51 205.01 .144E+04 1.0 0.52 24.88
0.54 205.04 .217E+04 1.5 0.52 24.65
0.58 205.08 .304E+04 2.1 0.54 23.62
0.61 205.11 .407E+04 3.0 0.57 22.38
0.65 205.15 .524E+04 4.1 0.61 21.13
0.69 205.19 .656E+04 5.5 0.64 19.97

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0350) 1.50 0.03 3.25 29.00 0.15 0.39
OUTFLOW: ID= 1 (0850) 1.50 0.03 5.17 28.68 0.15 0.38

CALIB
NASHYD (0032) Area (ha)= 28.00 Curve Number (CN)= 83.4
ID= 1 DT= 5.0 min Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.95

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.485 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 29.291
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.462

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3200)
1 + 2 = 3
ID1= 1 (0032): AREA (ha) 28.00 QPEAK (cms) 0.485 TPEAK (hrs) 5.17 R.V. (mm) 29.29
+ ID2= 2 (0850): 1.50 0.026 5.17 28.68
ID = 3 (3200): 29.50 0.511 5.17 29.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0301) Area (ha)= 59.40 Curve Number (CN)= 82.7
ID= 1 DT= 5.0 min Ia (mm)= 7.97 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.23

CALIB
NASHYD (0350) Area (ha)= 1.50 Curve Number (CN)= 83.2
ID= 1 DT= 5.0 min Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.38

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 29.001
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.457

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0850)
IN= 2----> OUT= 1 Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400

----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .300E+01 0.0 0.15 86.75
0.07 204.57 .120E+02 0.0 0.24 54.65
0.11 204.61 .270E+02 0.0 0.31 41.70
0.14 204.64 .480E+02 0.0 0.37 34.42
0.18 204.68 .750E+02 0.0 0.43 29.67
0.22 204.72 .108E+03 0.1 0.49 26.27
0.25 204.75 .147E+03 0.1 0.54 23.71
0.29 204.79 .192E+03 0.1 0.59 21.69
0.33 204.83 .243E+03 0.2 0.64 20.05
0.36 204.86 .300E+03 0.3 0.69 18.69
0.40 204.90 .363E+03 0.3 0.73 17.54
0.43 204.93 .488E+03 0.4 0.70 18.37
0.47 204.97 .860E+03 0.6 0.56 22.95

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 0.967 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 28.301
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.446

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3010)
1 + 2 = 3
ID1= 1 (0301): AREA (ha) 59.40 QPEAK (cms) 0.967 TPEAK (hrs) 5.33 R.V. (mm) 28.30
+ ID2= 2 (3200): 29.50 0.511 5.17 29.26
ID = 3 (3010): 88.90 1.476 5.25 28.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (3001)
1 + 2 = 3
ID1= 1 (3010): AREA (ha) 88.90 QPEAK (cms) 1.476 TPEAK (hrs) 5.25 R.V. (mm) 28.62
+ ID2= 2 (0031): 3.00 0.054 3.50 30.08
ID = 3 (3001): 91.90 1.528 5.25 28.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0852)
IN= 2----> OUT= 1 Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 /0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 /0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400
124.41 207.31 0.0400
129.31 207.24 0.0400

Model Without SWM Infrastructure - Output

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	205.46	.132E+02	0.0	0.21	32.83
0.19	205.56	.529E+02	0.0	0.33	20.68
0.28	205.65	.119E+03	0.1	0.43	15.78
0.38	205.75	.212E+03	0.3	0.52	13.03
0.47	205.84	.327E+03	0.5	0.62	10.84
0.57	205.94	.458E+03	0.8	0.72	9.42
0.66	206.03	.604E+03	1.2	0.80	8.44
0.76	206.13	.777E+03	1.7	0.91	7.41
0.86	206.23	.102E+04	2.4	0.97	6.97
0.96	206.33	.168E+04	3.6	0.87	7.76
1.06	206.43	.252E+04	5.4	0.87	7.80
1.16	206.53	.350E+04	7.7	0.89	7.56
1.26	206.63	.463E+04	10.7	0.93	7.24
1.37	206.74	.590E+04	14.3	0.98	6.90
1.47	206.84	.732E+04	18.6	1.03	6.58
1.57	206.94	.889E+04	23.6	1.08	6.28
1.67	207.04	.106E+05	29.5	1.13	6.00
1.77	207.14	.125E+05	36.1	1.17	5.75
1.87	207.24	.145E+05	43.7	1.22	5.52

<---- hydrograph ---->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (3001)	91.90	1.53	5.25	28.67	0.72
OUTFLOW: ID= 1 (0852)	91.90	1.53	5.33	28.67	0.72

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

<---- hydrograph ---->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0030)	1.10	0.02	3.17	28.80	0.13
OUTFLOW: ID= 1 (0854)	1.10	0.02	3.25	28.79	0.13

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40
0.85	212.64	.204E+04	2.7	0.49	12.63
0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

<---- hydrograph ---->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0123)	24.60	0.42	5.17	28.59	0.57
OUTFLOW: ID= 1 (0814)	24.60	0.42	5.25	28.59	0.57

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.021 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 28.804
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.454

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

<---- hydrograph ---->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0123)	24.60	0.42	5.17	28.59	0.57
OUTFLOW: ID= 1 (0814)	24.60	0.42	5.25	28.59	0.57

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40
0.85	212.64	.204E+04	2.7	0.49	12.63
0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

<---- hydrograph ---->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0123)	24.60	0.42	5.17	28.59	0.57
OUTFLOW: ID= 1 (0814)	24.60	0.42	5.25	28.59	0.57

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40
0.85	212.64	.204E+04	2.7	0.49	12.63
0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

<---- hydrograph ---->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0123)	24.60	0.42	5.17	28.59	0.57
OUTFLOW: ID= 1 (0814)	24.60	0.42	5.25	28.59	0.57

Model Without SWM Infrastructure - Output

```
-----
| CALIB |
| NASHYD ( 0124) | Area (ha)= 24.30 Curve Number (CN)= 85.8
| ID= 1 DT= 5.0 min | Ia (mm)= 6.30 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.51
```

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 0.505 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 32.886
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.519

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0813) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .168E+02 0.0 0.26 43.17
0.24 212.03 .671E+02 0.0 0.41 27.20
0.36 212.15 .151E+03 0.1 0.54 20.76
0.48 212.27 .268E+03 0.3 0.66 17.13
0.61 212.40 .419E+03 0.5 0.76 14.77
0.73 212.52 .132E+04 1.0 0.50 22.79
0.85 212.64 .370E+04 2.7 0.49 23.22
0.97 212.76 .679E+04 5.7 0.57 19.92
1.09 212.88 .105E+05 10.3 0.66 17.01
1.21 213.00 .146E+05 16.7 0.77 14.59
1.33 213.12 .189E+05 24.5 0.87 12.90
1.45 213.24 .236E+05 33.7 0.97 11.66
1.57 213.36 .284E+05 44.3 1.05 10.70
```

```
0.29 208.31 .444E+03 1.5 0.56 5.04
0.36 208.38 .642E+03 2.4 0.64 4.42
0.44 208.46 .896E+03 4.0 0.75 3.76
0.52 208.54 .119E+04 6.0 0.86 3.29
0.60 208.62 .153E+04 8.6 0.96 2.96
0.68 208.70 .192E+04 11.7 1.04 2.73
0.76 208.78 .235E+04 15.4 1.11 2.55
0.84 208.86 .283E+04 19.6 1.18 2.41
0.92 208.94 .351E+04 24.2 1.17 2.41
0.99 209.01 .435E+04 30.6 1.19 2.37
1.07 209.09 .528E+04 38.0 1.22 2.31
1.15 209.17 .628E+04 46.4 1.26 2.26
1.23 209.25 .737E+04 55.9 1.29 2.20
1.31 209.33 .855E+04 66.6 1.33 2.14
1.39 209.41 .982E+04 78.7 1.36 2.08
1.47 209.49 .112E+05 92.1 1.40 2.03
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1221) 48.90 0.88 4.33 30.72 0.23 0.48
OUTFLOW: ID= 1 ( 0812) 48.90 0.88 4.42 30.72 0.23 0.48
```

```
-----
| CALIB |
| NASHYD ( 0122) | Area (ha)= 31.80 Curve Number (CN)= 85.1
| ID= 1 DT= 5.0 min | Ia (mm)= 6.67 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.96
```

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 0.588 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 31.800
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1220) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
+ ID1= 1 ( 0122): 31.80 0.588 5.08 31.80
+ ID2= 2 ( 0812): 48.90 0.878 4.42 30.72
=====
```

```
1.70 213.49 .336E+05 56.3 1.14 9.94
1.82 213.61 .390E+05 69.8 1.21 9.31
1.94 213.73 .447E+05 84.8 1.28 8.78
2.06 213.85 .506E+05 102.3 1.37 8.24
2.18 213.97 .566E+05 122.0 1.46 7.73
2.37 214.16 .685E+05 157.6 1.56 7.25
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0124) 24.30 0.51 3.33 32.89 0.61 0.74
OUTFLOW: ID= 1 ( 0813) 24.30 0.49 3.67 32.88 0.61 0.75
```

```
-----
| ADD HYD ( 1221) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0813): 24.30 0.494 3.67 32.88
+ ID2= 2 ( 0814): 24.60 0.418 5.25 28.59
=====
ID = 3 ( 1221): 48.90 0.878 4.33 30.72
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0812) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .533E+02 0.1 0.24 12.01
0.14 208.16 .150E+03 0.3 0.37 7.63
0.22 208.24 .280E+03 0.8 0.47 5.98
```

ID = 3 (1220): 80.70 1.466 5.17 31.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0811) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.50 0.0400
29.68 206.77 0.0400
43.70 206.13 0.0400 /0.0350 Main Channel
44.99 205.95 0.0350 Main Channel
47.70 206.24 0.0350 /0.0450 Main Channel
60.54 206.32 0.0450
80.11 206.99 0.0450
102.29 207.42 0.0450 /0.0400
132.78 206.84 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 206.01 .147E+02 0.0 0.14 60.26
0.12 206.07 .590E+02 0.0 0.22 37.96
0.18 206.13 .133E+03 0.1 0.29 28.97
0.26 206.21 .302E+03 0.2 0.36 22.81
0.34 206.29 .671E+03 0.5 0.39 21.40
0.42 206.37 .151E+04 1.2 0.39 20.95
0.50 206.45 .254E+04 2.3 0.45 18.38
0.58 206.53 .376E+04 3.7 0.49 16.98
0.66 206.61 .544E+04 5.6 0.51 16.11
0.74 206.69 .764E+04 8.4 0.54 15.19
0.83 206.78 .104E+05 12.1 0.58 14.27
0.91 206.86 .134E+05 17.4 0.64 12.84
0.99 206.94 .166E+05 23.6 0.71 11.71
1.07 207.02 .201E+05 30.7 0.76 10.88
1.15 207.10 .239E+05 38.0 0.81 10.26
1.23 207.18 .280E+05 48.0 0.85 9.72
1.31 207.26 .325E+05 58.5 0.89 9.26
1.39 207.34 .373E+05 70.3 0.94 8.84
1.47 207.42 .424E+05 83.4 0.98 8.48
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1220) 80.70 1.47 5.17 31.14 0.44 0.41
OUTFLOW: ID= 1 ( 0811) 80.70 1.46 5.25 31.14 0.44 0.41
```


Model Without SWM Infrastructure - Output

```
-----
| CALIB |
| NASHYD ( 0121) | Area (ha)= 16.10 Curve Number (CN)= 86.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.94 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.318 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 34.002
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.536

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1210) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0121): | AREA QPEAK TPEAK R.V.
| + ID2= 2 ( 0811): | (ha) (cms) (hrs) (mm)
|=====|
| ID = 3 ( 1210): | 96.80 1.775 5.17 31.62
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0146) | Area (ha)= 12.80 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.55
```

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.227 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 28.723
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.453

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0844) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 29.151
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.460

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1450) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0145): | AREA QPEAK TPEAK R.V.
| + ID2= 2 ( 0844): | (ha) (cms) (hrs) (mm)
|=====|
| ID = 3 ( 1450): | 25.40 0.451 3.58 28.93
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0843) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.144E+02	0.0	0.23	42.45
0.24	212.03	.578E+02	0.0	0.36	26.74
0.36	212.15	.130E+03	0.1	0.48	20.41
0.48	212.27	.231E+03	0.2	0.58	16.85
0.61	212.40	.361E+03	0.4	0.67	14.52
0.73	212.52	.114E+04	0.8	0.43	22.41
0.85	212.64	.319E+04	2.3	0.43	22.83
0.97	212.76	.585E+04	5.0	0.50	19.59
1.09	212.88	.907E+04	9.0	0.58	16.72
1.21	213.00	.126E+05	14.6	0.68	14.34
1.33	213.12	.163E+05	21.4	0.77	12.69

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          208.29        0.0300
3.73          208.14        0.0300 / 0.0350 Main Channel
5.30          207.52        0.0350 Main Channel
6.93          208.18        0.0350 / 0.0300 Main Channel
8.96          208.27        0.0300
14.71         208.30        0.0300
23.86         208.59        0.0300
```

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.107E+01	0.0	0.13	37.04
0.08	207.60	.430E+01	0.0	0.20	23.33
0.12	207.64	.966E+01	0.0	0.27	17.81
0.16	207.68	.172E+02	0.0	0.32	14.70
0.19	207.71	.268E+02	0.0	0.38	12.67
0.23	207.75	.387E+02	0.1	0.42	11.22
0.27	207.79	.526E+02	0.1	0.47	10.12
0.31	207.83	.687E+02	0.1	0.51	9.26
0.35	207.87	.870E+02	0.2	0.56	8.56
0.39	207.91	.107E+03	0.2	0.60	7.98
0.43	207.95	.130E+03	0.3	0.64	7.49
0.47	207.99	.155E+03	0.4	0.67	7.07
0.50	208.02	.181E+03	0.5	0.71	6.70
0.54	208.06	.210E+03	0.6	0.75	6.38
0.58	208.10	.242E+03	0.7	0.78	6.09
0.62	208.14	.275E+03	0.8	0.82	5.83
0.67	208.19	.329E+03	1.0	0.87	5.50
0.72	208.24	.413E+03	1.3	0.89	5.36
0.77	208.29	.540E+03	1.7	0.87	5.45

```
<---- hydrograph ----> <-pipe / channel->
                        AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
                        (ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0146) 12.80 0.23 3.42 28.72 0.39 0.60
OUTFLOW: ID= 1 ( 0844) 12.80 0.23 3.58 28.72 0.39 0.60
```

```
-----
| CALIB |
| NASHYD ( 0145) | Area (ha)= 12.60 Curve Number (CN)= 83.3
| ID= 1 DT= 5.0 min | Ia (mm)= 7.63 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.59
```

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.225 (i)

1.45	213.24	.203E+05	29.5	0.85	11.47
1.57	213.36	.245E+05	38.8	0.92	10.52
1.70	213.49	.289E+05	49.3	0.99	9.77
1.82	213.61	.336E+05	61.2	1.06	9.15
1.94	213.73	.385E+05	74.3	1.13	8.63
2.06	213.85	.436E+05	89.6	1.20	8.11
2.18	213.97	.488E+05	106.9	1.28	7.61
2.37	214.16	.590E+05	138.1	1.36	7.13

```
<---- hydrograph ----> <-pipe / channel->
                        AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
                        (ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1450) 25.40 0.45 3.58 28.93 0.62 0.64
OUTFLOW: ID= 1 ( 0843) 25.40 0.44 4.08 28.92 0.61 0.65
```

```
-----
| CALIB |
| NASHYD ( 0144) | Area (ha)= 28.60 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.97
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.485 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 28.587
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.451

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1440) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0144): | AREA QPEAK TPEAK R.V.
| + ID2= 2 ( 0843): | (ha) (cms) (hrs) (mm)
|=====|
| ID = 3 ( 1440): | 54.00 0.925 5.17 28.75
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0842) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

Model Without SWM Infrastructure - Output

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 / 0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 / 0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .149E+01 0.0 0.09 81.67
0.09 205.28 .594E+01 0.0 0.14 51.45
0.13 205.32 .134E+02 0.0 0.18 39.26
0.17 205.36 .238E+02 0.0 0.22 32.41
0.22 205.41 .371E+02 0.0 0.25 27.93
0.26 205.45 .535E+02 0.0 0.28 24.73
0.31 205.50 .728E+02 0.1 0.31 22.32
0.35 205.54 .950E+02 0.1 0.34 20.42
0.39 205.58 .120E+03 0.1 0.37 18.87
0.44 205.63 .149E+03 0.1 0.40 17.59
0.48 205.67 .180E+03 0.2 0.42 16.60
0.52 205.71 .228E+03 0.2 0.34 20.59
0.57 205.76 .308E+03 0.2 0.33 21.41
0.61 205.80 .418E+03 0.3 0.34 20.79
0.66 205.85 .560E+03 0.5 0.36 19.66
0.70 205.89 .732E+03 0.7 0.38 18.44
0.74 205.93 .936E+03 0.9 0.41 17.27
0.79 205.98 .117E+04 1.2 0.43 16.20
0.83 206.02 .144E+04 1.6 0.46 15.24

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1440) 54.00 0.92 5.17 28.75 0.75 0.41
OUTFLOW: ID= 1 (0842) 54.00 0.92 5.33 28.74 0.74 0.41

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB
NASHYD (0143)
ID= 1 DT= 5.0 min
Area (ha)= 27.70 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.07

Unit Hyd Qpeak (cms)= 0.989
PEAK FLOW (cms)= 0.465 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 28.587
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.451

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0143): 27.70 0.465 5.25 28.59
+ ID2= 2 (0842): 54.00 0.922 5.33 28.74
ID = 3 (1430): 81.70 1.387 5.25 28.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0841)
IN= 2----> OUT= 1
Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.66 0.0400
19.50 209.34 0.0400
37.91 208.66 0.0400
41.73 208.62 0.0400 / 0.0350 Main Channel
43.44 208.24 0.0350 Main Channel
45.75 208.62 0.0350 / 0.0450 Main Channel
54.00 208.79 0.0450 / 0.0400
77.43 209.05 0.0400
128.85 209.70 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 208.30 .216E+02 0.0 0.15 113.45
0.13 208.37 .864E+02 0.0 0.24 71.47
0.19 208.43 .194E+03 0.1 0.31 54.54
0.25 208.49 .345E+03 0.1 0.38 45.02
0.32 208.56 .540E+03 0.2 0.44 38.80
0.38 208.62 .777E+03 0.4 0.49 34.36
0.46 208.70 .152E+04 0.7 0.50 33.99
0.54 208.78 .281E+04 1.4 0.50 33.61
0.62 208.86 .469E+04 2.5 0.53 31.90

0.70 208.94 .734E+04 4.0 0.56 30.28
0.78 209.02 .107E+05 6.3 0.59 28.55
0.86 209.10 .149E+05 9.3 0.63 26.78
0.94 209.18 .198E+05 13.1 0.68 25.09
1.02 209.26 .253E+05 17.9 0.72 23.58
1.10 209.34 .315E+05 23.6 0.76 22.24
1.18 209.42 .386E+05 30.0 0.79 21.42
1.26 209.50 .465E+05 37.7 0.82 20.56
1.34 209.58 .554E+05 46.8 0.86 19.73
1.42 209.66 .652E+05 57.3 0.90 18.94

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1430) 81.70 1.39 5.25 28.69 0.54 0.50
OUTFLOW: ID= 1 (0841) 81.70 1.35 5.67 28.68 0.53 0.50

CALIB
NASHYD (0142)
ID= 1 DT= 5.0 min
Area (ha)= 27.10 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.22

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 0.446 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 28.587
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.451

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0142): 27.10 0.446 5.33 28.59
+ ID2= 2 (0841): 81.70 1.355 5.67 28.68
ID = 3 (1420): 108.80 1.797 5.58 28.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)

IN= 2----> OUT= 1
Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.52 0.0400
61.99 209.23 0.0400
76.86 209.20 0.0400
82.03 209.20 0.0400 / 0.0350 Main Channel
86.30 208.87 0.0350 Main Channel
89.86 209.20 0.0350 / 0.0300 Main Channel
96.27 209.24 0.0300
103.53 209.40 0.0300
127.96 209.50 0.0300
158.58 209.70 0.0300

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.03 208.90 .706E+01 0.0 0.08 110.24
0.07 208.94 .282E+02 0.0 0.13 69.44
0.10 208.97 .636E+02 0.0 0.17 53.00
0.13 209.00 .113E+03 0.0 0.21 43.75
0.17 209.04 .177E+03 0.1 0.24 37.70
0.20 209.07 .254E+03 0.1 0.27 33.38
0.23 209.10 .346E+03 0.2 0.30 30.12
0.26 209.13 .452E+03 0.3 0.33 27.56
0.30 209.17 .572E+03 0.4 0.36 25.48
0.33 209.20 .706E+03 0.5 0.38 23.75
0.37 209.24 .118E+04 0.7 0.34 26.61
0.40 209.27 .196E+04 1.2 0.33 27.88
0.44 209.31 .291E+04 1.8 0.34 27.18
0.47 209.34 .404E+04 2.6 0.35 25.91
0.51 209.38 .536E+04 3.6 0.37 24.55
0.54 209.41 .686E+04 4.8 0.39 23.61
0.58 209.45 .865E+04 6.3 0.40 22.94
0.61 209.48 .108E+05 8.1 0.41 22.09
0.65 209.52 .132E+05 10.4 0.43 21.10

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1420) 108.80 1.80 5.58 28.66 0.44 0.34
OUTFLOW: ID= 1 (0840) 108.80 1.76 5.92 28.65 0.43 0.33

CALIB
NASHYD (0141)
ID= 1 DT= 5.0 min
Area (ha)= 8.10 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00

Model Without SWM Infrastructure - Output

----- U.H. Tp(hrs)= 0.78					
Unit Hyd Qpeak (cms)= 0.397					
PEAK FLOW (cms)= 0.143 (i)					
TIME TO PEAK (hrs)= 5.083					
RUNOFF VOLUME (mm)= 29.578					
TOTAL RAINFALL (mm)= 63.400					
RUNOFF COEFFICIENT = 0.467					
(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.					

ADD HYD (1410)					
1 + 2 = 3					

ID1= 1 (0141): AREA QPEAK TPEAK R.V.					
+ ID2= 2 (0840): 8.10 0.143 5.08 29.58					
ID = 3 (1410): 108.80 1.760 5.92 28.65					
=====					
ID = 3 (1410): 116.90 1.883 5.83 28.72					
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.					

CALIB					
NASHYD (0151)					
ID= 1 DT= 5.0 min					

Area (ha)= 24.60 Curve Number (CN)= 82.8					
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00					
U.H. Tp(hrs)= 1.00					
Unit Hyd Qpeak (cms)= 0.940					
PEAK FLOW (cms)= 0.415 (i)					
TIME TO PEAK (hrs)= 5.250					
RUNOFF VOLUME (mm)= 28.444					
TOTAL RAINFALL (mm)= 63.400					
RUNOFF COEFFICIENT = 0.449					
(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.					

CALIB					
NASHYD (0153)					
ID= 1 DT= 5.0 min					

Area (ha)= 33.30 Curve Number (CN)= 82.6					
Ia (mm)= 8.02 # of Linear Res.(N)= 3.00					
U.H. Tp(hrs)= 1.08					
Unit Hyd Qpeak (cms)= 1.178					
PEAK FLOW (cms)= 0.552 (i)					

TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 28.166
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.444

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)					
IN= 2---> OUT= 1					

Routing time step (min)'= 5.00					

<----- DATA FOR SECTION (1.1) ----->					
Distance Elevation Manning					
0.00 214.06 0.0500					
6.27 213.95 0.0500					
20.38 214.11 0.0500					
25.18 213.97 0.0500 / 0.0350 Main Channel					
28.59 211.79 0.0350 Main Channel					
32.89 214.16 0.0350 / 0.0500 Main Channel					
42.61 212.54 0.0500					
59.11 212.41 0.0500					
84.10 212.83 0.0500					
100.76 213.78 0.0500					

<----- TRAVEL TIME TABLE ----->					
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME					
(m) (m) (cu.m.) (cms) (m/s) (min)					
0.12 211.91 .125E+02 0.0 0.21 40.70					
0.24 212.03 .501E+02 0.0 0.33 25.64					
0.36 212.15 .113E+03 0.1 0.43 19.56					
0.48 212.27 .200E+03 0.2 0.52 16.15					
0.61 212.40 .313E+03 0.4 0.61 13.92					
0.73 212.52 .987E+03 0.8 0.39 21.48					
0.85 212.64 .277E+04 2.1 0.39 21.89					
0.97 212.76 .507E+04 4.5 0.45 18.78					
1.09 212.88 .786E+04 8.2 0.53 16.03					
1.21 213.00 .109E+05 13.2 0.61 13.75					
1.33 213.12 .142E+05 19.4 0.69 12.16					
1.45 213.24 .176E+05 26.7 0.77 10.99					
1.57 213.36 .212E+05 35.1 0.84 10.09					
1.70 213.49 .251E+05 44.6 0.90 9.37					
1.82 213.61 .291E+05 55.3 0.96 8.77					
1.94 213.73 .334E+05 67.2 1.02 8.28					
2.06 213.85 .378E+05 81.1 1.08 7.77					
2.18 213.97 .423E+05 96.7 1.16 7.29					
2.37 214.16 .512E+05 124.9 1.23 6.83					

<---- hydrograph ----> <-pipe / channel->					
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL					
(ha) (cms) (hrs) (mm) (m) (m/s)					

INFLOW : ID= 2 (0153) 33.30 0.55 5.25 28.17 0.66 0.49
OUTFLOW: ID= 1 (0834) 33.30 0.54 5.50 28.17 0.66 0.49

CALIB					
NASHYD (0152)					
ID= 1 DT= 5.0 min					

Area (ha)= 16.20 Curve Number (CN)= 82.6					
Ia (mm)= 8.02 # of Linear Res.(N)= 3.00					
U.H. Tp(hrs)= 0.93					
Unit Hyd Qpeak (cms)= 0.665					
PEAK FLOW (cms)= 0.273 (i)					
TIME TO PEAK (hrs)= 5.167					
RUNOFF VOLUME (mm)= 28.166					
TOTAL RAINFALL (mm)= 63.400					
RUNOFF COEFFICIENT = 0.444					
(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.					

ADD HYD (1520)					
1 + 2 = 3					

ID1= 1 (0152): AREA QPEAK TPEAK R.V.					
+ ID2= 2 (0834): 16.20 0.273 5.17 28.17					
ID = 3 (1520): 33.30 0.543 5.50 28.17					
=====					
ID = 3 (1520): 49.50 0.812 5.42 28.17					
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.					

ROUTE CHN(0833)					
IN= 2---> OUT= 1					

Routing time step (min)'= 5.00					

<----- DATA FOR SECTION (1.1) ----->					
Distance Elevation Manning					
0.00 209.49 0.0400					
35.71 208.88 0.0400					
53.04 208.89 0.0400					
64.12 208.50 0.0400 / 0.0350 Main Channel					
70.77 208.05 0.0350 Main Channel					
74.98 208.02 0.0350 Main Channel					
83.40 208.38 0.0350 / 0.0400 Main Channel					
88.06 208.63 0.0400					
94.94 209.13 0.0400					
105.88 209.54 0.0400					

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.232E+03	0.1	0.19	65.23
0.14	208.16	.652E+03	0.3	0.30	41.42
0.22	208.24	.122E+04	0.6	0.38	32.47
0.29	208.31	.193E+04	1.2	0.45	27.40
0.36	208.38	.279E+04	1.9	0.51	24.03
0.44	208.46	.389E+04	3.2	0.60	20.41
0.52	208.54	.516E+04	4.8	0.69	17.88
0.60	208.62	.664E+04	6.9	0.77	16.07
0.68	208.70	.833E+04	9.4	0.83	14.80
0.76	208.78	.102E+05	12.3	0.89	13.84
0.84	208.86	.123E+05	15.7	0.94	13.07
0.92	208.94	.153E+05	19.4	0.94	13.11
0.99	209.01	.189E+05	24.5	0.96	12.89
1.07	209.09	.229E+05	30.4	0.98	12.57
1.15	209.17	.273E+05	37.1	1.01	12.25
1.23	209.25	.320E+05	44.7	1.03	11.94
1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

Model Without SWM Infrastructure - Output

0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 / 0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 / 0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 / 0.0400	
132.78	206.84	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	206.01	.158E+02	0.0	0.16	56.30
0.12	206.07	.633E+02	0.0	0.25	35.47
0.18	206.13	.142E+03	0.1	0.33	27.07
0.26	206.21	.324E+03	0.3	0.42	21.31
0.34	206.29	.720E+03	0.6	0.44	20.00
0.42	206.37	.162E+04	1.4	0.45	19.57
0.50	206.45	.272E+04	2.6	0.52	17.17
0.58	206.53	.404E+04	4.2	0.56	15.86
0.66	206.61	.584E+04	6.5	0.59	15.05
0.74	206.69	.820E+04	9.6	0.63	14.19
0.83	206.78	.111E+05	13.9	0.67	13.34
0.91	206.86	.143E+05	19.9	0.74	12.00
0.99	206.94	.178E+05	27.1	0.81	10.94
1.07	207.02	.215E+05	35.3	0.87	10.16
1.15	207.10	.256E+05	44.5	0.93	9.59
1.23	207.18	.301E+05	55.1	0.98	9.09
1.31	207.26	.349E+05	67.2	1.03	8.65
1.39	207.34	.400E+05	80.7	1.07	8.26
1.47	207.42	.455E+05	95.8	1.12	7.92

<---- hydrograph ---->				<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)
INFLOW : ID= 2 (1510)	74.10	1.20	5.50	28.25	0.40
OUTFLOW: ID= 1 (0832)	74.10	1.19	5.75	28.25	0.40

CALIB					
NASHYD (0150)	Area (ha)=	6.60	Curve Number (CN)=	83.7	
ID= 1 DT= 5.0 min	Ia (mm)=	7.41	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.96			
Unit Hyd Qpeak	(cms)=	0.263			
PEAK FLOW	(cms)=	0.116 (i)			

TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 29.727
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.469

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1500)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0150):	6.60	0.116	5.17	29.73
+ ID2= 2 (0832):	74.10	1.186	5.75	28.25
ID = 3 (1500):	80.70	1.295	5.67	28.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1401)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1410):	116.90	1.883	5.83	28.72
+ ID2= 2 (1500):	80.70	1.295	5.67	28.37
ID = 3 (1401):	197.60	3.176	5.75	28.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0830)				
IN= 2----> OUT= 1				
	Routing time step (min)'=	5.00		
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	207.71	0.0400		
58.83	206.71	0.0400		
66.88	206.59	0.0400 / 0.0350	Main Channel	
72.32	206.34	0.0350	Main Channel	
77.68	206.55	0.0350 / 0.0800	Main Channel	
82.85	206.54	0.0800		
90.20	206.02	0.0800		
94.03	206.48	0.0800		
99.83	206.40	0.0800 / 0.0400		
114.32	206.50	0.0400		
136.07	206.86	0.0400		
174.41	207.56	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.224E+03	0.0	0.08	174.00
0.23	206.25	.505E+03	0.1	0.11	132.79
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34
0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	4.7	0.29	50.17
0.78	206.80	.196E+05	7.6	0.34	42.88
0.87	206.89	.258E+05	11.4	0.38	37.80
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11
1.37	207.39	.776E+05	54.6	0.61	23.71
1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43

<---- hydrograph ---->				<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)
INFLOW : ID= 2 (1401)	197.60	3.18	5.75	28.57	0.64
OUTFLOW: ID= 1 (0830)	197.60	2.94	6.42	28.57	0.63

CALIB					
NASHYD (0140)	Area (ha)=	18.30	Curve Number (CN)=	83.6	
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.34			
Unit Hyd Qpeak	(cms)=	0.522			
PEAK FLOW	(cms)=	0.304 (i)			
TIME TO PEAK	(hrs)=	5.417			
RUNOFF VOLUME	(mm)=	29.578			
TOTAL RAINFALL	(mm)=	63.400			
RUNOFF COEFFICIENT	=	0.467			
(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.					

ADD HYD (1400)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0140):	18.30	0.304	5.42	29.58
+ ID2= 2 (0830):	197.60	2.945	6.42	28.57
ID = 3 (1400):	215.90	3.219	6.33	28.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0131)	Area (ha)=	28.70	Curve Number (CN)=	82.1	
ID= 1 DT= 5.0 min	Ia (mm)=	8.30	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.11			
Unit Hyd Qpeak	(cms)=	0.988			
PEAK FLOW	(cms)=	0.464 (i)			
TIME TO PEAK	(hrs)=	5.333			
RUNOFF VOLUME	(mm)=	27.480			
TOTAL RAINFALL	(mm)=	63.400			
RUNOFF COEFFICIENT	=	0.433			

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
STANDHYD (0011)	Area (ha)=	132.00			
ID= 1 DT= 5.0 min	Total Imp(%)=	57.10	Dir. Conn.(%)=	45.00	
Surface Area	(ha)=	75.37	IMPERVIOUS	PERVIOUS (i)	
Dep. Storage	(mm)=	1.00		56.63	
Average Slope	(%)=	1.00		8.95	
Length	(m)=	938.08		1.00	
Mannings n	=	0.013		40.00	
Max.Eff.Inten.(mm/hr)=		16.48		0.250	
over (min)		20.00			
Storage Coeff. (min)		20.13 (ii)		45.00	
Unit Hyd. Tpeak (min)		20.00		44.09 (ii)	
Unit Hyd. peak (cms)		0.06		45.00	
PEAK FLOW	(cms)=	2.60		0.03	
TIME TO PEAK	(hrs)=	2.08			
RUNOFF VOLUME	(mm)=	62.40			
TOTAL RAINFALL	(mm)=	63.40			
RUNOFF COEFFICIENT	=	0.98			
TOTALS					
PEAK FLOW	(cms)=	2.60		3.025 (iii)	
TIME TO PEAK	(hrs)=	2.08		5.17	
RUNOFF VOLUME	(mm)=	62.40		25.18	
TOTAL RAINFALL	(mm)=	63.40		41.93	
RUNOFF COEFFICIENT	=	0.98		63.40	
				0.66	

Model Without SWM Infrastructure - Output

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0012) ID= 1 DT= 5.0 min	Area (ha)= 17.50 Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00	IMPERVIOUS (ha)= 14.00 (mm)= 1.00 (%)= 1.00 (m)= 341.57 Mannings n = 0.013	PERVIOUS (i) (ha)= 3.50 (mm)= 8.94 (%)= 1.00 (m)= 40.00 0.250
Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n =	16.48 10.00 10.98 (ii) 10.00 0.11	10.38 35.00 32.49 (ii) 35.00 0.03	
Max.Eff.Inten.(mm/hr)= over (min)= Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)=			
PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT =	0.56 2.08 62.40 63.40 0.98	0.09 3.50 28.22 63.40 0.45	*TOTALS* 0.604 (iii) 2.08 52.14 63.40 0.82

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011): + ID2= 2 (0012): ID = 3 (1112):	132.00 17.50 149.50	3.025 0.604 3.589	2.25 2.08 2.17	41.93 52.14 43.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0010) ID= 1 DT= 5.0 min	Area (ha)= 12.90 Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	10.32	2.58	
Dep. Storage (mm)=	1.00	8.94	
Average Slope (%)=	1.00	1.00	
Length (m)=	293.26	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	16.48	10.38	
over (min)=	10.00	35.00	
Storage Coeff. (min)=	10.02 (ii)	31.53 (ii)	
Unit Hyd. Tpeak (min)=	10.00	35.00	
Unit Hyd. peak (cms)=	0.11	0.03	
			TOTALS
PEAK FLOW (cms)=	0.41	0.07	0.446 (iii)
TIME TO PEAK (hrs)=	2.08	3.50	2.08
RUNOFF VOLUME (mm)=	62.40	28.22	52.14
TOTAL RAINFALL (mm)=	63.40	63.40	63.40
RUNOFF COEFFICIENT =	0.98	0.45	0.82

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010): + ID2= 2 (1112): ID = 3 (1311):	12.90 149.50 162.40	0.446 3.589 4.024	2.08 2.17 2.17	52.14 43.13 43.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822) IN= 2---> OUT= 1	Routing time step (min)'= 5.00
<----- DATA FOR SECTION (1.1) ----->	
Distance Elevation Manning	

+ ID2= 2 (0822): ID = 3 (1310):	162.40 191.10	3.856 4.153	3.17 3.25	43.84 41.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0821) IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->	
Distance Elevation Manning	
0.00 207.71 0.0400	
58.83 206.71 0.0400	
66.88 206.59 0.0400 /0.0350	Main Channel
72.32 206.34 0.0350	Main Channel
77.68 206.55 0.0350 /0.0800	Main Channel
82.85 206.54 0.0800	
90.20 206.02 0.0800	
94.03 206.48 0.0800	
99.83 206.40 0.0800 /0.0400	
114.32 206.50 0.0400	
136.07 206.86 0.0400	
174.41 207.56 0.0400	

<----- TRAVEL TIME TABLE ----->	
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME	
(m) (m) (cu.m.) (cms) (m/s) (min)	
0.08 206.10 .337E+02 0.0 0.07 124.18	
0.15 206.17 .135E+03 0.0 0.11 78.23	
0.23 206.25 .303E+03 0.1 0.15 59.70	
0.30 206.32 .539E+03 0.2 0.18 49.28	
0.38 206.40 .885E+03 0.3 0.20 43.17	
0.45 206.47 .175E+04 0.6 0.19 46.91	
0.53 206.55 .333E+04 1.4 0.23 38.64	
0.61 206.63 .569E+04 3.4 0.31 27.90	
0.70 206.72 .851E+04 6.3 0.39 22.56	
0.78 206.80 .118E+05 10.2 0.45 19.28	
0.87 206.89 .155E+05 15.2 0.51 17.00	
0.95 206.97 .196E+05 21.4 0.57 15.28	
1.04 207.06 .242E+05 28.9 0.63 13.96	
1.12 207.14 .292E+05 37.7 0.68 12.90	
1.20 207.22 .346E+05 47.9 0.73 12.02	
1.29 207.31 .404E+05 59.6 0.77 11.29	
1.37 207.39 .466E+05 72.9 0.82 10.66	
1.46 207.48 .533E+05 87.8 0.86 10.11	
1.54 207.56 .604E+05 104.5 0.91 9.63	

<----- hydrograph ----->	<-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL	
(ha) (cms) (hrs) (mm) (m) (m/s)	
INFLOW : ID= 2 (1311) 162.40 4.02 2.17 43.84 0.63 0.33	
OUTFLOW: ID= 1 (0822) 162.40 3.86 3.17 43.84 0.63 0.32	

ADD HYD (1310) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0131):	28.70	0.464	5.33	27.48

<----- hydrograph ----->	<-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL	
(ha) (cms) (hrs) (mm) (m) (m/s)	

Model Without SWM Infrastructure - Output

INFLOW : ID= 2 (1310) 191.10 4.15 3.25 41.38 0.65 0.30
OUTFLOW: ID= 1 (0821) 191.10 3.84 4.17 41.37 0.64 0.30

CALIB
NASHYD (0130) | Area (ha)= 26.70 Curve Number (CN)= 81.7
ID= 1 DT= 5.0 min | Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.32

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 0.410 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 26.938
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.425

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1300) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0130): 26.70 0.410 5.50 26.94
+ ID2= 2 (0821): 191.10 3.840 4.17 41.37
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1202) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (1300): 217.80 4.193 4.42 39.60
+ ID2= 2 (1400): 215.90 3.219 6.33 28.65
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0820) |
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0810) |
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 /0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 /0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400

TRAVEL TIME TABLE
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .229E+02 0.0 0.07 106.67
0.18 204.88 .915E+02 0.0 0.12 67.20
0.28 204.98 .208E+03 0.1 0.15 51.82
0.37 205.07 .981E+03 0.2 0.11 70.28
0.46 205.16 .288E+04 0.8 0.13 61.71
0.55 205.25 .610E+04 2.0 0.15 50.43
0.64 205.34 .105E+05 4.2 0.19 41.45
0.74 205.44 .163E+05 7.5 0.21 36.28
0.83 205.53 .227E+05 11.9 0.24 31.82
0.92 205.62 .294E+05 17.2 0.27 28.46
1.01 205.71 .366E+05 23.6 0.30 25.89
1.10 205.80 .442E+05 30.9 0.32 23.87
1.20 205.90 .522E+05 39.1 0.35 22.23
1.29 205.99 .606E+05 48.4 0.37 20.87
1.38 206.08 .694E+05 58.7 0.39 19.72
1.47 206.17 .786E+05 70.0 0.41 18.74
1.57 206.27 .883E+05 82.3 0.43 17.88
1.66 206.36 .983E+05 95.7 0.45 17.12
1.75 206.45 .109E+06 110.2 0.47 16.45

hydrograph <---> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1201) 530.50 8.69 5.42 33.69 0.76 0.22
OUTFLOW: ID= 1 (0810) 530.50 8.31 6.00 33.69 0.75 0.22

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 /0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 /0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400

TRAVEL TIME TABLE
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .681E+01 0.0 0.08 28.42
0.18 204.88 .272E+02 0.0 0.13 17.90
0.28 204.98 .620E+02 0.1 0.17 13.80
0.37 205.07 .292E+03 0.3 0.12 18.72
0.46 205.16 .859E+03 0.9 0.14 16.44
0.55 205.25 .182E+04 2.3 0.17 13.44
0.64 205.34 .311E+04 4.7 0.21 11.04
0.74 205.44 .487E+04 8.4 0.24 9.67
0.83 205.53 .676E+04 13.3 0.27 8.48
0.92 205.62 .877E+04 19.3 0.30 7.58
1.01 205.71 .109E+05 26.4 0.33 6.90
1.10 205.80 .132E+05 34.5 0.36 6.36
1.20 205.90 .155E+05 43.8 0.39 5.92
1.29 205.99 .181E+05 54.1 0.42 5.56
1.38 206.08 .207E+05 65.6 0.44 5.25
1.47 206.17 .234E+05 78.2 0.46 4.99
1.57 206.27 .263E+05 92.0 0.48 4.76
1.66 206.36 .293E+05 107.0 0.51 4.56
1.75 206.45 .324E+05 123.2 0.53 4.38

hydrograph <---> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1202) 433.70 7.00 5.50 34.15 0.70 0.23
OUTFLOW: ID= 1 (0820) 433.70 6.93 5.67 34.15 0.70 0.23

ADD HYD (1201) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (1210): 96.80 1.775 5.17 31.62
+ ID2= 2 (0820): 433.70 6.926 5.67 34.15

=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0810) |
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 /0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 /0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400

TRAVEL TIME TABLE
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .229E+02 0.0 0.07 106.67
0.18 204.88 .915E+02 0.0 0.12 67.20
0.28 204.98 .208E+03 0.1 0.15 51.82
0.37 205.07 .981E+03 0.2 0.11 70.28
0.46 205.16 .288E+04 0.8 0.13 61.71
0.55 205.25 .610E+04 2.0 0.15 50.43
0.64 205.34 .105E+05 4.2 0.19 41.45
0.74 205.44 .163E+05 7.5 0.21 36.28
0.83 205.53 .227E+05 11.9 0.24 31.82
0.92 205.62 .294E+05 17.2 0.27 28.46
1.01 205.71 .366E+05 23.6 0.30 25.89
1.10 205.80 .442E+05 30.9 0.32 23.87
1.20 205.90 .522E+05 39.1 0.35 22.23
1.29 205.99 .606E+05 48.4 0.37 20.87
1.38 206.08 .694E+05 58.7 0.39 19.72
1.47 206.17 .786E+05 70.0 0.41 18.74
1.57 206.27 .883E+05 82.3 0.43 17.88
1.66 206.36 .983E+05 95.7 0.45 17.12
1.75 206.45 .109E+06 110.2 0.47 16.45

hydrograph <---> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1201) 530.50 8.69 5.42 33.69 0.76 0.22
OUTFLOW: ID= 1 (0810) 530.50 8.31 6.00 33.69 0.75 0.22

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.156 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 30.161
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.476

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1200) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0120): 9.00 0.156 5.25 30.16
+ ID2= 2 (0810): 530.50 8.312 6.00 33.69
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0113) | Area (ha)= 13.50 Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.87

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.227 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 28.025
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.442

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0802) |
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

Model Without SWM Infrastructure - Output

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 / 0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 / 0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .448E+01 0.0 0.12 164.32
0.08 207.60 .179E+02 0.0 0.19 103.51
0.12 207.64 .403E+02 0.0 0.25 79.00
0.16 207.68 .716E+02 0.0 0.30 65.21
0.19 207.71 .112E+03 0.0 0.35 56.20
0.23 207.75 .161E+03 0.1 0.40 49.76
0.27 207.79 .219E+03 0.1 0.44 44.90
0.31 207.83 .287E+03 0.1 0.48 41.08
0.35 207.87 .363E+03 0.2 0.52 37.98
0.39 207.91 .448E+03 0.2 0.56 35.40
0.43 207.95 .542E+03 0.3 0.60 33.22
0.47 207.99 .645E+03 0.3 0.63 31.35
0.50 208.02 .757E+03 0.4 0.67 29.72
0.54 208.06 .878E+03 0.5 0.70 28.29
0.58 208.10 .101E+04 0.6 0.74 27.02
0.62 208.14 .115E+04 0.7 0.77 25.88
0.67 208.19 .137E+04 0.9 0.81 24.42
0.72 208.24 .172E+04 1.2 0.84 23.79
0.77 208.29 .225E+04 1.6 0.82 24.20

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0113) 13.50 0.23 5.17 28.02 0.40 0.57
OUTFLOW: ID= 1 (0802) 13.50 0.22 5.42 27.96 0.40 0.57

| CALIB |
| NASHYD (0112) | Area (ha)= 30.50 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.60 |
Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 0.465 (i)
TIME TO PEAK (hrs)= 5.750
RUNOFF VOLUME (mm)= 28.444
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.449

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0111) | Area (ha)= 45.50 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.33 |

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 0.716 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 27.751
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.438

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1101) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0111): 45.50 0.716 5.50 27.75
+ ID2= 2 (0112): 30.50 0.465 5.75 28.44
=====

ID = 3 (1101): 76.00 1.179 5.58 28.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (1101) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 (1101): 76.00 1.179 5.58 28.03
+ ID2= 2 (0802): 13.50 0.223 5.42 27.96
=====

ID = 1 (1101): 89.50 1.401 5.50 28.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0801) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.66 0.0400
19.50 209.34 0.0400
37.91 208.66 0.0400
41.73 208.62 0.0400 / 0.0350 Main Channel
43.44 208.24 0.0350 Main Channel
45.75 208.62 0.0350 / 0.0450 Main Channel
54.00 208.79 0.0450 / 0.0400
77.43 209.05 0.0400
128.85 209.70 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 208.30 .104E+02 0.0 0.10 83.26
0.13 208.37 .415E+02 0.0 0.16 52.45
0.19 208.43 .934E+02 0.0 0.20 40.03
0.25 208.49 .166E+03 0.1 0.25 33.04
0.32 208.56 .259E+03 0.2 0.29 28.47
0.38 208.62 .373E+03 0.2 0.32 25.22
0.46 208.70 .729E+03 0.5 0.33 24.94
0.54 208.78 .135E+04 0.9 0.33 24.67
0.62 208.86 .225E+04 1.6 0.35 23.41
0.70 208.94 .352E+04 2.6 0.37 22.23
0.78 209.02 .516E+04 4.1 0.39 20.96
0.86 209.10 .716E+04 6.1 0.41 19.65
0.94 209.18 .949E+04 8.6 0.44 18.42
1.02 209.26 .122E+05 11.7 0.47 17.31
1.10 209.34 .152E+05 15.5 0.50 16.32
1.18 209.42 .185E+05 19.7 0.52 15.72
1.26 209.50 .224E+05 24.7 0.54 15.09
1.34 209.58 .266E+05 30.6 0.56 14.48
1.42 209.66 .313E+05 37.5 0.59 13.90

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1101) 89.50 1.40 5.50 28.02 0.60 0.34
OUTFLOW: ID= 1 (0801) 89.50 1.37 5.83 28.02 0.59 0.34

| CALIB |
| NASHYD (0110) | Area (ha)= 11.90 Curve Number (CN)= 83.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00

----- U.H. Tp(hrs)= 0.68

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.209 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 29.290
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.462

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1100) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0110): 11.90 0.209 3.83 29.29
+ ID2= 2 (0801): 89.50 1.374 5.83 28.02
=====

ID = 3 (1100): 101.40 1.554 5.67 28.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (1001) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (1100): 101.40 1.554 5.67 28.17
+ ID2= 2 (1200): 539.50 8.457 6.00 33.63
=====

ID = 3 (1001): 640.90 9.999 5.83 32.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0800) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 / 0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 / 0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400

Model Without SWM Infrastructure - Output

252.14 206.45 0.0400

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.09	204.79	.255E+02	0.0	0.16	54.50	
0.18	204.88	.102E+03	0.0	0.25	34.33	
0.28	204.98	.232E+03	0.1	0.33	26.47	
0.37	205.07	.109E+04	0.5	0.24	35.91	
0.46	205.16	.321E+04	1.7	0.27	31.53	
0.55	205.25	.680E+04	4.4	0.33	25.77	
0.64	205.34	.116E+05	9.2	0.41	21.18	
0.74	205.44	.182E+05	16.4	0.47	18.54	
0.83	205.53	.253E+05	25.9	0.53	16.26	
0.92	205.62	.328E+05	37.6	0.59	14.54	
1.01	205.71	.408E+05	51.4	0.65	13.23	
1.10	205.80	.492E+05	67.3	0.71	12.19	
1.20	205.90	.581E+05	85.3	0.76	11.36	
1.29	205.99	.675E+05	105.5	0.81	10.66	
1.38	206.08	.773E+05	127.9	0.86	10.08	
1.47	206.17	.876E+05	152.5	0.90	9.57	
1.57	206.27	.983E+05	179.4	0.94	9.13	
1.66	206.36	.109E+06	208.6	0.99	8.75	
1.75	206.45	.121E+06	240.2	1.03	8.41	
<---- hydrograph ----> <-pipe / channel-->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1001)	640.90	10.00	5.83	32.76	0.66	0.41
OUTFLOW: ID= 1 (0800)	640.90	9.90	6.17	32.76	0.65	0.41

ADD HYD (1000)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0100):	54.70	0.910	5.33	29.01
+ ID2= 2 (0800):	640.90	9.899	6.17	32.76
=====				
ID = 3 (1000):	695.60	10.744	6.08	32.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0190)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	Curve Number	(CN)=
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.83		
Unit Hyd Qpeak (cms)= 0.566				
PEAK FLOW	(cms)=	0.219 (i)		
TIME TO PEAK	(hrs)=	5.083		
RUNOFF VOLUME	(mm)=	30.011		
TOTAL RAINFALL	(mm)=	63.400		
RUNOFF COEFFICIENT	=	0.473		

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0191)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	Curve Number	(CN)=
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.94		

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW	(cms)=	0.330 (i)
TIME TO PEAK	(hrs)=	5.167
RUNOFF VOLUME	(mm)=	27.342
TOTAL RAINFALL	(mm)=	63.400
RUNOFF COEFFICIENT	=	0.431

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0192)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	Curve Number	(CN)=
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.06		

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW	(cms)=	0.450 (i)
TIME TO PEAK	(hrs)=	5.250
RUNOFF VOLUME	(mm)=	27.354
TOTAL RAINFALL	(mm)=	63.400
RUNOFF COEFFICIENT	=	0.431

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1901)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0191):	20.10	0.330	5.17	27.34
+ ID2= 2 (0192):	28.30	0.450	5.25	27.35
=====				
ID = 3 (1901):	48.40	0.780	5.25	27.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0899)				
IN= 2--> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.49	0.0400		
35.71	208.88	0.0400		
53.04	208.89	0.0400		
64.12	208.50	0.0400 / 0.0350	Main Channel	
70.77	208.05	0.0350	Main Channel	
74.98	208.02	0.0350	Main Channel	
83.40	208.38	0.0350 / 0.0400	Main Channel	
88.06	208.63	0.0400		
94.94	209.13	0.0400		
105.88	209.54	0.0400		

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.07	208.09	.349E+02	0.1	0.18	10.46	
0.14	208.16	.981E+02	0.2	0.28	6.64	
0.22	208.24	.183E+03	0.6	0.36	5.21	
0.29	208.31	.291E+03	1.1	0.42	4.40	
0.36	208.38	.420E+03	1.8	0.48	3.85	
0.44	208.46	.586E+03	3.0	0.57	3.27	
0.52	208.54	.777E+03	4.5	0.65	2.87	

0.60	208.62	.999E+03	6.5	0.72	2.58	
0.68	208.70	.125E+04	8.8	0.78	2.37	
0.76	208.78	.154E+04	11.5	0.84	2.22	
0.84	208.86	.185E+04	14.7	0.89	2.10	
0.92	208.94	.230E+04	18.2	0.88	2.10	
0.99	209.01	.285E+04	23.0	0.90	2.07	
1.07	209.09	.345E+04	28.5	0.92	2.02	
1.15	209.17	.411E+04	34.8	0.94	1.96	
1.23	209.25	.482E+04	42.0	0.97	1.91	
1.31	209.33	.559E+04	50.0	1.00	1.86	
1.39	209.41	.643E+04	59.1	1.02	1.81	
1.47	209.49	.732E+04	69.1	1.05	1.76	

<---- hydrograph ----> <-pipe / channel-->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1901)	48.40	0.78	5.25	27.35	0.24	0.38
OUTFLOW: ID= 1 (0899)	48.40	0.78	5.25	27.35	0.24	0.38

ADD HYD (1900)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0190):	12.30	0.219	5.08	30.01
+ ID2= 2 (0899):	48.40	0.779	5.25	27.35
=====				
ID = 3 (1900):	60.70	0.997	5.25	27.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0500)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	Curve Number	(CN)=
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.48		

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW	(cms)=	0.136 (i)
TIME TO PEAK	(hrs)=	3.333
RUNOFF VOLUME	(mm)=	28.442
TOTAL RAINFALL	(mm)=	63.400
RUNOFF COEFFICIENT	=	0.449

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0510) |
| ID= 1 DT= 5.0 min |
|-----
Area (ha)= 12.70 Curve Number (CN)= 81.7
Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 0.703

```
PEAK FLOW (cms)= 0.209 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 26.938
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.425
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0520) |
| ID= 1 DT= 5.0 min |
|-----
Area (ha)= 17.30 Curve Number (CN)= 82.5
Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.847

```
PEAK FLOW (cms)= 0.292 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 28.025
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.442
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 5000) |
| 1 + 2 = 3 |
|-----
ID1= 1 ( 0500):
+ ID2= 2 ( 0510):
=====
ID = 3 ( 5000): 20.30 0.340 5.08 27.50
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 5000) |
| 3 + 2 = 1 |
|-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
```

```
ID1= 3 ( 5000): 20.30 0.340 5.08 27.50
+ ID2= 2 ( 0520): 17.30 0.292 5.17 28.02
=====
ID = 1 ( 5000): 37.60 0.632 5.08 27.74
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0600) |
| ID= 1 DT= 5.0 min |
|-----
Area (ha)= 2.50 Curve Number (CN)= 82.5
Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.212

```
PEAK FLOW (cms)= 0.044 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 28.022
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.442
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUU A A LLLLL
```

```
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
```

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\VH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\0f65fe11-c762-4802-a0f7-1c56705ca456\sce
Summary filename:

C:\Users\wraymond\AppData\Local\Civica\VH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\0f65fe11-c762-4802-a0f7-1c56705ca456\sce

DATE: 10-17-2025 TIME: 02:15:07

USER:

COMMENTS: _____

```
*****
** SIMULATION : 4 **
*****
```

```
-----
| READ STORM |
|-----
Ptotal= 75.40 mm |
Filename: C:\Users\wraymond\AppData\Local\Temp\35eb7828-247c-431e-8f8f-00c8304cf789\e151f037
Comments: 10yr12hrAES
```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.08	11.31	6.17	2.26	9.25	0.00
0.08	9.80	3.17	11.31	6.25	2.26	9.33	0.00
0.17	9.80	3.25	11.31	6.33	2.26	9.42	0.00
0.25	9.80	3.33	11.31	6.42	2.26	9.50	0.00
0.33	9.80	3.42	11.31	6.50	2.26	9.58	0.00
0.42	9.80	3.50	11.31	6.58	2.26	9.67	0.00
0.50	9.80	3.58	11.31	6.67	2.26	9.75	0.00
0.58	9.80	3.67	11.31	6.75	2.26	9.83	0.00
0.67	9.80	3.75	11.31	6.83	2.26	9.92	0.00
0.75	9.80	3.83	11.31	6.92	2.26	10.00	0.00
0.83	9.80	3.92	11.31	7.00	2.26	10.08	0.00
0.92	9.80	4.00	11.31	7.08	0.75	10.17	0.00
1.00	9.80	4.08	10.56	7.17	0.75	10.25	0.00
1.08	19.60	4.17	10.56	7.25	0.75	10.33	0.00
1.17	19.60	4.25	10.56	7.33	0.75	10.42	0.00
1.25	19.60	4.33	10.56	7.42	0.75	10.50	0.00
1.33	19.60	4.42	10.56	7.50	0.75	10.58	0.00
1.42	19.60	4.50	10.56	7.58	0.75	10.67	0.00
1.50	19.60	4.58	10.56	7.67	0.75	10.75	0.00
1.58	19.60	4.67	10.56	7.75	0.75	10.83	0.00
1.67	19.60	4.75	10.56	7.83	0.75	10.92	0.00
1.75	19.60	4.83	10.56	7.92	0.75	11.00	0.00
1.83	19.60	4.92	10.56	8.00	0.75	11.08	0.00

1.92	19.60	5.00	10.56	8.08	0.00	11.17	0.00
2.00	19.60	5.08	6.03	8.17	0.00	11.25	0.00
2.08	15.08	5.17	6.03	8.25	0.00	11.33	0.00
2.17	15.08	5.25	6.03	8.33	0.00	11.42	0.00
2.25	15.08	5.33	6.03	8.42	0.00	11.50	0.00
2.33	15.08	5.42	6.03	8.50	0.00	11.58	0.00
2.42	15.08	5.50	6.03	8.58	0.00	11.67	0.00
2.50	15.08	5.58	6.03	8.67	0.00	11.75	0.00
2.58	15.08	5.67	6.03	8.75	0.00	11.83	0.00
2.67	15.08	5.75	6.03	8.83	0.00	11.92	0.00
2.75	15.08	5.83	6.03	8.92	0.00	12.00	0.00
2.83	15.08	5.92	6.03	9.00	0.00		
2.92	15.08	6.00	6.03	9.08	0.00		
3.00	15.08	6.08	2.26	9.17	0.00		

```
-----
| CALIB
| NASHYD ( 0185) |
| ID= 1 DT= 5.0 min |
|-----
Area (ha)= 2.00 Curve Number (CN)= 79.5
Ia (mm)= 6.54 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.36
```

Unit Hyd Qpeak (cms)= 0.212

```
PEAK FLOW (cms)= 0.045 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 35.285
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.468
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0180) |
| ID= 1 DT= 5.0 min |
|-----
Area (ha)= 6.80 Curve Number (CN)= 82.4
Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.85
```

Unit Hyd Qpeak (cms)= 0.306

```
PEAK FLOW (cms)= 0.149 (i)
TIME TO PEAK (hrs)= 4.500
RUNOFF VOLUME (mm)= 37.237
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.494
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0170) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 5.80 Curve Number (CN)= 82.4
Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.130 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 37.237
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.494
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0160) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 16.30 Curve Number (CN)= 83.2
Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.15

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.358 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 38.527
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.511
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0330) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 22.30 Curve Number (CN)= 82.2
Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.60

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.505 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 36.913
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.490
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0270) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 2.50 Curve Number (CN)= 81.0
Ia (mm)= 5.95 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.24

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.062 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 37.346
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.495
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0260) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 7.00 Curve Number (CN)= 83.7
Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.43

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.178 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 39.353
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.522
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0250) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 10.70 Curve Number (CN)= 81.9
Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.54

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.243 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 36.439
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.483
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0320) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 11.70 Curve Number (CN)= 83.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.45

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.287 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 38.198
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.507
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0420) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 25.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.12

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 0.577 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 39.186
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.520
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0423) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 23.90 Curve Number (CN)= 84.1
Ia (mm)= 7.20 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.80

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 0.563 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 40.020
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.531
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0422) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 6.90 Curve Number (CN)= 83.4
Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.61

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.165 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 38.854
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.515
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0896) |
| IN= 2---> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .808E+00 0.0 0.15 23.76
0.07 204.57 .323E+01 0.0 0.23 14.97
0.11 204.61 .727E+01 0.0 0.30 11.42
0.14 204.64 .129E+02 0.0 0.37 9.43
0.18 204.68 .202E+02 0.0 0.43 8.13
0.22 204.72 .291E+02 0.1 0.48 7.20
0.25 204.75 .396E+02 0.1 0.53 6.49
0.29 204.79 .517E+02 0.1 0.58 5.94
0.33 204.83 .654E+02 0.2 0.63 5.49
0.36 204.86 .808E+02 0.3 0.68 5.12
0.40 204.90 .977E+02 0.3 0.72 4.80
0.43 204.93 .131E+03 0.4 0.69 5.03
0.47 204.97 .232E+03 0.6 0.55 6.29
0.51 205.01 .388E+03 0.9 0.51 6.81
0.54 205.04 .584E+03 1.4 0.51 6.75
```

Model Without SWM Infrastructure - Output

0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0422)	6.90	0.16	3.42	38.85	0.30	0.60
OUTFLOW: ID= 1 (0896)	6.90	0.16	3.58	38.85	0.30	0.60

ADD HYD (4202)
1 + 2 = 3

ID1= 1 (0423):	23.90	0.563	4.00	40.02
+ ID2= 2 (0896):	6.90	0.165	3.58	38.85
=====				
ID = 3 (4202):	30.80	0.725	3.83	39.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0895)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350 Main Channel
28.59	211.79	0.0350 Main Channel
32.89	214.16	0.0350 / 0.0500 Main Channel
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.170E+01	0.0	0.28	4.09
0.24	212.03	.679E+01	0.0	0.44	2.58
0.36	212.15	.153E+02	0.1	0.58	1.97
0.48	212.27	.272E+02	0.3	0.70	1.62
0.61	212.40	.424E+02	0.5	0.82	1.40

51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.344E+01	0.0	0.19	78.41
0.07	204.57	.137E+02	0.0	0.30	49.40
0.11	204.61	.309E+02	0.0	0.39	37.70
0.14	204.64	.550E+02	0.0	0.47	31.12
0.18	204.68	.859E+02	0.1	0.55	26.82
0.22	204.72	.124E+03	0.1	0.62	23.75
0.25	204.75	.168E+03	0.1	0.69	21.43
0.29	204.79	.220E+03	0.2	0.75	19.60
0.33	204.83	.278E+03	0.3	0.81	18.12
0.36	204.86	.344E+03	0.3	0.87	16.89
0.40	204.90	.416E+03	0.4	0.93	15.85
0.43	204.93	.559E+03	0.6	0.89	16.61
0.47	204.97	.986E+03	0.8	0.71	20.75
0.51	205.01	.165E+04	1.2	0.65	22.49
0.54	205.04	.248E+04	1.9	0.66	22.28
0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0421)	10.40	0.26	3.17	37.87	0.33	0.81
OUTFLOW: ID= 1 (0883)	10.40	0.25	3.33	37.83	0.32	0.81

ADD HYD (4201)
1 + 2 = 3

ID1= 1 (0883):	10.40	0.250	3.33	37.83
+ ID2= 2 (0895):	30.80	0.725	3.83	39.76
=====				
ID = 3 (4201):	41.20	0.965	3.67	39.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

0.73	212.52	.134E+03	1.0	0.53	2.16
0.85	212.64	.375E+03	2.8	0.52	2.20
0.97	212.76	.687E+03	6.1	0.60	1.89
1.09	212.88	.107E+04	11.0	0.71	1.61
1.21	213.00	.148E+04	17.8	0.83	1.38
1.33	213.12	.192E+04	26.1	0.93	1.22
1.45	213.24	.238E+04	35.9	1.03	1.11
1.57	213.36	.288E+04	47.3	1.13	1.01
1.70	213.49	.340E+04	60.1	1.21	0.94
1.82	213.61	.395E+04	74.5	1.29	0.88
1.94	213.73	.452E+04	90.5	1.37	0.83
2.06	213.85	.512E+04	109.2	1.46	0.78
2.18	213.97	.573E+04	130.3	1.56	0.73
2.37	214.16	.694E+04	168.2	1.66	0.69

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4202)	30.80	0.72	3.83	39.76	0.66	0.67
OUTFLOW: ID= 1 (0895)	30.80	0.72	3.83	39.76	0.66	0.67

CALIB
NASHYD (0421)
ID= 1 DT= 5.0 min

Area (ha)= 10.40
Ia (mm)= 7.91
U.H. Tp(hrs)= 0.37
Curve Number (CN)= 82.8
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)= 0.257 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 37.871
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0883)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350 Main Channel

ROUTE CHN(0882)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 / 0.0350 Main Channel
70.77	208.05	0.0350 Main Channel
74.98	208.02	0.0350 Main Channel
83.40	208.38	0.0350 / 0.0400 Main Channel
88.06	208.63	0.0400
94.94	209.13	0.0400
105.88	209.54	0.0400

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52
0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20
0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4201)	41.20	0.96	3.67	39.27	0.36	0.25
OUTFLOW: ID= 1 (0882)	41.20	0.94	4.42	39.26	0.36	0.25

ADD HYD (4200)

Model Without SWM Infrastructure - Output

```
| 1 + 2 = 3 |
-----
ID1= 1 ( 0420): 25.80 0.577 5.17 39.19
+ ID2= 2 ( 0882): 41.20 0.945 4.42 39.26
=====
ID = 3 ( 4200): 67.00 1.512 5.08 39.23
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0440) | Area (ha)= 31.60 Curve Number (CN)= 84.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.04 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.16
```

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 0.724 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 40.527
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.537

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0442) | Area (ha)= 2.40 Curve Number (CN)= 84.9
| ID= 1 DT= 5.0 min | Ia (mm)= 6.77 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.41
```

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.065 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 41.382
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.549

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0443) | Area (ha)= 21.30 Curve Number (CN)= 83.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.31 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.59
```

Unit Hyd Qpeak (cms)= 1.379

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| STANDHYD ( 0045) | Area (ha)= 1.30
| ID= 1 DT= 5.0 min | Total Imp(%)= 65.00 Dir. Conn.(%)= 35.00
```

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.84	0.46	
Dep. Storage (mm)=	1.00	8.92	
Average Slope (%)=	1.00	2.00	
Length (m)=	93.09	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	19.60	19.33	
over (min)	5.00	20.00	
Storage Coeff. (min)=	4.70 (ii)	18.32 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.22	0.06	
PEAK FLOW (cms)=	0.02	0.02	*TOTALS*
TIME TO PEAK (hrs)=	2.08	3.17	0.044 (iii)
RUNOFF VOLUME (mm)=	74.40	42.01	53.34
TOTAL RAINFALL (mm)=	75.40	75.40	75.40
RUNOFF COEFFICIENT =	0.99	0.56	0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4345) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0043): 22.90 0.641 3.08 48.97
+ ID2= 2 ( 0045): 1.30 0.044 2.08 53.34
=====
ID = 3 ( 4345): 24.20 0.685 2.08 49.20
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

PEAK FLOW (cms)= 0.524 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 39.682
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.526

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0451) | Area (ha)= 12.30 Curve Number (CN)= 84.3
| ID= 1 DT= 5.0 min | Ia (mm)= 7.09 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.57
```

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 0.310 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 40.359
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.535

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| STANDHYD ( 0043) | Area (ha)= 22.90
| ID= 1 DT= 5.0 min | Total Imp(%)= 49.00 Dir. Conn.(%)= 40.00
```

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	11.22	11.68	
Dep. Storage (mm)=	1.00	8.92	
Average Slope (%)=	1.00	2.00	
Length (m)=	390.73	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	19.60	9.34	
over (min)	10.00	30.00	
Storage Coeff. (min)=	11.11 (ii)	29.33 (ii)	
Unit Hyd. Tpeak (min)=	10.00	30.00	
Unit Hyd. peak (cms)=	0.10	0.04	
PEAK FLOW (cms)=	0.50	0.27	*TOTALS*
TIME TO PEAK (hrs)=	2.08	3.42	0.641 (iii)
RUNOFF VOLUME (mm)=	74.40	32.01	48.97
TOTAL RAINFALL (mm)=	75.40	75.40	75.40
RUNOFF COEFFICIENT =	0.99	0.42	0.65

```
| ROUTE CHN( 0893) |
| IN= 2---> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

Distance	Elevation	Manning
0.00	208.29	0.0300
3.73	208.14	0.0300 / 0.0350
5.30	207.52	0.0350
6.93	208.18	0.0350 / 0.0300
8.96	208.27	0.0300
14.71	208.30	0.0300
23.86	208.59	0.0300

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4345)	24.20	0.69	2.08	49.20	0.67	0.59
OUTFLOW: ID= 1 (0893)	24.20	0.68	2.17	49.20	0.67	0.59

```
| ADD HYD ( 4510) |
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
```

Model Without SWM Infrastructure - Output

```
-----
              (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0451): 12.30  0.310  3.33  40.36
+ ID2= 2 ( 0893): 24.20  0.681  2.17  49.20
=====
ID = 3 ( 4510): 36.50  0.980  3.17  46.22
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0892)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          214.06        0.0500
6.27          213.95        0.0500
20.38         214.11        0.0500
25.18         213.97        0.0500 / 0.0350 Main Channel
28.59         211.79        0.0350 Main Channel
32.89         214.16        0.0350 / 0.0500 Main Channel
42.61         212.54        0.0500
59.11         212.41        0.0500
84.10         212.83        0.0500
100.76        213.78        0.0500

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.12 211.91 .279E+01 0.0 0.48 3.92
0.24 212.03 .112E+02 0.1 0.76 2.47
0.36 212.15 .251E+02 0.2 0.99 1.89
0.48 212.27 .446E+02 0.5 1.20 1.56
0.61 212.40 .697E+02 0.9 1.40 1.34
0.73 212.52 .220E+03 1.8 0.91 2.07
0.85 212.64 .616E+03 4.9 0.89 2.11
0.97 212.76 .113E+04 10.4 1.04 1.81
1.09 212.88 .175E+04 18.9 1.21 1.54
1.21 213.00 .243E+04 30.5 1.42 1.32
1.33 213.12 .315E+04 44.8 1.60 1.17
1.45 213.24 .392E+04 61.6 1.77 1.06
1.57 213.36 .473E+04 81.0 1.93 0.97
1.70 213.49 .558E+04 103.1 2.08 0.90
1.82 213.61 .648E+04 127.8 2.22 0.85
1.94 213.73 .742E+04 155.2 2.35 0.80
2.06 213.85 .841E+04 187.2 2.50 0.75
2.18 213.97 .941E+04 223.3 2.67 0.70
2.37 214.16 .114E+05 288.4 2.85 0.66

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
0.66 205.85 .234E+03 0.6 0.41 7.08
0.70 205.89 .306E+03 0.8 0.44 6.64
0.74 205.93 .391E+03 1.0 0.47 6.22
0.79 205.98 .490E+03 1.4 0.50 5.83
0.83 206.02 .601E+03 1.8 0.53 5.49

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4411) 57.80 1.49 3.17 43.81 0.80 0.51
OUTFLOW: ID= 1 ( 0891) 57.80 1.49 3.25 43.81 0.79 0.51

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.
```

```
-----
| CALIB
| STANDHYD ( 0441)|
| ID= 1 DT= 5.0 min|
-----
Area (ha)= 3.00
Total Imp(%)= 45.00 Dir. Conn.(%)= 35.00
```

```
-----
IMPERVIOUS      PERVIOUS (i)
Surface Area (ha)= 1.35 1.65
Dep. Storage (mm)= 1.00 3.58
Average Slope (%)= 2.00 2.00
Length (m)= 141.42 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 19.60 14.74
over (min) 5.00 25.00
Storage Coeff. (min)= 4.90 (ii) 20.08 (ii)
Unit Hyd. Tpeak (min)= 5.00 25.00
Unit Hyd. peak (cms)= 0.22 0.05

*TOTALS*
PEAK FLOW (cms)= 0.06 0.06 0.111 (iii)
TIME TO PEAK (hrs)= 2.08 3.17 2.08
RUNOFF VOLUME (mm)= 74.40 48.79 57.75
TOTAL RAINFALL (mm)= 75.40 75.40 75.40
RUNOFF COEFFICIENT = 0.99 0.65 0.77
```

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
INFLOW : ID= 2 ( 4510) 36.50 0.98 3.17 46.22 0.62 1.31
OUTFLOW: ID= 1 ( 0892) 36.50 0.98 3.17 46.22 0.62 1.31
```

```
-----
| ADD HYD ( 4411)|
| 1 + 2 = 3 |
-----
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0443): 21.30 0.524 3.42 39.68
+ ID2= 2 ( 0892): 36.50 0.980 3.17 46.22
=====
ID = 3 ( 4411): 57.80 1.492 3.17 43.81
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0891)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.70        0.0400
2.35          206.02        0.0400 / 0.0350 Main Channel
5.23          205.19        0.0350 Main Channel
5.34          205.67        0.0350 Main Channel
19.05         206.06        0.0350 / 0.0400 Main Channel
21.11         206.05        0.0400
22.02         206.13        0.0400 / 0.0350
40.10         206.15        0.0350
56.50         206.04        0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04 205.23 .621E+00 0.0 0.10 29.40
0.09 205.28 .248E+01 0.0 0.16 18.52
0.13 205.32 .559E+01 0.0 0.21 14.13
0.17 205.36 .994E+01 0.0 0.25 11.67
0.22 205.41 .155E+02 0.0 0.29 10.05
0.26 205.45 .224E+02 0.0 0.33 8.90
0.31 205.50 .304E+02 0.1 0.37 8.03
0.35 205.54 .398E+02 0.1 0.40 7.35
0.39 205.58 .503E+02 0.1 0.43 6.79
0.44 205.63 .621E+02 0.2 0.46 6.33
0.48 205.67 .752E+02 0.2 0.49 5.97
0.52 205.71 .954E+02 0.2 0.40 7.41
0.57 205.76 .129E+03 0.3 0.38 7.71
0.61 205.80 .175E+03 0.4 0.39 7.48
```

```
-----
| ADD HYD ( 4410)|
| 1 + 2 = 3 |
-----
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0441): 3.00 0.111 2.08 57.75
+ ID2= 2 ( 0891): 57.80 1.486 3.25 43.81
=====
ID = 3 ( 4410): 60.80 1.581 3.25 44.50
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 4401)|
| 1 + 2 = 3 |
-----
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 4410): 60.80 1.581 3.25 44.50
+ ID2= 2 ( 0442): 2.40 0.065 3.17 41.38
=====
ID = 3 ( 4401): 63.20 1.645 3.25 44.38
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0889)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.70        0.0400
2.35          206.02        0.0400 / 0.0350 Main Channel
5.23          205.19        0.0350 Main Channel
5.34          205.67        0.0350 Main Channel
19.05         206.06        0.0350 / 0.0400 Main Channel
21.11         206.05        0.0400
22.02         206.13        0.0400 / 0.0350
40.10         206.15        0.0350
56.50         206.04        0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04 205.23 .272E+01 0.0 0.09 142.50
0.09 205.28 .109E+02 0.0 0.14 89.77
0.13 205.32 .245E+02 0.0 0.19 68.51
0.17 205.36 .435E+02 0.0 0.23 56.55
0.22 205.41 .679E+02 0.0 0.26 48.73
0.26 205.45 .978E+02 0.0 0.30 43.16
0.31 205.50 .133E+03 0.1 0.33 38.94
0.35 205.54 .174E+03 0.1 0.36 35.63
0.39 205.58 .220E+03 0.1 0.39 32.93
0.44 205.63 .272E+03 0.1 0.42 30.70
```


Model Without SWM Infrastructure - Output

```
| ROUTE CHN( 0897)|
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00           214.06          0.0500
6.27           213.95          0.0500
20.38          214.11          0.0500
25.18          213.97          0.0500 / 0.0350 Main Channel
28.59          211.79          0.0350 Main Channel
32.89          214.16          0.0350 / 0.0500 Main Channel
42.61          212.54          0.0500
59.11          212.41          0.0500
84.10          212.83          0.0500
100.76         213.78          0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.12 211.91 .140E+02 0.0 0.17 55.64
0.24 212.03 .559E+02 0.0 0.27 35.05
0.36 212.15 .126E+03 0.1 0.35 26.75
0.48 212.27 .224E+03 0.2 0.43 22.08
0.61 212.40 .350E+03 0.3 0.49 19.03
0.73 212.52 .110E+04 0.6 0.32 29.36
0.85 212.64 .309E+04 1.7 0.31 29.92
0.97 212.76 .566E+04 3.7 0.37 25.67
1.09 212.88 .878E+04 6.7 0.43 21.92
1.21 213.00 .122E+05 10.8 0.50 18.80
1.33 213.12 .158E+05 15.8 0.57 16.63
1.45 213.24 .196E+05 21.8 0.63 15.03
1.57 213.36 .237E+05 28.7 0.68 13.79
1.70 213.49 .280E+05 36.4 0.73 12.81
1.82 213.61 .325E+05 45.2 0.78 12.00
1.94 213.73 .372E+05 54.9 0.83 11.31
2.06 213.85 .422E+05 66.2 0.89 10.62
2.18 213.97 .472E+05 79.0 0.94 9.97
2.37 214.16 .571E+05 102.0 1.01 9.34

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4244) 29.40 1.14 2.08 59.54 0.78 0.32
OUTFLOW: ID= 1 ( 0897) 29.40 1.01 3.17 59.53 0.77 0.32
```

```
| ADD HYD ( 4301)|
```

```
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0888): 94.80 2.221 4.50 43.09
+ ID2= 2 ( 0897): 29.40 1.005 3.17 59.53
=====
ID = 3 ( 4301): 124.20 3.077 4.08 46.98
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0887)|
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00           209.52          0.0400
61.99          209.23          0.0400
76.86          209.20          0.0400
82.03          209.20          0.0400 / 0.0350 Main Channel
86.30          208.87          0.0350 Main Channel
89.86          209.20          0.0350 / 0.0300 Main Channel
96.27          209.24          0.0300
103.53         209.40          0.0300
127.96         209.50          0.0300
158.58         209.70          0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.03 208.90 .143E+01 0.0 0.09 20.80
0.07 208.94 .572E+01 0.0 0.14 13.11
0.10 208.97 .129E+02 0.0 0.18 10.00
0.13 209.00 .229E+02 0.0 0.22 8.26
0.17 209.04 .357E+02 0.1 0.26 7.11
0.20 209.07 .514E+02 0.1 0.29 6.30
0.23 209.10 .700E+02 0.2 0.32 5.69
0.26 209.13 .915E+02 0.3 0.35 5.20
0.30 209.17 .116E+03 0.4 0.38 4.81
0.33 209.20 .143E+03 0.5 0.41 4.48
0.37 209.24 .239E+03 0.8 0.37 5.02
0.40 209.27 .396E+03 1.3 0.35 5.26
0.44 209.31 .589E+03 1.9 0.36 5.13
0.47 209.34 .818E+03 2.8 0.38 4.89
0.51 209.38 .108E+04 3.9 0.40 4.63
0.54 209.41 .139E+04 5.2 0.41 4.46
0.58 209.45 .175E+04 6.7 0.43 4.33
0.61 209.48 .218E+04 8.7 0.44 4.17
0.65 209.52 .266E+04 11.2 0.46 3.98
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
```

129.31 207.24 0.0400

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.09 205.46 .110E+02 0.0 0.11 51.32
0.19 205.56 .438E+02 0.0 0.17 32.33
0.28 205.65 .986E+02 0.1 0.23 24.67
0.38 205.75 .175E+03 0.1 0.27 20.37
0.47 205.84 .271E+03 0.3 0.33 16.94
0.57 205.94 .379E+03 0.4 0.38 14.73
0.66 206.03 .501E+03 0.6 0.42 13.19
0.76 206.13 .644E+03 0.9 0.48 11.58
0.86 206.23 .845E+03 1.3 0.51 10.89
0.96 206.33 .140E+04 1.9 0.46 12.13
1.06 206.43 .209E+04 2.9 0.46 12.20
1.16 206.53 .290E+04 4.1 0.47 11.82
1.26 206.63 .383E+04 5.6 0.49 11.31
1.37 206.74 .489E+04 7.6 0.52 10.78
1.47 206.84 .607E+04 9.8 0.54 10.28
1.57 206.94 .737E+04 12.5 0.57 9.81
1.67 207.04 .879E+04 15.6 0.60 9.38
1.77 207.14 .103E+05 19.2 0.62 8.99
1.87 207.24 .120E+05 23.2 0.65 8.63
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4300) 144.00 3.49 4.17 45.91 1.12 0.47
OUTFLOW: ID= 1 ( 0886) 144.00 3.48 4.50 45.90 1.11 0.47
```

```
| CALIB
| NASHYD ( 0411)| Area (ha)= 4.50 Curve Number (CN)= 86.7
| ID= 1 DT= 5.0 min | Ia (mm)= 5.84 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.11
```

```
Unit Hyd Qpeak (cms)= 0.155
PEAK FLOW (cms)= 0.112 (i)
TIME TO PEAK (hrs)= 4.750
RUNOFF VOLUME (mm)= 44.585
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.591
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

INFLOW : ID= 2 (4301) 124.20 3.08 4.08 46.98 0.48 0.38
OUTFLOW: ID= 1 (0887) 124.20 3.08 4.08 46.98 0.48 0.38

```
| CALIB
| NASHYD ( 0430)| Area (ha)= 19.80 Curve Number (CN)= 83.6
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.13
```

Unit Hyd Qpeak (cms)= 0.669

```
PEAK FLOW (cms)= 0.442 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 39.186
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.520
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4300)|
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0430): 19.80 0.442 5.17 39.19
+ ID2= 2 ( 0887): 124.20 3.076 4.08 46.98
=====
ID = 3 ( 4300): 144.00 3.495 4.17 45.91
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0886)|
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00           209.20          0.0400
100.00         206.26          0.0400
111.30         206.19          0.0400 / 0.0350 Main Channel
112.02         205.76          0.0350 Main Channel
113.82         205.37          0.0350 Main Channel
115.62         206.03          0.0350 / 0.0400 Main Channel
117.77         207.30          0.0400
120.56         207.40          0.0400
124.41         207.31          0.0400
```

Model Without SWM Infrastructure - Output

```
ADD HYD ( 4110)
1 + 2 = 3

AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)

ID1= 1 ( 0411):  4.50  0.112  4.75  44.58
+ ID2= 2 ( 0886): 144.00 3.482  4.50  45.90
=====
ID = 3 ( 4110):  148.50 3.594  4.50  45.86
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0885)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          208.48      0.0500
43.69         207.97      0.0500
66.92         207.94      0.0500
76.98         208.01      0.0500
87.94         208.25      0.0500
89.93         208.44      0.0500 /0.0350 Main Channel
92.70         208.20      0.0350 Main Channel
95.51         207.28      0.0350 Main Channel
98.26         208.25      0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)      (cu.m.)      (cms)      (m/s)      (min)
0.05      207.33      .134E+01      0.0      0.06      52.81
0.10      207.38      .536E+01      0.0      0.10      33.27
0.15      207.43      .121E+02      0.0      0.13      25.39
0.19      207.47      .214E+02      0.0      0.15      20.96
0.24      207.52      .335E+02      0.0      0.18      18.06
0.29      207.57      .483E+02      0.1      0.20      15.99
0.34      207.62      .657E+02      0.1      0.22      14.43
0.39      207.67      .858E+02      0.1      0.24      13.20
0.44      207.72      .109E+03      0.1      0.26      12.21
0.48      207.76      .134E+03      0.2      0.28      11.38
0.53      207.81      .162E+03      0.3      0.30      10.68
0.58      207.86      .193E+03      0.3      0.32      10.08
0.63      207.91      .227E+03      0.4      0.34      9.55
0.68      207.96      .295E+03      0.5      0.32      10.12
0.73      208.01      .613E+03      0.7      0.22      14.89
0.78      208.06      .103E+04      1.0      0.20      16.42
0.82      208.10      .150E+04      1.5      0.20      16.27
0.87      208.15      .204E+04      2.2      0.21      15.61
0.92      208.20      .264E+04      3.0      0.22      14.84
```

```
0.48      212.27      .837E+02      0.1      0.25      14.30
0.61      212.40      .131E+03      0.2      0.29      12.32
0.73      212.52      .412E+03      0.4      0.18      19.01
0.85      212.64      .115E+04      1.0      0.18      19.37
0.97      212.76      .212E+04      2.1      0.21      16.62
1.09      212.88      .328E+04      3.9      0.25      14.19
1.21      213.00      .455E+04      6.2      0.29      12.17
1.33      213.12      .591E+04      9.1      0.33      10.77
1.45      213.24      .734E+04      12.6      0.36      9.73
1.57      213.36      .886E+04      16.5      0.39      8.93
1.70      213.49      .105E+05      21.0      0.42      8.29
1.82      213.61      .122E+05      26.1      0.45      7.77
1.94      213.73      .139E+05      31.7      0.48      7.33
2.06      213.85      .158E+05      38.2      0.51      6.88
2.18      213.97      .177E+05      45.6      0.54      6.45
2.37      214.16      .214E+05      58.9      0.58      6.05
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)      (ha)      (cms)      (hrs)      (mm)
INFLOW : ID= 2 ( 0041) 25.40 0.56 5.25 39.19 0.77 0.18
OUTFLOW: ID= 1 ( 0894) 25.40 0.55 5.50 39.19 0.76 0.18
```

```
CALIB
NASHYD ( 0040)
ID= 1 DT= 5.0 min

Area (ha)= 37.50 Curve Number (CN)= 84.2
Ia (mm)= 7.14 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.98
```

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 0.866 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 40.194
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.533

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ADD HYD ( 4140)
1 + 2 = 3

AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)

ID1= 1 ( 0040):  37.50 0.866  4.67  40.19
+ ID2= 2 ( 0894): 25.40 0.554  5.50  39.19
=====
```

```
**** WARNING: TRAVEL TIME TABLE EXCEEDED

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)      (ha)      (cms)      (hrs)      (mm)
INFLOW : ID= 2 ( 4110) 148.50 3.59 4.50 45.86 0.92 0.22
OUTFLOW: ID= 1 ( 0885) 148.50 3.58 4.83 45.86 0.92 0.22
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
CALIB
NASHYD ( 0041)
ID= 1 DT= 5.0 min

Area (ha)= 25.40 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.21
```

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.562 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 39.186
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.520

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ROUTE CHN( 0894)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          214.06      0.0500
6.27          213.95      0.0500
20.38         214.11      0.0500
25.18         213.97      0.0500 /0.0350 Main Channel
28.59         211.79      0.0350 Main Channel
32.89         214.16      0.0350 /0.0500 Main Channel
42.61         212.54      0.0500
59.11         212.41      0.0500
84.10         212.83      0.0500
100.76        213.78      0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)      (cu.m.)      (cms)      (m/s)      (min)
0.12      211.91      .523E+01      0.0      0.10      36.03
0.24      212.03      .209E+02      0.0      0.15      22.70
0.36      212.15      .471E+02      0.0      0.20      17.32
```

ID = 3 (4140): 62.90 1.413 5.17 39.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ADD HYD ( 4101)
1 + 2 = 3

AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)

ID1= 1 ( 4140):  62.90 1.413  5.17  39.79
+ ID2= 2 ( 0885): 148.50 3.581  4.83  45.86
=====
ID = 3 ( 4101):  211.40 4.984  5.08  44.05
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0884)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          204.63      0.0400
45.24         204.34      0.0400
94.52         203.98      0.0400
140.93        203.58      0.0400
148.77        203.72      0.0400 /0.0350 Main Channel
154.30        202.99      0.0350 Main Channel
158.02        203.77      0.0350 /0.0400 Main Channel
174.30        203.79      0.0400
222.94        204.38      0.0400
285.62        204.03      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)      (cu.m.)      (cms)      (m/s)      (min)
0.05      203.04      .620E+01      0.0      0.11      58.30
0.10      203.09      .248E+02      0.0      0.17      36.73
0.16      203.15      .558E+02      0.0      0.22      28.03
0.21      203.20      .992E+02      0.1      0.27      23.14
0.26      203.25      .155E+03      0.1      0.31      19.94
0.31      203.30      .223E+03      0.2      0.35      17.66
0.37      203.36      .304E+03      0.3      0.39      15.93
0.42      203.41      .397E+03      0.5      0.42      14.58
0.47      203.46      .502E+03      0.6      0.46      13.47
0.52      203.51      .620E+03      0.8      0.49      12.56
0.57      203.56      .750E+03      1.1      0.52      11.79
0.63      203.62      .934E+03      1.3      0.53      11.56
0.68      203.67      .129E+04      1.7      0.50      12.36
0.73      203.72      .184E+04      2.3      0.47      13.20
0.79      203.78      .270E+04      3.4      0.47      13.22
```


Model Without SWM Infrastructure - Output

0.85	203.84	.412E+04	5.1	0.45	13.57
0.92	203.91	.583E+04	7.3	0.47	13.24
0.98	203.97	.783E+04	10.3	0.49	12.69
1.04	204.03	.101E+05	13.9	0.51	12.15

<---- hydrograph ---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (4101)	211.40	4.98	5.08	44.05	0.85
OUTFLOW: ID= 1 (0884)	211.40	4.97	5.25	44.05	0.85

CALIB					
NASHYD (0410)	Area (ha)=	8.50	Curve Number (CN)=	85.5	
ID= 1 DT= 5.0 min	Ia (mm)=	6.46	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.94			

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.207 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 42.429
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.563

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4100)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0410):	8.50	0.207	4.33	42.43	
+ ID2= 2 (0884):	211.40	4.972	5.25	44.05	
ID = 3 (4100):	219.90	5.176	5.25	43.99	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0401)	Area (ha)=	23.00	Curve Number (CN)=	83.1	
ID= 1 DT= 5.0 min	Ia (mm)=	7.74	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.78			

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.521 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 38.367
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.509

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4001)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0401):	23.00	0.521	4.08	38.37	
+ ID2= 2 (4100):	219.90	5.176	5.25	43.99	
ID = 3 (4001):	242.90	5.686	5.17	43.46	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4001)					
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 3 (4001):	242.90	5.686	5.17	43.46	
+ ID2= 2 (4200):	67.00	1.512	5.08	39.23	
ID = 1 (4001):	309.90	7.198	5.17	42.54	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0880)					
IN= 2--> OUT= 1					
	Routing time step (min)'=	5.00			
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	204.63	0.0400			
45.24	204.34	0.0400			
94.52	203.98	0.0400			
140.93	203.58	0.0400			
148.77	203.72	0.0400 / 0.0350	Main Channel		
154.30	202.99	0.0350	Main Channel		
158.02	203.77	0.0350 / 0.0400	Main Channel		
174.30	203.79	0.0400			
222.94	204.38	0.0400			
285.62	204.03	0.0400			

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.647E+01	0.0	0.11	59.17
0.10	203.09	.259E+02	0.0	0.17	37.28
0.16	203.15	.582E+02	0.0	0.23	28.45
0.21	203.20	.103E+03	0.1	0.27	23.48
0.26	203.25	.162E+03	0.1	0.32	20.24
0.31	203.30	.233E+03	0.2	0.36	17.92
0.37	203.36	.317E+03	0.3	0.40	16.17
0.42	203.41	.414E+03	0.5	0.43	14.79
0.47	203.46	.524E+03	0.6	0.47	13.68
0.52	203.51	.647E+03	0.8	0.50	12.75
0.57	203.56	.782E+03	1.1	0.54	11.96
0.63	203.62	.974E+03	1.4	0.55	11.73
0.68	203.67	.135E+04	1.8	0.51	12.55
0.73	203.72	.192E+04	2.4	0.48	13.39
0.79	203.78	.282E+04	3.5	0.48	13.41
0.85	203.84	.430E+04	5.2	0.47	13.77
0.92	203.91	.608E+04	7.5	0.48	13.44
0.98	203.97	.816E+04	10.6	0.50	12.88
1.04	204.03	.105E+05	14.2	0.52	12.33

<---- hydrograph ---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (4001)	309.90	7.20	5.17	42.54	0.91
OUTFLOW: ID= 1 (0880)	309.90	7.18	5.33	42.54	0.91

CALIB					
NASHYD (0400)	Area (ha)=	27.60	Curve Number (CN)=	83.8	
ID= 1 DT= 5.0 min	Ia (mm)=	7.36	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.88			

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 0.635 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 39.519
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.524

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4000)

1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0400):	27.60	0.635	4.33	39.52	
+ ID2= 2 (0880):	309.90	7.178	5.33	42.54	
ID = 3 (4000):	337.50	7.800	5.25	42.30	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0200)	Area (ha)=	25.60	Curve Number (CN)=	82.2	
ID= 1 DT= 5.0 min	Ia (mm)=	8.25	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.79			

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 0.558 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 36.913
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.490

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0023)	Area (ha)=	7.00	Curve Number (CN)=	83.0	
ID= 1 DT= 5.0 min	Ia (mm)=	7.80	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.73			

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.159 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 38.200
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.507

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0022)	Area (ha)=	3.40	Curve Number (CN)=	82.5	
ID= 1 DT= 5.0 min	Ia (mm)=	5.38	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.20			

Unit Hyd Qpeak (cms)= 0.649

Model Without SWM Infrastructure - Output

PEAK FLOW (cms)= 0.090 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 39.496
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.524

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0211)	Area (ha)= 17.30 Curve Number (CN)= 81.3
ID= 1 DT= 5.0 min	Ia (mm)= 8.76 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.02

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.360 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 35.509
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.471

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0021)	Area (ha)= 47.60 Curve Number (CN)= 84.6
ID= 1 DT= 5.0 min	Ia (mm)= 6.93 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.93

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 1.123 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 40.871
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.542

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0871)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2110)	
3 + 2 = 1	

ID1= 3 (2110):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	20.70	0.436	5.08	36.16
+ ID2= 2 (0871):	47.60	1.113	5.08	40.86
=====				
ID = 1 (2110):	68.30	1.549	5.08	39.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0220)	Area (ha)= 20.30 Curve Number (CN)= 81.6
ID= 1 DT= 5.0 min	Ia (mm)= 8.59 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.85

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 0.431 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 35.972
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.477

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0020)	Area (ha)= 12.60 Curve Number (CN)= 82.4
ID= 1 DT= 5.0 min	Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.72

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.280 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 37.237
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.494

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

53.04	208.89	0.0400	
64.12	208.50	0.0400 /0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 /0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42
0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

<---- hydrograph ---->					<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0021)	47.60	1.12	4.42	40.87	0.27	0.47
OUTFLOW: ID= 1 (0871)	47.60	1.11	5.08	40.86	0.26	0.47

ADD HYD (2110)	
1 + 2 = 3	

ID1= 1 (0211):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	17.30	0.360	5.17	35.51
+ ID2= 2 (0022):	3.40	0.090	3.08	39.50
=====				
ID = 3 (2110):	20.70	0.436	5.08	36.16

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 /0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 /0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56
0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46
0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.95

<---- hydrograph ---->					<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0020)	12.60	0.28	3.83	37.24	0.36	0.71
OUTFLOW: ID= 1 (0875)	12.60	0.28	4.42	37.20	0.36	0.71

ADD HYD (2200)	
1 + 2 = 3	

ID1= 1 (0220):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	20.30	0.431	5.08	35.97

Model Without SWM Infrastructure - Output

+ ID2= 2 (0875): 12.60 0.278 4.42 37.20
=====

ID = 3 (2200): 32.90 0.708 4.50 36.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2110):	68.30	1.549	5.08	39.44
+ ID2= 2 (2200):	32.90	0.708	4.50	36.44
=====				
ID = 3 (2101):	101.20	2.256	5.08	38.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)
IN= 2--> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350
86.30	208.87	0.0350
89.86	209.20	0.0350 / 0.0300
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 0.552 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 38.043
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.505

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0231)
ID= 1 DT= 5.0 min

Area (ha)	Curve Number (CN)
29.50	81.9
Ia (mm)= 8.42	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.89	

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 0.632 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 36.440
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.483

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0240)
ID= 1 DT= 5.0 min

Area (ha)	Curve Number (CN)
10.10	82.0
Ia (mm)= 8.36	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.74	

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.220 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 36.600
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.485

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0241)
ID= 1 DT= 5.0 min

Area (ha)	Curve Number (CN)
26.70	82.3
Ia (mm)= 8.19	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.75	

0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

<---- hydrograph ----> <-pipe / channel->

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2101)	101.20	2.26	5.08	38.46	0.44
OUTFLOW: ID= 1 (0870)	101.20	2.25	5.25	38.46	0.44

CALIB
NASHYD (0210)
ID= 1 DT= 5.0 min

Area (ha)	Curve Number (CN)
9.10	82.3
Ia (mm)= 8.19	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.64	

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW (cms)= 0.205 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 37.075
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.492

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2100)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0210):	9.10	0.205	3.58	37.07
+ ID2= 2 (0870):	101.20	2.246	5.25	38.46
=====				
ID = 3 (2100):	110.30	2.444	5.17	38.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0230)
ID= 1 DT= 5.0 min

Area (ha)	Curve Number (CN)
24.70	82.9
Ia (mm)= 7.85	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.82	

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 0.587 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 37.075
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.492

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0864)
IN= 2--> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 / 0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.118E+02	0.0	0.27	29.62
0.24	212.03	.471E+02	0.0	0.42	18.66
0.36	212.15	.106E+03	0.1	0.56	14.24
0.48	212.27	.188E+03	0.3	0.67	11.76
0.61	212.40	.294E+03	0.5	0.78	10.13
0.73	212.52	.928E+03	1.0	0.51	15.63
0.85	212.64	.260E+04	2.7	0.50	15.93
0.97	212.76	.477E+04	5.8	0.58	13.67
1.09	212.88	.739E+04	10.6	0.68	11.67
1.21	213.00	.103E+05	17.1	0.79	10.01
1.33	213.12	.133E+05	25.0	0.89	8.85
1.45	213.24	.165E+05	34.4	0.99	8.00
1.57	213.36	.200E+05	45.3	1.08	7.34
1.70	213.49	.236E+05	57.6	1.16	6.82
1.82	213.61	.274E+05	71.4	1.24	6.39
1.94	213.73	.314E+05	86.8	1.31	6.02
2.06	213.85	.355E+05	104.6	1.40	5.66
2.18	213.97	.398E+05	124.9	1.49	5.31
2.37	214.16	.481E+05	161.2	1.59	4.97

Model Without SWM Infrastructure - Output

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0241) 26.70 0.59 4.08 37.08 0.63 0.70
OUTFLOW: ID= 1 ( 0864) 26.70 0.59 4.50 37.07 0.63 0.71
```

```
-----
| ADD HYD ( 2301)|
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0231): 29.50 0.632 5.08 36.44
+ ID2= 2 ( 0240): 10.10 0.220 4.08 36.60
=====
ID = 3 ( 2301): 39.60 0.850 5.08 36.48
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2301)|
| 3 + 2 = 1 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 2301): 39.60 0.850 5.08 36.48
+ ID2= 2 ( 0864): 26.70 0.585 4.50 37.07
=====
ID = 1 ( 2301): 66.30 1.433 4.58 36.72
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0863)|
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 /0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 /0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 /0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
```

ID = 3 (2011): 201.30 4.423 5.17 37.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0862)|
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 204.63 0.0400
45.24 204.34 0.0400
94.52 203.98 0.0400
140.93 203.58 0.0400
148.77 203.72 0.0400 /0.0350 Main Channel
154.30 202.99 0.0350 Main Channel
158.02 203.77 0.0350 /0.0400 Main Channel
174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 203.04 .465E+01 0.0 0.10 47.86
0.10 203.09 .186E+02 0.0 0.15 30.15
0.16 203.15 .418E+02 0.0 0.20 23.01
0.21 203.20 .744E+02 0.1 0.24 18.99
0.26 203.25 .116E+03 0.1 0.28 16.37
0.31 203.30 .167E+03 0.2 0.32 14.50
0.37 203.36 .228E+03 0.3 0.35 13.08
0.42 203.41 .297E+03 0.4 0.39 11.97
0.47 203.46 .376E+03 0.6 0.42 11.06
0.52 203.51 .465E+03 0.8 0.45 10.31
0.57 203.56 .562E+03 1.0 0.48 9.68
0.63 203.62 .700E+03 1.2 0.49 9.49
0.68 203.67 .969E+03 1.6 0.45 10.15
0.73 203.72 .138E+04 2.1 0.43 10.83
0.79 203.78 .203E+04 3.1 0.43 10.85
0.85 203.84 .309E+04 4.6 0.41 11.14
0.92 203.91 .437E+04 6.7 0.42 10.87
0.98 203.97 .586E+04 9.4 0.44 10.42
1.04 204.03 .757E+04 12.7 0.46 9.97
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2011) 201.30 4.42 5.17 37.77 0.85 0.42
OUTFLOW: ID= 1 ( 0862) 201.30 4.41 5.25 37.77 0.84 0.42
```

```
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .138E+01 0.0 0.11 58.11
0.09 205.28 .551E+01 0.0 0.18 36.61
0.13 205.32 .124E+02 0.0 0.23 27.94
0.17 205.36 .220E+02 0.0 0.28 23.06
0.22 205.41 .344E+02 0.0 0.33 19.87
0.26 205.45 .496E+02 0.0 0.37 17.60
0.31 205.50 .675E+02 0.1 0.41 15.88
0.35 205.54 .882E+02 0.1 0.45 14.53
0.39 205.58 .112E+03 0.1 0.48 13.43
0.44 205.63 .138E+03 0.2 0.52 12.52
0.48 205.67 .167E+03 0.2 0.55 11.81
0.52 205.71 .212E+03 0.2 0.44 14.65
0.57 205.76 .285E+03 0.3 0.43 15.23
0.61 205.80 .388E+03 0.4 0.44 14.79
0.66 205.85 .519E+03 0.6 0.47 13.99
0.70 205.89 .679E+03 0.9 0.50 13.12
0.74 205.93 .868E+03 1.2 0.53 12.29
0.79 205.98 .109E+04 1.6 0.56 11.53
0.83 206.02 .133E+04 2.0 0.60 10.85
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2301) 66.30 1.43 4.58 36.72 0.77 0.55
OUTFLOW: ID= 1 ( 0863) 66.30 1.43 4.83 36.72 0.77 0.55
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| ADD HYD ( 2300)|
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0230): 24.70 0.552 4.25 38.04
+ ID2= 2 ( 0863): 66.30 1.432 4.83 36.72
=====
ID = 3 ( 2300): 91.00 1.981 4.67 37.08
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2011)|
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 2100): 110.30 2.444 5.17 38.35
+ ID2= 2 ( 2300): 91.00 1.981 4.67 37.08
=====
```

```
CALIB
NASHYD ( 0201) Area (ha)= 8.20 Curve Number (CN)= 82.6
ID= 1 DT= 5.0 min Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.60
```

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.189 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 37.555
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.498

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 2010)|
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0201): 8.20 0.189 3.50 37.56
+ ID2= 2 ( 0023): 7.00 0.159 3.75 38.20
=====
ID = 3 ( 2010): 15.20 0.347 3.58 37.85
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2010)|
| 3 + 2 = 1 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 2010): 15.20 0.347 3.58 37.85
+ ID2= 2 ( 0862): 201.30 4.413 5.25 37.77
=====
ID = 1 ( 2010): 216.50 4.746 5.25 37.78
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0860)|
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.48 0.0500
43.69 207.97 0.0500
```

Model Without SWM Infrastructure - Output

66.92	207.94	0.0500	
76.98	208.01	0.0500	
87.94	208.25	0.0500	
89.93	208.44	0.0500 / 0.0350	Main Channel
92.70	208.20	0.0350	Main Channel
95.51	207.28	0.0350	Main Channel
98.26	208.25	0.0350	Main Channel

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	207.33	.155E+01	0.0	0.16	23.32
0.10	207.38	.620E+01	0.0	0.25	14.69
0.15	207.43	.140E+02	0.0	0.33	11.21
0.19	207.47	.248E+02	0.0	0.40	9.26
0.24	207.52	.388E+02	0.1	0.47	7.98
0.29	207.57	.558E+02	0.1	0.53	7.06
0.34	207.62	.760E+02	0.2	0.59	6.37
0.39	207.67	.992E+02	0.3	0.64	5.83
0.44	207.72	.126E+03	0.4	0.69	5.39
0.48	207.76	.155E+03	0.5	0.74	5.03
0.53	207.81	.188E+03	0.7	0.79	4.72
0.58	207.86	.223E+03	0.8	0.84	4.45
0.63	207.91	.262E+03	1.0	0.88	4.22
0.68	207.96	.341E+03	1.3	0.83	4.47
0.73	208.01	.708E+03	1.8	0.57	6.58
0.78	208.06	.119E+04	2.7	0.51	7.25
0.82	208.10	.174E+04	4.0	0.52	7.19
0.87	208.15	.236E+04	5.7	0.54	6.89
0.92	208.20	.305E+04	7.8	0.57	6.55

<---- hydrograph ----> <-pipe / channel-->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2010)	216.50	4.75	5.25	37.78	0.85	0.53
OUTFLOW: ID= 1 (0860)	216.50	4.74	5.33	37.78	0.84	0.53

ADD HYD (2000)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0200):	25.60	0.558	4.25	36.91
+ ID2= 2 (0860):	216.50	4.741	5.33	37.78
ID = 3 (2000):	242.10	5.292	5.25	37.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0300)
ID= 1 DT= 5.0 min

Area (ha)=	36.80	Curve Number (CN)=	83.1
Ia (mm)=	7.74	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.90		

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 0.822 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 38.367
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.509

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0031)
ID= 1 DT= 5.0 min

Area (ha)=	3.00	Curve Number (CN)=	82.5
Ia (mm)=	5.38	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.62		

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.072 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 39.570
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.525

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0350)
ID= 1 DT= 5.0 min

Area (ha)=	1.50	Curve Number (CN)=	83.2
Ia (mm)=	7.69	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.38		

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.038 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 38.520
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.511

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0850)
IN= 2 ---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.300E+01	0.0	0.15	86.75
0.07	204.57	.120E+02	0.0	0.24	54.65
0.11	204.61	.270E+02	0.0	0.31	41.70
0.14	204.64	.480E+02	0.0	0.37	34.42
0.18	204.68	.750E+02	0.0	0.43	29.67
0.22	204.72	.108E+03	0.1	0.49	26.27
0.25	204.75	.147E+03	0.1	0.54	23.71
0.29	204.79	.192E+03	0.1	0.59	21.69
0.33	204.83	.243E+03	0.2	0.64	20.05
0.36	204.86	.300E+03	0.3	0.69	18.69
0.40	204.90	.363E+03	0.3	0.73	17.54
0.43	204.93	.488E+03	0.4	0.70	18.37
0.47	204.97	.860E+03	0.6	0.56	22.95
0.51	205.01	.144E+04	1.0	0.52	24.88
0.54	205.04	.217E+04	1.5	0.52	24.65
0.58	205.08	.304E+04	2.1	0.54	23.62
0.61	205.11	.407E+04	3.0	0.57	22.38
0.65	205.15	.524E+04	4.1	0.61	21.13
0.69	205.19	.656E+04	5.5	0.64	19.97

<---- hydrograph ----> <-pipe / channel-->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0350)	1.50	0.04	3.17	38.52	0.17	0.42
OUTFLOW: ID= 1 (0850)	1.50	0.03	3.58	38.20	0.17	0.41

CALIB

NASHYD (0032)
ID= 1 DT= 5.0 min

Area (ha)=	28.00	Curve Number (CN)=	83.4
Ia (mm)=	7.58	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.95		

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.630 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 38.855
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.515

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3200)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0032):	28.00	0.630	5.08	38.86
+ ID2= 2 (0850):	1.50	0.035	3.58	38.20
ID = 3 (3200):	29.50	0.663	5.08	38.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0301)
ID= 1 DT= 5.0 min

Area (ha)=	59.40	Curve Number (CN)=	82.7
Ia (mm)=	7.97	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.23		

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 1.269 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 37.713
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.500

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3010)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0301):	59.40	1.269	5.33	37.71
+ ID2= 2 (3200):	29.50	0.663	5.08	38.82

Model Without SWM Infrastructure - Output

=====

ID = 3 (3010): 88.90 1.929 5.25 38.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (3001)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (3010):	88.90	1.929	5.25	38.08
+ ID2= 2 (0031):	3.00	0.072	3.42	39.57

=====

ID = 3 (3001): 91.90 1.995 5.25 38.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0852)	Routing time step (min)'
IN= 2---> OUT= 1	5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	209.20	0.0400
100.00	206.26	0.0400
111.30	206.19	0.0400 / 0.0350
112.02	205.76	0.0350
113.82	205.37	0.0350
115.62	206.03	0.0350 / 0.0400
117.77	207.30	0.0400
120.56	207.40	0.0400
124.41	207.31	0.0400
129.31	207.24	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	205.46	.132E+02	0.0	0.21	32.83
0.19	205.56	.529E+02	0.0	0.33	20.68
0.28	205.65	.119E+03	0.1	0.43	15.78
0.38	205.75	.212E+03	0.3	0.52	13.03
0.47	205.84	.327E+03	0.5	0.62	10.84
0.57	205.94	.458E+03	0.8	0.72	9.42
0.66	206.03	.604E+03	1.2	0.80	8.44
0.76	206.13	.777E+03	1.7	0.91	7.41
0.86	206.23	.102E+04	2.4	0.97	6.97
0.96	206.33	.168E+04	3.6	0.87	7.76
1.06	206.43	.252E+04	5.4	0.87	7.80
1.16	206.53	.350E+04	7.7	0.89	7.56
1.26	206.63	.463E+04	10.7	0.93	7.24
1.37	206.74	.590E+04	14.3	0.98	6.90

33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

<---- hydrograph ----> <-pipe / channel->

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0030)	1.10	0.03	3.17	38.08	0.14	0.44
OUTFLOW: ID= 1 (0854)	1.10	0.03	3.17	38.07	0.14	0.44

CALIB	Area	(ha)	Curve Number	(CN)=
NASHYD (0340)	Ia	(mm)	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.69		

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.478 (i)
TIME TO PEAK (hrs)= 3.667

1.47	206.84	.732E+04	18.6	1.03	6.58
1.57	206.94	.889E+04	23.6	1.08	6.28
1.67	207.04	.106E+05	29.5	1.13	6.00
1.77	207.14	.125E+05	36.1	1.17	5.75
1.87	207.24	.145E+05	43.7	1.22	5.52

<---- hydrograph ----> <-pipe / channel->

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (3001)	91.90	2.00	5.25	38.13	0.80	0.93
OUTFLOW: ID= 1 (0852)	91.90	1.99	5.25	38.13	0.79	0.93

ADD HYD (3000)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0300):	36.80	0.822	4.58	38.37
+ ID2= 2 (0852):	91.90	1.993	5.25	38.13

=====

ID = 3 (3000): 128.70 2.810 5.25 38.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area	(ha)	Curve Number	(CN)=
NASHYD (0030)	Ia	(mm)	# of Linear Res.(N)=	81.5
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.30		

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.027 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 38.082
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.505

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0854)	Routing time step (min)'
IN= 2---> OUT= 1	5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.00	0.0400

RUNOFF VOLUME (mm)= 37.877
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3400)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0340):	21.00	0.478	3.67	37.88
+ ID2= 2 (0854):	1.10	0.027	3.17	38.07

=====

ID = 3 (3400): 22.10 0.502 3.58 37.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area	(ha)	Curve Number	(CN)=
NASHYD (0123)	Ia	(mm)	# of Linear Res.(N)=	82.9
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.93		

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 0.544 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 38.043
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.505

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0814)	Routing time step (min)'
IN= 2---> OUT= 1	5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 / 0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500

Model Without SWM Infrastructure - Output

100.76		213.78		0.0500	
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40
0.85	212.64	.204E+04	2.7	0.49	12.63
0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94
<---- hydrograph ----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (0123)	24.60	0.54	5.08	38.04	0.62
OUTFLOW: ID= 1 (0814)	24.60	0.54	5.17	38.04	0.62
					0.72
					0.72

CALIB	Area	(ha)=	24.30	Curve Number	(CN)=	85.8
NASHYD (0124)	Ia	(mm)=	6.30	# of Linear Res.(N)=	3.00	
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.51				

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 0.665 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 42.961
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.570

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0813)		Routing time step (min)'= 5.00	
IN= 2--> OUT= 1			
<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.59
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25
<---- hydrograph ----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (0124)	24.30	0.66	3.25	42.96	0.65
OUTFLOW: ID= 1 (0813)	24.30	0.64	3.67	42.95	0.65

ADD HYD (1221)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0813):	24.30	0.640	3.67	42.95
+ ID2= 2 (0814):	24.60	0.544	5.17	38.04
ID = 3 (1221):	48.90	1.152	4.08	40.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0812)		Routing time step (min)'= 5.00	
IN= 2----> OUT= 1			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.533E+02	0.1	0.24	12.01
0.14	208.16	.150E+03	0.3	0.37	7.63
0.22	208.24	.280E+03	0.8	0.47	5.98
0.29	208.31	.444E+03	1.5	0.56	5.04
0.36	208.38	.642E+03	2.4	0.64	4.42
0.44	208.46	.896E+03	4.0	0.75	3.76
0.52	208.54	.119E+04	6.0	0.86	3.29
0.60	208.62	.153E+04	8.6	0.96	2.96
0.68	208.70	.192E+04	11.7	1.04	2.73
0.76	208.78	.235E+04	15.4	1.11	2.55
0.84	208.86	.283E+04	19.6	1.18	2.41
0.92	208.94	.351E+04	24.2	1.17	2.41
0.99	209.01	.435E+04	30.6	1.19	2.37
1.07	209.09	.528E+04	38.0	1.22	2.31
1.15	209.17	.628E+04	46.4	1.26	2.26
1.23	209.25	.737E+04	55.9	1.29	2.20
1.31	209.33	.855E+04	66.6	1.33	2.14
1.39	209.41	.982E+04	78.7	1.36	2.08
1.47	209.49	.112E+05	92.1	1.40	2.03

<---- hydrograph ----> <-pipe / channel->

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1221)	48.90	1.15	4.08	40.48	0.25	0.52
OUTFLOW: ID= 1 (0812)	48.90	1.15	4.17	40.48	0.25	0.52

CALIB	Area	(ha)=	31.80	Curve Number	(CN)=	85.1
NASHYD (0122)	Ia	(mm)=	6.67	# of Linear Res.(N)=	3.00	
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.96				

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 0.762 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 41.729
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.553

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1220)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0122):	31.80	0.762	4.42	41.73
+ ID2= 2 (0812):	48.90	1.151	4.17	40.48
ID = 3 (1220):	80.70	1.912	4.33	40.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0811)		Routing time step (min)'= 5.00	
IN= 2----> OUT= 1			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 / 0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 / 0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 / 0.0400	

Model Without SWM Infrastructure - Output

132.78 206.84 0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	206.01	.147E+02	0.0	0.14	60.26
0.12	206.07	.590E+02	0.0	0.22	37.96
0.18	206.13	.133E+03	0.1	0.29	28.97
0.26	206.21	.302E+03	0.2	0.36	22.81
0.34	206.29	.671E+03	0.5	0.39	21.40
0.42	206.37	.151E+04	1.2	0.39	20.95
0.50	206.45	.254E+04	2.3	0.45	18.38
0.58	206.53	.376E+04	3.7	0.49	16.98
0.66	206.61	.544E+04	5.6	0.51	16.11
0.74	206.69	.764E+04	8.4	0.54	15.19
0.83	206.78	.104E+05	12.1	0.58	14.27
0.91	206.86	.134E+05	17.4	0.64	12.84
0.99	206.94	.166E+05	23.6	0.71	11.71
1.07	207.02	.201E+05	30.7	0.76	10.88
1.15	207.10	.239E+05	38.8	0.81	10.26
1.23	207.18	.280E+05	48.0	0.85	9.72
1.31	207.26	.325E+05	58.5	0.89	9.26
1.39	207.34	.373E+05	70.3	0.94	8.84
1.47	207.42	.424E+05	83.4	0.98	8.48

<---- hydrograph ---->			<-pipe / channel-->		
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1220)	80.70	1.91	4.33	0.47	0.43
OUTFLOW: ID= 1 (0811)	80.70	1.90	4.75	0.47	0.43

CALIB		Area (ha)= 16.10		Curve Number (CN)= 86.5	
NASHYD (0121)		Ia (mm)= 5.94		# of Linear Res.(N)= 3.00	
ID= 1 DT= 5.0 min		U.H. Tp(hrs)= 0.89			

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.413 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 44.222
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.586

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1210)		AREA		QPEAK		TPEAK		R.V.	
1 + 2 = 3		(ha)		(cms)		(hrs)		(mm)	
ID1= 1 (0121):		16.10		0.413		4.00		44.22	
+ ID2= 2 (0811):		80.70		1.901		4.75		40.97	
ID = 3 (1210):		96.80		2.306		4.58		41.51	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB		Area (ha)= 12.80		Curve Number (CN)= 83.0	
NASHYD (0146)		Ia (mm)= 7.80		# of Linear Res.(N)= 3.00	
ID= 1 DT= 5.0 min		U.H. Tp(hrs)= 0.55			

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.305 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 38.200
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.507

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0844)		Routing time step (min)'= 5.00	
IN= 2--> OUT= 1			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 /0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 /0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.107E+01	0.0	0.13	37.04
0.08	207.60	.430E+01	0.0	0.20	23.33
0.12	207.64	.966E+01	0.0	0.27	17.81
0.16	207.68	.172E+02	0.0	0.32	14.70
0.19	207.71	.268E+02	0.0	0.38	12.67

0.23	207.75	.387E+02	0.1	0.42	11.22
0.27	207.79	.526E+02	0.1	0.47	10.12
0.31	207.83	.687E+02	0.1	0.51	9.26
0.35	207.87	.870E+02	0.2	0.56	8.56
0.39	207.91	.107E+03	0.2	0.60	7.98
0.43	207.95	.130E+03	0.3	0.64	7.49
0.47	207.99	.155E+03	0.4	0.67	7.07
0.50	208.02	.181E+03	0.5	0.71	6.70
0.54	208.06	.210E+03	0.6	0.75	6.38
0.58	208.10	.242E+03	0.7	0.78	6.09
0.62	208.14	.275E+03	0.8	0.82	5.83
0.67	208.19	.329E+03	1.0	0.87	5.50
0.72	208.24	.413E+03	1.3	0.89	5.36
0.77	208.29	.540E+03	1.7	0.87	5.45

<---- hydrograph ---->			<-pipe / channel-->		
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0146)	12.80	0.31	3.33	38.20	0.43
OUTFLOW: ID= 1 (0844)	12.80	0.30	3.50	38.20	0.43

CALIB		Area (ha)= 12.60		Curve Number (CN)= 83.3	
NASHYD (0145)		Ia (mm)= 7.63		# of Linear Res.(N)= 3.00	
ID= 1 DT= 5.0 min		U.H. Tp(hrs)= 0.59			

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.301 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 38.694
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.513

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0843)		Routing time step (min)'= 5.00	
IN= 2--> OUT= 1			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 /0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 /0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.144E+02	0.0	0.23	42.45
0.24	212.03	.578E+02	0.0	0.36	26.74
0.36	212.15	.130E+03	0.1	0.48	20.41
0.48	212.27	.231E+03	0.2	0.58	16.85
0.61	212.40	.361E+03	0.4	0.67	14.52
0.73	212.52	.114E+04	0.8	0.43	22.41
0.85	212.64	.319E+04	2.3	0.43	22.83
0.97	212.76	.585E+04	5.0	0.50	19.59
1.09	212.88	.907E+04	9.0	0.58	16.72
1.21	213.00	.126E+05	14.6	0.68	14.34
1.33	213.12	.163E+05	21.4	0.77	12.69
1.45	213.24	.203E+05	29.5	0.85	11.47
1.57	213.36	.245E+05	38.8	0.92	10.52
1.70	213.49	.289E+05	49.3	0.99	9.77
1.82	213.61	.336E+05	61.2	1.06	9.15
1.94	213.73	.385E+05	74.3	1.13	8.63
2.06	213.85	.436E+05	89.6	1.20	8.11
2.18	213.97	.488E+05	106.9	1.28	7.61
2.37	214.16	.590E+05	138.1	1.36	7.13

<---- hydrograph ---->			<-pipe / channel-->		
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1450)	25.40	0.60	3.42	38.44	0.66
OUTFLOW: ID= 1 (0843)	25.40	0.59	4.00	38.43	0.65

Model Without SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0144) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 28.60 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.97

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.632 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 38.043
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.505
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1440) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0144): 28.60 0.632 5.08 38.04
+ ID2= 2 ( 0843): 25.40 0.586 4.00 38.43
=====
ID = 3 ( 1440): 54.00 1.207 4.58 38.23
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0842) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 /0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 /0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 /0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .149E+01 0.0 0.09 81.67
0.09 205.28 .594E+01 0.0 0.14 51.45
0.13 205.32 .134E+02 0.0 0.18 39.26
```

ID = 3 (1430): 81.70 1.810 5.08 38.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0841) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.66 0.0400
19.50 209.34 0.0400
37.91 208.66 0.0400
41.73 208.62 0.0400 /0.0350 Main Channel
43.44 208.24 0.0350 Main Channel
45.75 208.62 0.0350 /0.0450 Main Channel
54.00 208.79 0.0450 /0.0400
77.43 209.05 0.0400
128.85 209.70 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 208.30 .216E+02 0.0 0.15 113.45
0.13 208.37 .864E+02 0.0 0.24 71.47
0.19 208.43 .194E+03 0.1 0.31 54.54
0.25 208.49 .345E+03 0.1 0.38 45.02
0.32 208.56 .540E+03 0.2 0.44 38.80
0.38 208.62 .777E+03 0.4 0.49 34.36
0.46 208.70 .152E+04 0.7 0.50 33.99
0.54 208.78 .281E+04 1.4 0.50 33.61
0.62 208.86 .469E+04 2.5 0.53 31.90
0.70 208.94 .734E+04 4.0 0.56 30.28
0.78 209.02 .107E+05 6.3 0.59 28.55
0.86 209.10 .149E+05 9.3 0.63 26.78
0.94 209.18 .198E+05 13.1 0.68 25.09
1.02 209.26 .253E+05 17.9 0.72 23.58
1.10 209.34 .315E+05 23.6 0.76 22.24
1.18 209.42 .386E+05 30.0 0.79 21.42
1.26 209.50 .465E+05 37.7 0.82 20.56
1.34 209.58 .554E+05 46.8 0.86 19.73
1.42 209.66 .652E+05 57.3 0.90 18.94
```

```
<---- hydrograph ----> <-pipe / channel->
Area QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1430) 81.70 1.81 5.08 38.16 0.57 0.52
OUTFLOW: ID= 1 ( 0841) 81.70 1.78 5.50 38.15 0.57 0.51
```

0.17	205.36	.238E+02	0.0	0.22	32.41
0.22	205.41	.371E+02	0.0	0.25	27.93
0.26	205.45	.535E+02	0.0	0.28	24.73
0.31	205.50	.728E+02	0.1	0.31	22.32
0.35	205.54	.950E+02	0.1	0.34	20.42
0.39	205.58	.120E+03	0.1	0.37	18.87
0.44	205.63	.149E+03	0.1	0.40	17.59
0.48	205.67	.180E+03	0.2	0.42	16.60
0.52	205.71	.228E+03	0.2	0.34	20.59
0.57	205.76	.308E+03	0.2	0.33	21.41
0.61	205.80	.418E+03	0.3	0.34	20.79
0.66	205.85	.560E+03	0.5	0.36	19.66
0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24

```
<---- hydrograph ----> <-pipe / channel->
Area QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1440) 54.00 1.21 4.58 38.23 0.79 0.43
OUTFLOW: ID= 1 ( 0842) 54.00 1.20 4.75 38.22 0.79 0.43
```

```
-----
| CALIB
| NASHYD ( 0143) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 27.70 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.07
```

```
Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)= 0.607 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 38.043
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.505
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1430) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0143): 27.70 0.607 5.17 38.04
+ ID2= 2 ( 0842): 54.00 1.204 4.75 38.22
=====
ID = 3 ( 1430): 81.70 1.810 5.08 38.16
```

```
-----
| CALIB
| NASHYD ( 0142) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 27.10 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.22
```

```
Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 0.584 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 38.043
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.505
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1420) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0142): 27.10 0.584 5.25 38.04
+ ID2= 2 ( 0841): 81.70 1.779 5.50 38.15
=====
ID = 3 ( 1420): 108.80 2.359 5.42 38.13
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0840) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.52 0.0400
61.99 209.23 0.0400
76.86 209.20 0.0400
82.03 209.20 0.0400 /0.0350 Main Channel
86.30 208.87 0.0350 Main Channel
89.86 209.20 0.0350 /0.0300 Main Channel
96.27 209.24 0.0300
103.53 209.40 0.0300
127.96 209.50 0.0300
158.58 209.70 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.03 208.90 .706E+01 0.0 0.08 110.24
```

Model Without SWM Infrastructure - Output

0.07	208.94	.282E+02	0.0	0.13	69.44
0.10	208.97	.636E+02	0.0	0.17	53.00
0.13	209.00	.113E+03	0.0	0.21	43.75
0.17	209.04	.177E+03	0.1	0.24	37.70
0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75
0.37	209.24	.118E+04	0.7	0.34	26.61
0.40	209.27	.196E+04	1.2	0.33	27.88
0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61
0.58	209.45	.865E+04	6.3	0.40	22.94
0.61	209.48	.108E+05	8.1	0.41	22.09
0.65	209.52	.132E+05	10.4	0.43	21.10

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1420)	108.80	2.36	5.42	38.13	0.46	0.35
OUTFLOW: ID= 1 (0840)	108.80	2.32	5.75	38.12	0.46	0.35

CALIB						
NASHYD (0141)	Area (ha)=	8.10	Curve Number (CN)=	83.6		
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.78				

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.187 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 39.186
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.520

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1410)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0141):	8.10	0.187	3.92	39.19		

32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.12	211.91	.125E+02	0.0	0.21	40.70
0.24	212.03	.501E+02	0.0	0.33	25.64
0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48
0.85	212.64	.277E+04	2.1	0.39	21.89
0.97	212.76	.507E+04	4.5	0.45	18.78
1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0153)	33.30	0.72	5.17	37.56	0.71	0.41
OUTFLOW: ID= 1 (0834)	33.30	0.71	5.58	37.56	0.71	0.41

CALIB						
NASHYD (0152)	Area (ha)=	16.20	Curve Number (CN)=	82.6		
ID= 1 DT= 5.0 min	Ia (mm)=	8.02	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.93				

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.355 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 37.556
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.498

+ ID2= 2 (0840): 108.80 2.321 5.75 38.12
=====

ID = 3 (1410): 116.90 2.486 5.67 38.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB						
NASHYD (0151)	Area (ha)=	24.60	Curve Number (CN)=	82.8		
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.00				

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.540 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 37.877
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB						
NASHYD (0153)	Area (ha)=	33.30	Curve Number (CN)=	82.6		
ID= 1 DT= 5.0 min	Ia (mm)=	8.02	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.08				

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 0.722 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 37.556
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.498

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)						
IN= 2--> OUT= 1	Routing time step (min)'=	5.00				

Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 / 0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1520)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0152):	16.20	0.355	5.08	37.56		
+ ID2= 2 (0834):	33.30	0.710	5.58	37.56		
ID = 3 (1520):	49.50	1.060	5.33	37.56		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0833)						
IN= 2--> OUT= 1	Routing time step (min)'=	5.00				

Distance	Elevation	Manning			
0.00	209.49	0.0400			
35.71	208.88	0.0400			
53.04	208.89	0.0400			
64.12	208.50	0.0400 / 0.0350	Main Channel		
70.77	208.05	0.0350	Main Channel		
74.98	208.02	0.0350	Main Channel		
83.40	208.38	0.0350 / 0.0400	Main Channel		
88.06	208.63	0.0400			
94.94	209.13	0.0400			
105.88	209.54	0.0400			

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.07	208.09	.232E+03	0.1	0.19	65.23
0.14	208.16	.652E+03	0.3	0.30	41.42
0.22	208.24	.122E+04	0.6	0.38	32.47
0.29	208.31	.193E+04	1.2	0.45	27.40
0.36	208.38	.279E+04	1.9	0.51	24.03
0.44	208.46	.389E+04	3.2	0.60	20.41
0.52	208.54	.516E+04	4.8	0.69	17.88
0.60	208.62	.664E+04	6.9	0.77	16.07
0.68	208.70	.833E+04	9.4	0.83	14.80
0.76	208.78	.102E+05	12.3	0.89	13.84
0.84	208.86	.123E+05	15.7	0.94	13.07
0.92	208.94	.153E+05	19.4	0.94	13.11
0.99	209.01	.189E+05	24.5	0.96	12.89
1.07	209.09	.229E+05	30.4	0.98	12.57
1.15	209.17	.273E+05	37.1	1.01	12.25

Model Without SWM Infrastructure - Output

1.23	209.25	.320E+05	44.7	1.03	11.94
1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1520)	49.50	1.06	5.33	37.56	0.27	0.43
OUTFLOW: ID= 1 (0833)	49.50	1.04	5.58	37.55	0.27	0.43

ADD HYD (1510)
1 + 2 = 3

ID1= 1 (0151):	24.60	0.540	5.17	37.88
+ ID2= 2 (0833):	49.50	1.044	5.58	37.55
=====				
ID = 3 (1510):	74.10	1.575	5.42	37.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0832)
IN= 2--> OUT= 1

Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 / 0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 / 0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 / 0.0400	
132.78	206.84	0.0400	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	206.01	.158E+02	0.0	0.16	56.30
0.12	206.07	.633E+02	0.0	0.25	35.47
0.18	206.13	.142E+03	0.1	0.33	27.07
0.26	206.21	.324E+03	0.3	0.42	21.31
0.34	206.29	.720E+03	0.6	0.44	20.00
0.42	206.37	.162E+04	1.4	0.45	19.57

0.50	206.45	.272E+04	2.6	0.52	17.17
0.58	206.53	.404E+04	4.2	0.56	15.86
0.66	206.61	.584E+04	6.5	0.59	15.05
0.74	206.69	.820E+04	9.6	0.63	14.19
0.83	206.78	.111E+05	13.9	0.67	13.34
0.91	206.86	.143E+05	19.9	0.74	12.00
0.99	206.94	.178E+05	27.1	0.81	10.94
1.07	207.02	.215E+05	35.3	0.87	10.16
1.15	207.10	.256E+05	44.5	0.93	9.59
1.23	207.18	.301E+05	55.1	0.98	9.09
1.31	207.26	.349E+05	67.2	1.03	8.65
1.39	207.34	.400E+05	80.7	1.07	8.26
1.47	207.42	.455E+05	95.8	1.12	7.92

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1510)	74.10	1.58	5.42	37.66	0.43	0.46
OUTFLOW: ID= 1 (0832)	74.10	1.56	5.58	37.65	0.43	0.46

CALIB
NASHYD (0150)
ID= 1 DT= 5.0 min

Area (ha)=	6.60	Curve Number (CN)=	83.7
Ia (mm)=	7.41	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.96		

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)=	0.150 (i)
TIME TO PEAK (hrs)=	4.750
RUNOFF VOLUME (mm)=	39.356
TOTAL RAINFALL (mm)=	75.400
RUNOFF COEFFICIENT =	0.522

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1500)
1 + 2 = 3

ID1= 1 (0150):	6.60	0.150	4.75	39.36
+ ID2= 2 (0832):	74.10	1.560	5.58	37.65
=====				
ID = 3 (1500):	80.70	1.704	5.50	37.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

1.37	207.39	.776E+05	54.6	0.61	23.71
1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1401)	197.60	4.19	5.58	38.03	0.68	0.27
OUTFLOW: ID= 1 (0830)	197.60	3.93	6.25	38.02	0.67	0.27

ADD HYD (1401)
1 + 2 = 3

ID1= 1 (1410):	116.90	2.486	5.67	38.19
+ ID2= 2 (1500):	80.70	1.704	5.50	37.79
=====				
ID = 3 (1401):	197.60	4.188	5.58	38.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0830)
IN= 2--> OUT= 1

Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	207.71	0.0400	
58.83	206.71	0.0400	
66.88	206.59	0.0400 / 0.0350	Main Channel
72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	
174.41	207.56	0.0400	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.224E+03	0.0	0.08	174.00
0.23	206.25	.505E+03	0.1	0.11	132.79
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34
0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	4.7	0.29	50.17
0.78	206.80	.196E+05	7.6	0.34	42.88
0.87	206.89	.258E+05	11.4	0.38	37.80
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11

CALIB
NASHYD (0140)
ID= 1 DT= 5.0 min

Area (ha)=	18.30	Curve Number (CN)=	83.6
Ia (mm)=	7.47	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.34		

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)=	0.397 (i)
TIME TO PEAK (hrs)=	5.333
RUNOFF VOLUME (mm)=	39.186
TOTAL RAINFALL (mm)=	75.400
RUNOFF COEFFICIENT =	0.520

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400)
1 + 2 = 3

ID1= 1 (0140):	18.30	0.397	5.33	39.19
+ ID2= 2 (0830):	197.60	3.932	6.25	38.02
=====				
ID = 3 (1400):	215.90	4.296	6.17	38.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0131)
ID= 1 DT= 5.0 min

Area (ha)=	28.70	Curve Number (CN)=	82.1
Ia (mm)=	8.30	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.11		

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 0.609 (i)

Model Without SWM Infrastructure - Output

TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 36.761
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.488

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0011) ID= 1 DT= 5.0 min	Area (ha)= 132.00 Total Imp(%)= 57.10 Dir. Conn.(%)= 45.00	IMPERVIOUS (ha)= 75.37 (mm)= 1.00 (%)= 1.00 (m)= 938.08 Mannings n = 0.013	PERVIOUS (i) (ha)= 56.63 (mm)= 8.95 (%)= 1.00 (m)= 40.00 (cms)= 0.250	
Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n =	19.60 20.00 18.78 (ii) 20.00 0.06	10.63 45.00 40.08 (ii) 45.00 0.03		
PEAK FLOW (cms)= TIME TO PEAK (hrs)= RUNOFF VOLUME (mm)= TOTAL RAINFALL (mm)= RUNOFF COEFFICIENT =	3.12 2.08 74.40 75.40 0.99	1.44 5.08 33.83 75.40 0.45	3.810 (iii) 3.08 52.08 75.40 0.69	*TOTALS*

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0012) ID= 1 DT= 5.0 min	Area (ha)= 17.50 Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00	IMPERVIOUS (ha)= 14.00 (mm)= 1.00 (%)= 1.00 (m)= 341.57 Mannings n = 0.013	PERVIOUS (i) (ha)= 3.50 (mm)= 8.94 (%)= 1.00 (m)= 40.00 (cms)= 0.250	
Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n =	10.32 1.00 1.00 293.26 0.013	2.58 8.94 1.00 40.00 0.250		
Max.Eff.Inten.(mm/hr)= over (min)= Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)=	19.60 10.00 9.35 (ii) 10.00 0.12	13.84 30.00 28.52 (ii) 30.00 0.04		
				TOTALS

PEAK FLOW (cms)= 0.49
TIME TO PEAK (hrs)= 2.08
RUNOFF VOLUME (mm)= 74.40
TOTAL RAINFALL (mm)= 75.40
RUNOFF COEFFICIENT = 0.99

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	12.90	0.546	2.08	63.30
+ ID2= 2 (1112):	149.50	4.481	2.17	53.40
ID = 3 (1311):	162.40	5.013	2.17	54.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822) IN= 2--> OUT= 1	Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	207.71	0.0400			
58.83	206.71	0.0400			
66.88	206.59	0.0400 / 0.0350	Main Channel		
72.32	206.34	0.0350	Main Channel		
77.68	206.55	0.0350 / 0.0800	Main Channel		
82.85	206.54	0.0800			
90.20	206.02	0.0800			
94.03	206.48	0.0800			
99.83	206.40	0.0800 / 0.0400			
114.32	206.50	0.0400			
136.07	206.86	0.0400			
174.41	207.56	0.0400			
<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.337E+02	0.0	0.07	124.18
0.15	206.17	.135E+03	0.0	0.11	78.23
0.23	206.25	.303E+03	0.1	0.15	59.70

Max.Eff.Inten.(mm/hr)= 19.60
over (min)= 10.00
Storage Coeff. (min)= 10.24 (ii)
Unit Hyd. Tpeak (min)= 10.00
Unit Hyd. peak (cms)= 0.11

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	132.00	3.810	3.08	52.08
+ ID2= 2 (0012):	17.50	0.740	2.08	63.30
ID = 3 (1112):	149.50	4.481	2.17	53.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0010) ID= 1 DT= 5.0 min	Area (ha)= 12.90 Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00	IMPERVIOUS (ha)= 10.32 (mm)= 1.00 (%)= 1.00 (m)= 293.26 Mannings n = 0.013	PERVIOUS (i) (ha)= 2.58 (mm)= 8.94 (%)= 1.00 (m)= 40.00 (cms)= 0.250	
Surface Area (ha)= Dep. Storage (mm)= Average Slope (%)= Length (m)= Mannings n =	19.60 10.00 9.35 (ii) 10.00 0.12	13.84 30.00 28.52 (ii) 30.00 0.04		
Max.Eff.Inten.(mm/hr)= over (min)= Storage Coeff. (min)= Unit Hyd. Tpeak (min)= Unit Hyd. peak (cms)=				*TOTALS*

0.30 206.32 .539E+03 0.2 0.18 49.28
0.38 206.40 .885E+03 0.3 0.20 43.17
0.45 206.47 .175E+04 0.6 0.19 46.91
0.53 206.55 .333E+04 1.4 0.23 38.64
0.61 206.63 .569E+04 3.4 0.31 27.90
0.70 206.72 .851E+04 6.3 0.39 22.56
0.78 206.80 .118E+05 10.2 0.45 19.28
0.87 206.89 .155E+05 15.2 0.51 17.00
0.95 206.97 .196E+05 21.4 0.57 15.28
1.04 207.06 .242E+05 28.9 0.63 13.96
1.12 207.14 .292E+05 37.7 0.68 12.90
1.20 207.22 .346E+05 47.9 0.73 12.02
1.29 207.31 .404E+05 59.6 0.77 11.29
1.37 207.39 .466E+05 72.9 0.82 10.66
1.46 207.48 .533E+05 87.8 0.86 10.11
1.54 207.56 .604E+05 104.5 0.91 9.63

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1311)	162.40	5.01	2.17	54.18	0.66	0.35
OUTFLOW: ID= 1 (0822)	162.40	4.84	3.17	54.18	0.66	0.35

ADD HYD (1310) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0131):	28.70	0.609	5.25	36.76
+ ID2= 2 (0822):	162.40	4.840	3.17	54.18
ID = 3 (1310):	191.10	5.258	3.25	51.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0821) IN= 2--> OUT= 1	Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	207.71	0.0400			
58.83	206.71	0.0400			
66.88	206.59	0.0400 / 0.0350	Main Channel		
72.32	206.34	0.0350	Main Channel		
77.68	206.55	0.0350 / 0.0800	Main Channel		
82.85	206.54	0.0800			
90.20	206.02	0.0800			

Model Without SWM Infrastructure - Output

94.03	206.48	0.0800
99.83	206.40	0.0800 / 0.0400
114.32	206.50	0.0400
136.07	206.86	0.0400
174.41	207.56	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60
0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

<---- hydrograph ---->				<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1310)	191.10	5.26	3.25	0.69	0.33
OUTFLOW: ID= 1 (0821)	191.10	4.87	3.83	0.67	0.32

CALIB			
NASHYD (0130)	Area (ha)=	26.70	Curve Number (CN)= 81.7
ID= 1 DT= 5.0 min	Ia (mm)=	8.53	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.32	

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 0.542 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 36.130
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.479

0.46	205.16	.859E+03	0.9	0.14	16.44
0.55	205.25	.182E+04	2.3	0.17	13.44
0.64	205.34	.311E+04	4.7	0.21	11.04
0.74	205.44	.487E+04	8.4	0.24	9.67
0.83	205.53	.676E+04	13.3	0.27	8.48
0.92	205.62	.877E+04	19.3	0.30	7.58
1.01	205.71	.109E+05	26.4	0.33	6.90
1.10	205.80	.132E+05	34.5	0.36	6.36
1.20	205.90	.155E+05	43.8	0.39	5.92
1.29	205.99	.181E+05	54.1	0.42	5.56
1.38	206.08	.207E+05	65.6	0.44	5.25
1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

<---- hydrograph ---->				<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1202)	433.70	9.17	5.42	0.75	0.24
OUTFLOW: ID= 1 (0820)	433.70	9.13	5.50	0.75	0.24

ADD HYD (1201)			
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)
	96.80	2.306	4.58
ID1= 1 (1210):			
+ ID2= 2 (0820):	433.70	9.131	5.50
ID = 3 (1201):	530.50	11.387	5.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0810)	
IN= 2----> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.54	0.0450	
43.13	205.35	0.0450	
67.41	205.27	0.0450	
86.35	205.38	0.0450 / 0.0350	Main Channel
90.47	204.70	0.0350	Main Channel
93.03	205.16	0.0350 / 0.0400	Main Channel
101.99	205.21	0.0400	
151.82	204.97	0.0400	

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1300)			
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)
	26.70	0.542	5.42
ID1= 1 (0130):			
+ ID2= 2 (0821):	191.10	4.874	3.83
ID = 3 (1300):	217.80	5.334	4.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1202)			
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)
	217.80	5.334	4.25
ID1= 1 (1300):			
+ ID2= 2 (1400):	215.90	4.296	6.17
ID = 3 (1202):	433.70	9.166	5.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0820)		Routing time step (min)'= 5.00	
IN= 2----> OUT= 1			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.54	0.0450	
43.13	205.35	0.0450	
67.41	205.27	0.0450	
86.35	205.38	0.0450 / 0.0350	Main Channel
90.47	204.70	0.0350	Main Channel
93.03	205.16	0.0350 / 0.0400	Main Channel
101.99	205.21	0.0400	
151.82	204.97	0.0400	
252.14	206.45	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	204.79	.681E+01	0.0	0.08	28.42
0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80
0.37	205.07	.292E+03	0.3	0.12	18.72

252.14 206.45 0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	204.79	.229E+02	0.0	0.07	106.67
0.18	204.88	.915E+02	0.0	0.12	67.20
0.28	204.98	.208E+03	0.1	0.15	51.82
0.37	205.07	.981E+03	0.2	0.11	70.28
0.46	205.16	.288E+04	0.8	0.13	61.71
0.55	205.25	.610E+04	2.0	0.15	50.43
0.64	205.34	.105E+05	4.2	0.19	41.45
0.74	205.44	.163E+05	7.5	0.21	36.28
0.83	205.53	.227E+05	11.9	0.24	31.82
0.92	205.62	.294E+05	17.2	0.27	28.46
1.01	205.71	.366E+05	23.6	0.30	25.89
1.10	205.80	.442E+05	30.9	0.32	23.87
1.20	205.90	.522E+05	39.1	0.35	22.23
1.29	205.99	.606E+05	48.4	0.37	20.87
1.38	206.08	.694E+05	58.7	0.39	19.72
1.47	206.17	.786E+05	70.0	0.41	18.74
1.57	206.27	.883E+05	82.3	0.43	17.88
1.66	206.36	.983E+05	95.7	0.45	17.12
1.75	206.45	.109E+06	110.2	0.47	16.45

<---- hydrograph ---->				<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1201)	530.50	11.39	5.50	0.82	0.24
OUTFLOW: ID= 1 (0810)	530.50	10.94	5.67	0.81	0.24

CALIB			
NASHYD (0120)	Area (ha)=	9.00	Curve Number (CN)= 84.0
ID= 1 DT= 5.0 min	Ia (mm)=	7.25	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.16	

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.203 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 39.855
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.529

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

ADD HYD (1200)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0120):	9.00	0.203	5.17	39.86
+ ID2= 2 (0810):	530.50	10.936	5.67	43.48
=====				
ID = 3 (1200):	539.50	11.133	5.67	43.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0113)				
ID= 1 DT= 5.0 min	Area (ha)=	13.50	Curve Number (CN)=	82.5
	Ia (mm)=	8.08	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.87		

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.295 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 37.393
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.496

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0802)				
IN= 2---> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	208.29	0.0300		
3.73	208.14	0.0300 / 0.0350	Main Channel	
5.30	207.52	0.0350	Main Channel	
6.93	208.18	0.0350 / 0.0300	Main Channel	
8.96	208.27	0.0300		
14.71	208.30	0.0300		
23.86	208.59	0.0300		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.448E+01	0.0	0.12	164.32
0.08	207.60	.179E+02	0.0	0.19	103.51
0.12	207.64	.403E+02	0.0	0.25	79.00
0.16	207.68	.716E+02	0.0	0.30	65.21
0.19	207.71	.112E+03	0.0	0.35	56.20

RUNOFF VOLUME (mm)= 37.076
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.492

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0111):	45.50	0.943	5.42	37.08
+ ID2= 2 (0112):	30.50	0.613	5.67	37.88
=====				
ID = 3 (1101):	76.00	1.553	5.50	37.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (1101):	76.00	1.553	5.50	37.40
+ ID2= 2 (0802):	13.50	0.293	5.25	37.32
=====				
ID = 1 (1101):	89.50	1.844	5.42	37.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801)				
IN= 2---> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.66	0.0400		
19.50	209.34	0.0400		
37.91	208.66	0.0400		
41.73	208.62	0.0400 / 0.0350	Main Channel	
43.44	208.24	0.0350	Main Channel	
45.75	208.62	0.0350 / 0.0450	Main Channel	
54.00	208.79	0.0450 / 0.0400		
77.43	209.05	0.0400		
128.85	209.70	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.104E+02	0.0	0.10	83.26

0.23	207.75	.161E+03	0.1	0.40	49.76
0.27	207.79	.219E+03	0.1	0.44	44.90
0.31	207.83	.287E+03	0.1	0.48	41.08
0.35	207.87	.363E+03	0.2	0.52	37.98
0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88
0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79
0.77	208.29	.225E+04	1.6	0.82	24.20

<---- hydrograph ---->					<-pipe / channel->
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (0113)	13.50	0.30	4.58	37.39	0.44
OUTFLOW: ID= 1 (0802)	13.50	0.29	5.25	37.32	0.44
					0.61

CALIB				
NASHYD (0112)				
ID= 1 DT= 5.0 min	Area (ha)=	30.50	Curve Number (CN)=	82.8
	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.60		

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 0.613 (i)
TIME TO PEAK (hrs)= 5.667
RUNOFF VOLUME (mm)= 37.877
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0111)				
ID= 1 DT= 5.0 min	Area (ha)=	45.50	Curve Number (CN)=	82.3
	Ia (mm)=	8.19	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.33		

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 0.943 (i)
TIME TO PEAK (hrs)= 5.417

0.13	208.37	.415E+02	0.0	0.16	52.45
0.19	208.43	.934E+02	0.0	0.20	40.03
0.25	208.49	.166E+03	0.1	0.25	33.04
0.32	208.56	.259E+03	0.2	0.29	28.47
0.38	208.62	.373E+03	0.2	0.32	25.22
0.46	208.70	.729E+03	0.5	0.33	24.94
0.54	208.78	.135E+04	0.9	0.33	24.67
0.62	208.86	.225E+04	1.6	0.35	23.41
0.70	208.94	.352E+04	2.6	0.37	22.23
0.78	209.02	.516E+04	4.1	0.39	20.96
0.86	209.10	.716E+04	6.1	0.41	19.65
0.94	209.18	.949E+04	8.6	0.44	18.42
1.02	209.26	.122E+05	11.7	0.47	17.31
1.10	209.34	.152E+05	15.5	0.50	16.32
1.18	209.42	.185E+05	19.7	0.52	15.72
1.26	209.50	.224E+05	24.7	0.54	15.09
1.34	209.58	.266E+05	30.6	0.56	14.48
1.42	209.66	.313E+05	37.5	0.59	13.90

<---- hydrograph ---->					<-pipe / channel->
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (1101)	89.50	1.84	5.42	37.39	0.64
OUTFLOW: ID= 1 (0801)	89.50	1.81	5.75	37.38	0.64
					0.35

CALIB				
NASHYD (0110)				
ID= 1 DT= 5.0 min	Area (ha)=	11.90	Curve Number (CN)=	83.4
	Ia (mm)=	7.58	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.68		

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.279 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 38.855
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.515

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0110):	11.90	0.279	3.58	38.85

Model Without SWM Infrastructure - Output

+ ID2= 2 (0801): 89.50 1.814 5.75 37.38
=====

ID = 3 (1100): 101.40 2.052 5.58 37.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (1001) |
1 + 2 = 3
ID1= 1 (1100): 101.40 2.052 5.58 37.56
+ ID2= 2 (1200): 539.50 11.133 5.67 43.42
=====

ID = 3 (1001): 640.90 13.183 5.67 42.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0800) |
IN= 2---> OUT= 1
Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 /0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 /0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .255E+02 0.0 0.16 54.50
0.18 204.88 .102E+03 0.0 0.25 34.33
0.28 204.98 .232E+03 0.1 0.33 26.47
0.37 205.07 .109E+04 0.5 0.24 35.91
0.46 205.16 .321E+04 1.7 0.27 31.53
0.55 205.25 .680E+04 4.4 0.33 25.77
0.64 205.34 .116E+05 9.2 0.41 21.18
0.74 205.44 .182E+05 16.4 0.47 18.54
0.83 205.53 .253E+05 25.9 0.53 16.26
0.92 205.62 .328E+05 37.6 0.59 14.54
1.01 205.71 .408E+05 51.4 0.65 13.23
1.10 205.80 .492E+05 67.3 0.71 12.19
1.20 205.90 .581E+05 85.3 0.76 11.36
1.29 205.99 .675E+05 105.5 0.81 10.66

PEAK FLOW (cms)= 0.286 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 39.683
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.526

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0191) | Area (ha)= 20.10 Curve Number (CN)= 82.0
| ID= 1 DT= 5.0 min | Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.94

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.431 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 36.600
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.485

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0192) | Area (ha)= 28.30 Curve Number (CN)= 80.3
| ID= 1 DT= 5.0 min | Ia (mm)= 6.23 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.06

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 0.589 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 36.388
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.483

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1901) |
1 + 2 = 3
ID1= 1 (0191): 20.10 0.431 5.17 36.60
+ ID2= 2 (0192): 28.30 0.589 5.17 36.39

1.38 206.08 .773E+05 127.9 0.86 10.08
1.47 206.17 .876E+05 152.5 0.90 9.57
1.57 206.27 .983E+05 179.4 0.94 9.13
1.66 206.36 .109E+06 208.6 0.99 8.75
1.75 206.45 .121E+06 240.2 1.03 8.41

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1001) 640.90 13.18 5.67 42.49 0.70 0.44
OUTFLOW: ID= 1 (0800) 640.90 13.04 6.00 42.49 0.69 0.44

| CALIB |
| NASHYD (0100) | Area (ha)= 54.70 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.23

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 1.190 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 38.527
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.511

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1000) |
1 + 2 = 3
ID1= 1 (0100): 54.70 1.190 5.25 38.53
+ ID2= 2 (0800): 640.90 13.038 6.00 42.49
=====

ID = 3 (1000): 695.60 14.161 5.92 42.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| NASHYD (0190) | Area (ha)= 12.30 Curve Number (CN)= 83.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.31 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.83

Unit Hyd Qpeak (cms)= 0.566

=====

ID = 3 (1901): 48.40 1.020 5.17 36.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0899) |
IN= 2---> OUT= 1
Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .349E+02 0.1 0.18 10.46
0.14 208.16 .981E+02 0.2 0.28 6.64
0.22 208.24 .183E+03 0.6 0.36 5.21
0.29 208.31 .291E+03 1.1 0.42 4.40
0.36 208.38 .420E+03 1.8 0.48 3.85
0.44 208.46 .586E+03 3.0 0.57 3.27
0.52 208.54 .777E+03 4.5 0.65 2.87
0.60 208.62 .999E+03 6.5 0.72 2.58
0.68 208.70 .125E+04 8.8 0.78 2.37
0.76 208.78 .154E+04 11.5 0.84 2.22
0.84 208.86 .185E+04 14.7 0.89 2.10
0.92 208.94 .230E+04 18.2 0.88 2.10
0.99 209.01 .285E+04 23.0 0.90 2.07
1.07 209.09 .345E+04 28.5 0.92 2.02
1.15 209.17 .411E+04 34.8 0.94 1.96
1.23 209.25 .482E+04 42.0 0.97 1.91
1.31 209.33 .559E+04 50.0 1.00 1.86
1.39 209.41 .643E+04 59.1 1.02 1.81
1.47 209.49 .732E+04 69.1 1.05 1.76

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1901) 48.40 1.02 5.17 36.48 0.28 0.41
OUTFLOW: ID= 1 (0899) 48.40 1.02 5.17 36.48 0.28 0.41

Model Without SWM Infrastructure - Output

ADD HYD (1900)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R. V. (mm)
ID1= 1 (0190):	12.30	0.286	4.17	39.68
+ ID2= 2 (0899):	48.40	1.019	5.17	36.48

ID = 3 (1900):	60.70	1.301	5.17	37.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	7.60	Curve Number (CN)=	82.8
NASHYD (0500)	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00
TD= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.48		

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.183 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 37.875
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHVD (0510)	Area (ha)=	12.70	Curve Number (CN)= 81.7
ID= 1 DT= 5.0 min	Ia (mm)=	8.53	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.69	

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW	(cms)=	0.275 (i)
TIME TO PEAK	(hrs)=	3.750
RUNOFF VOLUME	(mm)=	36.130
TOTAL RAINFALL	(mm)=	75.400
RUNOFF COEFFICIENT	=	0.479

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |

NASHYD (0520)	Area (ha)=	17.30	Curve Number (CN)=	82.5
ID= 1 DT= 5.0 min	Ia (mm)=	8.08	# of Linear Res.(N)=	3.00
-----	U.H. Tp(hrs)=	0.78		

Unit Hyd Qpeak (cms)= 0.847

```

PEAK FLOW      (cms)=  0.382 (i)
TIME TO PEAK   (hrs)=  4.167
RUNOFF VOLUME  (mm)= 37.393
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.496

```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0500)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0500):	7.60	0.183	3.25	37.88
+ ID2= 2 (0510):	12.70	0.275	3.75	36.13
ID = 3 (5000):	20.30	0.453	3.50	36.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (5000)					
3 + 2 = 1					
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (5000):		20.30	0.453	3.50	36.78
+ ID2= 2 (0520):		17.30	0.382	4.17	37.39
=====					
ID = 1 (5000):		37.60	0.828	3.75	37.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0600)	Area (ha)=	2.50	Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min	Ia (mm)=	8.08	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)=	0.45	

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW	(cms)=	0.060 (i)
TIME TO PEAK	(hrs)=	3.250
RUNOFF VOLUME	(mm)=	37.390
TOTAL RAINFALL	(mm)=	75.400

RUNOFF COEFFICIENT = 0.496

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUU A A LLLLL
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000	TTTT	TTTT	H	H	Y	Y	M	M	000	TM
0 0	T	T	H	H	Y Y		MM	MM	0 0	
0 0	T	T	H	H	Y		M	M	0 0	
000	T	T	H	H	Y		M	M	000	

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```
***** D E T A I L E D   O U T P U T *****
```

```
Input  filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\V02\voin.dat
```

```
Output filename:
C:\Users\wraymond\AppData\Local\Civica\VH5\8db98796-a625-9c4d-9c33-5ecbf8ae0d75\31
8c5f02-dc07-4d7b-9ca3-d22081f232d1\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\VH5\8db98796-a625-9c4d-9c33-5ecbf8ae0d75\31
8c5f02-dc07-4d7b-9ca3-d22081f232d1\sce
```

DATE: 10-17-2025 TIME: 02:15:09

USER:

COMMENTS: _____

```
*****
** SIMULATION : 5 **
*****
```

READ STORM	Filename: C:\Users\wraymond\AppData ata\Local\Temp\ 35eb7828-247c-431e-8f8f-00c8304cf789\79ae8473
Ptotal= 90.80 mm	Comments: 25yr12hrAES

TIME RAIN		TIME RAIN		TIME RAIN		TIME RAIN	
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.08	13.62	6.17	2.72	9.25	0.00
0.08	11.80	3.17	13.62	6.25	2.72	9.33	0.00
0.17	11.80	3.25	13.62	6.33	2.72	9.42	0.00
0.25	11.80	3.33	13.62	6.42	2.72	9.50	0.00
0.33	11.80	3.42	13.62	6.50	2.72	9.58	0.00
0.42	11.80	3.50	13.62	6.58	2.72	9.67	0.00
0.50	11.80	3.58	13.62	6.67	2.72	9.75	0.00
0.58	11.80	3.67	13.62	6.75	2.72	9.83	0.00
0.67	11.80	3.75	13.62	6.83	2.72	9.92	0.00
0.75	11.80	3.83	13.62	6.92	2.72	10.00	0.00
0.83	11.80	3.92	13.62	7.00	2.72	10.08	0.00
0.92	11.80	4.00	13.62	7.08	0.91	10.17	0.00
1.00	11.80	4.08	12.71	7.17	0.91	10.25	0.00
1.08	23.61	4.17	12.71	7.25	0.91	10.33	0.00
1.17	23.61	4.25	12.71	7.33	0.91	10.42	0.00
1.25	23.61	4.33	12.71	7.42	0.91	10.50	0.00
1.33	23.61	4.42	12.71	7.50	0.91	10.58	0.00
1.42	23.61	4.50	12.71	7.58	0.91	10.67	0.00
1.50	23.61	4.58	12.71	7.67	0.91	10.75	0.00
1.58	23.61	4.67	12.71	7.75	0.91	10.83	0.00
1.67	23.61	4.75	12.71	7.83	0.91	10.92	0.00
1.75	23.61	4.83	12.71	7.92	0.91	11.00	0.00
1.83	23.61	4.92	12.71	8.00	0.91	11.08	0.00
1.92	23.61	5.00	12.71	8.08	0.00	11.17	0.00
2.00	23.61	5.08	7.26	8.17	0.00	11.25	0.00
2.08	18.16	5.17	7.26	8.25	0.00	11.33	0.00
2.17	18.16	5.25	7.26	8.33	0.00	11.42	0.00
2.25	18.16	5.33	7.26	8.42	0.00	11.50	0.00
2.33	18.16	5.42	7.26	8.50	0.00	11.58	0.00
2.42	18.16	5.50	7.26	8.58	0.00	11.67	0.00
2.50	18.16	5.58	7.26	8.67	0.00	11.75	0.00
2.58	18.16	5.67	7.26	8.75	0.00	11.83	0.00
2.67	18.16	5.75	7.26	8.83	0.00	11.92	0.00
2.75	18.16	5.83	7.26	8.92	0.00	12.00	0.00
2.83	18.16	5.92	7.26	9.00	0.00		
2.92	18.16	6.00	7.26	9.08	0.00		
3.00	18.16	6.08	2.72	9.17	0.00		

| CALIB

Model Without SWM Infrastructure - Output

NASHYD (0185)	Area (ha)= 2.00	Curve Number (CN)= 79.5
ID= 1 DT= 5.0 min	Ia (mm)= 6.54	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.36	

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.061 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 47.399
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.522

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
NASHYD (0180)	Area (ha)= 6.80	Curve Number (CN)= 82.4
ID= 1 DT= 5.0 min	Ia (mm)= 8.13	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.85	

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.198 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 49.913
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.550

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
NASHYD (0170)	Area (ha)= 5.80	Curve Number (CN)= 82.4
ID= 1 DT= 5.0 min	Ia (mm)= 7.41	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.69	

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.175 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 49.913
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.550

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	

NASHYD (0160)	Area (ha)= 16.30	Curve Number (CN)= 83.2
ID= 1 DT= 5.0 min	Ia (mm)= 7.69	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 1.15	

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.470 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 51.394
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.566

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
NASHYD (0330)	Area (ha)= 22.30	Curve Number (CN)= 82.2
ID= 1 DT= 5.0 min	Ia (mm)= 8.25	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.60	

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.685 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 49.540
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.546

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
NASHYD (0270)	Area (ha)= 2.50	Curve Number (CN)= 81.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.95	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.24	

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.082 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 49.801
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.548

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	

NASHYD (0260)	Area (ha)= 7.00	Curve Number (CN)= 83.7
ID= 1 DT= 5.0 min	Ia (mm)= 7.41	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.43	

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.237 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 52.337
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.576

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
NASHYD (0250)	Area (ha)= 10.70	Curve Number (CN)= 81.9
ID= 1 DT= 5.0 min	Ia (mm)= 8.42	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.54	

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.330 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 48.993
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.540

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
NASHYD (0320)	Area (ha)= 11.70	Curve Number (CN)= 83.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.45	

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.385 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 51.017
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.562

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	

NASHYD (0420)	Area (ha)= 25.80	Curve Number (CN)= 83.6
ID= 1 DT= 5.0 min	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 1.12	

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 0.755 (i)
TIME TO PEAK (hrs)= 5.000
RUNOFF VOLUME (mm)= 52.148
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
NASHYD (0423)	Area (ha)= 23.90	Curve Number (CN)= 84.1
ID= 1 DT= 5.0 min	Ia (mm)= 7.20	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.80	

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 0.750 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 53.099
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.585

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
NASHYD (0422)	Area (ha)= 6.90	Curve Number (CN)= 83.4
ID= 1 DT= 5.0 min	Ia (mm)= 7.58	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.61	

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.222 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 51.768
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.570

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0896)

Model Without SWM Infrastructure - Output

| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
```

Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

```

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV. TIME

```

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03
0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

```
<---- hydrograph ----> <-pipe / channel->
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R. V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0422)	6.90	0.22	3.42	51.77	0.34	0.65
OUTFLOW: ID= 1 (0896)	6.90	0.22	3.42	51.77	0.34	0.65

ADD	HYD	(	4202)
1	+	2	= 3

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

OUTFLOW: ID= 1 (0895) 30.80 0.97 3.75 52.80 0.71 0.55

CALIB	
NASHYD	(0421)
ID= 1	DT= 5.0 min

Area (ha)= 10.40 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.37

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW	(cms)=	0.345 (i)
TIME TO PEAK	(hrs)=	3.167
RUNOFF VOLUME	(mm)=	50.641
TOTAL RAINFALL	(mm)=	90.800
RUNOFF COEFFICIENT	=	0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0883) |
| IN= 2---> OUT= 1 |
```

Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
```

Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m)	(cms)	(m/s)	(min)
0.04	204.54	.344E+01	0.0	0.19	78.41
0.07	204.57	.137E+02	0.0	0.30	49.40
0.11	204.61	.309E+02	0.0	0.39	37.70
0.14	204.64	.550E+02	0.0	0.47	31.12
0.18	204.68	.859E+02	0.1	0.55	26.82
0.22	204.72	.124E+03	0.1	0.62	23.75
0.25	204.75	.168E+03	0.1	0.69	21.43
0.29	204.79	.220E+03	0.2	0.75	19.60
0.33	204.83	.278E+03	0.3	0.81	18.12
0.36	204.86	.344E+03	0.3	0.87	16.89

ID1= 1 (0423):	23.90	0.750	3.75	53.10
+ ID2= 2 (0896):	6.90	0.221	3.42	51.77
=====				
ID = 3 (4202):	30.80	0.969	3.67	52.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0895)
| IN= 2---> OUT= 1
```

Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
```

Distance	Elevation	Manning	
0.00	214.86	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

```

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV TIME

```

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.170E+01	0.0	0.28	4.09
0.24	212.03	.679E+01	0.0	0.44	2.58
0.36	212.15	.153E+02	0.1	0.58	1.97
0.48	212.27	.272E+02	0.3	0.70	1.62
0.61	212.40	.424E+02	0.5	0.82	1.40
0.73	212.52	.134E+03	1.0	0.53	2.16
0.85	212.64	.375E+03	2.8	0.52	2.20
0.97	212.76	.687E+03	6.1	0.60	1.89
1.09	212.88	.107E+04	11.0	0.71	1.61
1.21	213.00	.148E+04	17.8	0.83	1.38
1.33	213.12	.192E+04	26.1	0.93	1.22
1.45	213.24	.238E+04	35.9	1.03	1.11
1.57	213.36	.288E+04	47.3	1.13	1.01
1.70	213.49	.340E+04	60.1	1.21	0.94
1.82	213.61	.395E+04	74.5	1.29	0.88
1.94	213.73	.452E+04	90.5	1.37	0.83
2.06	213.85	.512E+04	109.2	1.46	0.78
2.18	213.97	.573E+04	130.3	1.56	0.73
2.37	214.16	.694E+04	168.2	1.66	0.69

```
<---- hydrograph ----> <-pipe / channel->
```

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4202)	30.80	0.97	3.67	52.80	0.71	0.55

0.40	204.90	.416E+03	0.4	0.93	15.85
0.43	204.93	.559E+03	0.6	0.89	16.61
0.47	204.97	.986E+03	0.8	0.71	20.75
0.51	205.01	.165E+04	1.2	0.65	22.49
0.54	205.04	.248E+04	1.9	0.66	22.28
0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

```
<---- hydrograph ----> <-pipe / channel->
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0421)	10.40	0.35	3.17	50.64	0.36	0.88
OUTFLOW: ID= 1 (0883)	10.40	0.34	3.33	50.60	0.36	0.87

```
| ADD HYD ( 4201)
| 1 + 2 = 3
```

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

ID1= 1 (0883):	10.40	0.338	3.33	50.60
+ ID2= 2 (0895):	30.80	0.969	3.75	52.80
=====				
ID = 3 (4201):	41.20	1.295	3.50	52.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0882)
| IN= 2---> OUT= 1
```

Routing time step (min)'= 5.00

```

----- DATA FOR SECTION ( 1.1) -----

```

Distance	Elevation	Manning		
0.00	209.49	0.0400		
35.71	208.88	0.0400		
53.04	208.89	0.0400		
64.12	208.50	0.0400 / 0.0350	Main	Channel
70.77	208.05	0.0350	Main	Channel
74.98	208.02	0.0350	Main	Channel
83.40	208.38	0.0350 / 0.0400	Main	Channel
88.06	208.63	0.0400		
94.94	209.13	0.0400		
105.88	209.54	0.0400		

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)

Model Without SWM Infrastructure - Output

0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52
0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20
0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4201)	41.20	1.29	3.50	52.24	0.41	0.27
OUTFLOW: ID= 1 (0882)	41.20	1.26	3.92	52.24	0.40	0.27

ADD HYD (4200)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0420):	25.80	0.755	5.00	52.15
+ ID2= 2 (0882):	41.20	1.258	3.92	52.24
=====				
ID = 3 (4200):	67.00	1.994	4.33	52.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0440)
ID= 1 DT= 5.0 min

Area (ha)=	31.60	Curve Number (CN)=	84.4
Ia (mm)=	7.04	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.16		

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 0.944 (i)
TIME TO PEAK (hrs)= 5.000

RUNOFF VOLUME (mm)= 53.675
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.591

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0442)
ID= 1 DT= 5.0 min

Area (ha)=	2.40	Curve Number (CN)=	84.9
Ia (mm)=	6.77	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.41		

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.085 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 54.643
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0443)
ID= 1 DT= 5.0 min

Area (ha)=	21.30	Curve Number (CN)=	83.9
Ia (mm)=	7.31	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.59		

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)= 0.702 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 52.714
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0451)
ID= 1 DT= 5.0 min

Area (ha)=	12.30	Curve Number (CN)=	84.3
Ia (mm)=	7.09	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.57		

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 0.414 (i)
TIME TO PEAK (hrs)= 3.333

RUNOFF VOLUME (mm)= 53.484
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0043)
ID= 1 DT= 5.0 min

Area (ha)=	22.90	Dir. Conn.(%)=	40.00
Total Imp(%)=	49.00		

	IMPERVIOUS (ha)	PERVIOUS (i)
Surface Area	11.22	11.68
Dep. Storage	1.00	8.92
Average Slope	1.00	2.00
Length	390.73	40.00
Mannings n	0.013	0.250

Max.Eff.Inten.(mm/hr)=	23.61	12.65
over (min)	10.00	30.00
Storage Coeff. (min)=	10.31 (ii)	26.45 (ii)
Unit Hyd. Tpeak (min)=	10.00	30.00
Unit Hyd. peak (cms)=	0.11	0.04

TOTALS

PEAK FLOW (cms)=	0.60	0.37	0.829 (iii)
TIME TO PEAK (hrs)=	2.08	3.33	2.17
RUNOFF VOLUME (mm)=	89.80	43.53	62.04
TOTAL RAINFALL (mm)=	90.80	90.80	90.80
RUNOFF COEFFICIENT =	0.99	0.48	0.68

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 74.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0045)
ID= 1 DT= 5.0 min

Area (ha)=	1.30	Dir. Conn.(%)=	35.00
Total Imp(%)=	65.00		

	IMPERVIOUS (ha)	PERVIOUS (i)
Surface Area	0.84	0.46
Dep. Storage	1.00	8.92
Average Slope	1.00	2.00
Length	93.09	40.00
Mannings n	0.013	0.250

Max.Eff.Inten.(mm/hr)=	23.61	26.15
over (min)	5.00	20.00
Storage Coeff. (min)=	4.36 (ii)	16.43 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.23	0.06

TOTALS

PEAK FLOW (cms)=	0.03	0.03	0.057 (iii)
TIME TO PEAK (hrs)=	2.00	3.08	2.08
RUNOFF VOLUME (mm)=	89.80	55.17	67.28
TOTAL RAINFALL (mm)=	90.80	90.80	90.80
RUNOFF COEFFICIENT =	0.99	0.61	0.74

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 74.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4345)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	22.90	0.829	2.17	62.04
+ ID2= 2 (0045):	1.30	0.057	2.08	67.28
=====				
ID = 3 (4345):	24.20	0.886	2.08	62.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.596E+00	0.0	0.09	30.15

Model Without SWM Infrastructure - Output

0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
		(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4345)	24.20	0.89	2.08	62.32	0.72	0.61	
OUTFLOW: ID= 1 (0893)	24.20	0.88	2.17	62.32	0.72	0.61	

ADD HYD (4510)	1	2	3	AREA	QPEAK	TPEAK	R.V.
				(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0451):				12.30	0.414	3.33	53.48
+ ID2= 2 (0893):				24.20	0.878	2.17	62.32
ID = 3 (4510):				36.50	1.280	3.17	59.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0892)	IN= 2--> OUT= 1	Routing time step (min)'= 5.00
<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350

ROUTE CHN(0891)	IN= 2--> OUT= 1	Routing time step (min)'= 5.00
<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	206.70	0.0400
2.35	206.02	0.0400 / 0.0350
5.23	205.19	0.0350
5.34	205.67	0.0350
19.05	206.06	0.0350 / 0.0400
21.11	206.05	0.0400
22.02	206.13	0.0400 / 0.0350
40.10	206.15	0.0350
56.50	206.04	0.0350

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.621E+00	0.0	0.10	29.40
0.09	205.28	.248E+01	0.0	0.16	18.52
0.13	205.32	.559E+01	0.0	0.21	14.13
0.17	205.36	.994E+01	0.0	0.25	11.67
0.22	205.41	.155E+02	0.0	0.29	10.05
0.26	205.45	.224E+02	0.0	0.33	8.90
0.31	205.50	.304E+02	0.1	0.37	8.03
0.35	205.54	.398E+02	0.1	0.40	7.35
0.39	205.58	.503E+02	0.1	0.43	6.79
0.44	205.63	.621E+02	0.2	0.46	6.33
0.48	205.67	.752E+02	0.2	0.49	5.97
0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4411)	57.80	1.97	3.17	56.90	0.83	0.53
OUTFLOW: ID= 1 (0891)	57.80	1.96	3.25	56.90	0.83	0.53

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB

32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.279E+01	0.0	0.48	3.92
0.24	212.03	.112E+02	0.1	0.76	2.47
0.36	212.15	.251E+02	0.2	0.99	1.89
0.48	212.27	.446E+02	0.5	1.20	1.56
0.61	212.40	.697E+02	0.9	1.40	1.34
0.73	212.52	.220E+03	1.8	0.91	2.07
0.85	212.64	.616E+03	4.9	0.89	2.11
0.97	212.76	.113E+04	10.4	1.04	1.81
1.09	212.88	.175E+04	18.9	1.21	1.54
1.21	213.00	.243E+04	30.5	1.42	1.32
1.33	213.12	.315E+04	44.8	1.60	1.17
1.45	213.24	.392E+04	61.6	1.77	1.06
1.57	213.36	.473E+04	81.0	1.93	0.97
1.70	213.49	.558E+04	103.1	2.08	0.90
1.82	213.61	.648E+04	127.8	2.22	0.85
1.94	213.73	.742E+04	155.2	2.35	0.80
2.06	213.85	.841E+04	187.2	2.50	0.75
2.18	213.97	.941E+04	223.3	2.67	0.70
2.37	214.16	.114E+05	288.4	2.85	0.66

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4510)	36.50	1.28	3.17	59.34	0.66	1.12
OUTFLOW: ID= 1 (0892)	36.50	1.28	3.17	59.34	0.66	1.12

ADD HYD (4411)	1	2	3	AREA	QPEAK	TPEAK	R.V.
				(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0443):				21.30	0.702	3.33	52.71
+ ID2= 2 (0892):				36.50	1.278	3.17	59.34
ID = 3 (4411):				57.80	1.971	3.17	56.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

STANDHYD (0441)	Area (ha)= 3.00
ID= 1 DT= 5.0 min	Total Imp(%)= 45.00
	Dir. Conn.(%)= 35.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.35	1.65
Dep. Storage (mm)=	1.00	3.58
Average Slope (%)=	2.00	2.00
Length (m)=	141.42	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	23.61	19.65
over (min)	5.00	20.00
Storage Coeff. (min)=	4.55 (ii)	18.08 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.23	0.06
PEAK FLOW (cms)=	0.07	0.08
TIME TO PEAK (hrs)=	2.08	2.25
RUNOFF VOLUME (mm)=	89.80	62.75
TOTAL RAINFALL (mm)=	90.80	90.80
RUNOFF COEFFICIENT =	0.99	0.69

TOTALS

0.145 (iii)

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4410)	1	2	3	AREA	QPEAK	TPEAK	R.V.
				(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0441):				3.00	0.145	2.08	72.22
+ ID2= 2 (0891):				57.80	1.962	3.25	56.90
ID = 3 (4410):				60.80	2.080	3.25	57.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4401)	1	2	3	AREA	QPEAK	TPEAK	R.V.
				(ha)	(cms)	(hrs)	(mm)
ID1= 1 (4410):				60.80	2.080	3.25	57.65
+ ID2= 2 (0442):				2.40	0.085	3.17	54.64

Model Without SWM Infrastructure - Output

ID = 3 (4401): 63.20 2.165 3.25 57.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0889)|
| IN= 2----> OUT= 1 |
-----
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.70      0.0400
2.35          206.02      0.0400 /0.0350 Main Channel
5.23          205.19      0.0350 Main Channel
5.34          205.67      0.0350 Main Channel
19.05         206.06      0.0350 /0.0400 Main Channel
21.11         206.05      0.0400
22.02         206.13      0.0400 /0.0350
40.10         206.15      0.0350
56.50         206.04      0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04 205.23 .272E+01 0.0 0.09 142.50
0.09 205.28 .109E+02 0.0 0.14 89.77
0.13 205.32 .245E+02 0.0 0.19 68.51
0.17 205.36 .435E+02 0.0 0.23 56.55
0.22 205.41 .679E+02 0.0 0.26 48.73
0.26 205.45 .978E+02 0.0 0.30 43.16
0.31 205.50 .133E+03 0.1 0.33 38.94
0.35 205.54 .174E+03 0.1 0.36 35.63
0.39 205.58 .220E+03 0.1 0.39 32.93
0.44 205.63 .272E+03 0.1 0.42 30.70
0.48 205.67 .329E+03 0.2 0.44 28.96
0.52 205.71 .418E+03 0.2 0.36 35.92
0.57 205.76 .563E+03 0.3 0.34 37.36
0.61 205.80 .765E+03 0.4 0.35 36.28
0.66 205.85 .102E+04 0.5 0.37 34.31
0.70 205.89 .134E+04 0.7 0.40 32.17
0.74 205.93 .171E+04 0.9 0.43 30.13
0.79 205.98 .214E+04 1.3 0.45 28.27
0.83 206.02 .263E+04 1.6 0.48 26.60
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4401) 63.20 2.17 3.25 57.54 0.82 0.48
OUTFLOW: ID= 1 ( 0889) 63.20 2.06 3.67 57.53 0.83 0.48
```

1.42 209.66 .157E+05 35.9 0.56 7.26

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4400) 94.80 2.94 4.00 56.24 0.72 0.36
OUTFLOW: ID= 1 ( 0888) 94.80 2.93 4.25 56.24 0.72 0.36
```

```
-----
| CALIB
| STANDHYD ( 0042)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 20.50
Total Imp(%)= 83.00 Dir. Conn.(%)= 70.00
```

```
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 17.01 3.49
Dep. Storage (mm)= 1.00 6.98
Average Slope (%)= 2.00 2.00
Length (m)= 369.68 40.00
Mannings n = 0.013 0.250
```

```
Max.Eff.Inten.(mm/hr)= 23.61 27.60
over (min) 10.00 20.00
Storage Coeff. (min)= 8.10 (ii) 19.91 (ii)
Unit Hyd. Tpeak (min)= 10.00 20.00
Unit Hyd. peak (cms)= 0.13 0.06
```

```
*TOTALS*
PEAK FLOW (cms)= 0.94 0.24 1.158 (iii)
TIME TO PEAK (hrs)= 2.08 3.08 2.08
RUNOFF VOLUME (mm)= 89.80 59.73 80.78
TOTAL RAINFALL (mm)= 90.80 90.80 90.80
RUNOFF COEFFICIENT = 0.99 0.66 0.89
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0898)|
| IN= 2----> OUT= 1 |
-----
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          101.50      0.0500
1.00          100.70      0.0500
```

```
-----
| ADD HYD ( 4400)|
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0440): 31.60 0.944 5.00 53.67
+ ID2= 2 ( 0889): 63.20 2.060 3.67 57.53
=====
ID = 3 ( 4400): 94.80 2.939 4.00 56.24
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0888)|
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.66      0.0400
19.50         209.34      0.0400
37.91         208.66      0.0400
41.73         208.62      0.0400 /0.0350 Main Channel
43.44         208.24      0.0350 Main Channel
45.75         208.62      0.0350 /0.0450 Main Channel
54.00         208.79      0.0450 /0.0400
77.43         209.05      0.0400
128.85        209.70      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.06 208.30 .519E+01 0.0 0.09 43.50
0.13 208.37 .208E+02 0.0 0.15 27.40
0.19 208.43 .467E+02 0.0 0.19 20.91
0.25 208.49 .830E+02 0.1 0.24 17.26
0.32 208.56 .130E+03 0.1 0.27 14.88
0.38 208.62 .187E+03 0.2 0.31 13.17
0.46 208.70 .365E+03 0.5 0.31 13.03
0.54 208.78 .674E+03 0.9 0.32 12.89
0.62 208.86 .113E+04 1.5 0.33 12.23
0.70 208.94 .176E+04 2.5 0.35 11.61
0.78 209.02 .258E+04 3.9 0.37 10.95
0.86 209.10 .358E+04 5.8 0.40 10.27
0.94 209.18 .475E+04 8.2 0.42 9.62
1.02 209.26 .608E+04 11.2 0.45 9.04
1.10 209.34 .758E+04 14.8 0.48 8.53
1.18 209.42 .927E+04 18.8 0.50 8.21
1.26 209.50 .112E+05 23.6 0.52 7.88
1.34 209.58 .133E+05 29.3 0.54 7.57
```

1.50 100.55 0.0500 /0.0300 Main Channel
2.00 99.50 0.0300 Main Channel
3.50 99.60 0.0300 Main Channel
4.50 100.65 0.0300 /0.0500 Main Channel
6.00 101.45 0.0500

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.10 99.60 .152E+02 0.0 0.19 18.79
0.19 99.69 .482E+02 0.1 0.37 9.79
0.29 99.79 .840E+02 0.2 0.49 7.32
0.38 99.88 .123E+03 0.3 0.59 6.12
0.48 99.98 .164E+03 0.5 0.67 5.38
0.57 100.07 .208E+03 0.7 0.74 4.87
0.67 100.17 .255E+03 0.9 0.80 4.49
0.76 100.26 .305E+03 1.2 0.86 4.19
0.86 100.36 .358E+03 1.5 0.91 3.95
0.95 100.45 .413E+03 1.8 0.96 3.75
1.05 100.55 .471E+03 2.2 1.00 3.58
1.16 100.66 .547E+03 2.7 1.07 3.35
1.28 100.78 .635E+03 3.4 1.14 3.14
1.39 100.89 .732E+03 4.1 1.20 2.99
1.50 101.00 .838E+03 4.9 1.25 2.86
1.61 101.11 .952E+03 5.8 1.30 2.76
1.72 101.22 .107E+04 6.7 1.34 2.67
1.84 101.34 .120E+04 7.7 1.38 2.60
1.95 101.45 .134E+04 8.8 1.41 2.54
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0042) 20.50 1.16 2.08 80.78 0.74 0.84
OUTFLOW: ID= 1 ( 0898) 20.50 1.15 2.08 80.77 0.74 0.84
```

```
-----
| CALIB
| STANDHYD ( 0044)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 8.90
Total Imp(%)= 41.00 Dir. Conn.(%)= 20.00
```

```
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 3.65 5.25
Dep. Storage (mm)= 1.00 8.00
Average Slope (%)= 2.00 2.00
Length (m)= 243.58 40.00
Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 23.61 16.75
```

Model Without SWM Infrastructure - Output

```
over (min)      5.00      25.00
Storage Coeff. (min)= 6.31 (ii) 20.73 (ii)
Unit Hyd. Tpeak (min)= 5.00      25.00
Unit Hyd. peak  (cms)= 0.19      0.05

PEAK FLOW (cms)= 0.12      0.23      0.317 (iii)
TIME TO PEAK (hrs)= 2.08      3.17      3.08
RUNOFF VOLUME (mm)= 89.80      50.04      57.99
TOTAL RAINFALL (mm)= 90.80      90.80      90.80
RUNOFF COEFFICIENT = 0.99      0.55      0.64
```

***** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4244) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0044): 8.90 0.317 3.08 57.99
+ ID2= 2 ( 0898): 20.50 1.150 2.08 80.77
=====
ID = 3 ( 4244): 29.40 1.444 2.08 73.88
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0897) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->
```

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.140E+02	0.0	0.17	55.64
0.24	212.03	.559E+02	0.0	0.27	35.05
0.36	212.15	.126E+03	0.1	0.35	26.75
0.48	212.27	.224E+03	0.2	0.43	22.08
0.61	212.40	.350E+03	0.3	0.49	19.03
0.73	212.52	.110E+04	0.6	0.32	29.36
0.85	212.64	.309E+04	1.7	0.31	29.92
0.97	212.76	.566E+04	3.7	0.37	25.67
1.09	212.88	.878E+04	6.7	0.43	21.92
1.21	213.00	.122E+05	10.8	0.50	18.80
1.33	213.12	.158E+05	15.8	0.57	16.63
1.45	213.24	.196E+05	21.8	0.63	15.03
1.57	213.36	.237E+05	28.7	0.68	13.79
1.70	213.49	.280E+05	36.4	0.73	12.81
1.82	213.61	.325E+05	45.2	0.78	12.00
1.94	213.73	.372E+05	54.9	0.83	11.31
2.06	213.85	.422E+05	66.2	0.89	10.62
2.18	213.97	.472E+05	79.0	0.94	9.97
2.37	214.16	.571E+05	102.0	1.01	9.34

```
-----
| ADD HYD ( 4301) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0888): 94.80 2.926 4.25 56.24
+ ID2= 2 ( 0897): 29.40 1.260 3.08 73.87
=====
ID = 3 ( 4301): 124.20 4.006 3.92 60.41
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0887) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.52 0.0400
61.99 209.23 0.0400
```

76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350 Main Channel
86.30	208.87	0.0350 Main Channel
89.86	209.20	0.0350 / 0.0300 Main Channel
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.03 208.90 .143E+01 0.0 0.09 20.80
0.07 208.94 .572E+01 0.0 0.14 13.11
0.10 208.97 .129E+02 0.0 0.18 10.00
0.13 209.00 .229E+02 0.0 0.22 8.26
0.17 209.04 .357E+02 0.1 0.26 7.11
0.20 209.07 .514E+02 0.1 0.29 6.30
0.23 209.10 .700E+02 0.2 0.32 5.69
0.26 209.13 .915E+02 0.3 0.35 5.20
0.30 209.17 .116E+03 0.4 0.38 4.81
0.33 209.20 .143E+03 0.5 0.41 4.48
0.37 209.24 .239E+03 0.8 0.37 5.02
0.40 209.27 .396E+03 1.3 0.35 5.26
0.44 209.31 .589E+03 1.9 0.36 5.13
0.47 209.34 .818E+03 2.8 0.38 4.89
0.51 209.38 .108E+04 3.9 0.40 4.63
0.54 209.41 .139E+04 5.2 0.41 4.46
0.58 209.45 .175E+04 6.7 0.43 4.33
0.61 209.48 .218E+04 8.7 0.44 4.17
0.65 209.52 .266E+04 11.2 0.46 3.98
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4301) 124.20 4.01 3.92 60.41 0.51 0.40
OUTFLOW: ID= 1 ( 0887) 124.20 4.00 3.92 60.41 0.51 0.40
```

```
-----
| CALIB |
| NASHYD ( 0430) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 19.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.13
```

Unit Hyd Qpeak (cms)= 0.669
PEAK FLOW (cms)= 0.579 (i)
TIME TO PEAK (hrs)= 5.083

RUNOFF VOLUME (mm)= 52.148
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.574

- (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4300) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0430): 19.80 0.579 5.08 52.15
+ ID2= 2 ( 0887): 124.20 4.004 3.92 60.41
=====
ID = 3 ( 4300): 144.00 4.560 4.08 59.28
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0886) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 / 0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 / 0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400
124.41 207.31 0.0400
129.31 207.24 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 205.46 .110E+02 0.0 0.11 51.32
0.19 205.56 .438E+02 0.0 0.17 32.33
0.28 205.65 .986E+02 0.1 0.23 24.67
0.38 205.75 .175E+03 0.1 0.27 20.37
0.47 205.84 .271E+03 0.3 0.33 16.94
0.57 205.94 .379E+03 0.4 0.38 14.73
0.66 206.03 .501E+03 0.6 0.42 13.19
0.76 206.13 .644E+03 0.9 0.48 11.58
0.86 206.23 .845E+03 1.3 0.51 10.89
0.96 206.33 .140E+04 1.9 0.46 12.13
1.06 206.43 .209E+04 2.9 0.46 12.20
1.16 206.53 .290E+04 4.1 0.47 11.82
```

Model Without SWM Infrastructure - Output

1.26	206.63	.383E+04	5.6	0.49	11.31
1.37	206.74	.489E+04	7.6	0.52	10.78
1.47	206.84	.607E+04	9.8	0.54	10.28
1.57	206.94	.737E+04	12.5	0.57	9.81
1.67	207.04	.879E+04	15.6	0.60	9.38
1.77	207.14	.103E+05	19.2	0.62	8.99
1.87	207.24	.120E+05	23.2	0.65	8.63

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4300)	144.00	4.56	4.08	59.28	1.19	0.48	
OUTFLOW: ID= 1 (0886)	144.00	4.54	4.17	59.27	1.19	0.48	

CALIB					
NASHYD (0411)	Area (ha)=	4.50	Curve Number (CN)=	86.7	
ID= 1 DT= 5.0 min	Ia (mm)=	5.84	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.11			

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW	(cms)=	0.146 (i)
TIME TO PEAK	(hrs)=	4.417
RUNOFF VOLUME	(mm)=	58.246
TOTAL RAINFALL	(mm)=	90.800
RUNOFF COEFFICIENT	=	0.641

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4110)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0411):	4.50	0.146	4.42	58.25	
+ ID2= 2 (0886):	144.00	4.535	4.17	59.27	
=====					
ID = 3 (4110):	148.50	4.681	4.17	59.24	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0885)					
IN= 2--> OUT= 1	Routing time step (min)'=	5.00			
<----- DATA FOR SECTION (1.1) ----->					

Distance	Elevation	Manning	
0.00	208.48	0.0500	
43.69	207.97	0.0500	
66.92	207.94	0.0500	
76.98	208.01	0.0500	
87.94	208.25	0.0500	
89.93	208.44	0.0500 / 0.0350	Main Channel
92.70	208.20	0.0350	Main Channel
95.51	207.28	0.0350	Main Channel
98.26	208.25	0.0350	Main Channel

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	207.33	.134E+01	0.0	0.06	52.81
0.10	207.38	.536E+01	0.0	0.10	33.27
0.15	207.43	.121E+02	0.0	0.13	25.39
0.19	207.47	.214E+02	0.0	0.15	20.96
0.24	207.52	.335E+02	0.0	0.18	18.06
0.29	207.57	.483E+02	0.1	0.20	15.99
0.34	207.62	.657E+02	0.1	0.22	14.43
0.39	207.67	.858E+02	0.1	0.24	13.20
0.44	207.72	.109E+03	0.1	0.26	12.21
0.48	207.76	.134E+03	0.2	0.28	11.38
0.53	207.81	.162E+03	0.3	0.30	10.68
0.58	207.86	.193E+03	0.3	0.32	10.08
0.63	207.91	.227E+03	0.4	0.34	9.55
0.68	207.96	.295E+03	0.5	0.32	10.12
0.73	208.01	.613E+03	0.7	0.22	14.89
0.78	208.06	.103E+04	1.0	0.20	16.42
0.82	208.10	.150E+04	1.5	0.20	16.27
0.87	208.15	.204E+04	2.2	0.21	15.61
0.92	208.20	.264E+04	3.0	0.22	14.84

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4110)	148.50	4.68	4.17	59.24	0.92	0.22	
OUTFLOW: ID= 1 (0885)	148.50	4.66	4.58	59.24	0.92	0.22	

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB					
NASHYD (0041)	Area (ha)=	25.40	Curve Number (CN)=	83.6	
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.21			

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW	(cms)=	0.737 (i)
TIME TO PEAK	(hrs)=	5.167
RUNOFF VOLUME	(mm)=	52.148
TOTAL RAINFALL	(mm)=	90.800
RUNOFF COEFFICIENT	=	0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0894)					
IN= 2--> OUT= 1	Routing time step (min)'=	5.00			

Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.523E+01	0.0	0.10	36.03
0.24	212.03	.209E+02	0.0	0.15	22.70
0.36	212.15	.471E+02	0.0	0.20	17.32
0.48	212.27	.837E+02	0.1	0.25	14.30
0.61	212.40	.131E+03	0.2	0.29	12.32
0.73	212.52	.412E+03	0.4	0.18	19.01
0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62
1.09	212.88	.328E+04	3.9	0.25	14.19
1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0041)	25.40	0.74	5.17	52.15	0.80	0.18	
OUTFLOW: ID= 1 (0894)	25.40	0.73	5.25	52.15	0.80	0.18	

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW	(cms)=	1.141 (i)
TIME TO PEAK	(hrs)=	4.333
RUNOFF VOLUME	(mm)=	53.296
TOTAL RAINFALL	(mm)=	90.800
RUNOFF COEFFICIENT	=	0.587

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0040):	37.50	1.141	4.33	53.30	
+ ID2= 2 (0894):	25.40	0.728	5.25	52.15	
=====					
ID = 3 (4140):	62.90	1.845	5.17	52.83	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4101)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (4140):	62.90	1.845	5.17	52.83	
+ ID2= 2 (0885):	148.50	4.660	4.58	59.24	
=====					
ID = 3 (4101):	211.40	6.496	4.67	57.33	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model Without SWM Infrastructure - Output

```
| ROUTE CHN( 0884)|
| IN= 2--> OUT= 1 |
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          204.63      0.0400
45.24         204.34      0.0400
94.52         203.98      0.0400
140.93        203.58      0.0400
148.77        203.72      0.0400 / 0.0350 Main Channel
154.30        202.99      0.0350 Main Channel
158.02        203.77      0.0350 / 0.0400 Main Channel
174.30        203.79      0.0400
222.94        204.38      0.0400
285.62        204.03      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV. TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.05        203.04      .620E+01     0.0            0.11          58.30
0.10        203.09      .248E+02     0.0            0.17          36.73
0.16        203.15      .558E+02     0.0            0.22          28.03
0.21        203.20      .992E+02     0.1            0.27          23.14
0.26        203.25      .155E+03     0.1            0.31          19.94
0.31        203.30      .223E+03     0.2            0.35          17.66
0.37        203.36      .304E+03     0.3            0.39          15.93
0.42        203.41      .397E+03     0.5            0.42          14.58
0.47        203.46      .502E+03     0.6            0.46          13.47
0.52        203.51      .620E+03     0.8            0.49          12.56
0.57        203.56      .750E+03     1.1            0.52          11.79
0.63        203.62      .934E+03     1.3            0.53          11.56
0.68        203.67      .129E+04     1.7            0.50          12.36
0.73        203.72      .184E+04     2.3            0.47          13.20
0.79        203.78      .270E+04     3.4            0.47          13.22
0.85        203.84      .412E+04     5.1            0.45          13.57
0.92        203.91      .583E+04     7.3            0.47          13.24
0.98        203.97      .783E+04     10.3           0.49          12.69
1.04        204.03      .101E+05     13.9           0.51          12.15

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH  MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)         (m/s)
INFLOW : ID= 2 ( 4101) 211.40    6.50    4.67    57.33     0.89     0.46
OUTFLOW: ID= 1 ( 0884) 211.40    6.48    5.00    57.33     0.89     0.46
```

```
| CALIB
| NASHYD ( 0410) | Area (ha)= 8.50 Curve Number (CN)= 85.5
```

```
| ID= 1 DT= 5.0 min | Ia (mm)= 6.46 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.94
```

```
Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.273 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 55.827
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.615
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4100) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0410): 8.50 0.273 4.08 55.83
+ ID2= 2 ( 0884): 211.40 6.477 5.00 57.33
=====
ID = 3 ( 4100): 219.90 6.741 5.00 57.27
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0401) | Area (ha)= 23.00 Curve Number (CN)= 83.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.78
```

```
Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.698 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 51.211
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.564
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4001) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0401): 23.00 0.698 3.75 51.21
+ ID2= 2 ( 4100): 219.90 6.741 5.00 57.27
=====
```

```
ID = 3 ( 4001): 242.90 7.409 4.92 56.70
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 4001) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 4001): 242.90 7.409 4.92 56.70
+ ID2= 2 ( 4200): 67.00 1.994 4.33 52.20
=====
ID = 1 ( 4001): 309.90 9.387 4.92 55.73
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0880)|
| IN= 2--> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          204.63      0.0400
45.24         204.34      0.0400
94.52         203.98      0.0400
140.93        203.58      0.0400
148.77        203.72      0.0400 / 0.0350 Main Channel
154.30        202.99      0.0350 Main Channel
158.02        203.77      0.0350 / 0.0400 Main Channel
174.30        203.79      0.0400
222.94        204.38      0.0400
285.62        204.03      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV. TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.05        203.04      .647E+01     0.0            0.11          59.17
0.10        203.09      .259E+02     0.0            0.17          37.28
0.16        203.15      .582E+02     0.0            0.23          28.45
0.21        203.20      .103E+03     0.1            0.27          23.48
0.26        203.25      .162E+03     0.1            0.32          20.24
0.31        203.30      .233E+03     0.2            0.36          17.92
0.37        203.36      .317E+03     0.3            0.40          16.17
0.42        203.41      .414E+03     0.5            0.43          14.79
0.47        203.46      .524E+03     0.6            0.47          13.68
0.52        203.51      .647E+03     0.8            0.50          12.75
0.57        203.56      .782E+03     1.1            0.54          11.96
0.63        203.62      .974E+03     1.4            0.55          11.73
0.68        203.67      .135E+04     1.8            0.51          12.55
0.73        203.72      .192E+04     2.4            0.48          13.39
0.79        203.78      .282E+04     3.5            0.48          13.41
```

```
0.85 203.84 .430E+04 5.2 0.47 13.77
0.92 203.91 .608E+04 7.5 0.48 13.44
0.98 203.97 .816E+04 10.6 0.50 12.88
1.04 204.03 .105E+05 14.2 0.52 12.33
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH  MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)         (m/s)
INFLOW : ID= 2 ( 4001) 309.90    9.39    4.92    55.73     0.95     0.49
OUTFLOW: ID= 1 ( 0880) 309.90    9.37    5.08    55.73     0.95     0.49
```

```
| CALIB
| NASHYD ( 0400) | Area (ha)= 27.60 Curve Number (CN)= 83.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.88
```

```
Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 0.842 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 52.528
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.579
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4000) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0400): 27.60 0.842 4.00 52.53
+ ID2= 2 ( 0880): 309.90 9.366 5.08 55.73
=====
ID = 3 ( 4000): 337.50 10.183 5.08 55.47
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0200) | Area (ha)= 25.60 Curve Number (CN)= 82.2
| ID= 1 DT= 5.0 min | Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.79
```

```
Unit Hyd Qpeak (cms)= 1.238
```


Model Without SWM Infrastructure - Output

PEAK FLOW (cms)= 0.748 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 49.541
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.546

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0023)	Area (ha)= 7.00	Curve Number (CN)= 83.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.73		

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.214 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 51.020
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.562

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0022)	Area (ha)= 3.40	Curve Number (CN)= 82.5	
ID= 1 DT= 5.0 min	Ia (mm)= 5.38	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.20		

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.119 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 52.281
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.576

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0211)	Area (ha)= 17.30	Curve Number (CN)= 81.3	
ID= 1 DT= 5.0 min	Ia (mm)= 8.76	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.02		

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.476 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 47.917
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.528

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0021)	Area (ha)= 47.60	Curve Number (CN)= 84.6	
ID= 1 DT= 5.0 min	Ia (mm)= 6.93	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.93		

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 1.481 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 54.065
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.595

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0871)			
ID= 2---> OUT= 1			
	Routing time step (min)'= 5.00		

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 /0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 /0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42

0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

<---- hydrograph ---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (0021)	47.60	1.48	4.17	54.06	0.30
OUTFLOW: ID= 1 (0871)	47.60	1.46	4.58	54.06	0.30

ADD HYD (2110)				
1 + 2 = 3				
ID1= 1 (0211):	17.30	0.476	5.08	47.92
+ ID2= 2 (0022):	3.40	0.119	3.08	52.28
=====				
ID = 3 (2110):	20.70	0.573	5.08	48.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2110)				
3 + 2 = 1				
ID1= 3 (2110):	20.70	0.573	5.08	48.63
+ ID2= 2 (0871):	47.60	1.462	4.58	54.06
=====				
ID = 1 (2110):	68.30	2.032	4.67	52.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0220)	Area (ha)= 20.30	Curve Number (CN)= 81.6	

CALIB			
NASHYD (0020)	Area (ha)= 12.60	Curve Number (CN)= 82.4	
ID= 1 DT= 5.0 min	Ia (mm)= 8.13	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.72		

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.378 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 49.913
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.550

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)			
ID= 2---> OUT= 1			
	Routing time step (min)'= 5.00		

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 /0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 /0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.311E+01	0.0	0.15	87.07

Model Without SWM Infrastructure - Output

0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56
0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46
0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.05

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0020)	12.60	0.38	3.58	49.91	0.41	0.75
OUTFLOW: ID= 1 (0875)	12.60	0.37	4.08	49.88	0.40	0.75

ADD HYD (2200)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0220):	20.30	0.574	4.17	48.45
+ ID2= 2 (0875):	12.60	0.372	4.08	49.88
=====				
ID = 3 (2200):	32.90	0.946	4.17	49.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2110):	68.30	2.032	4.67	52.41
+ ID2= 2 (2200):	32.90	0.946	4.17	49.00
=====				
ID = 3 (2101):	101.20	2.971	4.50	51.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)	Routing time step (min)'= 5.00
IN= 2--> OUT= 1	

Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350
86.30	208.87	0.0350
89.86	209.20	0.0350 / 0.0300
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2101)	101.20	2.97	4.50	51.30	0.46	0.44
OUTFLOW: ID= 1 (0870)	101.20	2.96	4.92	51.30	0.46	0.44

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0210)	9.10	82.3
ID= 1 DT= 5.0 min	8.19	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=	0.64	

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW	(cms)=	0.277 (i)
TIME TO PEAK	(hrs)=	3.500
RUNOFF VOLUME	(mm)=	49.726
TOTAL RAINFALL	(mm)=	90.800
RUNOFF COEFFICIENT	=	0.548

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2100)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0210):	9.10	0.277	3.50	49.73
+ ID2= 2 (0870):	101.20	2.959	4.92	51.30
=====				
ID = 3 (2100):	110.30	3.217	4.83	51.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0230)	24.70	82.9
ID= 1 DT= 5.0 min	7.85	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=	0.82	

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW	(cms)=	0.737 (i)
TIME TO PEAK	(hrs)=	3.917
RUNOFF VOLUME	(mm)=	50.839
TOTAL RAINFALL	(mm)=	90.800
RUNOFF COEFFICIENT	=	0.560

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0231)	29.50	81.9
ID= 1 DT= 5.0 min	8.42	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=	0.89	

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW	(cms)=	0.839 (i)
TIME TO PEAK	(hrs)=	4.250
RUNOFF VOLUME	(mm)=	48.994
TOTAL RAINFALL	(mm)=	90.800
RUNOFF COEFFICIENT	=	0.540

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0240)	10.10	82.0
ID= 1 DT= 5.0 min	8.36	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=	0.74	

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW	(cms)=	0.296 (i)
TIME TO PEAK	(hrs)=	3.667
RUNOFF VOLUME	(mm)=	49.178
TOTAL RAINFALL	(mm)=	90.800
RUNOFF COEFFICIENT	=	0.542

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0241)	26.70	82.3
ID= 1 DT= 5.0 min	8.19	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=	0.75	

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW	(cms)=	0.791 (i)
TIME TO PEAK	(hrs)=	3.667
RUNOFF VOLUME	(mm)=	49.727
TOTAL RAINFALL	(mm)=	90.800
RUNOFF COEFFICIENT	=	0.548

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0864)	Routing time step (min)'= 5.00
IN= 2--> OUT= 1	

Distance	Elevation	Manning

Model Without SWM Infrastructure - Output

0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.118E+02	0.0	0.27	29.62
0.24	212.03	.471E+02	0.0	0.42	18.66
0.36	212.15	.106E+03	0.1	0.56	14.24
0.48	212.27	.188E+03	0.3	0.67	11.76
0.61	212.40	.294E+03	0.5	0.78	10.13
0.73	212.52	.928E+03	1.0	0.51	15.63
0.85	212.64	.260E+04	2.7	0.50	15.93
0.97	212.76	.477E+04	5.8	0.58	13.67
1.09	212.88	.739E+04	10.6	0.68	11.67
1.21	213.00	.103E+05	17.1	0.79	10.01
1.33	213.12	.133E+05	25.0	0.89	8.85
1.45	213.24	.165E+05	34.4	0.99	8.00
1.57	213.36	.200E+05	45.3	1.08	7.34
1.70	213.49	.236E+05	57.6	1.16	6.82
1.82	213.61	.274E+05	71.4	1.24	6.39
1.94	213.73	.314E+05	86.8	1.31	6.02
2.06	213.85	.355E+05	104.6	1.40	5.66
2.18	213.97	.398E+05	124.9	1.49	5.31
2.37	214.16	.481E+05	161.2	1.59	4.97

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	<-pipe / channel->	
(ha)	(cms)	(hrs)	(mm)	MAX DEPTH	MAX VEL
				(m)	(m/s)
INFLOW : ID= 2 (0241)	26.70	0.79	3.67	0.68	0.59
OUTFLOW: ID= 1 (0864)	26.70	0.78	4.25	49.73	0.68 0.59

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.138E+01	0.0	0.11	58.11
0.09	205.28	.551E+01	0.0	0.18	36.61
0.13	205.32	.124E+02	0.0	0.23	27.94
0.17	205.36	.220E+02	0.0	0.28	23.06
0.22	205.41	.344E+02	0.0	0.33	19.87
0.26	205.45	.496E+02	0.0	0.37	17.60
0.31	205.50	.675E+02	0.1	0.41	15.88
0.35	205.54	.882E+02	0.1	0.45	14.53
0.39	205.58	.112E+03	0.1	0.48	13.43
0.44	205.63	.138E+03	0.2	0.52	12.52
0.48	205.67	.167E+03	0.2	0.55	11.81
0.52	205.71	.212E+03	0.2	0.44	14.65
0.57	205.76	.285E+03	0.3	0.43	15.23
0.61	205.80	.388E+03	0.4	0.44	14.79
0.66	205.85	.519E+03	0.6	0.47	13.99
0.70	205.89	.679E+03	0.9	0.50	13.12

0.74	205.93	.868E+03	1.2	0.53	12.29
0.79	205.98	.109E+04	1.6	0.56	11.53
0.83	206.02	.133E+04	2.0	0.60	10.85

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	<-pipe / channel->	
(ha)	(cms)	(hrs)	(mm)	MAX DEPTH	MAX VEL
				(m)	(m/s)
INFLOW : ID= 2 (2301)	66.30	1.91	4.17	0.82	0.59
OUTFLOW: ID= 1 (0863)	66.30	1.91	4.42	49.32	0.82 0.59

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.465E+01	0.0	0.10	47.86
0.10	203.09	.186E+02	0.0	0.15	30.15
0.16	203.15	.418E+02	0.0	0.20	23.01
0.21	203.20	.744E+02	0.1	0.24	18.99
0.26	203.25	.116E+03	0.1	0.28	16.37
0.31	203.30	.167E+03	0.2	0.32	14.50
0.37	203.36	.228E+03	0.3	0.35	13.08
0.42	203.41	.297E+03	0.4	0.39	11.97
0.47	203.46	.376E+03	0.6	0.42	11.06
0.52	203.51	.465E+03	0.8	0.45	10.31
0.57	203.56	.562E+03	1.0	0.48	9.68
0.63	203.62	.700E+03	1.2	0.49	9.49
0.68	203.67	.969E+03	1.6	0.45	10.15
0.73	203.72	.138E+04	2.1	0.43	10.83
0.79	203.78	.203E+04	3.1	0.43	10.85
0.85	203.84	.309E+04	4.6	0.41	11.14
0.92	203.91	.437E+04	6.7	0.42	10.87
0.98	203.97	.586E+04	9.4	0.44	10.42
1.04	204.03	.757E+04	12.7	0.46	9.97

ID = 3 (2301): 39.60 1.131 4.17 49.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.465E+01	0.0	0.10	47.86
0.10	203.09	.186E+02	0.0	0.15	30.15
0.16	203.15	.418E+02	0.0	0.20	23.01
0.21	203.20	.744E+02	0.1	0.24	18.99
0.26	203.25	.116E+03	0.1	0.28	16.37
0.31	203.30	.167E+03	0.2	0.32	14.50
0.37	203.36	.228E+03	0.3	0.35	13.08
0.42	203.41	.297E+03	0.4	0.39	11.97
0.47	203.46	.376E+03	0.6	0.42	11.06
0.52	203.51	.465E+03	0.8	0.45	10.31
0.57	203.56	.562E+03	1.0	0.48	9.68
0.63	203.62	.700E+03	1.2	0.49	9.49
0.68	203.67	.969E+03	1.6	0.45	10.15
0.73	203.72	.138E+04	2.1	0.43	10.83
0.79	203.78	.203E+04	3.1	0.43	10.85
0.85	203.84	.309E+04	4.6	0.41	11.14
0.92	203.91	.437E+04	6.7	0.42	10.87
0.98	203.97	.586E+04	9.4	0.44	10.42
1.04	204.03	.757E+04	12.7	0.46	9.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.138E+01	0.0	0.11	58.11
0.09	205.28	.551E+01	0.0	0.18	36.61
0.13	205.32	.124E+02	0.0	0.23	27.94
0.17	205.36	.220E+02	0.0	0.28	23.06
0.22	205.41	.344E+02	0.0	0.33	19.87
0.26	205.45	.496E+02	0.0	0.37	17.60
0.31	205.50	.675E+02	0.1	0.41	15.88
0.35	205.54	.882E+02	0.1	0.45	14.53
0.39	205.58	.112E+03	0.1	0.48	13.43
0.44	205.63	.138E+03	0.2	0.52	12.52
0.48	205.67	.167E+03	0.2	0.55	11.81
0.52	205.71	.212E+03	0.2	0.44	14.65
0.57	205.76	.285E+03	0.3	0.43	15.23
0.61	205.80	.388E+03	0.4	0.44	14.79
0.66	205.85	.519E+03	0.6	0.47	13.99
0.70	205.89	.679E+03	0.9	0.50	13.12

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.465E+01	0.0	0.10	47.86
0.10	203.09	.186E+02	0.0	0.15	30.15
0.16	203.15	.418E+02	0.0	0.20	23.01
0.21	203.20	.744E+02	0.1	0.24	18.99
0.26	203.25	.116E+03	0.1	0.28	16.37
0.31	203.30	.167E+03	0.2	0.32	14.50
0.37	203.36	.228E+03	0.3	0.35	13.08
0.42	203.41	.297E+03	0.4	0.39	11.97
0.47	203.46	.376E+03	0.6	0.42	11.06
0.52	203.51	.465E+03	0.8	0.45	10.31
0.57	203.56	.562E+03	1.0	0.48	9.68
0.63	203.62	.700E+03	1.2	0.49	9.49
0.68	203.67	.969E+03	1.6	0.45	10.15
0.73	203.72	.138E+04	2.1	0.43	10.83
0.79	203.78	.203E+04	3.1	0.43	10.85
0.85	203.84	.309E+04	4.6	0.41	11.14
0.92	203.91	.437E+04	6.7	0.42	10.87
0.98	203.97	.586E+04	9.4	0.44	10.42
1.04	204.03	.757E+04	12.7	0.46	9.97

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.465E+01	0.0	0.10	47.86
0.10	203.09	.186E+02	0.0	0.15	30.15
0.16	203.15	.418E+02	0.0	0.20	23.01
0.21	203.20	.744E+02	0.1	0.24	18.99
0.26	203.25	.116E+03	0.1	0.28	16.37
0.31	203.30	.167E+03	0.2	0.32	14.50
0.37	203.36	.228E+03	0.3	0.35	13.08
0.42	203.41	.297E+03	0.4	0.39	11.97
0.47	203.46	.376E+03	0.6	0.42	11.06
0.52	203.51	.465E+03	0.8	0.45	10.31
0.57	203.56	.562E+03	1.0	0.48	9.68
0.63	203.62	.700E+03	1.2	0.49	9.49
0.68	203.67	.969E+03	1.6	0.45	10.15
0.73	203.72	.138E+04	2.1	0.43	10.83
0.79	203.78	.203E+04	3.1	0.43	10.85
0.85	203.84	.309E+04	4.6	0.41	11.14
0.92	203.91	.437E+04	6.7	0.42	10.87
0.98	203.97	.586E+04	9.4	0.44	10.42
1.04	204.03	.757E+04	12.7	0.46	9.97

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.465E+01	0.0	0.10	47.86
0.10	203.09	.186E+02	0.0	0.15	30.15
0.16	203.15	.418E+02	0.0	0.20	23.01
0.21	203.20	.744E+02	0.1	0.24	18.99
0.26	203.25	.116E+03	0.1	0.28	16.37
0.31	203.30	.167E+03	0.2	0.32	14.50
0.37	203.36	.228E+03	0.3	0.35	13.08
0.42	203.41	.297E+03	0.4	0.39	11.97
0.47	203.46	.376E+03	0.6	0.42	11.06
0.52	203.51	.465E+03	0.8	0.45	10.31
0.57	203.56	.562E+03	1.0	0.48	9.68
0.63	203.62	.700E+03	1.2	0.49	9.49
0.68	203.67	.969E+03	1.6	0.45	10.15
0.73	203.72	.138E+04	2.1	0.43	10.83
0.79	203.78	.203E+04	3.1	0.43	10.85
0.85	203.84	.309E+04	4.6	0.41	11.14
0.92	203.91	.437E+04	6.7	0.42	10.87
0.98	203.97	.586E+04	9.4	0.44	10.42
1.04	204.03	.757E+04	12.7	0.46	9.97

Model Without SWM Infrastructure - Output

```
-----
| ADD HYD ( 2010) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0201): 8.20 0.256 3.42 50.28
+ ID2= 2 ( 0023): 7.00 0.214 3.58 51.02
=====
ID = 3 ( 2010): 15.20 0.469 3.50 50.62
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2010) |
| 3 + 2 = 1 |
-----
ID1= 3 ( 2010): 15.20 0.469 3.50 50.62
+ ID2= 2 ( 0062): 201.30 5.823 4.83 50.52
=====
ID = 1 ( 2010): 216.50 6.260 4.83 50.52
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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0860) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.48 0.0500
43.69 207.97 0.0500
66.92 207.94 0.0500
76.98 208.01 0.0500
87.94 208.25 0.0500
89.93 208.44 0.0500 / 0.0350 Main Channel
92.70 208.20 0.0350 Main Channel
95.51 207.28 0.0350 Main Channel
98.26 208.25 0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 207.33 .155E+01 0.0 0.16 23.32
0.10 207.38 .620E+01 0.0 0.25 14.69
0.15 207.43 .140E+02 0.0 0.33 11.21
0.19 207.47 .248E+02 0.0 0.40 9.26
0.24 207.52 .388E+02 0.1 0.47 7.98
0.29 207.57 .558E+02 0.1 0.53 7.06
```

0.34	207.62	.760E+02	0.2	0.59	6.37
0.39	207.67	.992E+02	0.3	0.64	5.83
0.44	207.72	.126E+03	0.4	0.69	5.39
0.48	207.76	.155E+03	0.5	0.74	5.03
0.53	207.81	.188E+03	0.7	0.79	4.72
0.58	207.86	.223E+03	0.8	0.84	4.45
0.63	207.91	.262E+03	1.0	0.88	4.22
0.68	207.96	.341E+03	1.3	0.83	4.47
0.73	208.01	.708E+03	1.8	0.57	6.58
0.78	208.06	.119E+04	2.7	0.51	7.25
0.82	208.10	.174E+04	4.0	0.52	7.19
0.87	208.15	.236E+04	5.7	0.54	6.89
0.92	208.20	.305E+04	7.8	0.57	6.55

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2010)	216.50	6.26	4.83	50.52	0.89	0.55
OUTFLOW: ID= 1 (0860)	216.50	6.26	4.92	50.52	0.88	0.55

```
-----
| ADD HYD ( 2000) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0200): 25.60 0.748 3.83 49.54
+ ID2= 2 ( 0060): 216.50 6.257 4.92 50.52
=====
ID = 3 ( 2000): 242.10 6.984 4.92 50.42
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0300) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 36.80 Curve Number (CN)= 83.1
Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.90
```

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 1.091 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 51.211
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.564

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0031) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 3.00 Curve Number (CN)= 82.5
Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.62
```

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.096 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 52.379
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.577

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0350) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 1.50 Curve Number (CN)= 83.2
Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.38
```

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.050 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 51.386
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.566

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0850) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 / 0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 / 0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .300E+01 0.0 0.15 86.75
0.07 204.57 .120E+02 0.0 0.24 54.65
0.11 204.61 .270E+02 0.0 0.31 41.70
0.14 204.64 .480E+02 0.0 0.37 34.42
0.18 204.68 .750E+02 0.0 0.43 29.67
0.22 204.72 .108E+03 0.1 0.49 26.27
0.25 204.75 .147E+03 0.1 0.54 23.71
0.29 204.79 .192E+03 0.1 0.59 21.69
0.33 204.83 .243E+03 0.2 0.64 20.05
0.36 204.86 .300E+03 0.3 0.69 18.69
0.40 204.90 .363E+03 0.3 0.73 17.54
0.43 204.93 .488E+03 0.4 0.70 18.37
0.47 204.97 .860E+03 0.6 0.56 22.95
0.51 205.01 .144E+04 1.0 0.52 24.88
0.54 205.04 .217E+04 1.5 0.52 24.65
0.58 205.08 .304E+04 2.1 0.54 23.62
0.61 205.11 .407E+04 3.0 0.57 22.38
0.65 205.15 .524E+04 4.1 0.61 21.13
0.69 205.19 .656E+04 5.5 0.64 19.97
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0350)	1.50	0.05	3.17	51.39	0.19	0.45
OUTFLOW: ID= 1 (0850)	1.50	0.05	3.42	51.06	0.19	0.44

```
-----
| CALIB
| NASHYD ( 0032) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 28.00 Curve Number (CN)= 83.4
Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.95
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.832 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 51.770
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.570

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

ADD HYD (3200)					
1 + 2 = 3					

	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0032):	28.00	0.832	4.33	51.77	
+ ID2= 2 (0850):	1.50	0.048	3.42	51.06	
=====					
ID = 3 (3200):	29.50	0.877	4.25	51.73	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0301)					
ID= 1 DT= 5.0 min					

	Area	(ha)=	59.40	Curve Number (CN)=	82.7
	Ia	(mm)=	7.97	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.23			

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 1.671 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 50.460
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.556

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3010)					
1 + 2 = 3					

	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0301):	59.40	1.671	5.25	50.46	
+ ID2= 2 (3200):	29.50	0.877	4.25	51.73	
=====					
ID = 3 (3010):	88.90	2.533	5.17	50.88	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (3001)					
1 + 2 = 3					

	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (3010):	88.90	2.533	5.17	50.88	
+ ID2= 2 (0031):	3.00	0.096	3.33	52.38	
=====					
ID = 3 (3001):	91.90	2.619	5.17	50.93	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0852)					
IN= 2----> OUT= 1					

Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.20	0.0400			
100.00	206.26	0.0400			
111.30	206.19	0.0400 /0.0350	Main Channel		
112.02	205.76	0.0350	Main Channel		
113.82	205.37	0.0350	Main Channel		
115.62	206.03	0.0350 /0.0400	Main Channel		
117.77	207.30	0.0400			
120.56	207.40	0.0400			
124.41	207.31	0.0400			
129.31	207.24	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	205.46	.132E+02	0.0	0.21	32.83
0.19	205.56	.529E+02	0.0	0.33	20.68
0.28	205.65	.119E+03	0.1	0.43	15.78
0.38	205.75	.212E+03	0.3	0.52	13.03
0.47	205.84	.327E+03	0.5	0.62	10.84
0.57	205.94	.458E+03	0.8	0.72	9.42
0.66	206.03	.604E+03	1.2	0.80	8.44
0.76	206.13	.777E+03	1.7	0.91	7.41
0.86	206.23	.102E+04	2.4	0.97	6.97
0.96	206.33	.168E+04	3.6	0.87	7.76
1.06	206.43	.252E+04	5.4	0.87	7.80
1.16	206.53	.350E+04	7.7	0.89	7.56
1.26	206.63	.463E+04	10.7	0.93	7.24
1.37	206.74	.590E+04	14.3	0.98	6.90
1.47	206.84	.732E+04	18.6	1.03	6.58
1.57	206.94	.889E+04	23.6	1.08	6.28
1.67	207.04	.106E+05	29.5	1.13	6.00
1.77	207.14	.125E+05	36.1	1.17	5.75
1.87	207.24	.145E+05	43.7	1.22	5.52

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (3001)	91.90	2.62	5.17	50.93	0.88	0.95
OUTFLOW: ID= 1 (0852)	91.90	2.62	5.25	50.93	0.88	0.95

ADD HYD (3000)					
1 + 2 = 3					

	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0300):	36.80	1.091	4.17	51.21	
+ ID2= 2 (0852):	91.90	2.616	5.25	50.93	
=====					
ID = 3 (3000):	128.70	3.683	5.08	51.01	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0030)					
ID= 1 DT= 5.0 min					

	Area	(ha)=	1.10	Curve Number (CN)=	81.5
	Ia	(mm)=	5.76	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.30			

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.036 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 50.659
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0854)					
IN= 2----> OUT= 1					

Routing time step (min)'= 5.00					

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.00	0.0400			
33.24	205.47	0.0400			
44.39	205.59	0.0400			
48.71	205.45	0.0400 /0.0350	Main Channel		
51.02	204.50	0.0350	Main Channel		
54.33	205.44	0.0350 /0.0400	Main Channel		
55.90	204.97	0.0400			
62.96	204.91	0.0400			
102.92	205.20	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23

0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0030)	1.10	0.04	3.17	50.66	0.16	0.47
OUTFLOW: ID= 1 (0854)	1.10	0.04	3.17	50.65	0.16	0.47

CALIB					
NASHYD (0340)					
ID= 1 DT= 5.0 min					

	Area	(ha)=	21.00	Curve Number (CN)=	82.8
	Ia	(mm)=	7.91	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.69			

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.644 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 50.649
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3400)					
1 + 2 = 3					

	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0340):	21.00	0.644	3.50	50.65	
+ ID2= 2 (0854):	1.10	0.036	3.17	50.65	
=====					
ID = 3 (3400):	22.10	0.678	3.50	50.65	

Model Without SWM Infrastructure - Output

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0123)	Area (ha)=	24.60	Curve Number (CN)=	82.9	
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.93			

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 0.721 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 50.839
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.560

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0814)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40
0.85	212.64	.204E+04	2.7	0.49	12.63
0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35

1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

<---- hydrograph ---->					<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0123)	24.60	0.72	4.33	50.84	0.66	0.61
OUTFLOW: ID= 1 (0814)	24.60	0.72	4.67	50.84	0.66	0.61

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 0.878 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 56.425
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.621

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0813)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.78
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25

<---- hydrograph ---->					<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0124)	24.30	0.88	3.25	56.43	0.70	0.53
OUTFLOW: ID= 1 (0813)	24.30	0.84	3.67	56.42	0.70	0.54

ADD HYD (1221)					
1 + 2 = 3	Area (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0813):	24.30	0.837	3.67	56.42	
+ ID2= 2 (0814):	24.60	0.718	4.67	50.84	
=====					
ID = 3 (1221):	48.90	1.525	4.00	53.61	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0812)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	209.49	0.0400

<---- hydrograph ---->					<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1221)	48.90	1.53	4.00	53.61	0.29	0.57
OUTFLOW: ID= 1 (0812)	48.90	1.52	4.08	53.61	0.29	0.57

CALIB					
NASHYD (0122)	Area (ha)=	31.80	Curve Number (CN)=	85.1	
ID= 1 DT= 5.0 min	Ia (mm)=	6.67	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.96			

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 1.002 (i)

Model Without SWM Infrastructure - Output

TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 55.037
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.606

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1220) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0122): 31.80 1.002 4.17 55.04
+ ID2= 2 ( 0812): 48.90 1.524 4.08 53.61
-----
ID = 3 ( 1220): 80.70 2.525 4.08 54.17
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0811) |
| IN= 2--> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.50 0.0400
29.68 206.77 0.0400
43.70 206.13 0.0400 /0.0350 Main Channel
44.99 205.95 0.0350 Main Channel
47.70 206.24 0.0350 /0.0450 Main Channel
60.54 206.32 0.0450
80.11 206.99 0.0450
102.29 207.42 0.0450 /0.0400
132.78 206.84 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 206.01 .147E+02 0.0 0.14 60.26
0.12 206.07 .590E+02 0.0 0.22 37.96
0.18 206.13 .133E+03 0.1 0.29 28.97
0.26 206.21 .302E+03 0.2 0.36 22.81
0.34 206.29 .671E+03 0.5 0.39 21.40
0.42 206.37 .151E+04 1.2 0.39 20.95
0.50 206.45 .254E+04 2.3 0.45 18.38
0.58 206.53 .376E+04 3.7 0.49 16.98
0.66 206.61 .544E+04 5.6 0.51 16.11
0.74 206.69 .764E+04 8.4 0.54 15.19
0.83 206.78 .104E+05 12.1 0.58 14.27
0.91 206.86 .134E+05 17.4 0.64 12.84
```

0.99	206.94	.166E+05	23.6	0.71	11.71
1.07	207.02	.201E+05	30.7	0.76	10.88
1.15	207.10	.239E+05	38.8	0.81	10.26
1.23	207.18	.280E+05	48.0	0.85	9.72
1.31	207.26	.325E+05	58.5	0.89	9.26
1.39	207.34	.373E+05	70.3	0.94	8.84
1.47	207.42	.424E+05	83.4	0.98	8.48

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1220) 80.70 2.53 4.08 54.17 0.52 0.46
OUTFLOW: ID= 1 ( 0811) 80.70 2.50 4.50 54.17 0.51 0.45
```

```
| CALIB
| NASHYD ( 0121) | Area (ha)= 16.10 Curve Number (CN)= 86.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.94 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.542 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 57.840
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.637

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1210) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0121): 16.10 0.542 3.83 57.84
+ ID2= 2 ( 0811): 80.70 2.504 4.50 54.17
-----
ID = 3 ( 1210): 96.80 3.034 4.42 54.78
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0146) | Area (ha)= 12.80 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.55
```

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.411 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 51.019
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.562

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0844) |
| IN= 2--> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 /0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 /0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .107E+01 0.0 0.13 37.04
0.08 207.60 .430E+01 0.0 0.20 23.33
0.12 207.64 .966E+01 0.0 0.27 17.81
0.16 207.68 .172E+02 0.0 0.32 14.70
0.19 207.71 .268E+02 0.0 0.38 12.67
0.23 207.75 .387E+02 0.1 0.42 11.22
0.27 207.79 .526E+02 0.1 0.47 10.12
0.31 207.83 .687E+02 0.1 0.51 9.26
0.35 207.87 .870E+02 0.2 0.56 8.56
0.39 207.91 .107E+03 0.2 0.60 7.98
0.43 207.95 .130E+03 0.3 0.64 7.49
0.47 207.99 .155E+03 0.4 0.67 7.07
0.50 208.02 .181E+03 0.5 0.71 6.70
0.54 208.06 .210E+03 0.6 0.75 6.38
0.58 208.10 .242E+03 0.7 0.78 6.09
0.62 208.14 .275E+03 0.8 0.82 5.83
0.67 208.19 .329E+03 1.0 0.87 5.50
0.72 208.24 .413E+03 1.3 0.89 5.36
0.77 208.29 .540E+03 1.7 0.87 5.45
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
```

	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0146)	12.80	0.41	3.33	51.02	0.49	0.69
OUTFLOW: ID= 1 (0844)	12.80	0.41	3.42	51.01	0.48	0.69

```
| CALIB
| NASHYD ( 0145) | Area (ha)= 12.60 Curve Number (CN)= 83.3
| ID= 1 DT= 5.0 min | Ia (mm)= 7.63 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.59
```

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.405 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 51.584
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.568

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1450) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0145): 12.60 0.405 3.33 51.58
+ ID2= 2 ( 0844): 12.80 0.410 3.42 51.01
-----
ID = 3 ( 1450): 25.40 0.815 3.42 51.30
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0843) |
| IN= 2--> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
```

Model Without SWM Infrastructure - Output

100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.12	211.91	.144E+02	0.0	0.23	42.45	
0.24	212.03	.578E+02	0.0	0.36	26.74	
0.36	212.15	.130E+03	0.1	0.48	20.41	
0.48	212.27	.231E+03	0.2	0.58	16.85	
0.61	212.40	.361E+03	0.4	0.67	14.52	
0.73	212.52	.114E+04	0.8	0.43	22.41	
0.85	212.64	.319E+04	2.3	0.43	22.83	
0.97	212.76	.585E+04	5.0	0.50	19.59	
1.09	212.88	.907E+04	9.0	0.58	16.72	
1.21	213.00	.126E+05	14.6	0.68	14.34	
1.33	213.12	.163E+05	21.4	0.77	12.69	
1.45	213.24	.203E+05	29.5	0.85	11.47	
1.57	213.36	.245E+05	38.8	0.92	10.52	
1.70	213.49	.289E+05	49.3	0.99	9.77	
1.82	213.61	.336E+05	61.2	1.06	9.15	
1.94	213.73	.385E+05	74.3	1.13	8.63	
2.06	213.85	.436E+05	89.6	1.20	8.11	
2.18	213.97	.488E+05	106.9	1.28	7.61	
2.37	214.16	.590E+05	138.1	1.36	7.13	
<---- hydrograph ----> <-pipe / channel->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1450)	25.40	0.81	3.42	51.30	0.72	0.45
OUTFLOW: ID= 1 (0843)	25.40	0.78	4.00	51.29	0.71	0.46

CALIB			
NASHYD (0144)	Area (ha)= 28.60	Curve Number (CN)= 82.9	
ID= 1 DT= 5.0 min	Ia (mm)= 7.85	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.97		

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.833 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 50.839
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.560

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1440)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0144):	28.60	0.833	4.42	50.84
+ ID2= 2 (0843):	25.40	0.777	4.00	51.29
=====				
ID = 3 (1440):	54.00	1.605	4.17	51.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0842)				
IN= 2----> OUT= 1	Routing time step (min)'= 5.00			
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.70	0.0400		
2.35	206.02	0.0400 / 0.0350	Main Channel	
5.23	205.19	0.0350	Main Channel	
5.34	205.67	0.0350	Main Channel	
19.05	206.06	0.0350 / 0.0400	Main Channel	
21.11	206.05	0.0400		
22.02	206.13	0.0400 / 0.0350		
40.10	206.15	0.0350		
56.50	206.04	0.0350		

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.04	205.23	.149E+01	0.0	0.09	81.67	
0.09	205.28	.594E+01	0.0	0.14	51.45	
0.13	205.32	.134E+02	0.0	0.18	39.26	
0.17	205.36	.238E+02	0.0	0.22	32.41	
0.22	205.41	.371E+02	0.0	0.25	27.93	
0.26	205.45	.535E+02	0.0	0.28	24.73	
0.31	205.50	.728E+02	0.1	0.31	22.32	
0.35	205.54	.950E+02	0.1	0.34	20.42	
0.39	205.58	.120E+03	0.1	0.37	18.87	
0.44	205.63	.149E+03	0.1	0.40	17.59	
0.48	205.67	.180E+03	0.2	0.42	16.60	
0.52	205.71	.228E+03	0.2	0.34	20.59	
0.57	205.76	.308E+03	0.2	0.33	21.41	
0.61	205.80	.418E+03	0.3	0.34	20.79	
0.66	205.85	.560E+03	0.5	0.36	19.66	
0.70	205.89	.732E+03	0.7	0.38	18.44	
0.74	205.93	.936E+03	0.9	0.41	17.27	
0.79	205.98	.117E+04	1.2	0.43	16.20	
0.83	206.02	.144E+04	1.6	0.46	15.24	

**** WARNING: TRAVEL TIME TABLE EXCEEDED				
	<---- hydrograph ---->	<-pipe / channel->		
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (1440)	54.00	1.60	4.17	51.05
OUTFLOW: ID= 1 (0842)	54.00	1.60	4.50	51.05

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB			
NASHYD (0143)	Area (ha)= 27.70	Curve Number (CN)= 82.9	
ID= 1 DT= 5.0 min	Ia (mm)= 7.85	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.07		

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)= 0.797 (i)
TIME TO PEAK (hrs)= 4.917
RUNOFF VOLUME (mm)= 50.839
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.560

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0143):	27.70	0.797	4.92	50.84
+ ID2= 2 (0842):	54.00	1.597	4.50	51.05
=====				
ID = 3 (1430):	81.70	2.392	4.58	50.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0841)				
IN= 2----> OUT= 1	Routing time step (min)'= 5.00			
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.66	0.0400		
19.50	209.34	0.0400		
37.91	208.66	0.0400		
41.73	208.62	0.0400 / 0.0350	Main Channel	
43.44	208.24	0.0350	Main Channel	

45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	
77.43	209.05	0.0400	
128.85	209.70	0.0400	

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.06	208.30	.216E+02	0.0	0.15	113.45	
0.13	208.37	.864E+02	0.0	0.24	71.47	
0.19	208.43	.194E+03	0.1	0.31	54.54	
0.25	208.49	.345E+03	0.1	0.38	45.02	
0.32	208.56	.540E+03	0.2	0.44	38.00	
0.38	208.62	.777E+03	0.4	0.49	34.36	
0.46	208.70	.152E+04	0.7	0.50	33.99	
0.54	208.78	.281E+04	1.4	0.50	33.61	
0.62	208.86	.469E+04	2.5	0.53	31.90	
0.70	208.94	.734E+04	4.0	0.56	30.28	
0.78	209.02	.107E+05	6.3	0.59	28.55	
0.86	209.10	.149E+05	9.3	0.63	26.78	
0.94	209.18	.198E+05	13.1	0.68	25.09	
1.02	209.26	.253E+05	17.9	0.72	23.58	
1.10	209.34	.315E+05	23.6	0.76	22.24	
1.18	209.42	.386E+05	30.0	0.79	21.42	
1.26	209.50	.465E+05	37.7	0.82	20.56	
1.34	209.58	.554E+05	46.8	0.86	19.73	
1.42	209.66	.652E+05	57.3	0.90	18.94	

	<---- hydrograph ---->	<-pipe / channel->		
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (1430)	81.70	2.39	4.58	50.98
OUTFLOW: ID= 1 (0841)	81.70	2.35	5.33	50.97

CALIB			
NASHYD (0142)	Area (ha)= 27.10	Curve Number (CN)= 82.9	
ID= 1 DT= 5.0 min	Ia (mm)= 7.85	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.22		

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 0.768 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 50.839
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.560

Model Without SWM Infrastructure - Output

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)				
1	2	3		
ID1= 1 (0142):	27.10	0.768	5.17	50.84
+ ID2= 2 (0841):	81.70	2.350	5.33	50.97
=====				
ID = 3 (1420):	108.80	3.117	5.33	50.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)	
IN= 2-->	OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.52	0.0400		
61.99	209.23	0.0400		
76.86	209.20	0.0400		
82.03	209.20	0.0400 / 0.0350	Main Channel	
86.30	208.87	0.0350	Main Channel	
89.86	209.20	0.0350 / 0.0300	Main Channel	
96.27	209.24	0.0300		
103.53	209.40	0.0300		
127.96	209.50	0.0300		
158.58	209.70	0.0300		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.706E+01	0.0	0.08	110.24
0.07	208.94	.282E+02	0.0	0.13	69.44
0.10	208.97	.636E+02	0.0	0.17	53.00
0.13	209.00	.113E+03	0.0	0.21	43.75
0.17	209.04	.177E+03	0.1	0.24	37.70
0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75
0.37	209.24	.118E+04	0.7	0.34	26.61
0.40	209.27	.196E+04	1.2	0.33	27.88
0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61

TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 50.649
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0153)	
ID= 1 DT= 5.0 min	

Area (ha)= 33.30 Curve Number (CN)= 82.6
Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.08

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 0.948 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 50.280
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.554

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)	
IN= 2-->	OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.125E+02	0.0	0.21	40.70
0.24	212.03	.501E+02	0.0	0.33	25.64
0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48

0.58 209.45 .865E+04 6.3 0.40 22.94
0.61 209.48 .108E+05 8.1 0.41 22.09
0.65 209.52 .132E+05 10.4 0.43 21.10

<---- hydrograph ---->					<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.		MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)		(m)	(m/s)
INFLOW : ID= 2 (1420)	108.80	3.12	5.33	50.94	0.49	0.36
OUTFLOW: ID= 1 (0840)	108.80	3.08	5.67	50.93	0.49	0.36

CALIB	
NASHYD (0141)	
ID= 1 DT= 5.0 min	

Area (ha)= 8.10 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.251 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 52.147
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1410)				
1	2	3		
ID1= 1 (0141):	8.10	0.251	3.67	52.15
+ ID2= 2 (0840):	108.80	3.077	5.67	50.93
=====				
ID = 3 (1410):	116.90	3.297	5.50	51.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0151)	
ID= 1 DT= 5.0 min	

Area (ha)= 24.60 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.00

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.711 (i)

0.85 212.64 .277E+04 2.1 0.39 21.89
0.97 212.76 .507E+04 4.5 0.45 18.78
1.09 212.88 .786E+04 8.2 0.53 16.03
1.21 213.00 .109E+05 13.2 0.61 13.75
1.33 213.12 .142E+05 19.4 0.69 12.16
1.45 213.24 .176E+05 26.7 0.77 10.99
1.57 213.36 .212E+05 35.1 0.84 10.09
1.70 213.49 .251E+05 44.6 0.90 9.37
1.82 213.61 .291E+05 55.3 0.96 8.77
1.94 213.73 .334E+05 67.2 1.02 8.28
2.06 213.85 .378E+05 81.1 1.08 7.77
2.18 213.97 .423E+05 96.7 1.16 7.29
2.37 214.16 .512E+05 124.9 1.23 6.83

<---- hydrograph ---->					<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.		MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)		(m)	(m/s)
INFLOW : ID= 2 (0153)	33.30	0.95	5.08	50.28	0.74	0.39
OUTFLOW: ID= 1 (0834)	33.30	0.94	5.33	50.28	0.74	0.39

CALIB	
NASHYD (0152)	
ID= 1 DT= 5.0 min	

Area (ha)= 16.20 Curve Number (CN)= 82.6
Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.93

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.470 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 50.280
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.554

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1520)				
1	2	3		
ID1= 1 (0152):	16.20	0.470	4.33	50.28
+ ID2= 2 (0834):	33.30	0.942	5.33	50.28
=====				
ID = 3 (1520):	49.50	1.404	5.17	50.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model Without SWM Infrastructure - Output

```
-----
| ROUTE CHN( 0833)|
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
    0.00      209.49      0.0400
   35.71      208.88      0.0400
   53.04      208.89      0.0400
   64.12      208.50      0.0400 /0.0350 Main Channel
   70.77      208.05      0.0350 Main Channel
   74.98      208.02      0.0350 Main Channel
   83.40      208.38      0.0350 /0.0400 Main Channel
   88.06      208.63      0.0400
   94.94      209.13      0.0400
  105.88      209.54      0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.07 208.09 .232E+03 0.1 0.19 65.23
0.14 208.16 .652E+03 0.3 0.30 41.42
0.22 208.24 .122E+04 0.6 0.38 32.47
0.29 208.31 .193E+04 1.2 0.45 27.40
0.36 208.38 .279E+04 1.9 0.51 24.03
0.44 208.46 .389E+04 3.2 0.60 20.41
0.52 208.54 .516E+04 4.8 0.69 17.88
0.60 208.62 .664E+04 6.9 0.77 16.07
0.68 208.70 .833E+04 9.4 0.83 14.80
0.76 208.78 .102E+05 12.3 0.89 13.84
0.84 208.86 .123E+05 15.7 0.94 13.07
0.92 208.94 .153E+05 19.4 0.94 13.11
0.99 209.01 .189E+05 24.5 0.96 12.89
1.07 209.09 .229E+05 30.4 0.98 12.57
1.15 209.17 .273E+05 37.1 1.01 12.25
1.23 209.25 .320E+05 44.7 1.03 11.94
1.31 209.33 .372E+05 53.3 1.06 11.62
1.39 209.41 .427E+05 63.0 1.09 11.30
1.47 209.49 .487E+05 73.7 1.12 11.00

<---- hydrograph ----> <-pipe / channel->
                AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
                (ha)      (cms)      (hrs)      (mm)      (m)      (m/s)
INFLOW : ID= 2 ( 1520) 49.50 1.40 5.17 50.28 0.31 0.47
OUTFLOW: ID= 1 ( 0833) 49.50 1.39 5.42 50.27 0.31 0.47

-----
```

```
-----
| ADD HYD ( 1510)|
| 1 + 2 = 3 |
-----
                AREA      QPEAK      TPEAK      R.V.
                (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0151): 24.60 0.711 4.58 50.65
+ ID2= 2 ( 0833): 49.50 1.388 5.42 50.27
=====
ID = 3 ( 1510): 74.10 2.088 5.25 50.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
-----
| ROUTE CHN( 0832)|
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
    0.00      206.50      0.0400
   29.68      206.77      0.0400
   43.70      206.13      0.0400 /0.0350 Main Channel
   44.99      205.95      0.0350 Main Channel
   47.70      206.24      0.0350 /0.0450 Main Channel
   60.54      206.32      0.0450
   80.11      206.99      0.0450
  102.29      207.42      0.0450 /0.0400
  132.78      206.84      0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.06 206.01 .158E+02 0.0 0.16 56.30
0.12 206.07 .633E+02 0.0 0.25 35.47
0.18 206.13 .142E+03 0.1 0.33 27.07
0.26 206.21 .324E+03 0.3 0.42 21.31
0.34 206.29 .720E+03 0.6 0.44 20.00
0.42 206.37 .162E+04 1.4 0.45 19.57
0.50 206.45 .272E+04 2.6 0.52 17.17
0.58 206.53 .404E+04 4.2 0.56 15.86
0.66 206.61 .584E+04 6.5 0.59 15.05
0.74 206.69 .820E+04 9.6 0.63 14.19
0.83 206.78 .111E+05 13.9 0.67 13.34
0.91 206.86 .143E+05 19.9 0.74 12.00
0.99 206.94 .178E+05 27.1 0.81 10.94
1.07 207.02 .215E+05 35.3 0.87 10.16
1.15 207.10 .256E+05 44.5 0.93 9.59
1.23 207.18 .301E+05 55.1 0.98 9.09
1.31 207.26 .349E+05 67.2 1.03 8.65
1.39 207.34 .400E+05 80.7 1.07 8.26
1.47 207.42 .455E+05 95.8 1.12 7.92

<---- hydrograph ----> <-pipe / channel->
```

```
                AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
                (ha)      (cms)      (hrs)      (mm)      (m)      (m/s)
INFLOW : ID= 2 ( 1510) 74.10 2.09 5.25 50.40 0.47 0.49
OUTFLOW: ID= 1 ( 0832) 74.10 2.08 5.42 50.39 0.47 0.49
```

```
-----
| CALIB
| NASHYD ( 0150)|
| ID= 1 DT= 5.0 min |
-----
                Area      (ha)=      6.60      Curve Number (CN)= 83.7
                Ua      (mm)=      7.41      # of Linear Res.(N)= 3.00
                U.H. Tp(hrs)=      0.96

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW      (cms)= 0.198 (i)
TIME TO PEAK   (hrs)= 4.333
RUNOFF VOLUME   (mm)= 52.342
TOTAL RAINFALL  (mm)= 90.800
RUNOFF COEFFICIENT = 0.576

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
-----
| ADD HYD ( 1500)|
| 1 + 2 = 3 |
-----
                AREA      QPEAK      TPEAK      R.V.
                (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0150): 6.60 0.198 4.33 52.34
+ ID2= 2 ( 0832): 74.10 2.075 5.42 50.39
=====
ID = 3 ( 1500): 80.70 2.265 5.42 50.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
-----
| ADD HYD ( 1401)|
| 1 + 2 = 3 |
-----
                AREA      QPEAK      TPEAK      R.V.
                (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 1410): 116.90 3.297 5.50 51.01
+ ID2= 2 ( 1500): 80.70 2.265 5.42 50.55
=====
ID = 3 ( 1401): 197.60 5.560 5.50 50.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
-----
| ROUTE CHN( 0830)|
-----
```

```
-----
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
    0.00      207.71      0.0400
   58.83      206.71      0.0400
   66.88      206.59      0.0400 /0.0350 Main Channel
   72.32      206.34      0.0350 Main Channel
   77.68      206.55      0.0350 /0.0800 Main Channel
   82.85      206.54      0.0800
   90.20      206.02      0.0800
   94.03      206.48      0.0800
   99.83      206.40      0.0800 /0.0400
  114.32      206.50      0.0400
  136.07      206.86      0.0400
  174.41      207.56      0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.08 206.10 .561E+02 0.0 0.05 276.21
0.15 206.17 .224E+03 0.0 0.08 174.00
0.23 206.25 .505E+03 0.1 0.11 132.79
0.30 206.32 .898E+03 0.1 0.13 109.61
0.38 206.40 .147E+04 0.3 0.15 96.03
0.45 206.47 .291E+04 0.5 0.14 104.34
0.53 206.55 .555E+04 1.1 0.17 85.95
0.61 206.63 .948E+04 2.5 0.23 62.05
0.70 206.72 .142E+05 4.7 0.29 50.17
0.78 206.80 .196E+05 7.6 0.34 42.88
0.87 206.89 .258E+05 11.4 0.38 37.80
0.95 206.97 .327E+05 16.0 0.43 33.99
1.04 207.06 .403E+05 21.6 0.47 31.05
1.12 207.14 .485E+05 28.2 0.51 28.69
1.20 207.22 .575E+05 35.9 0.54 26.74
1.29 207.31 .672E+05 44.6 0.58 25.11
1.37 207.39 .776E+05 54.6 0.61 23.71
1.46 207.48 .887E+05 65.7 0.65 22.49
1.54 207.56 .101E+06 78.2 0.68 21.43

<---- hydrograph ----> <-pipe / channel->
                AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
                (ha)      (cms)      (hrs)      (mm)      (m)      (m/s)
INFLOW : ID= 2 ( 1401) 197.60 5.56 5.50 50.83 0.72 0.30
OUTFLOW: ID= 1 ( 0830) 197.60 5.28 6.08 50.82 0.71 0.30
```

```
-----
| CALIB
|
-----
```

Model Without SWM Infrastructure - Output

NASHYD (0140) | Area (ha)= 18.30 Curve Number (CN)= 83.6
ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 1.34

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.522 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 52.148
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0140): 18.30 0.522 5.25 52.15
+ ID2= 2 (0830): 197.60 5.280 6.08 50.82
=====

ID = 3 (1400): 215.90 5.769 6.00 50.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB |
NASHYD (0131) | Area (ha)= 28.70 Curve Number (CN)= 82.1
ID= 1 DT= 5.0 min | Ia (mm)= 8.30 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 1.11

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 0.803 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 49.364
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.544

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB |
STANDHYD (0011) | Area (ha)= 132.00
ID= 1 DT= 5.0 min | Total Imp(%)= 57.10 Dir. Conn.(%)= 45.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 75.37 56.63

CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0011): 132.00 4.894 3.08 65.54
+ ID2= 2 (0012): 17.50 0.915 2.08 77.82
=====

ID = 3 (1112): 149.50 5.766 2.17 66.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB |
STANDHYD (0010) | Area (ha)= 12.90
ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 10.32 2.58
Dep. Storage (mm)= 1.00 8.94
Average Slope (%)= 1.00 1.00
Length (m)= 293.26 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 23.61 18.33
over (min) 10.00 30.00
Storage Coeff. (min)= 8.68 (ii) 25.81 (ii)
Unit Hyd. Tpeak (min)= 10.00 30.00
Unit Hyd. peak (cms)= 0.12 0.04
TOTALS
PEAK FLOW (cms)= 0.59 0.12 0.676 (iii)
TIME TO PEAK (hrs)= 2.08 3.25 2.08
RUNOFF VOLUME (mm)= 89.80 49.87 77.82
TOTAL RAINFALL (mm)= 90.80 90.80 90.80
RUNOFF COEFFICIENT = 0.99 0.55 0.86

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Dep. Storage (mm)= 1.00 8.95
Average Slope (%)= 1.00 1.00
Length (m)= 938.08 40.00
Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 23.61 14.43
over (min) 15.00 40.00
Storage Coeff. (min)= 17.44 (ii) 36.28 (ii)
Unit Hyd. Tpeak (min)= 15.00 40.00
Unit Hyd. peak (cms)= 0.07 0.03
TOTALS
PEAK FLOW (cms)= 3.80 1.98 4.894 (iii)
TIME TO PEAK (hrs)= 2.08 3.50 3.08
RUNOFF VOLUME (mm)= 89.80 45.68 65.54
TOTAL RAINFALL (mm)= 90.80 90.80 90.80
RUNOFF COEFFICIENT = 0.99 0.50 0.72

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB |
STANDHYD (0012) | Area (ha)= 17.50
ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 14.00 3.50
Dep. Storage (mm)= 1.00 8.94
Average Slope (%)= 1.00 1.00
Length (m)= 341.57 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 23.61 18.33
over (min) 10.00 30.00
Storage Coeff. (min)= 9.51 (ii) 26.64 (ii)
Unit Hyd. Tpeak (min)= 10.00 30.00
Unit Hyd. peak (cms)= 0.12 0.04

TOTALS
PEAK FLOW (cms)= 0.80 0.16 0.915 (iii)
TIME TO PEAK (hrs)= 2.08 3.25 2.08
RUNOFF VOLUME (mm)= 89.80 49.87 77.82
TOTAL RAINFALL (mm)= 90.80 90.80 90.80
RUNOFF COEFFICIENT = 0.99 0.55 0.86

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

ADD HYD (1311) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0010): 12.90 0.676 2.08 77.82
+ ID2= 2 (1112): 149.50 5.766 2.17 66.97
=====

ID = 3 (1311): 162.40 6.424 2.17 67.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822) |
IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 207.71 0.0400
58.83 206.71 0.0400
66.88 206.59 0.0400 /0.0350 Main Channel
72.32 206.34 0.0350 Main Channel
77.68 206.55 0.0350 /0.0800 Main Channel
82.85 206.54 0.0800
90.20 206.02 0.0800
94.03 206.48 0.0800
99.83 206.40 0.0800 /0.0400
114.32 206.50 0.0400
136.07 206.86 0.0400
174.41 207.56 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV. TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.08 206.10 .337E+02 0.0 0.07 124.18
0.15 206.17 .135E+03 0.0 0.11 78.23
0.23 206.25 .303E+03 0.1 0.15 59.70
0.30 206.32 .539E+03 0.2 0.18 49.28
0.38 206.40 .805E+03 0.3 0.20 43.17
0.45 206.47 .175E+04 0.6 0.19 46.91
0.53 206.55 .333E+04 1.4 0.23 38.64
0.61 206.63 .569E+04 3.4 0.31 27.90
0.70 206.72 .851E+04 6.3 0.39 22.56
0.78 206.80 .118E+05 10.2 0.45 19.28
0.87 206.89 .155E+05 15.2 0.51 17.00
0.95 206.97 .196E+05 21.4 0.57 15.28
1.04 207.06 .242E+05 28.9 0.63 13.96
1.12 207.14 .292E+05 37.7 0.68 12.90
1.20 207.22 .346E+05 47.9 0.73 12.02
1.29 207.31 .404E+05 59.6 0.77 11.29
1.37 207.39 .466E+05 72.9 0.82 10.66
1.46 207.48 .533E+05 87.8 0.86 10.11

Model Without SWM Infrastructure - Output

```
1.54 207.56 .604E+05 104.5 0.91 9.63
<----- hydrograph -----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1311) 162.40 6.42 2.17 67.83 0.70 0.39
OUTFLOW: ID= 1 ( 0822) 162.40 6.19 3.17 67.83 0.69 0.38
```

```
ADD HYD ( 1310)
1 + 2 = 3
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0131): 28.70 0.803 5.17 49.36
+ ID2= 2 ( 0822): 162.40 6.186 3.17 67.83
=====
ID = 3 ( 1310): 191.10 6.779 3.17 65.06
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0821)
IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 207.71 0.0400
58.83 206.71 0.0400
66.88 206.59 0.0400 / 0.0350 Main Channel
72.32 206.34 0.0350 Main Channel
77.68 206.55 0.0350 / 0.0800 Main Channel
82.85 206.54 0.0800
90.20 206.02 0.0800
94.03 206.48 0.0800
99.83 206.40 0.0800 / 0.0400
114.32 206.50 0.0400
136.07 206.86 0.0400
174.41 207.56 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.08 206.10 .569E+02 0.0 0.06 234.14
0.15 206.17 .227E+03 0.0 0.10 147.50
0.23 206.25 .512E+03 0.1 0.13 112.56
0.30 206.32 .910E+03 0.2 0.16 92.92
0.38 206.40 .149E+04 0.3 0.18 81.40
0.45 206.47 .295E+04 0.6 0.17 88.45
```

```
0.53 206.55 .562E+04 1.3 0.20 72.86
0.61 206.63 .960E+04 3.0 0.28 52.60
0.70 206.72 .143E+05 5.6 0.35 42.53
0.78 206.80 .199E+05 9.1 0.40 36.35
0.87 206.89 .261E+05 13.6 0.46 32.05
0.95 206.97 .331E+05 19.1 0.51 28.81
1.04 207.06 .408E+05 25.8 0.56 26.32
1.12 207.14 .492E+05 33.7 0.61 24.32
1.20 207.22 .583E+05 42.9 0.65 22.67
1.29 207.31 .681E+05 53.3 0.69 21.28
1.37 207.39 .786E+05 65.2 0.73 20.10
1.46 207.48 .899E+05 78.6 0.77 19.07
1.54 207.56 .102E+06 93.4 0.81 18.16
```

```
<----- hydrograph -----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1310) 191.10 6.78 3.17 65.06 0.73 0.36
OUTFLOW: ID= 1 ( 0821) 191.10 6.30 3.58 65.05 0.71 0.36
```

```
CALIB
NASHYD ( 0130) |
ID= 1 DT= 5.0 min |
Area (ha)= 26.70 Curve Number (CN)= 81.7
Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.32
```

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 0.719 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 48.636
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.536

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ADD HYD ( 1300)
1 + 2 = 3
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0130): 26.70 0.719 5.33 48.64
+ ID2= 2 ( 0821): 191.10 6.303 3.58 65.05
=====
ID = 3 ( 1300): 217.80 6.887 3.83 63.04
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ADD HYD ( 1202)
1 + 2 = 3
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 1300): 217.80 6.887 3.83 63.04
+ ID2= 2 ( 1400): 215.90 5.769 6.00 50.93
=====
ID = 3 ( 1202): 433.70 12.086 5.33 57.01
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0820)
IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 / 0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 / 0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .681E+01 0.0 0.08 28.42
0.18 204.88 .272E+02 0.0 0.13 17.90
0.28 204.98 .620E+02 0.1 0.17 13.80
0.37 205.07 .292E+03 0.3 0.12 18.72
0.46 205.16 .859E+03 0.9 0.14 16.44
0.55 205.25 .182E+04 2.3 0.17 13.44
0.64 205.34 .311E+04 4.7 0.21 11.04
0.74 205.44 .487E+04 8.4 0.24 9.67
0.83 205.53 .676E+04 13.3 0.27 8.48
0.92 205.62 .877E+04 19.3 0.30 7.58
1.01 205.71 .109E+05 26.4 0.33 6.90
1.10 205.80 .132E+05 34.5 0.36 6.36
1.20 205.90 .155E+05 43.8 0.39 5.92
1.29 205.99 .181E+05 54.1 0.42 5.56
1.38 206.08 .207E+05 65.6 0.44 5.25
1.47 206.17 .234E+05 78.2 0.46 4.99
1.57 206.27 .263E+05 92.0 0.48 4.76
1.66 206.36 .293E+05 107.0 0.51 4.56
1.75 206.45 .324E+05 123.2 0.53 4.38
```

```
<----- hydrograph -----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1202) 433.70 12.09 5.33 57.01 0.81 0.26
OUTFLOW: ID= 1 ( 0820) 433.70 12.00 5.42 57.01 0.80 0.26
```

```
ADD HYD ( 1201)
1 + 2 = 3
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 1210): 96.80 3.034 4.42 54.78
+ ID2= 2 ( 0820): 433.70 11.997 5.42 57.01
=====
ID = 3 ( 1201): 530.50 14.927 5.42 56.60
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0810)
IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 / 0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 / 0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .229E+02 0.0 0.07 106.67
0.18 204.88 .915E+02 0.0 0.12 67.20
0.28 204.98 .208E+03 0.1 0.15 51.82
0.37 205.07 .981E+03 0.2 0.11 70.28
0.46 205.16 .288E+04 0.8 0.13 61.71
0.55 205.25 .610E+04 2.0 0.15 50.43
0.64 205.34 .105E+05 4.2 0.19 41.45
0.74 205.44 .163E+05 7.5 0.21 36.28
0.83 205.53 .227E+05 11.9 0.24 31.82
0.92 205.62 .294E+05 17.2 0.27 28.46
```

Model Without SWM Infrastructure - Output

1.01	205.71	.366E+05	23.6	0.30	25.89
1.10	205.80	.442E+05	30.9	0.32	23.87
1.20	205.90	.522E+05	39.1	0.35	22.23
1.29	205.99	.606E+05	48.4	0.37	20.87
1.38	206.08	.694E+05	58.7	0.39	19.72
1.47	206.17	.786E+05	70.0	0.41	18.74
1.57	206.27	.883E+05	82.3	0.43	17.88
1.66	206.36	.983E+05	95.7	0.45	17.12
1.75	206.45	.109E+06	110.2	0.47	16.45

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1201)	530.50	14.93	5.42	56.60	0.88	0.26
OUTFLOW: ID= 1 (0810)	530.50	14.49	5.67	56.60	0.87	0.26

CALIB						
NASHYD (0120)	Area (ha)=	9.00	Curve Number (CN)=	84.0		
ID= 1 DT= 5.0 min	Ia (mm)=	7.25	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.16				

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.266 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 52.911
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.583

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1200)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0120):	9.00	0.266	5.08	52.91		
+ ID2= 2 (0810):	530.50	14.492	5.67	56.60		
ID = 3 (1200):	539.50	14.747	5.67	56.54		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB						
NASHYD (0113)	Area (ha)=	13.50	Curve Number (CN)=	82.5		

ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.87

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.393 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 50.092
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.552

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0802) | Routing time step (min)'= 5.00
IN= 2----> OUT= 1 |

Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 /0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 /0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.448E+01	0.0	0.12	164.32
0.08	207.60	.179E+02	0.0	0.19	103.51
0.12	207.64	.403E+02	0.0	0.25	79.00
0.16	207.68	.716E+02	0.0	0.30	65.21
0.19	207.71	.112E+03	0.0	0.35	56.20
0.23	207.75	.161E+03	0.1	0.40	49.76
0.27	207.79	.219E+03	0.1	0.44	44.90
0.31	207.83	.287E+03	0.1	0.48	41.08
0.35	207.87	.363E+03	0.2	0.52	37.98
0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88
0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79
0.77	208.29	.225E+04	1.6	0.82	24.20

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0113)	13.50	0.39	4.17	50.09	0.49	0.65
OUTFLOW: ID= 1 (0802)	13.50	0.39	4.92	50.02	0.48	0.65

CALIB						
NASHYD (0112)	Area (ha)=	30.50	Curve Number (CN)=	82.8		
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.60				

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 0.811 (i)
TIME TO PEAK (hrs)= 5.583
RUNOFF VOLUME (mm)= 50.649
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB						
NASHYD (0111)	Area (ha)=	45.50	Curve Number (CN)=	82.3		
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.33				

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 1.247 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 49.727
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.548

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0111):	45.50	1.247	5.33	49.73		
+ ID2= 2 (0112):	30.50	0.811	5.58	50.65		

ID = 3 (1101): 76.00 2.055 5.42 50.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)						
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 3 (1101):	76.00	2.055	5.42	50.10		
+ ID2= 2 (0802):	13.50	0.386	4.92	50.02		
ID = 1 (1101):	89.50	2.438	5.33	50.09		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801) | Routing time step (min)'= 5.00
IN= 2----> OUT= 1 |

Distance	Elevation	Manning	
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 /0.0350	Main Channel
43.44	208.24	0.0350	Main Channel
45.75	208.62	0.0350 /0.0450	Main Channel
54.00	208.79	0.0450 /0.0400	
77.43	209.05	0.0400	
128.85	209.70	0.0400	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	208.30	.104E+02	0.0	0.10	83.26
0.13	208.37	.415E+02	0.0	0.16	52.45
0.19	208.43	.934E+02	0.0	0.20	40.03
0.25	208.49	.166E+03	0.1	0.25	33.04
0.32	208.56	.259E+03	0.2	0.29	28.47
0.38	208.62	.373E+03	0.2	0.32	25.22
0.46	208.70	.729E+03	0.5	0.33	24.94
0.54	208.78	.135E+04	0.9	0.33	24.67
0.62	208.86	.225E+04	1.6	0.35	23.41
0.70	208.94	.352E+04	2.6	0.37	22.23
0.78	209.02	.516E+04	4.1	0.39	20.96
0.86	209.10	.716E+04	6.1	0.41	19.65
0.94	209.18	.949E+04	8.6	0.44	18.42
1.02	209.26	.122E+05	11.7	0.47	17.31
1.10	209.34	.152E+05	15.5	0.50	16.32
1.18	209.42	.185E+05	19.7	0.52	15.72

Model Without SWM Infrastructure - Output

1.26	209.50	.224E+05	24.7	0.54	15.09
1.34	209.58	.266E+05	30.6	0.56	14.48
1.42	209.66	.313E+05	37.5	0.59	13.90

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (	1101)	89.50	2.44	5.33	50.09	0.68	0.36
OUTFLOW: ID= 1 (	0801)	89.50	2.40	5.67	50.08	0.68	0.36

CALIB				
NASHYD (0110)	Area (ha)=	11.90	Curve Number (CN)=	83.4
ID= 1 DT= 5.0 min	Ia (mm)=	7.58	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.68		

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.375 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 51.769
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.570

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0110):	11.90	0.375	3.50	51.77
+ ID2= 2 (0801):	89.50	2.403	5.67	50.08
=====				
ID = 3 (1100):	101.40	2.723	5.42	50.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1100):	101.40	2.723	5.42	50.28
+ ID2= 2 (1200):	539.50	14.747	5.67	56.54
=====				
ID = 3 (1001):	640.90	17.457	5.58	55.55

CALIB				
NASHYD (0100)	Area (ha)=	54.70	Curve Number (CN)=	83.2
ID= 1 DT= 5.0 min	Ia (mm)=	7.69	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.23		

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 1.563 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 51.394
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.566

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1000)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0100):	54.70	1.563	5.17	51.39
+ ID2= 2 (0800):	640.90	17.300	5.75	55.55
=====				
ID = 3 (1000):	695.60	18.802	5.75	55.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0190)	Area (ha)=	12.30	Curve Number (CN)=	83.9
ID= 1 DT= 5.0 min	Ia (mm)=	7.31	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.83		

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.300 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 52.715
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0191)	Area (ha)=	20.10	Curve Number (CN)=	82.0
ID= 1 DT= 5.0 min	Ia (mm)=	8.36	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.94		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)		
IN= 2----> OUT= 1	Routing time step (min)'=	5.00

Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 / 0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 / 0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	204.79	.255E+02	0.0	0.16	54.50
0.18	204.88	.102E+03	0.0	0.25	34.33
0.28	204.98	.232E+03	0.1	0.33	26.47
0.37	205.07	.109E+04	0.5	0.24	35.91
0.46	205.16	.321E+04	1.7	0.27	31.53
0.55	205.25	.680E+04	4.4	0.33	25.77
0.64	205.34	.116E+05	9.2	0.41	21.18
0.74	205.44	.182E+05	16.4	0.47	18.54
0.83	205.53	.253E+05	25.9	0.53	16.26
0.92	205.62	.328E+05	37.6	0.59	14.54
1.01	205.71	.408E+05	51.4	0.65	13.23
1.10	205.80	.492E+05	67.3	0.71	12.19
1.20	205.90	.581E+05	85.3	0.76	11.36
1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75
1.75	206.45	.121E+06	240.2	1.03	8.41

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (	1001)	640.90	17.46	5.58	55.55	0.75
OUTFLOW: ID= 1 (	0800)	640.90	17.30	5.75	55.55	0.75

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.570 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 49.179
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.542

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0192)	Area (ha)=	28.30	Curve Number (CN)=	80.3
ID= 1 DT= 5.0 min	Ia (mm)=	6.23	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.06		

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 0.775 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 48.692
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.536

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1901)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0191):	20.10	0.570	4.42	49.18
+ ID2= 2 (0192):	28.30	0.775	5.08	48.69
=====				
ID = 3 (1901):	48.40	1.343	4.67	48.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0899)		
IN= 2----> OUT= 1	Routing time step (min)'=	5.00

Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 / 0.0350

Model Without SWM Infrastructure - Output

```
70.77      208.05      0.0350      Main Channel
74.98      208.02      0.0350      Main Channel
83.40      208.38      0.0350 / 0.0400      Main Channel
88.06      208.63      0.0400
94.94      209.13      0.0400
105.88     209.54      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)        (m/s)       (min)
0.07     208.09    .349E+02    0.1           0.18        10.46
0.14     208.16    .981E+02    0.2           0.28        6.64
0.22     208.24    .183E+03    0.6           0.36        5.21
0.29     208.31    .291E+03    1.1           0.42        4.40
0.36     208.38    .420E+03    1.8           0.48        3.85
0.44     208.46    .586E+03    3.0           0.57        3.27
0.52     208.54    .777E+03    4.5           0.65        2.87
0.60     208.62    .999E+03    6.5           0.72        2.58
0.68     208.70    .125E+04    8.8           0.78        2.37
0.76     208.78    .154E+04    11.5          0.84        2.22
0.84     208.86    .185E+04    14.7          0.89        2.10
0.92     208.94    .230E+04    18.2          0.88        2.10
0.99     209.01    .285E+04    23.0          0.90        2.07
1.07     209.09    .345E+04    28.5          0.92        2.02
1.15     209.17    .411E+04    34.8          0.94        1.96
1.23     209.25    .482E+04    42.0          0.97        1.91
1.31     209.33    .559E+04    50.0          1.00        1.86
1.39     209.41    .643E+04    59.1          1.02        1.81
1.47     209.49    .732E+04    69.1          1.05        1.76

<---- hydrograph ----> <-pipe / channel->
AREA    QPEAK    TPEAK    R.V.    MAX DEPTH    MAX VEL
(ha)     (cms)     (hrs)    (mm)     (m)           (m/s)
INFLOW : ID= 2 ( 1901) 48.40    1.34    4.67    48.89    0.31    0.44
OUTFLOW: ID= 1 ( 0899) 48.40    1.34    4.75    48.89    0.31    0.44
```

```
| ADD HYD ( 1900) |
| 1 + 2 = 3 |
AREA    QPEAK    TPEAK    R.V.
(ha)     (cms)     (hrs)    (mm)
ID1= 1 ( 0190): 12.30    0.380    3.83    52.71
+ ID2= 2 ( 0899): 48.40    1.342    4.75    48.89
=====
ID = 3 ( 1900): 60.70    1.713    4.58    49.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| ADD HYD ( 5000) |
| 1 + 2 = 3 |
AREA    QPEAK    TPEAK    R.V.
(ha)     (cms)     (hrs)    (mm)
ID1= 1 ( 0500): 7.60    0.247    3.25    50.65
+ ID2= 2 ( 0510): 12.70    0.373    3.58    48.64
=====
ID = 3 ( 5000): 20.30    0.614    3.42    49.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| ADD HYD ( 5000) |
| 3 + 2 = 1 |
AREA    QPEAK    TPEAK    R.V.
(ha)     (cms)     (hrs)    (mm)
ID1= 3 ( 5000): 20.30    0.614    3.42    49.39
+ ID2= 2 ( 0520): 17.30    0.513    3.75    50.09
=====
ID = 1 ( 5000): 37.60    1.120    3.58    49.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
| CALIB |
| NASHYD ( 0600) |
| ID= 1 DT= 5.0 min |
Area (ha)= 2.50      Curve Number (CN)= 82.5
Ia (mm)= 8.08      # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.081 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 50.088
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.552

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
=====
V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL
OOO TTTT TTTT H H Y Y M M OOO TM
```

```
-----
| CALIB |
| NASHYD ( 0500) |
| ID= 1 DT= 5.0 min |
Area (ha)= 7.60      Curve Number (CN)= 82.8
Ia (mm)= 7.91      # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.48
```

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.247 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 50.646
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0510) |
| ID= 1 DT= 5.0 min |
Area (ha)= 12.70     Curve Number (CN)= 81.7
Ia (mm)= 8.53      # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.373 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 48.635
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.536

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0520) |
| ID= 1 DT= 5.0 min |
Area (ha)= 17.30     Curve Number (CN)= 82.5
Ia (mm)= 8.08      # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.513 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 50.092
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.552

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```

O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
OOO T T H H Y M M OOO

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```

***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\d4
2dec98-e695-4b72-b905-3ea902a31df7\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\d4
2dec98-e695-4b72-b905-3ea902a31df7\sce

DATE: 10-17-2025 TIME: 02:15:19

USER:

COMMENTS: _____

```
*****
** SIMULATION : 6 **
*****
```

```
-----
| READ STORM |
| Ptotal=101.20 mm |
Filename: C:\Users\wraymond\AppData\Local\Temp\35eb7828-247c-431e-8f8f-00c8304cf789\823bd36
Comments: 50yr12hrAES
```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.08	15.18	6.17	3.04	9.25	0.00
0.08	13.16	3.17	15.18	6.25	3.04	9.33	0.00
0.17	13.16	3.25	15.18	6.33	3.04	9.42	0.00
0.25	13.16	3.33	15.18	6.42	3.04	9.50	0.00
0.33	13.16	3.42	15.18	6.50	3.04	9.58	0.00
0.42	13.16	3.50	15.18	6.58	3.04	9.67	0.00

Model Without SWM Infrastructure - Output

0.50	13.16	3.58	15.18	6.67	3.04	9.75	0.00
0.58	13.16	3.67	15.18	6.75	3.04	9.83	0.00
0.67	13.16	3.75	15.18	6.83	3.04	9.92	0.00
0.75	13.16	3.83	15.18	6.92	3.04	10.00	0.00
0.83	13.16	3.92	15.18	7.00	3.04	10.08	0.00
0.92	13.16	4.00	15.18	7.08	1.01	10.17	0.00
1.00	13.16	4.08	14.17	7.17	1.01	10.25	0.00
1.08	26.31	4.17	14.17	7.25	1.01	10.33	0.00
1.17	26.31	4.25	14.17	7.33	1.01	10.42	0.00
1.25	26.31	4.33	14.17	7.42	1.01	10.50	0.00
1.33	26.31	4.42	14.17	7.50	1.01	10.58	0.00
1.42	26.31	4.50	14.17	7.58	1.01	10.67	0.00
1.50	26.31	4.58	14.17	7.67	1.01	10.75	0.00
1.58	26.31	4.67	14.17	7.75	1.01	10.83	0.00
1.67	26.31	4.75	14.17	7.83	1.01	10.92	0.00
1.75	26.31	4.83	14.17	7.92	1.01	11.00	0.00
1.83	26.31	4.92	14.17	8.00	1.01	11.08	0.00
1.92	26.31	5.00	14.17	8.08	0.00	11.17	0.00
2.00	26.31	5.08	8.10	8.17	0.00	11.25	0.00
2.08	20.24	5.17	8.10	8.25	0.00	11.33	0.00
2.17	20.24	5.25	8.10	8.33	0.00	11.42	0.00
2.25	20.24	5.33	8.10	8.42	0.00	11.50	0.00
2.33	20.24	5.42	8.10	8.50	0.00	11.58	0.00
2.42	20.24	5.50	8.10	8.58	0.00	11.67	0.00
2.50	20.24	5.58	8.10	8.67	0.00	11.75	0.00
2.58	20.24	5.67	8.10	8.75	0.00	11.83	0.00
2.67	20.24	5.75	8.10	8.83	0.00	11.92	0.00
2.75	20.24	5.83	8.10	8.92	0.00	12.00	0.00
2.83	20.24	5.92	8.10	9.00	0.00		
2.92	20.24	6.00	8.10	9.08	0.00		
3.00	20.24	6.08	3.04	9.17	0.00		

CALIB			
NASHYD (0185)	Area (ha)= 2.00	Curve Number (CN)= 79.5	
ID= 1 DT= 5.0 min	Ia (mm)= 6.54	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.36		

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.072 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 55.937
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.553

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0330)	Area (ha)= 22.30	Curve Number (CN)= 82.2	
ID= 1 DT= 5.0 min	Ia (mm)= 8.25	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.60		

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.811 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 58.394
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.577

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0270)	Area (ha)= 2.50	Curve Number (CN)= 81.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.95	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.24		

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.097 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 58.542
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.578

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0260)	Area (ha)= 7.00	Curve Number (CN)= 83.7	
ID= 1 DT= 5.0 min	Ia (mm)= 7.41	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.43		

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.279 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 61.399
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.607

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0180)	Area (ha)= 6.80	Curve Number (CN)= 82.4	
ID= 1 DT= 5.0 min	Ia (mm)= 8.13	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.85		

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.234 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 58.796
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0170)	Area (ha)= 5.80	Curve Number (CN)= 82.4	
ID= 1 DT= 5.0 min	Ia (mm)= 8.13	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.69		

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.207 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 58.795
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0160)	Area (ha)= 16.30	Curve Number (CN)= 83.2	
ID= 1 DT= 5.0 min	Ia (mm)= 7.69	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.15		

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.548 (i)
TIME TO PEAK (hrs)= 4.833
RUNOFF VOLUME (mm)= 60.388
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.597

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0250)	Area (ha)= 10.70	Curve Number (CN)= 81.9	
ID= 1 DT= 5.0 min	Ia (mm)= 8.42	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.54		

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.391 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 57.804
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.571

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0320)	Area (ha)= 11.70	Curve Number (CN)= 83.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.45		

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.454 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 59.982
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.593

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0420)	Area (ha)= 25.80	Curve Number (CN)= 83.6	
ID= 1 DT= 5.0 min	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.12		

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 0.881 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 61.197
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0423)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 23.90 Curve Number (CN)= 84.1
Ia (mm)= 7.20 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.80

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 0.883 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 62.215
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.615
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0422)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 6.90 Curve Number (CN)= 83.4
Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.61

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.262 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 60.790
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.601
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0896)|
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400

<----- TRAVEL TIME TABLE ----->
```

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03
0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0422)	6.90	0.26	3.33	60.79	0.36	0.68
OUTFLOW: ID= 1 (0896)	6.90	0.26	3.42	60.79	0.36	0.67

```
-----
| ADD HYD ( 4202)|
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0423): 23.90 0.883 3.67 62.22
+ ID2= 2 ( 0896): 6.90 0.261 3.42 60.79
=====
ID = 3 ( 4202): 30.80 1.141 3.58 61.90
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0895)|
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
```

RUNOFF VOLUME (mm)= 59.578
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0883)|
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .170E+01 0.0 0.28 4.09
0.24 212.03 .679E+01 0.0 0.44 2.58
0.36 212.15 .153E+02 0.1 0.58 1.97
0.48 212.27 .272E+02 0.3 0.70 1.62
0.61 212.40 .424E+02 0.5 0.82 1.40
0.73 212.52 .134E+03 1.0 0.53 2.16
0.85 212.64 .375E+03 2.8 0.52 2.20
0.97 212.76 .687E+03 6.1 0.60 1.89
1.09 212.88 .107E+04 11.0 0.71 1.61
1.21 213.00 .148E+04 17.8 0.83 1.38
1.33 213.12 .192E+04 26.1 0.93 1.22
1.45 213.24 .238E+04 35.9 1.03 1.11
1.57 213.36 .288E+04 47.3 1.13 1.01
1.70 213.49 .340E+04 60.1 1.21 0.94
1.82 213.61 .395E+04 74.5 1.29 0.88
1.94 213.73 .452E+04 90.5 1.37 0.83
2.06 213.85 .512E+04 109.2 1.46 0.78
2.18 213.97 .573E+04 130.3 1.56 0.73
2.37 214.16 .694E+04 168.2 1.66 0.69

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4202) 30.80 1.14 3.58 61.90 0.73 0.53
OUTFLOW: ID= 1 ( 0895) 30.80 1.14 3.58 61.90 0.73 0.53
```

```
-----
| CALIB
| NASHYD ( 0421)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 10.40 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.37

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)= 0.406 (i)
TIME TO PEAK (hrs)= 3.167
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0421)	10.40	0.41	3.17	59.58	0.39	0.91
OUTFLOW: ID= 1 (0883)	10.40	0.40	3.25	59.53	0.38	0.90

Model Without SWM Infrastructure - Output

```
-----
| ADD HYD ( 4201)|
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0883): 10.40 0.399 3.25 59.53 |
| + ID2= 2 ( 0895): 30.80 1.141 3.58 61.90 |
|=====|
| ID = 3 ( 4201): 41.20 1.529 3.50 61.30 |
|-----|
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0882)|
| IN= 2----> OUT= 1 |
|-----|
|----- DATA FOR SECTION ( 1.1) -----|
| Distance      Elevation      Manning |
| 0.00          209.49         0.0400 |
| 35.71         208.88         0.0400 |
| 53.04         208.89         0.0400 |
| 64.12         208.50         0.0400 /0.0350 Main Channel |
| 70.77         208.05         0.0350 Main Channel |
| 74.98         208.02         0.0350 Main Channel |
| 83.40         208.38         0.0350 /0.0400 Main Channel |
| 88.06         208.63         0.0400 |
| 94.94         209.13         0.0400 |
| 105.88        209.54         0.0400 |
|-----|
```

```
<----- TRAVEL TIME TABLE ----->
| DEPTH  | ELEV | VOLUME | FLOW RATE | VELOCITY | TRAV.TIME |
| (m)    | (m)  | (cu.m.) | (cms)     | (m/s)    | (min)     |
| 0.07   | 208.09 | .971E+02 | 0.0       | 0.09     | 55.71     |
| 0.14   | 208.16 | .273E+03 | 0.1       | 0.15     | 35.37     |
| 0.22   | 208.24 | .510E+03 | 0.3       | 0.19     | 27.73     |
| 0.29   | 208.31 | .808E+03 | 0.6       | 0.22     | 23.40     |
| 0.36   | 208.38 | .117E+04 | 0.9       | 0.25     | 20.52     |
| 0.44   | 208.46 | .163E+04 | 1.6       | 0.30     | 17.43     |
| 0.52   | 208.54 | .216E+04 | 2.4       | 0.34     | 15.27     |
| 0.60   | 208.62 | .278E+04 | 3.4       | 0.38     | 13.72     |
| 0.68   | 208.70 | .348E+04 | 4.6       | 0.41     | 12.64     |
| 0.76   | 208.78 | .427E+04 | 6.0       | 0.44     | 11.82     |
| 0.84   | 208.86 | .514E+04 | 7.7       | 0.46     | 11.16     |
| 0.92   | 208.94 | .638E+04 | 9.5       | 0.46     | 11.20     |
| 0.99   | 209.01 | .792E+04 | 12.0      | 0.47     | 11.01     |
| 1.07   | 209.09 | .960E+04 | 14.9      | 0.48     | 10.74     |
| 1.15   | 209.17 | .114E+05 | 18.2      | 0.49     | 10.46     |
|-----|
```

```
PEAK FLOW      (cms)= 0.100 (i)
TIME TO PEAK   (hrs)= 3.167
RUNOFF VOLUME  (mm)= 63.866
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.631
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0443)|
| ID= 1 DT= 5.0 min |
|-----|
| Area (ha)= 21.30 |
| Ia (mm)= 7.31 |
| U.H. Tp(hrs)= 0.59 |
|-----|
```

Unit Hyd Qpeak (cms)= 1.379

```
PEAK FLOW      (cms)= 0.827 (i)
TIME TO PEAK   (hrs)= 3.333
RUNOFF VOLUME  (mm)= 61.803
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.611
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0451)|
| ID= 1 DT= 5.0 min |
|-----|
| Area (ha)= 12.30 |
| Ia (mm)= 7.09 |
| U.H. Tp(hrs)= 0.57 |
|-----|
```

Unit Hyd Qpeak (cms)= 0.824

```
PEAK FLOW      (cms)= 0.487 (i)
TIME TO PEAK   (hrs)= 3.250
RUNOFF VOLUME  (mm)= 62.627
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.619
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| STANDHYD ( 0043)|
| ID= 1 DT= 5.0 min |
|-----|
| Area (ha)= 22.90 |
| Total Imp(%)= 49.00 |
| Dir. Conn.(%)= 40.00 |
|-----|
```

```
IMPERVIOUS      PERVIOUS (i)
| Surface Area (ha)= 11.22 |
| Dep. Storage (mm)= 1.00 |
|-----|
```

```
1.23 209.25 .134E+05 21.9 0.51 10.19
1.31 209.33 .156E+05 26.1 0.52 9.92
1.39 209.41 .179E+05 30.9 0.53 9.65
1.47 209.49 .204E+05 36.1 0.55 9.40
```

```
<---- hydrograph ----> <-pipe / channel->
| AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL |
| (ha) (cms) (hrs) (mm) (m) (m/s) |
| INFLOW : ID= 2 ( 4201) 41.20 1.53 3.50 61.30 0.44 0.29 |
| OUTFLOW: ID= 1 ( 0882) 41.20 1.49 3.67 61.29 0.43 0.29 |
|-----|
```

```
-----
| ADD HYD ( 4200)|
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0420): 25.80 0.881 4.67 61.20 |
| + ID2= 2 ( 0882): 41.20 1.487 3.67 61.29 |
|=====|
| ID = 3 ( 4200): 67.00 2.338 4.17 61.26 |
|-----|
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0440)|
| ID= 1 DT= 5.0 min |
|-----|
| Area (ha)= 31.60 |
| Ia (mm)= 7.04 |
| U.H. Tp(hrs)= 1.16 |
|-----|
```

Unit Hyd Qpeak (cms)= 1.040

```
PEAK FLOW      (cms)= 1.099 (i)
TIME TO PEAK   (hrs)= 4.750
RUNOFF VOLUME  (mm)= 62.832
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.621
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0442)|
| ID= 1 DT= 5.0 min |
|-----|
| Area (ha)= 2.40 |
| Ia (mm)= 6.77 |
| U.H. Tp(hrs)= 0.41 |
|-----|
```

Unit Hyd Qpeak (cms)= 0.224

```
Average Slope (%)= 1.00 2.00
Length (m)= 390.73 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 26.31 14.98
over (min) 10.00 25.00
Storage Coeff. (min)= 9.87 (ii) 24.95 (ii)
Unit Hyd. Tpeak (min)= 10.00 25.00
Unit Hyd. peak (cms)= 0.11 0.05
```

```
*TOTALS*
PEAK FLOW      (cms)= 0.67 0.45 0.981 (iii)
TIME TO PEAK   (hrs)= 2.08 3.25 2.08
RUNOFF VOLUME  (mm)= 100.20 51.71 71.11
TOTAL RAINFALL (mm)= 101.20 101.20 101.20
RUNOFF COEFFICIENT = 0.99 0.51 0.70
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| STANDHYD ( 0045)|
| ID= 1 DT= 5.0 min |
|-----|
| Area (ha)= 1.30 |
| Total Imp(%)= 65.00 |
| Dir. Conn.(%)= 35.00 |
|-----|
```

```
IMPERVIOUS      PERVIOUS (i)
| Surface Area (ha)= 0.84 |
| Dep. Storage (mm)= 1.00 |
| Average Slope (%)= 1.00 |
| Length (m)= 93.09 |
| Mannings n = 0.013 0.250 |
|-----|
```

```
Max.Eff.Inten.(mm/hr)= 26.31 30.95
over (min) 5.00 20.00
Storage Coeff. (min)= 4.17 (ii) 15.46 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.24 0.07
```

```
*TOTALS*
PEAK FLOW      (cms)= 0.03 0.04 0.067 (iii)
TIME TO PEAK   (hrs)= 2.00 3.08 2.08
RUNOFF VOLUME  (mm)= 100.20 64.33 76.88
TOTAL RAINFALL (mm)= 101.20 101.20 101.20
RUNOFF COEFFICIENT = 0.99 0.64 0.76
```

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

Model Without SWM Infrastructure - Output

CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4345) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0043): 22.90 0.981 2.08 71.11
+ ID2= 2 ( 0045): 1.30 0.067 2.08 76.88
=====
ID = 3 ( 4345): 24.20 1.048 2.08 71.42
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0893) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 /0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 /0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .596E+00 0.0 0.09 30.15
0.08 207.60 .238E+01 0.0 0.14 18.99
0.12 207.64 .536E+01 0.0 0.18 14.49
0.16 207.68 .954E+01 0.0 0.22 11.96
0.19 207.71 .149E+02 0.0 0.26 10.31
0.23 207.75 .215E+02 0.0 0.29 9.13
0.27 207.79 .292E+02 0.1 0.32 8.24
0.31 207.83 .381E+02 0.1 0.35 7.54
0.35 207.87 .483E+02 0.1 0.38 6.97
0.39 207.91 .596E+02 0.2 0.41 6.50
0.43 207.95 .721E+02 0.2 0.43 6.10
0.47 207.99 .858E+02 0.2 0.46 5.75
0.50 208.02 .101E+03 0.3 0.49 5.45
0.54 208.06 .117E+03 0.4 0.51 5.19
0.58 208.10 .134E+03 0.5 0.53 4.96
0.62 208.14 .153E+03 0.5 0.56 4.75
```

```
0.85 212.64 .616E+03 4.9 0.89 2.11
0.97 212.76 .113E+04 10.4 1.04 1.81
1.09 212.88 .175E+04 18.9 1.21 1.54
1.21 213.00 .243E+04 30.5 1.42 1.32
1.33 213.12 .315E+04 44.8 1.60 1.17
1.45 213.24 .392E+04 61.6 1.77 1.06
1.57 213.36 .473E+04 81.0 1.93 0.97
1.70 213.49 .558E+04 103.1 2.08 0.90
1.82 213.61 .648E+04 127.8 2.22 0.85
1.94 213.73 .742E+04 155.2 2.35 0.80
2.06 213.85 .841E+04 187.2 2.50 0.75
2.18 213.97 .941E+04 223.3 2.67 0.70
2.37 214.16 .114E+05 288.4 2.85 0.66
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4510) 36.50 1.49 3.08 68.45 0.69 1.02
OUTFLOW: ID= 1 ( 0892) 36.50 1.49 3.17 68.45 0.69 1.02
```

```
| ADD HYD ( 4411) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0443): 21.30 0.827 3.33 61.80
+ ID2= 2 ( 0892): 36.50 1.489 3.17 68.45
=====
ID = 3 ( 4411): 57.80 2.309 3.17 66.00
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0891) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 /0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 /0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 /0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

```
0.67 208.19 .183E+03 0.7 0.59 4.48
0.72 208.24 .229E+03 0.9 0.61 4.36
0.77 208.29 .300E+03 1.1 0.60 4.44
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4345) 24.20 1.05 2.08 71.42 0.75 0.60
OUTFLOW: ID= 1 ( 0893) 24.20 1.03 2.17 71.42 0.75 0.60
```

```
| ADD HYD ( 4510) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0451): 12.30 0.487 3.25 62.63
+ ID2= 2 ( 0893): 24.20 1.035 2.17 71.42
=====
ID = 3 ( 4510): 36.50 1.491 3.08 68.45
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0892) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .279E+01 0.0 0.48 3.92
0.24 212.03 .112E+02 0.1 0.76 2.47
0.36 212.15 .251E+02 0.2 0.99 1.89
0.48 212.27 .446E+02 0.5 1.20 1.56
0.61 212.40 .697E+02 0.9 1.40 1.34
0.73 212.52 .220E+03 1.8 0.91 2.07
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .621E+00 0.0 0.10 29.40
0.09 205.28 .248E+01 0.0 0.16 18.52
0.13 205.32 .559E+01 0.0 0.21 14.13
0.17 205.36 .994E+01 0.0 0.25 11.67
0.22 205.41 .155E+02 0.0 0.29 10.05
0.26 205.45 .224E+02 0.0 0.33 8.90
0.31 205.50 .304E+02 0.1 0.37 8.03
0.35 205.54 .398E+02 0.1 0.40 7.35
0.39 205.58 .503E+02 0.1 0.43 6.79
0.44 205.63 .621E+02 0.2 0.46 6.33
0.48 205.67 .752E+02 0.2 0.49 5.97
0.52 205.71 .954E+02 0.2 0.40 7.41
0.57 205.76 .129E+03 0.3 0.38 7.71
0.61 205.80 .175E+03 0.4 0.39 7.48
0.66 205.85 .234E+03 0.6 0.41 7.08
0.70 205.89 .306E+03 0.8 0.44 6.64
0.74 205.93 .391E+03 1.0 0.47 6.22
0.79 205.98 .490E+03 1.4 0.50 5.83
0.83 206.02 .601E+03 1.8 0.53 5.49
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4411) 57.80 2.31 3.17 66.00 0.82 0.53
OUTFLOW: ID= 1 ( 0891) 57.80 2.30 3.25 66.00 0.83 0.53
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
| CALIB
| STANDHYD ( 0441) | Area (ha)= 3.00
| ID= 1 DT= 5.0 min | Total Imp(%)= 45.00 Dir. Conn.(%)= 35.00
```

```
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 1.35 1.65
Dep. Storage (mm)= 1.00 3.58
Average Slope (%)= 2.00 2.00
Length (m)= 141.42 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 26.31 22.88
over (min)= 5.00 20.00
Storage Coeff. (min)= 4.36 (ii) 17.09 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.23 0.06
```

Model Without SWM Infrastructure - Output

```

                                *TOTALS*
PEAK FLOW      (cms)=      0.08      0.09      0.168 (iii)
TIME TO PEAK   (hrs)=      2.08      2.25      2.08
RUNOFF VOLUME  (mm)=     100.20     72.38     82.11
TOTAL RAINFALL (mm)=     101.20     101.20     101.20
RUNOFF COEFFICIENT =      0.99      0.72      0.81

```

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```

| ADD HYD ( 4410) |
| 1 + 2 = 3 |
|-----|
| AREA   QPEAK  TPEAK   R.V. |
| (ha)   (cms)  (hrs)   (mm) |
|-----|
| ID1= 1 ( 0441): 3.00  0.168  2.08  82.11 |
| + ID2= 2 ( 0891): 57.80  2.299  3.25  66.00 |
|-----|
| ID = 3 ( 4410): 60.80  2.434  3.25  66.80 |

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

| ADD HYD ( 4401) |
| 1 + 2 = 3 |
|-----|
| AREA   QPEAK  TPEAK   R.V. |
| (ha)   (cms)  (hrs)   (mm) |
|-----|
| ID1= 1 ( 4410): 60.80  2.434  3.25  66.80 |
| + ID2= 2 ( 0442): 2.40  0.100  3.17  63.87 |
|-----|
| ID = 3 ( 4401): 63.20  2.533  3.25  66.69 |

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

| ROUTE CHN( 0889) |
| IN= 2---> OUT= 1 |
|-----|
| Routing time step (min)'= 5.00 |
|-----|
|<----- DATA FOR SECTION ( 1.1) ----->|
| Distance   Elevation   Manning |
| 0.00       206.70     0.0400 |
| 2.35       206.02     0.0400 /0.0350 Main Channel |
| 5.23       205.19     0.0350 Main Channel |
| 5.34       205.67     0.0350 Main Channel |
| 19.05      206.06     0.0350 /0.0400 Main Channel |

```

```

| ROUTE CHN( 0888) |
| IN= 2---> OUT= 1 |
|-----|
| Routing time step (min)'= 5.00 |
|-----|
|<----- DATA FOR SECTION ( 1.1) ----->|
| Distance   Elevation   Manning |
| 0.00       209.66     0.0400 |
| 19.50      209.34     0.0400 |
| 37.91      208.66     0.0400 |
| 41.73      208.62     0.0400 /0.0350 Main Channel |
| 43.44      208.24     0.0350 Main Channel |
| 45.75      208.62     0.0350 /0.0450 Main Channel |
| 54.00      208.79     0.0450 /0.0400 Main Channel |
| 77.43      209.05     0.0400 |
| 128.85     209.70     0.0400 |

```

```

|<----- TRAVEL TIME TABLE ----->|
| DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME |
| (m)     (m)    (cu.m.)  (cms)     (m/s)      (min) |
|-----|
| 0.06    208.30 .519E+01  0.0        0.09      43.50 |
| 0.13    208.37 .208E+02  0.0        0.15      27.40 |
| 0.19    208.43 .467E+02  0.0        0.19      20.91 |
| 0.25    208.49 .830E+02  0.1        0.24      17.26 |
| 0.32    208.56 .130E+03  0.1        0.27      14.88 |
| 0.38    208.62 .187E+03  0.2        0.31      13.17 |
| 0.46    208.70 .365E+03  0.5        0.31      13.03 |
| 0.54    208.78 .674E+03  0.9        0.32      12.89 |
| 0.62    208.86 .113E+04  1.5        0.33      12.23 |
| 0.70    208.94 .176E+04  2.5        0.35      11.61 |
| 0.78    209.02 .258E+04  3.9        0.37      10.95 |
| 0.86    209.10 .358E+04  5.8        0.40      10.27 |
| 0.94    209.18 .475E+04  8.2        0.42      9.62 |
| 1.02    209.26 .608E+04  11.2       0.45      9.04 |
| 1.10    209.34 .758E+04  14.8       0.48      8.53 |
| 1.18    209.42 .927E+04  18.8       0.50      8.21 |
| 1.26    209.50 .112E+05  23.6       0.52      7.88 |
| 1.34    209.58 .133E+05  29.3       0.54      7.57 |
| 1.42    209.66 .157E+05  35.9       0.56      7.26 |
|<----- hydrograph ----->|
| AREA   QPEAK  TPEAK   R.V.   MAX DEPTH   MAX VEL |
| (ha)   (cms)  (hrs)   (mm)  (m)         (m/s) |
|-----|
| INFLOW : ID= 2 ( 4400) 94.80  3.44  3.83  65.39  0.75  0.36 |
| OUTFLOW: ID= 1 ( 0888) 94.80  3.42  4.08  65.39  0.75  0.36 |

```

```

| CALTB |
| STANDHYD ( 0042) |
| ID= 1 DT= 5.0 min |
|-----|
| Area (ha)= 20.50 |
| Total Imp(%)= 83.00 Dir. Conn.(%)= 70.00 |

```

```

21.11      206.05      0.0400
22.02      206.13      0.0400 /0.0350
40.10      206.15      0.0350
56.50      206.04      0.0350

```

```

|<----- TRAVEL TIME TABLE ----->|
| DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME |
| (m)     (m)    (cu.m.)  (cms)     (m/s)      (min) |
|-----|
| 0.04    205.23 .272E+01  0.0        0.09      142.50 |
| 0.09    205.28 .109E+02  0.0        0.14      89.77 |
| 0.13    205.32 .245E+02  0.0        0.19      68.51 |
| 0.17    205.36 .435E+02  0.0        0.23      56.55 |
| 0.22    205.41 .679E+02  0.0        0.26      48.73 |
| 0.26    205.45 .978E+02  0.0        0.30      43.16 |
| 0.31    205.50 .133E+03  0.1        0.33      38.94 |
| 0.35    205.54 .174E+03  0.1        0.36      35.63 |
| 0.39    205.58 .220E+03  0.1        0.39      32.93 |
| 0.44    205.63 .272E+03  0.1        0.42      30.70 |
| 0.48    205.67 .329E+03  0.2        0.44      28.96 |
| 0.52    205.71 .418E+03  0.2        0.36      35.92 |
| 0.57    205.76 .563E+03  0.3        0.34      37.36 |
| 0.61    205.80 .765E+03  0.4        0.35      36.28 |
| 0.66    205.85 .102E+04  0.5        0.37      34.31 |
| 0.70    205.89 .134E+04  0.7        0.40      32.17 |
| 0.74    205.93 .171E+04  0.9        0.43      30.13 |
| 0.79    205.98 .214E+04  1.3        0.45      28.27 |
| 0.83    206.02 .263E+04  1.6        0.48      26.60 |

```

```

**** WARNING: TRAVEL TIME TABLE EXCEEDED
|<----- hydrograph ----->|
| AREA   QPEAK  TPEAK   R.V.   MAX DEPTH   MAX VEL |
| (ha)   (cms)  (hrs)   (mm)  (m)         (m/s) |
|-----|
| INFLOW : ID= 2 ( 4401) 63.20  2.53  3.25  66.69  0.83  0.48 |
| OUTFLOW: ID= 1 ( 0889) 63.20  2.41  3.67  66.67  0.83  0.48 |

```

```

| ADD HYD ( 4400) |
| 1 + 2 = 3 |
|-----|
| AREA   QPEAK  TPEAK   R.V. |
| (ha)   (cms)  (hrs)   (mm) |
|-----|
| ID1= 1 ( 0440): 31.60  1.099  4.75  62.83 |
| + ID2= 2 ( 0889): 63.20  2.411  3.67  66.67 |
|-----|
| ID = 3 ( 4400): 94.80  3.440  3.83  65.39 |

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

|<----- IMPERVIOUS PERVIOUS (i) ----->|
| Surface Area (ha)= 17.01  3.49 |
| Dep. Storage (mm)= 1.00  6.98 |
| Average Slope (%)= 2.00  2.00 |
| Length (m)= 369.68  40.00 |
| Mannings n = 0.013  0.250 |
| Max.Eff.Inten.(mm/hr)= 26.31  32.35 |
| over (min)= 10.00  20.00 |
| Storage Coeff. (min)= 7.76 (ii) 18.84 (ii) |
| Unit Hyd. Tpeak (min)= 10.00  20.00 |
| Unit Hyd. peak (cms)= 0.13  0.06 |
|<----- TRAVEL TIME TABLE ----->|
| PEAK FLOW (cms)= 1.05  0.28 |
| TIME TO PEAK (hrs)= 2.08  2.33 |
| RUNOFF VOLUME (mm)= 100.20  69.19 |
| TOTAL RAINFALL (mm)= 101.20  101.20 |
| RUNOFF COEFFICIENT = 0.99  0.68 |

```

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```

| ROUTE CHN( 0898) |
| IN= 2---> OUT= 1 |
|-----|
| Routing time step (min)'= 5.00 |
|-----|
|<----- DATA FOR SECTION ( 1.1) ----->|
| Distance   Elevation   Manning |
| 0.00       101.50     0.0500 |
| 1.00       100.70     0.0500 |
| 1.50       100.55     0.0500 /0.0300 Main Channel |
| 2.00       99.50     0.0300 Main Channel |
| 3.50       99.60     0.0300 Main Channel |
| 4.50       100.65     0.0300 /0.0500 Main Channel |
| 6.00       101.45     0.0500 |

```

```

|<----- TRAVEL TIME TABLE ----->|
| DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME |
| (m)     (m)    (cu.m.)  (cms)     (m/s)      (min) |
|-----|
| 0.10    99.60 .152E+02  0.0        0.19      18.79 |
| 0.19    99.69 .482E+02  0.1        0.37      9.79 |
| 0.29    99.79 .840E+02  0.2        0.49      7.32 |
| 0.38    99.88 .123E+03  0.3        0.59      6.12 |
| 0.48    99.98 .164E+03  0.5        0.67      5.38 |
| 0.57    100.07 .208E+03  0.7        0.74      4.87 |

```

Model Without SWM Infrastructure - Output

0.67	100.17	.255E+03	0.9	0.80	4.49
0.76	100.26	.305E+03	1.2	0.86	4.19
0.86	100.36	.358E+03	1.5	0.91	3.95
0.95	100.45	.413E+03	1.8	0.96	3.75
1.05	100.55	.471E+03	2.2	1.00	3.58
1.16	100.66	.547E+03	2.7	1.07	3.35
1.28	100.78	.635E+03	3.4	1.14	3.14
1.39	100.89	.732E+03	4.1	1.20	2.99
1.50	101.00	.838E+03	4.9	1.25	2.86
1.61	101.11	.952E+03	5.8	1.30	2.76
1.72	101.22	.107E+04	6.7	1.34	2.67
1.84	101.34	.120E+04	7.7	1.38	2.60
1.95	101.45	.134E+04	8.8	1.41	2.54

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0042)	20.50	1.31	2.08	90.90	0.79	0.87
OUTFLOW: ID= 1 (0898)	20.50	1.30	2.08	90.89	0.79	0.87

CALIB	Area (ha)=	8.90
STANDHYD (0044)	Total Imp(%)=	41.00
ID= 1 DT= 5.0 min	Dir. Conn.(%)=	20.00

	IMPERVIOUS (ha)	PERVIOUS (i) (cms)
Surface Area	3.65	5.25
Dep. Storage	1.00	8.00
Average Slope	2.00	2.00
Length	243.58	40.00
Mannings n	0.013	0.250

Max.Eff.Inten.(mm/hr)=	26.31	20.05
over (min)	5.00	20.00
Storage Coeff. (min)=	6.04 (ii)	19.46 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.19	0.06
PEAK FLOW (cms)=	0.13	0.27
TIME TO PEAK (hrs)=	2.08	3.17
RUNOFF VOLUME (mm)=	100.20	58.80
TOTAL RAINFALL (mm)=	101.20	101.20
RUNOFF COEFFICIENT =	0.99	0.58

TOTALS

0.371 (iii)	3.08	67.08	101.20	0.66

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0044):	8.90	0.371	3.08	67.08
+ ID2= 2 (0898):	20.50	1.301	2.08	90.89
ID = 3 (4244):	29.40	1.661	2.08	83.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0897)	Routing time step (min)'= 5.00
IN= 2--> OUT= 1	

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 /0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 /0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.140E+02	0.0	0.17	55.64
0.24	212.03	.559E+02	0.0	0.27	35.05
0.36	212.15	.126E+03	0.1	0.35	26.75
0.48	212.27	.224E+03	0.2	0.43	22.08
0.61	212.40	.350E+03	0.3	0.49	19.03
0.73	212.52	.110E+04	0.6	0.32	29.36
0.85	212.64	.309E+04	1.7	0.31	29.92
0.97	212.76	.566E+04	3.7	0.37	25.67
1.09	212.88	.878E+04	6.7	0.43	21.92
1.21	213.00	.122E+05	10.8	0.50	18.80
1.33	213.12	.158E+05	15.8	0.57	16.63
1.45	213.24	.196E+05	21.8	0.63	15.03
1.57	213.36	.237E+05	28.7	0.68	13.79

1.70	213.49	.280E+05	36.4	0.73	12.81
1.82	213.61	.325E+05	45.2	0.78	12.00
1.94	213.73	.372E+05	54.9	0.83	11.31
2.06	213.85	.422E+05	66.2	0.89	10.62
2.18	213.97	.472E+05	79.0	0.94	9.97
2.37	214.16	.571E+05	102.0	1.01	9.34

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4244)	29.40	1.66	2.08	83.68	0.84	0.31
OUTFLOW: ID= 1 (0897)	29.40	1.44	3.08	83.67	0.82	0.32

ADD HYD (4301)				
1 + 2 = 3				

ID1= 1 (0888):	94.80	3.420	4.08	65.39
+ ID2= 2 (0897):	29.40	1.438	3.08	83.67
=====				
ID = 3 (4301):	124.20	4.661	3.75	69.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0887)	Routing time step (min)'= 5.00
IN= 2--> OUT= 1	

Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 /0.0350
86.30	208.87	0.0350
89.86	209.20	0.0350 /0.0300
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.03	208.90	.143E+01	0.0	0.09	20.80
0.07	208.94	.572E+01	0.0	0.14	13.11
0.10	208.97	.129E+02	0.0	0.18	10.00

0.13	209.00	.229E+02	0.0	0.22	8.26
0.17	209.04	.357E+02	0.1	0.26	7.11
0.20	209.07	.514E+02	0.1	0.29	6.30
0.23	209.10	.700E+02	0.2	0.32	5.69
0.26	209.13	.915E+02	0.3	0.35	5.20
0.30	209.17	.116E+03	0.4	0.38	4.81
0.33	209.20	.143E+03	0.5	0.41	4.48
0.37	209.24	.239E+03	0.8	0.37	5.02
0.40	209.27	.396E+03	1.3	0.35	5.26
0.44	209.31	.589E+03	1.9	0.36	5.13
0.47	209.34	.818E+03	2.8	0.38	4.89
0.51	209.38	.108E+04	3.9	0.40	4.63
0.54	209.41	.139E+04	5.2	0.41	4.46
0.58	209.45	.175E+04	6.7	0.43	4.33
0.61	209.48	.218E+04	8.7	0.44	4.17
0.65	209.52	.266E+04	11.2	0.46	3.98

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4301)	124.20	4.66	3.75	69.72	0.53	0.41
OUTFLOW: ID= 1 (0887)	124.20	4.66	3.83	69.72	0.53	0.41

CALIB	Area (ha)=	19.80
NASHYD (0430)	Ia (mm)=	7.47
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	1.13
	Curve Number (CN)=	83.6
	# of Linear Res.(N)=	3.00

Unit Hyd Qpeak (cms)= 0.669

PEAK FLOW (cms)=	0.675 (i)
TIME TO PEAK (hrs)=	4.750
RUNOFF VOLUME (mm)=	61.197
TOTAL RAINFALL (mm)=	101.200
RUNOFF COEFFICIENT =	0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4300)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0430):	19.80	0.675	4.75	61.20
+ ID2= 2 (0887):	124.20	4.660	3.83	69.72

Model Without SWM Infrastructure - Output

ID = 3 (4300): 144.00 5.307 4.00 68.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0886)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```

----- DATA FOR SECTION ( 1.1) -----
Distance      Elevation      Manning
0.00          209.20      0.0400
100.00        206.26      0.0400
111.30        206.19      0.0400 / 0.0350 Main Channel
112.02        205.76      0.0350 Main Channel
113.82        205.37      0.0350 Main Channel
115.62        206.03      0.0350 / 0.0400 Main Channel
117.77        207.30      0.0400
120.56        207.40      0.0400
124.41        207.31      0.0400
129.31        207.24      0.0400

```

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	295.46	.118E+02	0.0	0.11	51.32
0.19	295.56	.438E+02	0.0	0.17	32.33
0.28	295.65	.986E+02	0.1	0.23	24.67
0.38	295.75	.175E+03	0.1	0.27	20.37
0.47	295.84	.271E+03	0.3	0.33	16.94
0.57	295.94	.379E+03	0.4	0.38	14.73
0.66	296.03	.501E+03	0.6	0.42	13.19
0.76	296.13	.644E+03	0.9	0.48	11.58
0.86	296.23	.845E+03	1.3	0.51	10.89
0.96	296.33	.140E+04	1.9	0.46	12.13
1.06	296.43	.209E+04	2.9	0.46	12.20
1.16	296.53	.290E+04	4.1	0.47	11.82
1.26	296.63	.383E+04	5.6	0.49	11.31
1.37	296.74	.489E+04	7.6	0.52	10.78
1.47	296.84	.607E+04	9.8	0.54	10.28
1.57	296.94	.737E+04	12.5	0.57	9.81
1.67	297.04	.879E+04	15.6	0.60	9.38
1.77	297.14	.103E+05	19.2	0.62	8.99
1.87	297.24	.120E+05	23.2	0.65	8.63

		AREA	<--- hydrograph --->			<-pipe / channel->	
		(ha)	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
			(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW :	ID= 2 (4300)	144.00	5.31	4.00	68.55	1.24	0.49
OUTFLOW:	ID= 1 (0886)	144.00	5.28	4.17	68.54	1.24	0.49

0.10	207.38	.536E+01	0.0	0.10	33.27
0.15	207.43	.121E+02	0.0	0.13	25.39
0.19	207.47	.214E+02	0.0	0.15	20.96
0.24	207.52	.335E+02	0.0	0.18	18.06
0.29	207.57	.483E+02	0.1	0.20	15.99
0.34	207.62	.657E+02	0.1	0.22	14.43
0.39	207.67	.858E+02	0.1	0.24	13.20
0.44	207.72	.109E+03	0.1	0.26	12.21
0.48	207.76	.134E+03	0.2	0.28	11.38
0.53	207.81	.162E+03	0.3	0.30	10.68
0.58	207.86	.193E+03	0.3	0.32	10.08
0.63	207.91	.227E+03	0.4	0.34	9.55
0.68	207.96	.295E+03	0.5	0.32	10.12
0.73	208.01	.613E+03	0.7	0.22	14.89
0.78	208.06	.103E+04	1.0	0.20	16.42
0.82	208.10	.150E+04	1.5	0.20	16.27
0.87	208.15	.204E+04	2.2	0.21	15.61
0.92	208.20	.264E+04	3.0	0.22	14.84

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4110)	148.50	5.45	4.17	68.52	0.91	0.22
OUTFLOW: ID= 1 (0885)	148.50	5.42	4.50	68.52	0.92	0.22

```
**** WARNING:  COMPUTATIONS FAILED TO CONVERGE.
```

CALIB			
NASHVD (0041)	Area (ha)=	25.40	Curve Number (CN)= 83.6
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.21	

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.858 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 61.197
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0894)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

CALIB			
NASHYD (0411)	Area (ha)=	4.50	Curve Number (CN)= 86.7
ID= 1 DT= 5.0 min	Ia (mm)=	5.84	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.11	

Unit Hyd Qpeak (cms)= 0.155

```

PEAK FLOW      (cms)=  0.169 (i)
TIME TO PEAK   (hrs)=  4.333
RUNOFF VOLUME  (mm)=  67.698
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.669

```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4110)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)

ID1= 1 (0411):	4.50	0.169	4.33	67.70
+ ID2= 2 (0886):	144.00	5.283	4.17	68.54
=====				
ID = 3 (4110):	148.50	5.453	4.17	68.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0885)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	208.48	0.0500
43.69	207.97	0.0500
66.92	207.94	0.0500
76.98	208.61	0.0500
87.94	208.25	0.0500
89.93	208.44	0.0500 / 0.0350
92.70	208.20	0.0350
95.51	207.28	0.0350
98.26	208.25	0.0350

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	207.33	.134E+01	0.0	0.06	52.81

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

		TRAVEL TIME TABLE			
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m)	(cms)	(m/s)	(min)
0.12	211.91	.523E+01	0.0	0.10	36.03
0.24	212.03	.209E+02	0.0	0.15	22.70
0.36	212.15	.471E+02	0.0	0.20	17.32
0.48	212.27	.837E+02	0.1	0.25	14.30
0.61	212.40	.131E+03	0.2	0.29	12.32
0.73	212.52	.412E+03	0.4	0.18	19.01
0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62
1.09	212.88	.328E+04	3.9	0.25	14.19
1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0041)	25.40	0.86	5.08	61.20	0.82	0.18
OUTFLOW : ID= 1 (0894)	25.40	0.85	5.33	61.20	0.82	0.18

CALIB			
NASHYD (0040)	Area (ha)=	37.50	Curve Number (CN)= 84.2
ID= 1 DT= 5.0 min	Ia (mm)=	7.14	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.98	

Model Without SWM Infrastructure - Output

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 1.335 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 62.427
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0040):	37.50	1.335	4.17	62.43
+ ID2= 2 (0094):	25.40	0.846	5.33	61.20
=====				
ID = 3 (4140):	62.90	2.148	4.75	61.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4101)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (4140):	62.90	2.148	4.75	61.93
+ ID2= 2 (0085):	148.50	5.422	4.50	68.52
=====				
ID = 3 (4101):	211.40	7.564	4.50	66.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0084)					
IN= 2---> OUT= 1		Routing time step (min)'= 5.00			
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	204.63	0.0400			
45.24	204.34	0.0400			
94.52	203.98	0.0400			
140.93	203.58	0.0400			
148.77	203.72	0.0400 / 0.0350	Main	Channel	
154.30	202.99	0.0350	Main	Channel	
158.02	203.77	0.0350 / 0.0400	Main	Channel	
174.30	203.79	0.0400			
222.94	204.38	0.0400			
285.62	204.03	0.0400			

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	203.04	.620E+01	0.0	0.11	58.30
0.10	203.09	.248E+02	0.0	0.17	36.73
0.16	203.15	.558E+02	0.0	0.22	28.03
0.21	203.20	.992E+02	0.1	0.27	23.14
0.26	203.25	.155E+03	0.1	0.31	19.94
0.31	203.30	.223E+03	0.2	0.35	17.66
0.37	203.36	.304E+03	0.3	0.39	15.93
0.42	203.41	.397E+03	0.5	0.42	14.58
0.47	203.46	.502E+03	0.6	0.46	13.47
0.52	203.51	.620E+03	0.8	0.49	12.56
0.57	203.56	.750E+03	1.1	0.52	11.79
0.63	203.62	.934E+03	1.3	0.53	11.56
0.68	203.67	.129E+04	1.7	0.50	12.36
0.73	203.72	.184E+04	2.3	0.47	13.20
0.79	203.78	.270E+04	3.4	0.47	13.22
0.85	203.84	.412E+04	5.1	0.45	13.57
0.92	203.91	.583E+04	7.3	0.47	13.24
0.98	203.97	.783E+04	10.3	0.49	12.69
1.04	204.03	.101E+05	13.9	0.51	12.15

<---- hydrograph ---->					
<-pipe / channel->					
		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (4101)		211.40	7.56	4.50	66.56
OUTFLOW: ID= 1 (0084)		211.40	7.53	4.83	66.55
		MAX DEPTH (m)	MAX VEL (m/s)		
		0.92	0.47		
		0.92	0.47		

CALIB				
NASHYD (0410)	Area (ha)	Ia (mm)	Curve Number (CN)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	8.50	6.46	85.5	3.00
U.H. Tp(hrs)=	0.94			

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.318 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 65.127
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.644

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4100)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0410):	8.50	0.318	3.92	65.13
+ ID2= 2 (0084):	211.40	7.529	4.83	66.55
=====				
ID = 3 (4100):	219.90	7.837	4.75	66.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0401)	Area (ha)	Ia (mm)	Curve Number (CN)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	23.00	7.74	83.1	3.00
U.H. Tp(hrs)=	0.78			

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.824 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 60.191
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.595

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4001)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0401):	23.00	0.824	3.67	60.19
+ ID2= 2 (4100):	219.90	7.837	4.75	66.50
=====				
ID = 3 (4001):	242.90	8.618	4.75	65.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4001)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (4001):	242.90	8.618	4.75	65.90
+ ID2= 2 (4200):	67.00	2.338	4.17	61.26
=====				
ID = 1 (4001):	309.90	10.928	4.67	64.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0080)				
IN= 2--> OUT= 1		Routing time step (min)'= 5.00		
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	204.63	0.0400		
45.24	204.34	0.0400		
94.52	203.98	0.0400		
140.93	203.58	0.0400		
148.77	203.72	0.0400 / 0.0350	Main Channel	
154.30	202.99	0.0350	Main Channel	
158.02	203.77	0.0350 / 0.0400	Main Channel	
174.30	203.79	0.0400		
222.94	204.38	0.0400		
285.62	204.03	0.0400		

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	203.04	.647E+01	0.0	0.11	59.17
0.10	203.09	.259E+02	0.0	0.17	37.28
0.16	203.15	.582E+02	0.0	0.23	28.45
0.21	203.20	.103E+03	0.1	0.27	23.48
0.26	203.25	.162E+03	0.1	0.32	20.24
0.31	203.30	.233E+03	0.2	0.36	17.92
0.37	203.36	.317E+03	0.3	0.40	16.17
0.42	203.41	.414E+03	0.5	0.43	14.79
0.47	203.46	.524E+03	0.6	0.47	13.68
0.52	203.51	.647E+03	0.8	0.50	12.75
0.57	203.56	.782E+03	1.1	0.54	11.96
0.63	203.62	.974E+03	1.4	0.55	11.73
0.68	203.67	.135E+04	1.8	0.51	12.55
0.73	203.72	.192E+04	2.4	0.48	13.39
0.79	203.78	.282E+04	3.5	0.48	13.41
0.85	203.84	.430E+04	5.2	0.47	13.77
0.92	203.91	.608E+04	7.5	0.48	13.44
0.98	203.97	.816E+04	10.6	0.50	12.88
1.04	204.03	.105E+05	14.2	0.52	12.33

<---- hydrograph ---->					
<-pipe / channel->					
		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (4001)		309.90	10.93	4.67	64.90
OUTFLOW: ID= 1 (0080)		309.90	10.89	4.92	64.90
		MAX DEPTH (m)	MAX VEL (m/s)		
		0.98	0.50		
		0.98	0.50		

Model Without SWM Infrastructure - Output

```
| CALIB
| NASHYD ( 0400) | Area (ha)= 27.60 Curve Number (CN)= 83.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.36 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.88
```

Unit Hyd Qpeak (cms)= 1.198

```
PEAK FLOW (cms)= 0.989 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 61.604
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.609
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4000) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
ID1= 1 ( 0400): 27.60 0.989 3.92 61.60
+ ID2= 2 ( 0800): 309.90 10.893 4.92 64.90
=====
ID = 3 ( 4000): 337.50 11.845 4.83 64.63
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0200) | Area (ha)= 25.60 Curve Number (CN)= 82.2
| ID= 1 DT= 5.0 min | Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.79
```

Unit Hyd Qpeak (cms)= 1.238

```
PEAK FLOW (cms)= 0.885 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 58.395
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.577
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0023) | Area (ha)= 7.00 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.73
```

Unit Hyd Qpeak (cms)= 0.366

```
PEAK FLOW (cms)= 0.253 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 59.986
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.593
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0022) | Area (ha)= 3.40 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.20
```

Unit Hyd Qpeak (cms)= 0.649

```
PEAK FLOW (cms)= 0.139 (i)
TIME TO PEAK (hrs)= 2.167
RUNOFF VOLUME (mm)= 61.216
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.605
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0211) | Area (ha)= 17.30 Curve Number (CN)= 81.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.76 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.02
```

Unit Hyd Qpeak (cms)= 0.648

```
PEAK FLOW (cms)= 0.558 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 56.642
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.560
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0021) | Area (ha)= 47.60 Curve Number (CN)= 84.6
| ID= 1 DT= 5.0 min | Ia (mm)= 6.93 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 1.955

```
PEAK FLOW (cms)= 1.734 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 63.248
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.625
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0871) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 / 0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 / 0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .241E+03 0.1 0.21 60.89
0.14 208.16 .678E+03 0.3 0.33 38.66
0.22 208.24 .127E+04 0.7 0.42 30.30
0.29 208.31 .201E+04 1.3 0.50 25.57
0.36 208.38 .290E+04 2.2 0.57 22.42
0.44 208.46 .405E+04 3.5 0.67 19.05
0.52 208.54 .537E+04 5.4 0.77 16.69
0.60 208.62 .690E+04 7.7 0.85 15.00
0.68 208.70 .866E+04 10.4 0.93 13.82
0.76 208.78 .106E+05 13.7 0.99 12.91
0.84 208.86 .128E+05 17.5 1.05 12.19
0.92 208.94 .159E+05 21.6 1.05 12.24
0.99 209.01 .197E+05 27.2 1.06 12.03
1.07 209.09 .238E+05 33.9 1.09 11.74
1.15 209.17 .284E+05 41.4 1.12 11.43
1.23 209.25 .333E+05 49.8 1.15 11.14
1.31 209.33 .386E+05 59.4 1.18 10.84
1.39 209.41 .444E+05 70.1 1.21 10.55
1.47 209.49 .506E+05 82.1 1.25 10.27
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0021) 47.60 1.73 4.00 63.25 0.32 0.53
OUTFLOW: ID= 1 ( 0871) 47.60 1.71 4.42 63.24 0.32 0.53
```

```
| ADD HYD ( 2110) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
ID1= 1 ( 0211): 17.30 0.558 4.58 56.64
+ ID2= 2 ( 0022): 3.40 0.139 2.17 61.22
=====
ID = 3 ( 2110): 20.70 0.668 4.83 57.39
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 2110) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
ID1= 3 ( 2110): 20.70 0.668 4.83 57.39
+ ID2= 2 ( 0871): 47.60 1.709 4.42 63.24
=====
ID = 1 ( 2110): 68.30 2.377 4.42 61.47
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0220) | Area (ha)= 20.30 Curve Number (CN)= 81.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.59 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.85
```

Unit Hyd Qpeak (cms)= 0.912

```
PEAK FLOW (cms)= 0.678 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 57.221
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.565
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

```
| CALIB
| NASHYD ( 0020) | Area (ha)= 12.60 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.72
```

Unit Hyd Qpeak (cms)= 0.668

```
PEAK FLOW (cms)= 0.447 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 58.796
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.581
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0875) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .311E+01 0.0 0.15 87.07
0.07 204.57 .124E+02 0.0 0.24 54.85
0.11 204.61 .280E+02 0.0 0.32 41.86
0.14 204.64 .497E+02 0.0 0.39 34.56
0.18 204.68 .777E+02 0.0 0.45 29.78
0.22 204.72 .112E+03 0.1 0.50 26.37
0.25 204.75 .152E+03 0.1 0.56 23.80
0.29 204.79 .199E+03 0.2 0.61 21.77
0.33 204.83 .252E+03 0.2 0.66 20.12
0.36 204.86 .311E+03 0.3 0.71 18.76
0.40 204.90 .376E+03 0.4 0.76 17.60
0.43 204.93 .505E+03 0.5 0.72 18.44
0.47 204.97 .892E+03 0.6 0.58 23.04
0.51 205.01 .149E+04 1.0 0.53 24.97
0.54 205.04 .225E+04 1.5 0.54 24.74
0.58 205.08 .315E+04 2.2 0.56 23.71
```

```
127.96 209.50 0.0300
158.58 209.70 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.03 208.90 .560E+01 0.0 0.10 69.11
0.07 208.94 .224E+02 0.0 0.17 43.54
0.10 208.97 .504E+02 0.0 0.22 33.23
0.13 209.00 .896E+02 0.1 0.26 27.43
0.17 209.04 .140E+03 0.1 0.31 23.64
0.20 209.07 .202E+03 0.2 0.35 20.93
0.23 209.10 .274E+03 0.2 0.38 18.89
0.26 209.13 .358E+03 0.3 0.42 17.28
0.30 209.17 .454E+03 0.5 0.45 15.97
0.33 209.20 .560E+03 0.6 0.49 14.89
0.37 209.24 .938E+03 0.9 0.43 16.68
0.40 209.27 .155E+04 1.5 0.41 17.48
0.44 209.31 .231E+04 2.3 0.42 17.04
0.47 209.34 .321E+04 3.3 0.44 16.25
0.51 209.38 .425E+04 4.6 0.47 15.39
0.54 209.41 .544E+04 6.1 0.49 14.80
0.58 209.45 .686E+04 7.9 0.50 14.38
0.61 209.48 .853E+04 10.3 0.52 13.85
0.65 209.52 .104E+05 13.2 0.55 13.23
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2101) 101.20 3.48 4.33 60.28 0.48 0.45
OUTFLOW: ID= 1 ( 0870) 101.20 3.47 4.67 60.28 0.48 0.45
```

```
| CALIB
| NASHYD ( 0210) | Area (ha)= 9.10 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.64
```

Unit Hyd Qpeak (cms)= 0.543

```
PEAK FLOW (cms)= 0.329 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 58.594
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.579
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
0.61 205.11 .421E+04 3.1 0.59 22.46
0.65 205.15 .543E+04 4.3 0.63 21.21
0.69 205.19 .679E+04 5.6 0.66 20.05
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0020) 12.60 0.45 3.58 58.80 0.43 0.73
OUTFLOW: ID= 1 ( 0875) 12.60 0.44 4.00 58.76 0.43 0.73
```

```
| ADD HYD ( 2200) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0220): 20.30 0.678 4.00 57.22
+ ID2= 2 ( 0875): 12.60 0.438 4.00 58.76
=====
ID = 3 ( 2200): 32.90 1.116 4.00 57.81
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 2101) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 2110): 68.30 2.377 4.42 61.47
+ ID2= 2 ( 2200): 32.90 1.116 4.00 57.81
=====
ID = 3 ( 2101): 101.20 3.483 4.33 60.28
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0870) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.52 0.0400
61.99 209.23 0.0400
76.86 209.20 0.0400
82.03 209.20 0.0400 /0.0350 Main Channel
86.30 208.87 0.0350 Main Channel
89.86 209.20 0.0350 /0.0300 Main Channel
96.27 209.24 0.0300
103.53 209.40 0.0300
```

```
| ADD HYD ( 2100) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0210): 9.10 0.329 3.42 58.59
+ ID2= 2 ( 0870): 101.20 3.466 4.67 60.28
=====
ID = 3 ( 2100): 110.30 3.767 4.58 60.14
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0230) | Area (ha)= 24.70 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.82
```

Unit Hyd Qpeak (cms)= 1.151

```
PEAK FLOW (cms)= 0.869 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 59.791
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.591
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0231) | Area (ha)= 29.50 Curve Number (CN)= 81.9
| ID= 1 DT= 5.0 min | Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 1.266

```
PEAK FLOW (cms)= 0.988 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 57.806
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.571
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0240) | Area (ha)= 10.10 Curve Number (CN)= 82.0
| ID= 1 DT= 5.0 min | Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
|-----|
```

Model Without SWM Infrastructure - Output

----- U.H. Tp(hrs)= 0.74

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.351 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 58.004
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.573

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0241) | Area (ha)= 26.70 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.75

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 0.936 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 58.595
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.579

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0864) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV. TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .118E+02 0.0 0.27 29.62

0.24	212.03	.471E+02	0.0	0.42	18.66
0.36	212.15	.106E+03	0.1	0.56	14.24
0.48	212.27	.188E+03	0.3	0.67	11.76
0.61	212.40	.294E+03	0.5	0.78	10.13
0.73	212.52	.928E+03	1.0	0.51	15.63
0.85	212.64	.260E+04	2.7	0.50	15.93
0.97	212.76	.477E+04	5.8	0.58	13.67
1.09	212.88	.739E+04	10.6	0.68	11.67
1.21	213.00	.103E+05	17.1	0.79	10.01
1.33	213.12	.133E+05	25.0	0.89	8.85
1.45	213.24	.165E+05	34.4	0.99	8.00
1.57	213.36	.200E+05	45.3	1.08	7.34
1.70	213.49	.236E+05	57.6	1.16	6.82
1.82	213.61	.274E+05	71.4	1.24	6.39
1.94	213.73	.314E+05	86.8	1.31	6.02
2.06	213.85	.355E+05	104.6	1.40	5.66
2.18	213.97	.398E+05	124.9	1.49	5.31
2.37	214.16	.481E+05	161.2	1.59	4.97

	AREA (ha)	<---- hydrograph ----> QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<-pipe / channel-> MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0241)	26.70	0.94	3.58	58.59	0.71	0.53
OUTFLOW: ID= 1 (0864)	26.70	0.92	4.17	58.59	0.71	0.53

| ADD HYD (2301) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0231): 29.50 0.988 4.08 57.81
+ ID2= 2 (0240): 10.10 0.351 3.58 58.00
=====

ID = 3 (2301): 39.60 1.334 3.92 57.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (2301) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 (2301): 39.60 1.334 3.92 57.86
+ ID2= 2 (0864): 26.70 0.919 4.17 58.59
=====

ID = 1 (2301): 66.30 2.251 4.08 58.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0863) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 /0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 /0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 /0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV. TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .138E+01 0.0 0.11 58.11
0.09 205.28 .551E+01 0.0 0.18 36.61
0.13 205.32 .124E+02 0.0 0.23 27.94
0.17 205.36 .220E+02 0.0 0.28 23.06
0.22 205.41 .344E+02 0.0 0.33 19.87
0.26 205.45 .496E+02 0.0 0.37 17.60
0.31 205.50 .675E+02 0.1 0.41 15.88
0.35 205.54 .882E+02 0.1 0.45 14.53
0.39 205.58 .112E+03 0.1 0.48 13.43
0.44 205.63 .138E+03 0.2 0.52 12.52
0.48 205.67 .167E+03 0.2 0.55 11.81
0.52 205.71 .212E+03 0.2 0.44 14.65
0.57 205.76 .285E+03 0.3 0.43 15.23
0.61 205.80 .388E+03 0.4 0.44 14.79
0.66 205.85 .519E+03 0.6 0.47 13.99
0.70 205.89 .679E+03 0.9 0.50 13.12
0.74 205.93 .868E+03 1.2 0.53 12.29
0.79 205.98 .109E+04 1.6 0.56 11.53
0.83 206.02 .133E+04 2.0 0.60 10.85

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA (ha)	<---- hydrograph ----> QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<-pipe / channel-> MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2301)	66.30	2.25	4.08	58.15	0.83	0.60
OUTFLOW: ID= 1 (0863)	66.30	2.24	4.33	58.15	0.83	0.60

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

| ADD HYD (2300) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0230): 24.70 0.869 3.75 59.79
+ ID2= 2 (0863): 66.30 2.245 4.33 58.15
=====

ID = 3 (2300): 91.00 3.103 4.17 58.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (2011) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (2100): 110.30 3.767 4.58 60.14
+ ID2= 2 (2300): 91.00 3.103 4.17 58.60
=====

ID = 3 (2011): 201.30 6.852 4.42 59.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0862) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 204.63 0.0400
45.24 204.34 0.0400
94.52 203.98 0.0400
140.93 203.58 0.0400
148.77 203.72 0.0400 /0.0350 Main Channel
154.30 202.99 0.0350 Main Channel
158.02 203.77 0.0350 /0.0400 Main Channel
174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV. TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 203.04 .465E+01 0.0 0.10 47.86
0.10 203.09 .186E+02 0.0 0.15 30.15
0.16 203.15 .418E+02 0.0 0.20 23.01
0.21 203.20 .744E+02 0.1 0.24 18.99
0.26 203.25 .116E+03 0.1 0.28 16.37
0.31 203.30 .167E+03 0.2 0.32 14.50
0.37 203.36 .228E+03 0.3 0.35 13.08

Model Without SWM Infrastructure - Output

0.42	203.41	.297E+03	0.4	0.39	11.97
0.47	203.46	.376E+03	0.6	0.42	11.06
0.52	203.51	.465E+03	0.8	0.45	10.31
0.57	203.56	.562E+03	1.0	0.48	9.68
0.63	203.62	.700E+03	1.2	0.49	9.49
0.68	203.67	.969E+03	1.6	0.45	10.15
0.73	203.72	.138E+04	2.1	0.43	10.83
0.79	203.78	.203E+04	3.1	0.43	10.85
0.85	203.84	.309E+04	4.6	0.41	11.14
0.92	203.91	.437E+04	6.7	0.42	10.87
0.98	203.97	.586E+04	9.4	0.44	10.42
1.04	204.03	.757E+04	12.7	0.46	9.97

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<-pipe / channel-> MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2011)	201.30	6.85	4.42	59.44	0.92	0.43
OUTFLOW: ID= 1 (0862)	201.30	6.83	4.67	59.44	0.92	0.43

CALIB	Area (ha)=	8.20	Curve Number (CN)=	82.6
NASHYD (0201)	Ia (mm)=	8.02	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.60		

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.303 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 59.190
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.585

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2010)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0201):	8.20	0.303	3.33	59.19
+ ID2= 2 (0023):	7.00	0.253	3.58	59.99
=====				
ID = 3 (2010):	15.20	0.555	3.42	59.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2010)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 (2010):	15.20	0.555	3.42	59.56
+ ID2= 2 (0862):	201.30	6.830	4.67	59.44
=====				
ID = 1 (2010):	216.50	7.339	4.67	59.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0860)	Routing time step (min)'=	5.00
IN= 2---- OUT= 1		
<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	208.48	0.0500
43.69	207.97	0.0500
66.92	207.94	0.0500
76.98	208.01	0.0500
87.94	208.25	0.0500
89.93	208.44	0.0500 / 0.0350
92.70	208.20	0.0350
95.51	207.28	0.0350
98.26	208.25	0.0350

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	207.33	.155E+01	0.0	0.16	23.32
0.10	207.38	.620E+01	0.0	0.25	14.69
0.15	207.43	.140E+02	0.0	0.33	11.21
0.19	207.47	.248E+02	0.0	0.40	9.26
0.24	207.52	.388E+02	0.1	0.47	7.98
0.29	207.57	.558E+02	0.1	0.53	7.06
0.34	207.62	.760E+02	0.2	0.59	6.37
0.39	207.67	.992E+02	0.3	0.64	5.83
0.44	207.72	.126E+03	0.4	0.69	5.39
0.48	207.76	.155E+03	0.5	0.74	5.03
0.53	207.81	.188E+03	0.7	0.79	4.72
0.58	207.86	.223E+03	0.8	0.84	4.45
0.63	207.91	.262E+03	1.0	0.88	4.22
0.68	207.96	.341E+03	1.3	0.83	4.47
0.73	208.01	.708E+03	1.8	0.57	6.58
0.78	208.06	.119E+04	2.7	0.51	7.25
0.82	208.10	.174E+04	4.0	0.52	7.19
0.87	208.15	.236E+04	5.7	0.54	6.89
0.92	208.20	.305E+04	7.8	0.57	6.55

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<-pipe / channel-> MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2010)	216.50	7.34	4.67	59.45	0.91	0.56
OUTFLOW: ID= 1 (0860)	216.50	7.34	4.75	59.45	0.91	0.56

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2000)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0200):	25.60	0.885	3.75	58.39
+ ID2= 2 (0860):	216.50	7.335	4.75	59.45
=====				
ID = 3 (2000):	242.10	8.187	4.67	59.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	36.80	Curve Number (CN)=	83.1
NASHYD (0300)	Ia (mm)=	7.74	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.90		

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 1.282 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 60.191
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.595

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	3.00	Curve Number (CN)=	82.5
NASHYD (0031)	Ia (mm)=	5.38	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.62		

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.114 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 61.331
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.606

CALIB	Area (ha)=	1.50	Curve Number (CN)=	83.2
NASHYD (0350)	Ia (mm)=	7.69	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.38		

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.059 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 60.379
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.597

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0850)	Routing time step (min)'=	5.00
IN= 2---- OUT= 1		
<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.300E+01	0.0	0.15	86.75
0.07	204.57	.120E+02	0.0	0.24	54.65
0.11	204.61	.270E+02	0.0	0.31	41.70
0.14	204.64	.480E+02	0.0	0.37	34.42
0.18	204.68	.750E+02	0.0	0.43	29.67
0.22	204.72	.108E+03	0.1	0.49	26.27
0.25	204.75	.147E+03	0.1	0.54	23.71
0.29	204.79	.192E+03	0.1	0.59	21.69
0.33	204.83	.243E+03	0.2	0.64	20.05
0.36	204.86	.300E+03	0.3	0.69	18.69
0.40	204.90	.363E+03	0.3	0.73	17.54

Model Without SWM Infrastructure - Output

0.43	204.93	.488E+03	0.4	0.70	18.37
0.47	204.97	.860E+03	0.6	0.56	22.95
0.51	205.01	.144E+04	1.0	0.52	24.88
0.54	205.04	.217E+04	1.5	0.52	24.65
0.58	205.08	.304E+04	2.1	0.54	23.62
0.61	205.11	.407E+04	3.0	0.57	22.38
0.65	205.15	.524E+04	4.1	0.61	21.13
0.69	205.19	.656E+04	5.5	0.64	19.97

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0350)	1.50	0.06	3.17	60.38	0.20	0.47
OUTFLOW: ID= 1 (0850)	1.50	0.06	3.42	60.06	0.20	0.46

CALIB						
NASHYD (0032)	Area (ha)=	28.00	Curve Number (CN)=	83.4		
ID= 1 DT= 5.0 min	Ia (mm)=	7.58	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.95				

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.976 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 60.791
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.601

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3200)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0032):	28.00	0.976	4.17	60.79		
+ ID2= 2 (0850):	1.50	0.056	3.42	60.06		
ID = 3 (3200):	29.50	1.028	4.17	60.75		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB						
NASHYD (0301)	Area (ha)=	59.40	Curve Number (CN)=	82.7		
ID= 1 DT= 5.0 min	Ia (mm)=	7.97	# of Linear Res.(N)=	3.00		

U.H. Tp(hrs)= 1.23

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 1.951 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 59.385
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.587

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3010)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0301):	59.40	1.951	5.17	59.38		
+ ID2= 2 (3200):	29.50	1.028	4.17	60.75		
ID = 3 (3010):	88.90	2.951	4.92	59.84		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (3001)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (3010):	88.90	2.951	4.92	59.84		
+ ID2= 2 (0031):	3.00	0.114	3.33	61.33		
ID = 3 (3001):	91.90	3.051	4.92	59.89		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0852)						
IN= 2---> OUT= 1	Routing time step (min)'=	5.00				
<----- DATA FOR SECTION (1.1) ----->	Distance	Elevation	Manning			
	0.00	209.20	0.0400			
	100.00	206.26	0.0400			
	111.30	206.19	0.0400 / 0.0350	Main Channel		
	112.02	205.76	0.0350	Main Channel		
	113.82	205.37	0.0350	Main Channel		
	115.62	206.03	0.0350 / 0.0400	Main Channel		
	117.77	207.30	0.0400			
	120.56	207.40	0.0400			

124.41	207.31	0.0400
129.31	207.24	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	205.46	.132E+02	0.0	0.21	32.83
0.19	205.56	.529E+02	0.0	0.33	20.68
0.28	205.65	.119E+03	0.1	0.43	15.78
0.38	205.75	.212E+03	0.3	0.52	13.03
0.47	205.84	.327E+03	0.5	0.62	10.84
0.57	205.94	.458E+03	0.8	0.72	9.42
0.66	206.03	.604E+03	1.2	0.80	8.44
0.76	206.13	.777E+03	1.7	0.91	7.41
0.86	206.23	.102E+04	2.4	0.97	6.97
0.96	206.33	.168E+04	3.6	0.87	7.76
1.06	206.43	.252E+04	5.4	0.87	7.80
1.16	206.53	.350E+04	7.7	0.89	7.56
1.26	206.63	.463E+04	10.7	0.93	7.24
1.37	206.74	.590E+04	14.3	0.98	6.90
1.47	206.84	.732E+04	18.6	1.03	6.58
1.57	206.94	.889E+04	23.6	1.08	6.28
1.67	207.04	.106E+05	29.5	1.13	6.00
1.77	207.14	.125E+05	36.1	1.17	5.75
1.87	207.24	.145E+05	43.7	1.22	5.52

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (3001)	91.90	3.05	4.92	59.89	0.91	0.92
OUTFLOW: ID= 1 (0852)	91.90	3.05	5.08	59.89	0.91	0.92

ADD HYD (3000)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0300):	36.80	1.282	4.00	60.19		
+ ID2= 2 (0852):	91.90	3.049	5.08	59.89		
ID = 3 (3000):	128.70	4.297	4.67	59.97		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB						
NASHYD (0030)	Area (ha)=	1.10	Curve Number (CN)=	81.5		
ID= 1 DT= 5.0 min	Ia (mm)=	5.76	# of Linear Res.(N)=	3.00		

U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.043 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 59.473
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.588

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0854)						
IN= 2---> OUT= 1	Routing time step (min)'=	5.00				
<----- DATA FOR SECTION (1.1) ----->	Distance	Elevation	Manning			
	0.00	206.00	0.0400			
	33.24	205.47	0.0400			
	44.39	205.59	0.0400			
	48.71	205.45	0.0400 / 0.0350	Main Channel		
	51.02	204.50	0.0350	Main Channel		
	54.33	205.44	0.0350 / 0.0400	Main Channel		
	55.90	204.97	0.0400			
	62.96	204.91	0.0400			
	102.92	205.20	0.0400			

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

Model Without SWM Infrastructure - Output

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0030) 1.10 0.04 3.08 59.47 0.17 0.49
OUTFLOW: ID= 1 ( 0854) 1.10 0.04 3.17 59.46 0.17 0.49
```

```
-----
| CALIB |
| NASHYD ( 0340) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 21.00 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.762 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 59.587
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 3400) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0340): 21.00 0.762 3.50 59.59
+ ID2= 2 ( 0854): 1.10 0.043 3.17 59.46
=====
ID = 3 ( 3400): 22.10 0.802 3.42 59.58
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0123) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 24.60 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 0.846 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 59.791
TOTAL RAINFALL (mm)= 101.200

RUNOFF COEFFICIENT = 0.591

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0814) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .923E+01 0.0 0.26 23.49
0.24 212.03 .369E+02 0.0 0.42 14.80
0.36 212.15 .831E+02 0.1 0.55 11.29
0.48 212.27 .148E+03 0.3 0.67 9.32
0.61 212.40 .231E+03 0.5 0.77 8.03
0.73 212.52 .727E+03 1.0 0.50 12.40
0.85 212.64 .204E+04 2.7 0.49 12.63
0.97 212.76 .374E+04 5.7 0.57 10.84
1.09 212.88 .580E+04 10.4 0.67 9.25
1.21 213.00 .804E+04 16.9 0.78 7.94
1.33 213.12 .104E+05 24.8 0.88 7.02
1.45 213.24 .130E+05 34.1 0.98 6.35
1.57 213.36 .157E+05 44.8 1.07 5.82
1.70 213.49 .185E+05 57.0 1.15 5.41
1.82 213.61 .215E+05 70.6 1.23 5.06
1.94 213.73 .246E+05 85.8 1.30 4.78
2.06 213.85 .278E+05 103.5 1.38 4.49
2.18 213.97 .312E+05 123.5 1.48 4.21
2.37 214.16 .377E+05 159.4 1.57 3.94
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0123) 24.60 0.85 4.17 59.79 0.69 0.55
OUTFLOW: ID= 1 ( 0814) 24.60 0.84 4.50 59.79 0.69 0.55
```

```
-----
| CALIB |
| NASHYD ( 0124) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 24.30 Curve Number (CN)= 85.8
Ia (mm)= 6.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.51
```

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 1.025 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 65.764
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.650

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0813) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .168E+02 0.0 0.26 43.17
0.24 212.03 .671E+02 0.0 0.41 27.20
0.36 212.15 .151E+03 0.1 0.54 20.76
0.48 212.27 .268E+03 0.3 0.66 17.13
0.61 212.40 .419E+03 0.5 0.76 14.77
0.73 212.52 .132E+04 1.0 0.50 22.79
0.85 212.64 .370E+04 2.7 0.49 23.22
0.97 212.76 .679E+04 5.7 0.57 19.92
1.09 212.88 .105E+05 10.3 0.66 17.01
1.21 213.00 .146E+05 16.7 0.77 14.59
1.33 213.12 .189E+05 24.5 0.87 12.90
```

```
1.45 213.24 .236E+05 33.7 0.97 11.66
1.57 213.36 .284E+05 44.3 1.05 10.70
1.70 213.49 .336E+05 56.3 1.14 9.94
1.82 213.61 .390E+05 69.8 1.21 9.31
1.94 213.73 .447E+05 84.8 1.28 8.78
2.06 213.85 .506E+05 102.3 1.37 8.24
2.18 213.97 .566E+05 122.0 1.46 7.73
2.37 214.16 .685E+05 157.6 1.56 7.25
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0124) 24.30 1.03 3.17 65.76 0.73 0.49
OUTFLOW: ID= 1 ( 0813) 24.30 0.97 3.75 65.75 0.73 0.50
```

```
-----
| ADD HYD ( 1221) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0813): 24.30 0.966 3.75 65.75
+ ID2= 2 ( 0814): 24.60 0.841 4.50 59.79
=====
ID = 3 ( 1221): 48.90 1.781 4.00 62.75
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0812) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .533E+02 0.1 0.24 12.01
```

Model Without SWM Infrastructure - Output

0.14	208.16	.150E+03	0.3	0.37	7.63
0.22	208.24	.280E+03	0.8	0.47	5.98
0.29	208.31	.444E+03	1.5	0.56	5.04
0.36	208.38	.642E+03	2.4	0.64	4.42
0.44	208.46	.896E+03	4.0	0.75	3.76
0.52	208.54	.119E+04	6.0	0.86	3.29
0.60	208.62	.153E+04	8.6	0.96	2.96
0.68	208.70	.192E+04	11.7	1.04	2.73
0.76	208.78	.235E+04	15.4	1.11	2.55
0.84	208.86	.283E+04	19.6	1.18	2.41
0.92	208.94	.351E+04	24.2	1.17	2.41
0.99	209.01	.435E+04	30.6	1.19	2.37
1.07	209.09	.528E+04	38.0	1.22	2.31
1.15	209.17	.628E+04	46.4	1.26	2.26
1.23	209.25	.737E+04	55.9	1.29	2.20
1.31	209.33	.855E+04	66.6	1.33	2.14
1.39	209.41	.982E+04	78.7	1.36	2.08
1.47	209.49	.112E+05	92.1	1.40	2.03

+ ID2= 2 (0812):	48.90	1.780	4.08	62.75
=====				
ID = 3 (1220):	80.70	2.950	4.08	63.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

ROUTE CHN( 0811) |
| IN= 2 --> OUT= 1 |
-----|-----
          <----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00           206.50         0.0400
29.68          206.77         0.0400
43.70           206.13         0.0400 / 0.0350  Main Channel
44.99           205.95         0.0350           Main Channel
47.70           206.24         0.0350 / 0.0450  Main Channel
60.54           206.32         0.0450
80.11           206.99         0.0450
102.29          207.42         0.0450 / 0.0400
132.78          206.84         0.0400

```

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	206.01	.147E+02	0.0	0.14	60.26
0.12	206.07	.599E+02	0.0	0.22	37.96
0.18	206.13	.133E+03	0.1	0.29	28.97
0.26	206.21	.302E+03	0.2	0.36	22.81
0.34	206.29	.671E+03	0.5	0.39	21.40
0.42	206.37	.151E+04	1.2	0.39	20.95
0.50	206.45	.254E+04	2.3	0.45	18.38
0.58	206.53	.376E+04	3.7	0.49	16.98
0.66	206.61	.544E+04	5.6	0.51	16.11
0.74	206.69	.764E+04	8.4	0.54	15.19
0.83	206.78	.104E+05	12.1	0.58	14.27
0.91	206.86	.134E+05	17.4	0.64	12.84
0.99	206.94	.166E+05	23.6	0.71	11.71
1.07	207.02	.201E+05	30.7	0.76	10.88
1.15	207.10	.239E+05	38.8	0.81	10.26
1.23	207.18	.280E+05	48.0	0.85	9.72
1.31	207.26	.325E+05	58.5	0.89	9.26
1.39	207.34	.373E+05	70.3	0.94	8.84
1.47	207.42	.424E+05	83.4	0.98	8.48

		<---- hydrograph ---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (1220)	80.70	2.95	4.08	63.36	0.54	0.47	
OUTFLOW: ID= 1 (0811)	80.70	2.92	4.42	63.35	0.54	0.47	

CALIB			
NASHVD (0122)	Area (ha)=	31.80	Curve Number (CN)= 85.1
ID= 1 DT= 5.0 min	Ia (mm)=	6.67	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.96	

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 1.170 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 64.286
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.635

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1220)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
-----	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0122):	31.80	1.170	4.00	64.29

CALIB			
NASHDY (0121)	Area (ha)=	16.10	Curve Number (CN)= 86.5
ID= 1 DT= 5.0 min	Ia (mm)=	5.94	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.89	

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.632 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 67.267
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.665

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1210)				
1 + 2 = 3				

ID1= 1 (0121):	16.10	0.632	3.75	67.27
+ ID2= 2 (0811):	80.70	2.923	4.42	63.35
=====				
ID = 3 (1210):	96.80	3.538	4.33	64.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB		
NASHYD (0146)	Area (ha)= 12.80	Curve Number (CN)= 83.0
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.55	

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.486 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 59.985
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.593

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0844) |

| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m)	(cms)	(m/s)	(min)
0.04	207.56	.107E+01	0.0	0.13	37.04
0.08	207.60	.439E+01	0.0	0.20	23.33
0.12	207.64	.966E+01	0.0	0.27	17.81
0.16	207.68	.172E+02	0.0	0.32	14.70
0.19	207.71	.268E+02	0.0	0.38	12.67
0.23	207.75	.387E+02	0.1	0.42	11.22
0.27	207.79	.526E+02	0.1	0.47	10.12
0.31	207.83	.687E+02	0.1	0.51	9.26
0.35	207.87	.879E+02	0.2	0.56	8.56
0.39	207.91	.107E+03	0.2	0.60	7.98
0.43	207.95	.139E+03	0.3	0.64	7.49
0.47	207.99	.155E+03	0.4	0.67	7.07
0.50	208.02	.181E+03	0.5	0.71	6.70
0.54	208.06	.219E+03	0.6	0.75	6.38
0.58	208.10	.242E+03	0.7	0.78	6.09
0.62	208.14	.275E+03	0.8	0.82	5.83
0.67	208.19	.329E+03	1.0	0.87	5.50
0.72	208.24	.413E+03	1.3	0.89	5.36
0.77	208.29	.540E+03	1.7	0.87	5.45

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0146)	12.80	0.49	3.25	59.98	0.52	0.72
OUTFLOW: ID= 1 (0844)	12.80	0.48	3.33	59.98	0.52	0.72

CALIB			
NASHYD (0145)	Area (ha)=	12.60	Curve Number (CN)= 83.3
ID= 1 DT= 5.0 min	Ia (mm)=	7.63	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.59	

Unit Hyd Qpeak (cms)= 0.816

Model Without SWM Infrastructure - Output

PEAK FLOW (cms)= 0.479 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 60.592
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.599

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1450)					
1	2	3	AREA	QPEAK	TPEAK
			(ha)	(cms)	(hrs)
ID1= 1 (0145):	12.60	0.479	3.33	60.59	
+ ID2= 2 (0844):	12.80	0.484	3.33	59.98	
=====					
ID = 3 (1450):	25.40	0.963	3.33	60.28	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0843)	
IN= 2-->	OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.144E+02	0.0	0.23	42.45
0.24	212.03	.578E+02	0.0	0.36	26.74
0.36	212.15	.130E+03	0.1	0.48	20.41
0.48	212.27	.231E+03	0.2	0.58	16.85
0.61	212.40	.361E+03	0.4	0.67	14.52
0.73	212.52	.114E+04	0.8	0.43	22.41
0.85	212.64	.319E+04	2.3	0.43	22.83
0.97	212.76	.585E+04	5.0	0.50	19.59
1.09	212.88	.907E+04	9.0	0.58	16.72

1.21	213.00	.126E+05	14.6	0.68	14.34
1.33	213.12	.163E+05	21.4	0.77	12.69
1.45	213.24	.203E+05	29.5	0.85	11.47
1.57	213.36	.245E+05	38.8	0.92	10.52
1.70	213.49	.289E+05	49.3	0.99	9.77
1.82	213.61	.336E+05	61.2	1.06	9.15
1.94	213.73	.385E+05	74.3	1.13	8.63
2.06	213.85	.436E+05	89.6	1.20	8.11
2.18	213.97	.488E+05	106.9	1.28	7.61
2.37	214.16	.590E+05	138.1	1.36	7.13

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1450)	25.40	0.96	3.33	60.28	0.74
OUTFLOW: ID= 1 (0843)	25.40	0.92	3.83	60.28	0.73

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.977 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 59.791
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.591

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1440)					
1	2	3	AREA	QPEAK	TPEAK
			(ha)	(cms)	(hrs)
ID1= 1 (0144):	28.60	0.977	4.25	59.79	
+ ID2= 2 (0843):	25.40	0.915	3.83	60.28	
=====					
ID = 3 (1440):	54.00	1.885	4.00	60.02	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0842)	

IN= 2--> OUT= 1	

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.70	0.0400		
2.35	206.02	0.0400 / 0.0350	Main Channel	
5.23	205.19	0.0350	Main Channel	
5.34	205.67	0.0350	Main Channel	
19.05	206.06	0.0350 / 0.0400	Main Channel	
21.11	206.05	0.0400		
22.02	206.13	0.0400 / 0.0350		
40.10	206.15	0.0350		
56.50	206.04	0.0350		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.149E+01	0.0	0.09	81.67
0.09	205.28	.594E+01	0.0	0.14	51.45
0.13	205.32	.134E+02	0.0	0.18	39.26
0.17	205.36	.238E+02	0.0	0.22	32.41
0.22	205.41	.371E+02	0.0	0.25	27.93
0.26	205.45	.535E+02	0.0	0.28	24.73
0.31	205.50	.728E+02	0.1	0.31	22.32
0.35	205.54	.950E+02	0.1	0.34	20.42
0.39	205.58	.120E+03	0.1	0.37	18.87
0.44	205.63	.149E+03	0.1	0.40	17.59
0.48	205.67	.180E+03	0.2	0.42	16.60
0.52	205.71	.228E+03	0.2	0.34	20.59
0.57	205.76	.308E+03	0.2	0.33	21.41
0.61	205.80	.418E+03	0.3	0.34	20.79
0.66	205.85	.560E+03	0.5	0.36	19.66
0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24

**** WARNING: TRAVEL TIME TABLE EXCEEDED

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1440)	54.00	1.88	4.00	60.02	0.83
OUTFLOW: ID= 1 (0842)	54.00	1.87	4.33	60.02	0.83

CALIB	
NASHYD (0143)	Area (ha)= 27.70 Curve Number (CN)= 82.9
ID= 1 DT= 5.0 min	Ia (mm)= 7.85 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 1.07

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)= 0.932 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 59.791
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.591

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)					
1	2	3	AREA	QPEAK	TPEAK
			(ha)	(cms)	(hrs)
ID1= 1 (0143):	27.70	0.932	4.58	59.79	
+ ID2= 2 (0842):	54.00	1.870	4.33	60.02	
=====					
ID = 3 (1430):	81.70	2.801	4.42	59.94	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0841)	
IN= 2-->	OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.66	0.0400		
19.50	209.34	0.0400		
37.91	208.66	0.0400		
41.73	208.62	0.0400 / 0.0350	Main Channel	
43.44	208.24	0.0350	Main Channel	
45.75	208.62	0.0350 / 0.0450	Main Channel	
54.00	208.79	0.0450 / 0.0400		
77.43	209.05	0.0400		
128.85	209.70	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.216E+02	0.0	0.15	113.45
0.13	208.37	.864E+02	0.0	0.24	71.47
0.19	208.43	.194E+03	0.1	0.31	54.54
0.25	208.49	.345E+03	0.1	0.38	45.02
0.32	208.56	.540E+03	0.2	0.44	38.80
0.38	208.62	.777E+03	0.4	0.49	34.36
0.46	208.70	.152E+04	0.7	0.50	33.99

Model Without SWM Infrastructure - Output

0.54	208.78	.281E+04	1.4	0.50	33.61
0.62	208.86	.469E+04	2.5	0.53	31.90
0.70	208.94	.734E+04	4.0	0.56	30.28
0.78	209.02	.107E+05	6.3	0.59	28.55
0.86	209.10	.149E+05	9.3	0.63	26.78
0.94	209.18	.198E+05	13.1	0.68	25.09
1.02	209.26	.253E+05	17.9	0.72	23.58
1.10	209.34	.315E+05	23.6	0.76	22.24
1.18	209.42	.386E+05	30.0	0.79	21.42
1.26	209.50	.465E+05	37.7	0.82	20.56
1.34	209.58	.554E+05	46.8	0.86	19.73
1.42	209.66	.652E+05	57.3	0.90	18.94

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1430)	81.70	2.80	4.42	59.94	0.64	0.54
OUTFLOW: ID= 1 (0841)	81.70	2.74	5.25	59.93	0.63	0.54

CALIB	
NASHYD (0142)	Area (ha)= 27.10 Curve Number (CN)= 82.9
ID= 1 DT= 5.0 min	Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.22

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 0.896 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 59.792
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.591

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0142):	27.10	0.896	5.17	59.79
+ ID2= 2 (0841):	81.70	2.740	5.25	59.93
=====				
ID = 3 (1420):	108.80	3.635	5.17	59.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350 Main Channel
86.30	208.87	0.0350 Main Channel
89.86	209.20	0.0350 / 0.0300 Main Channel
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.706E+01	0.0	0.08	110.24
0.07	208.94	.282E+02	0.0	0.13	69.44
0.10	208.97	.636E+02	0.0	0.17	53.00
0.13	209.00	.113E+03	0.0	0.21	43.75
0.17	209.04	.177E+03	0.1	0.24	37.70
0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75
0.37	209.24	.118E+04	0.7	0.34	26.61
0.40	209.27	.196E+04	1.2	0.33	27.88
0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61
0.58	209.45	.865E+04	6.3	0.40	22.94
0.61	209.48	.108E+05	8.1	0.41	22.09
0.65	209.52	.132E+05	10.4	0.43	21.10

<----- hydrograph ----->		<-pipe / channel->				
AREA	QPEAK	TPEAK	R.V.			
(ha)	(cms)	(hrs)	(mm)			
INFLOW : ID= 2 (1420)	108.80	3.63	5.17	59.90	0.51	0.37
OUTFLOW: ID= 1 (0840)	108.80	3.60	5.58	59.89	0.51	0.37

CALIB

NASHYD (0141)	Area (ha)= 8.10 Curve Number (CN)= 83.6
ID= 1 DT= 5.0 min	Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.78

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.295 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 61.196
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1410)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0141):	8.10	0.295	3.67	61.20
+ ID2= 2 (0840):	108.80	3.596	5.58	59.89
=====				
ID = 3 (1410):	116.90	3.855	5.42	59.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0151)	Area (ha)= 24.60 Curve Number (CN)= 82.8
ID= 1 DT= 5.0 min	Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.00

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.834 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 59.588
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0153)	Area (ha)= 33.30 Curve Number (CN)= 82.6
ID= 1 DT= 5.0 min	Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.08

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 1.109 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 59.191
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.585

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350 Main Channel
28.59	211.79	0.0350 Main Channel
32.89	214.16	0.0350 / 0.0500 Main Channel
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.125E+02	0.0	0.21	40.70
0.24	212.03	.501E+02	0.0	0.33	25.64
0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48
0.85	212.64	.277E+04	2.1	0.39	21.89
0.97	212.76	.507E+04	4.5	0.45	18.78
1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

<---- hydrograph ----> <-pipe / channel->

Model Without SWM Infrastructure - Output

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0153)	33.30	1.11	4.67	59.19	0.76	0.39
OUTFLOW: ID= 1 (0834)	33.30	1.10	5.25	59.19	0.76	0.39

CALIB						
NASHYD (0152)	Area (ha)=	16.20	Curve Number (CN)=	82.6		
ID= 1 DT= 5.0 min	Ia (mm)=	8.02	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.93				

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.552 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 59.191
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.585

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1520)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0152):	16.20	0.552	4.17	59.19
+ ID2= 2 (0834):	33.30	1.101	5.25	59.19
=====				
ID = 3 (1520):	49.50	1.639	5.00	59.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0833)	Routing time step (min)'= 5.00	
IN= 2--> OUT= 1		
<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 / 0.0350
70.77	208.05	0.0350
74.98	208.02	0.0350
83.40	208.38	0.0350 / 0.0400
88.06	208.63	0.0400

94.94	209.13	0.0400
105.88	209.54	0.0400

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.232E+03	0.1	0.19	65.23
0.14	208.16	.652E+03	0.3	0.30	41.42
0.22	208.24	.122E+04	0.6	0.38	32.47
0.29	208.31	.193E+04	1.2	0.45	27.40
0.36	208.38	.279E+04	1.9	0.51	24.03
0.44	208.46	.389E+04	3.2	0.60	20.41
0.52	208.54	.516E+04	4.8	0.69	17.88
0.60	208.62	.664E+04	6.9	0.77	16.07
0.68	208.70	.833E+04	9.4	0.83	14.80
0.76	208.78	.102E+05	12.3	0.89	13.84
0.84	208.86	.123E+05	15.7	0.94	13.07
0.92	208.94	.153E+05	19.4	0.94	13.11
0.99	209.01	.189E+05	24.5	0.96	12.89
1.07	209.09	.229E+05	30.4	0.98	12.57
1.15	209.17	.273E+05	37.1	1.01	12.25
1.23	209.25	.320E+05	44.7	1.03	11.94
1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1520)	49.50	1.64	5.00	59.19	0.33	0.49
OUTFLOW: ID= 1 (0833)	49.50	1.63	5.33	59.18	0.33	0.49

ADD HYD (1510)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0151):	24.60	0.834	4.33	59.59
+ ID2= 2 (0833):	49.50	1.627	5.33	59.18
=====				
ID = 3 (1510):	74.10	2.443	5.17	59.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0832)	Routing time step (min)'= 5.00
IN= 2--> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	206.50	0.0400
29.68	206.77	0.0400
43.70	206.13	0.0400 / 0.0350
44.99	205.95	0.0350
47.70	206.24	0.0350 / 0.0450
60.54	206.32	0.0450
80.11	206.99	0.0450
102.29	207.42	0.0450 / 0.0400
132.78	206.84	0.0400

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	206.01	.158E+02	0.0	0.16	56.30
0.12	206.07	.633E+02	0.0	0.25	35.47
0.18	206.13	.142E+03	0.1	0.33	27.07
0.26	206.21	.324E+03	0.3	0.42	21.31
0.34	206.29	.720E+03	0.6	0.44	20.00
0.42	206.37	.162E+04	1.4	0.45	19.57
0.50	206.45	.272E+04	2.6	0.52	17.17
0.58	206.53	.404E+04	4.2	0.56	15.86
0.66	206.61	.584E+04	6.5	0.59	15.05
0.74	206.69	.820E+04	9.6	0.63	14.19
0.83	206.78	.111E+05	13.9	0.67	13.34
0.91	206.86	.143E+05	19.9	0.74	12.00
0.99	206.94	.178E+05	27.1	0.81	10.94
1.07	207.02	.215E+05	35.3	0.87	10.16
1.15	207.10	.256E+05	44.5	0.93	9.59
1.23	207.18	.301E+05	55.1	0.98	9.09
1.31	207.26	.349E+05	67.2	1.03	8.65
1.39	207.34	.400E+05	80.7	1.07	8.26
1.47	207.42	.455E+05	95.8	1.12	7.92

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1510)	74.10	2.44	5.17	59.32	0.49	0.51
OUTFLOW: ID= 1 (0832)	74.10	2.43	5.33	59.31	0.49	0.50

CALIB						
NASHYD (0150)	Area (ha)=	6.60	Curve Number (CN)=	83.7		
ID= 1 DT= 5.0 min	Ia (mm)=	7.41	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.96				

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.232 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 61.405
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.607

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1500)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0150):	6.60	0.232	4.17	61.40
+ ID2= 2 (0832):	74.10	2.433	5.33	59.31
=====				
ID = 3 (1500):	80.70	2.655	5.33	59.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1401)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1410):	116.90	3.855	5.42	59.98
+ ID2= 2 (1500):	80.70	2.655	5.33	59.48
=====				
ID = 3 (1401):	197.60	6.507	5.42	59.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0830)	Routing time step (min)'= 5.00	
IN= 2--> OUT= 1		
<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	207.71	0.0400
58.83	206.71	0.0400
66.88	206.59	0.0400 / 0.0350
72.32	206.34	0.0350
77.68	206.55	0.0350 / 0.0800
82.85	206.54	0.0800
90.20	206.02	0.0800
94.03	206.48	0.0800
99.83	206.40	0.0800 / 0.0400
114.32	206.50	0.0400
136.07	206.86	0.0400

Model Without SWM Infrastructure - Output

174.41 207.56 0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.224E+03	0.0	0.08	174.00
0.23	206.25	.505E+03	0.1	0.11	132.79
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34
0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	4.7	0.29	50.17
0.78	206.80	.196E+05	7.6	0.34	42.88
0.87	206.89	.258E+05	11.4	0.38	37.80
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11
1.37	207.39	.776E+05	54.6	0.61	23.71
1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43

<---- hydrograph ---->		<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (1401)	197.60	6.51	5.42
OUTFLOW: ID= 1 (0830)	197.60	6.21	5.92
			0.75
			0.74
			0.32
			0.31

CALIB	
NASHYD (0140)	
ID= 1 DT= 5.0 min	
Area (ha)= 18.30	Curve Number (CN)= 83.6
Ia (mm)= 7.47	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.34	

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.608 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 61.197
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RUNOFF COEFFICIENT = 0.99 0.53 0.74

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0012)	
ID= 1 DT= 5.0 min	
Area (ha)= 17.50	Dir. Conn.(%)= 70.00
Total Imp(%)= 80.00	

IMPERVIOUS		PERVIOUS (i)	
Surface Area	(ha)= 14.00		3.50
Dep. Storage	(mm)= 1.00		8.94
Average Slope	(%)= 1.00		1.00
Length	(m)= 341.57		40.00
Mannings n	= 0.013		0.250

Max.Eff.Inten.(mm/hr)=	26.31	21.63
over (min)	10.00	30.00
Storage Coeff. (min)=	9.11 (ii)	25.14 (ii)
Unit Hyd. Tpeak (min)=	10.00	30.00
Unit Hyd. peak (cms)=	0.12	0.04

PEAK FLOW (cms)=	0.89	0.19	*TOTALS*
TIME TO PEAK (hrs)=	2.08	1.036 (iii)	
RUNOFF VOLUME (mm)=	100.20	58.62	2.08
TOTAL RAINFALL (mm)=	101.20	101.20	87.73
RUNOFF COEFFICIENT =	0.99	0.58	0.87

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112)	
1 + 2 = 3	
ID1= 1 (0011):	132.00
+ ID2= 2 (0012):	17.50
ID = 3 (1112):	149.50
	6.730
	2.17
	76.34

ADD HYD (1400)	
1 + 2 = 3	
ID1= 1 (0140):	18.30
+ ID2= 2 (0830):	197.60
ID = 3 (1400):	215.90
	6.786
	5.83
	59.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0131)	
ID= 1 DT= 5.0 min	
Area (ha)= 28.70	Curve Number (CN)= 82.1
Ia (mm)= 8.30	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.11	

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 0.938 (i)
TIME TO PEAK (hrs)= 4.917
RUNOFF VOLUME (mm)= 58.204
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.575

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0011)	
ID= 1 DT= 5.0 min	
Area (ha)= 132.00	Dir. Conn.(%)= 45.00
Total Imp(%)= 57.10	

IMPERVIOUS		PERVIOUS (i)	
Surface Area	(ha)= 75.37		56.63
Dep. Storage	(mm)= 1.00		8.95
Average Slope	(%)= 1.00		1.00
Length	(m)= 938.08		40.00
Mannings n	= 0.013		0.250

Max.Eff.Inten.(mm/hr)=	26.31	17.02
over (min)	15.00	35.00
Storage Coeff. (min)=	16.70 (ii)	34.34 (ii)
Unit Hyd. Tpeak (min)=	15.00	35.00
Unit Hyd. peak (cms)=	0.07	0.03

PEAK FLOW (cms)=	4.25	2.38	*TOTALS*
TIME TO PEAK (hrs)=	2.08	3.42	5.727 (iii)
RUNOFF VOLUME (mm)=	100.20	54.07	2.25
TOTAL RAINFALL (mm)=	101.20	101.20	74.83
			101.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
STANDHYD (0010)	
ID= 1 DT= 5.0 min	
Area (ha)= 12.90	Dir. Conn.(%)= 70.00
Total Imp(%)= 80.00	

IMPERVIOUS		PERVIOUS (i)	
Surface Area	(ha)= 10.32		2.58
Dep. Storage	(mm)= 1.00		8.94
Average Slope	(%)= 1.00		1.00
Length	(m)= 293.26		40.00
Mannings n	= 0.013		0.250

Max.Eff.Inten.(mm/hr)=	26.31	21.63
over (min)	10.00	25.00
Storage Coeff. (min)=	8.31 (ii)	24.34 (ii)
Unit Hyd. Tpeak (min)=	10.00	25.00
Unit Hyd. peak (cms)=	0.13	0.05

PEAK FLOW (cms)=	0.66	0.14	*TOTALS*
TIME TO PEAK (hrs)=	2.08	3.17	0.770 (iii)
RUNOFF VOLUME (mm)=	100.20	58.62	2.08
TOTAL RAINFALL (mm)=	101.20	101.20	87.73
RUNOFF COEFFICIENT =	0.99	0.58	0.87

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311)	
1 + 2 = 3	
ID1= 1 (0010):	12.90
+ ID2= 2 (1112):	149.50
ID = 3 (1311):	162.40
	7.480
	2.17
	77.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822)	
IN= 2---> OUT= 1	
Routing time step (min)'= 5.00	

Model Without SWM Infrastructure - Output

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	207.71	0.0400	
58.83	206.71	0.0400	
66.88	206.59	0.0400 / 0.0350	Main Channel
72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	
174.41	207.56	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.337E+02	0.0	0.07	124.18
0.15	206.17	.135E+03	0.0	0.11	78.23
0.23	206.25	.303E+03	0.1	0.15	59.70
0.30	206.32	.539E+03	0.2	0.18	49.28
0.38	206.40	.885E+03	0.3	0.20	43.17
0.45	206.47	.175E+04	0.6	0.19	46.91
0.53	206.55	.333E+04	1.4	0.23	38.64
0.61	206.63	.569E+04	3.4	0.31	27.90
0.70	206.72	.851E+04	6.3	0.39	22.56
0.78	206.80	.118E+05	10.2	0.45	19.28
0.87	206.89	.155E+05	15.2	0.51	17.00
0.95	206.97	.196E+05	21.4	0.57	15.28
1.04	207.06	.242E+05	28.9	0.63	13.96
1.12	207.14	.292E+05	37.7	0.68	12.90
1.20	207.22	.346E+05	47.9	0.73	12.02
1.29	207.31	.404E+05	59.6	0.77	11.29
1.37	207.39	.466E+05	72.9	0.82	10.66
1.46	207.48	.533E+05	87.8	0.86	10.11
1.54	207.56	.604E+05	104.5	0.91	9.63

<---- hydrograph ---->			
AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (1311)	162.40	7.48	2.17
OUTFLOW: ID= 1 (0822)	162.40	7.13	3.17

<-pipe / channel->			
MAX DEPTH	MAX VEL		
(m)	(m/s)		
0.72	0.40		
0.72	0.40		

ADD HYD (1310)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3				

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1310)	191.10	7.85	3.17	74.38	0.75
OUTFLOW: ID= 1 (0821)	191.10	7.37	3.58	74.37	0.74

CALIB	Area	(ha)	26.70	Curve Number (CN)= 81.7
NASHYD (0130)	Ia	(mm)	8.53	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	1.32		

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 0.842 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 57.419
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.567

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1300)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0130):	26.70	0.842	5.25	57.42
+ ID2= 2 (0821):	191.10	7.368	3.58	74.37
ID = 3 (1300):	217.80	8.047	3.67	72.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1202)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1300):	217.80	8.047	3.67	72.29
+ ID2= 2 (1400):	215.90	6.786	5.83	59.89
ID = 3 (1202):	433.70	14.075	5.25	66.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0820)

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0131):	28.70	0.938	4.92	58.20
+ ID2= 2 (0822):	162.40	7.127	3.17	77.24
ID = 3 (1310):	191.10	7.849	3.17	74.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0821)	Routing time step (min)'= 5.00
IN= 2----> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	207.71	0.0400			
58.83	206.71	0.0400			
66.88	206.59	0.0400 / 0.0350	Main Channel		
72.32	206.34	0.0350	Main Channel		
77.68	206.55	0.0350 / 0.0800	Main Channel		
82.85	206.54	0.0800			
90.20	206.02	0.0800			
94.03	206.48	0.0800			
99.83	206.40	0.0800 / 0.0400			
114.32	206.50	0.0400			
136.07	206.86	0.0400			
174.41	207.56	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60
0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

<---- hydrograph ----> <-pipe / channel->

IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.54	0.0450			
43.13	205.35	0.0450			
67.41	205.27	0.0450			
86.35	205.38	0.0450 / 0.0350	Main Channel		
90.47	204.70	0.0350	Main Channel		
93.03	205.16	0.0350 / 0.0400	Main Channel		
101.99	205.21	0.0400			
151.82	204.97	0.0400			
252.14	206.45	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.681E+01	0.0	0.08	28.42
0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80
0.37	205.07	.292E+03	0.3	0.12	18.72
0.46	205.16	.859E+03	0.9	0.14	16.44
0.55	205.25	.182E+04	2.3	0.17	13.44
0.64	205.34	.311E+04	4.7	0.21	11.04
0.74	205.44	.487E+04	8.4	0.24	9.67
0.83	205.53	.676E+04	13.3	0.27	8.48
0.92	205.62	.877E+04	19.3	0.30	7.58
1.01	205.71	.109E+05	26.4	0.33	6.90
1.10	205.80	.132E+05	34.5	0.36	6.36
1.20	205.90	.155E+05	43.8	0.39	5.92
1.29	205.99	.181E+05	54.1	0.42	5.56
1.38	206.08	.207E+05	65.6	0.44	5.25
1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

<---- hydrograph ---->			
AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (1202)	433.70	14.07	5.25
OUTFLOW: ID= 1 (0820)	433.70	14.04	5.25

<-pipe / channel->			
MAX DEPTH	MAX VEL		
(m)	(m/s)		
0.84	0.28		
0.84	0.28		

ADD HYD (1201)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)

Model Without SWM Infrastructure - Output

```
ID1= 1 ( 1210):    96.80    3.538    4.33    64.00
+ ID2= 2 ( 0820):    433.70   14.042    5.25    66.12
=====
ID = 3 ( 1201):    530.50   17.464    5.25    65.73
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0810)|
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.54          0.0450
43.13         205.35          0.0450
67.41         205.27          0.0450
86.35         205.38          0.0450 / 0.0350 Main Channel
90.47         204.70          0.0350 Main Channel
93.03         205.16          0.0350 / 0.0400 Main Channel
101.99        205.21          0.0400
151.82        204.97          0.0400
252.14        206.45          0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.09        204.79      .229E+02      0.0             0.07          106.67
0.18        204.88      .915E+02      0.0             0.12          67.20
0.28        204.98      .208E+03      0.1             0.15          51.82
0.37        205.07      .981E+03      0.2             0.11          70.28
0.46        205.16      .288E+04      0.8             0.13          61.71
0.55        205.25      .610E+04      2.0             0.15          50.43
0.64        205.34      .105E+05      4.2             0.19          41.45
0.74        205.44      .163E+05      7.5             0.21          36.28
0.83        205.53      .227E+05      11.9            0.24          31.82
0.92        205.62      .294E+05      17.2            0.27          28.46
1.01        205.71      .366E+05      23.6            0.30          25.89
1.10        205.80      .442E+05      30.9            0.32          23.87
1.20        205.90      .522E+05      39.1            0.35          22.23
1.29        205.99      .606E+05      48.4            0.37          20.87
1.38        206.08      .694E+05      58.7            0.39          19.72
1.47        206.17      .786E+05      70.0            0.41          18.74
1.57        206.27      .883E+05      82.3            0.43          17.88
1.66        206.36      .983E+05      95.7            0.45          17.12
1.75        206.45      .109E+06      110.2           0.47          16.45

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)        (m/s)
INFLOW : ID= 2 ( 1201) 530.50   17.46   5.25 65.73   0.92   0.27
OUTFLOW: ID= 1 ( 0810) 530.50   16.95   5.50 65.73   0.91   0.27
```

```
-----
| CALIB |
| NASHYD ( 0120)| Area (ha)= 9.00 Curve Number (CN)= 84.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.25 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.16
```

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.309 (i)
TIME TO PEAK (hrs)= 4.750
RUNOFF VOLUME (mm)= 62.014
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.613

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1200)|
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0120): 9.00 0.309 4.75 62.01
+ ID2= 2 ( 0810): 530.50 16.952 5.50 65.73
=====
ID = 3 ( 1200): 539.50 17.253 5.50 65.67
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0113)| Area (ha)= 13.50 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.87
```

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.463 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 58.989
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.583

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0802)|
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          208.29          0.0300
3.73          208.14          0.0300 / 0.0350 Main Channel
5.30          207.52          0.0350 Main Channel
6.93          208.18          0.0350 / 0.0300 Main Channel
8.96          208.27          0.0300
14.71         208.30          0.0300
23.86         208.59          0.0300

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.04        207.56      .448E+01      0.0             0.12          164.32
0.08        207.60      .179E+02      0.0             0.19          103.51
0.12        207.64      .403E+02      0.0             0.25          79.00
0.16        207.68      .716E+02      0.0             0.30          65.21
0.19        207.71      .112E+03      0.0             0.35          56.20
0.23        207.75      .161E+03      0.1             0.40          49.76
0.27        207.79      .219E+03      0.1             0.44          44.90
0.31        207.83      .287E+03      0.1             0.48          41.08
0.35        207.87      .363E+03      0.2             0.52          37.98
0.39        207.91      .448E+03      0.2             0.56          35.40
0.43        207.95      .542E+03      0.3             0.60          33.22
0.47        207.99      .645E+03      0.3             0.63          31.35
0.50        208.02      .757E+03      0.4             0.67          29.72
0.54        208.06      .878E+03      0.5             0.70          28.29
0.58        208.10      .101E+04      0.6             0.74          27.02
0.62        208.14      .115E+04      0.7             0.77          25.88
0.67        208.19      .137E+04      0.9             0.81          24.42
0.72        208.24      .172E+04      1.2             0.84          23.79
0.77        208.29      .225E+04      1.6             0.82          24.20

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)        (m/s)
INFLOW : ID= 2 ( 0113) 13.50   0.46   4.00 58.99   0.52   0.68
OUTFLOW: ID= 1 ( 0802) 13.50   0.45   4.67 58.92   0.52   0.68
```

```
-----
| CALIB |
| NASHYD ( 0112)| Area (ha)= 30.50 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.60
```

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 0.949 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 59.588
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0111)| Area (ha)= 45.50 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.33
```

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 1.459 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 58.595
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.579

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1101)|
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0111): 45.50 1.459 5.25 58.60
+ ID2= 2 ( 0112): 30.50 0.949 5.50 59.59
=====
ID = 3 ( 1101): 76.00 2.403 5.33 58.99
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 1101)|
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 1101): 76.00 2.403 5.33 58.99
+ ID2= 2 ( 0802): 13.50 0.454 4.67 58.92
=====
ID = 1 ( 1101): 89.50 2.851 5.33 58.98
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model Without SWM Infrastructure - Output

ROUTE CHN(0801)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	209.66	0.0400
19.50	209.34	0.0400
37.91	208.66	0.0400
41.73	208.62	0.0400 /0.0350
43.44	208.24	0.0350
45.75	208.62	0.0350 /0.0450
54.00	208.79	0.0450 /0.0400
77.43	209.05	0.0400
128.85	209.70	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	208.30	.104E+02	0.0	0.10	83.26
0.13	208.37	.415E+02	0.0	0.16	52.45
0.19	208.43	.934E+02	0.0	0.20	40.03
0.25	208.49	.166E+03	0.1	0.25	33.04
0.32	208.56	.259E+03	0.2	0.29	28.47
0.38	208.62	.373E+03	0.2	0.32	25.22
0.46	208.70	.729E+03	0.5	0.33	24.94
0.54	208.78	.135E+04	0.9	0.33	24.67
0.62	208.86	.225E+04	1.6	0.35	23.41
0.70	208.94	.352E+04	2.6	0.37	22.23
0.78	209.02	.516E+04	4.1	0.39	20.96
0.86	209.10	.716E+04	6.1	0.41	19.65
0.94	209.18	.949E+04	8.6	0.44	18.42
1.02	209.26	.122E+05	11.7	0.47	17.31
1.10	209.34	.152E+05	15.5	0.50	16.32
1.18	209.42	.185E+05	19.7	0.52	15.72
1.26	209.50	.224E+05	24.7	0.54	15.09
1.34	209.58	.266E+05	30.6	0.56	14.48
1.42	209.66	.313E+05	37.5	0.59	13.90

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1101)	89.50	2.85	5.33	58.98	0.71	0.37
OUTFLOW: ID= 1 (0801)	89.50	2.82	5.58	58.98	0.71	0.37

CALIB

NASHYD (0110)
ID= 1 DT= 5.0 min

Area (ha)= 11.90
Ia (mm)= 7.58
U.H. Tp(hrs)= 0.68

Curve Number (CN)= 83.4
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.443 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 60.791
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.601

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0110):	11.90	0.443	3.42	60.79
+ ID2= 2 (0801):	89.50	2.816	5.58	58.98
ID = 3 (1100):	101.40	3.188	5.42	59.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1100):	101.40	3.188	5.42	59.19
+ ID2= 2 (1200):	539.50	17.253	5.50	65.67
ID = 3 (1001):	640.90	20.437	5.50	64.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 /0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 /0.0400

101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	204.79	.255E+02	0.0	0.16	54.50
0.18	204.88	.102E+03	0.0	0.25	34.33
0.28	204.98	.232E+03	0.1	0.33	26.47
0.37	205.07	.109E+04	0.5	0.24	35.91
0.46	205.16	.321E+04	1.7	0.27	31.53
0.55	205.25	.680E+04	4.4	0.33	25.77
0.64	205.34	.116E+05	9.2	0.41	21.18
0.74	205.44	.182E+05	16.4	0.47	18.54
0.83	205.53	.253E+05	25.9	0.53	16.26
0.92	205.62	.328E+05	37.6	0.59	14.54
1.01	205.71	.408E+05	51.4	0.65	13.23
1.10	205.80	.492E+05	67.3	0.71	12.19
1.20	205.90	.581E+05	85.3	0.76	11.36
1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75
1.75	206.45	.121E+06	240.2	1.03	8.41

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1001)	640.90	20.44	5.50	64.64	0.78	0.49
OUTFLOW: ID= 1 (0800)	640.90	20.27	5.67	64.64	0.77	0.49

CALIB
NASHYD (0100)
ID= 1 DT= 5.0 min

Area (ha)= 54.70
Ia (mm)= 7.69
U.H. Tp(hrs)= 1.23

Curve Number (CN)= 83.2
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 1.822 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 60.388
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.597

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1000)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0100):	54.70	1.822	5.17	60.39
+ ID2= 2 (0800):	640.90	20.265	5.67	64.64
ID = 3 (1000):	695.60	22.025	5.67	64.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0190)
ID= 1 DT= 5.0 min

Area (ha)= 12.30
Ia (mm)= 7.31
U.H. Tp(hrs)= 0.83

Curve Number (CN)= 83.9
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.448 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 61.805
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.611

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0191)
ID= 1 DT= 5.0 min

Area (ha)= 20.10
Ia (mm)= 8.36
U.H. Tp(hrs)= 0.94

Curve Number (CN)= 82.0
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.670 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 58.004
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.573

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0192)

Area (ha)= 28.30
Curve Number (CN)= 80.3

Model Without SWM Infrastructure - Output

|ID= 1 DT= 5.0 min | Ia (mm)= 6.23 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.06

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 0.908 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 57.344
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.567

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1901)|
| 1 + 2 = 3 |
ID1= 1 (0191): 20.10 0.670 4.25 58.00
+ ID2= 2 (0192): 28.30 0.908 4.58 57.34
=====

ID = 3 (1901): 48.40 1.576 4.42 57.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0899)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 / 0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 / 0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .349E+02 0.1 0.18 10.46
0.14 208.16 .981E+02 0.2 0.28 6.64
0.22 208.24 .183E+03 0.6 0.36 5.21
0.29 208.31 .291E+03 1.1 0.42 4.40
0.36 208.38 .420E+03 1.8 0.48 3.85

0.44	208.46	.586E+03	3.0	0.57	3.27
0.52	208.54	.777E+03	4.5	0.65	2.87
0.60	208.62	.999E+03	6.5	0.72	2.58
0.68	208.70	.125E+04	8.8	0.78	2.37
0.76	208.78	.154E+04	11.5	0.84	2.22
0.84	208.86	.185E+04	14.7	0.89	2.10
0.92	208.94	.230E+04	18.2	0.88	2.10
0.99	209.01	.285E+04	23.0	0.90	2.07
1.07	209.09	.345E+04	28.5	0.92	2.02
1.15	209.17	.411E+04	34.8	0.94	1.96
1.23	209.25	.482E+04	42.0	0.97	1.91
1.31	209.33	.559E+04	50.0	1.00	1.86
1.39	209.41	.643E+04	59.1	1.02	1.81
1.47	209.49	.732E+04	69.1	1.05	1.76

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1901) 48.40 1.58 4.42 57.62 0.34 0.46
OUTFLOW: ID= 1 (0899) 48.40 1.58 4.50 57.62 0.34 0.46

| ADD HYD (1900)|
| 1 + 2 = 3 |
ID1= 1 (0190): 12.30 0.448 3.75 61.80
+ ID2= 2 (0899): 48.40 1.576 4.50 57.62
=====

ID = 3 (1900): 60.70 2.011 4.42 58.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB
| NASHYD (0500)| Area (ha)= 7.60 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.48

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.291 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 59.584
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB
| NASHYD (0510)| Area (ha)= 12.70 Curve Number (CN)= 81.7
| ID= 1 DT= 5.0 min | Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.69

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.443 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 57.418
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.567

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB
| NASHYD (0520)| Area (ha)= 17.30 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.78

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.606 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 58.989
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.583

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (5000)|
| 1 + 2 = 3 |
ID1= 1 (0500): 7.60 0.291 3.25 59.58
+ ID2= 2 (0510): 12.70 0.443 3.50 57.42
=====

ID = 3 (5000): 20.30 0.728 3.33 58.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (5000)|

| 3 + 2 = 1 |
ID1= 3 (5000): 20.30 0.728 3.33 58.23
+ ID2= 2 (0520): 17.30 0.606 3.67 58.99
=====

ID = 1 (5000): 37.60 1.327 3.50 58.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB
| NASHYD (0600)| Area (ha)= 2.50 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.45

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.095 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 58.984
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.583

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y M M O O
O O T T H H Y Y M M O O
000 T T H H Y Y M M 000
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\vo.in.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\ba

Model Without SWM Infrastructure - Output

c698ba-ed05-46fa-81d3-fa0297be8087\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\ba
c698ba-ed05-46fa-81d3-fa0297be8087\sce

DATE: 10-17-2025

TIME: 02:15:17

USER:

COMMENTS: _____

** SIMULATION : 7

| READ STORM | Filename: C:\Users\wraymond\AppData\Local\Temp\
| | ata\Local\Temp\
| | 35eb7828-247c-431e-8f8f-00c8304cf789\7b91d363
| Ptotal=112.20 mm | Comments: 100yr12hrAES

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.08	16.83	6.17	3.37	9.25	0.00
0.08	14.59	3.17	16.83	6.25	3.37	9.33	0.00
0.17	14.59	3.25	16.83	6.33	3.37	9.42	0.00
0.25	14.59	3.33	16.83	6.42	3.37	9.50	0.00
0.33	14.59	3.42	16.83	6.50	3.37	9.58	0.00
0.42	14.59	3.50	16.83	6.58	3.37	9.67	0.00
0.50	14.59	3.58	16.83	6.67	3.37	9.75	0.00
0.58	14.59	3.67	16.83	6.75	3.37	9.83	0.00
0.67	14.59	3.75	16.83	6.83	3.37	9.92	0.00
0.75	14.59	3.83	16.83	6.92	3.37	10.00	0.00
0.83	14.59	3.92	16.83	7.00	3.37	10.08	0.00
0.92	14.59	4.00	16.83	7.08	1.12	10.17	0.00
1.00	14.59	4.08	15.71	7.17	1.12	10.25	0.00
1.08	29.17	4.17	15.71	7.25	1.12	10.33	0.00
1.17	29.17	4.25	15.71	7.33	1.12	10.42	0.00
1.25	29.17	4.33	15.71	7.42	1.12	10.50	0.00
1.33	29.17	4.42	15.71	7.50	1.12	10.58	0.00
1.42	29.17	4.50	15.71	7.58	1.12	10.67	0.00
1.50	29.17	4.58	15.71	7.67	1.12	10.75	0.00
1.58	29.17	4.67	15.71	7.75	1.12	10.83	0.00
1.67	29.17	4.75	15.71	7.83	1.12	10.92	0.00

1.75	29.17	4.83	15.71	7.92	1.12	11.00	0.00
1.83	29.17	4.92	15.71	8.00	1.12	11.08	0.00
1.92	29.17	5.00	15.71	8.08	0.00	11.17	0.00
2.00	29.17	5.08	8.98	8.17	0.00	11.25	0.00
2.08	22.44	5.17	8.98	8.25	0.00	11.33	0.00
2.17	22.44	5.25	8.98	8.33	0.00	11.42	0.00
2.25	22.44	5.33	8.98	8.42	0.00	11.50	0.00
2.33	22.44	5.42	8.98	8.50	0.00	11.58	0.00
2.42	22.44	5.50	8.98	8.58	0.00	11.67	0.00
2.50	22.44	5.58	8.98	8.67	0.00	11.75	0.00
2.58	22.44	5.67	8.98	8.75	0.00	11.83	0.00
2.67	22.44	5.75	8.98	8.83	0.00	11.92	0.00
2.75	22.44	5.83	8.98	8.92	0.00	12.00	0.00
2.83	22.44	5.92	8.98	9.00	0.00		
2.92	22.44	6.00	8.98	9.08	0.00		
3.00	22.44	6.08	3.37	9.17	0.00		

| CALIB |
| NASHYD (0185) | Area (ha)= 2.00 Curve Number (CN)= 79.5
| ID= 1 DT= 5.0 min | Ia (mm)= 6.54 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.36

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.084 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 65.214
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0180) | Area (ha)= 6.80 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.85

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.272 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 68.408
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.610

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0170) | Area (ha)= 5.80 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.242 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 68.407
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.610

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0160) | Area (ha)= 16.30 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.15

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.633 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 70.105
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.625

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0330) | Area (ha)= 22.30 Curve Number (CN)= 82.2
| ID= 1 DT= 5.0 min | Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.60

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.949 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 67.978
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.606

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0270) | Area (ha)= 2.50 Curve Number (CN)= 81.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.95 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.24

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.112 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 68.012
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.606

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0260) | Area (ha)= 7.00 Curve Number (CN)= 83.7
| ID= 1 DT= 5.0 min | Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.43

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.324 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 71.180
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.634

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0250) | Area (ha)= 10.70 Curve Number (CN)= 81.9
| ID= 1 DT= 5.0 min | Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.54

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.457 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 67.348
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.600

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0320) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 11.70 Curve Number (CN)= 83.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.528 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 69.673
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.621

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0420) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 25.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.12
```

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 1.018 (i)
TIME TO PEAK (hrs)= 4.500
RUNOFF VOLUME (mm)= 70.966
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0423) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 23.90 Curve Number (CN)= 84.1
Ia (mm)= 7.20 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.80
```

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 1.026 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 72.048
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.642

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
0.51 205.01 .388E+03 0.9 0.51 6.81
0.54 205.04 .584E+03 1.4 0.51 6.75
0.58 205.08 .819E+03 2.1 0.54 6.47
0.61 205.11 .110E+04 3.0 0.56 6.13
0.65 205.15 .141E+04 4.1 0.60 5.79
0.69 205.19 .177E+04 5.4 0.63 5.47

<----- hydrograph -----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0422) 6.90 0.30 3.33 70.53 0.38 0.70
OUTFLOW: ID= 1 ( 0896) 6.90 0.30 3.42 70.53 0.38 0.70
```

```
-----
| ADD HYD ( 4202) |
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0423): 23.90 1.026 3.58 72.05
+ ID2= 2 ( 0896): 6.90 0.304 3.42 70.53
=====
ID = 3 ( 4202): 30.80 1.328 3.50 71.71
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0895) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .170E+01 0.0 0.28 4.09
0.24 212.03 .679E+01 0.0 0.44 2.58
0.36 212.15 .153E+02 0.1 0.58 1.97
```

```
-----
| CALIB
| NASHYD ( 0422) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 6.90 Curve Number (CN)= 83.4
Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.61
```

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.305 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 70.533
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.629

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0896) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 / 0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 / 0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .808E+00 0.0 0.15 23.76
0.07 204.57 .323E+01 0.0 0.23 14.97
0.11 204.61 .727E+01 0.0 0.30 11.42
0.14 204.64 .129E+02 0.0 0.37 9.43
0.18 204.68 .202E+02 0.0 0.43 8.13
0.22 204.72 .291E+02 0.1 0.48 7.20
0.25 204.75 .396E+02 0.1 0.53 6.49
0.29 204.79 .517E+02 0.1 0.58 5.94
0.33 204.83 .654E+02 0.2 0.63 5.49
0.36 204.86 .808E+02 0.3 0.68 5.12
0.40 204.90 .977E+02 0.3 0.72 4.80
0.43 204.93 .131E+03 0.4 0.69 5.03
0.47 204.97 .232E+03 0.6 0.55 6.29
```

```
0.48 212.27 .272E+02 0.3 0.70 1.62
0.61 212.40 .424E+02 0.5 0.82 1.40
0.73 212.52 .134E+03 1.0 0.53 2.16
0.85 212.64 .375E+03 2.8 0.52 2.20
0.97 212.76 .687E+03 6.1 0.60 1.89
1.09 212.88 .107E+04 11.0 0.71 1.61
1.21 213.00 .148E+04 17.8 0.83 1.38
1.33 213.12 .192E+04 26.1 0.93 1.22
1.45 213.24 .238E+04 35.9 1.03 1.11
1.57 213.36 .288E+04 47.3 1.13 1.01
1.70 213.49 .340E+04 60.1 1.21 0.94
1.82 213.61 .395E+04 74.5 1.29 0.88
1.94 213.73 .452E+04 90.5 1.37 0.83
2.06 213.85 .512E+04 109.2 1.46 0.78
2.18 213.97 .573E+04 130.3 1.56 0.73
2.37 214.16 .694E+04 168.2 1.66 0.69
```

```
<----- hydrograph -----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4202) 30.80 1.33 3.50 71.71 0.75 0.53
OUTFLOW: ID= 1 ( 0895) 30.80 1.33 3.58 71.71 0.75 0.53
```

```
-----
| CALIB
| NASHYD ( 0421) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 10.40 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.37
```

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)= 0.472 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 69.241
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0883) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
```


Model Without SWM Infrastructure - Output

```
44.39      205.59      0.0400
48.71      205.45      0.0400 /0.0350 Main Channel
51.02      204.50      0.0350 Main Channel
54.33      205.44      0.0350 /0.0400 Main Channel
55.90      204.97      0.0400
62.96      204.91      0.0400
102.92     205.20      0.0400
```

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.344E+01	0.0	0.19	78.41
0.07	204.57	.137E+02	0.0	0.30	49.40
0.11	204.61	.309E+02	0.0	0.39	37.70
0.14	204.64	.550E+02	0.0	0.47	31.12
0.18	204.68	.859E+02	0.1	0.55	26.82
0.22	204.72	.124E+03	0.1	0.62	23.75
0.25	204.75	.168E+03	0.1	0.69	21.43
0.29	204.79	.220E+03	0.2	0.75	19.60
0.33	204.83	.278E+03	0.3	0.81	18.12
0.36	204.86	.344E+03	0.3	0.87	16.89
0.40	204.90	.416E+03	0.4	0.93	15.85
0.43	204.93	.559E+03	0.6	0.89	16.61
0.47	204.97	.986E+03	0.8	0.71	20.75
0.51	205.01	.165E+04	1.2	0.65	22.49
0.54	205.04	.248E+04	1.9	0.66	22.28
0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

<---- hydrograph ---->					
<-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (0421)	10.40	0.47	3.17	69.24	0.41
OUTFLOW: ID= 1 (0883)	10.40	0.46	3.33	69.20	0.40

```
| ADD HYD ( 4201) |
| 1 + 2 = 3 |
```

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0883):	10.40	0.462	3.33	69.20
+ ID2= 2 (0895):	30.80	1.327	3.58	71.71
=====				
ID = 3 (4201):	41.20	1.782	3.50	71.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 4200) |
| 1 + 2 = 3 |
```

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0420):	25.80	1.018	4.50	70.97
+ ID2= 2 (0882):	41.20	1.738	3.67	71.07
=====				
ID = 3 (4200):	67.00	2.718	3.92	71.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0440) |
| ID= 1 DT= 5.0 min |
```

Area (ha)=	31.60	Curve Number (CN)=	84.4
Ia (mm)=	7.04	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.16		

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 1.267 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 72.702
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.648

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0442) |
| ID= 1 DT= 5.0 min |
```

Area (ha)=	2.40	Curve Number (CN)=	84.9
Ia (mm)=	6.77	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.41		

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.115 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 73.797
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.658

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0443) |
| ID= 1 DT= 5.0 min |
```

Area (ha)=	21.30	Curve Number (CN)=	83.9
Ia (mm)=	7.31	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.59		

```
| ROUTE CHN( 0882) |
| IN= 2----> OUT= 1 |
```

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 /0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 /0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52
0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20
0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

<---- hydrograph ---->					
<-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (4201)	41.20	1.78	3.50	71.07	0.46
OUTFLOW: ID= 1 (0882)	41.20	1.74	3.67	71.07	0.46

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)= 0.961 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 71.610
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.638

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0451) |
| ID= 1 DT= 5.0 min |
```

Area (ha)=	12.30	Curve Number (CN)=	84.3
Ia (mm)=	7.09	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.57		

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 0.565 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 72.485
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.646

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| STANDHYD ( 0043) |
| ID= 1 DT= 5.0 min |
```

Area (ha)=	22.90		
Total Imp(%)=	49.00	Dir. Conn.(%)=	40.00

IMPERVIOUS			PERVIOUS (i)
Surface Area (ha)=	11.22		11.68
Dep. Storage (mm)=	1.00		8.92
Average Slope (%)=	1.00		2.00
Length (m)=	390.73		40.00
Mannings n =	0.013		0.250

Max.Eff.Inten.(mm/hr)=	29.17		17.63
over (min)	10.00		25.00
Storage Coeff. (min)=	9.47 (ii)		23.60 (ii)
Unit Hyd. Tpeak (min)=	10.00		25.00
Unit Hyd. peak (cms)=	0.12		0.05

TOTALS			
PEAK FLOW (cms)=	0.74	0.53	1.132 (iii)
TIME TO PEAK (hrs)=	2.08	3.25	2.08
RUNOFF VOLUME (mm)=	111.20	60.64	80.87
TOTAL RAINFALL (mm)=	112.20	112.20	112.20
RUNOFF COEFFICIENT =	0.99	0.54	0.72

Model Without SWM Infrastructure - Output

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	1.30	
STANDHYD (0045)	Total Imp(%)=	65.00	Dir. Conn.(%)= 35.00
ID= 1 DT= 5.0 min			
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.84	0.46	
Dep. Storage (mm)=	1.00	8.92	
Average Slope (%)=	1.00	2.00	
Length (m)=	93.09	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	29.17	36.14	
over (min)=	5.00	15.00	
Storage Coeff. (min)=	4.01 (ii)	14.61 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.24	0.08	
			TOTALS
PEAK FLOW (cms)=	0.04	0.04	0.078 (iii)
TIME TO PEAK (hrs)=	2.00	2.17	2.08
RUNOFF VOLUME (mm)=	111.20	74.20	87.14
TOTAL RAINFALL (mm)=	112.20	112.20	112.20
RUNOFF COEFFICIENT =	0.99	0.66	0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4345)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0043):	22.90	1.132	2.08	80.87
+ ID2= 2 (0045):	1.30	0.078	2.08	87.14
ID = 3 (4345):	24.20	1.210	2.08	81.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893)		Routing time step (min)'= 5.00	
IN= 2--> OUT= 1			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4345)	24.20	1.21	2.08	81.20	0.76	0.60
OUTFLOW: ID= 1 (0893)	24.20	1.20	2.17	81.20	0.77	0.60

ADD HYD (4510)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0451):	12.30	0.565	3.25	72.48
+ ID2= 2 (0893):	24.20	1.199	2.17	81.20
ID = 3 (4510):	36.50	1.718	3.17	78.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0892)	Routing time step (min)'= 5.00		
IN= 2--> OUT= 1			
----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.279E+01	0.0	0.48	3.92
0.24	212.03	.112E+02	0.1	0.76	2.47
0.36	212.15	.251E+02	0.2	0.99	1.89
0.48	212.27	.446E+02	0.5	1.20	1.56
0.61	212.40	.697E+02	0.9	1.40	1.34
0.73	212.52	.220E+03	1.8	0.91	2.07
0.85	212.64	.616E+03	4.9	0.89	2.11
0.97	212.76	.113E+04	10.4	1.04	1.81
1.09	212.88	.175E+04	18.9	1.21	1.54
1.21	213.00	.243E+04	30.5	1.42	1.32
1.33	213.12	.315E+04	44.8	1.60	1.17
1.45	213.24	.392E+04	61.6	1.77	1.06
1.57	213.36	.473E+04	81.0	1.93	0.97
1.70	213.49	.558E+04	103.1	2.08	0.90
1.82	213.61	.648E+04	127.8	2.22	0.85
1.94	213.73	.742E+04	155.2	2.35	0.80
2.06	213.85	.841E+04	187.2	2.50	0.75
2.18	213.97	.941E+04	223.3	2.67	0.70
2.37	214.16	.114E+05	288.4	2.85	0.66

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (4510)	36.50	1.72	3.17	78.26	0.72
OUTFLOW: ID= 1 (0892)	36.50	1.72	3.17	78.26	0.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4411)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0443):	21.30	0.961	3.25	71.61
+ ID2= 2 (0892):	36.50	1.716	3.17	78.26
ID = 3 (4411):	57.80	2.672	3.17	75.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0891)		Routing time step (min)'= 5.00	
IN= 2--> OUT= 1			
<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.70	0.0400	
2.35	206.02	0.0400 / 0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 / 0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 / 0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.621E+00	0.0	0.10	29.40
0.09	205.28	.248E+01	0.0	0.16	18.52
0.13	205.32	.559E+01	0.0	0.21	14.13
0.17	205.36	.994E+01	0.0	0.25	11.67
0.22	205.41	.155E+02	0.0	0.29	10.05
0.26	205.45	.224E+02	0.0	0.33	8.90
0.31	205.50	.304E+02	0.1	0.37	8.03
0.35	205.54	.398E+02	0.1	0.40	7.35
0.39	205.58	.503E+02	0.1	0.43	6.79
0.44	205.63	.621E+02	0.2	0.46	6.33
0.48	205.67	.752E+02	0.2	0.49	5.97

Model Without SWM Infrastructure - Output

0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph ---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (4411)	57.80	2.67	3.17	75.81	0.83	0.53
OUTFLOW: ID= 1 (0891)	57.80	2.66	3.25	75.81	0.83	0.53

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB	
STANDHYD (0441)	
ID= 1 DT= 5.0 min	

Area (ha)=	3.00
Total Imp(%)=	45.00
Dir. Conn.(%)=	35.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.35	1.65
Dep. Storage (mm)=	1.00	3.58
Average Slope (%)=	2.00	2.00
Length (m)=	141.42	40.00
Mannings n	0.013	0.250

Max.Eff.Inten.(mm/hr)=	29.17	26.33
over (min)	5.00	20.00
Storage Coeff. (min)=	4.18 (ii)	16.22 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.24	0.06

TOTALS

PEAK FLOW (cms)=	0.09	0.11	0.192 (iii)
TIME TO PEAK (hrs)=	2.08	2.25	2.08
RUNOFF VOLUME (mm)=	111.20	82.67	92.66
TOTAL RAINFALL (mm)=	112.20	112.20	112.20
RUNOFF COEFFICIENT =	0.99	0.74	0.83

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

0.31	205.50	.133E+03	0.1	0.33	38.94
0.35	205.54	.174E+03	0.1	0.36	35.63
0.39	205.58	.220E+03	0.1	0.39	32.93
0.44	205.63	.272E+03	0.1	0.42	30.70
0.48	205.67	.329E+03	0.2	0.44	28.96
0.52	205.71	.418E+03	0.2	0.36	35.92
0.57	205.76	.563E+03	0.3	0.34	37.36
0.61	205.80	.765E+03	0.4	0.35	36.28
0.66	205.85	.102E+04	0.5	0.37	34.31
0.70	205.89	.134E+04	0.7	0.40	32.17
0.74	205.93	.171E+04	0.9	0.43	30.13
0.79	205.98	.214E+04	1.3	0.45	28.27
0.83	206.02	.263E+04	1.6	0.48	26.60

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph ---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (4401)	63.20	2.93	3.25	76.53	0.83	0.48
OUTFLOW: ID= 1 (0889)	63.20	2.78	3.58	76.52	0.83	0.48

ADD HYD (4400)	
1 + 2 = 3	

AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0440):	31.60	1.267	4.58
+ ID2= 2 (0889):	63.20	2.785	3.58
=====			
ID = 3 (4400):	94.80	3.980	3.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0888)	
IN= 2--> OUT= 1	

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 / 0.0350	Main Channel
43.44	208.24	0.0350	Main Channel
45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	Main Channel
77.43	209.05	0.0400	
128.85	209.70	0.0400	

ADD HYD (4410)	
1 + 2 = 3	

AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0441):	3.00	0.192	2.08
+ ID2= 2 (0891):	57.80	2.660	3.25
=====			
ID = 3 (4410):	60.80	2.811	3.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4401)	
1 + 2 = 3	

AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
ID1= 1 (4410):	60.80	2.811	3.25
+ ID2= 2 (0442):	2.40	0.115	3.17
=====			
ID = 3 (4401):	63.20	2.925	3.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0889)	
IN= 2--> OUT= 1	

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.70	0.0400	
2.35	206.02	0.0400 / 0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 / 0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 / 0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.272E+01	0.0	0.09	142.50
0.09	205.28	.109E+02	0.0	0.14	89.77
0.13	205.32	.245E+02	0.0	0.19	68.51
0.17	205.36	.435E+02	0.0	0.23	56.55
0.22	205.41	.679E+02	0.0	0.26	48.73
0.26	205.45	.978E+02	0.0	0.30	43.16

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.519E+01	0.0	0.09	43.50
0.13	208.37	.208E+02	0.0	0.15	27.40
0.19	208.43	.467E+02	0.0	0.19	20.91
0.25	208.49	.830E+02	0.1	0.24	17.26
0.32	208.56	.130E+03	0.1	0.27	14.88
0.38	208.62	.187E+03	0.2	0.31	13.17
0.46	208.70	.365E+03	0.5	0.31	13.03
0.54	208.78	.674E+03	0.9	0.32	12.89
0.62	208.86	.113E+04	1.5	0.33	12.23
0.70	208.94	.176E+04	2.5	0.35	11.61
0.78	209.02	.258E+04	3.9	0.37	10.95
0.86	209.10	.358E+04	5.8	0.40	10.27
0.94	209.18	.475E+04	8.2	0.42	9.62
1.02	209.26	.608E+04	11.2	0.45	9.04
1.10	209.34	.758E+04	14.8	0.48	8.53
1.18	209.42	.927E+04	18.8	0.50	8.21
1.26	209.50	.112E+05	23.6	0.52	7.88
1.34	209.58	.133E+05	29.3	0.54	7.57
1.42	209.66	.157E+05	35.9	0.56	7.26

		<---- hydrograph ---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (4400)	94.80	3.98	3.83	75.25	0.78	0.37
OUTFLOW: ID= 1 (0888)	94.80	3.95	4.00	75.25	0.78	0.37

CALIB	
STANDHYD (0042)	
ID= 1 DT= 5.0 min	

Area (ha)=	20.50
Total Imp(%)=	83.00
Dir. Conn.(%)=	70.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	17.01	3.49
Dep. Storage (mm)=	1.00	6.98
Average Slope (%)=	2.00	2.00
Length (m)=	369.68	40.00
Mannings n	0.013	0.250

Max.Eff.Inten.(mm/hr)=	29.17	37.44
over (min)	5.00	20.00
Storage Coeff. (min)=	7.44 (ii)	17.90 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.17	0.06

TOTALS

Model Without SWM Infrastructure - Output

PEAK FLOW (cms)= 1.16 0.32 1.472 (iii)
TIME TO PEAK (hrs)= 2.08 2.25 2.08
RUNOFF VOLUME (mm)= 111.20 79.35 101.64
TOTAL RAINFALL (mm)= 112.20 112.20 112.20
RUNOFF COEFFICIENT = 0.99 0.71 0.91

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0898)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	101.50	0.0500			
1.00	100.70	0.0500			
1.50	100.55	0.0500 / 0.0300	Main Channel		
2.00	99.50	0.0300	Main Channel		
3.50	99.60	0.0300	Main Channel		
4.50	100.65	0.0300 / 0.0500	Main Channel		
6.00	101.45	0.0500			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.10	99.60	.152E+02	0.0	0.19	18.79
0.19	99.69	.482E+02	0.1	0.37	9.79
0.29	99.79	.840E+02	0.2	0.49	7.32
0.38	99.88	.123E+03	0.3	0.59	6.12
0.48	99.98	.164E+03	0.5	0.67	5.38
0.57	100.07	.208E+03	0.7	0.74	4.87
0.67	100.17	.255E+03	0.9	0.80	4.49
0.76	100.26	.305E+03	1.2	0.86	4.19
0.86	100.36	.358E+03	1.5	0.91	3.95
0.95	100.45	.413E+03	1.8	0.96	3.75
1.05	100.55	.471E+03	2.2	1.00	3.58
1.16	100.66	.547E+03	2.7	1.07	3.35
1.28	100.78	.635E+03	3.4	1.14	3.14
1.39	100.89	.732E+03	4.1	1.20	2.99
1.50	101.00	.838E+03	4.9	1.25	2.86
1.61	101.11	.952E+03	5.8	1.30	2.76
1.72	101.22	.107E+04	6.7	1.34	2.67
1.84	101.34	.120E+04	7.7	1.38	2.60
1.95	101.45	.134E+04	8.8	1.41	2.54

<---- hydrograph ----> <-pipe / channel-->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0042) 20.50 1.47 2.08 101.64 0.85 0.90
OUTFLOW: ID= 1 (0898) 20.50 1.46 2.08 101.64 0.84 0.90

CALIB					
STANDHYD (0044)					
ID= 1 DT= 5.0 min					
Area	(ha)=	8.90			
Total Imp(%)=	41.00		Dir. Conn.(%)=	20.00	
IMPERVIOUS PERVIOUS (i)					
Surface Area	(ha)=	3.65	5.25		
Dep. Storage	(mm)=	1.00	8.00		
Average Slope	(%)=	2.00	2.00		
Length	(m)=	243.58	40.00		
Mannings n	=	0.013	0.250		
Max.Eff.Inten.(mm/hr)=		29.17	23.65		
over (min)		5.00	20.00		
Storage Coeff. (min)=	5.79 (ii)		18.36 (ii)		
Unit Hyd. Tpeak (min)=	5.00		20.00		
Unit Hyd. peak (cms)=	0.20		0.06		
TOTALS					
PEAK FLOW (cms)=	0.14	0.32	0.427 (iii)		
TIME TO PEAK (hrs)=	2.08	3.08	3.08		
RUNOFF VOLUME (mm)=	111.20	68.29	76.87		
TOTAL RAINFALL (mm)=	112.20	112.20	112.20		
RUNOFF COEFFICIENT =	0.99	0.61	0.69		

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4244)					
1 + 2 = 3					
AREA	QPEAK	TPEAK	R.V.		
(ha)	(cms)	(hrs)	(mm)		
ID1= 1 (0044):	8.90	0.427	3.08	76.87	
+ ID2= 2 (0898):	20.50	1.463	2.08	101.64	
=====					

ID = 3 (4244): 29.40 1.887 2.08 94.14
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0897)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 / 0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		
32.89	214.16	0.0350 / 0.0500	Main Channel		
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.140E+02	0.0	0.17	55.64
0.24	212.03	.559E+02	0.0	0.27	35.05
0.36	212.15	.126E+03	0.1	0.35	26.75
0.48	212.27	.224E+03	0.2	0.43	22.08
0.61	212.40	.350E+03	0.3	0.49	19.03
0.73	212.52	.110E+04	0.6	0.32	29.36
0.85	212.64	.309E+04	1.7	0.31	29.92
0.97	212.76	.566E+04	3.7	0.37	25.67
1.09	212.88	.878E+04	6.7	0.43	21.92
1.21	213.00	.122E+05	10.8	0.50	18.80
1.33	213.12	.158E+05	15.8	0.57	16.63
1.45	213.24	.196E+05	21.8	0.63	15.03
1.57	213.36	.237E+05	28.7	0.68	13.79
1.70	213.49	.280E+05	36.4	0.73	12.81
1.82	213.61	.325E+05	45.2	0.78	12.00
1.94	213.73	.372E+05	54.9	0.83	11.31
2.06	213.85	.422E+05	66.2	0.89	10.62
2.18	213.97	.472E+05	79.0	0.94	9.97
2.37	214.16	.571E+05	102.0	1.01	9.34
<---- hydrograph ----> <-pipe / channel-->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4244)	29.40	1.89	2.08	94.14	0.86
OUTFLOW: ID= 1 (0897)	29.40	1.62	3.08	94.13	0.84

ADD HYD (4301)					
1 + 2 = 3					
AREA	QPEAK	TPEAK	R.V.		
(ha)	(cms)	(hrs)	(mm)		
ID1= 1 (0888):	94.80	3.955	4.00	75.25	
+ ID2= 2 (0897):	29.40	1.621	3.08	94.13	
=====					
ID = 3 (4301):	124.20	5.352	3.75	79.72	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0887)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.52	0.0400			
61.99	209.23	0.0400			
76.86	209.20	0.0400			
82.03	209.20	0.0400 / 0.0350	Main Channel		
86.30	208.87	0.0350	Main Channel		
89.86	209.20	0.0350 / 0.0300	Main Channel		
96.27	209.24	0.0300			
103.53	209.40	0.0300			
127.96	209.50	0.0300			
158.58	209.70	0.0300			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.143E+01	0.0	0.09	20.80
0.07	208.94	.572E+01	0.0	0.14	13.11
0.10	208.97	.129E+02	0.0	0.18	10.00
0.13	209.00	.229E+02	0.0	0.22	8.26
0.17	209.04	.357E+02	0.1	0.26	7.11
0.20	209.07	.514E+02	0.1	0.29	6.30
0.23	209.10	.700E+02	0.2	0.32	5.69
0.26	209.13	.915E+02	0.3	0.35	5.20
0.30	209.17	.116E+03	0.4	0.38	4.81
0.33	209.20	.143E+03	0.5	0.41	4.48
0.37	209.24	.239E+03	0.8	0.37	5.02
0.40	209.27	.396E+03	1.3	0.35	5.26
0.44	209.31	.589E+03	1.9	0.36	5.13
0.47	209.34	.818E+03	2.8	0.38	4.89
0.51	209.38	.108E+04	3.9	0.40	4.63
0.54	209.41	.139E+04	5.2	0.41	4.46
0.58	209.45	.175E+04	6.7	0.43	4.33

Model Without SWM Infrastructure - Output

```
0.61 209.48 .218E+04 8.7 0.44 4.17
0.65 209.52 .266E+04 11.2 0.46 3.98

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4301) 124.20 5.35 3.75 79.72 0.55 0.41
OUTFLOW: ID= 1 ( 0887) 124.20 5.35 3.83 79.72 0.55 0.41
```

```
-----
| CALIB |
| NASHYD ( 0430) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 19.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.13
```

Unit Hyd Qpeak (cms)= 0.669

PEAK FLOW (cms)= 0.780 (i)
TIME TO PEAK (hrs)= 4.500
RUNOFF VOLUME (mm)= 70.966
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4300) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0430): 19.80 0.780 4.50 70.97
+ ID2= 2 ( 0887): 124.20 5.348 3.83 79.72
=====
ID = 3 ( 4300): 144.00 6.104 3.92 78.51
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0886) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 / 0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
```

RUNOFF COEFFICIENT = 0.694

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4110) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0411): 4.50 0.195 4.25 77.84
+ ID2= 2 ( 0886): 144.00 6.073 4.17 78.51
=====
ID = 3 ( 4110): 148.50 6.268 4.17 78.49
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0885) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.48 0.0500
43.69 207.97 0.0500
66.92 207.94 0.0500
76.98 208.01 0.0500
87.94 208.25 0.0500
89.93 208.44 0.0500 / 0.0350 Main Channel
92.70 208.20 0.0350 Main Channel
95.51 207.28 0.0350 Main Channel
98.26 208.25 0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 207.33 .134E+01 0.0 0.06 52.81
0.10 207.38 .536E+01 0.0 0.10 33.27
0.15 207.43 .121E+02 0.0 0.13 25.39
0.19 207.47 .214E+02 0.0 0.15 20.96
0.24 207.52 .335E+02 0.0 0.18 18.06
0.29 207.57 .483E+02 0.1 0.20 15.99
0.34 207.62 .657E+02 0.1 0.22 14.43
0.39 207.67 .858E+02 0.1 0.24 13.20
0.44 207.72 .109E+03 0.1 0.26 12.21
0.48 207.76 .134E+03 0.2 0.28 11.38
0.53 207.81 .162E+03 0.3 0.30 10.68
0.58 207.86 .193E+03 0.3 0.32 10.08
0.63 207.91 .227E+03 0.4 0.34 9.55
0.68 207.96 .295E+03 0.5 0.32 10.12
0.73 208.01 .613E+03 0.7 0.22 14.89
```

```
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 / 0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400
124.41 207.31 0.0400
129.31 207.24 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 205.46 .110E+02 0.0 0.11 51.32
0.19 205.56 .438E+02 0.0 0.17 32.33
0.28 205.65 .986E+02 0.1 0.23 24.67
0.38 205.75 .175E+03 0.1 0.27 20.37
0.47 205.84 .271E+03 0.3 0.33 16.94
0.57 205.94 .379E+03 0.4 0.38 14.73
0.66 206.03 .501E+03 0.6 0.42 13.19
0.76 206.13 .644E+03 0.9 0.48 11.58
0.86 206.23 .845E+03 1.3 0.51 10.89
0.96 206.33 .140E+04 1.9 0.46 12.13
1.06 206.43 .209E+04 2.9 0.46 12.20
1.16 206.53 .290E+04 4.1 0.47 11.82
1.26 206.63 .383E+04 5.6 0.49 11.31
1.37 206.74 .489E+04 7.6 0.52 10.78
1.47 206.84 .607E+04 9.8 0.54 10.28
1.57 206.94 .737E+04 12.5 0.57 9.81
1.67 207.04 .879E+04 15.6 0.60 9.38
1.77 207.14 .103E+05 19.2 0.62 8.99
1.87 207.24 .120E+05 23.2 0.65 8.63
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4300) 144.00 6.10 3.92 78.51 1.29 0.50
OUTFLOW: ID= 1 ( 0886) 144.00 6.07 4.17 78.51 1.29 0.50
```

```
-----
| CALIB |
| NASHYD ( 0411) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 4.50 Curve Number (CN)= 86.7
Ia (mm)= 5.84 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.11
```

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW (cms)= 0.195 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 77.842
TOTAL RAINFALL (mm)= 112.200

```
0.78 208.06 .103E+04 1.0 0.20 16.42
0.82 208.10 .150E+04 1.5 0.20 16.27
0.87 208.15 .204E+04 2.2 0.21 15.61
0.92 208.20 .264E+04 3.0 0.22 14.84
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4110) 148.50 6.27 4.17 78.49 0.92 0.22
OUTFLOW: ID= 1 ( 0885) 148.50 6.23 4.42 78.49 0.92 0.22
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| CALIB |
| NASHYD ( 0041) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 25.40 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.21
```

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.989 (i)
TIME TO PEAK (hrs)= 4.833
RUNOFF VOLUME (mm)= 70.966
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0894) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

<----- TRAVEL TIME TABLE ----->

Model Without SWM Infrastructure - Output

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.523E+01	0.0	0.10	36.03
0.24	212.03	.209E+02	0.0	0.15	22.70
0.36	212.15	.471E+02	0.0	0.20	17.32
0.48	212.27	.837E+02	0.1	0.25	14.30
0.61	212.40	.131E+03	0.2	0.29	12.32
0.73	212.52	.412E+03	0.4	0.18	19.01
0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62
1.09	212.88	.328E+04	3.9	0.25	14.19
1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0041)	25.40	0.99	4.83	70.97	0.85	0.18
OUTFLOW: ID= 1 (0894)	25.40	0.98	5.08	70.97	0.84	0.18

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB						
NASHYD (0040)	Area	(ha)=	37.50	Curve Number	(CN)=	84.2
ID= 1 DT= 5.0 min	Ia	(mm)=	7.14	# of Linear Res.	(N)=	3.00
	U.H.	Tp(hrs)=	0.98			

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 1.546 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 72.272
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.644

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0040):	37.50	1.546	4.08	72.27
+ ID2= 2 (0894):	25.40	0.977	5.08	70.97
=====				
ID = 3 (4140):	62.90	2.477	4.67	71.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4101)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (4140):	62.90	2.477	4.67	71.74
+ ID2= 2 (0885):	148.50	6.231	4.42	78.49
=====				
ID = 3 (4101):	211.40	8.706	4.42	76.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0884)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	204.63	0.0400	
45.24	204.34	0.0400	
94.52	203.98	0.0400	
140.93	203.58	0.0400	
148.77	203.72	0.0400 / 0.0350	Main Channel
154.30	202.99	0.0350	Main Channel
158.02	203.77	0.0350 / 0.0400	Main Channel
174.30	203.79	0.0400	
222.94	204.38	0.0400	
285.62	204.03	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.620E+01	0.0	0.11	58.30
0.10	203.09	.248E+02	0.0	0.17	36.73
0.16	203.15	.558E+02	0.0	0.22	28.03
0.21	203.20	.992E+02	0.1	0.27	23.14
0.26	203.25	.155E+03	0.1	0.31	19.94
0.31	203.30	.223E+03	0.2	0.35	17.66
0.37	203.36	.304E+03	0.3	0.39	15.93
0.42	203.41	.397E+03	0.5	0.42	14.58
0.47	203.46	.502E+03	0.6	0.46	13.47

0.52	203.51	.620E+03	0.8	0.49	12.56
0.57	203.56	.750E+03	1.1	0.52	11.79
0.63	203.62	.934E+03	1.3	0.53	11.56
0.68	203.67	.129E+04	1.7	0.50	12.36
0.73	203.72	.184E+04	2.3	0.47	13.20
0.79	203.78	.270E+04	3.4	0.47	13.22
0.85	203.84	.412E+04	5.1	0.45	13.57
0.92	203.91	.583E+04	7.3	0.47	13.24
0.98	203.97	.783E+04	10.3	0.49	12.69
1.04	204.03	.101E+05	13.9	0.51	12.15

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4101)	211.40	8.71	4.42	76.48	0.94	0.47
OUTFLOW: ID= 1 (0884)	211.40	8.66	4.67	76.48	0.94	0.47

CALIB						
NASHYD (0410)	Area	(ha)=	8.50	Curve Number	(CN)=	85.5
ID= 1 DT= 5.0 min	Ia	(mm)=	6.46	# of Linear Res.	(N)=	3.00
	U.H.	Tp(hrs)=	0.94			

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.368 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 75.132
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.670

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4100)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0410):	8.50	0.368	3.83	75.13
+ ID2= 2 (0884):	211.40	8.665	4.67	76.48
=====				
ID = 3 (4100):	219.90	9.020	4.67	76.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	

NASHYD (0401)	Area	(ha)=	23.00	Curve Number	(CN)=	83.1
ID= 1 DT= 5.0 min	Ia	(mm)=	7.74	# of Linear Res.	(N)=	3.00
	U.H.	Tp(hrs)=	0.78			

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.961 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 69.895
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.623

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4001)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0401):	23.00	0.961	3.58	69.90
+ ID2= 2 (4100):	219.90	9.020	4.67	76.43
=====				
ID = 3 (4001):	242.90	9.922	4.58	75.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4001)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (4001):	242.90	9.922	4.58	75.81
+ ID2= 2 (4200):	67.00	2.718	3.92	71.03
=====				
ID = 1 (4001):	309.90	12.598	4.50	74.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0880)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	204.63	0.0400	
45.24	204.34	0.0400	
94.52	203.98	0.0400	
140.93	203.58	0.0400	
148.77	203.72	0.0400 / 0.0350	Main Channel
154.30	202.99	0.0350	Main Channel

Model Without SWM Infrastructure - Output

158.02 203.77 0.0350 /0.0400 Main Channel
174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)         (m/s)       (min)
0.05  203.04  .647E+01    0.0           0.11        59.17
0.10  203.09  .259E+02    0.0           0.17        37.28
0.16  203.15  .582E+02    0.0           0.23        28.45
0.21  203.20  .103E+03    0.1           0.27        23.48
0.26  203.25  .162E+03    0.1           0.32        20.24
0.31  203.30  .233E+03    0.2           0.36        17.92
0.37  203.36  .317E+03    0.3           0.40        16.17
0.42  203.41  .414E+03    0.5           0.43        14.79
0.47  203.46  .524E+03    0.6           0.47        13.68
0.52  203.51  .647E+03    0.8           0.50        12.75
0.57  203.56  .782E+03    1.1           0.54        11.96
0.63  203.62  .974E+03    1.4           0.55        11.73
0.68  203.67  .135E+04    1.8           0.51        12.55
0.73  203.72  .192E+04    2.4           0.48        13.39
0.79  203.78  .282E+04    3.5           0.48        13.41
0.85  203.84  .430E+04    5.2           0.47        13.77
0.92  203.91  .608E+04    7.5           0.48        13.44
0.98  203.97  .816E+04    10.6          0.50        12.88
1.04  204.03  .105E+05    14.2          0.52        12.33

<---- hydrograph ---->    <-pipe / channel->
AREA    QPEAK    TPEAK    R.V.    MAX DEPTH    MAX VEL
(ha)     (cms)     (hrs)     (mm)     (m)           (m/s)
INFLOW : ID= 2 ( 4001) 309.90 12.60 4.50 74.78 1.01 0.51
OUTFLOW: ID= 1 ( 0880) 309.90 12.55 4.75 74.77 1.01 0.51
```

```
-----
| CALIB
| NASHYD ( 0400)|
|ID= 1 DT= 5.0 min|
-----
Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 1.149 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 71.399
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.636
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4000)|
| 1 + 2 = 3 |
-----
AREA    QPEAK    TPEAK    R.V.
(ha)     (cms)     (hrs)     (mm)
ID1= 1 ( 0400): 27.60 1.149 3.75 71.40
+ ID2= 2 ( 0880): 309.90 12.551 4.75 74.77
=====
ID = 3 ( 4000): 337.50 13.650 4.75 74.50
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0200)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 25.60 Curve Number (CN)= 82.2
Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.79

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 1.034 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 67.979
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.606
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0023)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 7.00 Curve Number (CN)= 83.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.73

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.295 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 69.677
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.621
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
|
```

```
-----
| NASHYD ( 0022)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 3.40 Curve Number (CN)= 82.5
Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.20

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.163 (i)
TIME TO PEAK (hrs)= 2.167
RUNOFF VOLUME (mm)= 70.870
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0211)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 17.30 Curve Number (CN)= 81.3
Ia (mm)= 8.76 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.02

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.649 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 66.104
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.589
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0021)|
|ID= 1 DT= 5.0 min|
-----
Area (ha)= 47.60 Curve Number (CN)= 84.6
Ia (mm)= 6.93 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.93

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 2.008 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 73.144
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.652
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0871)|
```

| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance    Elevation    Manning
0.00        209.49        0.0400
35.71       208.88        0.0400
53.04       208.89        0.0400
64.12       208.50        0.0400 /0.0350 Main Channel
70.77       208.05        0.0350 Main Channel
74.98       208.02        0.0350 Main Channel
83.40       208.38        0.0350 /0.0400 Main Channel
88.06       208.63        0.0400
94.94       209.13        0.0400
105.88      209.54        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)         (m/s)       (min)
0.07  208.09  .241E+03    0.1           0.21        60.89
0.14  208.16  .678E+03    0.3           0.33        38.66
0.22  208.24  .127E+04    0.7           0.42        30.30
0.29  208.31  .201E+04    1.3           0.50        25.57
0.36  208.38  .290E+04    2.2           0.57        22.42
0.44  208.46  .405E+04    3.5           0.67        19.05
0.52  208.54  .537E+04    5.4           0.77        16.69
0.60  208.62  .690E+04    7.7           0.85        15.00
0.68  208.70  .866E+04    10.4          0.93        13.82
0.76  208.78  .106E+05    13.7          0.99        12.91
0.84  208.86  .128E+05    17.5          1.05        12.19
0.92  208.94  .159E+05    21.6          1.05        12.24
0.99  209.01  .197E+05    27.2          1.06        12.03
1.07  209.09  .238E+05    33.9          1.09        11.74
1.15  209.17  .284E+05    41.4          1.12        11.43
1.23  209.25  .333E+05    49.8          1.15        11.14
1.31  209.33  .386E+05    59.4          1.18        10.84
1.39  209.41  .444E+05    70.1          1.21        10.55
1.47  209.49  .506E+05    82.1          1.25        10.27

<---- hydrograph ---->    <-pipe / channel->
AREA    QPEAK    TPEAK    R.V.    MAX DEPTH    MAX VEL
(ha)     (cms)     (hrs)     (mm)     (m)           (m/s)
INFLOW : ID= 2 ( 0021) 47.60 2.01 3.83 73.14 0.35 0.56
OUTFLOW: ID= 1 ( 0871) 47.60 1.98 4.33 73.14 0.34 0.55
```

```
-----
| ADD HYD ( 2110)|
| 1 + 2 = 3 |
-----
AREA    QPEAK    TPEAK    R.V.
```

Model Without SWM Infrastructure - Output

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0211):	17.30	0.649	4.42	66.10
+ ID2= 2 (0022):	3.40	0.163	2.17	70.87
=====				
ID = 3 (2110):	20.70	0.776	4.25	66.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2110)	AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (2110):	20.70	0.776	4.25	66.89
+ ID2= 2 (0071):	47.60	1.978	4.33	73.14
=====				
ID = 1 (2110):	68.30	2.754	4.25	71.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area	(ha)=	Curve Number (CN)=
NASHYD (0220)	Ia	(mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.85	3.00

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 0.792 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 66.725
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.595

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area	(ha)=	Curve Number (CN)=
NASHYD (0020)	Ia	(mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.72	82.4

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.522 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 68.407
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.610

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)	Routing time step (min)'=
IN= 2--> OUT= 1	5.00

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56
0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46
0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.05

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0020)	12.60	0.52	3.50	68.41	0.45	0.66
OUTFLOW: ID= 1 (0875)	12.60	0.51	4.08	68.37	0.44	0.68

ADD HYD (2200)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0220):	20.30	0.792	3.83	66.72
+ ID2= 2 (0875):	12.60	0.508	4.08	68.37
=====				
ID = 3 (2200):	32.90	1.298	4.00	67.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2110):	68.30	2.754	4.25	71.24
+ ID2= 2 (2200):	32.90	1.298	4.00	67.35
=====				
ID = 3 (2101):	101.20	4.045	4.17	69.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)	Routing time step (min)'=
IN= 2--> OUT= 1	5.00

Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350
86.30	208.87	0.0350
89.86	209.20	0.0350 / 0.0300
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89

0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (2101)	101.20	4.05	4.17	69.98	0.49	0.46
OUTFLOW: ID= 1 (0870)	101.20	4.02	4.50	69.97	0.49	0.46

CALIB	Area	(ha)=	Curve Number (CN)=
NASHYD (0210)	Ia	(mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.64	82.3

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW (cms)= 0.384 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 68.192
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.608

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2100)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0210):	9.10	0.384	3.42	68.19
+ ID2= 2 (0870):	101.20	4.021	4.50	69.97
=====				
ID = 3 (2100):	110.30	4.370	4.50	69.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model Without SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0230)|
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 24.70 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.82
```

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 1.014 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 69.469
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.619

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0231)|
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 29.50 Curve Number (CN)= 81.9
Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 1.152 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 67.350
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.600

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0240)|
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 10.10 Curve Number (CN)= 82.0
Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.74
```

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.411 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 67.562
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0241)|
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 26.70 Curve Number (CN)= 82.3
Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.75
```

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 1.094 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 68.193
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.608

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0864)|
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .118E+02 0.0 0.27 29.62
0.24 212.03 .471E+02 0.0 0.42 18.66
0.36 212.15 .106E+03 0.1 0.56 14.24
0.48 212.27 .188E+03 0.3 0.67 11.76
0.61 212.40 .294E+03 0.5 0.78 10.13
0.73 212.52 .928E+03 1.0 0.51 15.63
0.85 212.64 .260E+04 2.7 0.50 15.93
0.97 212.76 .477E+04 5.8 0.58 13.67
1.09 212.88 .739E+04 10.6 0.68 11.67
1.21 213.00 .103E+05 17.1 0.79 10.01
1.33 213.12 .133E+05 25.0 0.89 8.85
1.45 213.24 .165E+05 34.4 0.99 8.00
1.57 213.36 .200E+05 45.3 1.08 7.34
1.70 213.49 .236E+05 57.6 1.16 6.82
```

```
1.82 213.61 .274E+05 71.4 1.24 6.39
1.94 213.73 .314E+05 86.8 1.31 6.02
2.06 213.85 .355E+05 104.6 1.40 5.66
2.18 213.97 .398E+05 124.9 1.49 5.31
2.37 214.16 .481E+05 161.2 1.59 4.97
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0241) 26.70 1.09 3.58 68.19 0.73 0.51
OUTFLOW: ID= 1 ( 0864) 26.70 1.07 4.00 68.19 0.73 0.51
```

```
-----
| ADD HYD ( 2301)|
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0231): 29.50 1.152 3.92 67.35
+ ID2= 2 ( 0240): 10.10 0.411 3.58 67.56
=====
ID = 3 ( 2301): 39.60 1.558 3.83 67.40
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2301)|
| 3 + 2 = 1 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 2301): 39.60 1.558 3.83 67.40
+ ID2= 2 ( 0864): 26.70 1.074 4.00 68.19
=====
ID = 1 ( 2301): 66.30 2.630 3.92 67.72
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0863)|
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 /0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 /0.0400 Main Channel
21.11 206.05 0.0400
```

```
22.02 206.13 0.0400 /0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .138E+01 0.0 0.11 58.11
0.09 205.28 .551E+01 0.0 0.18 36.61
0.13 205.32 .124E+02 0.0 0.23 27.94
0.17 205.36 .220E+02 0.0 0.28 23.06
0.22 205.41 .344E+02 0.0 0.33 19.87
0.26 205.45 .496E+02 0.0 0.37 17.60
0.31 205.50 .675E+02 0.1 0.41 15.88
0.35 205.54 .802E+02 0.1 0.45 14.53
0.39 205.58 .112E+03 0.1 0.48 13.43
0.44 205.63 .138E+03 0.2 0.52 12.52
0.48 205.67 .167E+03 0.2 0.55 11.81
0.52 205.71 .212E+03 0.2 0.44 14.65
0.57 205.76 .285E+03 0.3 0.43 15.23
0.61 205.80 .388E+03 0.4 0.44 14.79
0.66 205.85 .519E+03 0.6 0.47 13.99
0.70 205.89 .679E+03 0.9 0.50 13.12
0.74 205.93 .868E+03 1.2 0.53 12.29
0.79 205.98 .109E+04 1.6 0.56 11.53
0.83 206.02 .133E+04 2.0 0.60 10.85
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2301) 66.30 2.63 3.92 67.72 0.83 0.60
OUTFLOW: ID= 1 ( 0863) 66.30 2.62 4.17 67.72 0.83 0.60
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| ADD HYD ( 2300)|
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0230): 24.70 1.014 3.67 69.47
+ ID2= 2 ( 0863): 66.30 2.618 4.17 67.72
=====
ID = 3 ( 2300): 91.00 3.618 4.08 68.19
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model Without SWM Infrastructure - Output

```
-----
| ADD HYD ( 2011) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 2100): 110.30 4.370 4.50 69.83
+ ID2= 2 ( 2300): 91.00 3.618 4.08 68.19
=====
ID = 3 ( 2011): 201.30 7.963 4.25 69.09
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0862) |
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 204.63 0.0400
45.24 204.34 0.0400
94.52 203.98 0.0400
140.93 203.58 0.0400
148.77 203.72 0.0400 /0.0350 Main Channel
154.30 202.99 0.0350 Main Channel
158.02 203.77 0.0350 /0.0400 Main Channel
174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 203.04 .465E+01 0.0 0.10 47.86
0.10 203.09 .186E+02 0.0 0.15 30.15
0.16 203.15 .418E+02 0.0 0.20 23.01
0.21 203.20 .744E+02 0.1 0.24 18.99
0.26 203.25 .116E+03 0.1 0.28 16.37
0.31 203.30 .167E+03 0.2 0.32 14.50
0.37 203.36 .228E+03 0.3 0.35 13.08
0.42 203.41 .297E+03 0.4 0.39 11.97
0.47 203.46 .376E+03 0.6 0.42 11.06
0.52 203.51 .465E+03 0.8 0.45 10.31
0.57 203.56 .562E+03 1.0 0.48 9.68
0.63 203.62 .700E+03 1.2 0.49 9.49
0.68 203.67 .969E+03 1.6 0.45 10.15
0.73 203.72 .138E+04 2.1 0.43 10.83
0.79 203.78 .203E+04 3.1 0.43 10.85
0.85 203.84 .309E+04 4.6 0.41 11.14
0.92 203.91 .437E+04 6.7 0.42 10.87
0.98 203.97 .586E+04 9.4 0.44 10.42
1.04 204.03 .757E+04 12.7 0.46 9.97
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2011) 201.30 7.96 4.25 69.09 0.95 0.43
OUTFLOW: ID= 1 ( 0862) 201.30 7.94 4.50 69.09 0.94 0.43
```

```
-----
| CALIB |
| NASHYD ( 0201) | Area (ha)= 8.20 Curve Number (CN)= 82.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.60
```

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.354 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 68.828
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.613

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 2010) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0201): 8.20 0.354 3.33 68.83
+ ID2= 2 ( 0023): 7.00 0.295 3.50 69.68
=====
ID = 3 ( 2010): 15.20 0.647 3.42 69.22
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2010) |
| 3 + 2 = 1 |
-----
ID1= 3 ( 2010): 15.20 0.647 3.42 69.22
+ ID2= 2 ( 0862): 201.30 7.938 4.50 69.09
=====
ID = 1 ( 2010): 216.50 8.530 4.42 69.10
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0860) |
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.48 0.0500
43.69 207.97 0.0500
66.92 207.94 0.0500
76.98 208.01 0.0500
87.94 208.25 0.0500
89.93 208.44 0.0500 /0.0350 Main Channel
92.70 208.20 0.0350 Main Channel
95.51 207.28 0.0350 Main Channel
98.26 208.25 0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 207.33 .155E+01 0.0 0.16 23.32
0.10 207.38 .620E+01 0.0 0.25 14.69
0.15 207.43 .140E+02 0.0 0.33 11.21
0.19 207.47 .248E+02 0.0 0.40 9.26
0.24 207.52 .388E+02 0.1 0.47 7.98
0.29 207.57 .558E+02 0.1 0.53 7.06
0.34 207.62 .760E+02 0.2 0.59 6.37
0.39 207.67 .992E+02 0.3 0.64 5.83
0.44 207.72 .126E+03 0.4 0.69 5.39
0.48 207.76 .155E+03 0.5 0.74 5.03
0.53 207.81 .188E+03 0.7 0.79 4.72
0.58 207.86 .223E+03 0.8 0.84 4.45
0.63 207.91 .262E+03 1.0 0.88 4.22
0.68 207.96 .341E+03 1.3 0.83 4.47
0.73 208.01 .708E+03 1.8 0.57 6.58
0.78 208.06 .119E+04 2.7 0.51 7.25
0.82 208.10 .174E+04 4.0 0.52 7.19
0.87 208.15 .236E+04 5.7 0.54 6.89
0.92 208.20 .305E+04 7.8 0.57 6.55
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2010) 216.50 8.53 4.42 69.10 0.92 0.57
OUTFLOW: ID= 1 ( 0860) 216.50 8.52 4.58 69.10 0.92 0.57
```

```
-----
| ADD HYD ( 2000) |
```

```
-----
| 1 + 2 = 3 |
-----
ID1= 1 ( 0200): 25.60 1.034 3.67 67.98
+ ID2= 2 ( 0860): 216.50 8.522 4.58 69.10
=====
ID = 3 ( 2000): 242.10 9.511 4.50 68.98
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0300) | Area (ha)= 36.80 Curve Number (CN)= 83.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.90
```

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 1.491 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 69.896
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.623

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0031) | Area (ha)= 3.00 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.62
```

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.132 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 71.004
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.633

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0350) | Area (ha)= 1.50 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.38
```

Unit Hyd Qpeak (cms)= 0.151

Model Without SWM Infrastructure - Output

PEAK FLOW (cms)= 0.069 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 70.094
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.625

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0850)							
IN= 2----> OUT= 1							
Routing time step (min)'= 5.00							
<----- DATA FOR SECTION (1.1) ----->							
Distance	Elevation	Manning					
0.00	206.00	0.0400					
33.24	205.47	0.0400					
44.39	205.59	0.0400					
48.71	205.45	0.0400 / 0.0350	Main Channel				
51.02	204.50	0.0350	Main Channel				
54.33	205.44	0.0350 / 0.0400	Main Channel				
55.90	204.97	0.0400					
62.96	204.91	0.0400					
102.92	205.20	0.0400					
<----- TRAVEL TIME TABLE ----->							
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME		
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)		
0.04	204.54	.300E+01	0.0	0.15	86.75		
0.07	204.57	.120E+02	0.0	0.24	54.65		
0.11	204.61	.270E+02	0.0	0.31	41.70		
0.14	204.64	.480E+02	0.0	0.37	34.42		
0.18	204.68	.750E+02	0.0	0.43	29.67		
0.22	204.72	.108E+03	0.1	0.49	26.27		
0.25	204.75	.147E+03	0.1	0.54	23.71		
0.29	204.79	.192E+03	0.1	0.59	21.69		
0.33	204.83	.243E+03	0.2	0.64	20.05		
0.36	204.86	.300E+03	0.3	0.69	18.69		
0.40	204.90	.363E+03	0.3	0.73	17.54		
0.43	204.93	.488E+03	0.4	0.70	18.37		
0.47	204.97	.860E+03	0.6	0.56	22.95		
0.51	205.01	.144E+04	1.0	0.52	24.88		
0.54	205.04	.217E+04	1.5	0.52	24.65		
0.58	205.08	.304E+04	2.1	0.54	23.62		
0.61	205.11	.407E+04	3.0	0.57	22.38		
0.65	205.15	.524E+04	4.1	0.61	21.13		
0.69	205.19	.656E+04	5.5	0.64	19.97		
<---- hydrograph ---->							
<-pipe /							
AREA	QPEAK	TPEAK	R.V.	MAX DEPT			
(ha)	(cms)	(hrs)	(mm)	(m)			

INFLOW : ID= 2 (0350) 1.50 0.07 3.17 70.09 0.22 0.49
OUTFLOW: ID= 1 (0850) 1.50 0.07 3.33 69.77 0.21 0.48

CALIB
NASHYD (0032)
ID= 1 DT= 5.0 min

Area (ha)= 28.00
Ia (mm)= 7.58
U.H. Tp(hrs)= 0.95

Curve Number (CN)= 83.4
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 1.133 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 70.534
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.629

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3200)
1 + 2 = 3

AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)

ID1= 1 (0032): 28.00 1.133 4.00 70.53
+ ID2= 2 (0850): 1.50 0.066 3.33 69.77
=====

ID = 3 (3200): 29.50 1.194 4.00 70.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0301)
ID= 1 DT= 5.0 min

Area (ha)= 59.40
Ia (mm)= 7.97
U.H. Tp(hrs)= 1.23

Curve Number (CN)= 82.7
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 2.252 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 69.036
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.615

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3010)
1 + 2 = 3

AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)

ID1= 1 (0301): 59.40 2.252 5.08 69.04
+ ID2= 2 (3200): 29.50 1.194 4.00 70.50
=====

ID = 3 (3010): 88.90 3.411 4.67 69.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (3001)
1 + 2 = 3

AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)

ID1= 1 (3010): 88.90 3.411 4.67 69.52
+ ID2= 2 (0031): 3.00 0.132 3.33 71.00
=====

ID = 3 (3001): 91.90 3.526 4.58 69.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0852)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.20	0.0400			
100.00	206.26	0.0400			
111.30	206.19	0.0400 / 0.0350	Main Channel		
112.02	205.76	0.0350	Main Channel		
113.82	205.37	0.0350	Main Channel		
115.62	206.03	0.0350 / 0.0400	Main Channel		
117.77	207.30	0.0400			
120.56	207.40	0.0400			
124.41	207.31	0.0400			
129.31	207.24	0.0400			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	205.46	.132E+02	0.0	0.21	32.83
0.19	205.56	.529E+02	0.0	0.33	20.68
0.28	205.65	.119E+03	0.1	0.43	15.78
0.38	205.75	.212E+03	0.3	0.52	13.03
0.47	205.84	.327E+03	0.5	0.62	10.84
0.57	205.94	.458E+03	0.8	0.72	9.42

0.66 206.03 .604E+03 1.2 0.80 8.44
0.76 206.13 .777E+03 1.7 0.91 7.41
0.86 206.23 .102E+04 2.4 0.97 6.97
0.96 206.33 .168E+04 3.6 0.87 7.76
1.06 206.43 .252E+04 5.4 0.87 7.80
1.16 206.53 .350E+04 7.7 0.89 7.56
1.26 206.63 .463E+04 10.7 0.93 7.24
1.37 206.74 .590E+04 14.3 0.98 6.90
1.47 206.84 .732E+04 18.6 1.03 6.58
1.57 206.94 .889E+04 23.6 1.08 6.28
1.67 207.04 .106E+05 29.5 1.13 6.00
1.77 207.14 .125E+05 36.1 1.17 5.75
1.87 207.24 .145E+05 43.7 1.22 5.52

<---- hydrograph ----> <-pipe / channel-->

AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm) MAX DEPTH (m) MAX VEL (m/s)

INFLOW : ID= 2 (3001) 91.90 3.53 4.58 69.57 0.95 0.88
OUTFLOW: ID= 1 (0852) 91.90 3.52 4.83 69.57 0.95 0.88

ADD HYD (3000)
1 + 2 = 3

AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)

ID1= 1 (0300): 36.80 1.491 3.92 69.90
+ ID2= 2 (0852): 91.90 3.521 4.83 69.57
=====

ID = 3 (3000): 128.70 4.973 4.58 69.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0030)
ID= 1 DT= 5.0 min

Area (ha)= 1.10
Ia (mm)= 5.76
U.H. Tp(hrs)= 0.30

Curve Number (CN)= 81.5
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.049 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 69.014
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.615

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

ROUTE CHN(0854)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0030)	1.10	0.05	3.08	69.01	0.18	0.51
OUTFLOW: ID= 1 (0854)	1.10	0.05	3.17	69.00	0.18	0.51

CALIB

NASHYD (0340)
ID= 1 DT= 5.0 min

Area (ha)= 21.00
Ia (mm)= 7.91
U.H. Tp(hrs)= 0.69

Curve Number (CN)= 82.8
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.890 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 69.252
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3400)

1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0340):	21.00	0.890	3.42	69.25
+ ID2= 2 (0854):	1.10	0.049	3.17	69.00
ID = 3 (3400):	22.10	0.937	3.42	69.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB

NASHYD (0123)
ID= 1 DT= 5.0 min

Area (ha)= 24.60
Ia (mm)= 7.85
U.H. Tp(hrs)= 0.93

Curve Number (CN)= 82.9
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 0.984 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 69.469
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.619

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0814)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	214.06	0.0500

TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 75.804
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.676

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0813)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 / 0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.78
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0123)	24.60	0.98	4.00	69.47	0.73	0.50
OUTFLOW: ID= 1 (0814)	24.60	0.98	4.42	69.47	0.72	0.50

CALIB

NASHYD (0124)
ID= 1 DT= 5.0 min

Area (ha)= 24.30
Ia (mm)= 6.30
U.H. Tp(hrs)= 0.51

<---- hydrograph ---->

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 1.184 (i)

Model Without SWM Infrastructure - Output

INFLOW : ID= 2 (0124) 24.30 1.18 3.17 75.80 0.74 0.49
OUTFLOW: ID= 1 (0813) 24.30 1.13 3.50 75.79 0.74 0.49

| ADD HYD (1221)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0813):	24.30	1.133	3.50	75.79
+ ID2= 2 (0814):	24.60	0.976	4.42	69.47
=====				
ID = 3 (1221):	48.90	2.051	3.83	72.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0812)|
| IN= 2--> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->						
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)	
0.07	208.09	.533E+02	0.1	0.24	12.01	
0.14	208.16	.150E+03	0.3	0.37	7.63	
0.22	208.24	.280E+03	0.8	0.47	5.98	
0.29	208.31	.444E+03	1.5	0.56	5.04	
0.36	208.38	.642E+03	2.4	0.64	4.42	
0.44	208.46	.896E+03	4.0	0.75	3.76	
0.52	208.54	.119E+04	6.0	0.86	3.29	
0.60	208.62	.153E+04	8.6	0.96	2.96	
0.68	208.70	.192E+04	11.7	1.04	2.73	
0.76	208.78	.235E+04	15.4	1.11	2.55	
0.84	208.86	.283E+04	19.6	1.18	2.41	
0.92	208.94	.351E+04	24.2	1.17	2.41	
0.99	209.01	.435E+04	30.6	1.19	2.37	

0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 / 0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 / 0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 / 0.0400	
132.78	206.84	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	206.01	.147E+02	0.0	0.14	60.26
0.12	206.07	.590E+02	0.0	0.22	37.96
0.18	206.13	.133E+03	0.1	0.29	28.97
0.26	206.21	.302E+03	0.2	0.36	22.81
0.34	206.29	.671E+03	0.5	0.39	21.40
0.42	206.37	.151E+04	1.2	0.39	20.95
0.50	206.45	.254E+04	2.3	0.45	18.38
0.58	206.53	.376E+04	3.7	0.49	16.98
0.66	206.61	.544E+04	5.6	0.51	16.11
0.74	206.69	.764E+04	8.4	0.54	15.19
0.83	206.78	.104E+05	12.1	0.58	14.27
0.91	206.86	.134E+05	17.4	0.64	12.84
0.99	206.94	.166E+05	23.6	0.71	11.71
1.07	207.02	.201E+05	30.7	0.76	10.88
1.15	207.10	.239E+05	38.8	0.81	10.26
1.23	207.18	.280E+05	48.0	0.85	9.72
1.31	207.26	.325E+05	58.5	0.89	9.26
1.39	207.34	.373E+05	70.3	0.94	8.84
1.47	207.42	.424E+05	83.4	0.98	8.48

<---- hydrograph ---->				<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1220)	80.70	3.40	3.92	73.25	0.57
OUTFLOW: ID= 1 (0811)	80.70	3.37	4.25	73.25	0.56

| CALIB
| NASHYD (0121)|
| ID= 1 DT= 5.0 min |

Area	(ha)=	16.10	Curve Number (CN)=	86.5
Ia	(mm)=	5.94	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=		0.89		

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.729 (i)

1.07	209.09	.528E+04	38.0	1.22	2.31
1.15	209.17	.628E+04	46.4	1.26	2.26
1.23	209.25	.737E+04	55.9	1.29	2.20
1.31	209.33	.855E+04	66.6	1.33	2.14
1.39	209.41	.982E+04	78.7	1.36	2.08
1.47	209.49	.112E+05	92.1	1.40	2.03

<---- hydrograph ---->				<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1221)	48.90	2.05	3.83	72.61	0.33
OUTFLOW: ID= 1 (0812)	48.90	2.05	3.92	72.61	0.33

| CALIB
| NASHYD (0122)|
| ID= 1 DT= 5.0 min |

Area	(ha)=	31.80	Curve Number (CN)=	85.1
Ia	(mm)=	6.67	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=		0.96		

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 1.354 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 74.242
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.662

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1220)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0122):	31.80	1.354	3.92	74.24
+ ID2= 2 (0812):	48.90	2.051	3.92	72.61
=====				
ID = 3 (1220):	80.70	3.404	3.92	73.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0811)|
| IN= 2--> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	

TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 77.388
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.690

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1210)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0121):	16.10	0.729	3.67	77.39
+ ID2= 2 (0811):	80.70	3.369	4.25	73.25
=====				
ID = 3 (1210):	96.80	4.081	4.17	73.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB
| NASHYD (0146)|
| ID= 1 DT= 5.0 min |

Area	(ha)=	12.80	Curve Number (CN)=	83.0
Ia	(mm)=	7.80	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=		0.55		

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.566 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 69.676
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.621

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0844)|
| IN= 2--> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

Model Without SWM Infrastructure - Output

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.04	207.56	.107E+01	0.0	0.13	37.04	
0.08	207.60	.430E+01	0.0	0.20	23.33	
0.12	207.64	.966E+01	0.0	0.27	17.81	
0.16	207.68	.172E+02	0.0	0.32	14.70	
0.19	207.71	.268E+02	0.0	0.38	12.67	
0.23	207.75	.387E+02	0.1	0.42	11.22	
0.27	207.79	.526E+02	0.1	0.47	10.12	
0.31	207.83	.687E+02	0.1	0.51	9.26	
0.35	207.87	.870E+02	0.2	0.56	8.56	
0.39	207.91	.107E+03	0.2	0.60	7.98	
0.43	207.95	.130E+03	0.3	0.64	7.49	
0.47	207.99	.155E+03	0.4	0.67	7.07	
0.50	208.02	.181E+03	0.5	0.71	6.70	
0.54	208.06	.210E+03	0.6	0.75	6.38	
0.58	208.10	.242E+03	0.7	0.78	6.09	
0.62	208.14	.275E+03	0.8	0.82	5.83	
0.67	208.19	.329E+03	1.0	0.87	5.50	
0.72	208.24	.413E+03	1.3	0.89	5.36	
0.77	208.29	.540E+03	1.7	0.87	5.45	
<---- hydrograph ----> <-pipe / channel->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0146)	12.80	0.57	3.25	69.68	0.55	0.75
OUTFLOW: ID= 1 (0844)	12.80	0.56	3.33	69.67	0.55	0.75

CALIB			
NASHYD (0145)			
ID= 1 DT= 5.0 min			

Area	(ha)=	12.60	Curve Number (CN)= 83.3
Ia	(mm)=	7.63	# of Linear Res.(N)= 3.00
U.H. Tp	(hrs)=	0.59	
Unit Hyd Qpeak	(cms)=	0.816	
PEAK FLOW	(cms)=	0.557 (i)	
TIME TO PEAK	(hrs)=	3.333	
RUNOFF VOLUME	(mm)=	70.322	
TOTAL RAINFALL	(mm)=	112.200	
RUNOFF COEFFICIENT	=	0.627	
(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.			

ADD HYD (1450)				
1 + 2 = 3				

ID1= 1 (0145):	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
+ ID2= 2 (0844):	12.60	0.557	3.33	70.32
	12.80	0.565	3.33	69.67
=====				
ID = 3 (1450):	25.40	1.122	3.33	69.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0843)				
IN= 2----> OUT= 1				

Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 /0.0350		
28.59	211.79	0.0350		
32.89	214.16	0.0350 /0.0500		
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.12	211.91	.144E+02	0.0	0.23	42.45	
0.24	212.03	.578E+02	0.0	0.36	26.74	
0.36	212.15	.130E+03	0.1	0.48	20.41	
0.48	212.27	.231E+03	0.2	0.58	16.85	
0.61	212.40	.361E+03	0.4	0.67	14.52	
0.73	212.52	.114E+04	0.8	0.43	22.41	
0.85	212.64	.319E+04	2.3	0.43	22.83	
0.97	212.76	.585E+04	5.0	0.50	19.59	
1.09	212.88	.907E+04	9.0	0.58	16.72	
1.21	213.00	.126E+05	14.6	0.68	14.34	
1.33	213.12	.163E+05	21.4	0.77	12.69	
1.45	213.24	.203E+05	29.5	0.85	11.47	
1.57	213.36	.245E+05	38.8	0.92	10.52	
1.70	213.49	.289E+05	49.3	0.99	9.77	
1.82	213.61	.336E+05	61.2	1.06	9.15	
1.94	213.73	.385E+05	74.3	1.13	8.63	
2.06	213.85	.436E+05	89.6	1.20	8.11	
2.18	213.97	.488E+05	106.9	1.28	7.61	
2.37	214.16	.590E+05	138.1	1.36	7.13	

<---- hydrograph ----> <-pipe / channel->

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1450)	25.40	1.12	3.33	69.99	0.75	0.43
OUTFLOW: ID= 1 (0843)	25.40	1.07	3.75	69.98	0.75	0.43

CALIB			
NASHYD (0144)			
ID= 1 DT= 5.0 min			

Area	(ha)=	28.60	Curve Number (CN)= 82.9
Ia	(mm)=	7.85	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=	0.97		

Unit Hyd Qpeak	(cms)=	1.126	
PEAK FLOW	(cms)=	1.135	(i)
TIME TO PEAK	(hrs)=	4.167	
RUNOFF VOLUME	(mm)=	69.469	
TOTAL RAINFALL	(mm)=	112.200	
RUNOFF COEFFICIENT	=	0.619	
(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.			

ADD HYD (1440)				
1 + 2 = 3				

ID1= 1 (0144):	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
+ ID2= 2 (0843):	28.60	1.135	4.17	69.47
	25.40	1.073	3.75	69.98
=====				
ID = 3 (1440):	54.00	2.198	3.83	69.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0842)				
IN= 2----> OUT= 1				

Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.70	0.0400		
2.35	206.02	0.0400 /0.0350		
5.23	205.19	0.0350		
5.34	205.67	0.0350		
19.05	206.06	0.0350 /0.0400		
21.11	206.05	0.0400		
22.02	206.13	0.0400 /0.0350		
40.10	206.15	0.0350		

56.50 206.04 0.0350

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.04	205.23	.149E+01	0.0	0.09	81.67	
0.09	205.28	.594E+01	0.0	0.14	51.45	
0.13	205.32	.134E+02	0.0	0.18	39.26	
0.17	205.36	.238E+02	0.0	0.22	32.41	
0.22	205.41	.371E+02	0.0	0.25	27.93	
0.26	205.45	.535E+02	0.0	0.28	24.73	
0.31	205.50	.728E+02	0.1	0.31	22.32	
0.35	205.54	.950E+02	0.1	0.34	20.42	
0.39	205.58	.120E+03	0.1	0.37	18.87	
0.44	205.63	.149E+03	0.1	0.40	17.59	
0.48	205.67	.180E+03	0.2	0.42	16.60	
0.52	205.71	.228E+03	0.2	0.34	20.59	
0.57	205.76	.308E+03	0.2	0.33	21.41	
0.61	205.80	.418E+03	0.3	0.34	20.79	
0.66	205.85	.560E+03	0.5	0.36	19.66	
0.70	205.89	.732E+03	0.7	0.38	18.44	
0.74	205.93	.936E+03	0.9	0.41	17.27	
0.79	205.98	.117E+04	1.2	0.43	16.20	
0.83	206.02	.144E+04	1.6	0.46	15.24	

**** WARNING: TRAVEL TIME TABLE EXCEEDED

<---- hydrograph ----> <-pipe / channel->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1440)	54.00	2.20	3.83	69.71	0.83	0.46
OUTFLOW: ID= 1 (0842)	54.00	2.18	4.25	69.71	0.83	0.46

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB			
NASHYD (0143)			
ID= 1 DT= 5.0 min			

Unit Hyd Qpeak	(cms)=	0.989	

PEAK FLOW	(cms)=	1.080 (i)	
TIME TO PEAK	(hrs)=	4.417	
RUNOFF VOLUME	(mm)=	69.470	
TOTAL RAINFALL	(mm)=	112.200	
RUNOFF COEFFICIENT	=	0.619	

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

```
-----
| ADD HYD ( 1430) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0143): 27.70 1.080 4.42 69.47
+ ID2= 2 ( 0842): 54.00 2.177 4.25 69.71
=====
ID = 3 ( 1430): 81.70 3.255 4.25 69.63
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0841) |
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.66        0.0400
19.50         209.34        0.0400
37.91         208.66        0.0400
41.73         208.62        0.0400 / 0.0350 Main Channel
43.44         208.24        0.0350 Main Channel
45.75         208.62        0.0350 / 0.0450 Main Channel
54.00         208.79        0.0450 / 0.0400
77.43         209.05        0.0400
128.85        209.70        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)    (m)   (cu.m.)  (cms)      (m/s)    (min)
0.06   208.30 .216E+02 0.0         0.15     113.45
0.13   208.37 .864E+02 0.0         0.24     71.47
0.19   208.43 .194E+03 0.1         0.31     54.54
0.25   208.49 .345E+03 0.1         0.38     45.02
0.32   208.56 .540E+03 0.2         0.44     38.80
0.38   208.62 .777E+03 0.4         0.49     34.36
0.46   208.70 .152E+04 0.7         0.50     33.99
0.54   208.78 .281E+04 1.4         0.50     33.61
0.62   208.86 .469E+04 2.5         0.53     31.90
0.70   208.94 .734E+04 4.0         0.56     30.28
0.78   209.02 .107E+05 6.3         0.59     28.55
0.86   209.10 .149E+05 9.3         0.63     26.78
0.94   209.18 .198E+05 13.1        0.68     25.09
1.02   209.26 .253E+05 17.9        0.72     23.58
1.10   209.34 .315E+05 23.6        0.76     22.24
1.18   209.42 .386E+05 30.0        0.79     21.42
1.26   209.50 .465E+05 37.7        0.82     20.56
1.34   209.58 .554E+05 46.8        0.86     19.73
```

```
89.86      209.20      0.0350 / 0.0300 Main Channel
96.27      209.24      0.0300
103.53     209.40      0.0300
127.96     209.50      0.0300
158.58     209.70      0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)    (m)   (cu.m.)  (cms)      (m/s)    (min)
0.03   208.90 .706E+01 0.0         0.08     110.24
0.07   208.94 .282E+02 0.0         0.13     69.44
0.10   208.97 .636E+02 0.0         0.17     53.00
0.13   209.00 .113E+03 0.0         0.21     43.75
0.17   209.04 .177E+03 0.1         0.24     37.70
0.20   209.07 .254E+03 0.1         0.27     33.38
0.23   209.10 .346E+03 0.2         0.30     30.12
0.26   209.13 .452E+03 0.3         0.33     27.56
0.30   209.17 .572E+03 0.4         0.36     25.48
0.33   209.20 .706E+03 0.5         0.38     23.75
0.37   209.24 .118E+04 0.7         0.34     26.61
0.40   209.27 .196E+04 1.2         0.33     27.88
0.44   209.31 .291E+04 1.8         0.34     27.18
0.47   209.34 .404E+04 2.6         0.35     25.91
0.51   209.38 .536E+04 3.6         0.37     24.55
0.54   209.41 .686E+04 4.8         0.39     23.61
0.58   209.45 .865E+04 6.3         0.40     22.94
0.61   209.48 .108E+05 8.1         0.41     22.09
0.65   209.52 .132E+05 10.4        0.43     21.10
```

```
<---- hydrograph ----> <-pipe / channel->
AREA  QPEAK  TPEAK  R.V.  MAX DEPTH  MAX VEL
(ha)  (cms)  (hrs)  (mm)  (m)        (m/s)
INFLOW : ID= 2 ( 1420) 108.80 4.20 5.08 69.58 0.52 0.38
OUTFLOW: ID= 1 ( 0840) 108.80 4.16 5.42 69.58 0.52 0.38
```

```
-----
| CALIB
| NASHYD ( 0141) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 8.10 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.344 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 70.965
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632

```
1.42 209.66 .652E+05 57.3 0.90 18.94

<---- hydrograph ----> <-pipe / channel->
AREA  QPEAK  TPEAK  R.V.  MAX DEPTH  MAX VEL
(ha)  (cms)  (hrs)  (mm)  (m)        (m/s)
INFLOW : ID= 2 ( 1430) 81.70 3.26 4.25 69.63 0.66 0.55
OUTFLOW: ID= 1 ( 0841) 81.70 3.17 5.08 69.62 0.66 0.54
```

```
-----
| CALIB
| NASHYD ( 0142) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 27.10 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.22
```

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 1.034 (i)
TIME TO PEAK (hrs)= 5.000
RUNOFF VOLUME (mm)= 69.470
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.619

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1420) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0142): 27.10 1.034 5.00 69.47
+ ID2= 2 ( 0841): 81.70 3.171 5.08 69.62
=====
ID = 3 ( 1420): 108.80 4.204 5.08 69.58
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0840) |
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.52        0.0400
61.99         209.23        0.0400
76.86         209.20        0.0400
82.03         209.20        0.0400 / 0.0350 Main Channel
86.30         208.87        0.0350 Main Channel
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1410) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0141): 8.10 0.344 3.58 70.97
+ ID2= 2 ( 0840): 108.80 4.159 5.42 69.58
=====
ID = 3 ( 1410): 116.90 4.461 5.33 69.67
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0151) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 24.60 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.00
```

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.968 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 69.253
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0153) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 33.30 Curve Number (CN)= 82.6
Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.08
```

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 1.285 (i)
TIME TO PEAK (hrs)= 4.500
RUNOFF VOLUME (mm)= 68.829
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.613

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

```
| ROUTE CHN( 0834)|
| IN= 2--> OUT= 1 |
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          214.06        0.0500
6.27          213.95        0.0500
20.38         214.11        0.0500
25.18         213.97        0.0500 /0.0350 Main Channel
28.59         211.79        0.0350 Main Channel
32.89         214.16        0.0350 /0.0500 Main Channel
42.61         212.54        0.0500
59.11         212.41        0.0500
84.10         212.83        0.0500
100.76        213.78        0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.12 211.91 .125E+02 0.0 0.21 40.70
0.24 212.03 .501E+02 0.0 0.33 25.64
0.36 212.15 .113E+03 0.1 0.43 19.56
0.48 212.27 .200E+03 0.2 0.52 16.15
0.61 212.40 .313E+03 0.4 0.61 13.92
0.73 212.52 .987E+03 0.8 0.39 21.48
0.85 212.64 .277E+04 2.1 0.39 21.89
0.97 212.76 .507E+04 4.5 0.45 18.78
1.09 212.88 .786E+04 8.2 0.53 16.03
1.21 213.00 .109E+05 13.2 0.61 13.75
1.33 213.12 .142E+05 19.4 0.69 12.16
1.45 213.24 .176E+05 26.7 0.77 10.99
1.57 213.36 .212E+05 35.1 0.84 10.09
1.70 213.49 .251E+05 44.6 0.90 9.37
1.82 213.61 .291E+05 55.3 0.96 8.77
1.94 213.73 .334E+05 67.2 1.02 8.28
2.06 213.85 .378E+05 81.1 1.08 7.77
2.18 213.97 .423E+05 96.7 1.16 7.29
2.37 214.16 .512E+05 124.9 1.23 6.83
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0153) 33.30 1.28 4.50 68.83 0.77 0.39
OUTFLOW: ID= 1 ( 0834) 33.30 1.27 5.00 68.83 0.77 0.39
```

```
| CALIB
| NASHYD ( 0152) | Area (ha)= 16.20 Curve Number (CN)= 82.6
```

```
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.93
```

```
Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.642 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 68.829
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.613
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1520) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0152): 16.20 0.642 4.00 68.83
+ ID2= 2 ( 0834): 33.30 1.273 5.00 68.83
=====
ID = 3 ( 1520): 49.50 1.896 4.83 68.83
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0833)|
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.49        0.0400
35.71         208.88        0.0400
53.04         208.89        0.0400
64.12         208.50        0.0400 /0.0350 Main Channel
70.77         208.05        0.0350 Main Channel
74.98         208.02        0.0350 Main Channel
83.40         208.38        0.0350 /0.0400 Main Channel
88.06         208.63        0.0400
94.94         209.13        0.0400
105.88        209.54        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.07 208.09 .232E+03 0.1 0.19 65.23
0.14 208.16 .652E+03 0.3 0.30 41.42
0.22 208.24 .122E+04 0.6 0.38 32.47
0.29 208.31 .193E+04 1.2 0.45 27.40
0.36 208.38 .279E+04 1.9 0.51 24.03
```

```
0.44 208.46 .389E+04 3.2 0.60 20.41
0.52 208.54 .516E+04 4.8 0.69 17.88
0.60 208.62 .664E+04 6.9 0.77 16.07
0.68 208.70 .833E+04 9.4 0.83 14.80
0.76 208.78 .102E+05 12.3 0.89 13.84
0.84 208.86 .123E+05 15.7 0.94 13.07
0.92 208.94 .153E+05 19.4 0.94 13.11
0.99 209.01 .189E+05 24.5 0.96 12.89
1.07 209.09 .229E+05 30.4 0.98 12.57
1.15 209.17 .273E+05 37.1 1.01 12.25
1.23 209.25 .320E+05 44.7 1.03 11.94
1.31 209.33 .372E+05 53.3 1.06 11.62
1.39 209.41 .427E+05 63.0 1.09 11.30
1.47 209.49 .487E+05 73.7 1.12 11.00
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1520) 49.50 1.90 4.83 68.83 0.36 0.51
OUTFLOW: ID= 1 ( 0833) 49.50 1.88 5.17 68.82 0.35 0.51
```

```
| ADD HYD ( 1510) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0151): 24.60 0.968 4.25 69.25
+ ID2= 2 ( 0833): 49.50 1.884 5.17 68.82
=====
ID = 3 ( 1510): 74.10 2.827 5.08 68.96
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0832)|
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.50        0.0400
29.68         206.77        0.0400
43.70         206.13        0.0400 /0.0350 Main Channel
44.99         205.95        0.0350 Main Channel
47.70         206.24        0.0350 /0.0450 Main Channel
60.54         206.32        0.0450
80.11         206.99        0.0450
102.29        207.42        0.0450 /0.0400
132.78        206.84        0.0400
```

```
Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.269 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 71.186
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.634
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0150) | Area (ha)= 6.60 Curve Number (CN)= 83.7
| ID= 1 DT= 5.0 min | Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.96
```


Model Without SWM Infrastructure - Output

ADD HYD (1500)		AREA	QPEAK	TPEAK	R. V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0150):		6.60	0.269	4.00	71.19
+ ID2= 2 (0832):		74.10	2.817	5.25	68.96
=====					
ID = 3 (1500):		80.70	3.073	5.25	69.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1401) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1410):	116.90	4.461	5.33	69.67
+ ID2= 2 (1500):	80.70	3.073	5.25	69.14
=====				
ID = 3 (1401):	197.60	7.531	5.33	69.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

ROUTE CHN( 0830 )
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00           207.71         0.0400
58.83          206.71         0.0400
66.88          206.59         0.0400 / 0.0350 Main Channel
72.32          206.34         0.0350 Main Channel
77.68          206.55         0.0350 / 0.0800 Main Channel
82.85          206.54         0.0800
90.20          206.02         0.0800
94.03          206.48         0.0800
99.83          206.40         0.0800 / 0.0400
114.32         206.50         0.0400
136.07         206.86         0.0400
174.41         207.56         0.0400

```

		TRAVEL TIME TABLE			
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.222E+03	0.0	0.08	174.00
0.23	206.23	.115E+03	0.0	0.13	132.00
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34

0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	4.7	0.29	50.17
0.78	206.80	.196E+05	7.6	0.34	42.88
0.87	206.89	.258E+05	11.4	0.38	37.80
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11
1.37	207.39	.776E+05	54.6	0.61	23.71
1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1401	197.60	7.53	5.33	69.46	0.78	0.34
OUTFLOW: ID= 1 (0830)	197.60	7.24	5.83	69.45	0.77	0.33

CALIB			
NASHYD (0140)	Area (ha)=	18.30	Curve Number (CN)= 83.6
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.34	

Unit Hyd Qpeak (cms)= 0.522

```

PEAK FLOW      (cms)=  0.701 (i)
TIME TO PEAK   (hrs)=  5.167
RUNOFF VOLUME  (mm)=  70.966
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632

```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400)		AREA	QPEAK	TPEAK	R. V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0140):		18.30	0.701	5.17	70.97
+ ID2= 2 (0830):		197.60	7.235	5.83	69.45
=====					
ID = 3 (1400):		215.90	7.909	5.75	69.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB		
NASHVD (0131)	Area (ha)= 28.70	Curve Number (CN)= 82.1
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.11	

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 1.087 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 67.775
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.604

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB		
STANDHYD (0011)	Area (ha)= 132.00	
ID= 1 DT= 5.0 min	Total Imp(%)= 57.10	Dir. Conn.(%)= 45.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	75.37	56.63
Dep. Storage	(mm)=	1.00	8.95
Average Slope	(%)=	1.00	1.00
Length	(m)=	938.08	40.00
Mannings n	=	0.013	0.250

Max.Eff.Inten.(mm/hr)=	29.17	19.81
over (min)	15.00	35.00
Storage Coeff. (min)=	16.02 (ii)	32.63 (ii)
Unit Hyd. Tpeak (min)=	15.00	35.00
Unit Hyd. peak (cms)=	0.07	0.03

PEAK FLOW	(cms)=	4.73	2.81	6.573 (iii)
TIME TO PEAK	(hrs)=	2.08	3.33	2.25
RUNOFF VOLUME	(mm)=	111.20	63.19	84.80
TOTAL RAINFALL	(mm)=	112.20	112.20	112.20
RUNOFF COEFFICIENT	=	0.99	0.56	0.76

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0012)	Area (ha)=	17.50	
ID= 1 DT= 5.0 min	Total Imp(%)=	80.00	Dir. Conn.(%)= 70.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.00	3.50
Dep. Storage	(mm)=	1.00	8.94
Average Slope	(%)=	1.00	1.00
Length	(m)=	341.57	40.00
Mannings n	=	0.013	0.250

Max.Eff.Inten.(mm/hr)=	29.17	26.07
over (min)	10.00	25.00
Storage Coeff. (min)=	8.74 (ii)	23.62 (ii)
Unit Hyd. Tpeak (min)=	10.00	25.00
Unit Hyd. peak (cms)=	0.12	0.05

PEAK FLOW	(cms)=	0.99	0.23	1.175 (iii)
TIME TO PEAK	(hrs)=	2.08	3.17	2.08
RUNOFF VOLUME	(mm)=	111.20	68.10	98.27
TOTAL RAINFALL	(mm)=	112.20	112.20	112.20
RUNOFF COEFFICIENT	=	0.99	0.61	0.88

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	132.00	6.573	2.25	84.80
+ ID2= 2 (0012):	17.50	1.175	2.08	98.27
=====				
ID = 3 (1112):	149.50	7.710	2.17	86.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	12.90	
STANDHYD (0010)	Total Imp(%)=	80.00	Dir. Conn.(%)= 70.00
ID= 1 DT= 5.0 min			

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	10.32	2.58
Dep. Storage	(mm)=	1.00	8.94

Model Without SWM Infrastructure - Output

Average Slope (%)= 1.00 1.00
Length (m)= 293.26 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 29.17 26.07
over (min) 10.00 25.00
Storage Coeff. (min)= 7.97 (ii) 22.85 (ii)
Unit Hyd. Tpeak (min)= 10.00 25.00
Unit Hyd. peak (cms)= 0.13 0.05

PEAK FLOW (cms)= 0.73 0.17
TIME TO PEAK (hrs)= 2.08 3.17
RUNOFF VOLUME (mm)= 111.20 68.10
TOTAL RAINFALL (mm)= 112.20 112.20
RUNOFF COEFFICIENT = 0.99 0.61

TOTALS
0.868 (iii)
2.08
98.27
112.20
0.88

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	12.90	0.868	2.08	98.27
+ ID2= 2 (1112):	149.50	7.710	2.17	86.37
=====				
ID = 3 (1311):	162.40	8.554	2.17	87.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	207.71	0.0400	
58.83	206.71	0.0400	
66.88	206.59	0.0400 / 0.0350	Main Channel
72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	

114.32 206.50 0.0400
136.07 206.86 0.0400
174.41 207.56 0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.337E+02	0.0	0.07	124.18
0.15	206.17	.135E+03	0.0	0.11	78.23
0.23	206.25	.303E+03	0.1	0.15	59.70
0.30	206.32	.539E+03	0.2	0.18	49.28
0.38	206.40	.885E+03	0.3	0.20	43.17
0.45	206.47	.175E+04	0.6	0.19	46.91
0.53	206.55	.333E+04	1.4	0.23	38.64
0.61	206.63	.569E+04	3.4	0.31	27.90
0.70	206.72	.851E+04	6.3	0.39	22.56
0.78	206.80	.118E+05	10.2	0.45	19.28
0.87	206.89	.155E+05	15.2	0.51	17.00
0.95	206.97	.196E+05	21.4	0.57	15.28
1.04	207.06	.242E+05	28.9	0.63	13.96
1.12	207.14	.292E+05	37.7	0.68	12.90
1.20	207.22	.346E+05	47.9	0.73	12.02
1.29	207.31	.404E+05	59.6	0.77	11.29
1.37	207.39	.466E+05	72.9	0.82	10.66
1.46	207.48	.533E+05	87.8	0.86	10.11
1.54	207.56	.604E+05	104.5	0.91	9.63

<---- hydrograph ----> <-pipe / channel-->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1311)	162.40	8.55	2.17	87.32	0.75	0.42
OUTFLOW: ID= 1 (0822)	162.40	8.12	3.17	87.31	0.74	0.42

ADD HYD (1310)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0131):	28.70	1.087	4.67	67.78
+ ID2= 2 (0822):	162.40	8.125	3.17	87.31
=====				
ID = 3 (1310):	191.10	8.988	3.17	84.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0821)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	207.71	0.0400	
58.83	206.71	0.0400	
66.88	206.59	0.0400 / 0.0350	Main Channel
72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	
174.41	207.56	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60
0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

<---- hydrograph ----> <-pipe / channel-->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1310)	191.10	8.99	3.17	84.38	0.78	0.40
OUTFLOW: ID= 1 (0821)	191.10	8.48	3.42	84.37	0.77	0.39

CALIB
NASHYD (0130) | Area (ha)= 26.70 Curve Number (CN)= 81.7

ID= 1 DT= 5.0 min | Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.32

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 0.975 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 66.936
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.597

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1300)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0130):	26.70	0.975	5.25	66.94
+ ID2= 2 (0821):	191.10	8.476	3.42	84.37
=====				
ID = 3 (1300):	217.80	9.254	3.58	82.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1202)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1300):	217.80	9.254	3.58	82.24
+ ID2= 2 (1400):	215.90	7.909	5.75	69.58
=====				
ID = 3 (1202):	433.70	16.283	5.25	75.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0820)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	206.54	0.0450	
43.13	205.35	0.0450	
67.41	205.27	0.0450	
86.35	205.38	0.0450 / 0.0350	Main Channel
90.47	204.70	0.0350	Main Channel
93.03	205.16	0.0350 / 0.0400	Main Channel
101.99	205.21	0.0400	

Model Without SWM Infrastructure - Output

151.82	204.97	0.0400
252.14	206.45	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.681E+01	0.0	0.08	28.42
0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80
0.37	205.07	.292E+03	0.3	0.12	18.72
0.46	205.16	.859E+03	0.9	0.14	16.44
0.55	205.25	.182E+04	2.3	0.17	13.44
0.64	205.34	.311E+04	4.7	0.21	11.04
0.74	205.44	.487E+04	8.4	0.24	9.67
0.83	205.53	.676E+04	13.3	0.27	8.48
0.92	205.62	.877E+04	19.3	0.30	7.58
1.01	205.71	.109E+05	26.4	0.33	6.90
1.10	205.80	.132E+05	34.5	0.36	6.36
1.20	205.90	.155E+05	43.8	0.39	5.92
1.29	205.99	.181E+05	54.1	0.42	5.56
1.38	206.08	.207E+05	65.6	0.44	5.25
1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1202)	433.70	16.28	5.25	75.93	0.87
OUTFLOW: ID= 1 (0820)	433.70	16.24	5.25	75.93	0.87

ADD HYD (1201)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1210):	96.80	4.081	4.17	73.94
+ ID2= 2 (0820):	433.70	16.240	5.25	75.93
=====				
ID = 3 (1201):	530.50	20.133	5.25	75.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0810)	
IN= 2----> OUT= 1	

Routing time step (min)'= 5.00

PEAK FLOW	(cms)= 0.357 (i)
TIME TO PEAK	(hrs)= 4.583
RUNOFF VOLUME	(mm)= 71.834
TOTAL RAINFALL	(mm)= 112.200
RUNOFF COEFFICIENT	= 0.640

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1200)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0120):	9.00	0.357	4.58	71.83
+ ID2= 2 (0810):	530.50	19.564	5.42	75.57
=====				
ID = 3 (1200):	539.50	19.912	5.42	75.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0113)	
ID= 1 DT= 5.0 min	

Area (ha)= 13.50 Curve Number (CN)= 82.5
Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.87

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW	(cms)= 0.540 (i)
TIME TO PEAK	(hrs)= 3.833
RUNOFF VOLUME	(mm)= 68.614
TOTAL RAINFALL	(mm)= 112.200
RUNOFF COEFFICIENT	= 0.612

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0802)	
IN= 2----> OUT= 1	

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.54	0.0450	
43.13	205.35	0.0450	
67.41	205.27	0.0450	
86.35	205.38	0.0450 / 0.0350	Main Channel
90.47	204.70	0.0350	Main Channel
93.03	205.16	0.0350 / 0.0400	Main Channel
101.99	205.21	0.0400	
151.82	204.97	0.0400	
252.14	206.45	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.229E+02	0.0	0.07	106.67
0.18	204.88	.915E+02	0.0	0.12	67.20
0.28	204.98	.208E+03	0.1	0.15	51.82
0.37	205.07	.981E+03	0.2	0.11	70.28
0.46	205.16	.288E+04	0.8	0.13	61.71
0.55	205.25	.610E+04	2.0	0.15	50.43
0.64	205.34	.105E+05	4.2	0.19	41.45
0.74	205.44	.163E+05	7.5	0.21	36.28
0.83	205.53	.227E+05	11.9	0.24	31.82
0.92	205.62	.294E+05	17.2	0.27	28.46
1.01	205.71	.366E+05	23.6	0.30	25.89
1.10	205.80	.442E+05	30.9	0.32	23.87
1.20	205.90	.522E+05	39.1	0.35	22.23
1.29	205.99	.606E+05	48.4	0.37	20.87
1.38	206.08	.694E+05	58.7	0.39	19.72
1.47	206.17	.786E+05	70.0	0.41	18.74
1.57	206.27	.883E+05	82.3	0.43	17.88
1.66	206.36	.983E+05	95.7	0.45	17.12
1.75	206.45	.109E+06	110.2	0.47	16.45

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1201)	530.50	20.13	5.25	75.57	0.96
OUTFLOW: ID= 1 (0810)	530.50	19.56	5.42	75.57	0.95

CALIB	
NASHYD (0120)	
ID= 1 DT= 5.0 min	

Area (ha)= 9.00 Curve Number (CN)= 84.0
Ia (mm)= 7.25 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.16

Unit Hyd Qpeak (cms)= 0.296

23.86	208.59	0.0300

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.448E+01	0.0	0.12	164.32
0.08	207.60	.179E+02	0.0	0.19	103.51
0.12	207.64	.403E+02	0.0	0.25	79.00
0.16	207.68	.716E+02	0.0	0.30	65.21
0.19	207.71	.112E+03	0.0	0.35	56.20
0.23	207.75	.161E+03	0.1	0.40	49.76
0.27	207.79	.219E+03	0.1	0.44	44.90
0.31	207.83	.287E+03	0.1	0.48	41.08
0.35	207.87	.363E+03	0.2	0.52	37.98
0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88
0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79
0.77	208.29	.225E+04	1.6	0.82	24.20

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0113)	13.50	0.54	3.83	68.61	0.55
OUTFLOW: ID= 1 (0802)	13.50	0.53	4.42	68.54	0.55

CALIB	
NASHYD (0112)	
ID= 1 DT= 5.0 min	

Area (ha)= 30.50 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.60

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW	(cms)= 1.097 (i)
TIME TO PEAK	(hrs)= 5.500
RUNOFF VOLUME	(mm)= 69.253
TOTAL RAINFALL	(mm)= 112.200
RUNOFF COEFFICIENT	= 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0111) |
| ID= 1 DT= 5.0 min
|-----
Area (ha)= 45.50 Curve Number (CN)= 82.3
Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.33
```

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 1.686 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 68.194
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.608

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1101) |
| 1 + 2 = 3 |
|-----
ID1= 1 ( 0111): 45.50 1.686 5.25 68.19
+ ID2= 2 ( 0112): 30.50 1.097 5.50 69.25
=====
ID = 3 ( 1101): 76.00 2.778 5.33 68.62
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 1101) |
| 3 + 2 = 1 |
|-----
ID1= 3 ( 1101): 76.00 2.778 5.33 68.62
+ ID2= 2 ( 0802): 13.50 0.528 4.42 68.54
=====
ID = 1 ( 1101): 89.50 3.294 5.25 68.61
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0801) |
| IN= 2---> OUT= 1 |
|-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.66 0.0400
19.50 209.34 0.0400
37.91 208.66 0.0400
41.73 208.62 0.0400 /0.0350 Main Channel
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1100) |
| 1 + 2 = 3 |
|-----
ID1= 1 ( 0110): 11.90 0.516 3.42 70.53
+ ID2= 2 ( 0801): 89.50 3.258 5.50 68.61
=====
ID = 3 ( 1100): 101.40 3.691 5.33 68.83
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 1001) |
| 1 + 2 = 3 |
|-----
ID1= 1 ( 1100): 101.40 3.691 5.33 68.83
+ ID2= 2 ( 1200): 539.50 19.912 5.42 75.51
=====
ID = 3 ( 1001): 640.90 23.599 5.42 74.45
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0800) |
| IN= 2---> OUT= 1 |
|-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 /0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 /0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .255E+02 0.0 0.16 54.50
0.18 204.88 .102E+03 0.0 0.25 34.33
0.28 204.98 .232E+03 0.1 0.33 26.47
0.37 205.07 .109E+04 0.5 0.24 35.91
```

```
43.44 208.24 0.0350 Main Channel
45.75 208.62 0.0350 /0.0450 Main Channel
54.00 208.79 0.0450 /0.0400
77.43 209.05 0.0400
128.85 209.70 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 208.30 .104E+02 0.0 0.10 83.26
0.13 208.37 .415E+02 0.0 0.16 52.45
0.19 208.43 .934E+02 0.0 0.20 40.03
0.25 208.49 .166E+03 0.1 0.25 33.04
0.32 208.56 .259E+03 0.2 0.29 28.47
0.38 208.62 .373E+03 0.2 0.32 25.22
0.46 208.70 .729E+03 0.5 0.33 24.94
0.54 208.78 .135E+04 0.9 0.33 24.67
0.62 208.86 .225E+04 1.6 0.35 23.41
0.70 208.94 .352E+04 2.6 0.37 22.23
0.78 209.02 .516E+04 4.1 0.39 20.96
0.86 209.10 .716E+04 6.1 0.41 19.65
0.94 209.18 .949E+04 8.6 0.44 18.42
1.02 209.26 .122E+05 11.7 0.47 17.31
1.10 209.34 .152E+05 15.5 0.50 16.32
1.18 209.42 .185E+05 19.7 0.52 15.72
1.26 209.50 .224E+05 24.7 0.54 15.09
1.34 209.58 .266E+05 30.6 0.56 14.48
1.42 209.66 .313E+05 37.5 0.59 13.90
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1101) 89.50 3.29 5.25 68.61 0.74 0.38
OUTFLOW: ID= 1 ( 0801) 89.50 3.26 5.50 68.61 0.73 0.38
```

```
-----
| CALIB
| NASHYD ( 0110) |
| ID= 1 DT= 5.0 min
|-----
Area (ha)= 11.90 Curve Number (CN)= 83.4
Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.68
```

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.516 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 70.534
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.629

```
0.46 205.16 .321E+04 1.7 0.27 31.53
0.55 205.25 .680E+04 4.4 0.33 25.77
0.64 205.34 .116E+05 9.2 0.41 21.18
0.74 205.44 .182E+05 16.4 0.47 18.54
0.83 205.53 .253E+05 25.9 0.53 16.26
0.92 205.62 .328E+05 37.6 0.59 14.54
1.01 205.71 .408E+05 51.4 0.65 13.23
1.10 205.80 .492E+05 67.3 0.71 12.19
1.20 205.90 .581E+05 85.3 0.76 11.36
1.29 205.99 .675E+05 105.5 0.81 10.66
1.38 206.08 .773E+05 127.9 0.86 10.08
1.47 206.17 .876E+05 152.5 0.90 9.57
1.57 206.27 .983E+05 179.4 0.94 9.13
1.66 206.36 .109E+06 208.6 0.99 8.75
1.75 206.45 .121E+06 240.2 1.03 8.41
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1001) 640.90 23.60 5.42 74.45 0.81 0.51
OUTFLOW: ID= 1 ( 0800) 640.90 23.41 5.50 74.45 0.80 0.51
```

```
-----
| CALIB
| NASHYD ( 0100) |
| ID= 1 DT= 5.0 min
|-----
Area (ha)= 54.70 Curve Number (CN)= 83.2
Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.23
```

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 2.101 (i)
TIME TO PEAK (hrs)= 5.000
RUNOFF VOLUME (mm)= 70.105
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.625

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1000) |
| 1 + 2 = 3 |
|-----
ID1= 1 ( 0100): 54.70 2.101 5.00 70.11
+ ID2= 2 ( 0800): 640.90 23.407 5.50 74.45
=====
ID = 3 ( 1000): 695.60 25.466 5.50 74.11
```

Model Without SWM Infrastructure - Output

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0190)	Area (ha)=	12.30	Curve Number (CN)= 83.9
ID= 1 DT= 5.0 min	Ia (mm)=	7.31	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.83	

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.520 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 71.612
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.638

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0191)	Area (ha)=	20.10	Curve Number (CN)= 82.0
ID= 1 DT= 5.0 min	Ia (mm)=	8.36	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.94	

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.780 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 67.562
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0192)	Area (ha)=	28.30	Curve Number (CN)= 80.3
ID= 1 DT= 5.0 min	Ia (mm)=	6.23	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.06	

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 1.054 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 66.730
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.595

1.31	209.33	.559E+04	50.0	1.00	1.86
1.39	209.41	.643E+04	59.1	1.02	1.81
1.47	209.49	.732E+04	69.1	1.05	1.76

<---- hydrograph <---->				<-pipe / channel->		
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1901)	48.40	1.83	4.33	67.08	0.36	0.48
OUTFLOW: ID= 1 (0899)	48.40	1.83	4.33	67.08	0.36	0.48

[ADD HYD (1900)]					
[1 + 2 = 3]		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0190):		12.30	0.520	3.67	71.61
+ ID2= 2 (0899):		48.40	1.831	4.33	67.08
=====					
ID = 3 (1900):		60.70	2.336	4.17	67.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0500)	Area (ha)=	7.60	Curve Number (CN)= 82.8
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.48	

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.339 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 69.249
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0510)	Area (ha)=	12.70	Curve Number (CN)= 81.7
ID= 1 DT= 5.0 min	Ia (mm)=	8.53	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.69	

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.518 (i)

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1901)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0191):	20.10	0.780	4.17	67.56
+ ID2= 2 (0192):	28.30	1.054	4.42	66.73
=====				
ID = 3 (1901):	48.40	1.831	4.33	67.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0899)		
IN= 2----> OUT= 1	Routing time step (min)'=	5.00

<----- DATA FOR SECTION (1.1) <----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE <----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.349E+02	0.1	0.18	10.46
0.14	208.16	.981E+02	0.2	0.28	6.64
0.22	208.24	.183E+03	0.6	0.36	5.21
0.29	208.31	.291E+03	1.1	0.42	4.40
0.36	208.38	.420E+03	1.8	0.48	3.85
0.44	208.46	.586E+03	3.0	0.57	3.27
0.52	208.54	.777E+03	4.5	0.65	2.87
0.60	208.62	.999E+03	6.5	0.72	2.58
0.68	208.70	.125E+04	8.8	0.78	2.37
0.76	208.78	.154E+04	11.5	0.84	2.22
0.84	208.86	.185E+04	14.7	0.89	2.10
0.92	208.94	.230E+04	18.2	0.88	2.10
0.99	209.01	.285E+04	23.0	0.90	2.07
1.07	209.09	.345E+04	28.5	0.92	2.02
1.15	209.17	.411E+04	34.8	0.94	1.96
1.23	209.25	.482E+04	42.0	0.97	1.91

TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 66.935
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.597

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0520)	Area (ha)=	17.30	Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min	Ia (mm)=	8.08	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.78	

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.708 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 68.614
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.612

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (5000)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0500):		7.60	0.339	3.17	69.25
+ ID2= 2 (0510):		12.70	0.518	3.50	66.93
=====					
ID = 3 (5000):		20.30	0.852	3.33	67.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (5000)					
3 + 2 = 1					
-----		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (5000):		20.30	0.852	3.33	67.80
+ ID2= 2 (0520):		17.30	0.708	3.58	68.61
=====					
ID = 1 (5000):		37.60	1.552	3.42	68.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	

Model Without SWM Infrastructure - Output

NASHYD (0600) | Area (ha)= 2.50 Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.45

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.111 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 68.609
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.611

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

=====

V V I SSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\4a15f9ea3-7174-4855-bb10-7527dca2ab40\sce

Summary filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\4a15f9ea3-7174-4855-bb10-7527dca2ab40\sce

DATE: 10-17-2025

TIME: 02:15:15

USER:

COMMENTS: _____

** SIMULATION : 8 **

READ STORM | Filename: C:\Users\wraymond\AppData\Local\Temp\
35eb7828-247c-431e-8f8f-00c8304cf789\2375f8f4
Ptotal=285.00 mm | Comments: Hazel-48hr-2.0

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	2.00	12.00	2.00	24.00	2.00	36.00	6.00
0.25	2.00	12.25	2.00	24.25	2.00	36.25	6.00
0.50	2.00	12.50	2.00	24.50	2.00	36.50	6.00
0.75	2.00	12.75	2.00	24.75	2.00	36.75	6.00
1.00	2.00	13.00	2.00	25.00	2.00	37.00	4.00
1.25	2.00	13.25	2.00	25.25	2.00	37.25	4.00
1.50	2.00	13.50	2.00	25.50	2.00	37.50	4.00
1.75	2.00	13.75	2.00	25.75	2.00	37.75	4.00
2.00	2.00	14.00	2.00	26.00	2.00	38.00	6.00
2.25	2.00	14.25	2.00	26.25	2.00	38.25	6.00
2.50	2.00	14.50	2.00	26.50	2.00	38.50	6.00
2.75	2.00	14.75	2.00	26.75	2.00	38.75	6.00
3.00	2.00	15.00	2.00	27.00	2.00	39.00	13.00
3.25	2.00	15.25	2.00	27.25	2.00	39.25	13.00
3.50	2.00	15.50	2.00	27.50	2.00	39.50	13.00
3.75	2.00	15.75	2.00	27.75	2.00	39.75	13.00
4.00	2.00	16.00	2.00	28.00	2.00	40.00	17.00
4.25	2.00	16.25	2.00	28.25	2.00	40.25	17.00
4.50	2.00	16.50	2.00	28.50	2.00	40.50	17.00
4.75	2.00	16.75	2.00	28.75	2.00	40.75	17.00
5.00	2.00	17.00	2.00	29.00	2.00	41.00	13.00
5.25	2.00	17.25	2.00	29.25	2.00	41.25	13.00
5.50	2.00	17.50	2.00	29.50	2.00	41.50	13.00
5.75	2.00	17.75	2.00	29.75	2.00	41.75	13.00
6.00	2.00	18.00	2.00	30.00	2.00	42.00	23.00
6.25	2.00	18.25	2.00	30.25	2.00	42.25	23.00
6.50	2.00	18.50	2.00	30.50	2.00	42.50	23.00
6.75	2.00	18.75	2.00	30.75	2.00	42.75	23.00
7.00	2.00	19.00	2.00	31.00	2.00	43.00	13.00
7.25	2.00	19.25	2.00	31.25	2.00	43.25	13.00
7.50	2.00	19.50	2.00	31.50	2.00	43.50	13.00
7.75	2.00	19.75	2.00	31.75	2.00	43.75	13.00

8.00	2.00	20.00	2.00	32.00	2.00	44.00	13.00
8.25	2.00	20.25	2.00	32.25	2.00	44.25	13.00
8.50	2.00	20.50	2.00	32.50	2.00	44.50	13.00
8.75	2.00	20.75	2.00	32.75	2.00	44.75	13.00
9.00	2.00	21.00	2.00	33.00	2.00	45.00	53.00
9.25	2.00	21.25	2.00	33.25	2.00	45.25	53.00
9.50	2.00	21.50	2.00	33.50	2.00	45.50	53.00
9.75	2.00	21.75	2.00	33.75	2.00	45.75	53.00
10.00	2.00	22.00	2.00	34.00	2.00	46.00	38.00
10.25	2.00	22.25	2.00	34.25	2.00	46.25	38.00
10.50	2.00	22.50	2.00	34.50	2.00	46.50	38.00
10.75	2.00	22.75	2.00	34.75	2.00	46.75	38.00
11.00	2.00	23.00	2.00	35.00	3.00	47.00	13.00
11.25	2.00	23.25	2.00	35.25	3.00	47.25	13.00
11.50	2.00	23.50	2.00	35.50	3.00	47.50	13.00
11.75	2.00	23.75	2.00	35.75	3.00	47.75	13.00

| CALIB |
| NASHYD (0185) | Area (ha)= 2.00 Curve Number (CN)= 79.5
| ID= 1 DT= 5.0 min | Ia (mm)= 6.54 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.36

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00

1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00

Model Without SWM Infrastructure - Output

6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00

10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.264 (i)
TIME TO PEAK (hrs)= 46.083
RUNOFF VOLUME (mm)= 225.392
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.791

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0180) | Area (ha)= 6.80 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.85

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00

0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00

4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00

Model Without SWM Infrastructure - Output

| NASHYD (0170) | Area (ha)= 5.80 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.69

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.737 (i)
TIME TO PEAK (hrs)= 47.000
RUNOFF VOLUME (mm)= 231.505
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.812

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00

3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00

7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
0.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
0.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
0.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
0.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
0.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
0.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
0.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
0.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
0.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
0.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
0.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
0.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
1.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
1.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
1.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
1.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
1.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
1.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
1.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
1.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
1.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
1.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
1.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
1.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00

Model Without SWM Infrastructure - Output

12.000 2.00 | 24.000 2.00 | 36.000 3.00 | 48.00 13.00

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.661 (i)
TIME TO PEAK (hrs)= 46.583
RUNOFF VOLUME (mm)= 231.503
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.812

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0160) | Area (ha)= 16.30 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.15

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00

2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00

6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00

10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model Without SWM Infrastructure - Output

1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00

5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00

9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 2.637 (i)
TIME TO PEAK (hrs)= 46.417
RUNOFF VOLUME (mm)= 230.861
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.810

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYO (0270)	Area (ha)=	2.50	Curve Number (CN)= 81.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.95	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.24	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00

Model Without SWM Infrastructure - Output

4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00

8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.348 (i)

TIME TO PEAK (hrs)= 46.000

RUNOFF VOLUME (mm)= 229.738
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.806

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0260)	Area (ha)= 7.00 Curve Number (CN)= 83.7
ID= 1 DT= 5.0 min	Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.43

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00

2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00

Model Without SWM Infrastructure - Output

7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00

11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.910 (i)

TIME TO PEAK (hrs)= 46.167

RUNOFF VOLUME (mm)= 235.585

TOTAL RAINFALL (mm)= 285.000

RUNOFF COEFFICIENT = 0.827

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)= 10.70	Curve Number (CN)= 81.9
NASHYD (0250)	Ia (mm)= 8.42	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 0.54	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00

1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00

5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00

Model Without SWM Infrastructure - Output

10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 1.300 (i)
TIME TO PEAK (hrs)= 46.333
RUNOFF VOLUME (mm)= 229.908
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.807

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0320) | Area (ha)= 11.70 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.45

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00

0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00

4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 1.500 (i)
TIME TO PEAK (hrs)= 46.167
RUNOFF VOLUME (mm)= 233.379
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.819

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

CALIB
NASHYD (0420)
ID= 1 DT= 5.0 min

Area (ha)= 25.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.12

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00

3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00

7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00

11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model Without SWM Infrastructure - Output

2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00

6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.81
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.82
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00

10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 2.647 (i)
TIME TO PEAK (hrs)= 46.833
RUNOFF VOLUME (mm)= 236.854
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.831

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	6.90	Curve Number (CN)=	83.4
NASHYD (0422)	Ia (mm)=	7.58	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.61		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00

0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00

Model Without SWM Infrastructure - Output

5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00

9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.817 (i)
TIME TO PEAK (hrs)= 46.417
RUNOFF VOLUME (mm)= 234.651
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.823

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0896)|
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03
0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0422)	6.90	0.82	46.42	234.65	0.49	0.52
OUTFLOW: ID= 1 (0896)	6.90	0.81	46.58	234.65	0.49	0.52

| ADD HYD (4202)|
| 1 + 2 = 3 |

ID1= 1 (0423): 23.90 2.647 46.83 236.85
+ ID2= 2 (0896): 6.90 0.811 46.58 234.65
=====

ID = 3 (4202): 30.80 3.446 46.75 236.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0895)|
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 / 0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.170E+01	0.0	0.28	4.09
0.24	212.03	.679E+01	0.0	0.44	2.58
0.36	212.15	.153E+02	0.1	0.58	1.97
0.48	212.27	.272E+02	0.3	0.70	1.62
0.61	212.40	.424E+02	0.5	0.82	1.40
0.73	212.52	.134E+03	1.0	0.53	2.16
0.85	212.64	.375E+03	2.8	0.52	2.20
0.97	212.76	.687E+03	6.1	0.60	1.89
1.09	212.88	.107E+04	11.0	0.71	1.61
1.21	213.00	.148E+04	17.8	0.83	1.38
1.33	213.12	.192E+04	26.1	0.93	1.22
1.45	213.24	.238E+04	35.9	1.03	1.11
1.57	213.36	.288E+04	47.3	1.13	1.01
1.70	213.49	.340E+04	60.1	1.21	0.94
1.82	213.61	.395E+04	74.5	1.29	0.88
1.94	213.73	.452E+04	90.5	1.37	0.83
2.06	213.85	.512E+04	109.2	1.46	0.78
2.18	213.97	.573E+04	130.3	1.56	0.73
2.37	214.16	.694E+04	168.2	1.66	0.69

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4202)	30.80	3.45	46.75	236.36	0.87	0.53
OUTFLOW: ID= 1 (0895)	30.80	3.45	46.83	236.36	0.87	0.53

Model Without SWM Infrastructure - Output

CALIB
NASHYD (0421)
ID= 1 DT= 5.0 min

Area (ha)= 10.40
Ia (mm)= 7.91
U.H. Tp(hrs)= 0.37
Curve Number (CN)= 82.8
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00

3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00

7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00

11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model Without SWM Infrastructure - Output

0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

<---- hydrograph ---->						<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.		MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (0421)	10.40	1.39	46.08	232.73	0.52	0.66	
OUTFLOW: ID= 1 (0883)	10.40	1.23	46.50	232.68	0.51	0.65	

ADD HYD (4201)
1 + 2 = 3

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0883):	10.40	1.235	46.50	232.68
+ ID2= 2 (0895):	30.80	3.445	46.83	236.36
=====				
ID = 3 (4201):	41.20	4.657	46.67	235.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0882)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.49	0.0400		
35.71	208.88	0.0400		
53.04	208.89	0.0400		
64.12	208.50	0.0400 / 0.0350	Main Channel	
70.77	208.05	0.0350	Main Channel	
74.98	208.02	0.0350	Main Channel	
83.40	208.38	0.0350 / 0.0400	Main Channel	
88.06	208.63	0.0400		
94.94	209.13	0.0400		
105.88	209.54	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52

0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20
0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

<---- hydrograph ---->						<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.		MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (4201)	41.20	4.66	46.67	235.43	0.68	0.41	
OUTFLOW: ID= 1 (0882)	41.20	4.55	47.00	235.42	0.68	0.41	

ADD HYD (4200)
1 + 2 = 3

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0420):	25.80	2.600	47.25	235.29
+ ID2= 2 (0882):	41.20	4.554	47.00	235.42
=====				
ID = 3 (4200):	67.00	7.125	47.08	235.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0440)
ID= 1 DT= 5.0 min

Area (ha)= 31.60 Curve Number (CN)= 84.4
Ia (mm)= 7.04 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.16

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00

0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00

4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00

Model Without SWM Infrastructure - Output

8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 3.158 (i)
TIME TO PEAK (hrs)= 47.250
RUNOFF VOLUME (mm)= 237.795
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.834

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0442) |
ID= 1 DT= 5.0 min

Area (ha)= 2.40 Curve Number (CN)= 84.9
Ia (mm)= 6.77 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.41

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00

3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00

7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00

Model Without SWM Infrastructure - Output

11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.317 (i)
TIME TO PEAK (hrs)= 46.167
RUNOFF VOLUME (mm)= 239.338
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.840

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	21.30	Curve Number (CN)=	83.9
NASHYD (0443)	Ia (mm)=	7.31	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.59		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00

2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00

6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00

10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00						

Model Without SWM Infrastructure - Output

0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00

5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00

9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 1.490 (i)
TIME TO PEAK (hrs)= 46.333
RUNOFF VOLUME (mm)= 237.479
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.833

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Surface Area (ha)= 11.22 11.68
Dep. Storage (mm)= 1.00 8.92
Average Slope (%)= 1.00 2.00
Length (m)= 390.73 40.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00		
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00		
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00		
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00		
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00		
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00		
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00		
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00		
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00		
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00		
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00		
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00		
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00		
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00		
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00		
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00		

Model Without SWM Infrastructure - Output

3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00

7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00

11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 58.31
over (min) 5.00 20.00
Storage Coeff. (min)= 7.46 (ii) 16.22 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.17 0.06

TOTALS
PEAK FLOW (cms)= 1.35 1.81 3.161 (iii)
TIME TO PEAK (hrs)= 46.00 46.00 46.00
RUNOFF VOLUME (mm)= 284.00 217.85 244.31
TOTAL RAINFALL (mm)= 285.00 285.00 285.00
RUNOFF COEFFICIENT = 1.00 0.76 0.86

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0045)
ID= 1 DT= 5.0 min

Area (ha)= 1.30
Total Imp(%)= 65.00 Dir. Conn.(%)= 35.00

IMPERVIOUS PVIOUS (i)
Surface Area (ha)= 0.84 0.46
Dep. Storage (mm)= 1.00 8.92
Average Slope (%)= 1.00 2.00
Length (m)= 93.09 40.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00

0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00

Model Without SWM Infrastructure - Output

5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00

9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	95.37	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.15 (ii)	10.35 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.27	0.09	
PEAK FLOW (cms)=	0.07	0.12	0.187 (iii)
TIME TO PEAK (hrs)=	46.00	46.00	46.00
RUNOFF VOLUME (mm)=	284.00	239.18	254.86
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	1.00	0.84	0.89

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4345)				
1 + 2 = 3				
ID1= 1 (0043):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
+ ID2= 2 (0045):	22.90	3.161	46.00	244.31
	1.30	0.187	46.00	254.86
ID = 3 (4345):	24.20	3.347	46.00	244.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36

0.77	208.29	.300E+03	1.1	0.60	4.44
**** WARNING: TRAVEL TIME TABLE EXCEEDED					
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)
INFLOW : ID= 2 (4345)	24.20	3.35	46.00	244.88	0.77
OUTFLOW: ID= 1 (0893)	24.20	3.32	46.00	244.87	0.77

ADD HYD (4510)				
1 + 2 = 3				
ID1= 1 (0451):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
+ ID2= 2 (0893):	12.30	1.490	46.33	237.48
	24.20	3.320	46.00	244.87
ID = 3 (4510):	36.50	4.679	46.08	242.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0892)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.279E+01	0.0	0.48	3.92
0.24	212.03	.112E+02	0.1	0.76	2.47
0.36	212.15	.251E+02	0.2	0.99	1.89
0.48	212.27	.446E+02	0.5	1.20	1.56
0.61	212.40	.697E+02	0.9	1.40	1.34
0.73	212.52	.220E+03	1.8	0.91	2.07
0.85	212.64	.616E+03	4.9	0.89	2.11

Model Without SWM Infrastructure - Output

0.97	212.76	.113E+04	10.4	1.04	1.81
1.09	212.88	.175E+04	18.9	1.21	1.54
1.21	213.00	.243E+04	30.5	1.42	1.32
1.33	213.12	.315E+04	44.8	1.60	1.17
1.45	213.24	.392E+04	61.6	1.77	1.06
1.57	213.36	.473E+04	81.0	1.93	0.97
1.70	213.49	.558E+04	103.1	2.08	0.90
1.82	213.61	.648E+04	127.8	2.22	0.85
1.94	213.73	.742E+04	155.2	2.35	0.80
2.06	213.85	.841E+04	187.2	2.50	0.75
2.18	213.97	.941E+04	223.3	2.67	0.70
2.37	214.16	.114E+05	288.4	2.85	0.66

<---- hydrograph ---->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4510)	36.50	4.68	46.08	242.38	0.84 0.89
OUTFLOW: ID= 1 (0892)	36.50	4.68	46.08	242.38	0.84 0.89

ADD HYD (4411)					
1 + 2 = 3					

ID1= 1 (0443):	21.30	2.552	46.42	236.22	
+ ID2= 2 (0892):	36.50	4.680	46.08	242.38	
=====					
ID = 3 (4411):	57.80	7.099	46.17	240.11	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0891)					
IN= 2--> OUT= 1					

Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.70	0.0400			
2.35	206.02	0.0400 / 0.0350	Main Channel		
5.23	205.19	0.0350	Main Channel		
5.34	205.67	0.0350	Main Channel		
19.05	206.06	0.0350 / 0.0400	Main Channel		
21.11	206.05	0.0400			
22.02	206.13	0.0400 / 0.0350			
40.10	206.15	0.0350			
56.50	206.04	0.0350			

<----- TRAVEL TIME TABLE ----->					

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.621E+00	0.0	0.10	29.40
0.09	205.28	.248E+01	0.0	0.16	18.52
0.13	205.32	.559E+01	0.0	0.21	14.13
0.17	205.36	.994E+01	0.0	0.25	11.67
0.22	205.41	.155E+02	0.0	0.29	10.05
0.26	205.45	.224E+02	0.0	0.33	8.90
0.31	205.50	.304E+02	0.1	0.37	8.03
0.35	205.54	.398E+02	0.1	0.40	7.35
0.39	205.58	.503E+02	0.1	0.43	6.79
0.44	205.63	.621E+02	0.2	0.46	6.33
0.48	205.67	.752E+02	0.2	0.49	5.97
0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

**** WARNING: TRAVEL TIME TABLE EXCEEDED					
<---- hydrograph ---->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4411)	57.80	7.10	46.17	240.11	0.82 0.53
OUTFLOW: ID= 1 (0891)	57.80	7.04	46.25	240.11	0.83 0.53

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB			
STANDHYD (0441)			
ID= 1 DT= 5.0 min			

Area	(ha)=	3.00	
Total Imp(%)=	45.00	Dir. Conn.(%)=	35.00

Surface Area	(ha)=	IMPERVIOUS	PERVIOUS (i)
Dep. Storage	(mm)=	1.35	1.65
Average Slope	(%)=	1.00	3.58
Length	(m)=	2.00	2.00
Mannings n	=	141.42	40.00
		0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr

0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00

4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00

Model Without SWM Infrastructure - Output

8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 61.51
over (min) 5.00 15.00
Storage Coeff. (min)= 3.29 (ii) 11.87 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.27 0.09
TOTALS
PEAK FLOW (cms)= 0.15 0.28 0.434 (iii)
TIME TO PEAK (hrs)= 46.00 46.00 46.00

RUNOFF VOLUME (mm)= 284.00 250.84 262.45
TOTAL RAINFALL (mm)= 285.00 285.00 285.00
RUNOFF COEFFICIENT = 1.00 0.88 0.92

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4410)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0441): 3.00 0.434 46.00 262.45
+ ID2= 2 (0891): 57.80 7.043 46.25 240.11
===== ID = 3 (4410): 60.80 7.395 46.25 241.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4401)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (4410): 60.80 7.395 46.25 241.21
+ ID2= 2 (0442): 2.40 0.317 46.17 239.34
===== ID = 3 (4401): 63.20 7.708 46.25 241.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0889)
IN= 2--> OUT= 1
Routing time step (min)'= 5.00
<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 / 0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 / 0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350

56.50 206.04 0.0350

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.272E+01	0.0	0.09	142.50
0.09	205.28	.109E+02	0.0	0.14	89.77
0.13	205.32	.245E+02	0.0	0.19	68.51
0.17	205.36	.435E+02	0.0	0.23	56.55
0.22	205.41	.679E+02	0.0	0.26	48.73
0.26	205.45	.978E+02	0.0	0.30	43.16
0.31	205.50	.133E+03	0.1	0.33	38.94
0.35	205.54	.174E+03	0.1	0.36	35.63
0.39	205.58	.220E+03	0.1	0.39	32.93
0.44	205.63	.272E+03	0.1	0.42	30.70
0.48	205.67	.329E+03	0.2	0.44	28.96
0.52	205.71	.418E+03	0.2	0.36	35.92
0.57	205.76	.563E+03	0.3	0.34	37.36
0.61	205.80	.765E+03	0.4	0.35	36.28
0.66	205.85	.102E+04	0.5	0.37	34.31
0.70	205.89	.134E+04	0.7	0.40	32.17
0.74	205.93	.171E+04	0.9	0.43	30.13
0.79	205.98	.214E+04	1.3	0.45	28.27
0.83	206.02	.263E+04	1.6	0.48	26.60

**** WARNING: TRAVEL TIME TABLE EXCEEDED
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (4401) 63.20 7.71 46.25 241.14 0.83 0.48
OUTFLOW: ID= 1 (0889) 63.20 7.04 46.83 241.13 0.83 0.48

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (4400)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0440): 31.60 3.158 47.25 237.80
+ ID2= 2 (0889): 63.20 7.041 46.83 241.13
===== ID = 3 (4400): 94.80 10.115 47.08 240.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0888)
IN= 2--> OUT= 1
Routing time step (min)'= 5.00

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.519E+01	0.0	0.09	43.50
0.13	208.37	.208E+02	0.0	0.15	27.40
0.19	208.43	.467E+02	0.0	0.19	20.91
0.25	208.49	.830E+02	0.1	0.24	17.26
0.32	208.56	.130E+03	0.1	0.27	14.88
0.38	208.62	.187E+03	0.2	0.31	13.17
0.46	208.70	.365E+03	0.5	0.31	13.03
0.54	208.78	.674E+03	0.9	0.32	12.89
0.62	208.86	.113E+04	1.5	0.33	12.23
0.70	208.94	.176E+04	2.5	0.35	11.61
0.78	209.02	.258E+04	3.9	0.37	10.95
0.86	209.10	.358E+04	5.8	0.40	10.27
0.94	209.18	.475E+04	8.2	0.42	9.62
1.02	209.26	.608E+04	11.2	0.45	9.04
1.10	209.34	.758E+04	14.8	0.48	8.53
1.18	209.42	.927E+04	18.8	0.50	8.21
1.26	209.50	.112E+05	23.6	0.52	7.88
1.34	209.58	.133E+05	29.3	0.54	7.57
1.42	209.66	.157E+05	35.9	0.56	7.26

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (4400) 94.80 10.11 47.08 240.02 0.99 0.44
OUTFLOW: ID= 1 (0888) 94.80 10.05 47.17 240.02 0.99 0.44

CALIB
STANDHYD (0042)
ID= 1 DT= 5.0 min
Area (ha)= 20.50
Total Imp(%)= 83.00 Dir. Conn.(%)= 70.00
IMPERVIOUS PERVIOUS (i)

Model Without SWM Infrastructure - Output

Surface Area (ha)= 17.01 3.49
Dep. Storage (mm)= 1.00 6.98
Average Slope (%)= 2.00 2.00
Length (m)= 369.68 40.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00

3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00

7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00

11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model Without SWM Infrastructure - Output

1.05	100.55	.471E+03	2.2	1.00	3.58
1.16	100.66	.547E+03	2.7	1.07	3.35
1.28	100.78	.635E+03	3.4	1.14	3.14
1.39	100.89	.732E+03	4.1	1.20	2.99
1.50	101.00	.838E+03	4.9	1.25	2.86
1.61	101.11	.952E+03	5.8	1.30	2.76
1.72	101.22	.107E+04	6.7	1.34	2.67
1.84	101.34	.120E+04	7.7	1.38	2.60
1.95	101.45	.134E+04	8.8	1.41	2.54

<--- hydrograph --->						<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (0042)	20.50	2.98	46.00	272.74	1.21	1.10	
OUTFLOW: ID= 1 (0898)	20.50	2.98	46.00	272.74	1.21	1.09	

CALIB			
STANDHYD (0044)	Area (ha)=	8.90	
ID= 1 DT= 5.0 min	Total Imp(%)=	41.00	Dir. Conn.(%)= 20.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.65	5.25
Dep. Storage	(mm)=	1.00	8.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	243.58	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00

1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00

5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00

9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00

Model Without SWM Infrastructure - Output

ADD HYD (4244)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0044):	8.90	1.249	46.00	241.03
+ ID2= 2 (0098):	20.50	2.983	46.00	272.74
=====				
ID = 3 (4244):	29.40	4.232	46.00	263.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN( 0897)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
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Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

		TRAVEL TIME TABLE			
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.140E+02	0.0	0.17	55.64
0.24	212.03	.559E+02	0.0	0.27	35.05
0.36	212.15	1.126E+03	0.1	0.35	26.75
0.48	212.27	2.224E+03	0.2	0.43	22.08
0.61	212.40	3.350E+03	0.3	0.49	19.03
0.73	212.52	4.110E+04	0.6	0.32	29.36
0.85	212.64	3.309E+04	1.7	0.31	29.92
0.97	212.76	5.566E+04	3.7	0.37	25.67
1.09	212.88	8.878E+04	6.7	0.43	21.92
1.21	213.00	1.12E+05	10.8	0.50	18.88
1.33	213.12	1.58E+05	15.8	0.57	16.63
1.45	213.24	1.96E+05	21.8	0.63	15.03
1.57	213.36	2.37E+05	28.7	0.68	13.79
1.70	213.49	2.80E+05	36.4	0.73	12.81
1.82	213.61	3.25E+05	45.2	0.78	12.00
1.94	213.73	3.72E+05	54.9	0.83	11.31
2.06	213.85	4.22E+05	66.2	0.89	10.62
2.18	213.97	4.72E+05	79.0	0.94	9.97

2.37	214.16	.571E+05	102.0	1.01	9.34

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4244)	29.40	4.23	46.00	263.14	0.99	0.38
OUTFLOW: ID= 1 (0897)	29.40	3.79	46.08	263.13	0.97	0.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4301)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0888):	94.80	10.048	47.17	240.02
+ ID2= 2 (0897):	29.40	3.786	46.08	263.13
ID = 3 (4301):	124.20	13.177	47.00	245.49

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| ROUTE CHN( 0887)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
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Distance	Elevation	Manning		
0.00	209.52	0.0400		
61.99	209.23	0.0400		
76.86	209.20	0.0400		
82.03	209.20	0.0400 / 0.0350	Main	Channel
86.30	208.87	0.0350	Main	Channel
89.86	209.20	0.0350 / 0.0300	Main	Channel
96.27	209.24	0.0300		
103.53	209.40	0.0300		
127.96	209.50	0.0300		
158.58	209.70	0.0300		

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.143E+01	0.0	0.09	20.80
0.07	208.94	.572E+01	0.0	0.14	13.11
0.10	208.97	.129E+02	0.0	0.18	10.00
0.13	208.90	.229E+02	0.0	0.22	8.26
0.17	209.04	.357E+02	0.1	0.26	7.11
0.20	209.07	.514E+02	0.1	0.29	6.30
0.23	209.10	.700E+02	0.2	0.32	5.69
0.26	209.13	.915E+02	0.3	0.35	5.20

0.30	209.17	.116E+03	0.4	0.38	4.81
0.33	209.20	.143E+03	0.5	0.41	4.48
0.37	209.24	.239E+03	0.8	0.37	5.02
0.40	209.27	.396E+03	1.3	0.35	5.26
0.44	209.31	.589E+03	1.9	0.36	5.13
0.47	209.34	.818E+03	2.8	0.38	4.89
0.51	209.38	.108E+04	3.9	0.40	4.63
0.54	209.41	.139E+04	5.2	0.41	4.46
0.58	209.45	.175E+04	6.7	0.43	4.33
0.61	209.48	.218E+04	8.7	0.44	4.17
0.65	209.52	.266E+04	11.2	0.46	3.98

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4301)	124.20	13.18	47.00	245.49	0.65	0.46
OUTFLOW: ID= 1 (0887)	124.20	13.14	47.00	245.49	0.65	0.46

CALIB	Area (ha)= 19.80	Curve Number (CN)= 83.6
NASHYD (0430)	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 1.13	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HETEROGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00

1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.			

Model Without SWM Infrastructure - Output

5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00

10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.669
PEAK FLOW (cms)= 1.990 (i)
TIME TO PEAK (hrs)= 47.250
RUNOFF VOLUME (mm)= 235.286
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.826

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4300)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0430):	19.80	1.990	47.25	235.29
+ ID2= 2 (0887):	124.20	13.140	47.00	245.49
=====				
ID = 3 (4300):	144.00	15.114	47.08	244.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0886)|

| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.20	0.0400	
100.00	206.26	0.0400	
111.30	206.19	0.0400 / 0.0350	Main Channel
112.02	205.76	0.0350	Main Channel
113.82	205.37	0.0350	Main Channel
115.62	206.03	0.0350 / 0.0400	Main Channel
117.77	207.30	0.0400	
120.56	207.40	0.0400	
124.41	207.31	0.0400	
129.31	207.24	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	205.46	.110E+02	0.0	0.11	51.32
0.19	205.56	.438E+02	0.0	0.17	32.33
0.28	205.65	.986E+02	0.1	0.23	24.67
0.38	205.75	.175E+03	0.1	0.27	20.37
0.47	205.84	.271E+03	0.3	0.33	16.94
0.57	205.94	.379E+03	0.4	0.38	14.73
0.66	206.03	.501E+03	0.6	0.42	13.19
0.76	206.13	.644E+03	0.9	0.48	11.58
0.86	206.23	.845E+03	1.3	0.51	10.89
0.96	206.33	.140E+04	1.9	0.46	12.13
1.06	206.43	.209E+04	2.9	0.46	12.20
1.16	206.53	.290E+04	4.1	0.47	11.82
1.26	206.63	.383E+04	5.6	0.49	11.31
1.37	206.74	.489E+04	7.6	0.52	10.78
1.47	206.84	.607E+04	9.8	0.54	10.28
1.57	206.94	.737E+04	12.5	0.57	9.81
1.67	207.04	.879E+04	15.6	0.60	9.38
1.77	207.14	.103E+05	19.2	0.62	8.99
1.87	207.24	.120E+05	23.2	0.65	8.63

<---- hydrograph ----> <-pipe / channel->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4300)	144.00	15.11	47.08	244.08	1.65
OUTFLOW: ID= 1 (0886)	144.00	14.93	47.08	244.08	1.65

| CALIB
| NASHYD (0411)| Area (ha)= 4.50 Curve Number (CN)= 86.7
|ID= 1 DT= 5.0 min| Ia (mm)= 5.84 # of Linear Res.(N)= 3.00

----- U.H. Tp(hrs)= 1.11

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00

Model Without SWM Infrastructure - Output

3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00

7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW (cms)= 0.461 (i)
TIME TO PEAK (hrs)= 47.250
RUNOFF VOLUME (mm)= 244.967
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.860

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4110)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0411):	4.50	0.461	47.25	244.97
+ ID2= 2 (0886):	144.00	14.926	47.08	244.08
=====				
ID = 3 (4110):	148.50	15.385	47.08	244.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0885)				
IN= 2--> OUT= 1	Routing time step (min)'= 5.00			
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	208.48	0.0500		
43.69	207.97	0.0500		
66.92	207.94	0.0500		
76.98	208.01	0.0500		
87.94	208.25	0.0500		
89.93	208.44	0.0500/0.0350	Main Channel	
92.70	208.20	0.0350	Main Channel	
95.51	207.28	0.0350	Main Channel	
98.26	208.25	0.0350	Main Channel	
<----- TRAVEL TIME TABLE ----->				
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)
0.05	207.33	.134E+01	0.0	0.06
0.10	207.38	.536E+01	0.0	0.10
0.15	207.43	.121E+02	0.0	0.13
0.19	207.47	.214E+02	0.0	0.15
0.24	207.52	.335E+02	0.0	0.18
0.29	207.57	.483E+02	0.1	0.20
0.34	207.62	.657E+02	0.1	0.22
0.39	207.67	.858E+02	0.1	0.24
0.44	207.72	.109E+03	0.1	0.26

**** WARNING: TRAVEL TIME TABLE EXCEEDED						
<---- hydrograph ---->				<-pipe / channel->		
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4110)	148.50	15.38	47.08	244.11	0.92	0.22
OUTFLOW: ID= 1 (0885)	148.50	15.12	47.33	244.11	0.92	0.22

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB				
NASHYD (0041)	Area (ha)= 25.40	Curve Number (CN)= 83.6		
ID= 1 DT= 5.0 min	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.21			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00

Model Without SWM Infrastructure - Output

1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00

5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00

10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 2.490 (i)
TIME TO PEAK (hrs)= 47.333
RUNOFF VOLUME (mm)= 235.286
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.826

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0894)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	

84.10 212.83 0.0500
100.76 213.78 0.0500

----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.523E+01	0.0	0.10	36.03
0.24	212.03	.209E+02	0.0	0.15	22.70
0.36	212.15	.471E+02	0.0	0.20	17.32
0.48	212.27	.837E+02	0.1	0.25	14.30
0.61	212.40	.131E+03	0.2	0.29	12.32
0.73	212.52	.412E+03	0.4	0.18	19.01
0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62
1.09	212.88	.328E+04	3.9	0.25	14.19
1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

Model Without SWM Infrastructure - Output

0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00

4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00

8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 3.953 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 237.175
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.832

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----  
| ADD HYD ( 4140)|  
| 1 + 2 = 3 |  
-----  
ID1= 1 ( 0040): 37.50 3.953 47.08 237.18  
+ ID2= 2 ( 0894): 25.40 2.420 47.42 235.29  
=====
```

ID = 3 (4140): 62.90 6.311 47.25 236.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----  
| ADD HYD ( 4101)|  
| 1 + 2 = 3 |  
-----  
ID1= 1 ( 4140): 62.90 6.3
```


Model Without SWM Infrastructure - Output

0.42	203.41	.397E+03	0.5	0.42	14.58
0.47	203.46	.502E+03	0.6	0.46	13.47
0.52	203.51	.620E+03	0.8	0.49	12.56
0.57	203.56	.750E+03	1.1	0.52	11.79
0.63	203.62	.934E+03	1.3	0.53	11.56
0.68	203.67	.129E+04	1.7	0.50	12.36
0.73	203.72	.184E+04	2.3	0.47	13.20
0.79	203.78	.270E+04	3.4	0.47	13.22
0.85	203.84	.412E+04	5.1	0.45	13.57
0.92	203.91	.583E+04	7.3	0.47	13.24
0.98	203.97	.783E+04	10.3	0.49	12.69
1.04	204.03	.101E+05	13.9	0.51	12.15

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph ---->			<-pipe / channel-->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
		(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (4101)	211.40	21.41	47.33	241.82	1.04	0.51
OUTFLOW: ID= 1 (0884)	211.40	21.16	47.50	241.81	1.04	0.51

CALIB					
NASHYD (0410)	Area (ha)=	8.50	Curve Number (CN)=	85.5	
ID= 1 DT= 5.0 min	Ia (mm)=	6.46	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.94			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00

1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00

5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.912 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 241.232
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.846

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4100)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0410):	8.50	0.912	47.08	241.23
+ ID2= 2 (0884):	211.40	21.160	47.50	241.81
=====				
ID = 3 (4100):	219.90	22.010	47.50	241.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY

Model Without SWM Infrastructure - Output

CALIB
NASHYD (0401)
ID= 1 DT= 5.0 min

Area (ha)= 23.00
Ia (mm)= 7.74
U.H. Tp(hrs)= 0.78

Curve Number (CN)= 83.1
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00

3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00

7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 2.551 (i)
TIME TO PEAK (hrs)= 46.83

Model Without SWM Infrastructure - Output

174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.05	203.04	.647E+01	0.0	0.11	59.17	
0.10	203.09	.259E+02	0.0	0.17	37.28	
0.16	203.15	.582E+02	0.0	0.23	28.45	
0.21	203.20	.103E+03	0.1	0.27	23.48	
0.26	203.25	.162E+03	0.1	0.32	20.24	
0.31	203.30	.233E+03	0.2	0.36	17.92	
0.37	203.36	.317E+03	0.3	0.40	16.17	
0.42	203.41	.414E+03	0.5	0.43	14.79	
0.47	203.46	.524E+03	0.6	0.47	13.68	
0.52	203.51	.647E+03	0.8	0.50	12.75	
0.57	203.56	.782E+03	1.1	0.54	11.96	
0.63	203.62	.974E+03	1.4	0.55	11.73	
0.68	203.67	.135E+04	1.8	0.51	12.55	
0.73	203.72	.192E+04	2.4	0.48	13.39	
0.79	203.78	.282E+04	3.5	0.48	13.41	
0.85	203.84	.430E+04	5.2	0.47	13.77	
0.92	203.91	.608E+04	7.5	0.48	13.44	
0.98	203.97	.816E+04	10.6	0.50	12.88	
1.04	204.03	.105E+05	14.2	0.52	12.33	
**** WARNING: TRAVEL TIME TABLE EXCEEDED						
<---- hydrograph ----> <-pipe / channel->						
AREA		QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)		(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4001)	309.90	31.24	47.33	239.80	1.04	0.52
OUTFLOW: ID= 1 (0880)	309.90	30.86	47.50	239.80	1.04	0.52

CALIB		Area (ha)= 27.60		Curve Number (CN)= 83.8	
NASHYD (0400)		Ia (mm)= 7.36		# of Linear Res.(N)= 3.00	
ID= 1 DT= 5.0 min		U.H. Tp(hrs)= 0.88			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00

0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00

4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 2.987 (i)
TIME TO PEAK (hrs)= 47.000
RUNOFF VOLUME (mm)= 235.915
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.828

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

ADD HYD (4000)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0400):	27.60	2.987	47.00	235.92
+ ID2= 2 (0880):	309.90	30.864	47.50	239.80
=====				
ID = 3 (4000):	337.50	33.591	47.50	239.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0200)
ID= 1 DT= 5.0 min

Area (ha)=	25.60	Curve Number (CN)=	82.2
Ia (mm)=	8.25	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.79		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00

2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00

6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 2.818 (i)
TIME TO PEAK (hrs)= 46.833
RUNOFF VOLUME (mm)= 230.865
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.810

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0023)
ID= 1 DT= 5.0 min

Area (ha)=	7.00	Curve Number (CN)=	83.0
Ia (mm)=	7.80	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.73		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00

Model Without SWM Infrastructure - Output

1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00

5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00

9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.789 (i)
TIME TO PEAK (hrs)= 46.667
RUNOFF VOLUME (mm)= 233.394
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.819

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYO (0022)	Area (ha)=	3.40	Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min	Ia (mm)=	5.38	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.20	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00

Model Without SWM Infrastructure - Output

4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00

8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.479 (i)

TIME TO PEAK (hrs)= 46.000

RUNOFF VOLUME (mm)= 234.000
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.821

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0211)	
ID= 1 DT= 5.0 min	
Area (ha)= 17.30	Curve Number (CN)= 81.3
Ia (mm)= 8.76	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.02	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00

2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00

Model Without SWM Infrastructure - Output

7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00

11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 1.777 (i)

TIME TO PEAK (hrs)= 47.167

RUNOFF VOLUME (mm)= 228.015

TOTAL RAINFALL (mm)= 285.000

RUNOFF COEFFICIENT = 0.800

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	47.60	Curve Number (CN)=	84.6
NASHYD (0021)	Ia (mm)=	6.93	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.93		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	'	TIME	RAIN	TIME
hrs	mm/hr	hrs	mm/hr	hrs	hrs	mm/hr	hrs
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00

1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00

5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	

Model Without SWM Infrastructure - Output

10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 5.101 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 238.425
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.837

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-----  
| ROUTE CHN( 0871)|  
| IN= 2--> OUT= 1 |  
-----  
Routing time step (min)'= 5.00  
  
<----- DATA FOR SECTION ( 1.1) ----->  
Distance Elevation Manning  
0.00 209.49 0.0400  
35.71 208.88 0.0400  
53.04 208.89 0.0400  
64.12 208.50 0.0400 / 0.0350 Main Channel  
70.77 208.05 0.0350 Main Channel  
74.98 208.02 0.0350 Main Channel  
83.40 208.38 0.0350 / 0.0400 Main Channel  
88.06 208.63 0.0400
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----  
| CALIB  
| NASHYD ( 0220)| Area (ha)= 20.30 Curve Number (CN)= 81.6  
| ID= 1 DT= 5.0 min| Ia (mm)= 8.59 # of Linear Res.(N)= 3.00  
| U.H. Tp(hrs)= 0.85  
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00

94.94 209.13 0.0400
105.88 209.54 0.0400

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42
0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0021) 47.60 5.10 47.08 238.42 0.51 0.75
OUTFLOW: ID= 1 (0871) 47.60 5.03 47.25 238.42 0.50 0.75

```
-----  
| ADD HYD ( 2110)|  
| 1 + 2 = 3 |  
-----  
AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
ID1= 1 ( 0211): 17.30 1.777 47.17 228.02  
+ ID2= 2 ( 0022): 3.40 0.479 46.00 234.00  
=====
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----  
| ADD HYD ( 2110)|  
| 3 + 2 = 1 |  
-----  
AREA QPEAK TPEAK R.V.
```

2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00

Model Without SWM Infrastructure - Output

6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04

11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 2.192 (i)

TIME TO PEAK (hrs)= 47.000

RUNOFF VOLUME (mm)= 228.965

TOTAL RAINFALL (mm)= 285.000

RUNOFF COEFFICIENT = 0.803

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)= 12.60	Curve Number (CN)= 82.4
NASHYD (0020)	Ia (mm)= 8.13	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 0.72	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00

1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00

5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00

Model Without SWM Infrastructure - Output

9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 1.420 (i)
TIME TO PEAK (hrs)= 46.667
RUNOFF VOLUME (mm)= 231.504
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.812

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)			Routing time step (min)'= 5.00		
IN= 2--> OUT= 1					

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.00	0.0400			
33.24	205.47	0.0400			
44.39	205.59	0.0400			
48.71	205.45	0.0400 / 0.0350	Main Channel		
51.02	204.50	0.0350	Main Channel		
54.33	205.44	0.0350 / 0.0400	Main Channel		
55.90	204.97	0.0400			

62.96 204.91 0.0400
102.92 205.20 0.0400

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56
0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46
0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.05

<---- hydrograph ---->					
<-pipe / channel-->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0020)	12.60	1.42	46.67	231.50	0.54
OUTFLOW: ID= 1 (0875)	12.60	1.35	47.17	231.47	0.53

ADD HYD (2200)				
1 + 2 = 3				
AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0220):	20.30	2.192	47.00	228.96
+ ID2= 2 (0875):	12.60	1.355	47.17	231.47
=====				
ID = 3 (2200):	32.90	3.538	47.08	229.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)				
1 + 2 = 3				
AREA	QPEAK	TPEAK	R.V.	

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2110):	68.30	7.093	47.08	235.56
+ ID2= 2 (2200):	32.90	3.538	47.08	229.92
=====				
ID = 3 (2101):	101.20	10.631	47.08	233.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)		Routing time step (min)'= 5.00	
IN= 2--> OUT= 1			
----- DATA FOR SECTION (1.1) -----			
Distance	Elevation	Manning	
0.00	209.52	0.0400	
61.99	209.23	0.0400	
76.86	209.20	0.0400	
82.03	209.20	0.0400 / 0.0350	Main Channel
86.30	208.87	0.0350	Main Channel
89.86	209.20	0.0350 / 0.0300	Main Channel
96.27	209.24	0.0300	
103.53	209.40	0.0300	
127.96	209.50	0.0300	
158.58	209.70	0.0300	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.680E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

<---- hydrograph ---->				
<-pipe / channel-->				
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
(ha)	(cms)	(hrs)	(mm)	(m)

INFLOW : ID= 2 (2101) 101.20 10.63 47.08 233.73 0.62 0.52
OUTFLOW: ID= 1 (0870) 101.20 10.46 47.25 233.73 0.62 0.52

CALIB				
NASHYD (0210)				
ID= 1 DT= 5.0 min	Area	(ha)=	9.10	Curve Number (CN)= 82.3
	Ia	(mm)=	8.19	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.64		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00		
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00		
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00		
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00		
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00		
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00		
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00		
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00		
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00		
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00		

Model Without SWM Infrastructure - Output

2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00

7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00

11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW (cms)= 1.058 (i)
TIME TO PEAK (hrs)= 46.500
RUNOFF VOLUME (mm)= 231.182
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.811

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2100)						
1 + 2 = 3						

ID1= 1 (0210):		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
+ ID2= 2 (0870):		9.10	1.058	46.50	231.18	
		101.20	10.464	47.25	233.73	
=====						
ID = 3 (2100):		110.30	11.411	47.25	233.52	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0230)		Area	(ha)=	24.70	Curve Number (CN)= 82.9
ID= 1 DT= 5.0 min		Ia	(mm)=	7.85	# of Linear Res.(N)= 3.00
-----		U.H. Tp(hrs)=	0.82		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00

0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00

Model Without SWM Infrastructure - Output

4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00

9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 2.705 (i)
TIME TO PEAK (hrs)= 46.917
RUNOFF VOLUME (mm)= 233.085
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.818

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0231) | Area (ha)= 29.50 Curve Number (CN)= 81.9

|ID= 1 DT= 5.0 min | Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
----- U.H. Tp(hrs)= 0.89

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00

3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00

Model Without SWM Infrastructure - Output

7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 3.155 (i)
TIME TO PEAK (hrs)= 47.000
RUNOFF VOLUME (mm)= 229.915
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.807

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0240)	Area (ha)=	10.10	Curve Number (CN)=	82.0	
ID= 1 DT= 5.0 min	Ia (mm)=	8.36	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.74			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00

2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00

6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00

Model Without SWM Infrastructure - Output

10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.00
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 1.128 (i)
TIME TO PEAK (hrs)= 46.750
RUNOFF VOLUME (mm)= 230.234
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.808

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0241)	Area (ha)= 26.70
ID= 1 DT= 5.0 min	Ia (mm)= 8.19
	U.H. Tp(hrs)= 0.75
	Curve Number (CN)= 82.3
	# of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00

1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00

5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00

9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model Without SWM Infrastructure - Output

25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.118E+02	0.0	0.27	29.62
0.24	212.03	.471E+02	0.0	0.42	18.66
0.36	212.15	.106E+03	0.1	0.56	14.24
0.48	212.27	.188E+03	0.3	0.67	11.76
0.61	212.40	.294E+03	0.5	0.78	10.13
0.73	212.52	.928E+03	1.0	0.51	15.63
0.85	212.64	.260E+04	2.7	0.50	15.93
0.97	212.76	.477E+04	5.8	0.58	13.67
1.09	212.88	.739E+04	10.6	0.68	11.67
1.21	213.00	.103E+05	17.1	0.79	10.01
1.33	213.12	.133E+05	25.0	0.89	8.85
1.45	213.24	.165E+05	34.4	0.99	8.00
1.57	213.36	.200E+05	45.3	1.08	7.34
1.70	213.49	.236E+05	57.6	1.16	6.82
1.82	213.61	.274E+05	71.4	1.24	6.39
1.94	213.73	.314E+05	86.8	1.31	6.02
2.06	213.85	.355E+05	104.6	1.40	5.66
2.18	213.97	.398E+05	124.9	1.49	5.31
2.37	214.16	.481E+05	161.2	1.59	4.97

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0241)	26.70	2.98	46.75	231.18	0.86	0.50
OUTFLOW: ID= 1 (0864)	26.70	2.93	47.08	231.18	0.86	0.50

| ADD HYD (2301) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0231):	29.50	3.155	47.00	229.92
+ ID2= 2 (0240):	10.10	1.128	46.75	230.23
ID = 3 (2301):	39.60	4.271	47.00	230.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (2301) |
| 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (2301):	39.60	4.271	47.00	230.00
+ ID2= 2 (0864):	26.70	2.928	47.08	231.18
ID = 1 (2301):	66.30	7.196	47.00	230.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0863) |
| IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.70	0.0400
2.35	206.02	0.0400 / 0.0350
5.23	205.19	0.0350
5.34	205.67	0.0350
19.05	206.06	0.0350 / 0.0400
21.11	206.05	0.0400
22.02	206.13	0.0400 / 0.0350
40.10	206.15	0.0350
56.50	206.04	0.0350

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.138E+01	0.0	0.11	58.11
0.09	205.28	.551E+01	0.0	0.18	36.61
0.13	205.32	.124E+02	0.0	0.23	27.94
0.17	205.36	.220E+02	0.0	0.28	23.06
0.22	205.41	.344E+02	0.0	0.33	19.87
0.26	205.45	.496E+02	0.0	0.37	17.60
0.31	205.50	.675E+02	0.1	0.41	15.88
0.35	205.54	.882E+02	0.1	0.45	14.53
0.39	205.58	.112E+03	0.1	0.48	13.43
0.44	205.63	.138E+03	0.2	0.52	12.52
0.48	205.67	.167E+03	0.2	0.55	11.81
0.52	205.71	.212E+03	0.2	0.44	14.55
0.57	205.76	.285E+03	0.3	0.43	15.23
0.61	205.80	.388E+03	0.4	0.44	14.79
0.66	205.85	.519E+03	0.6	0.47	13.99
0.70	205.89	.679E+03	0.9	0.50	13.12
0.74	205.93	.868E+03	1.2	0.53	12.29
0.79	205.98	.109E+04	1.6	0.56	11.53
0.83	206.02	.133E+04	2.0	0.60	10.85

**** WARNING: TRAVEL TIME TABLE EXCEEDED

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2301)	66.30	7.20	47.00	230.47	0.82	0.60
OUTFLOW: ID= 1 (0863)	66.30	7.14	47.17	230.47	0.83	0.60

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

| ADD HYD (2300) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0230):	24.70	2.705	46.92	233.09
+ ID2= 2 (0863):	66.30	7.136	47.17	230.47
ID = 3 (2300):	91.00	9.810	47.08	231.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (2011) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2100):	110.30	11.411	47.25	233.52
+ ID2= 2 (2300):	91.00	9.810	47.08	231.18
ID = 3 (2011):	201.30	21.210	47.17	232.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0862) |
| IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	204.63	0.0400
45.24	204.34	0.0400
94.52	203.98	0.0400
140.93	203.58	0.0400
148.77	203.72	0.0400 / 0.0350
154.30	202.99	0.0350
158.02	203.77	0.0350 / 0.0400
174.30	203.79	0.0400
222.94	204.38	0.0400

285.62 204.03 0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	203.04	.465E+01	0.0	0.10	47.86
0.10	203.09	.186E+02	0.0	0.15	30.15
0.16	203.15	.418E+02	0.0	0.20	23.01
0.21	203.20	.744E+02	0.1	0.24	18.99
0.26	203.25	.116E+03	0.1	0.28	16.37
0.31	203.30	.167E+03	0.2	0.32	14.50
0.37	203.36	.228E+03	0.3	0.35	13.08
0.42	203.41	.297E+03	0.4	0.39	11.97
0.47	203.46	.376E+03	0.6	0.42	11.06
0.52	203.51	.465E+03	0.8	0.45	10.31
0.57	203.56	.562E+03	1.0	0.48	9.68
0.63	203.62	.700E+03	1.2	0.49	9.49
0.68	203.67	.969E+03	1.6	0.45	10.15
0.73	203.72	.138E+04	2.1	0.43	10.83
0.79	203.78	.203E+04	3.1	0.43	10.85
0.85	203.84	.309E+04	4.6	0.41	11.14
0.92	203.91	.437E+04	6.7	0.42	10.87
0.98	203.97	.586E+04	9.4	0.44	10.42
1.04	204.03	.757E+04	12.7	0.46	9.97

**** WARNING: TRAVEL TIME TABLE EXCEEDED

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2011)	201.30	21.21	47.17	232.46	1.04	0.46
OUTFLOW: ID= 1 (0862)	201.30	21.03	47.33	232.46	1.04	0.46

| CALIB
| NASHYD (0201) |

Area (ha)=	8.20	Curve Number (CN)=	82.6
Ia (mm)=	8.02	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.60		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00

Model Without SWM Infrastructure - Output

0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00

4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00

8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.972 (i)
TIME TO PEAK (hrs)= 46.417
RUNOFF VOLUME (mm)= 232.131
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.814

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 2010) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0201): 8.20 0.972 46.42 232.13
+ ID2= 2 ( 0023): 7.00 0.789 46.67 233.39
=====
ID = 3 ( 2010): 15.20 1.751 46.50 232.71
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 2010) |
| 3 + 2 = 1 |
-----
ID1= 3 ( 2010): 15.20 1.751 46.50 232.71
+ ID2= 2 ( 0062): 201.30 21.028 47.33 232.46
=====
ID = 1 ( 2010): 216.50 22.577 47.25 232.48
```

NOTE: PEAK FLOWS

Model Without SWM Infrastructure - Output

0.48	207.76	.155E+03	0.5	0.74	5.03
0.53	207.81	.188E+03	0.7	0.79	4.72
0.58	207.86	.223E+03	0.8	0.84	4.45
0.63	207.91	.262E+03	1.0	0.88	4.22
0.68	207.96	.341E+03	1.3	0.83	4.47
0.73	208.01	.708E+03	1.8	0.57	6.58
0.78	208.06	.119E+04	2.7	0.51	7.25
0.82	208.10	.174E+04	4.0	0.52	7.19
0.87	208.15	.236E+04	5.7	0.54	6.89
0.92	208.20	.305E+04	7.8	0.57	6.55

**** WARNING: TRAVEL TIME TABLE EXCEEDED

			<---- hydrograph ---->		<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (2010)	216.50	22.58	47.25	232.48	0.92	0.57
OUTFLOW: ID= 1 (0860)	216.50	22.48	47.42	232.48	0.92	0.57

| ADD HYD (2000) |
| 1 + 2 = 3 |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0200):	25.60	2.818	46.83	230.86
+ ID2= 2 (0860):	216.50	22.482	47.42	232.48
=====				
ID = 3 (2000):	242.10	25.119	47.33	232.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| NASHYD (0300) |
ID= 1 DT= 5.0 min

Area (ha)=	36.80	Curve Number (CN)=	83.1
Ia (mm)=	7.74	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.90		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00

0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00

4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00

9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500					

Model Without SWM Infrastructure - Output

|ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
----- U.H. Tp(hrs)= 0.62

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	' TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00

3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00

7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.

Model Without SWM Infrastructure - Output

2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00

6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00

10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.200 (i)
TIME TO PEAK (hrs)= 46.083
RUNOFF VOLUME (mm)= 233.991
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.821

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0850) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.04	204.54	.300E+01	0.0	0.15	86.75
0.07	204.57	.120E+02	0.0	0.24	54.65
0.11	204.61	.270E+02	0.0	0.31	41.70
0.14	204.64	.480E+02	0.0	0.37	34.42
0.18	204.68	.750E+02	0.0	0.43	29.67

<---- hydrograph ---->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0350)	1.50	0.20	46.08	233.99	0.32
OUTFLOW: ID= 1 (0850)	1.50	0.19	46.33	233.67	0.31

| CALIB |
| NASHYD (0032) | Area (ha)= 28.00 Curve Number (CN)= 83.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.95

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00

Model Without SWM Infrastructure - Output

1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00

5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00

9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 2.968 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 234.656
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.823

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3200)				
1 + 2 = 3				

ID1= 1 (0032):	28.00	2.968	47.08	234.66
+ ID2= 2 (0850):	1.50	0.186	46.33	233.67
=====				
ID = 3 (3200):	29.50	3.132	47.08	234.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYO (0301)
ID= 1 DT= 5.0 min

Area (ha)= 59.40
Ia (mm)= 7.97
U.H. Tp(hrs)= 1.23
Curve Number (CN)= 82.7
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00

Model Without SWM Infrastructure - Output

3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00

7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00

11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 5.764 (i)
TIME TO PEAK (hrs)= 47.333
RUNOFF VOLUME (mm)= 232.447
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.816

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3010)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0301):	59.40	5.764	47.33	232.45
+ ID2= 2 (3200):	29.50	3.132	47.08	234.61
ID = 3 (3010):	88.90	8.849	47.25	233.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (3001)	AREA	QPEAK	TPEAK	R.V
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (3010):	88.90	8.849	47.25	233.16
+ ID2= 2 (0031):	3.00	0.352	46.42	234.44
ID = 3 (3001):	91.90	9.168	47.17	233.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ROUTE CHN( 0852)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
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<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.20          0.0400
100.00        206.26          0.0400
111.30        206.19      0.0400 / 0.0350 Main Channel
112.02        205.76          0.0350 Main Channel
113.82        205.37          0.0350 Main Channel
115.62        206.03      0.0350 / 0.0400 Main Channel

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117.77	207.30	0.0400
120.56	207.40	0.0400
124.41	207.31	0.0400
129.31	207.24	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	205.46	.132E+02	0.0	0.21	32.83
0.19	205.56	.529E+02	0.0	0.33	20.68
0.28	205.65	.119E+03	0.1	0.43	15.78
0.38	205.75	.212E+03	0.3	0.52	13.03
0.47	205.84	.327E+03	0.5	0.62	10.84
0.57	205.94	.458E+03	0.8	0.72	9.42
0.66	206.03	.604E+03	1.2	0.80	8.44
0.76	206.13	.777E+03	1.7	0.91	7.41
0.86	206.23	.102E+04	2.4	0.97	6.97
0.96	206.33	.168E+04	3.6	0.87	7.76
1.06	206.43	.251E+04	5.4	0.87	7.89
1.16	206.53	.358E+04	7.7	0.89	7.56
1.26	206.63	.463E+04	10.7	0.93	7.24
1.37	206.74	.598E+04	14.3	0.98	6.90
1.47	206.84	.732E+04	18.6	1.03	6.58
1.57	206.94	.889E+04	23.6	1.08	6.28
1.67	207.04	.106E+05	29.5	1.13	6.00
1.77	207.14	.125E+05	36.1	1.17	5.75
1.87	207.24	.145E+05	43.7	1.22	5.52

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<---- hydrograph ---->
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<-pipe / channel->
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (3001)	91.90	9.17	47.17	233.20	1.21	0.91
OUTFLOW: ID= 1 (0852)	91.90	9.12	47.25	233.20	1.21	0.91

D HYD (3000)|

1 + 2 = 3	AREA (%)	QPEAK (%)	TPEAK (%)	R.V. (%)

	(ha)	(cms)	(hrs)	(mm)
TD1= 1 (0300):	36.80	3.948	47.08	233.72

ID1= 1 (0500):	50.00	9.548	47.00	233.72
+ ID2= 2 (0852):	91.90	9.123	47.25	233.20

=====

ID = 3 (3000): 128.70 13.011 47.17 233.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB

Model Without SWM Infrastructure - Output

NASHYD (0030) | Area (ha)= 1.10 Curve Number (CN)= 81.5
ID= 1 DT= 5.0 min | Ia (mm)= 5.76 # of Linear Res.(N)= 3.00
----- | U.H. Tp(hrs)= 0.30

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00

3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00

7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00

12.000 2.00

Model Without SWM Infrastructure - Output

	<---- hydrograph <---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0030)	1.10	0.15	46.00	231.36	0.27	0.68
OUTFLOW: ID= 1 (0854)	1.10	0.15	46.08	231.34	0.27	0.68

CALIB						
NASHYD (0340)	Area	(ha)=	21.00	Curve Number	(CN)=	82.8
ID= 1 DT= 5.0 min	Ia	(mm)=	7.91	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=		0.69			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	'	TIME	RAIN	
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00

2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00

6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.82
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00

11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model Without SWM Infrastructure - Output

0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00

4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00

8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 2.616 (i)
 TIME TO PEAK (hrs)= 47.083
 RUNOFF VOLUME (mm)= 233.086
 TOTAL RAINFALL (mm)= 285.000
 RUNOFF COEFFICIENT = 0.818

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0814)			

Model Without SWM Infrastructure - Output

CALIB
NASHYD (0124)
ID= 1 DT= 5.0 min

Area (ha)= 24.30
Ia (mm)= 6.30
U.H. Tp(hrs)= 0.51

Curve Number (CN)= 85.8
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00

3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00

7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00

11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.0

Model Without SWM Infrastructure - Output

2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25
<---- hydrograph <----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (0124)	24.30	3.06	46.25	242.16	0.86
OUTFLOW: ID= 1 (0813)	24.30	2.82	46.75	242.15	0.85

ADD HYD (1221)
1 + 2 = 3

ID1= 1 (0813):	24.30	2.820	46.75	242.15
+ ID2= 2 (0814):	24.60	2.581	47.25	233.09
=====				
ID = 3 (1221):	48.90	5.313	47.00	237.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0812)
IN= 2--> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) <----->					
Distance	Elevation	Manning			
0.00	209.49	0.0400			
35.71	208.88	0.0400			
53.04	208.89	0.0400			
64.12	208.50	0.0400 / 0.0350	Main Channel		
70.77	208.05	0.0350	Main Channel		
74.98	208.02	0.0350	Main Channel		
83.40	208.38	0.0350 / 0.0400	Main Channel		
88.06	208.63	0.0400			
94.94	209.13	0.0400			
105.88	209.54	0.0400			

<----- TRAVEL TIME TABLE <----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.07	208.09	.533E+02	0.1	0.24	12.01	
0.14	208.16	.150E+03	0.3	0.37	7.63	
0.22	208.24	.280E+03	0.8	0.47	5.98	
0.29	208.31	.444E+03	1.5	0.56	5.04	
0.36	208.38	.642E+03	2.4	0.64	4.42	
0.44	208.46	.896E+03	4.0	0.75	3.76	
0.52	208.54	.119E+04	6.0	0.86	3.29	

0.60	208.62	.153E+04	8.6	0.96	2.96
0.68	208.70	.192E+04	11.7	1.04	2.73
0.76	208.78	.235E+04	15.4	1.11	2.55
0.84	208.86	.283E+04	19.6	1.18	2.41
0.92	208.94	.351E+04	24.2	1.17	2.41
0.99	209.01	.435E+04	30.6	1.19	2.37
1.07	209.09	.528E+04	38.0	1.22	2.31
1.15	209.17	.628E+04	46.4	1.26	2.26
1.23	209.25	.737E+04	55.9	1.29	2.20
1.31	209.33	.855E+04	66.6	1.33	2.14
1.39	209.41	.982E+04	78.7	1.36	2.08
1.47	209.49	.112E+05	92.1	1.40	2.03

<---- hydrograph <----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (1221)	48.90	5.31	47.00	237.59	0.49
OUTFLOW: ID= 1 (0812)	48.90	5.31	47.00	237.59	0.49

CALIB
NASHYD (0122)
ID= 1 DT= 5.0 min

Area (ha)= 31.80
Ia (mm)= 6.67
U.H. Tp(hrs)= 0.96
Curve Number (CN)= 85.1
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	' TIME	RAIN	TIME	RAIN		
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr		
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		

1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00

5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00

Model Without SWM Infrastructure - Output

10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 3.386 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 239.984
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.842

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1220)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0122):	31.80	3.386	47.08	239.98
+ ID2= 2 (0812):	48.90	5.313	47.08	237.59
=====				
ID = 3 (1220):	80.70	8.699	47.08	238.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0811)

| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 / 0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 / 0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 / 0.0400	
132.78	206.84	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	206.01	.147E+02	0.0	0.14	60.26
0.12	206.07	.590E+02	0.0	0.22	37.96
0.18	206.13	.133E+03	0.1	0.29	28.97
0.26	206.21	.302E+03	0.2	0.36	22.81
0.34	206.29	.671E+03	0.5	0.39	21.40
0.42	206.37	.151E+04	1.2	0.39	20.95
0.50	206.45	.254E+04	2.3	0.45	18.38
0.58	206.53	.376E+04	3.7	0.49	16.98
0.66	206.61	.544E+04	5.6	0.51	16.11
0.74	206.69	.764E+04	8.4	0.54	15.19
0.83	206.78	.104E+05	12.1	0.58	14.27
0.91	206.86	.134E+05	17.4	0.64	12.84
0.99	206.94	.166E+05	23.6	0.71	11.71
1.07	207.02	.201E+05	30.7	0.76	10.88
1.15	207.10	.239E+05	38.8	0.81	10.26
1.23	207.18	.280E+05	48.0	0.85	9.72
1.31	207.26	.325E+05	58.5	0.89	9.26
1.39	207.34	.373E+05	70.3	0.94	8.84
1.47	207.42	.424E+05	83.4	0.98	8.48

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1220)	80.70	8.70	47.08	238.53	0.75	0.55
OUTFLOW: ID= 1 (0811)	80.70	8.57	47.25	238.53	0.75	0.55

CALIB
NASHYD (0121)
ID= 1 DT= 5.0 min

Area (ha)=	16.10	Curve Number (CN)=	86.5
Ia (mm)=	5.94	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.89		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00

3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00

Model Without SWM Infrastructure - Output

8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 1.757 (i)
TIME TO PEAK (hrs)= 47.000
RUNOFF VOLUME (mm)= 244.348
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.857

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1210) |
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0121): 16.10 1.757 47.00 244.35
+ ID2= 2 (0811): 80.70 8.567 47.25 238.53
=====

ID = 3 (1210): 96.80 10.292 47.25 239.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| NASHYD (0146) | Area (ha)= 12.80 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.55

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	'	TIME	RAIN	TIME	RAIN	
hrs	mm/hr	hrs	mm/hr	hrs	hrs	mm/hr	hrs	mm/hr	
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		

1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00

5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00

Model Without SWM Infrastructure - Output

10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 1.557 (i)
TIME TO PEAK (hrs)= 46.333
RUNOFF VOLUME (mm)= 233.389
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.819

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0844)
IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.107E+01	0.0	0.13	37.04
0.08	207.60	.430E+01	0.0	0.20	23.33
0.12	207.64	.966E+01	0.0	0.27	17.81
0.16	207.68	.172E+02	0.0	0.32	14.70
0.19	207.71	.268E+02	0.0	0.38	12.67
0.23	207.75	.387E+02	0.1	0.42	11.22
0.27	207.79	.526E+02	0.1	0.47	10.12
0.31	207.83	.687E+02	0.1	0.51	9.26
0.35	207.87	.870E+02	0.2	0.56	8.56
0.39	207.91	.107E+03	0.2	0.60	7.98
0.43	207.95	.130E+03	0.3	0.64	7.49
0.47	207.99	.155E+03	0.4	0.67	7.07
0.50	208.02	.181E+03	0.5	0.71	6.70
0.54	208.06	.210E+03	0.6	0.75	6.38
0.58	208.10	.242E+03	0.7	0.78	6.09
0.62	208.14	.275E+03	0.8	0.82	5.83
0.67	208.19	.329E+03	1.0	0.87	5.50
0.72	208.24	.413E+03	1.3	0.89	5.36
0.77	208.29	.540E+03	1.7	0.87	5.45

<---- hydrograph ---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	MAX DEPTH MAX VEL
				(m)	(m/s)
INFLOW : ID= 2 (0146)	12.80	1.56	46.33	233.39	0.76 0.88
OUTFLOW: ID= 1 (0844)	12.80	1.55	46.42	233.38	0.75 0.88

CALIB					
NASHYD (0145)	Area (ha)= 12.60	Curve Number (CN)= 83.3			
ID= 1 DT= 5.0 min	Ia (mm)= 7.63	# of Linear Res.(N)= 3.00			
	U.H. Tp(hrs)= 0.59				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00

0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00

4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95

Model Without SWM Infrastructure - Output

9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 1.505 (i)
TIME TO PEAK (hrs)= 46.417
RUNOFF VOLUME (mm)= 234.340
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.822

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

----- (ha) (cms) (hrs) (mm)
ID1= 1 (0145): 12.60 1.505 46.42 234.34
+ ID2= 2 (0844): 12.80 1.547 46.42 233.38
=====

ID = 3 (1450): 25.40 3.052 46.42 233.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0843)|
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.12	211.91	.144E+02	0.0	0.23	42.45
0.24	212.03	.578E+02	0.0	0.36	26.74
0.36	212.15	.130E+03	0.1	0.48	20.41
0.48	212.27	.231E+03	0.2	0.58	16.85
0.61	212.40	.361E+03	0.4	0.67	14.52
0.73	212.52	.114E+04	0.8	0.43	22.41
0.85	212.64	.319E+04	2.3	0.43	22.83
0.97	212.76	.585E+04	5.0	0.50	19.59
1.09	212.88	.907E+04	9.0	0.58	16.72
1.21	213.00	.126E+05	14.6	0.68	14.34
1.33	213.12	.163E+05	21.4	0.77	12.69
1.45	213.24	.203E+05	29.5	0.85	11.47
1.57	213.36	.245E+05	38.8	0.92	10.52
1.70	213.49	.289E+05	49.3	0.99	9.77
1.82	213.61	.336E+05	61.2	1.06	9.15
1.94	213.73	.385E+05	74.3	1.13	8.63
2.06	213.85	.436E+05	89.6	1.20	8.11
2.18	213.97	.488E+05	106.9	1.28	7.61
2.37	214.16	.590E+05	138.1	1.36	7.13

| ADD HYD (1450)|
| 1 + 2 = 3 |

AREA QPEAK TPEAK R.V.

<--- hydrograph ---> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)

INFLOW : ID= 2 (1450) 25.40 3.05 46.42 233.86 0.88 0.44
OUTFLOW: ID= 1 (0843) 25.40 2.88 46.83 233.85 0.87 0.44

| CALIB
| NASHYD (0144)
| ID= 1 DT= 5.0 min |

Area (ha)= 28.60 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.97

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00

2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.5	

Model Without SWM Infrastructure - Output

7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00

11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 3.006 (i)

TIME TO PEAK (hrs)= 47.083

RUNOFF VOLUME (mm)= 233.086

TOTAL RAINFALL (mm)= 285.000

RUNOFF COEFFICIENT = 0.818

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1440)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0144):	28.60	3.006	47.08	233.09
+ ID2= 2 (0843):	25.40	2.880	46.83	233.85
=====				
ID = 3 (1440):	54.00	5.867	47.00	233.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0842)
IN= 2--> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.70	0.0400		
2.35	206.02	0.0400 / 0.0350	Main Channel	
5.23	205.19	0.0350	Main Channel	
5.34	205.67	0.0350	Main Channel	
19.05	206.06	0.0350 / 0.0400	Main Channel	
21.11	206.05	0.0400		
22.02	206.13	0.0400 / 0.0350		
40.10	206.15	0.0350		
56.50	206.04	0.0350		

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.149E+01	0.0	0.09	81.67
0.09	205.28	.594E+01	0.0	0.14	51.45
0.13	205.32	.134E+02	0.0	0.18	39.26
0.17	205.36	.238E+02	0.0	0.22	32.41
0.22	205.41	.371E+02	0.0	0.25	27.93
0.26	205.45	.535E+02	0.0	0.28	24.73
0.31	205.50	.728E+02	0.1	0.31	22.32
0.35	205.54	.950E+02	0.1	0.34	20.42
0.39	205.58	.120E+03	0.1	0.37	18.87
0.44	205.63	.149E+03	0.1	0.40	17.59
0.48	205.67	.180E+03	0.2	0.42	16.60
0.52	205.71	.228E+03	0.2	0.34	20.59
0.57	205.76	.308E+03	0.2	0.33	21.41
0.61	205.80	.418E+03	0.3	0.34	20.79
0.66	205.85	.560E+03	0.5	0.36	19.66
0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24

**** WARNING: TRAVEL TIME TABLE EXCEEDED

<---- hydrograph ---->					<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)	
INFLOW : ID= 2 (1440)	54.00	5.87	47.00	233.45	0.83	0.46
OUTFLOW: ID= 1 (0842)	54.00	5.77	47.25	233.44	0.83	0.46

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB						
NASHYD (0143)	Area (ha)=	27.70	Curve Number (CN)=	82.9		
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.07				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00

0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00

Model Without SWM Infrastructure - Output

4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95

9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)= 2.826 (i)

TIME TO PEAK (hrs)= 47.167

RUNOFF VOLUME (mm)= 233.086

TOTAL RAINFALL (mm)= 285.000

RUNOFF COEFFICIENT = 0.818

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1430) |
| 1 + 2 = 3 |

AREA QPEAK TPEAK R.V.

OUTFLOW: ID= 1 (0841) 81.70 8.18 47.58 233.31 0.83 0.62

| CALIB
| NASHYD (0142) |
| ID= 1 DT= 5.0 min |
| U.H. Tp(hrs)= 1.22 |

Area (ha)= 27.10 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.22

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00		
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00		
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00		
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00		
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00		
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00		
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00		
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00		
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00		
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00		
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00		

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0143):	27.70	2.826	47.17	233.09
+ ID2= 2 (0842):	54.00	5.769	47.25	233.44

ID = 3 (1430):	81.70	8.592	47.25	233.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0841) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.66	0.0400		
19.50	209.34	0.0400		
37.91	208.66	0.0400		
41.73	208.62	0.0400 / 0.0350	Main Channel	
43.44	208.24	0.0350	Main Channel	
45.75	208.62	0.0350 / 0.0450	Main Channel	
54.00	208.79	0.0450 / 0.0400		
77.43	209.05	0.0400		
128.85	209.70	0.0400		

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu. m.)	(cms)	(m/s)	(min)
0.06	208.30	.216E+02	0.0	0.15	113.45
0.13	208.37	.864E+02	0.0	0.24	71.47
0.19	208.43	.194E+03	0.1	0.31	54.54
0.25	208.49	.345E+03	0.1	0.38	45.02
0.32	208.56	.540E+03	0.2	0.44	38.80
0.38	208.62	.777E+03	0.4	0.49	34.36
0.46	208.70	.152E+04	0.7	0.50	33.99
0.54	208.78	.281E+04	1.4	0.50	33.61
0.62	208.86	.469E+04	2.5	0.53	31.90
0.70	208.94	.734E+04	4.0	0.56	30.28
0.78	209.02	.107E+05	6.3	0.59	28.55
0.86	209.10	.149E+05	9.3	0.63	26.78
0.94	209.18	.198E+05	13.1	0.68	25.09
1.02	209.26	.253E+05	17.9	0.72	23.58
1.10	209.34	.315E+05	23.6	0.76	22.24
1.18	209.42	.386E+05	30.0	0.79	21.42
1.26	209.50	.465E+05	37.7	0.82	20.56
1.34	209.58	.554E+05	46.8	0.86	19.73
1.42	209.66	.652E+05	57.3	0.90	18.94

Model Without SWM Infrastructure - Output

2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01

7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00

11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 2.640 (i)
TIME TO PEAK (hrs)= 47.333
RUNOFF VOLUME (mm)= 233.086
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.818

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0142):	27.10	2.640	47.33	233.09
+ ID2= 2 (0841):	81.70	8.181	47.58	233.31
=====				
ID = 3 (1420):	108.80	10.783	47.50	233.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)				
IN= 2--> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.52	0.0400		
61.99	209.23	0.0400		
76.86	209.20	0.0400		
82.03	209.20	0.0400 / 0.0350	Main Channel	
86.30	208.87	0.0350	Main Channel	
89.86	209.20	0.0350 / 0.0300	Main Channel	
96.27	209.24	0.0300		
103.53	209.40	0.0300		
127.96	209.50	0.0300		
158.58	209.70	0.0300		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME

**** WARNING: TRAVEL TIME TABLE EXCEEDED

<---- hydrograph ---->					
<-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (1420)	108.80	10.78	47.50	233.26	0.65
OUTFLOW: ID= 1 (0840)	108.80	10.50	47.92	233.25	0.65

CALIB			
NASHYD (0141)			
ID= 1 DT= 5.0 min			

Area (ha)=	8.10	Curve Number (CN)=	83.6
Ia (mm)=	7.47	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.78		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	

Model Without SWM Infrastructure - Output

0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00

5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00

9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.900 (i)
TIME TO PEAK (hrs)= 46.833
RUNOFF VOLUME (mm)= 235.285
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.826

(1) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ID1= 1 (0141): 8.10 0.900 46.83 235.28
+ ID2= 2 (0840): 108.80 10.496 47.92 233.25
=====

ID = 3 (1410): 116.90 11.123 47.75 233.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| NASHYD (0151) | Area (ha)= 24.60 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 1.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00

Model Without SWM Infrastructure - Output

2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00

7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00

11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 2.561 (i)
TIME TO PEAK (hrs)= 47.167
RUNOFF VOLUME (mm)= 232.766
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.817

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0153) |
ID= 1 DT= 5.0 min
Area (ha)= 33.30 Curve Number (CN)= 82.6
Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.08

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00

1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00

Model Without SWM Infrastructure - Output

5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00

10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 3.381 (i)

TIME TO PEAK (hrs)= 47.167

RUNOFF VOLUME (mm)= 232.136

TOTAL RAINFALL (mm)= 285.000

RUNOFF COEFFICIENT = 0.815

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)		Routing time step (min)'= 5.00	
IN= 2--> OUT= 1			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 /0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 /0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	

84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.125E+02	0.0	0.21	40.70
0.24	212.03	.501E+02	0.0	0.33	25.64
0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48
0.85	212.64	.277E+04	2.1	0.39	21.89
0.97	212.76	.507E+04	4.5	0.45	18.78
1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83
<---- hydrograph ----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (0153)	33.30	3.38	47.17	232.14	0.91
OUTFLOW: ID= 1 (0834)	33.30	3.29	47.42	232.14	0.91

CALIB	
NASHYD (0152)	Area (ha)= 16.20 Curve Number (CN)= 82.6
ID= 1 DT= 5.0 min	Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.93

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00

0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00

Model Without SWM Infrastructure - Output

4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00

8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 1.720 (i)

TIME TO PEAK (hrs)= 47.083

RUNOFF VOLUME (mm)= 232.136

TOTAL RAINFALL (mm)= 285.000

RUNOFF COEFFICIENT = 0.815

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

		<---- hydrograph ---->				<-pipe / channel->	
		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW :	ID= 2 (1520)	49.50	4.96	47.25	232.14	0.52	0.69
OUTFLOW:	ID= 1 (0833)	49.50	4.87	47.50	232.13	0.52	0.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0832)|
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->						
Distance	Elevation	Manning				
0.00	206.50	0.0400				
29.68	206.77	0.0400				
43.70	206.13	0.0400 / 0.0350	Main Channel			
44.99	205.95	0.0350	Main Channel			
47.70	206.24	0.0350 / 0.0450	Main Channel			
60.54	206.32	0.0450				
80.11	206.99	0.0450				
102.29	207.42	0.0450 / 0.0400				
132.78	206.84	0.0400				

<----- TRAVEL TIME TABLE ----->						
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)	
0.06	206.01	.158E+02	0.0	0.16	56.30	
0.12	206.07	.633E+02	0.0	0.25	35.47	
0.18	206.13	.142E+03	0.1	0.33	27.07	
0.26	206.21	.324E+03	0.3	0.42	21.31	
0.34	206.29	.720E+03	0.6	0.44	20.00	
0.42	206.37	.162E+04	1.4	0.45	19.57	
0.50	206.45	.272E+04	2.6	0.52	17.17	
0.58	206.53	.404E+04	4.2	0.56	15.86	
0.66	206.61	.584E+04	6.5	0.59	15.05	
0.74	206.69	.820E+04	9.6	0.63	14.19	
0.83	206.78	.111E+05	13.9	0.67	13.34	

| ADD HYD (1520)|
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0152):	16.20	1.720	47.08	232.14
+ ID2= 2 (0834):	33.30	3.290	47.42	232.14
=====				
ID = 3 (1520):	49.50	4.955	47.25	232.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0833)|
| IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning			
0.00	209.49	0.0400			
35.71	208.88	0.0400			
53.04	208.89	0.0400			
64.12	208.50	0.0400 / 0.0350	Main Channel		
70.77	208.05	0.0350	Main Channel		
74.98	208.02	0.0350	Main Channel		
83.40	208.38	0.0350 / 0.0400	Main Channel		
88.06	208.63	0.0400			
94.94	209.13	0.0400			
105.88	209.54	0.0400			

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.232E+03	0.1	0.19	65.23
0.14	208.16	.652E+03	0.3	0.30	41.42
0.22	208.24	.122E+04	0.6	0.38	32.47
0.29	208.31	.193E+04	1.2	0.45	27.40
0.36	208.38	.279E+04	1.9	0.51	24.03
0.44	208.46	.389E+04	3.2	0.60	20.41
0.52	208.54	.516E+04	4.8	0.69	17.88
0.60	208.62	.664E+04	6.9	0.77	16.07
0.68	208.70	.833E+04	9.4	0.83	14.80
0.76	208.78	.102E+05	12.3	0.89	13.84
0.84	208.86	.123E+05	15.7	0.94	13.07
0.92	208.94	.153E+05	19.4	0.94	13.11
0.99	209.01	.189E+05	24.5	0.96	12.89
1.07	209.09	.229E+05	30.4	0.98	12.57
1.15	209.17	.273E+05	37.1	1.01	12.25
1.23	209.25	.320E+05	44.7	1.03	11.94
1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

Model Without SWM Infrastructure - Output

0.91	206.86	.143E+05	19.9	0.74	12.00
0.99	206.94	.178E+05	27.1	0.81	10.94
1.07	207.02	.215E+05	35.3	0.87	10.16
1.15	207.10	.256E+05	44.5	0.93	9.59
1.23	207.18	.301E+05	55.1	0.98	9.09
1.31	207.26	.349E+05	67.2	1.03	8.65
1.39	207.34	.400E+05	80.7	1.07	8.26
1.47	207.42	.455E+05	95.8	1.12	7.92

<--- hydrograph --->						<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
INFLOW : ID= 2 (1510)	74.10	7.37	47.33	232.34	0.69	0.60	
OUTFLOW: ID= 1 (0832)	74.10	7.24	47.58	232.34	0.68	0.60	

CALIB					
NASHYD (0150)	Area (ha)=	6.60	Curve Number (CN)=	83.7	
ID= 1 DT= 5.0 min	Ia (mm)=	7.41	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.96			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00

1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00

6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00

10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model Without SWM Infrastructure - Output

+ ID2= 2 (1500): 80.70 7.897 47.50 232.60
=====
ID = 3 (1401): 197.60 18.940 47.67 233.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0830)		Routing time step (min)'= 5.00	
IN= 2--> OUT= 1			
<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	207.71	0.0400	
58.83	206.71	0.0400	
66.88	206.59	0.0400 / 0.0350	Main Channel
72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	
174.41	207.56	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.224E+03	0.0	0.08	174.00
0.23	206.25	.505E+03	0.1	0.11	132.79
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34
0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	4.7	0.29	50.17
0.78	206.80	.196E+05	7.6	0.34	42.88
0.87	206.89	.258E+05	11.4	0.38	37.80
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11
1.37	207.39	.776E+05	54.6	0.61	23.71
1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43
<---- hydrograph ----> <-pipe / channel->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)

INFLOW : ID= 2 (1401) 197.60 18.94 47.67 233.07 0.99 0.45
OUTFLOW: ID= 1 (0830) 197.60 18.04 48.00 233.06 0.98 0.44

CALIB					
NASHYD (0140)	Area	(ha)=	18.30	Curve Number	(CN)= 83.6
ID= 1 DT= 5.0 min	Ia	(mm)=	7.47	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		1.34		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----											
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00				
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00				
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00				
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00				
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00				
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00				
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00				
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00				
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00				
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00				
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00				
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00				
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00				
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00				
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00				
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00				
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00				
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00				
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00				
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00				
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00				
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00				
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00				
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00				
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00				
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00				
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00				
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00				
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00				
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00				
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00				
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00				
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00				

2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00

7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00

Model Without SWM Infrastructure - Output

11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 1.726 (i)
TIME TO PEAK (hrs)= 47.417
RUNOFF VOLUME (mm)= 235.287
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.826

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400)					
1 + 2 = 3					

		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0140):		18.30	1.726	47.42	235.29
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06
=====					
ID = 3 (1400):		215.90	19.631	48.00	233.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0131)			
ID= 1 DT= 5.0 min			

Area (ha)=		28.70	Curve Number (CN)= 82.1
Ia (mm)=		8.30	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=		1.11	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.983	2.00	12.983	2.00	24.983	2.00	36.08	6.00
2.000	2.00	12.167	2.00	24.167	2.00	36.11	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00

ADD HYD (1400)							
1 + 2 = 3							

ID1= 1 (0140):		18.30	1.726	47.42	235.29		
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06		
=====							
ID = 3 (1400):		215.90	19.631	48.00	233.25		

ADD HYD (1400)							
1 + 2 = 3							

ID1= 1 (0140):		18.30	1.726	47.42	235.29		
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06		
=====							
ID = 3 (1400):		215.90	19.631	48.00	233.25		

ADD HYD (1400)							
1 + 2 = 3							

ID1= 1 (0140):		18.30	1.726	47.42	235.29		
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06		
=====							
ID = 3 (1400):		215.90	19.631	48.00	233.25		

ADD HYD (1400)							
1 + 2 = 3							

ID1= 1 (0140):		18.30	1.726	47.42	235.29		
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06		
=====							
ID = 3 (1400):		215.90	19.631	48.00	233.25		

ADD HYD (1400)							
1 + 2 = 3							

ID1= 1 (0140):		18.30	1.726	47.42	235.29		
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06		
=====							
ID = 3 (1400):		215.90	19.631	48.00	233.25		

ADD HYD (1400)							
1 + 2 = 3							

ID1= 1 (0140):		18.30	1.726	47.42	235.29		
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06		
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ID = 3 (1400):		215.90	19.631	48.00	233.25		

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ID1= 1 (0140):		18.30	1.726	47.42	235.29		
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ID = 3 (1400):		215.90	19.631	48.00	233.25		

ADD HYD (1400)							
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ID1= 1 (0140):		18.30	1.726	47.42	235.29		
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06		
=====							
ID = 3 (1400):		215.90	19.631	48.00	233.25		

ADD HYD (1400)							
1 + 2 = 3							

ID1= 1 (0140):		18.30	1.726	47.42	235.29		
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06		
=====							
ID = 3 (1400):		215.90	19.631	48.00	233.25		

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1 + 2 = 3							

ID1= 1 (0140):		18.30	1.726	47.42	235.29		
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06		
=====							
ID = 3 (1400):		215.90	19.631	48.00	233.25		

ADD HYD (1400)							
1 + 2 = 3							

ID1= 1 (0140):		18.30	1.726	47.42	235.29		
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06		
=====							
ID = 3 (1400):		215.90	19.631	48.00	233.25		

ADD HYD (1400)							
1 + 2 = 3							

ID1= 1 (0140):		18.30	1.726	47.42	235.29		
+ ID2= 2 (0830):		197.60	18.039	48.00	233.06		

Model Without SWM Infrastructure - Output

|ID= 1 DT= 5.0 min | Total Imp(%)= 57.10 Dir. Conn.(%)= 45.00

Surface Area	(ha)=	75.37	56.63
Dep. Storage	(mm)=	1.00	8.95
Average Slope	(%)=	1.00	1.00
Length	(m)=	938.08	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00

3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00

7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00

11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model Without SWM Infrastructure - Output

0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00

4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00

9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00
over (min) 5.00
Storage Coeff. (min)= 6.88 (ii)
Unit Hyd. Tpeak (min)= 5.00
Unit Hyd. peak (cms)= 0.18

PEAK FLOW (cms)= 1.80
TIME TO PEAK (hrs)= 46.00
RUNOFF VOLUME (mm)= 284.00
TOTAL RAINFALL (mm)= 285.00
RUNOFF COEFFICIENT = 1.00

TOTALS
2.511 (iii)
46.00
267.80
285.00
0.94

CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0011):	132.00	17.673	46.00	249.96
+ ID2= 2 (0012):	17.50	2.511	46.00	267.80
=====				
ID = 3 (1112):	149.50	20.185	46.00	252.05

Model Without SWM Infrastructure - Output

1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00

5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00

9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 75.99
over (min) 5.00 20.00
Storage Coeff. (min)= 6.28 (ii) 15.98 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.19 0.07

PEAK FLOW (cms)= 1.33 0.52 *TOTALS*
TIME TO PEAK (hrs)= 46.00 46.00 1.853 (iii)
RUNOFF VOLUME (mm)= 284.00 230.00 267.80
TOTAL RAINFALL (mm)= 285.00 285.00 285.00
RUNOFF COEFFICIENT = 1.00 0.81 0.94

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1311)|

	1	2	3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):					12.90	1.853	46.00	267.80
+ ID2= 2 (1112):					149.50	20.185	46.00	252.05
ID = 3 (1311):					162.40	22.038	46.00	253.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0822)|
| IN= 2---> OUT= 1 | Routing time step (min)*= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	207.71	0.0400		
58.83	206.71	0.0400		
66.88	206.59	0.0400 / 0.0350	Main Channel	
72.32	206.34	0.0350	Main Channel	
77.68	206.55	0.0350 / 0.0800	Main Channel	
82.85	206.54	0.0800		
90.20	206.02	0.0800		
94.03	206.48	0.0800		
99.83	206.40	0.0800 / 0.0400		
114.32	206.50	0.0400		
136.07	206.86	0.0400		
174.41	207.56	0.0400		

Model Without SWM Infrastructure - Output

	<---- hydrograph <---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1311)	162.40	22.04	46.00	253.30	0.96	0.58
OUTFLOW: ID= 1 (0822)	162.40	20.96	46.00	253.30	0.94	0.57

ADD HYD (1310)						
1 + 2 = 3						
		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (	0131):	28.70	2.880	47.25	230.56	
+ ID2= 2 (	0822):	162.40	20.963	46.08	253.30	
=====						
ID = 3 (	1310):	191.10	23.051	46.17	249.88	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0821)		Routing time step (min)'= 5.00
IN= 2---> OUT= 1		

<----- DATA FOR SECTION (1.1) <----->			
Distance	Elevation	Manning	
0.00	207.71	0.0400	
58.83	206.71	0.0400	
66.88	206.59	0.0400 / 0.0350	Main Channel
72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	
174.41	207.56	0.0400	

<----- TRAVEL TIME TABLE <----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60

0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

	<---- hydrograph <---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1310)	191.10	23.05	46.17	249.88	1.00	0.54
OUTFLOW: ID= 1 (0821)	191.10	20.93	46.58	249.88	0.97	0.52

CALIB		Area (ha)= 26.70		Curve Number (CN)= 81.7	
NASHBY (0130)		Ia (mm)= 8.53		# of Linear Res.(N)= 3.00	
ID= 1 DT= 5.0 min		U.H. Tp(hrs)= 1.32			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----											
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00				
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00				
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00				
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00				
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00				
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00				
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00				
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00				
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00				
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00				
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00				
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00				
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00				
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00				
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00				
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00				
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00				
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00				

1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00

5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00

Model Without SWM Infrastructure - Output

10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 2.508 (i)
TIME TO PEAK (hrs)= 47.417
RUNOFF VOLUME (mm)= 229.286
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.805

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1300)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0130):	26.70	2.508	47.42	229.29
+ ID2= 2 (0821):	191.10	20.932	46.58	249.88
=====				
ID = 3 (1300):	217.80	23.110	46.75	247.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (1202)|

1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1300):	217.80	23.110	46.75	247.35
+ ID2= 2 (1400):	215.90	19.631	48.00	233.25
=====				
ID = 3 (1202):	433.70	39.744	47.17	240.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0820)|
| IN= 2---> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.54	0.0450		
43.13	205.35	0.0450		
67.41	205.27	0.0450		
86.35	205.38	0.0450 / 0.0350	Main Channel	
90.47	204.70	0.0350	Main Channel	
93.03	205.16	0.0350 / 0.0400	Main Channel	
101.99	205.21	0.0400		
151.82	204.97	0.0400		
252.14	206.45	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.681E+01	0.0	0.08	28.42
0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80
0.37	205.07	.292E+03	0.3	0.12	18.72
0.46	205.16	.859E+03	0.9	0.14	16.44
0.55	205.25	.182E+04	2.3	0.17	13.44
0.64	205.34	.311E+04	4.7	0.21	11.04
0.74	205.44	.487E+04	8.4	0.24	9.67
0.83	205.53	.676E+04	13.3	0.27	8.48
0.92	205.62	.877E+04	19.3	0.30	7.58
1.01	205.71	.109E+05	26.4	0.33	6.90
1.10	205.80	.132E+05	34.5	0.36	6.36
1.20	205.90	.155E+05	43.8	0.39	5.92
1.29	205.99	.181E+05	54.1	0.42	5.56
1.38	206.08	.207E+05	65.6	0.44	5.25
1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)

INFLOW : ID= 2 (1202) 433.70 39.74 47.17 240.33 1.16 0.38
OUTFLOW: ID= 1 (0820) 433.70 39.25 47.33 240.33 1.16 0.38

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (1201)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1210):	96.80	10.292	47.25	239.50
+ ID2= 2 (0820):	433.70	39.248	47.33	240.33
=====				
ID = 3 (1201):	530.50	49.520	47.17	240.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0810)|
| IN= 2---> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.54	0.0450		
43.13	205.35	0.0450		
67.41	205.27	0.0450		
86.35	205.38	0.0450 / 0.0350	Main Channel	
90.47	204.70	0.0350	Main Channel	
93.03	205.16	0.0350 / 0.0400	Main Channel	
101.99	205.21	0.0400		
151.82	204.97	0.0400		
252.14	206.45	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.229E+02	0.0	0.07	106.67
0.18	204.88	.915E+02	0.0	0.12	67.20
0.28	204.98	.208E+03	0.1	0.15	51.82
0.37	205.07	.981E+03	0.2	0.11	70.28
0.46	205.16	.288E+04	0.8	0.13	61.71
0.55	205.25	.610E+04	2.0	0.15	50.43
0.64	205.34	.105E+05	4.2	0.19	41.45
0.74	205.44	.163E+05	7.5	0.21	36.28
0.83	205.53	.227E+05	11.9	0.24	31.82
0.92	205.62	.294E+05	17.2	0.27	28.46
1.01	205.71	.366E+05	23.6	0.30	25.89
1.10	205.80	.442E+05	30.9	0.32	23.87
1.20	205.90	.522E+05	39.1	0.35	22.23

1.29 205.99 .606E+05 48.4 0.37 20.87
1.38 206.08 .694E+05 58.7 0.39 19.72
1.47 206.17 .786E+05 70.0 0.41 18.74
1.57 206.27 .883E+05 82.3 0.43 17.88
1.66 206.36 .983E+05 95.7 0.45 17.12
1.75 206.45 .109E+06 110.2 0.47 16.45

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1201) 530.50 49.52 47.17 240.18 1.30 0.37
OUTFLOW: ID= 1 (0810) 530.50 47.70 47.42 240.18 1.28 0.37

| CALIB
| NASHYD (0120)|
| ID= 1 DT= 5.0 min |

Area (ha)= 9.00 Curve Number (CN)= 84.0
Ia (mm)= 7.25 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.16

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		

Model Without SWM Infrastructure - Output

2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00

6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00

10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.898 (i)
TIME TO PEAK (hrs)= 47.250
RUNOFF VOLUME (mm)= 236.546
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.830

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1200)
1 + 2 = 3

ID1= 1 (0120):	9.00	0.898	47.25	236.55
+ ID2= 2 (0810):	530.50	47.698	47.42	240.18
=====				
ID = 3 (1200):	539.50	48.588	47.42	240.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYO (0113)
ID= 1 DT= 5.0 min

Area (ha)=	13.50	Curve Number (CN)=	82.5
Ia (mm)=	8.08	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.87		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00

Model Without SWM Infrastructure - Output

4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00

8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 1.456 (i)
TIME TO PEAK (hrs)= 47.000

RUNOFF VOLUME (mm)= 231.815
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.813

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0802) |
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

<----- TRAVEL TIME TABLE ----->				
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)
0.04	207.56	.448E+01	0.0	0.12
0.08	207.60	.179E+02	0.0	0.19
0.12	207.64	.403E+02	0.0	0.25
0.16	207.68	.716E+02	0.0	0.30
0.19	207.71	.112E+03	0.0	0.35
0.23	207.75	.161E+03	0.1	0.40
0.27	207.79	.219E+03	0.1	0.44
0.31	207.83	.287E+03	0.1	0.48
0.35	207.87	.363E+03	0.2	0.52
0.39	207.91	.448E+03	0.2	0.56
0.43	207.95	.542E+03	0.3	0.60
0.47	207.99	.645E+03	0.3	0.63
0.50	208.02	.757E+03	0.4	0.67
0.54	208.06	.878E+03	0.5	0.70
0.58	208.10	.101E+04	0.6	0.74
0.62	208.14	.115E+04	0.7	0.77
0.67	208.19	.137E+04	0.9	0.81
0.72	208.24	.172E+04	1.2	0.84
0.77	208.29	.225E+04	1.6	0.82

AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0113) 13.50 1.46 47.00 231.82 0.76 0.83
OUTFLOW: ID= 1 (0802) 13.50 1.40 47.33 231.75 0.75 0.83

CALIB (0112) | Area (ha)= 30.50 Curve Number (CN)= 82.8
NASHYD (mm)= 7.91 # of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min U.H. Tp(hrs)= 1.60

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00

Model Without SWM Infrastructure - Output

3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00

7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00

11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 2.662 (i)
TIME TO PEAK (hrs)= 47.583
RUNOFF VOLUME (mm)= 232.767
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.817

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0111)	Area (ha)= 45.50	Curve Number (CN)= 82.3	
ID= 1 DT= 5.0 min	Ia (mm)= 8.19	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.33		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00

1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99

Model Without SWM Infrastructure - Output

6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00

10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	2.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 4.275 (i)
TIME TO PEAK (hrs)= 47.417
RUNOFF VOLUME (mm)= 231.186
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.811

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0111):	45.50	4.275	47.42	231.19
+ ID2= 2 (0112):	30.50	2.662	47.58	232.77
=====				
ID = 3 (1101):	76.00	6.918	47.50	231.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (1101):	76.00	6.918	47.50	231.82
+ ID2= 2 (0802):	13.50	1.400	47.33	231.75

=====

ID = 1 (1101): 89.50 8.312 47.42 231.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801)				
IN= 2---> OUT= 1				
Routing time step (min)= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.66	0.0400		
19.50	209.34	0.0400		
37.91	208.66	0.0400		
41.73	208.62	0.0400 / 0.0350	Main Channel	
43.44	208.24	0.0350	Main Channel	
45.75	208.62	0.0350 / 0.0450	Main Channel	
54.00	208.79	0.0450 / 0.0400	Main Channel	
77.43	209.05	0.0400		
128.85	209.70	0.0400		
<----- TRAVEL TIME TABLE ----->				
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY
(m)	(m)	(cu.m.)	(cms)	(m/s)
0.06	208.30	.104E+02	0.0	0.10
0.13	208.37	.415E+02	0.0	0.16
0.19	208.43	.934E+02	0.0	0.20
0.25	208.49	.166E+03	0.1	0.25
0.32	208.56	.259E+03	0.2	0.29
0.38	208.62	.373E+03	0.2	0.32
0.46	208.70	.729E+03	0.5	0.33
0.54	208.78	.135E+04	0.9	0.33
0.62	208.86	.225E+04	1.6	0.35
0.70	208.94	.352E+04	2.6	0.37
0.78	209.02	.516E+04	4.1	0.39
0.86	209.10	.716E+04	6.1	0.41
0.94	209.18	.949E+04	8.6	0.44
1.02	209.26	.122E+05	11.7	0.47
1.10	209.34	.152E+05	15.5	0.50
1.18	209.42	.185E+05	19.7	0.52
1.26	209.50	.224E+05	24.7	0.54
1.34	209.58	.266E+05	30.6	0.56
1.42	209.66	.313E+05	37.5	0.59
<---- hydrograph ---->				
AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (1101)	89.50	8.31	47.42 231.81	0.93 0.44
OUTFLOW: ID= 1 (0801)	89.50	8.12	47.67 231.81	0.92 0.44

CALIB				
NASHYD (0110)				
ID= 1 DT= 5.0 min				
U.H. Tp(hrs)= 0.68				
Area	(ha)=	11.90	Curve Number	(CN)= 83.4
Ia	(mm)=	7.58	# of Linear Res.(N)=	3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00

Model Without SWM Infrastructure - Output

3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00

7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	13.00
9.167	2.00	21.167	2.00	33.167	2.00	45.17	13.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	13.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	13.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	13.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	13.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	13.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	13.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	13.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	13.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	13.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	13.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	13.00
10.167	2.00	22.167	2.00	34.167	2.00	46.17	13.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	13.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	13.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	13.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	13.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	13.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	13.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	13.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	13.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	13.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	13.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00

11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 1.368 (i)
TIME TO PEAK (hrs)= 46.583
RUNOFF VOLUME (mm)= 234.653
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.823

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0110):	11.90	1.368	46.58	234.65
+ ID2= 2 (0801):	89.50	8.121	47.67	231.81
ID = 3 (1100):	101.40	9.167	47.50	232.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1100):	101.40	9.167	47.50	232.14
+ ID2= 2 (1200):	539.50	48.588	47.42	240.12
ID = 3 (1001):	640.90	57.738	47.42	238.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)
IN= 2--> OUT= 1
Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	206.54	0.0450	
43.13	205.35	0.0450	
67.41	205.27	0.0450	
86.35	205.38	0.0450 / 0.0350	Main Channel

90.47	204.70	0.0350	Main Channel
93.03	205.16	0.0350 / 0.0400	Main Channel
101.99	205.21	0.0400	
151.82	204.97	0.0400	
252.14	206.45	0.0400	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	204.79	.255E+02	0.0	0.16	54.50
0.18	204.88	.102E+03	0.0	0.25	34.33
0.28	204.98	.232E+03	0.1	0.33	26.47
0.37	205.07	.109E+04	0.5	0.24	35.91
0.46	205.16	.321E+04	1.7	0.27	31.53
0.55	205.25	.680E+04	4.4	0.33	25.77
0.64	205.34	.116E+05	9.2	0.41	21.18
0.74	205.44	.182E+05	16.4	0.47	18.54
0.83	205.53	.253E+05	25.9	0.53	16.26
0.92	205.62	.328E+05	37.6	0.59	14.54
1.01	205.71	.408E+05	51.4	0.65	13.23
1.10	205.80	.492E+05	67.3	0.71	12.19
1.20	205.90	.581E+05	85.3	0.76	11.36
1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75
1.75	206.45	.121E+06	240.2	1.03	8.41

INFLOW : ID= 2 (1001)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
OUTFLOW: ID= 1 (0800)	640.90	57.74	47.42	238.86	1.05	0.67
	640.90	57.11	47.58	238.85	1.04	0.67

CALIB
NASHYD (0100)
ID= 1 DT= 5.0 min
Area (ha)= 54.70
Ia (mm)= 7.69
U.H. Tp(hrs)= 1.23
Curve Number (CN)= 83.2
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00

Model Without SWM Infrastructure - Output

0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00

4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00

8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 5.321 (i)
TIME TO PEAK (hrs)= 47.333
RUNOFF VOLUME (mm)= 234.027
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.821

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1000) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0100):	54.70	5.321	47.3	

Model Without SWM Infrastructure - Output

2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00

6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00

10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 1.350 (i)
TIME TO PEAK (hrs)= 46.917
RUNOFF VOLUME (mm)= 236.225
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.829

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)= 20.10	Curve Number (CN)= 82.0
NASHYD (0191)	Ia (mm)= 8.36	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 0.94	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00

0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00

Model Without SWM Infrastructure - Output

5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00

9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 2.122 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 230.236
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.808

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0192)	Area (ha)=	28.30	Curve Number (CN)=	80.3	
ID= 1 DT= 5.0 min	Ia (mm)=	6.23	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.06			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00

3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00

Model Without SWM Infrastructure - Output

8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 2.861 (i)

TIME TO PEAK (hrs)= 47.167
RUNOFF VOLUME (mm)= 227.840
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.799

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1901)			
1 + 2 = 3			
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)
ID1= 1 (0191):	20.10	2.122	47.08
+ ID2= 2 (0192):	28.30	2.861	47.17
=====			
ID = 3 (1901):	48.40	4.977	47.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0899)|
| IN= 2---> OUT= 1 | Routing time step (min)= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 /0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 /0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.349E+02	0.1	0.18	10.46
0.14	208.16	.981E+02	0.2	0.28	6.64
0.22	208.24	.183E+03	0.6	0.36	5.21
0.29	208.31	.291E+03	1.1	0.42	4.40
0.36	208.38	.420E+03	1.8	0.48	3.85
0.44	208.46	.586E+03	3.0	0.57	3.27
0.52	208.54	.777E+03	4.5	0.65	2.87
0.60	208.62	.999E+03	6.5	0.72	2.58
0.68	208.70	.125E+04	8.8	0.78	2.37
0.76	208.78	.154E+04	11.5	0.84	2.22
0.84	208.86	.185E+04	14.7	0.89	2.10

0.92	208.94	.230E+04	18.2	0.88	2.10
0.99	209.01	.285E+04	23.0	0.90	2.07
1.07	209.09	.345E+04	28.5	0.92	2.02
1.15	209.17	.411E+04	34.8	0.94	1.96
1.23	209.25	.482E+04	42.0	0.97	1.91
1.31	209.33	.559E+04	50.0	1.00	1.86
1.39	209.41	.643E+04	59.1	1.02	1.81
1.47	209.49	.732E+04	69.1	1.05	1.76

<----- hydrograph ----->				<-pipe / channel-->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1901)	48.40	4.98	47.17	228.83	0.54
OUTFLOW: ID= 1 (0899)	48.40	4.97	47.17	228.83	0.54

ADD HYD (1900)			
1 + 2 = 3			
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)
ID1= 1 (0190):	12.30	1.350	46.92
+ ID2= 2 (0899):	48.40	4.973	47.17
=====			
ID = 3 (1900):	60.70	6.307	47.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0500)			
ID= 1 DT= 5.0 min	Area (ha)=	7.60	Curve Number (CN)= 82.8
	Ia (mm)=	7.91	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.48	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00

0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00

Model Without SWM Infrastructure - Output

5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00

9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.957 (i)
TIME TO PEAK (hrs)= 46.250
RUNOFF VOLUME (mm)= 232.753
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.817

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)= 12.70	Curve Number (CN)= 81.7
NASHYD (0510)	Ia (mm)= 8.53	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 0.69	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00

3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.95
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.00
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00

Model Without SWM Infrastructure - Output

8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 1.442 (i)
TIME TO PEAK (hrs)= 46.583
RUNOFF VOLUME (mm)= 229.283
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.805

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0520)	Area (ha)= 17.30	Curve Number (CN)= 82.5	
ID= 1 DT= 5.0 min	Ia (mm)= 8.08	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.78		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	2.00	38.50	6.00

2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00

6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00

Model Without SWM Infrastructure - Output

11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 1.913 (i)
TIME TO PEAK (hrs)= 46.833
RUNOFF VOLUME (mm)= 231.815
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.813

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (5000)					
1	2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1	(0500):	7.60	0.957	46.25	232.75
+ ID2= 2	(0510):	12.70	1.442	46.58	229.28
=====					
ID = 3	(5000):	20.30	2.363	46.42	230.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (5000)						
3	2	1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3	(5000):		20.30	2.363	46.42	230.58
+ ID2= 2	(0520):		17.30	1.913	46.83	231.81
=====						
ID = 1	(5000):		37.60	4.236	46.58	231.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD	(0600)	Area	(ha)=	2.50	Curve Number (CN)= 82.5

|ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
----- U.H. Tp(hrs)= 0.45

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	' TIME ' hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00

3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00

7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model Without SWM Infrastructure - Output

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.320 (i)
TIME TO PEAK (hrs)= 46.167
RUNOFF VOLUME (mm)= 231.799
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.813

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

** SIMULATION : 9 **

| READ STORM | Filename: C:\Users\wraymond\AppData
| | ata\Local\Temp\
| | 35eb7828-247c-431e-8f8f-00c8304cf789\94690f0c
| Ptotal=130.90 mm | Comments: 100yr12hrAES-CC1 SSP5.85

=====

V	V	I	SSSS	U	U	A	L	(v 6.2.2017)
V	V	I	SS	U	U	A	A	L
V	V	I	SS	U	U	AAAA	L	
V	V	I	SS	U	U	A	A	L
VV	I	SSSS	UUUU	A	A	LLLL		

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\be
c5b9fe-d74d-4430-804f-0e35160edc32\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\be
c5b9fe-d74d-4430-804f-0e35160edc32\sce

DATE: 10-17-2025 TIME: 02:15:21

USER:

COMMENTS: _____

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.08	19.64	6.17	3.93	9.25	0.00
0.08	17.02	3.17	19.64	6.25	3.93	9.33	0.00
0.17	17.02	3.25	19.64	6.33	3.93	9.42	0.00
0.25	17.02	3.33	19.64	6.42	3.93	9.50	0.00
0.33	17.02	3.42	19.64	6.50	3.93	9.58	0.00
0.42	17.02	3.50	19.64	6.58	3.93	9.67	0.00
0.50	17.02	3.58	19.64	6.67	3.93	9.75	0.00
0.58	17.02	3.67	19.64	6.75	3.93	9.83	0.00
0.67	17.02	3.75	19.64	6.83	3.93	9.92	0.00
0.75	17.02	3.83	19.64	6.92	3.93	10.00	0.00
0.83	17.02	3.92	19.64	7.00	3.93	10.08	0.00
0.92	17.02	4.00	19.64	7.08	1.31	10.17	0.00
1.00	17.02	4.08	18.33	7.17	1.31	10.25	0.00
1.08	34.03	4.17	18.33	7.25	1.31	10.33	0.00
1.17	34.03	4.25	18.33	7.33	1.31	10.42	0.00
1.25	34.03	4.33	18.33	7.42	1.31	10.50	0.00
1.33	34.03	4.42	18.33	7.50	1.31	10.58	0.00
1.42	34.03	4.50	18.33	7.58	1.31	10.67	0.00
1.50	34.03	4.58	18.33	7.67	1.31	10.75	0.00
1.58	34.03	4.67	18.33	7.75	1.31	10.83	0.00
1.67	34.03	4.75	18.33	7.83	1.31	10.92	0.00
1.75	34.03	4.83	18.33	7.92	1.31	11.00	0.00
1.83	34.03	4.92	18.33	8.00	1.31	11.08	0.00
1.92	34.03	5.00	18.33	8.08	0.00	11.17	0.00
2.00	34.03	5.08	10.47	8.17	0.00	11.25	0.00
2.08	26.18	5.17	10.47	8.25	0.00	11.33	0.00
2.17	26.18	5.25	10.47	8.33	0.00	11.42	0.00
2.25	26.18	5.33	10.47	8.42	0.00	11.50	0.00
2.33	26.18	5.42	10.47	8.50	0.00	11.58	0.00
2.42	26.18	5.50	10.47	8.58	0.00	11.67	0.00
2.50	26.18	5.58	10.47	8.67	0.00	11.75	0.00
2.58	26.18	5.67	10.47	8.75	0.00	11.83	0.00
2.67	26.18	5.75	10.47	8.83	0.00	11.92	0.00
2.75	26.18	5.83	10.47	8.92	0.00	12.00	0.00
2.83	26.18	5.92	10.47	9.00	0.00		

2.92	26.18	6.00	10.47	9.08	0.00
3.00	26.18	6.08	3.93	9.17	0.00

RUNOFF COEFFICIENT = 0.650

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0185) | Area (ha)= 2.00 Curve Number (CN)= 79.5
| ID= 1 DT= 5.0 min | Ia (mm)= 6.54 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.36

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.105 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 81.442
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.622

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0160) | Area (ha)= 16.30 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 1.15

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.783 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 86.996
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.665

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0180) | Area (ha)= 6.80 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.85

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.341 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 85.144
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.650

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0330) | Area (ha)= 22.30 Curve Number (CN)= 82.2
| ID= 1 DT= 5.0 min | Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.60

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 1.188 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 84.674
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.647

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0170) | Area (ha)= 5.80 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.69

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.304 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 85.143
TOTAL RAINFALL (mm)= 130.900

| CALIB |
| NASHYD (0270) | Area (ha)= 2.50 Curve Number (CN)= 81.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.95 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.24

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.142 (i)
TIME TO PEAK (hrs)= 2.167
RUNOFF VOLUME (mm)= 84.528
TOTAL RAINFALL (mm)= 130.900

Model Without SWM Infrastructure - Output

RUNOFF COEFFICIENT = 0.646

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0260)	Area (ha)= 7.00	Curve Number (CN)= 83.7	
ID= 1 DT= 5.0 min	Ia (mm)= 7.41	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.43		

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.401 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 88.164
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.674

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0250)	Area (ha)= 10.70	Curve Number (CN)= 81.9	
ID= 1 DT= 5.0 min	Ia (mm)= 8.42	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.54		

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.573 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 83.984
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.642

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0320)	Area (ha)= 11.70	Curve Number (CN)= 83.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.45		

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.656 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 86.524
TOTAL RAINFALL (mm)= 130.900

RUNOFF COEFFICIENT = 0.668

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0896)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350 Main Channel
51.02	204.50	0.0350 Main Channel
54.33	205.44	0.0350 / 0.0400 Main Channel
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03
0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

<---- hydrograph ---->			<-pipe / channel-->		
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
6.90	0.38	3.25	87.46	0.41	0.71
INFLOW : ID= 2 (0422)					
OUTFLOW: ID= 1 (0896)	6.90	0.38	3.33	87.46	0.41 0.71

RUNOFF COEFFICIENT = 0.661

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0420)	Area (ha)= 25.80	Curve Number (CN)= 83.6	
ID= 1 DT= 5.0 min	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.12		

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 1.259 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 87.932
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.672

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0423)	Area (ha)= 23.90	Curve Number (CN)= 84.1	
ID= 1 DT= 5.0 min	Ia (mm)= 7.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.80		

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 1.276 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 89.107
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.681

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0422)	Area (ha)= 6.90	Curve Number (CN)= 83.4	
ID= 1 DT= 5.0 min	Ia (mm)= 7.58	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.61		

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.380 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 87.461
TOTAL RAINFALL (mm)= 130.900

ADD HYD (4202)				
1 + 2 = 3				
ID1= 1 (0423):	23.90	1.276	3.50	89.11
+ ID2= 2 (0896):	6.90	0.379	3.33	87.46
=====				
ID = 3 (4202):	30.80	1.653	3.50	88.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0895)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350 Main Channel
28.59	211.79	0.0350 Main Channel
32.89	214.16	0.0350 / 0.0500 Main Channel
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.170E+01	0.0	0.28	4.09
0.24	212.03	.679E+01	0.0	0.44	2.58
0.36	212.15	.153E+02	0.1	0.58	1.97
0.48	212.27	.272E+02	0.3	0.70	1.62
0.61	212.40	.424E+02	0.5	0.82	1.40
0.73	212.52	.134E+03	1.0	0.53	2.16
0.85	212.64	.375E+03	2.8	0.52	2.20
0.97	212.76	.687E+03	6.1	0.60	1.89
1.09	212.88	.107E+04	11.0	0.71	1.61
1.21	213.00	.148E+04	17.8	0.83	1.38
1.33	213.12	.192E+04	26.1	0.93	1.22
1.45	213.24	.238E+04	35.9	1.03	1.11
1.57	213.36	.288E+04	47.3	1.13	1.01
1.70	213.49	.340E+04	60.1	1.21	0.94
1.82	213.61	.395E+04	74.5	1.29	0.88
1.94	213.73	.452E+04	90.5	1.37	0.83
2.06	213.85	.512E+04	109.2	1.46	0.78

Model Without SWM Infrastructure - Output

```
2.18 213.97 .573E+04 130.3 1.56 0.73
2.37 214.16 .694E+04 168.2 1.66 0.69

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4202) 30.80 1.65 3.50 88.74 0.77 0.53
OUTFLOW: ID= 1 ( 0895) 30.80 1.65 3.50 88.74 0.77 0.53
```

```
-----
| CALIB |
| NASHYD ( 0421) | Area (ha)= 10.40 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.37
```

```
Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)= 0.584 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 86.052
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.657
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0883) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV. TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .344E+01 0.0 0.19 78.41
0.07 204.57 .137E+02 0.0 0.30 49.40
0.11 204.61 .309E+02 0.0 0.39 37.70
```

```
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV. TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .971E+02 0.0 0.09 55.71
0.14 208.16 .273E+03 0.1 0.15 35.37
0.22 208.24 .510E+03 0.3 0.19 27.73
0.29 208.31 .808E+03 0.6 0.22 23.40
0.36 208.38 .117E+04 0.9 0.25 20.52
0.44 208.46 .163E+04 1.6 0.30 17.43
0.52 208.54 .216E+04 2.4 0.34 15.27
0.60 208.62 .278E+04 3.4 0.38 13.72
0.68 208.70 .348E+04 4.6 0.41 12.64
0.76 208.78 .427E+04 6.0 0.44 11.82
0.84 208.86 .514E+04 7.7 0.46 11.16
0.92 208.94 .638E+04 9.5 0.46 11.20
0.99 209.01 .792E+04 12.0 0.47 11.01
1.07 209.09 .960E+04 14.9 0.48 10.74
1.15 209.17 .114E+05 18.2 0.49 10.46
1.23 209.25 .134E+05 21.9 0.51 10.19
1.31 209.33 .156E+05 26.1 0.52 9.92
1.39 209.41 .179E+05 30.9 0.53 9.65
1.47 209.49 .204E+05 36.1 0.55 9.40
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4201) 41.20 2.22 3.42 88.05 0.51 0.33
OUTFLOW: ID= 1 ( 0882) 41.20 2.17 3.58 88.04 0.50 0.33
```

```
-----
| ADD HYD ( 4200) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0420): 25.80 1.259 4.33 87.93
+ ID2= 2 ( 0882): 41.20 2.173 3.58 88.04
=====
ID = 3 ( 4200): 67.00 3.388 3.83 88.00
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0440) | Area (ha)= 31.60 Curve Number (CN)= 84.4
```

```
0.14 204.64 .550E+02 0.0 0.47 31.12
0.18 204.68 .859E+02 0.1 0.55 26.82
0.22 204.72 .124E+03 0.1 0.62 23.75
0.25 204.75 .168E+03 0.1 0.69 21.43
0.29 204.79 .220E+03 0.2 0.75 19.60
0.33 204.83 .278E+03 0.3 0.81 18.12
0.36 204.86 .344E+03 0.3 0.87 16.89
0.40 204.90 .416E+03 0.4 0.93 15.85
0.43 204.93 .559E+03 0.6 0.89 16.61
0.47 204.97 .986E+03 0.8 0.71 20.75
0.51 205.01 .165E+04 1.2 0.65 22.49
0.54 205.04 .248E+04 1.9 0.66 22.28
0.58 205.08 .349E+04 2.7 0.69 21.35
0.61 205.11 .466E+04 3.8 0.73 20.23
0.65 205.15 .600E+04 5.2 0.77 19.10
0.69 205.19 .751E+04 6.9 0.82 18.05
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0421) 10.40 0.58 3.17 86.05 0.44 0.86
OUTFLOW: ID= 1 ( 0883) 10.40 0.57 3.33 86.01 0.44 0.88
```

```
-----
| ADD HYD ( 4201) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0883): 10.40 0.573 3.33 86.01
+ ID2= 2 ( 0895): 30.80 1.653 3.50 88.74
=====
ID = 3 ( 4201): 41.20 2.221 3.42 88.05
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0882) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
```

```
| ID= 1 DT= 5.0 min | Ia (mm)= 7.04 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 1.16
```

```
Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 1.562 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 89.816
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.686
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0442) | Area (ha)= 2.40 Curve Number (CN)= 84.9
| ID= 1 DT= 5.0 min | Ia (mm)= 6.77 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.41
```

Unit Hyd Qpeak (cms)= 0.224

```
PEAK FLOW (cms)= 0.142 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 90.998
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.695
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0443) | Area (ha)= 21.30 Curve Number (CN)= 83.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.31 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.59
```

Unit Hyd Qpeak (cms)= 1.379

```
PEAK FLOW (cms)= 1.195 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 88.632
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.677
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0451) | Area (ha)= 12.30 Curve Number (CN)= 84.3
```

Model Without SWM Infrastructure - Output

ID= 1 DT= 5.0 min | Ia (mm)= 7.09 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.57

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 0.701 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 89.580
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.684

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0043) | Area (ha)= 22.90
ID= 1 DT= 5.0 min | Total Imp(%)= 49.00 Dir. Conn.(%)= 40.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 11.22 11.68
Dep. Storage (mm)= 1.00 8.92
Average Slope (%)= 1.00 2.00
Length (m)= 390.73 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 34.03 22.62
over (min) 10.00 25.00
Storage Coeff. (min)= 8.91 (ii) 21.70 (ii)
Unit Hyd. Tpeak (min)= 10.00 25.00
Unit Hyd. peak (cms)= 0.12 0.05

TOTALS

PEAK FLOW (cms)= 0.87 0.67 1.401 (iii)
TIME TO PEAK (hrs)= 2.08 3.17 2.08
RUNOFF VOLUME (mm)= 129.90 76.35 97.77
TOTAL RAINFALL (mm)= 130.90 130.90 130.90
RUNOFF COEFFICIENT = 0.99 0.58 0.75

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 74.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0045) | Area (ha)= 1.30
ID= 1 DT= 5.0 min | Total Imp(%)= 65.00 Dir. Conn.(%)= 35.00

14.71 208.30 0.0300
23.86 208.59 0.0300

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4345)	24.20	1.50	2.08	98.15	0.77	0.60
OUTFLOW: ID= 1 (0893)	24.20	1.48	2.17	98.14	0.77	0.60

ADD HYD (4510) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0451): 12.30 0.701 3.25 89.58
+ ID2= 2 (0893): 24.20 1.483 2.17 98.14
=====

ID = 3 (4510): 36.50 2.108 3.08 95.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0892) |
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.84 0.46
Dep. Storage (mm)= 1.00 8.92
Average Slope (%)= 1.00 2.00
Length (m)= 93.09 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 34.03 45.74
over (min) 5.00 15.00
Storage Coeff. (min)= 3.77 (ii) 13.42 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.25 0.08

TOTALS

PEAK FLOW (cms)= 0.04 0.05 0.095 (iii)
TIME TO PEAK (hrs)= 1.92 2.17 2.08
RUNOFF VOLUME (mm)= 129.90 91.30 104.81
TOTAL RAINFALL (mm)= 130.90 130.90 130.90
RUNOFF COEFFICIENT = 0.99 0.70 0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 74.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4345) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0043): 22.90 1.401 2.08 97.77
+ ID2= 2 (0045): 1.30 0.095 2.08 104.81
=====

ID = 3 (4345): 24.20 1.496 2.08 98.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893) |
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 / 0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 / 0.0300 Main Channel
8.96 208.27 0.0300

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .279E+01 0.0 0.48 3.92
0.24 212.03 .112E+02 0.1 0.76 2.47
0.36 212.15 .251E+02 0.2 0.99 1.89
0.48 212.27 .446E+02 0.5 1.20 1.56
0.61 212.40 .697E+02 0.9 1.40 1.34
0.73 212.52 .220E+03 1.8 0.91 2.07
0.85 212.64 .616E+03 4.9 0.89 2.11
0.97 212.76 .113E+04 10.4 1.04 1.81
1.09 212.88 .175E+04 18.9 1.21 1.54
1.21 213.00 .243E+04 30.5 1.42 1.32
1.33 213.12 .315E+04 44.8 1.60 1.17
1.45 213.24 .392E+04 61.6 1.77 1.06
1.57 213.36 .473E+04 81.0 1.93 0.97
1.70 213.49 .558E+04 103.1 2.08 0.90
1.82 213.61 .648E+04 127.8 2.22 0.85
1.94 213.73 .742E+04 155.2 2.35 0.80
2.06 213.85 .841E+04 187.2 2.50 0.75
2.18 213.97 .941E+04 223.3 2.67 0.70
2.37 214.16 .114E+05 288.4 2.85 0.66

<----- hydrograph -----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (4510) 36.50 2.11 3.08 95.26 0.74 0.90
OUTFLOW: ID= 1 (0892) 36.50 2.11 3.17 95.26 0.74 0.90

Model Without SWM Infrastructure - Output

```
ID1= 1 ( 0443):    21.30    1.195    3.25    88.63
+ ID2= 2 ( 0892):    36.50    2.107    3.17    95.26
=====
ID = 3 ( 4411):    57.80    3.300    3.17    92.82
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0891)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.70          0.0400
2.35          206.02          0.0400 / 0.0350 Main Channel
5.23          205.19          0.0350 Main Channel
5.34          205.67          0.0350 Main Channel
19.05         206.06          0.0350 / 0.0400 Main Channel
21.11         206.05          0.0400
22.02         206.13          0.0400 / 0.0350
40.10         206.15          0.0350
56.50         206.04          0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04       205.23      .621E+00      0.0            0.10          29.40
0.09       205.28      .248E+01      0.0            0.16          18.52
0.13       205.32      .559E+01      0.0            0.21          14.13
0.17       205.36      .994E+01      0.0            0.25          11.67
0.22       205.41      .155E+02      0.0            0.29          10.05
0.26       205.45      .224E+02      0.0            0.33          8.90
0.31       205.50      .304E+02      0.1            0.37          8.03
0.35       205.54      .398E+02      0.1            0.40          7.35
0.39       205.58      .503E+02      0.1            0.43          6.79
0.44       205.63      .621E+02      0.2            0.46          6.33
0.48       205.67      .752E+02      0.2            0.49          5.97
0.52       205.71      .954E+02      0.2            0.40          7.41
0.57       205.76      .129E+03      0.3            0.38          7.71
0.61       205.80      .175E+03      0.4            0.39          7.48
0.66       205.85      .234E+03      0.6            0.41          7.08
0.70       205.89      .306E+03      0.8            0.44          6.64
0.74       205.93      .391E+03      1.0            0.47          6.22
0.79       205.98      .490E+03      1.4            0.50          5.83
0.83       206.02      .601E+03      1.8            0.53          5.49

**** WARNING: TRAVEL TIME TABLE EXCEEDED

<----- hydrograph -----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4411)  57.80      3.30      3.17      92.82      0.83          0.53
```

OUTFLOW: ID= 1 (0891) 57.80 3.29 3.25 92.82 0.83 0.53

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| CALIB
| STANDHYD ( 0441)|
| ID= 1 DT= 5.0 min|
-----
Area      (ha)= 3.00
Total Imp(%)= 45.00 Dir. Conn.(%)= 35.00

IMPERVIOUS      PERVIOUS (i)
Surface Area     (ha)= 1.35      1.65
Dep. Storage     (mm)= 1.00      3.58
Average Slope    (%)= 2.00      2.00
Length           (m)= 141.42    40.00
Mannings n       = 0.013      0.250

Max.Eff.Inten.(mm/hr)= 34.03      32.26
over (min)        = 5.00      20.00
Storage Coeff.   (min)= 3.93 (ii) 15.03 (ii)
Unit Hyd. Tpeak  (min)= 5.00      20.00
Unit Hyd. peak   (cms)= 0.24      0.07

*TOTALS*
PEAK FLOW        (cms)= 0.10      0.14      0.233 (iii)
TIME TO PEAK     (hrs)= 2.00      2.25      2.08
RUNOFF VOLUME    (mm)= 129.90    100.40    110.72
TOTAL RAINFALL   (mm)= 130.90    130.90    130.90
RUNOFF COEFFICIENT = 0.99      0.77      0.85
```

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4410)|
| 1 + 2 = 3 |
-----
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0441):    3.00    0.233    2.08    110.72
+ ID2= 2 ( 0891):    57.80    3.286    3.25    92.82
=====
ID = 3 ( 4410):    60.80    3.466    3.25    93.70
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 4401)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 4410):    60.80    3.466    3.25    93.70
+ ID2= 2 ( 0442):    2.40    0.142    3.08    91.00
=====
ID = 3 ( 4401):    63.20    3.607    3.17    93.60
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0889)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.70          0.0400
2.35          206.02          0.0400 / 0.0350 Main Channel
5.23          205.19          0.0350 Main Channel
5.34          205.67          0.0350 Main Channel
19.05         206.06          0.0350 / 0.0400 Main Channel
21.11         206.05          0.0400
22.02         206.13          0.0400 / 0.0350
40.10         206.15          0.0350
56.50         206.04          0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04       205.23      .272E+01      0.0            0.09          142.50
0.09       205.28      .109E+02      0.0            0.14          89.77
0.13       205.32      .245E+02      0.0            0.19          68.51
0.17       205.36      .435E+02      0.0            0.23          56.55
0.22       205.41      .679E+02      0.0            0.26          48.73
0.26       205.45      .978E+02      0.0            0.30          43.16
0.31       205.50      .133E+03      0.1            0.33          38.94
0.35       205.54      .174E+03      0.1            0.36          35.63
0.39       205.58      .220E+03      0.1            0.39          32.93
0.44       205.63      .272E+03      0.1            0.42          30.70
0.48       205.67      .329E+03      0.2            0.44          28.96
0.52       205.71      .418E+03      0.2            0.36          35.92
0.57       205.76      .563E+03      0.3            0.34          37.36
0.61       205.80      .765E+03      0.4            0.35          36.28
0.66       205.85      .102E+04      0.5            0.37          34.31
0.70       205.89      .134E+04      0.7            0.40          32.17
0.74       205.93      .171E+04      0.9            0.43          30.13
0.79       205.98      .214E+04      1.3            0.45          28.27
0.83       206.02      .263E+04      1.6            0.48          26.00
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<----- hydrograph -----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4401)  63.20      3.61      3.17      93.60      0.83          0.48
OUTFLOW: ID= 1 ( 0889)  63.20      3.44      3.50      93.58      0.83          0.48
```

```
-----
| ADD HYD ( 4400)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 0440):    31.60    1.562    4.42    89.82
+ ID2= 2 ( 0889):    63.20    3.439    3.50    93.58
=====
ID = 3 ( 4400):    94.80    4.919    3.75    92.33
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0888)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.66          0.0400
19.50         209.34          0.0400
37.91         208.66          0.0400
41.73         208.62          0.0400 / 0.0350 Main Channel
43.44         208.24          0.0350 Main Channel
45.75         208.62          0.0350 / 0.0450 Main Channel
54.00         208.79          0.0450 / 0.0400
77.43         209.05          0.0400
128.85        209.70          0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.06       208.30      .519E+01      0.0            0.09          43.50
0.13       208.37      .208E+02      0.0            0.15          27.40
0.19       208.43      .467E+02      0.0            0.19          20.91
0.25       208.49      .830E+02      0.1            0.24          17.26
0.32       208.56      .130E+03      0.1            0.27          14.88
0.38       208.62      .187E+03      0.2            0.31          13.17
0.46       208.70      .365E+03      0.5            0.31          13.03
0.54       208.78      .674E+03      0.9            0.32          12.89
0.62       208.86      .113E+04      1.5            0.33          12.23
0.70       208.94      .176E+04      2.5            0.35          11.61
```

Model Without SWM Infrastructure - Output

0.78	209.02	.258E+04	3.9	0.37	10.95
0.86	209.10	.358E+04	5.8	0.40	10.27
0.94	209.18	.475E+04	8.2	0.42	9.62
1.02	209.26	.608E+04	11.2	0.45	9.04
1.10	209.34	.758E+04	14.8	0.48	8.53
1.18	209.42	.927E+04	18.8	0.50	8.21
1.26	209.50	.112E+05	23.6	0.52	7.88
1.34	209.58	.133E+05	29.3	0.54	7.57
1.42	209.66	.157E+05	35.9	0.56	7.26

<--- hydrograph ---> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4400)	94.80	4.92	3.75	92.33	0.82	0.38
OUTFLOW: ID= 1 (0888)	94.80	4.88	3.92	92.33	0.82	0.38

CALIB
STANDHYD (0042)
ID= 1 DT= 5.0 min

Area (ha)= 20.50
Total Imp(%)= 83.00 Dir. Conn.(%)= 70.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	17.01	3.49
Dep. Storage (mm)=	1.00	6.98
Average Slope (%)=	2.00	2.00
Length (m)=	369.68	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	34.03	46.72
over (min)	5.00	20.00
Storage Coeff. (min)=	7.00 (ii)	16.57 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.17	0.06
PEAK FLOW (cms)=	1.36	0.41
TIME TO PEAK (hrs)=	2.08	2.25
RUNOFF VOLUME (mm)=	129.90	96.86
TOTAL RAINFALL (mm)=	130.90	130.90
RUNOFF COEFFICIENT =	0.99	0.74

TOTALS

1.750 (iii)
2.08
119.99
130.90
0.92

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0898)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	101.50	0.0500	
1.00	100.70	0.0500	
1.50	100.55	0.0500 /0.0300	Main Channel
2.00	99.50	0.0300	Main Channel
3.50	99.60	0.0300	Main Channel
4.50	100.65	0.0300 /0.0500	Main Channel
6.00	101.45	0.0500	

TRAVEL TIME TABLE

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.10	99.60	.152E+02	0.0	0.19	18.79
0.19	99.69	.482E+02	0.1	0.37	9.79
0.29	99.79	.840E+02	0.2	0.49	7.32
0.38	99.88	.123E+03	0.3	0.59	6.12
0.48	99.98	.164E+03	0.5	0.67	5.38
0.57	100.07	.208E+03	0.7	0.74	4.87
0.67	100.17	.255E+03	0.9	0.80	4.49
0.76	100.26	.305E+03	1.2	0.86	4.19
0.86	100.36	.358E+03	1.5	0.91	3.95
0.95	100.45	.413E+03	1.8	0.96	3.75
1.05	100.55	.471E+03	2.2	1.00	3.58
1.16	100.66	.547E+03	2.7	1.07	3.35
1.28	100.78	.635E+03	3.4	1.14	3.14
1.39	100.89	.732E+03	4.1	1.20	2.99
1.50	101.00	.838E+03	4.9	1.25	2.86
1.61	101.11	.952E+03	5.8	1.30	2.76
1.72	101.22	.107E+04	6.7	1.34	2.67
1.84	101.34	.120E+04	7.7	1.38	2.60
1.95	101.45	.134E+04	8.8	1.41	2.54

<--- hydrograph ---> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0042)	20.50	1.75	2.08	119.99	0.93	0.94
OUTFLOW: ID= 1 (0898)	20.50	1.74	2.08	119.98	0.93	0.94

CALIB
STANDHYD (0044)
ID= 1 DT= 5.0 min

Area (ha)= 8.90
Total Imp(%)= 41.00 Dir. Conn.(%)= 20.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	3.65	5.25
Dep. Storage (mm)=	1.00	8.00
Average Slope (%)=	2.00	2.00
Length (m)=	243.58	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	34.03	29.99
over (min)	5.00	20.00
Storage Coeff. (min)=	5.45 (ii)	16.87 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.20	0.06

TOTALS

0.536 (iii)
2.08
93.86
130.90
0.72

***** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4244)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0044):	8.90	0.536	2.08	93.86
+ ID2= 2 (0898):	20.50	1.741	2.08	119.98
ID = 3 (4244):	29.40	2.277	2.08	112.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0897)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 /0.0350	Main Channel

28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 /0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

TRAVEL TIME TABLE

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.140E+02	0.0	0.17	55.64
0.24	212.03	.559E+02	0.0	0.27	35.05
0.36	212.15	.126E+03	0.1	0.35	26.75
0.48	212.27	.224E+03	0.2	0.43	22.08
0.61	212.40	.350E+03	0.3	0.49	19.03
0.73	212.52	.110E+04	0.6	0.32	29.36
0.85	212.64	.309E+04	1.7	0.31	29.92
0.97	212.76	.566E+04	3.7	0.37	25.67
1.09	212.88	.878E+04	6.7	0.43	21.92
1.21	213.00	.122E+05	10.8	0.50	18.80
1.33	213.12	.158E+05	15.8	0.57	16.63
1.45	213.24	.196E+05	21.8	0.63	15.03
1.57	213.36	.237E+05	28.7	0.68	13.79
1.70	213.49	.280E+05	36.4	0.73	12.81
1.82	213.61	.325E+05	45.2	0.78	12.00
1.94	213.73	.372E+05	54.9	0.83	11.31
2.06	213.85	.422E+05	66.2	0.89	10.62
2.18	213.97	.472E+05	79.0	0.94	9.97
2.37	214.16	.571E+05	102.0	1.01	9.34

<--- hydrograph ---> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4244)	29.40	2.28	2.08	112.08	0.88	0.33
OUTFLOW: ID= 1 (0897)	29.40	1.95	2.42	112.06	0.86	0.32

ADD HYD (4301)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0888):	94.80	4.883	3.92	92.33
+ ID2= 2 (0897):	29.40	1.947	2.42	112.06
ID = 3 (4301):	124.20	6.562	3.67	97.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model Without SWM Infrastructure - Output

```
-----
| ROUTE CHN( 0887)|
| IN= 2----> OUT= 1 |
-----

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.52        0.0400
61.99         209.23        0.0400
76.86         209.20        0.0400
82.03         209.20        0.0400 /0.0350 Main Channel
86.30         208.87        0.0350 Main Channel
89.86         209.20        0.0350 /0.0300 Main Channel
96.27         209.24        0.0300
103.53        209.40        0.0300
127.96        209.50        0.0300
158.58        209.70        0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.03  208.90      .143E+01      0.0            0.09          20.80
0.07  208.94      .572E+01      0.0            0.14          13.11
0.10  208.97      .129E+02      0.0            0.18          10.00
0.13  209.00      .229E+02      0.0            0.22           8.26
0.17  209.04      .357E+02      0.1            0.26           7.11
0.20  209.07      .514E+02      0.1            0.29           6.30
0.23  209.10      .700E+02      0.2            0.32           5.69
0.26  209.13      .915E+02      0.3            0.35           5.20
0.30  209.17      .116E+03      0.4            0.38           4.81
0.33  209.20      .143E+03      0.5            0.41           4.48
0.37  209.24      .239E+03      0.8            0.37           5.02
0.40  209.27      .396E+03      1.3            0.35           5.26
0.44  209.31      .589E+03      1.9            0.36           5.13
0.47  209.34      .818E+03      2.8            0.38           4.89
0.51  209.38      .108E+04      3.9            0.40           4.63
0.54  209.41      .139E+04      5.2            0.41           4.46
0.58  209.45      .175E+04      6.7            0.43           4.33
0.61  209.48      .218E+04      8.7            0.44           4.17
0.65  209.52      .266E+04     11.2            0.46           3.98

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4301) 124.20 6.56 3.67 97.00 0.57 0.42
OUTFLOW: ID= 1 ( 0887) 124.20 6.56 3.75 97.00 0.57 0.42
```

```
-----
| CALIB |
|-----|
```

```
| NASHYD ( 0430)| Area (ha)= 19.80 Curve Number (CN)= 83.6
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 1.13
```

Unit Hyd Qpeak (cms)= 0.669

PEAK FLOW (cms)= 0.964 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 87.932
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.672

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4300)|
| 1 + 2 = 3 |
-----

AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0430): 19.80 0.964 4.33 87.93
+ ID2= 2 ( 0887): 124.20 6.558 3.75 97.00
=====
ID = 3 ( 4300): 144.00 7.492 3.75 95.75
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0886)|
| IN= 2----> OUT= 1 |
-----

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.20        0.0400
100.00         206.26        0.0400
111.30         206.19        0.0400 /0.0350 Main Channel
112.02         205.76        0.0350 Main Channel
113.82         205.37        0.0350 Main Channel
115.62         206.03        0.0350 /0.0400 Main Channel
117.77         207.30        0.0400
120.56         207.40        0.0400
124.41         207.31        0.0400
129.31         207.24        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.09  205.46      .110E+02      0.0            0.11          51.32
0.19  205.56      .438E+02      0.0            0.17          32.33
0.28  205.65      .986E+02      0.1            0.23          24.67
0.38  205.75      .175E+03      0.1            0.27          20.37
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0885)|
| IN= 2----> OUT= 1 |
-----

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          208.48        0.0500
43.69         207.97        0.0500
66.92         207.94        0.0500
76.98         208.01        0.0500
87.94         208.25        0.0500
89.93         208.44        0.0500 /0.0350 Main Channel
92.70         208.20        0.0350 Main Channel
95.51         207.28        0.0350 Main Channel
98.26         208.25        0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.05  207.33      .134E+01      0.0            0.06          52.81
0.10  207.38      .536E+01      0.0            0.10          33.27
0.15  207.43      .121E+02      0.0            0.13          25.39
0.19  207.47      .214E+02      0.0            0.15          20.96
0.24  207.52      .335E+02      0.0            0.18          18.06
0.29  207.57      .483E+02      0.1            0.20          15.99
0.34  207.62      .657E+02      0.1            0.22          14.43
0.39  207.67      .858E+02      0.1            0.24          13.20
0.44  207.72      .109E+03      0.1            0.26          12.21
0.48  207.76      .134E+03      0.2            0.28          11.38
0.53  207.81      .162E+03      0.3            0.30          10.68
0.58  207.86      .193E+03      0.3            0.32          10.08
0.63  207.91      .227E+03      0.4            0.34          9.55
0.68  207.96      .295E+03      0.5            0.32          10.12
0.73  208.01      .613E+03      0.7            0.22          14.89
0.78  208.06      .103E+04      1.0            0.20          16.42
0.82  208.10      .150E+04      1.5            0.20          16.27
0.87  208.15      .204E+04      2.2            0.21          15.61
0.92  208.20      .264E+04      3.0            0.22          14.84
```

```
**** WARNING: TRAVEL TIME TABLE EXCEEDED
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4110) 148.50 7.68 4.00 95.74 0.92 0.22
OUTFLOW: ID= 1 ( 0885) 148.50 7.63 4.25 95.74 0.92 0.22
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| CALIB |
| NASHYD ( 0411)| Area (ha)= 4.50 Curve Number (CN)= 86.7
| ID= 1 DT= 5.0 min | Ia (mm)= 5.84 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 1.11
```

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW (cms)= 0.239 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 95.351
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.728

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4110)|
| 1 + 2 = 3 |
-----

AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0411): 4.50 0.239 4.08 95.35
+ ID2= 2 ( 0886): 144.00 7.443 4.00 95.75
=====
ID = 3 ( 4110): 148.50 7.682 4.00 95.74
```


Model Without SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0041)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 25.40 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.21
```

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 1.219 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 87.932
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.672

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0894)|
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .523E+01 0.0 0.10 36.03
0.24 212.03 .209E+02 0.0 0.15 22.70
0.36 212.15 .471E+02 0.0 0.20 17.32
0.48 212.27 .837E+02 0.1 0.25 14.30
0.61 212.40 .131E+03 0.2 0.29 12.32
0.73 212.52 .412E+03 0.4 0.18 19.01
0.85 212.64 .115E+04 1.0 0.18 19.37
0.97 212.76 .212E+04 2.1 0.21 16.62
1.09 212.88 .328E+04 3.9 0.25 14.19
1.21 213.00 .455E+04 6.2 0.29 12.17
1.33 213.12 .591E+04 9.1 0.33 10.77
1.45 213.24 .734E+04 12.6 0.36 9.73
```

```
-----
ID1= 1 ( 4140): (ha) (cms) (hrs) (mm)
+ ID2= 2 ( 0885): 62.90 3.063 4.33 88.78
+ ID2= 2 ( 0885): 148.50 7.633 4.25 95.74
=====
ID = 3 ( 4101): 211.40 10.694 4.33 93.66
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0884)|
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 204.63 0.0400
45.24 204.34 0.0400
94.52 203.98 0.0400
140.93 203.58 0.0400
148.77 203.72 0.0400 / 0.0350 Main Channel
154.30 202.99 0.0350 Main Channel
158.02 203.77 0.0350 / 0.0400 Main Channel
174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 203.04 .620E+01 0.0 0.11 58.30
0.10 203.09 .248E+02 0.0 0.17 36.73
0.16 203.15 .558E+02 0.0 0.22 28.03
0.21 203.20 .992E+02 0.1 0.27 23.14
0.26 203.25 .155E+03 0.1 0.31 19.94
0.31 203.30 .223E+03 0.2 0.35 17.66
0.37 203.36 .304E+03 0.3 0.39 15.93
0.42 203.41 .397E+03 0.5 0.42 14.58
0.47 203.46 .502E+03 0.6 0.46 13.47
0.52 203.51 .620E+03 0.8 0.49 12.56
0.57 203.56 .750E+03 1.1 0.52 11.79
0.63 203.62 .934E+03 1.3 0.53 11.56
0.68 203.67 .129E+04 1.7 0.50 12.36
0.73 203.72 .184E+04 2.3 0.47 13.20
0.79 203.78 .270E+04 3.4 0.47 13.22
0.85 203.84 .412E+04 5.1 0.45 13.57
0.92 203.91 .583E+04 7.3 0.47 13.24
0.98 203.97 .783E+04 10.3 0.49 12.69
1.04 204.03 .101E+05 13.9 0.51 12.15
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
```

1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0041) 25.40 1.22 4.58 87.93 0.87 0.19
OUTFLOW: ID= 1 ( 0894) 25.40 1.21 5.08 87.93 0.87 0.19
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| CALIB
| NASHYD ( 0040)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 37.50 Curve Number (CN)= 84.2
Ia (mm)= 7.14 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.98
```

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 1.915 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 89.349
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.683

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4140)|
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0040): 37.50 1.915 3.92 89.35
+ ID2= 2 ( 0894): 25.40 1.205 5.08 87.93
=====
ID = 3 ( 4140): 62.90 3.063 4.33 88.78
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 4101)|
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
```

```
INFLOW : ID= 2 ( 4101) 211.40 10.69 4.33 93.66 0.99 0.49
OUTFLOW: ID= 1 ( 0884) 211.40 10.64 4.58 93.66 0.98 0.49
```

```
-----
| CALIB
| NASHYD ( 0410)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 8.50 Curve Number (CN)= 85.5
Ia (mm)= 6.46 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.94
```

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.455 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 92.440
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.706

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4100)|
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0410): 8.50 0.455 3.75 92.44
+ ID2= 2 ( 0884): 211.40 10.642 4.58 93.66
=====
ID = 3 ( 4100): 219.90 11.076 4.58 93.62
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0401)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 23.00 Curve Number (CN)= 83.1
Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 1.200 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 86.767
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.663

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

ADD HYD (4001)				
1	2	3		
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0401):	23.00	1.200	3.50	86.77
+ ID2= 2 (4100):	219.90	11.076	4.58	93.62
=====				
ID = 3 (4001):	242.90	12.193	4.42	92.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4001)				
1	2	3		
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (4001):	242.90	12.193	4.42	92.97
+ ID2= 2 (4200):	67.00	3.388	3.83	88.00
=====				
ID = 1 (4001):	309.90	15.509	4.33	91.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0880)				
IN= 2--> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	204.63	0.0400		
45.24	204.34	0.0400		
94.52	203.98	0.0400		
140.93	203.58	0.0400		
148.77	203.72	0.0400 / 0.0350	Main Channel	
154.30	202.99	0.0350	Main Channel	
158.02	203.77	0.0350 / 0.0400	Main Channel	
174.30	203.79	0.0400		
222.94	204.38	0.0400		
285.62	204.03	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.647E+01	0.0	0.11	59.17
0.10	203.09	.259E+02	0.0	0.17	37.28
0.16	203.15	.582E+02	0.0	0.23	28.45
0.21	203.20	.103E+03	0.1	0.27	23.48
0.26	203.25	.162E+03	0.1	0.32	20.24
0.31	203.30	.233E+03	0.2	0.36	17.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0200)	Area	(ha)=	25.60	Curve Number (CN)= 82.2
ID= 1 DT= 5.0 min	Ia	(mm)=	8.25	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.79				

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 1.296 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 84.676
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.647

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0023)	Area	(ha)=	7.00	Curve Number (CN)= 83.0
ID= 1 DT= 5.0 min	Ia	(mm)=	7.80	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.73				

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.369 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 86.529
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.661

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0022)	Area	(ha)=	3.40	Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min	Ia	(mm)=	5.38	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.20				

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.206 (i)
TIME TO PEAK (hrs)= 2.167
RUNOFF VOLUME (mm)= 87.655
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.670

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

0.37	203.36	.317E+03	0.3	0.40	16.17
0.42	203.41	.414E+03	0.5	0.43	14.79
0.47	203.46	.524E+03	0.6	0.47	13.68
0.52	203.51	.647E+03	0.8	0.50	12.75
0.57	203.56	.782E+03	1.1	0.54	11.96
0.63	203.62	.974E+03	1.4	0.55	11.73
0.68	203.67	.135E+04	1.8	0.51	12.55
0.73	203.72	.192E+04	2.4	0.48	13.39
0.79	203.78	.282E+04	3.5	0.48	13.41
0.85	203.84	.430E+04	5.2	0.47	13.77
0.92	203.91	.608E+04	7.5	0.48	13.44
0.98	203.97	.816E+04	10.6	0.50	12.88
1.04	204.03	.105E+05	14.2	0.52	12.33

**** WARNING: TRAVEL TIME TABLE EXCEEDED

<---- hydrograph ---->					<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (4001)	309.90	15.51	4.33	91.89	1.04	0.52
OUTFLOW: ID= 1 (0880)	309.90	15.45	4.58	91.89	1.04	0.52

CALIB				
NASHYD (0400)	Area	(ha)=	27.60	Curve Number (CN)= 83.8
ID= 1 DT= 5.0 min	Ia	(mm)=	7.36	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.88				

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 1.429 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 88.402
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.675

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4000)				
1	2	3		
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0400):	27.60	1.429	3.67	88.40
+ ID2= 2 (0880):	309.90	15.449	4.58	91.89
=====				
ID = 3 (4000):	337.50	16.807	4.58	91.61

CALIB				
NASHYD (0211)	Area	(ha)=	17.30	Curve Number (CN)= 81.3
ID= 1 DT= 5.0 min	Ia	(mm)=	8.76	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.02				

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.809 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 82.620
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.631

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0021)	Area	(ha)=	47.60	Curve Number (CN)= 84.6
ID= 1 DT= 5.0 min	Ia	(mm)=	6.93	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.93				

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 2.489 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 90.293
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.690

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0871)				
IN= 2--> OUT= 1				
Routing time step (min)'= 5.00				

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.49	0.0400			
35.71	208.88	0.0400			
53.04	208.89	0.0400			
64.12	208.50	0.0400 / 0.0350	Main Channel		
70.77	208.05	0.0350	Main Channel		
74.98	208.02	0.0350	Main Channel		
83.40	208.38	0.0350 / 0.0400	Main Channel		
88.06	208.63	0.0400			
94.94	209.13	0.0400			

Model Without SWM Infrastructure - Output

105.88 209.54 0.0400

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42
0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

<--- hydrograph --->					
<-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (0021)	47.60	2.49	3.75	90.29	0.38
OUTFLOW: ID= 1 (0871)	47.60	2.45	4.17	90.29	0.38

ADD HYD (2110)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0211):	17.30	0.809	4.25	82.62	
+ ID2= 2 (0022):	3.40	0.206	2.17	87.66	
=====					
ID = 3 (2110):	20.70	0.966	4.17	83.45	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2110)					
3 + 2 = 1					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	

ID1= 3 (2110): 20.70 0.966 4.17 83.45
+ ID2= 2 (0871): 47.60 2.450 4.17 90.29
=====

ID = 1 (2110): 68.30 3.416 4.17 88.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0220)					
ID= 1 DT= 5.0 min					
	Area	(ha)=	20.30	Curve Number (CN)=	81.6
	Ia	(mm)=	8.59	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.85			

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 0.993 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 83.301
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.636

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0020)					
ID= 1 DT= 5.0 min					
	Area	(ha)=	12.60	Curve Number (CN)=	82.4
	Ia	(mm)=	8.13	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.72			

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.655 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 85.143
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.650

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)					
IN= 2---> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.00	0.0400			
33.24	205.47	0.0400			
44.39	205.59	0.0400			
48.71	205.45	0.0400 / 0.0350	Main Channel		

51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 / 0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56
0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46
0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.05

<--- hydrograph --->					
<-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (0020)	12.60	0.65	3.42	85.14	0.47
OUTFLOW: ID= 1 (0875)	12.60	0.63	4.08	85.11	0.47

ADD HYD (2200)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0220):	20.30	0.993	3.75	83.30	
+ ID2= 2 (0875):	12.60	0.628	4.08	85.11	
=====					
ID = 3 (2200):	32.90	1.613	3.92	83.99	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (2110):	68.30	3.416	4.17	88.21	
+ ID2= 2 (2200):	32.90	1.613	3.92	83.99	
=====					
ID = 3 (2101):	101.20	5.024	4.08	86.84	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)					
IN= 2---> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.52	0.0400			
61.99	209.23	0.0400			
76.86	209.20	0.0400			
82.03	209.20	0.0400 / 0.0350	Main Channel		
86.30	208.87	0.0350	Main Channel		
89.86	209.20	0.0350 / 0.0300	Main Channel		
96.27	209.24	0.0300			
103.53	209.40	0.0300			
127.96	209.50	0.0300			
158.58	209.70	0.0300			

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

Model Without SWM Infrastructure - Output

```
<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 2101) 101.20  5.02  4.08  86.84    0.52    0.47
OUTFLOW: ID= 1 ( 0870) 101.20  4.99  4.33  86.84    0.52    0.47
```

```
-----
| CALIB      |
| NASHYD ( 0210) | Area (ha)= 9.10 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.64
```

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW (cms)= 0.482 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 84.909
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.649

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 2100) |
| 1 + 2 = 3 |
| ID1= 1 ( 0210): 9.10 0.482 3.33 84.91
| + ID2= 2 ( 0870): 101.20 4.989 4.33 86.84
| =====
| ID = 3 ( 2100): 110.30 5.422 4.33 86.68
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB      |
| NASHYD ( 0230) | Area (ha)= 24.70 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.82
```

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 1.267 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 86.302
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.659

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB      |
| NASHYD ( 0231) | Area (ha)= 29.50 Curve Number (CN)= 81.9
| ID= 1 DT= 5.0 min | Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 1.442 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 83.987
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.642

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB      |
| NASHYD ( 0240) | Area (ha)= 10.10 Curve Number (CN)= 82.0
| ID= 1 DT= 5.0 min | Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.74
```

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.515 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 84.219
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.643

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB      |
| NASHYD ( 0241) | Area (ha)= 26.70 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.75
```

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 1.371 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 84.909
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.649

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0864) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       214.06       0.0500
6.27       213.95       0.0500
20.38      214.11       0.0500
25.18      213.97       0.0500 / 0.0350 Main Channel
28.59      211.79       0.0350 Main Channel
32.89      214.16       0.0350 / 0.0500 Main Channel
42.61      212.54       0.0500
59.11      212.41       0.0500
84.10      212.83       0.0500
100.76     213.78       0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)     (m)     (cu.m.)   (cms)       (m/s)      (min)
0.12    211.91   .118E+02   0.0          0.27       29.62
0.24    212.03   .471E+02   0.0          0.42       18.66
0.36    212.15   .106E+03   0.1          0.56       14.24
0.48    212.27   .188E+03   0.3          0.67       11.76
0.61    212.40   .294E+03   0.5          0.78       10.13
0.73    212.52   .928E+03   1.0          0.51       15.63
0.85    212.64   .260E+04   2.7          0.50       15.93
0.97    212.76   .477E+04   5.8          0.58       13.67
1.09    212.88   .739E+04   10.6         0.68       11.67
1.21    213.00   .103E+05   17.1         0.79       10.01
1.33    213.12   .133E+05   25.0         0.89       8.85
1.45    213.24   .165E+05   34.4         0.99       8.00
1.57    213.36   .200E+05   45.3         1.08       7.34
1.70    213.49   .236E+05   57.6         1.16       6.82
1.82    213.61   .274E+05   71.4         1.24       6.39
1.94    213.73   .314E+05   86.8         1.31       6.02
2.06    213.85   .355E+05   104.6        1.40       5.66
2.18    213.97   .398E+05   124.9        1.49       5.31
2.37    214.16   .481E+05   161.2        1.59       4.97
```

```
<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 0241) 26.70  1.37  3.50  84.91    0.75    0.50
OUTFLOW: ID= 1 ( 0864) 26.70  1.35  3.83  84.91    0.75    0.50
```

```
-----
| ADD HYD ( 2301) |
| 1 + 2 = 3 |
| ID1= 1 ( 0231): 29.50 1.442 3.83 83.99
| + ID2= 2 ( 0240): 10.10 0.515 3.50 84.22
| =====
| ID = 3 ( 2301): 39.60 1.951 3.67 84.05
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2301) |
| 3 + 2 = 1 |
| ID1= 3 ( 2301): 39.60 1.951 3.67 84.05
| + ID2= 2 ( 0864): 26.70 1.347 3.83 84.91
| =====
| ID = 1 ( 2301): 66.30 3.297 3.75 84.39
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0863) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       206.70       0.0400
2.35       206.02       0.0400 / 0.0350 Main Channel
5.23       205.19       0.0350 Main Channel
5.34       205.67       0.0350 Main Channel
19.05      206.06       0.0350 / 0.0400 Main Channel
21.11      206.05       0.0400
22.02      206.13       0.0400 / 0.0350
40.10      206.15       0.0350
56.50      206.04       0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)     (m)     (cu.m.)   (cms)       (m/s)      (min)
0.04    205.23   .138E+01   0.0          0.11       58.11
0.09    205.28   .551E+01   0.0          0.18       36.61
0.13    205.32   .124E+02   0.0          0.23       27.94
0.17    205.36   .220E+02   0.0          0.28       23.06
0.22    205.41   .344E+02   0.0          0.33       19.87
0.26    205.45   .496E+02   0.0          0.37       17.60
```

Model Without SWM Infrastructure - Output

0.31	205.50	.675E+02	0.1	0.41	15.88
0.35	205.54	.882E+02	0.1	0.45	14.53
0.39	205.58	.112E+03	0.1	0.48	13.43
0.44	205.63	.138E+03	0.2	0.52	12.52
0.48	205.67	.167E+03	0.2	0.55	11.81
0.52	205.71	.212E+03	0.2	0.44	14.65
0.57	205.76	.285E+03	0.3	0.43	15.23
0.61	205.80	.388E+03	0.4	0.44	14.79
0.66	205.85	.519E+03	0.6	0.47	13.99
0.70	205.89	.679E+03	0.9	0.50	13.12
0.74	205.93	.868E+03	1.2	0.53	12.29
0.79	205.98	.109E+04	1.6	0.56	11.53
0.83	206.02	.133E+04	2.0	0.60	10.85

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (2301)	66.30	3.30	3.75	84.39	0.83	0.60
OUTFLOW: ID= 1 (0863)	66.30	3.28	4.00	84.39	0.83	0.60

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (2300)					
1 + 2 = 3					
ID1= 1 (0230):	24.70	1.267	3.58	86.30	
+ ID2= 2 (0863):	66.30	3.278	4.00	84.39	
=====					
ID = 3 (2300):	91.00	4.526	3.92	84.91	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2011)					
1 + 2 = 3					
ID1= 1 (2100):	110.30	5.422	4.33	86.68	
+ ID2= 2 (2300):	91.00	4.526	3.92	84.91	
=====					
ID = 3 (2011):	201.30	9.910	4.17	85.88	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0862) |

| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	204.63	0.0400	
45.24	204.34	0.0400	
94.52	203.98	0.0400	
140.93	203.58	0.0400	
148.77	203.72	0.0400 / 0.0350	Main Channel
154.30	202.99	0.0350	Main Channel
158.02	203.77	0.0350 / 0.0400	Main Channel
174.30	203.79	0.0400	
222.94	204.38	0.0400	
285.62	204.03	0.0400	

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.05	203.04	.465E+01	0.0	0.10	47.86	
0.10	203.09	.186E+02	0.0	0.15	30.15	
0.16	203.15	.418E+02	0.0	0.20	23.01	
0.21	203.20	.744E+02	0.1	0.24	18.99	
0.26	203.25	.116E+03	0.1	0.28	16.37	
0.31	203.30	.167E+03	0.2	0.32	14.50	
0.37	203.36	.228E+03	0.3	0.35	13.08	
0.42	203.41	.297E+03	0.4	0.39	11.97	
0.47	203.46	.376E+03	0.6	0.42	11.06	
0.52	203.51	.465E+03	0.8	0.45	10.31	
0.57	203.56	.562E+03	1.0	0.48	9.68	
0.63	203.62	.700E+03	1.2	0.49	9.49	
0.68	203.67	.969E+03	1.6	0.45	10.15	
0.73	203.72	.138E+04	2.1	0.43	10.83	
0.79	203.78	.203E+04	3.1	0.43	10.85	
0.85	203.84	.309E+04	4.6	0.41	11.14	
0.92	203.91	.437E+04	6.7	0.42	10.87	
0.98	203.97	.586E+04	9.4	0.44	10.42	
1.04	204.03	.757E+04	12.7	0.46	9.97	

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (2011)	201.30	9.91	4.17	85.88	0.99	0.45
OUTFLOW: ID= 1 (0862)	201.30	9.87	4.33	85.88	0.99	0.45

CALIB	
NASHYD (0201)	
Area	(ha)= 8.20
Ia	(mm)= 8.02
Curve Number (CN)=	82.6
# of Linear Res.(N)=	3.00

----- U.H. Tp(hrs)= 0.60

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)=	0.442 (i)
TIME TO PEAK (hrs)=	3.250
RUNOFF VOLUME (mm)=	85.602
TOTAL RAINFALL (mm)=	130.900
RUNOFF COEFFICIENT	= 0.654

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2010)					
1 + 2 = 3					
ID1= 1 (0201):	8.20	0.442	3.25	85.60	
+ ID2= 2 (0023):	7.00	0.369	3.42	86.53	
=====					
ID = 3 (2010):	15.20	0.810	3.33	86.03	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2010)					
3 + 2 = 1					
ID1= 3 (2010):	15.20	0.810	3.33	86.03	
+ ID2= 2 (0862):	201.30	9.865	4.33	85.88	
=====					
ID = 1 (2010):	216.50	10.603	4.25	85.89	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0860) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.48	0.0500	
43.69	207.97	0.0500	
66.92	207.94	0.0500	
76.98	208.01	0.0500	
87.94	208.25	0.0500	
89.93	208.44	0.0500 / 0.0350	Main Channel
92.70	208.20	0.0350	Main Channel
95.51	207.28	0.0350	Main Channel

98.26 208.25 0.0350 Main Channel

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.05	207.33	.155E+01	0.0	0.16	23.32	
0.10	207.38	.620E+01	0.0	0.25	14.69	
0.15	207.43	.140E+02	0.0	0.33	11.21	
0.19	207.47	.248E+02	0.0	0.40	9.26	
0.24	207.52	.388E+02	0.1	0.47	7.98	
0.29	207.57	.558E+02	0.1	0.53	7.06	
0.34	207.62	.760E+02	0.2	0.59	6.37	
0.39	207.67	.992E+02	0.3	0.64	5.83	
0.44	207.72	.126E+03	0.4	0.69	5.39	
0.48	207.76	.155E+03	0.5	0.74	5.03	
0.53	207.81	.188E+03	0.7	0.79	4.72	
0.58	207.86	.223E+03	0.8	0.84	4.45	
0.63	207.91	.262E+03	1.0	0.88	4.22	
0.68	207.96	.341E+03	1.3	0.83	4.47	
0.73	208.01	.708E+03	1.8	0.57	6.58	
0.78	208.06	.119E+04	2.7	0.51	7.25	
0.82	208.10	.174E+04	4.0	0.52	7.19	
0.87	208.15	.236E+04	5.7	0.54	6.89	
0.92	208.20	.305E+04	7.8	0.57	6.55	

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph <---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (2010)	216.50	10.60	4.25	85.89	0.92	0.57
OUTFLOW: ID= 1 (0860)	216.50	10.59	4.42	85.89	0.92	0.57

ADD HYD (2000)					
1 + 2 = 3					
ID1= 1 (0200):	25.60	1.296	3.58	84.68	
+ ID2= 2 (0860):	216.50	10.590	4.42	85.89	
=====					
ID = 3 (2000):	242.10	11.823	4.33	85.76	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0300)	
Area	(ha)= 36.80
Ia	(mm)= 7.74
Curve Number (CN)=	83.1
# of Linear Res.(N)=	3.00

Model Without SWM Infrastructure - Output

----- U.H. Tp(hrs)= 0.90

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 1.858 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 86.767
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.663

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0031) | Area (ha)= 3.00 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.62

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.164 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 87.820
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.671

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0350) | Area (ha)= 1.50 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.38

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.085 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 86.982
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.664

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0850) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .300E+01 0.0 0.15 86.75
0.07 204.57 .120E+02 0.0 0.24 54.65
0.11 204.61 .270E+02 0.0 0.31 41.70
0.14 204.64 .480E+02 0.0 0.37 34.42
0.18 204.68 .750E+02 0.0 0.43 29.67
0.22 204.72 .108E+03 0.1 0.49 26.27
0.25 204.75 .147E+03 0.1 0.54 23.71
0.29 204.79 .192E+03 0.1 0.59 21.69
0.33 204.83 .243E+03 0.2 0.64 20.05
0.36 204.86 .300E+03 0.3 0.69 18.69
0.40 204.90 .363E+03 0.3 0.73 17.54
0.43 204.93 .488E+03 0.4 0.70 18.37
0.47 204.97 .860E+03 0.6 0.56 22.95
0.51 205.01 .144E+04 1.0 0.52 24.88
0.54 205.04 .217E+04 1.5 0.52 24.65
0.58 205.08 .304E+04 2.1 0.54 23.62
0.61 205.11 .407E+04 3.0 0.57 22.38
0.65 205.15 .524E+04 4.1 0.61 21.13
0.69 205.19 .656E+04 5.5 0.64 19.97

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0350) 1.50 0.09 3.17 86.98 0.23 0.51
OUTFLOW: ID= 1 (0850) 1.50 0.08 3.33 86.67 0.23 0.51

| CALIB |
| NASHYD (0032) | Area (ha)= 28.00 Curve Number (CN)= 83.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.95

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 1.408 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 87.463
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.668

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (3200) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
+ ID1= 1 (0032): 28.00 1.408 3.92 87.46
+ ID2= 2 (0850): 1.50 0.083 3.33 86.67
=====

ID = 3 (3200): 29.50 1.485 3.83 87.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| NASHYD (0301) | Area (ha)= 59.40 Curve Number (CN)= 82.7
| ID= 1 DT= 5.0 min | Ia (mm)= 7.97 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 1.23

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 2.779 (i)
TIME TO PEAK (hrs)= 4.750
RUNOFF VOLUME (mm)= 85.831
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.656

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (3010) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
+ ID1= 1 (0301): 59.40 2.779 4.75 85.83
+ ID2= 2 (3200): 29.50 1.485 3.83 87.42
=====

ID = 3 (3010): 88.90 4.220 4.42 86.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (3001) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
+ ID1= 1 (3010): 88.90 4.220 4.42 86.36
+ ID2= 2 (0031): 3.00 0.164 3.25 87.82
=====

ID = 3 (3001): 91.90 4.364 4.42 86.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0852) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 /0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 /0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400
124.41 207.31 0.0400
129.31 207.24 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 205.46 .132E+02 0.0 0.21 32.83
0.19 205.56 .529E+02 0.0 0.33 20.68
0.28 205.65 .119E+03 0.1 0.43 15.78
0.38 205.75 .212E+03 0.3 0.52 13.03
0.47 205.84 .327E+03 0.5 0.62 10.84
0.57 205.94 .458E+03 0.8 0.72 9.42
0.66 206.03 .604E+03 1.2 0.80 8.44
0.76 206.13 .777E+03 1.7 0.91 7.41
0.86 206.23 .102E+04 2.4 0.97 6.97
0.96 206.33 .168E+04 3.6 0.87 7.76
1.06 206.43 .252E+04 5.4 0.87 7.80
1.16 206.53 .350E+04 7.7 0.89 7.56
1.26 206.63 .463E+04 10.7 0.93 7.24
1.37 206.74 .590E+04 14.3 0.98 6.90
1.47 206.84 .732E+04 18.6 1.03 6.58
1.57 206.94 .889E+04 23.6 1.08 6.28
1.67 207.04 .106E+05 29.5 1.13 6.00
1.77 207.14 .125E+05 36.1 1.17 5.75
1.87 207.24 .145E+05 43.7 1.22 5.52

Model Without SWM Infrastructure - Output

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 3001) 91.90 4.36 4.42 86.41 1.01 0.87
OUTFLOW: ID= 1 ( 0852) 91.90 4.36 4.58 86.41 1.00 0.87
```

```
ADD HYD ( 3000)
1 + 2 = 3
```

```
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0300): 36.80 1.858 3.75 86.77
+ ID2= 2 ( 0852): 91.90 4.358 4.58 86.41
=====
ID = 3 ( 3000): 128.70 6.163 4.33 86.51
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
CALIB
NASHYD ( 0030)
ID= 1 DT= 5.0 min
```

```
Area (ha)= 1.10 Curve Number (CN)= 81.5
Ia (mm)= 5.76 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30
```

Unit Hyd Qpeak (cms)= 0.140

```
PEAK FLOW (cms)= 0.061 (i)
TIME TO PEAK (hrs)= 2.250
RUNOFF VOLUME (mm)= 85.635
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.654
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ROUTE CHN( 0854)
IN= 2----> OUT= 1
```

Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 / 0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 / 0.0400 Main Channel
```

```
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .753E+00 0.0 0.18 18.23
0.07 204.57 .301E+01 0.0 0.28 11.48
0.11 204.61 .677E+01 0.0 0.37 8.76
0.14 204.64 .120E+02 0.0 0.45 7.23
0.18 204.68 .188E+02 0.1 0.52 6.23
0.22 204.72 .271E+02 0.1 0.58 5.52
0.25 204.75 .369E+02 0.1 0.65 4.98
0.29 204.79 .482E+02 0.2 0.71 4.56
0.33 204.83 .610E+02 0.2 0.77 4.21
0.36 204.86 .753E+02 0.3 0.82 3.93
0.40 204.90 .911E+02 0.4 0.88 3.69
0.43 204.93 .122E+03 0.5 0.84 3.86
0.47 204.97 .216E+03 0.7 0.67 4.82
0.51 205.01 .361E+03 1.2 0.62 5.23
0.54 205.04 .544E+03 1.7 0.62 5.18
0.58 205.08 .763E+03 2.6 0.65 4.96
0.61 205.11 .102E+04 3.6 0.69 4.70
0.65 205.15 .131E+04 4.9 0.73 4.44
0.69 205.19 .165E+04 6.5 0.77 4.20
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0030) 1.10 0.06 2.25 85.64 0.19 0.54
OUTFLOW: ID= 1 ( 0854) 1.10 0.06 3.17 85.62 0.19 0.54
```

```
CALIB
NASHYD ( 0340)
ID= 1 DT= 5.0 min
```

```
Area (ha)= 21.00 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 1.162

```
PEAK FLOW (cms)= 1.113 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 86.066
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.657
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ADD HYD ( 3400)
1 + 2 = 3
```

```
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0340): 21.00 1.113 3.42 86.07
+ ID2= 2 ( 0854): 1.10 0.061 3.17 85.62
=====
ID = 3 ( 3400): 22.10 1.172 3.33 86.04
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
CALIB
NASHYD ( 0123)
ID= 1 DT= 5.0 min
```

```
Area (ha)= 24.60 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 1.010

```
PEAK FLOW (cms)= 1.226 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 86.303
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.659
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ROUTE CHN( 0814)
IN= 2----> OUT= 1
```

Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
```

```
0.12 211.91 .923E+01 0.0 0.26 23.49
0.24 212.03 .369E+02 0.0 0.42 14.80
0.36 212.15 .831E+02 0.1 0.55 11.29
0.48 212.27 .148E+03 0.3 0.67 9.32
0.61 212.40 .231E+03 0.5 0.77 8.03
0.73 212.52 .727E+03 1.0 0.50 12.40
0.85 212.64 .204E+04 2.7 0.49 12.63
0.97 212.76 .374E+04 5.7 0.57 10.84
1.09 212.88 .580E+04 10.4 0.67 9.25
1.21 213.00 .804E+04 16.9 0.78 7.94
1.33 213.12 .104E+05 24.8 0.88 7.02
1.45 213.24 .130E+05 34.1 0.98 6.35
1.57 213.36 .157E+05 44.8 1.07 5.82
1.70 213.49 .185E+05 57.0 1.15 5.41
1.82 213.61 .215E+05 70.6 1.23 5.06
1.94 213.73 .246E+05 85.8 1.30 4.78
2.06 213.85 .278E+05 103.5 1.38 4.49
2.18 213.97 .312E+05 123.5 1.48 4.21
2.37 214.16 .377E+05 159.4 1.57 3.94
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0123) 24.60 1.23 3.83 86.30 0.74 0.50
OUTFLOW: ID= 1 ( 0814) 24.60 1.22 4.17 86.30 0.74 0.50
```

```
CALIB
NASHYD ( 0124)
ID= 1 DT= 5.0 min
```

```
Area (ha)= 24.30 Curve Number (CN)= 85.8
Ia (mm)= 6.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.51
```

Unit Hyd Qpeak (cms)= 1.820

```
PEAK FLOW (cms)= 1.456 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 93.163
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.712
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ROUTE CHN( 0813)
IN= 2----> OUT= 1
```

Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
```

Model Without SWM Infrastructure - Output

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 / 0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.78
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25

<---- hydrograph ---->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (0124)	24.30	1.46	3.17	93.16	0.76
OUTFLOW: ID= 1 (0813)	24.30	1.40	3.42	93.15	0.76

ADD HYD (1221)
1 + 2 = 3

AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0813):	24.30	1.403	3.42
+ ID2= 2 (0814):	24.60	1.218	4.17

=====

ID = 3 (1221): 48.90 2.570 3.75 89.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0812)|

| IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 / 0.0350
70.77	208.05	0.0350
74.98	208.02	0.0350
83.40	208.38	0.0350 / 0.0400
88.06	208.63	0.0400
94.94	209.13	0.0400
105.88	209.54	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.533E+02	0.1	0.24	12.01
0.14	208.16	.150E+03	0.3	0.37	7.63
0.22	208.24	.280E+03	0.8	0.47	5.98
0.29	208.31	.444E+03	1.5	0.56	5.04
0.36	208.38	.642E+03	2.4	0.64	4.42
0.44	208.46	.896E+03	4.0	0.75	3.76
0.52	208.54	.119E+04	6.0	0.86	3.29
0.60	208.62	.153E+04	8.6	0.96	2.96
0.68	208.70	.192E+04	11.7	1.04	2.73
0.76	208.78	.235E+04	15.4	1.11	2.55
0.84	208.86	.283E+04	19.6	1.18	2.41
0.92	208.94	.351E+04	24.2	1.17	2.41
0.99	209.01	.435E+04	30.6	1.19	2.37
1.07	209.09	.528E+04	38.0	1.22	2.31
1.15	209.17	.628E+04	46.4	1.26	2.26
1.23	209.25	.737E+04	55.9	1.29	2.20
1.31	209.33	.855E+04	66.6	1.33	2.14
1.39	209.41	.982E+04	78.7	1.36	2.08
1.47	209.49	.112E+05	92.1	1.40	2.03

<---- hydrograph ---->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (1221)	48.90	2.57	3.75	89.71	0.37
OUTFLOW: ID= 1 (0812)	48.90	2.57	3.75	89.71	0.37

CALIB
NASHYD (0122)
ID= 1 DT= 5.0 min

Area (ha)=	31.80	Curve Number (CN)=	85.1
Ia (mm)=	6.67	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.96		

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 1.673 (i)

TIME TO PEAK (hrs)= 3.833

RUNOFF VOLUME (mm)= 91.481

TOTAL RAINFALL (mm)= 130.900

RUNOFF COEFFICIENT = 0.699

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1220)
1 + 2 = 3

AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0122):	31.80	1.673	3.83
+ ID2= 2 (0812):	48.90	2.569	3.75
ID = 3 (1220):	80.70	4.241	3.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0811)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.50	0.0400			
29.68	206.77	0.0400			
43.70	206.13	0.0400 / 0.0350	Main Channel		
44.99	205.95	0.0350	Main Channel		
47.70	206.24	0.0350 / 0.0450	Main Channel		
60.54	206.32	0.0450			
80.11	206.99	0.0450			
102.29	207.42	0.0450 / 0.0400			
132.78	206.84	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)

ADD HYD (1210)
1 + 2 = 3

AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)

Model Without SWM Infrastructure - Output

```
ID1= 1 ( 0121): 16.10 0.898 3.58 94.86
+ ID2= 2 ( 0811): 80.70 4.185 4.08 90.40
=====
ID = 3 ( 1210): 96.80 5.060 4.08 91.14
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0146) | Area (ha)= 12.80 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.55
```

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.706 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 86.528
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.661

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0844) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 /0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 /0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .107E+01 0.0 0.13 37.04
0.08 207.60 .430E+01 0.0 0.20 23.33
0.12 207.64 .966E+01 0.0 0.27 17.81
0.16 207.68 .172E+02 0.0 0.32 14.70
0.19 207.71 .268E+02 0.0 0.38 12.67
0.23 207.75 .387E+02 0.1 0.42 11.22
0.27 207.79 .526E+02 0.1 0.47 10.12
0.31 207.83 .687E+02 0.1 0.51 9.26
0.35 207.87 .870E+02 0.2 0.56 8.56
0.39 207.91 .107E+03 0.2 0.60 7.98
```

```
0.43 207.95 .130E+03 0.3 0.64 7.49
0.47 207.99 .155E+03 0.4 0.67 7.07
0.50 208.02 .181E+03 0.5 0.71 6.70
0.54 208.06 .210E+03 0.6 0.75 6.38
0.58 208.10 .242E+03 0.7 0.78 6.09
0.62 208.14 .275E+03 0.8 0.82 5.83
0.67 208.19 .329E+03 1.0 0.87 5.50
0.72 208.24 .413E+03 1.3 0.89 5.36
0.77 208.29 .540E+03 1.7 0.87 5.45
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0146) 12.80 0.71 3.25 86.53 0.60 0.79
OUTFLOW: ID= 1 ( 0844) 12.80 0.70 3.33 86.52 0.59 0.79
```

```
| CALIB
| NASHYD ( 0145) | Area (ha)= 12.60 Curve Number (CN)= 83.3
| ID= 1 DT= 5.0 min | Ia (mm)= 7.63 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.59
```

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.695 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 87.232
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.666

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1450) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0145): 12.60 0.695 3.25 87.23
+ ID2= 2 ( 0844): 12.80 0.704 3.33 86.52
=====
ID = 3 ( 1450): 25.40 1.399 3.25 86.87
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0843) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .144E+02 0.0 0.23 42.45
0.24 212.03 .578E+02 0.0 0.36 26.74
0.36 212.15 .130E+03 0.1 0.48 20.41
0.48 212.27 .231E+03 0.2 0.58 16.85
0.61 212.40 .361E+03 0.4 0.67 14.52
0.73 212.52 .114E+04 0.8 0.43 22.41
0.85 212.64 .319E+04 2.3 0.43 22.83
0.97 212.76 .585E+04 5.0 0.50 19.59
1.09 212.88 .907E+04 9.0 0.58 16.72
1.21 213.00 .126E+05 14.6 0.68 14.34
1.33 213.12 .163E+05 21.4 0.77 12.69
1.45 213.24 .203E+05 29.5 0.85 11.47
1.57 213.36 .245E+05 38.8 0.92 10.52
1.70 213.49 .289E+05 49.3 0.99 9.77
1.82 213.61 .336E+05 61.2 1.06 9.15
1.94 213.73 .385E+05 74.3 1.13 8.63
2.06 213.85 .436E+05 89.6 1.20 8.11
2.18 213.97 .488E+05 106.9 1.28 7.61
2.37 214.16 .590E+05 138.1 1.36 7.13
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1450) 25.40 1.40 3.25 86.87 0.77 0.43
OUTFLOW: ID= 1 ( 0843) 25.40 1.34 3.67 86.87 0.77 0.43
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 1.412 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 86.303
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.659

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1440) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0144): 28.60 1.412 4.00 86.30
+ ID2= 2 ( 0843): 25.40 1.342 3.67 86.87
=====
ID = 3 ( 1440): 54.00 2.745 3.75 86.57
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0842) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 /0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 /0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 /0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .149E+01 0.0 0.09 81.67
0.09 205.28 .594E+01 0.0 0.14 51.45
0.13 205.32 .134E+02 0.0 0.18 39.26
0.17 205.36 .238E+02 0.0 0.22 32.41
0.22 205.41 .371E+02 0.0 0.25 27.93
0.26 205.45 .535E+02 0.0 0.28 24.73
0.31 205.50 .728E+02 0.1 0.31 22.32
0.35 205.54 .950E+02 0.1 0.34 20.42
```

```
| CALIB
| NASHYD ( 0144) | Area (ha)= 28.60 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.97
```

Model Without SWM Infrastructure - Output

0.39	205.58	.120E+03	0.1	0.37	18.87
0.44	205.63	.149E+03	0.1	0.40	17.59
0.48	205.67	.180E+03	0.2	0.42	16.60
0.52	205.71	.228E+03	0.2	0.34	20.59
0.57	205.76	.308E+03	0.2	0.33	21.41
0.61	205.80	.418E+03	0.3	0.34	20.79
0.66	205.85	.560E+03	0.5	0.36	19.66
0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1440)	54.00	2.75	3.75	86.57	0.82	0.46
OUTFLOW: ID= 1 (0842)	54.00	2.71	4.08	86.56	0.83	0.46

CALIB	Area (ha)=	27.70	Curve Number (CN)=	82.9
NASHYD (0143)	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	1.07		

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)= 1.340 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 86.303
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.659

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0143):	27.70	1.340	4.25	86.30
+ ID2= 2 (0842):	54.00	2.712	4.08	86.56
=====				
ID = 3 (1430):	81.70	4.050	4.17	86.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTING time step (min)'= 5.00

Distance	Elevation	Manning
0.00	209.66	0.0400
19.50	209.34	0.0400
37.91	208.66	0.0400
41.73	208.62	0.0400 / 0.0350
43.44	208.24	0.0350
45.75	208.62	0.0350 / 0.0450
54.00	208.79	0.0450 / 0.0400
77.43	209.05	0.0400
128.85	209.70	0.0400

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.216E+02	0.0	0.15	113.45
0.13	208.37	.864E+02	0.0	0.24	71.47
0.19	208.43	.194E+03	0.1	0.31	54.54
0.25	208.49	.345E+03	0.1	0.38	45.02
0.32	208.56	.540E+03	0.2	0.44	38.80
0.38	208.62	.777E+03	0.4	0.49	34.36
0.46	208.70	.152E+04	0.7	0.50	33.99
0.54	208.78	.281E+04	1.4	0.50	33.61
0.62	208.86	.469E+04	2.5	0.53	31.90
0.70	208.94	.734E+04	4.0	0.56	30.28
0.78	209.02	.107E+05	6.3	0.59	28.55
0.86	209.10	.149E+05	9.3	0.63	26.78
0.94	209.18	.198E+05	13.1	0.68	25.09
1.02	209.26	.253E+05	17.9	0.72	23.58
1.10	209.34	.315E+05	23.6	0.76	22.24
1.18	209.42	.386E+05	30.0	0.79	21.42
1.26	209.50	.465E+05	37.7	0.82	20.56
1.34	209.58	.554E+05	46.8	0.86	19.73
1.42	209.66	.652E+05	57.3	0.90	18.94

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1430)	81.70	4.05	4.17	86.48	0.70	0.56
OUTFLOW: ID= 1 (0841)	81.70	3.93	4.83	86.47	0.69	0.56

CALIB	Area (ha)=	27.10	Curve Number (CN)=	82.9
NASHYD (0142)	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	1.07		

ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.22		

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 1.276 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 86.303
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.659

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0142):	27.10	1.276	4.67	86.30
+ ID2= 2 (0841):	81.70	3.930	4.83	86.47
=====				
ID = 3 (1420):	108.80	5.206	4.83	86.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)	Routing time step (min)'=	5.00
ID= 2--> OUT= 1		

Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350
86.30	208.87	0.0350
89.86	209.20	0.0350 / 0.0300
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.706E+01	0.0	0.08	110.24
0.07	208.94	.282E+02	0.0	0.13	69.44
0.10	208.97	.636E+02	0.0	0.17	53.00
0.13	209.00	.113E+03	0.0	0.21	43.75
0.17	209.04	.177E+03	0.1	0.24	37.70

0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75
0.37	209.24	.118E+04	0.7	0.34	26.61
0.40	209.27	.196E+04	1.2	0.33	27.88
0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61
0.58	209.45	.865E+04	6.3	0.40	22.94
0.61	209.48	.108E+05	8.1	0.41	22.09
0.65	209.52	.132E+05	10.4	0.43	21.10

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1420)	108.80	5.21	4.83	86.43	0.55	0.39
OUTFLOW: ID= 1 (0840)	108.80	5.14	5.33	86.42	0.55	0.39

CALIB	Area (ha)=	8.10	Curve Number (CN)=	83.6
NASHYD (0141)	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.78		

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.429 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 87.931
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.672

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1410)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0141):	8.10	0.429	3.50	87.93
+ ID2= 2 (0840):	108.80	5.144	5.33	86.42
=====				
ID = 3 (1410):	116.90	5.518	5.25	86.53

Model Without SWM Infrastructure - Output

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0151)	Area (ha)= 24.60	Curve Number (CN)= 82.8	
ID= 1 DT= 5.0 min	Ia (mm)= 7.91	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.00		

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 1.203 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 86.066
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.657

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0153)	Area (ha)= 33.30	Curve Number (CN)= 82.6	
ID= 1 DT= 5.0 min	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.08		

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 1.594 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 85.604
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.654

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)			
IN= 2---> OUT= 1	Routing time step (min)'= 5.00		

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	

100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.125E+02	0.0	0.21	40.70
0.24	212.03	.501E+02	0.0	0.33	25.64
0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48
0.85	212.64	.277E+04	2.1	0.39	21.89
0.97	212.76	.507E+04	4.5	0.45	18.78
1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

		<---- hydrograph ---->				<-pipe / channel->	
		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW :	ID= 2 (0153)	33.30	1.59	4.33	85.60	0.80	0.39
OUTFLOW:	ID= 1 (0834)	33.30	1.57	4.83	85.60	0.80	0.39

CALIB			
NASHYD (0152)	Area (ha)= 16.20	Curve Number (CN)= 82.6	
ID= 1 DT= 5.0 min	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.93		

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.800 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 85.604
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.654

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1520)			
1 + 2 = 3			
ID1= 1 (0152):	AREA (ha)= 16.20	QPEAK (cms)= 0.800	TPEAK (hrs)= 3.833
+ ID2= 2 (0834):	33.30	1.574	4.83
ID = 3 (1520):	49.50	2.347	4.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0833)			
IN= 2---> OUT= 1	Routing time step (min)'= 5.00		

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.232E+03	0.1	0.19	65.23
0.14	208.16	.652E+03	0.3	0.30	41.42
0.22	208.24	.122E+04	0.6	0.38	32.47
0.29	208.31	.193E+04	1.2	0.45	27.40
0.36	208.38	.279E+04	1.9	0.51	24.03
0.44	208.46	.389E+04	3.2	0.60	20.41
0.52	208.54	.516E+04	4.8	0.69	17.88
0.60	208.62	.664E+04	6.9	0.77	16.07
0.68	208.70	.833E+04	9.4	0.83	14.80
0.76	208.78	.102E+05	12.3	0.89	13.84
0.84	208.86	.123E+05	15.7	0.94	13.07
0.92	208.94	.153E+05	19.4	0.94	13.11
0.99	209.01	.189E+05	24.5	0.96	12.89
1.07	209.09	.229E+05	30.4	0.98	12.57
1.15	209.17	.273E+05	37.1	1.01	12.25
1.23	209.25	.320E+05	44.7	1.03	11.94
1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

		<---- hydrograph ---->				<-pipe / channel->	
		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW :	ID= 2 (1520)	49.50	2.35	4.58	85.60	0.39	0.54
OUTFLOW:	ID= 1 (0833)	49.50	2.33	5.00	85.60	0.38	0.54

ADD HYD (1510)			
1 + 2 = 3			
ID1= 1 (0151):	AREA (ha)= 24.60	QPEAK (cms)= 1.203	TPEAK (hrs)= 4.08
+ ID2= 2 (0833):	49.50	2.328	5.00
ID = 3 (1510):	74.10	3.497	4.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0832)			
IN= 2---> OUT= 1	Routing time step (min)'= 5.00		

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.50	0.0400			
29.68	206.77	0.0400			
43.70	206.13	0.0400 / 0.0350	Main Channel		
44.99	205.95	0.0350	Main Channel		
47.70	206.24	0.0350 / 0.0450	Main Channel		
60.54	206.32	0.0450			
80.11	206.99	0.0450			
102.29	207.42	0.0450 / 0.0400			
132.78	206.84	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	206.01	.158E+02	0.0	0.16	56.30
0.12	206.07	.633E+02	0.0	0.25	35.47
0.18	206.13	.142E+03	0.1	0.33	27.07
0.26	206.21	.324E+03	0.3	0.42	21.31
0.34	206.29	.720E+03	0.6	0.44	20.00
0.42	206.37	.162E+04	1.4	0.45	19.57
0.50	206.45	.272E+04	2.6	0.52	17.17
0.58	206.53	.404E+04	4.2	0.56	15.86
0.66	206.61	.584E+04	6.5	0.59	15.05
0.74	206.69	.820E+04	9.6	0.63	14.19

Model Without SWM Infrastructure - Output

0.83	206.78	.111E+05	13.9	0.67	13.34
0.91	206.86	.143E+05	19.9	0.74	12.00
0.99	206.94	.178E+05	27.1	0.81	10.94
1.07	207.02	.215E+05	35.3	0.87	10.16
1.15	207.10	.256E+05	44.5	0.93	9.59
1.23	207.18	.301E+05	55.1	0.98	9.09
1.31	207.26	.349E+05	67.2	1.03	8.65
1.39	207.34	.400E+05	80.7	1.07	8.26
1.47	207.42	.455E+05	95.8	1.12	7.92

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1510)	74.10	3.50	4.75	85.75	0.55	0.54
OUTFLOW: ID= 1 (0832)	74.10	3.48	5.08	85.75	0.54	0.54

CALIB				
NASHYD (0150)	Area (ha)=	6.60	Curve Number (CN)=	83.7
ID= 1 DT= 5.0 min	Ia (mm)=	7.41	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.96		

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.334 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 88.171
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.674

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1500)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0150):	6.60	0.334	3.92	88.17
+ ID2= 2 (0832):	74.10	3.482	5.08	85.75
ID = 3 (1500):	80.70	3.797	5.00	85.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1401)

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1410):	116.90	5.518	5.25	86.53
+ ID2= 2 (1500):	80.70	3.797	5.00	85.95
ID = 3 (1401):	197.60	9.310	5.17	86.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0830)				
IN= 2---> OUT= 1				
	Routing time step (min)'=	5.00		
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	207.71	0.0400		
58.83	206.71	0.0400		
66.88	206.59	0.0400 / 0.0350	Main Channel	
72.32	206.34	0.0350	Main Channel	
77.68	206.55	0.0350 / 0.0800	Main Channel	
82.85	206.54	0.0800		
90.20	206.02	0.0800		
94.03	206.48	0.0800		
99.83	206.40	0.0800 / 0.0400		
114.32	206.50	0.0400		
136.07	206.86	0.0400		
174.41	207.56	0.0400		

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.224E+03	0.0	0.08	174.00
0.23	206.25	.505E+03	0.1	0.11	132.79
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34
0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	4.7	0.29	50.17
0.78	206.80	.196E+05	7.6	0.34	42.88
0.87	206.89	.258E+05	11.4	0.38	37.80
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11
1.37	207.39	.776E+05	54.6	0.61	23.71
1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1401)	197.60	9.31	5.17	86.29	0.82	0.36
OUTFLOW: ID= 1 (0830)	197.60	8.98	5.67	86.28	0.81	0.35

CALIB				
NASHYD (0140)	Area (ha)=	18.30	Curve Number (CN)=	83.6
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.34		

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.861 (i)
TIME TO PEAK (hrs)= 5.000
RUNOFF VOLUME (mm)= 87.932
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.672

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0140):	18.30	0.861	5.00	87.93
+ ID2= 2 (0830):	197.60	8.981	5.67	86.28
ID = 3 (1400):	215.90	9.813	5.67	86.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0131)	Area (ha)=	28.70	Curve Number (CN)=	82.1
ID= 1 DT= 5.0 min	Ia (mm)=	8.30	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.11		

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 1.349 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 84.452
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.645

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0011)	Area (ha)=	132.00	
ID= 1 DT= 5.0 min	Total Imp(%)=	57.10	Dir. Conn.(%)= 45.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	75.37	56.63
Dep. Storage (mm)=	1.00	8.95
Average Slope (%)=	1.00	1.00
Length (m)=	938.08	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.(mm/hr)=	34.03	25.88
over (min)	15.00	30.00
Storage Coeff. (min)=	15.06 (ii)	29.98 (ii)
Unit Hyd. Tpeak (min)=	15.00	30.00
Unit Hyd. peak (cms)=	0.07	0.04

PEAK FLOW (cms)=	5.53	3.58	*TOTALS*
TIME TO PEAK (hrs)=	2.08	3.25	8.201 (iii)
RUNOFF VOLUME (mm)=	129.90	79.20	102.01
TOTAL RAINFALL (mm)=	130.90	130.90	130.90
RUNOFF COEFFICIENT =	0.99	0.61	0.78

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0012)	Area (ha)=	17.50	
ID= 1 DT= 5.0 min	Total Imp(%)=	80.00	Dir. Conn.(%)= 70.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	14.00	3.50
Dep. Storage (mm)=	1.00	8.94
Average Slope (%)=	1.00	1.00
Length (m)=	341.57	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.(mm/hr)=	34.03	33.07
over (min)	10.00	25.00
Storage Coeff. (min)=	8.22 (ii)	21.74 (ii)

Model Without SWM Infrastructure - Output

Unit Hyd. Tpeak (min)= 10.00 25.00
Unit Hyd. peak (cms)= 0.13 0.05

TOTALS

PEAK FLOW (cms)= 1.16 0.29 1.402 (iii)
TIME TO PEAK (hrs)= 2.08 3.17 2.08
RUNOFF VOLUME (mm)= 129.90 84.64 116.32
TOTAL RAINFALL (mm)= 130.90 130.90 130.90
RUNOFF COEFFICIENT = 0.99 0.65 0.89

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	132.00	8.201	2.17	102.01
+ ID2= 2 (0012):	17.50	1.402	2.08	116.32
=====				
ID = 3 (1112):	149.50	9.566	2.17	103.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0010)
ID= 1 DT= 5.0 min

Area	(ha)=	12.90
Total Imp(%)=	80.00	Dir. Conn.(%)= 70.00

IMPERVIOUS PERVIOUS (i)

Surface Area (ha)=	10.32	2.58
Dep. Storage (mm)=	1.00	8.94
Average Slope (%)=	1.00	1.00
Length (m)=	293.26	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.(mm/hr)= 34.03 33.07
over (min)= 5.00 25.00
Storage Coeff. (min)= 7.50 (ii) 21.03 (ii)
Unit Hyd. Tpeak (min)= 5.00 25.00
Unit Hyd. peak (cms)= 0.17 0.05

TOTALS

PEAK FLOW (cms)= 0.85 0.21 1.035 (iii)
TIME TO PEAK (hrs)= 2.08 3.17 2.08
RUNOFF VOLUME (mm)= 129.90 84.64 116.32
TOTAL RAINFALL (mm)= 130.90 130.90 130.90

0.61	206.63	.569E+04	3.4	0.31	27.90
0.70	206.72	.851E+04	6.3	0.39	22.56
0.78	206.80	.118E+05	10.2	0.45	19.28
0.87	206.89	.155E+05	15.2	0.51	17.00
0.95	206.97	.196E+05	21.4	0.57	15.28
1.04	207.06	.242E+05	28.9	0.63	13.96
1.12	207.14	.292E+05	37.7	0.68	12.90
1.20	207.22	.346E+05	47.9	0.73	12.02
1.29	207.31	.404E+05	59.6	0.77	11.29
1.37	207.39	.466E+05	72.9	0.82	10.66
1.46	207.48	.533E+05	87.8	0.86	10.11
1.54	207.56	.604E+05	104.5	0.91	9.63

<--- hydrograph <---> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1311)	162.40	10.52	2.08	104.69	0.79	0.46
OUTFLOW: ID= 1 (0822)	162.40	9.98	2.33	104.69	0.78	0.45

ADD HYD (1310)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0131):	28.70	1.349	4.42	84.45
+ ID2= 2 (0822):	162.40	9.982	2.33	104.69
=====				
ID = 3 (1310):	191.10	10.980	3.17	101.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0821)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	207.71	0.0400	
58.83	206.71	0.0400	
66.88	206.59	0.0400 / 0.0350	Main Channel
72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	

RUNOFF COEFFICIENT = 0.99 0.65 0.89

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	12.90	1.035	2.08	116.32
+ ID2= 2 (1112):	149.50	9.566	2.17	103.69
=====				
ID = 3 (1311):	162.40	10.515	2.08	104.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	207.71	0.0400	
58.83	206.71	0.0400	
66.88	206.59	0.0400 / 0.0350	Main Channel
72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	
174.41	207.56	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.337E+02	0.0	0.07	124.18
0.15	206.17	.135E+03	0.0	0.11	78.23
0.23	206.25	.303E+03	0.1	0.15	59.70
0.30	206.32	.539E+03	0.2	0.18	49.28
0.38	206.40	.885E+03	0.3	0.20	43.17
0.45	206.47	.175E+04	0.6	0.19	46.91
0.53	206.55	.333E+04	1.4	0.23	38.64

174.41 207.56 0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60
0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

<--- hydrograph <---> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1310)	191.10	10.98	3.17	101.65	0.82	0.43
OUTFLOW: ID= 1 (0821)	191.10	10.44	3.42	101.64	0.81	0.42

CALIB
NASHYD (0130)
ID= 1 DT= 5.0 min

Area	(ha)=	26.70
Ia	(mm)=	8.53
U.H. Tp(hrs)=	1.32	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 1.205 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 83.533
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.638

- (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model Without SWM Infrastructure - Output

```
| ADD HYD ( 1300)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 0130): 26.70 1.205 5.17 83.53
+ ID2= 2 ( 0821): 191.10 10.437 3.42 101.64
=====
ID = 3 ( 1300): 217.80 11.405 3.50 99.42
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 1202)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 1300): 217.80 11.405 3.50 99.42
+ ID2= 2 ( 1400): 215.90 9.813 5.67 86.42
=====
ID = 3 ( 1202): 433.70 19.986 5.17 92.95
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0820)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 / 0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 / 0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .681E+01 0.0 0.08 28.42
0.18 204.88 .272E+02 0.0 0.13 17.90
0.28 204.98 .620E+02 0.1 0.17 13.80
0.37 205.07 .292E+03 0.3 0.12 18.72
0.46 205.16 .859E+03 0.9 0.14 16.44
0.55 205.25 .182E+04 2.3 0.17 13.44
0.64 205.34 .311E+04 4.7 0.21 11.04
0.74 205.44 .487E+04 8.4 0.24 9.67
```

```
0.83 205.53 .676E+04 13.3 0.27 8.48
0.92 205.62 .877E+04 19.3 0.30 7.58
1.01 205.71 .109E+05 26.4 0.33 6.90
1.10 205.80 .132E+05 34.5 0.36 6.36
1.20 205.90 .155E+05 43.8 0.39 5.92
1.29 205.99 .181E+05 54.1 0.42 5.56
1.38 206.08 .207E+05 65.6 0.44 5.25
1.47 206.17 .234E+05 78.2 0.46 4.99
1.57 206.27 .263E+05 92.0 0.48 4.76
1.66 206.36 .293E+05 107.0 0.51 4.56
1.75 206.45 .324E+05 123.2 0.53 4.38
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1202) 433.70 19.99 5.17 92.95 0.93 0.31
OUTFLOW: ID= 1 ( 0820) 433.70 20.02 5.25 92.95 0.93 0.31
```

```
| ADD HYD ( 1201)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 1210): 96.80 5.060 4.08 91.14
+ ID2= 2 ( 0820): 433.70 20.017 5.25 92.95
=====
ID = 3 ( 1201): 530.50 24.733 5.25 92.62
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0810)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 / 0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 / 0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
```

```
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .229E+02 0.0 0.07 106.67
0.18 204.88 .915E+02 0.0 0.12 67.20
0.28 204.98 .208E+03 0.1 0.15 51.82
0.37 205.07 .981E+03 0.2 0.11 70.28
0.46 205.16 .288E+04 0.8 0.13 61.71
0.55 205.25 .610E+04 2.0 0.15 50.43
0.64 205.34 .105E+05 4.2 0.19 41.45
0.74 205.44 .163E+05 7.5 0.21 36.28
0.83 205.53 .227E+05 11.9 0.24 31.82
0.92 205.62 .294E+05 17.2 0.27 28.46
1.01 205.71 .366E+05 23.6 0.30 25.89
1.10 205.80 .442E+05 30.9 0.32 23.87
1.20 205.90 .522E+05 39.1 0.35 22.23
1.29 205.99 .606E+05 48.4 0.37 20.87
1.38 206.08 .694E+05 58.7 0.39 19.72
1.47 206.17 .786E+05 70.0 0.41 18.74
1.57 206.27 .883E+05 82.3 0.43 17.88
1.66 206.36 .983E+05 95.7 0.45 17.12
1.75 206.45 .109E+06 110.2 0.47 16.45
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1201) 530.50 24.73 5.25 92.62 1.03 0.30
OUTFLOW: ID= 1 ( 0810) 530.50 24.12 5.25 92.62 1.02 0.30
```

```
| CALIB
| NASHYD ( 0120)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 9.00 Curve Number (CN)= 84.0
Ia (mm)= 7.25 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.16
```

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.440 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 88.875
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.679

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1200)|
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
```

```
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0120): 9.00 0.440 4.42 88.87
+ ID2= 2 ( 0810): 530.50 24.123 5.25 92.62
=====
ID = 3 ( 1200): 539.50 24.552 5.25 92.56
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0113)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 13.50 Curve Number (CN)= 82.5
Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.87
```

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.675 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 85.369
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0802)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 / 0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 / 0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .448E+01 0.0 0.12 164.32
0.08 207.60 .179E+02 0.0 0.19 103.51
0.12 207.64 .403E+02 0.0 0.25 79.00
0.16 207.68 .716E+02 0.0 0.30 65.21
0.19 207.71 .112E+03 0.0 0.35 56.20
0.23 207.75 .161E+03 0.1 0.40 49.76
0.27 207.79 .219E+03 0.1 0.44 44.90
0.31 207.83 .287E+03 0.1 0.48 41.08
0.35 207.87 .363E+03 0.2 0.52 37.98
```

Model Without SWM Infrastructure - Output

0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88
0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79
0.77	208.29	.225E+04	1.6	0.82	24.20

<---- hydrograph ---->						<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.		MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)		(m)	(m/s)
INFLOW : ID= 2 (0113)	13.50	0.67	3.75	85.37	0.60	0.75	
OUTFLOW: ID= 1 (0802)	13.50	0.66	4.25	85.30	0.59	0.74	

CALIB					
NASHYD (0112)	Area (ha)=	30.50	Curve Number (CN)=	82.8	
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.60			

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 1.354 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 86.067
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.657

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0111)	Area (ha)=	45.50	Curve Number (CN)=	82.3	
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.33			

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 2.080 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 84.910
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.649

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0111):	45.50	2.080	5.08	84.91
+ ID2= 2 (0112):	30.50	1.354	5.42	86.07
=====				
ID = 3 (1101):	76.00	3.428	5.25	85.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (1101):	76.00	3.428	5.25	85.37
+ ID2= 2 (0802):	13.50	0.658	4.25	85.30
=====				
ID = 1 (1101):	89.50	4.062	5.17	85.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801)		Routing time step (min)'= 5.00		
IN= 2--> OUT= 1				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.66	0.0400		
19.50	209.34	0.0400		
37.91	208.66	0.0400		
41.73	208.62	0.0400 / 0.0350	Main Channel	
43.44	208.24	0.0350	Main Channel	
45.75	208.62	0.0350 / 0.0450	Main Channel	
54.00	208.79	0.0450 / 0.0400		
77.43	209.05	0.0400		
128.85	209.70	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.104E+02	0.0	0.10	83.26
0.13	208.37	.415E+02	0.0	0.16	52.45
0.19	208.43	.934E+02	0.0	0.20	40.03
0.25	208.49	.166E+03	0.1	0.25	33.04
0.32	208.56	.259E+03	0.2	0.29	28.47

0.38	208.62	.373E+03	0.2	0.32	25.22
0.46	208.70	.729E+03	0.5	0.33	24.94
0.54	208.78	.135E+04	0.9	0.33	24.67
0.62	208.86	.225E+04	1.6	0.35	23.41
0.70	208.94	.352E+04	2.6	0.37	22.23
0.78	209.02	.516E+04	4.1	0.39	20.96
0.86	209.10	.716E+04	6.1	0.41	19.65
0.94	209.18	.949E+04	8.6	0.44	18.42
1.02	209.26	.122E+05	11.7	0.47	17.31
1.10	209.34	.152E+05	15.5	0.50	16.32
1.18	209.42	.185E+05	19.7	0.52	15.72
1.26	209.50	.224E+05	24.7	0.54	15.09
1.34	209.58	.266E+05	30.6	0.56	14.48
1.42	209.66	.313E+05	37.5	0.59	13.90

<---- hydrograph ---->						<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.		MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)		(m)	(m/s)
INFLOW : ID= 2 (1101)	89.50	4.06	5.17	85.36	0.78	0.39	
OUTFLOW: ID= 1 (0801)	89.50	4.03	5.42	85.36	0.77	0.39	

CALIB					
NASHYD (0110)	Area (ha)=	11.90	Curve Number (CN)=	83.4	
ID= 1 DT= 5.0 min	Ia (mm)=	7.58	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.68			

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.644 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 87.462
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.668

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0110):	11.90	0.644	3.33	87.46
+ ID2= 2 (0801):	89.50	4.027	5.42	85.36
=====				
ID = 3 (1100):	101.40	4.559	5.25	85.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1100):	101.40	4.559	5.25	85.61
+ ID2= 2 (1200):	539.50	24.552	5.25	92.56
=====				
ID = 3 (1001):	640.90	29.111	5.25	91.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)				
IN= 2----> OUT= 1	Routing time step (min)'= 5.00			
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.54	0.0450		
43.13	205.35	0.0450		
67.41	205.27	0.0450		
86.35	205.38	0.0450 / 0.0350	Main Channel	
90.47	204.70	0.0350	Main Channel	
93.03	205.16	0.0350 / 0.0400	Main Channel	
101.99	205.21	0.0400		
151.82	204.97	0.0400		
252.14	206.45	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.255E+02	0.0	0.16	54.50
0.18	204.88	.102E+03	0.0	0.25	34.33
0.28	204.98	.232E+03	0.1	0.33	26.47
0.37	205.07	.109E+04	0.5	0.24	35.91
0.46	205.16	.321E+04	1.7	0.27	31.53
0.55	205.25	.680E+04	4.4	0.33	25.77
0.64	205.34	.116E+05	9.2	0.41	21.18
0.74	205.44	.182E+05	16.4	0.47	18.54
0.83	205.53	.253E+05	25.9	0.53	16.26
0.92	205.62	.328E+05	37.6	0.59	14.54
1.01	205.71	.408E+05	51.4	0.65	13.23
1.10	205.80	.492E+05	67.3	0.71	12.19
1.20	205.90	.581E+05	85.3	0.76	11.36
1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75

Model Without SWM Infrastructure - Output

```
1.75    206.45    .121E+06    240.2    1.03    8.41

<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)    (cms)  (hrs)   (mm)    (m)         (m/s)
INFLOW : ID= 2 ( 1001) 640.90  29.11  5.25  91.46    0.85    0.55
OUTFLOW: ID= 1 ( 0800) 640.90  28.91  5.50  91.46    0.85    0.54
```

```
| CALIB
| NASHYD ( 0100) | Area (ha)= 54.70 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.23
```

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 2.591 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 86.996
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.665

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1000) |
| 1 + 2 = 3 |
      AREA   QPEAK   TPEAK   R.V.
      (ha)    (cms)  (hrs)   (mm)
ID1= 1 ( 0100):  54.70  2.591  4.67  87.00
+ ID2= 2 ( 0800): 640.90 28.909  5.50  91.46
=====
ID = 3 ( 1000): 695.60 31.434  5.42  91.11
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0190) | Area (ha)= 12.30 Curve Number (CN)= 83.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.31 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.83
```

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.648 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 88.634

TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.677

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0191) | Area (ha)= 20.10 Curve Number (CN)= 82.0
| ID= 1 DT= 5.0 min | Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.94
```

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.974 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 84.219
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.643

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0192) | Area (ha)= 28.30 Curve Number (CN)= 80.3
| ID= 1 DT= 5.0 min | Ia (mm)= 6.23 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.06
```

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 1.311 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 83.122
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.635

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1901) |
| 1 + 2 = 3 |
      AREA   QPEAK   TPEAK   R.V.
      (ha)    (cms)  (hrs)   (mm)
ID1= 1 ( 0191):  20.10  0.974  3.92  84.22
+ ID2= 2 ( 0192): 28.30  1.311  4.25  83.12
=====
ID = 3 ( 1901): 48.40  2.280  4.17  83.58
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0899) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.49          0.0400
35.71         208.88          0.0400
53.04         208.89          0.0400
64.12         208.50          0.0400 / 0.0350 Main Channel
70.77         208.05          0.0350 Main Channel
74.98         208.02          0.0350 Main Channel
83.40         208.38          0.0350 / 0.0400 Main Channel
88.06         208.63          0.0400
94.94         209.13          0.0400
105.88        209.54          0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)     (m)     (cu.m.)  (cms)       (m/s)      (min)
0.07    208.09   .349E+02  0.1          0.18       10.46
0.14    208.16   .981E+02  0.2          0.28       6.64
0.22    208.24   .183E+03  0.6          0.36       5.21
0.29    208.31   .291E+03  1.1          0.42       4.40
0.36    208.38   .420E+03  1.8          0.48       3.85
0.44    208.46   .586E+03  3.0          0.57       3.27
0.52    208.54   .777E+03  4.5          0.65       2.87
0.60    208.62   .999E+03  6.5          0.72       2.58
0.68    208.70   .125E+04  8.8          0.78       2.37
0.76    208.78   .154E+04  11.5         0.84       2.22
0.84    208.86   .185E+04  14.7         0.89       2.10
0.92    208.94   .230E+04  18.2         0.88       2.10
0.99    209.01   .285E+04  23.0         0.90       2.07
1.07    209.09   .345E+04  28.5         0.92       2.02
1.15    209.17   .411E+04  34.8         0.94       1.96
1.23    209.25   .482E+04  42.0         0.97       1.91
1.31    209.33   .559E+04  50.0         1.00       1.86
1.39    209.41   .643E+04  59.1         1.02       1.81
1.47    209.49   .732E+04  69.1         1.05       1.76
```

```
<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)    (cms)  (hrs)   (mm)    (m)         (m/s)
INFLOW : ID= 2 ( 1901) 48.40  2.28  4.17  83.58    0.39    0.51
OUTFLOW: ID= 1 ( 0899) 48.40  2.28  4.17  83.58    0.39    0.51
```

```
| ADD HYD ( 1900) |
| 1 + 2 = 3 |
      AREA   QPEAK   TPEAK   R.V.
      (ha)    (cms)  (hrs)   (mm)
ID1= 1 ( 0190):  12.30  0.648  3.58  88.63
+ ID2= 2 ( 0899): 48.40  2.280  4.17  83.58
=====
ID = 3 ( 1900): 60.70  2.910  4.00  84.60
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0500) | Area (ha)= 7.60 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.48
```

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.422 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 86.062
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.657

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0510) | Area (ha)= 12.70 Curve Number (CN)= 81.7
| ID= 1 DT= 5.0 min | Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.651 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 83.532
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.638

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0520) | Area (ha)= 17.30 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.78
```


Model Without SWM Infrastructure - Output

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.886 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 85.369
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (5000)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0500):	7.60	0.422	3.17	86.06
+ ID2= 2 (0510):	12.70	0.651	3.42	83.53
=====				
ID = 3 (5000):	20.30	1.067	3.25	84.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (5000)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (5000):	20.30	1.067	3.25	84.48
+ ID2= 2 (0520):	17.30	0.886	3.50	85.37
=====				
ID = 1 (5000):	37.60	1.946	3.42	84.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0600)				
ID= 1 DT= 5.0 min				

Area	(ha)=	2.50	Curve Number	(CN)= 82.5
Ia	(mm)=	8.08	# of Linear Res.(N)	= 3.00
U.H. Tp	(hrs)=	0.45		

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.138 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 85.363
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

=====

V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSSS UUUU A A LLLLL

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O O T T H H Y Y M M O O
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTHYMO 6.2\V02\voin.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\be
09f2e7-0b2e-4d1a-9416-3c26e4940312\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\be
09f2e7-0b2e-4d1a-9416-3c26e4940312\sce

DATE: 10-17-2025 TIME: 02:54:24

USER:

COMMENTS: _____

** SIMULATION : 1 **

READ STORM	Filename: C:\Users\wraymond\AppData\Local\Temp\
	f9e06f95-585c-465c-81d8-96408d74cabc\ac9cae3b

| Ptotal= 25.00 mm | Comments: Chicago-25mm4hr

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	1.08	4.31	2.17	5.82	3.25	2.08
0.08	1.65	1.17	4.31	2.25	4.52	3.33	2.08
0.17	1.65	1.25	6.37	2.33	4.52	3.42	1.92
0.25	1.82	1.33	6.37	2.42	3.72	3.50	1.92
0.33	1.82	1.42	13.83	2.50	3.72	3.58	1.79
0.42	2.04	1.50	13.83	2.58	3.19	3.67	1.79
0.50	2.04	1.58	53.25	2.67	3.19	3.75	1.68
0.58	2.33	1.67	53.25	2.75	2.80	3.83	1.68
0.67	2.33	1.75	16.08	2.83	2.80	3.92	1.58
0.75	2.72	1.83	16.08	2.92	2.50	4.00	1.58
0.83	2.72	1.92	8.40	3.00	2.50		
0.92	3.31	2.00	8.40	3.08	2.27		
1.00	3.31	2.08	5.82	3.17	2.27		

CALIB	Area (ha)=	2.00	Curve Number (CN)=	79.5
NASHYD (0185)	Ia (mm)=	6.54	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.36		

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.016 (i)
TIME TO PEAK (hrs)= 2.250
RUNOFF VOLUME (mm)= 4.058
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.162

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	6.80	Curve Number (CN)=	82.4
NASHYD (0180)	Ia (mm)=	8.13	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.85		

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.031 (i)
TIME TO PEAK (hrs)= 3.000
RUNOFF VOLUME (mm)= 4.001
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.160

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	5.80	Curve Number (CN)=	82.4
NASHYD (0170)	Ia (mm)=	8.13	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.69		

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.030 (i)
TIME TO PEAK (hrs)= 2.750
RUNOFF VOLUME (mm)= 4.001
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.160

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	16.30	Curve Number (CN)=	83.2
NASHYD (0160)	Ia (mm)=	7.69	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	1.15		

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.067 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 4.368
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.175

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	22.30	Curve Number (CN)=	82.2
NASHYD (0330)	Ia (mm)=	8.25	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.60		

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.120 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 3.910
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.156

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	2.50	Curve Number (CN)=	81.0
NASHYD (0270)	Ia (mm)=	5.95	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.24		

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.029 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 4.611
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.184

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	7.00	Curve Number (CN)=	83.7
NASHYD (0260)	Ia (mm)=	7.41	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.43		

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.056 (i)
TIME TO PEAK (hrs)= 2.333
RUNOFF VOLUME (mm)= 4.614
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.185

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	10.70	Curve Number (CN)=	81.9
NASHYD (0250)	Ia (mm)=	8.42	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.54		

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.059 (i)
TIME TO PEAK (hrs)= 2.500
RUNOFF VOLUME (mm)= 3.780
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.151

Model With SWM Infrastructure - Output

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0320) | Area (ha)= 11.70 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.45
|
```

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.082 (i)
TIME TO PEAK (hrs)= 2.333
RUNOFF VOLUME (mm)= 4.273
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.171

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0420) | Area (ha)= 25.80 Curve Number (CN)= 83.6
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.12
|
```

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 0.113 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 4.562
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0423) | Area (ha)= 23.90 Curve Number (CN)= 84.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.20 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.80
|
```

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 0.137 (i)
TIME TO PEAK (hrs)= 2.917
RUNOFF VOLUME (mm)= 4.814
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.193

0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0422)	6.90	0.04	2.58	4.46	0.18	0.43
OUTFLOW: ID= 1 (0896)	6.90	0.04	2.75	4.46	0.18	0.43

```
-----
| ADD HYD ( 4202) |
| 1 + 2 = 3 |
|
| ID1= 1 ( 0423): 23.90 0.137 2.92 4.81
| + ID2= 2 ( 0896): 6.90 0.042 2.75 4.46
| =====
| ID = 3 ( 4202): 30.80 0.179 2.83 4.74
|
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0895) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|
```

Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.170E+01	0.0	0.28	4.09
0.24	212.03	.679E+01	0.0	0.44	2.58

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0422) | Area (ha)= 6.90 Curve Number (CN)= 83.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.61
|
```

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.043 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 4.464
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.179

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0896) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|
```

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03

0.36	212.15	.153E+02	0.1	0.58	1.97
0.48	212.27	.272E+02	0.3	0.70	1.62
0.61	212.40	.424E+02	0.5	0.82	1.40
0.73	212.52	.134E+03	1.0	0.53	2.16
0.85	212.64	.375E+03	2.8	0.52	2.20
0.97	212.76	.687E+03	6.1	0.60	1.89
1.09	212.88	.107E+04	11.0	0.71	1.61
1.21	213.00	.148E+04	17.8	0.83	1.38
1.33	213.12	.192E+04	26.1	0.93	1.22
1.45	213.24	.238E+04	35.9	1.03	1.11
1.57	213.36	.288E+04	47.3	1.13	1.01
1.70	213.49	.340E+04	60.1	1.21	0.94
1.82	213.61	.395E+04	74.5	1.29	0.88
1.94	213.73	.452E+04	90.5	1.37	0.83
2.06	213.85	.512E+04	109.2	1.46	0.78
2.18	213.97	.573E+04	130.3	1.56	0.73
2.37	214.16	.694E+04	168.2	1.66	0.69

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4202)	30.80	0.18	2.83	4.74	0.40	0.62
OUTFLOW: ID= 1 (0895)	30.80	0.18	2.83	4.74	0.40	0.61

```
-----
| CALIB
| NASHYD ( 0421) | Area (ha)= 10.40 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.37
|
```

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)= 0.080 (i)
TIME TO PEAK (hrs)= 2.250
RUNOFF VOLUME (mm)= 4.181
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.167

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0883) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|
```

Distance	Elevation	Manning
0.00	206.00	0.0400

Model With SWM Infrastructure - Output

33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.344E+01	0.0	0.19	78.41
0.07	204.57	.137E+02	0.0	0.30	49.40
0.11	204.61	.309E+02	0.0	0.39	37.70
0.14	204.64	.550E+02	0.0	0.47	31.12
0.18	204.68	.859E+02	0.1	0.55	26.82
0.22	204.72	.124E+03	0.1	0.62	23.75
0.25	204.75	.168E+03	0.1	0.69	21.43
0.29	204.79	.220E+03	0.2	0.75	19.60
0.33	204.83	.278E+03	0.3	0.81	18.12
0.36	204.86	.344E+03	0.3	0.87	16.89
0.40	204.90	.416E+03	0.4	0.93	15.85
0.43	204.93	.559E+03	0.6	0.89	16.61
0.47	204.97	.986E+03	0.8	0.71	20.75
0.51	205.01	.165E+04	1.2	0.65	22.49
0.54	205.04	.248E+04	1.9	0.66	22.28
0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

<---- hydrograph ---->						<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
INFLOW : ID= 2 (0421)	10.40	0.08	2.25	4.18	0.21	0.60	
OUTFLOW: ID= 1 (0883)	10.40	0.06	2.67	4.14	0.19	0.56	

ADD HYD (4201)				
1 + 2 = 3				
ID1= 1 (0883):	10.40	0.061	2.67	4.14
+ ID2= 2 (0895):	30.80	0.179	2.83	4.74
=====				
ID = 3 (4201):	41.20	0.237	2.75	4.58

ADD HYD (4200)				
1 + 2 = 3				
ID1= 1 (0420):	25.80	0.113	3.33	4.56
+ ID2= 2 (0882):	41.20	0.194	3.25	4.58
=====				
ID = 3 (4200):	67.00	0.307	3.25	4.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0440)				
ID= 1 DT= 5.0 min				
Area	(ha)=	31.60	Curve Number (CN)=	84.4
Ia	(mm)=	7.04	# of Linear Res.(N)=	3.00
U.H. Tp	(hrs)=	1.16		

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW	(cms)=	0.148 (i)
TIME TO PEAK	(hrs)=	3.417
RUNOFF VOLUME	(mm)=	4.970
TOTAL RAINFALL	(mm)=	25.000
RUNOFF COEFFICIENT	=	0.199

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0442)				
ID= 1 DT= 5.0 min				
Area	(ha)=	2.40	Curve Number (CN)=	84.9
Ia	(mm)=	6.77	# of Linear Res.(N)=	3.00
U.H. Tp	(hrs)=	0.41		

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW	(cms)=	0.023 (i)
TIME TO PEAK	(hrs)=	2.250
RUNOFF VOLUME	(mm)=	5.241
TOTAL RAINFALL	(mm)=	25.000
RUNOFF COEFFICIENT	=	0.210

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0443)				
ID= 1 DT= 5.0 min				
Area	(ha)=	21.30	Curve Number (CN)=	83.9
Ia	(mm)=	7.31	# of Linear Res.(N)=	3.00
U.H. Tp	(hrs)=	0.59		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0882)				
IN= 2----> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.49	0.0400		
35.71	208.88	0.0400		
53.04	208.89	0.0400		
64.12	208.50	0.0400 / 0.0350	Main Channel	
70.77	208.05	0.0350	Main Channel	
74.98	208.02	0.0350	Main Channel	
83.40	208.38	0.0350 / 0.0400	Main Channel	
88.06	208.63	0.0400		
94.94	209.13	0.0400		
105.88	209.54	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52
0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20
0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

<---- hydrograph ---->						<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
INFLOW : ID= 2 (4201)	41.20	0.24	2.75	4.58	0.19	0.17	
OUTFLOW: ID= 1 (0882)	41.20	0.19	3.25	4.58	0.17	0.16	

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW	(cms)=	0.144 (i)
TIME TO PEAK	(hrs)=	2.583
RUNOFF VOLUME	(mm)=	4.711
TOTAL RAINFALL	(mm)=	25.000
RUNOFF COEFFICIENT	=	0.188

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0451)				
ID= 1 DT= 5.0 min				
Area	(ha)=	12.30	Curve Number (CN)=	84.3
Ia	(mm)=	7.09	# of Linear Res.(N)=	3.00
U.H. Tp	(hrs)=	0.57		

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW	(cms)=	0.089 (i)
TIME TO PEAK	(hrs)=	2.500
RUNOFF VOLUME	(mm)=	4.919
TOTAL RAINFALL	(mm)=	25.000
RUNOFF COEFFICIENT	=	0.197

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
STANDHYD (0043)				
ID= 1 DT= 5.0 min				
Area	(ha)=	22.90		
Total Imp	(%)=	49.00	Dir. Conn.(%)=	40.00

IMPERVIOUS			PERVIOUS (i)		
Surface Area	(ha)=	11.22			11.68
Dep. Storage	(mm)=	1.00			8.92
Average Slope	(%)=	1.00			2.00
Length	(m)=	390.73			40.00
Mannings n	=	0.013			0.250

Max.Eff.Inten.(mm/hr)=	53.25	3.72
over (min)	5.00	35.00
Storage Coeff. (min)=	7.45 (ii)	33.77 (ii)
Unit Hyd. Tpeak (min)=	5.00	35.00
Unit Hyd. peak (cms)=	0.17	0.03

TOTALS			
PEAK FLOW	(cms)=	1.08	0.06
TIME TO PEAK	(hrs)=	1.75	2.42
RUNOFF VOLUME	(mm)=	24.00	3.25
TOTAL RAINFALL	(mm)=	25.00	25.00

Model With SWM Infrastructure - Output

RUNOFF COEFFICIENT = 0.96 0.13 0.46

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

OVERFLOW IS OFF				
RESERVOIR(0873) IN= 2---> OUT= 1 DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2250	0.3008
	0.0240	0.0325	0.2650	0.3494
	0.0370	0.0741	0.2990	0.3993
	0.0460	0.1156	0.3290	0.4497
	0.0530	0.1607	0.5720	0.5013
	0.0600	0.2060	0.9900	0.5538
	0.1750	0.2530	1.5230	0.6074
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0043)	22.900	1.084	1.75	11.55
OUTFLOW: ID= 1 (0873)	22.900	0.060	4.08	11.54

PEAK FLOW REDUCTION [Qout/Qin](%)= 5.50
TIME SHIFT OF PEAK FLOW (min)=140.00
MAXIMUM STORAGE USED (ha.m.)= 0.2036

CALIB STANDHYD (0045) ID= 1 DT= 5.0 min			
Area (ha)=	1.30	Dir. Conn.(%)=	35.00
Total Imp(%)=	65.00		
IMPERVIOUS PERVIOUS (i)			
Surface Area (ha)=	0.84	0.46	
Dep. Storage (mm)=	1.00	8.92	
Average Slope (%)=	1.00	2.00	
Length (m)=	93.09	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	53.25	16.93	
over (min)=	5.00	20.00	
Storage Coeff. (min)=	3.15 (ii)	17.51 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.27	0.06	
TOTALS			

PEAK FLOW (cms)= 0.07 0.01 0.069 (iii)
TIME TO PEAK (hrs)= 1.75 2.00 1.75
RUNOFF VOLUME (mm)= 24.00 5.98 12.28
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.24 0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4345) 1 + 2 = 3				
ID1= 1 (0045):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	1.30	0.069	1.75	12.28
+ ID2= 2 (0873):	22.90	0.060	4.08	11.54
=====				
ID = 3 (4345):	24.20	0.106	1.75	11.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893) IN= 2---> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	208.29	0.0300		
3.73	208.14	0.0300 / 0.0350	Main Channel	
5.30	207.52	0.0350	Main Channel	
6.93	208.18	0.0350 / 0.0300	Main Channel	
8.96	208.27	0.0300		
14.71	208.30	0.0300		
23.86	208.59	0.0300		

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24

0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44
<---- hydrograph ----> <-pipe / channel->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4345)	24.20	0.11	1.75	11.58	0.34
OUTFLOW: ID= 1 (0893)	24.20	0.08	1.83	11.57	0.31

ADD HYD (4510) 1 + 2 = 3				
ID1= 1 (0451):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	12.30	0.089	2.50	4.92
+ ID2= 2 (0893):	24.20	0.084	1.83	11.57
=====				
ID = 3 (4510):	36.50	0.158	2.50	9.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0892) IN= 2---> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.279E+01	0.0	0.48	3.92
0.24	212.03	.112E+02	0.1	0.76	2.47
0.36	212.15	.251E+02	0.2	0.99	1.89
0.48	212.27	.446E+02	0.5	1.20	1.56
0.61	212.40	.697E+02	0.9	1.40	1.34
0.73	212.52	.220E+03	1.8	0.91	2.07
0.85	212.64	.616E+03	4.9	0.89	2.11
0.97	212.76	.113E+04	10.4	1.04	1.81
1.09	212.88	.175E+04	18.9	1.21	1.54
1.21	213.00	.243E+04	30.5	1.42	1.32
1.33	213.12	.315E+04	44.8	1.60	1.17
1.45	213.24	.392E+04	61.6	1.77	1.06
1.57	213.36	.473E+04	81.0	1.93	0.97
1.70	213.49	.558E+04	103.1	2.08	0.90
1.82	213.61	.648E+04	127.8	2.22	0.85
1.94	213.73	.742E+04	155.2	2.35	0.80
2.06	213.85	.841E+04	187.2	2.50	0.75
2.18	213.97	.941E+04	223.3	2.67	0.70
2.37	214.16	.114E+05	288.4	2.85	0.66

<---- hydrograph ----> <-pipe / channel->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4510)	36.50	0.16	2.50	9.33	0.31
OUTFLOW: ID= 1 (0892)	36.50	0.16	2.50	9.33	0.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4411) 1 + 2 = 3				
ID1= 1 (0443):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	21.30	0.144	2.58	4.71
+ ID2= 2 (0892):	36.50	0.158	2.50	9.33
=====				
ID = 3 (4411):	57.80	0.301	2.58	7.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0891) IN= 2---> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.70	0.0400		

Model With SWM Infrastructure - Output

2.35	206.02	0.0400 / 0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 / 0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 / 0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.621E+00	0.0	0.10	29.40
0.09	205.28	.248E+01	0.0	0.16	18.52
0.13	205.32	.559E+01	0.0	0.21	14.13
0.17	205.36	.994E+01	0.0	0.25	11.67
0.22	205.41	.155E+02	0.0	0.29	10.05
0.26	205.45	.224E+02	0.0	0.33	8.90
0.31	205.50	.304E+02	0.1	0.37	8.03
0.35	205.54	.398E+02	0.1	0.40	7.35
0.39	205.58	.503E+02	0.1	0.43	6.79
0.44	205.63	.621E+02	0.2	0.46	6.33
0.48	205.67	.752E+02	0.2	0.49	5.97
0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

<---- hydrograph ---->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4411)	57.80	0.30	2.58	7.63	0.58
OUTFLOW: ID= 1 (0891)	57.80	0.29	2.75	7.63	0.57

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB	Area (ha)=	3.00
STANDHYD (0441)	Total Imp(%)=	45.00
ID= 1 DT= 5.0 min	Dir. Conn.(%)=	35.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.35	1.65
Dep. Storage (mm)=	1.00	3.58
Average Slope (%)=	2.00	2.00

Length (m)=	141.42	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	53.25	16.56
over (min)	5.00	20.00
Storage Coeff. (min)=	3.29 (ii)	17.78 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.27	0.06

TOTALS

PEAK FLOW (cms)=	0.15	0.04	0.164 (iii)
TIME TO PEAK (hrs)=	1.75	2.00	1.75
RUNOFF VOLUME (mm)=	24.00	8.48	13.91
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.34	0.56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4410)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0441):	3.00	0.164	1.75	13.91
+ ID2= 2 (0891):	57.80	0.293	2.75	7.63
ID = 3 (4410):	60.80	0.321	2.67	7.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4401)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (4410):	60.80	0.321	2.67	7.94
+ ID2= 2 (0442):	2.40	0.023	2.25	5.24
ID = 3 (4401):	63.20	0.339	2.67	7.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0889)	Routing time step (min)=	5.00
IN= 2--> OUT= 1		

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.70	0.0400	
2.35	206.02	0.0400 / 0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 / 0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 / 0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.272E+01	0.0	0.09	142.50
0.09	205.28	.109E+02	0.0	0.14	89.77
0.13	205.32	.245E+02	0.0	0.19	68.51
0.17	205.36	.435E+02	0.0	0.23	56.55
0.22	205.41	.679E+02	0.0	0.26	48.73
0.26	205.45	.978E+02	0.0	0.30	43.16
0.31	205.50	.133E+03	0.1	0.33	38.94
0.35	205.54	.174E+03	0.1	0.36	35.63
0.39	205.58	.220E+03	0.1	0.39	32.93
0.44	205.63	.272E+03	0.1	0.42	30.70
0.48	205.67	.329E+03	0.2	0.44	28.96
0.52	205.71	.418E+03	0.2	0.36	35.92
0.57	205.76	.563E+03	0.3	0.34	37.36
0.61	205.80	.765E+03	0.4	0.35	36.28
0.66	205.85	.102E+04	0.5	0.37	34.31
0.70	205.89	.134E+04	0.7	0.40	32.17
0.74	205.93	.171E+04	0.9	0.43	30.13
0.79	205.98	.214E+04	1.3	0.45	28.27
0.83	206.02	.263E+04	1.6	0.48	26.60

<---- hydrograph ---->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4401)	63.20	0.34	2.67	7.83	0.61
OUTFLOW: ID= 1 (0889)	63.20	0.28	3.17	7.83	0.58

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (4400)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)

ID1= 1 (0440):	31.60	0.148	3.42	4.97
+ ID2= 2 (0889):	63.20	0.278	3.17	7.83
ID = 3 (4400):	94.80	0.425	3.25	6.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0888)	Routing time step (min)=	5.00
IN= 2--> OUT= 1		

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 / 0.0350	Main Channel
43.44	208.24	0.0350	Main Channel
45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	
77.43	209.05	0.0400	
128.85	209.70	0.0400	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.519E+01	0.0	0.09	43.50
0.13	208.37	.208E+02	0.0	0.15	27.40
0.19	208.43	.467E+02	0.0	0.19	20.91
0.25	208.49	.830E+02	0.1	0.24	17.26
0.32	208.56	.130E+03	0.1	0.27	14.88
0.38	208.62	.187E+03	0.2	0.31	13.17
0.46	208.70	.365E+03	0.5	0.31	13.03
0.54	208.78	.674E+03	0.9	0.32	12.89
0.62	208.86	.113E+04	1.5	0.33	12.23
0.70	208.94	.176E+04	2.5	0.35	11.61
0.78	209.02	.258E+04	3.9	0.37	10.95
0.86	209.10	.358E+04	5.8	0.40	10.27
0.94	209.18	.475E+04	8.2	0.42	9.62
1.02	209.26	.608E+04	11.2	0.45	9.04
1.10	209.34	.758E+04	14.8	0.48	8.53
1.18	209.42	.927E+04	18.8	0.50	8.21
1.26	209.50	.112E+05	23.6	0.52	7.88
1.34	209.58	.133E+05	29.3	0.54	7.57
1.42	209.66	.157E+05	35.9	0.56	7.26

<---- hydrograph ---->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4400)	94.80	0.42	3.25	6.87	0.45
OUTFLOW: ID= 1 (0888)	94.80	0.41	3.50	6.87	0.44

Model With SWM Infrastructure - Output

OUTFLOW: ID= 1 (0872) 20.500 0.048 4.17 18.93

PEAK FLOW REDUCTION [Qout/Qin](%)= 2.60
TIME SHIFT OF PEAK FLOW (min)=145.00
MAXIMUM STORAGE USED (ha.m.)= 0.3454

```
-----
| CALIB
| STANDHYD ( 0042)|
| ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 20.50
Total Imp(%)= 83.00 Dir. Conn.(%)= 70.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 17.01 3.49
Dep. Storage (mm)= 1.00 6.98
Average Slope (%)= 2.00 2.00
Length (m)= 369.68 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 53.25 20.71
over (min)= 5.00 20.00
Storage Coeff. (min)= 5.85 (ii) 19.10 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.20 0.06

*TOTALS*
PEAK FLOW (cms)= 1.83 0.11 1.861 (iii)
TIME TO PEAK (hrs)= 1.75 2.00 1.75
RUNOFF VOLUME (mm)= 24.00 7.32 19.00
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.29 0.76
```

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| RESERVOIR( 0872)|
| IN= 2----> OUT= 1|
| DT= 5.0 min|
|-----|
OVERFLOW IS OFF

OUTFLOW STORAGE | OUTFLOW STORAGE
(cms) (ha.m.) | (cms) (ha.m.)
0.0000 0.0000 | 0.1660 0.5172
0.0250 0.1344 | 0.2260 0.5585
0.0390 0.2425 | 0.5260 0.7280
0.0530 0.3962 | 0.9350 0.9090
0.0540 0.4360 | 1.2810 1.0589
0.0760 0.4361 | 2.3680 1.5187

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 ( 0042) 20.500 1.861 1.75 19.00
```

```
-----
| CALIB
| STANDHYD ( 0044)|
| ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 8.90
Total Imp(%)= 41.00 Dir. Conn.(%)= 20.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 3.65 5.25
Dep. Storage (mm)= 1.00 8.04
Average Slope (%)= 2.00 2.00
Length (m)= 243.58 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 53.25 8.25
over (min)= 5.00 25.00
Storage Coeff. (min)= 4.55 (ii) 23.70 (ii)
Unit Hyd. Tpeak (min)= 5.00 25.00
Unit Hyd. peak (cms)= 0.23 0.05

*TOTALS*
PEAK FLOW (cms)= 0.24 0.06 0.252 (iii)
TIME TO PEAK (hrs)= 1.75 2.17 1.75
RUNOFF VOLUME (mm)= 24.00 4.65 8.52
TOTAL RAINFALL (mm)= 25.00 25.00 25.00
RUNOFF COEFFICIENT = 0.96 0.19 0.34
```

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4244)|
| 1 + 2 = 3|
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0044): 8.90 0.252 1.75 8.52
+ ID2= 2 ( 0898): 20.50 0.048 4.25 18.93
=====
ID = 3 ( 4244): 29.40 0.263 1.75 15.78
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0897)|
```

ROUTING time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 101.50 0.0500
1.00 100.70 0.0500
1.50 100.55 0.0500 / 0.0300 Main Channel
2.00 99.50 0.0300 Main Channel
3.50 99.60 0.0300 Main Channel
4.50 100.65 0.0300 / 0.0500 Main Channel
6.00 101.45 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.10 99.60 .152E+02 0.0 0.19 18.79
0.19 99.69 .482E+02 0.1 0.37 9.79
0.29 99.79 .840E+02 0.2 0.49 7.32
0.38 99.88 .123E+03 0.3 0.59 6.12
0.48 99.98 .164E+03 0.5 0.67 5.38
0.57 100.07 .208E+03 0.7 0.74 4.87
0.67 100.17 .255E+03 0.9 0.80 4.49
0.76 100.26 .305E+03 1.2 0.86 4.19
0.86 100.36 .358E+03 1.5 0.91 3.95
0.95 100.45 .413E+03 1.8 0.96 3.75
1.05 100.55 .471E+03 2.2 1.00 3.58
1.16 100.66 .547E+03 2.7 1.07 3.35
1.28 100.78 .635E+03 3.4 1.14 3.14
1.39 100.89 .732E+03 4.1 1.20 2.99
1.50 101.00 .838E+03 4.9 1.25 2.86
1.61 101.11 .952E+03 5.8 1.30 2.76
1.72 101.22 .107E+04 6.7 1.34 2.67
1.84 101.34 .120E+04 7.7 1.38 2.60
1.95 101.45 .134E+04 8.8 1.41 2.54
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0872) 20.50 0.05 4.17 18.93 0.14 0.25
OUTFLOW: ID= 1 ( 0898) 20.50 0.05 4.25 18.93 0.14 0.25
```

ROUTING time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .140E+02 0.0 0.17 55.64
0.24 212.03 .559E+02 0.0 0.27 35.05
0.36 212.15 .126E+03 0.1 0.35 26.75
0.48 212.27 .224E+03 0.2 0.43 22.08
0.61 212.40 .350E+03 0.3 0.49 19.03
0.73 212.52 .110E+04 0.6 0.32 29.36
0.85 212.64 .309E+04 1.7 0.31 29.92
0.97 212.76 .566E+04 3.7 0.37 25.67
1.09 212.88 .878E+04 6.7 0.43 21.92
1.21 213.00 .122E+05 10.8 0.50 18.80
1.33 213.12 .158E+05 15.8 0.57 16.63
1.45 213.24 .196E+05 21.8 0.63 15.03
1.57 213.36 .237E+05 28.7 0.68 13.79
1.70 213.49 .280E+05 36.4 0.73 12.81
1.82 213.61 .325E+05 45.2 0.78 12.00
1.94 213.73 .372E+05 54.9 0.83 11.31
2.06 213.85 .422E+05 66.2 0.89 10.62
2.18 213.97 .472E+05 79.0 0.94 9.97
2.37 214.16 .571E+05 102.0 1.01 9.34
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4244) 29.40 0.26 1.75 15.78 0.57 0.47
OUTFLOW: ID= 1 ( 0897) 29.40 0.13 2.17 15.77 0.43 0.39
```

```
-----
| ADD HYD ( 4301)|
| 1 + 2 = 3|
|-----|
AREA QPEAK TPEAK R.V.
```

Model With SWM Infrastructure - Output

```
-----
              (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0888):  94.80  0.414  3.50  6.87
+ ID2= 2 ( 0897):  29.40  0.128  2.17  15.77
=====
ID = 3 ( 4301):  124.20  0.504  3.42  8.98
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0887) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.52        0.0400
61.99         209.23        0.0400
76.86         209.20        0.0400
82.03         209.20        0.0400 /0.0350 Main Channel
86.30         208.87        0.0350 Main Channel
89.86         209.20        0.0350 /0.0300 Main Channel
96.27         209.24        0.0300
103.53        209.40        0.0300
127.96        209.50        0.0300
158.58        209.70        0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)     (m)   (cu.m.) (cms)      (m/s)     (min)
0.03   208.90 .143E+01 0.0        0.09      20.80
0.07   208.94 .572E+01 0.0        0.14      13.11
0.10   208.97 .129E+02 0.0        0.18      10.00
0.13   209.00 .229E+02 0.0        0.22      8.26
0.17   209.04 .357E+02 0.1        0.26      7.11
0.20   209.07 .514E+02 0.1        0.29      6.30
0.23   209.10 .700E+02 0.2        0.32      5.69
0.26   209.13 .915E+02 0.3        0.35      5.20
0.30   209.17 .116E+03 0.4        0.38      4.81
0.33   209.20 .143E+03 0.5        0.41      4.48
0.37   209.24 .239E+03 0.8        0.37      5.02
0.40   209.27 .396E+03 1.3        0.35      5.26
0.44   209.31 .589E+03 1.9        0.36      5.13
0.47   209.34 .818E+03 2.8        0.38      4.89
0.51   209.38 .108E+04 3.9        0.40      4.63
0.54   209.41 .139E+04 5.2        0.41      4.46
0.58   209.45 .175E+04 6.7        0.43      4.33
0.61   209.48 .218E+04 8.7        0.44      4.17
0.65   209.52 .266E+04 11.2       0.46      3.98
```

```
<---- hydrograph ----> <-pipe / channel->
AREA  QPEAK  TPEAK  R.V.  MAX DEPTH  MAX VEL
(ha)  (cms)  (hrs)  (mm)  (m)        (m/s)
```

```
INFLOW : ID= 2 ( 4301) 124.20 0.50 3.42 8.98 0.32 0.41
OUTFLOW: ID= 1 ( 0887) 124.20 0.50 3.50 8.98 0.32 0.40
```

```
-----
| CALIB      |
| NASHYD ( 0430) | Area (ha)= 19.80 Curve Number (CN)= 83.6
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.13
```

Unit Hyd Qpeak (cms)= 0.669

```
PEAK FLOW      (cms)= 0.086 (i)
TIME TO PEAK   (hrs)= 3.417
RUNOFF VOLUME  (mm)= 4.562
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.182
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4300) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
              (ha) (cms) (hrs) (mm)
ID1= 1 ( 0430): 19.80 0.086 3.42 4.56
+ ID2= 2 ( 0887): 124.20 0.503 3.50 8.98
=====
ID = 3 ( 4300): 144.00 0.589 3.50 8.37
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0886) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.20        0.0400
100.00         206.26        0.0400
111.30         206.19        0.0400 /0.0350 Main Channel
112.02         205.76        0.0350 Main Channel
113.82         205.37        0.0350 Main Channel
115.62         206.03        0.0350 /0.0400 Main Channel
117.77         207.30        0.0400
120.56         207.40        0.0400
124.41         207.31        0.0400
129.31         207.24        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)     (m)   (cu.m.) (cms)      (m/s)     (min)
0.09   205.46 .110E+02 0.0        0.11      51.32
0.19   205.56 .438E+02 0.0        0.17      32.33
0.28   205.65 .986E+02 0.1        0.23      24.67
0.38   205.75 .175E+03 0.1        0.27      20.37
0.47   205.84 .271E+03 0.3        0.33      16.94
0.57   205.94 .379E+03 0.4        0.38      14.73
0.66   206.03 .501E+03 0.6        0.42      13.19
0.76   206.13 .644E+03 0.9        0.48      11.58
0.86   206.23 .845E+03 1.3        0.51      10.89
0.96   206.33 .140E+04 1.9        0.46      12.13
1.06   206.43 .209E+04 2.9        0.46      12.20
1.16   206.53 .290E+04 4.1        0.47      11.82
1.26   206.63 .383E+04 5.6        0.49      11.31
1.37   206.74 .489E+04 7.6        0.52      10.78
1.47   206.84 .607E+04 9.8        0.54      10.28
1.57   206.94 .737E+04 12.5       0.57      9.81
1.67   207.04 .879E+04 15.6        0.60      9.38
1.77   207.14 .103E+05 19.2        0.62      8.99
1.87   207.24 .120E+05 23.2        0.65      8.63
```

```
<---- hydrograph ----> <-pipe / channel->
AREA  QPEAK  TPEAK  R.V.  MAX DEPTH  MAX VEL
(ha)  (cms)  (hrs)  (mm)  (m)        (m/s)
```

```
INFLOW : ID= 2 ( 4300) 144.00 0.59 3.50 8.37 0.64 0.41
OUTFLOW: ID= 1 ( 0886) 144.00 0.58 3.58 8.37 0.63 0.41
```

```
-----
| CALIB      |
| NASHYD ( 0411) | Area (ha)= 4.50 Curve Number (CN)= 86.7
| ID= 1 DT= 5.0 min | Ia (mm)= 5.84 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.11
```

Unit Hyd Qpeak (cms)= 0.155

```
PEAK FLOW      (cms)= 0.028 (i)
TIME TO PEAK   (hrs)= 3.250
RUNOFF VOLUME  (mm)= 6.316
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.253
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4110) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
              (ha) (cms) (hrs) (mm)
ID1= 1 ( 0411): 4.50 0.028 3.25 6.32
+ ID2= 2 ( 0886): 144.00 0.577 3.58 8.37
=====
ID = 3 ( 4110): 148.50 0.604 3.58 8.31
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0885) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          208.48        0.0500
43.69         207.97        0.0500
66.92         207.94        0.0500
76.98         208.01        0.0500
87.94         208.25        0.0500
89.93         208.44        0.0500 /0.0350 Main Channel
92.70         208.20        0.0350 Main Channel
95.51         207.28        0.0350 Main Channel
98.26         208.25        0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)     (m)   (cu.m.) (cms)      (m/s)     (min)
0.05   207.33 .134E+01 0.0        0.06      52.81
0.10   207.38 .536E+01 0.0        0.10      33.27
0.15   207.43 .121E+02 0.0        0.13      25.39
0.19   207.47 .214E+02 0.0        0.15      20.96
0.24   207.52 .335E+02 0.0        0.18      18.06
0.29   207.57 .483E+02 0.1        0.20      15.99
0.34   207.62 .657E+02 0.1        0.22      14.43
0.39   207.67 .858E+02 0.1        0.24      13.20
0.44   207.72 .109E+03 0.1        0.26      12.21
0.48   207.76 .134E+03 0.2        0.28      11.38
0.53   207.81 .162E+03 0.3        0.30      10.68
0.58   207.86 .193E+03 0.3        0.32      10.08
0.63   207.91 .227E+03 0.4        0.34      9.55
0.68   207.96 .295E+03 0.5        0.32      10.12
0.73   208.01 .613E+03 0.7        0.22      14.89
0.78   208.06 .103E+04 1.0        0.20      16.42
0.82   208.10 .150E+04 1.5        0.20      16.27
0.87   208.15 .204E+04 2.2        0.21      15.61
0.92   208.20 .264E+04 3.0        0.22      14.84
```

<---- hydrograph ----> <-pipe / channel->

Model With SWM Infrastructure - Output

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4110)	148.50	0.60	3.58	8.31	0.71	0.25
OUTFLOW: ID= 1 (0885)	148.50	0.58	4.08	8.31	0.70	0.26

CALIB						
NASHYD (0041)	Area (ha)=	25.40	Curve Number (CN)=	83.6		
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.21				

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.106 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 4.562
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0894)						
IN= 2--> OUT= 1	Routing time step (min)'=	5.00				

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 / 0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		
32.89	214.16	0.0350 / 0.0500	Main Channel		
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.523E+01	0.0	0.10	36.03
0.24	212.03	.209E+02	0.0	0.15	22.70
0.36	212.15	.471E+02	0.0	0.20	17.32
0.48	212.27	.837E+02	0.1	0.25	14.30
0.61	212.40	.131E+03	0.2	0.29	12.32
0.73	212.52	.412E+03	0.4	0.18	19.01

0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62
1.09	212.88	.328E+04	3.9	0.25	14.19
1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0041)	25.40	0.11	3.50	4.56	0.50	0.25
OUTFLOW: ID= 1 (0894)	25.40	0.10	3.67	4.56	0.49	0.25

CALIB						
NASHYD (0040)	Area (ha)=	37.50	Curve Number (CN)=	84.2		
ID= 1 DT= 5.0 min	Ia (mm)=	7.14	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.98				

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 0.191 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 4.868
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.195

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0040):	37.50	0.191	3.17	4.87		
+ ID2= 2 (0894):	25.40	0.103	3.67	4.56		
ID = 3 (4140):	62.90	0.286	3.33	4.74		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4101)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (4140):	62.90	0.286	3.33	4.74		
+ ID2= 2 (0885):	148.50	0.582	4.08	8.31		
ID = 3 (4101):	211.40	0.843	3.67	7.25		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0884)						
IN= 2--> OUT= 1	Routing time step (min)'=	5.00				

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	204.63	0.0400			
45.24	204.34	0.0400			
94.52	203.98	0.0400			
140.93	203.58	0.0400			
148.77	203.72	0.0400 / 0.0350	Main Channel		
154.30	202.99	0.0350	Main Channel		
158.02	203.77	0.0350 / 0.0400	Main Channel		
174.30	203.79	0.0400			
222.94	204.38	0.0400			
285.62	204.03	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	203.04	.620E+01	0.0	0.11	58.30
0.10	203.09	.248E+02	0.0	0.17	36.73
0.16	203.15	.558E+02	0.0	0.22	28.03
0.21	203.20	.992E+02	0.1	0.27	23.14
0.26	203.25	.155E+03	0.1	0.31	19.94
0.31	203.30	.223E+03	0.2	0.35	17.66
0.37	203.36	.304E+03	0.3	0.39	15.93
0.42	203.41	.397E+03	0.5	0.42	14.58
0.47	203.46	.502E+03	0.6	0.46	13.47
0.52	203.51	.620E+03	0.8	0.49	12.56
0.57	203.56	.750E+03	1.1	0.52	11.79
0.63	203.62	.934E+03	1.3	0.53	11.56
0.68	203.67	.129E+04	1.7	0.50	12.36
0.73	203.72	.184E+04	2.3	0.47	13.20
0.79	203.78	.270E+04	3.4	0.47	13.22
0.85	203.84	.412E+04	5.1	0.45	13.57
0.92	203.91	.583E+04	7.3	0.47	13.24
0.98	203.97	.783E+04	10.3	0.49	12.69

1.04	204.03	.101E+05	13.9	0.51	12.15

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4101)	211.40	0.84	3.67	7.25	0.53	0.49
OUTFLOW: ID= 1 (0884)	211.40	0.84	4.00	7.25	0.52	0.49

CALIB						
NASHYD (0410)	Area (ha)=	8.50	Curve Number (CN)=	85.5		
ID= 1 DT= 5.0 min	Ia (mm)=	6.46	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.94				

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.052 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 5.579
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.223

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4100)						
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 1 (0410):	8.50	0.052	3.08	5.58		
+ ID2= 2 (0884):	211.40	0.837	4.00	7.25		
ID = 3 (4100):	219.90	0.877	3.92	7.18		

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB						
NASHYD (0401)	Area (ha)=	23.00	Curve Number (CN)=	83.1		
ID= 1 DT= 5.0 min	Ia (mm)=	7.74	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.78				

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.119 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 4.323

Model With SWM Infrastructure - Output

TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.173

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4001)				
1	2	3	AREA (ha)	QPEAK (cms)
ID1= 1 (0401):	23.00	0.119	2.83	4.32
+ ID2= 2 (4100):	219.90	0.877	3.92	7.18
=====				
ID = 3 (4001):	242.90	0.963	3.75	6.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4001)				
3	2	1	AREA (ha)	QPEAK (cms)
ID1= 3 (4001):	242.90	0.963	3.75	6.91
+ ID2= 2 (4200):	67.00	0.307	3.25	4.57
=====				
ID = 1 (4001):	309.90	1.254	3.67	6.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0880)				
IN= 2----> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	204.63	0.0400		
45.24	204.34	0.0400		
94.52	203.98	0.0400		
140.93	203.58	0.0400		
148.77	203.72	0.0400 / 0.0350	Main Channel	
154.30	202.99	0.0350	Main Channel	
158.02	203.77	0.0350 / 0.0400	Main Channel	
174.30	203.79	0.0400		
222.94	204.38	0.0400		
285.62	204.03	0.0400		

<----- TRAVEL TIME TABLE ----->				
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY
(m)	(m)	(cu.m.)	(cms)	(m/s)
0.05	203.04	.647E+01	0.0	0.11
				59.17

ID1= 1 (0400): 27.60 0.144 3.00 4.66
+ ID2= 2 (0880): 309.90 1.239 3.83 6.41
=====

ID = 3 (4000): 337.50 1.357 3.75 6.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0200)	Area (ha)=	25.60	Curve Number (CN)=	82.2
ID= 1 DT= 5.0 min	Ia (mm)=	8.25	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.79		

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 0.117 (i)
TIME TO PEAK (hrs)= 2.917
RUNOFF VOLUME (mm)= 3.910
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.156

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0023)	Area (ha)=	7.00	Curve Number (CN)=	83.0
ID= 1 DT= 5.0 min	Ia (mm)=	7.80	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.73		

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.037 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 4.274
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.171

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0022)	Area (ha)=	3.40	Curve Number (CN)=	82.5
ID= 1 DT= 5.0 min	Ia (mm)=	5.38	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.20		

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.051 (i)
TIME TO PEAK (hrs)= 1.917

0.10	203.09	.259E+02	0.0	0.17	37.28
0.16	203.15	.582E+02	0.0	0.23	28.45
0.21	203.20	.103E+03	0.1	0.27	23.48
0.26	203.25	.162E+03	0.1	0.32	20.24
0.31	203.30	.233E+03	0.2	0.36	17.92
0.37	203.36	.317E+03	0.3	0.40	16.17
0.42	203.41	.414E+03	0.5	0.43	14.79
0.47	203.46	.524E+03	0.6	0.47	13.68
0.52	203.51	.647E+03	0.8	0.50	12.75
0.57	203.56	.782E+03	1.1	0.54	11.96
0.63	203.62	.974E+03	1.4	0.55	11.73
0.68	203.67	.135E+04	1.8	0.51	12.55
0.73	203.72	.192E+04	2.4	0.48	13.39
0.79	203.78	.282E+04	3.5	0.48	13.41
0.85	203.84	.430E+04	5.2	0.47	13.77
0.92	203.91	.608E+04	7.5	0.48	13.44
0.98	203.97	.816E+04	10.6	0.50	12.88
1.04	204.03	.105E+05	14.2	0.52	12.33

<---- hydrograph ---->				
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<-pipe / channel-> MAX DEPTH (m)
INFLOW : ID= 2 (4001)	309.90	1.25	3.67	6.41
OUTFLOW: ID= 1 (0880)	309.90	1.24	3.83	6.41

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB				
NASHYD (0400)	Area (ha)=	27.60	Curve Number (CN)=	83.8
ID= 1 DT= 5.0 min	Ia (mm)=	7.36	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.88		

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 0.144 (i)
TIME TO PEAK (hrs)= 3.000
RUNOFF VOLUME (mm)= 4.662
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.186

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4000)				
1	2	3	AREA (ha)	QPEAK (cms)

RUNOFF VOLUME (mm)= 5.227
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.209

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0211)	Area (ha)=	17.30	Curve Number (CN)=	81.3
ID= 1 DT= 5.0 min	Ia (mm)=	8.76	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.02		

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.061 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 3.532
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.141

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0021)	Area (ha)=	47.60	Curve Number (CN)=	84.6
ID= 1 DT= 5.0 min	Ia (mm)=	6.93	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.93		

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 0.263 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 5.078
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.203

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0871)				
IN= 2----> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.49	0.0400		
35.71	208.88	0.0400		
53.04	208.89	0.0400		
64.12	208.50	0.0400 / 0.0350	Main Channel	

Model With SWM Infrastructure - Output

70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42
0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

<---- hydrograph <----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (0021)	47.60	0.26	3.08	5.08	0.13
OUTFLOW: ID= 1 (0871)	47.60	0.21	3.67	5.07	0.12

ADD HYD (2110)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0211):	17.30	0.061	3.33	3.53
+ ID2= 2 (0022):	3.40	0.051	1.92	5.23
=====				
ID = 3 (2110):	20.70	0.072	3.17	3.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2110)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (2110):	20.70	0.072	3.17	3.81
+ ID2= 2 (0871):	47.60	0.215	3.67	5.07
=====				
ID = 1 (2110):	68.30	0.282	3.58	4.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0220)	Area	(ha)=	Curve Number	(CN)=
ID= 1 DT= 5.0 min	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.85		

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 0.083 (i)
TIME TO PEAK (hrs)= 3.000
RUNOFF VOLUME (mm)= 3.655
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.146

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0020)	Area	(ha)=	Curve Number	(CN)=
ID= 1 DT= 5.0 min	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.72		

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.063 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 4.001
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.160

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)				
IN= 2----> OUT= 1	Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56
0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46
0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.05

<---- hydrograph <----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (0020)	12.60	0.06	2.83	4.00	0.21
OUTFLOW: ID= 1 (0875)	12.60	0.05	3.25	3.97	0.20

ADD HYD (2200)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0220):	20.30	0.083	3.00	3.65
+ ID2= 2 (0875):	12.60	0.055	3.25	3.97
=====				

ID = 3 (2200): 32.90 0.137 3.17 3.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2110):	68.30	0.282	3.58	4.69
+ ID2= 2 (2200):	32.90	0.137	3.17	3.77
=====				
ID = 3 (2101):	101.20	0.410	3.50	4.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)				
IN= 2----> OUT= 1	Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350
86.30	208.87	0.0350
89.86	209.20	0.0350 / 0.0300
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39

Model With SWM Infrastructure - Output

0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

<---- hydrograph ---->				<-pipe / channel->			
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (2101)	101.20	0.41	3.50	4.39	0.28	0.43	
OUTFLOW: ID= 1 (0870)	101.20	0.40	3.75	4.39	0.28	0.43	

CALIB							
NASHYD (0210)	Area (ha)=	9.10	Curve Number (CN)=	82.3			
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.64					

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW (cms)= 0.048 (i)
TIME TO PEAK (hrs)= 2.667
RUNOFF VOLUME (mm)= 3.956
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.158

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2100)							
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.			
	(ha)	(cms)	(hrs)	(mm)			
ID1= 1 (0210):	9.10	0.048	2.67	3.96			
+ ID2= 2 (0870):	101.20	0.400	3.75	4.39			
=====							
ID = 3 (2100):	110.30	0.431	3.67	4.35			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB							
NASHYD (0230)	Area (ha)=	24.70	Curve Number (CN)=	82.9			
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.82					

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW	(cms)=	0.121 (i)
TIME TO PEAK	(hrs)=	2.917
RUNOFF VOLUME	(mm)=	4.229
TOTAL RAINFALL	(mm)=	25.000
RUNOFF COEFFICIENT	=	0.169

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0231)	Area (ha)=	29.50	Curve Number (CN)=	81.9			
ID= 1 DT= 5.0 min	Ia (mm)=	8.42	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.89					

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 0.122 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 3.781
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.151

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0240)	Area (ha)=	10.10	Curve Number (CN)=	82.0			
ID= 1 DT= 5.0 min	Ia (mm)=	8.36	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.74					

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.047 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 3.825
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.153

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0241)	Area (ha)=	26.70	Curve Number (CN)=	82.3			
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.75					

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 0.128 (i)
TIME TO PEAK (hrs)= 2.833
RUNOFF VOLUME (mm)= 3.956
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.158

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0864)							
IN= 2----> OUT= 1	Routing time step (min)'=	5.00					

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.118E+02	0.0	0.27	29.62
0.24	212.03	.471E+02	0.0	0.42	18.66
0.36	212.15	.106E+03	0.1	0.56	14.24
0.48	212.27	.188E+03	0.3	0.67	11.76
0.61	212.40	.294E+03	0.5	0.78	10.13
0.73	212.52	.928E+03	1.0	0.51	15.63
0.85	212.64	.260E+04	2.7	0.50	15.93
0.97	212.76	.477E+04	5.8	0.58	13.67
1.09	212.88	.739E+04	10.6	0.68	11.67
1.21	213.00	.103E+05	17.1	0.79	10.01
1.33	213.12	.133E+05	25.0	0.89	8.85
1.45	213.24	.165E+05	34.4	0.99	8.00
1.57	213.36	.200E+05	45.3	1.08	7.34
1.70	213.49	.236E+05	57.6	1.16	6.82
1.82	213.61	.274E+05	71.4	1.24	6.39
1.94	213.73	.314E+05	86.8	1.31	6.02
2.06	213.85	.355E+05	104.6	1.40	5.66
2.18	213.97	.398E+05	124.9	1.49	5.31
2.37	214.16	.481E+05	161.2	1.59	4.97

<---- hydrograph ---->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL

INFLOW : ID= 2 (0241)	26.70	0.13	2.83	3.96	0.37	0.56
OUTFLOW: ID= 1 (0864)	26.70	0.12	3.08	3.95	0.36	0.56

ADD HYD (2301)							
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.			
	(ha)	(cms)	(hrs)	(mm)			
ID1= 1 (0231):	29.50	0.122	3.08	3.78			
+ ID2= 2 (0240):	10.10	0.047	2.83	3.82			
=====							
ID = 3 (2301):	39.60	0.167	3.00	3.79			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2301)							
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.			
	(ha)	(cms)	(hrs)	(mm)			
ID1= 3 (2301):	39.60	0.167	3.00	3.79			
+ ID2= 2 (0864):	26.70	0.124	3.08	3.95			
=====							
ID = 1 (2301):	66.30	0.291	3.00	3.86			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0863)							
IN= 2----> OUT= 1	Routing time step (min)'=	5.00					

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.70	0.0400			
2.35	206.02	0.0400 / 0.0350	Main Channel		
5.23	205.19	0.0350	Main Channel		
5.34	205.67	0.0350	Main Channel		
19.05	206.06	0.0350 / 0.0400	Main Channel		
21.11	206.05	0.0400			
22.02	206.13	0.0400 / 0.0350			
40.10	206.15	0.0350			
56.50	206.04	0.0350			

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.138E+01	0.0	0.11	58.11

Model With SWM Infrastructure - Output

0.09	205.28	.551E+01	0.0	0.18	36.61
0.13	205.32	.124E+02	0.0	0.23	27.94
0.17	205.36	.220E+02	0.0	0.28	23.06
0.22	205.41	.344E+02	0.0	0.33	19.87
0.26	205.45	.496E+02	0.0	0.37	17.60
0.31	205.50	.675E+02	0.1	0.41	15.88
0.35	205.54	.882E+02	0.1	0.45	14.53
0.39	205.58	.112E+03	0.1	0.48	13.43
0.44	205.63	.138E+03	0.2	0.52	12.52
0.48	205.67	.167E+03	0.2	0.55	11.81
0.52	205.71	.212E+03	0.2	0.44	14.65
0.57	205.76	.285E+03	0.3	0.43	15.23
0.61	205.80	.388E+03	0.4	0.44	14.79
0.66	205.85	.519E+03	0.6	0.47	13.99
0.70	205.89	.679E+03	0.9	0.50	13.12
0.74	205.93	.868E+03	1.2	0.53	12.29
0.79	205.98	.109E+04	1.6	0.56	11.53
0.83	206.02	.133E+04	2.0	0.60	10.85

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2301)	66.30	0.29	3.00	3.86	0.56	0.43
OUTFLOW: ID= 1 (0863)	66.30	0.27	3.42	3.86	0.54	0.44

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (2300)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0230):	24.70	0.121	2.92	4.23
+ ID2= 2 (0863):	66.30	0.273	3.42	3.86
=====				
ID = 3 (2300):	91.00	0.385	3.33	3.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2100):	110.30	0.431	3.67	4.35
+ ID2= 2 (2300):	91.00	0.385	3.33	3.96
=====				
ID = 3 (2011):	201.30	0.805	3.50	4.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0862)	ROUTING	ROUTING
IN= 2--> OUT= 1		
ROUTING time step (min)'= 5.00		
<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	204.63	0.0400
45.24	204.34	0.0400
94.52	203.98	0.0400
140.93	203.58	0.0400
148.77	203.72	0.0400 / 0.0350
154.30	202.99	0.0350
158.02	203.77	0.0350 / 0.0400
174.30	203.79	0.0400
222.94	204.38	0.0400
285.62	204.03	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	203.04	.465E+01	0.0	0.10	47.86
0.10	203.09	.186E+02	0.0	0.15	30.15
0.16	203.15	.418E+02	0.0	0.20	23.01
0.21	203.20	.744E+02	0.1	0.24	18.99
0.26	203.25	.116E+03	0.1	0.28	16.37
0.31	203.30	.167E+03	0.2	0.32	14.50
0.37	203.36	.228E+03	0.3	0.35	13.08
0.42	203.41	.297E+03	0.4	0.39	11.97
0.47	203.46	.376E+03	0.6	0.42	11.06
0.52	203.51	.465E+03	0.8	0.45	10.31
0.57	203.56	.562E+03	1.0	0.48	9.68
0.63	203.62	.700E+03	1.2	0.49	9.49
0.68	203.67	.969E+03	1.6	0.45	10.15
0.73	203.72	.138E+04	2.1	0.43	10.83
0.79	203.78	.203E+04	3.1	0.43	10.85
0.85	203.84	.309E+04	4.6	0.41	11.14
0.92	203.91	.437E+04	6.7	0.42	10.87
0.98	203.97	.586E+04	9.4	0.44	10.42
1.04	204.03	.757E+04	12.7	0.46	9.97

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2011)	201.30	0.80	3.50	4.17	0.53	0.45
OUTFLOW: ID= 1 (0862)	201.30	0.79	3.58	4.17	0.53	0.45

CALIB	Area (ha)=	8.20	Curve Number (CN)=	82.6
NASHYD (0201)	Ia (mm)=	8.02	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.60		

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)=	0.047 (i)
TIME TO PEAK (hrs)=	2.583
RUNOFF VOLUME (mm)=	4.090
TOTAL RAINFALL (mm)=	25.000
RUNOFF COEFFICIENT	= 0.164

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2010)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	8.20	0.047	2.58	4.09
+ ID2= 2 (0023):	7.00	0.037	2.83	4.27
=====				
ID = 3 (2010):	15.20	0.083	2.67	4.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2010)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (2010):	15.20	0.083	2.67	4.17
+ ID2= 2 (0862):	201.30	0.795	3.58	4.17
=====				
ID = 1 (2010):	216.50	0.852	3.58	4.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0860)	ROUTING	ROUTING
IN= 2--> OUT= 1		
ROUTING time step (min)'= 5.00		
<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	208.48	0.0500
43.69	207.97	0.0500
66.92	207.94	0.0500
76.98	208.01	0.0500

87.94	208.25	0.0500
89.93	208.44	0.0500 / 0.0350
92.70	208.20	0.0350
95.51	207.28	0.0350
98.26	208.25	0.0350

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	207.33	.155E+01	0.0	0.16	23.32
0.10	207.38	.620E+01	0.0	0.25	14.69
0.15	207.43	.140E+02	0.0	0.33	11.21
0.19	207.47	.248E+02	0.0	0.40	9.26
0.24	207.52	.388E+02	0.1	0.47	7.98
0.29	207.57	.558E+02	0.1	0.53	7.06
0.34	207.62	.760E+02	0.2	0.59	6.37
0.39	207.67	.992E+02	0.3	0.64	5.83
0.44	207.72	.126E+03	0.4	0.69	5.39
0.48	207.76	.155E+03	0.5	0.74	5.03
0.53	207.81	.188E+03	0.7	0.79	4.72
0.58	207.86	.223E+03	0.8	0.84	4.45
0.63	207.91	.262E+03	1.0	0.88	4.22
0.68	207.96	.341E+03	1.3	0.83	4.47
0.73	208.01	.708E+03	1.8	0.57	6.58
0.78	208.06	.119E+04	2.7	0.51	7.25
0.82	208.10	.174E+04	4.0	0.52	7.19
0.87	208.15	.236E+04	5.7	0.54	6.89
0.92	208.20	.305E+04	7.8	0.57	6.55

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2010)	216.50	0.85	3.58	4.17	0.59	0.84
OUTFLOW: ID= 1 (0860)	216.50	0.85	3.67	4.17	0.58	0.84

ADD HYD (2000)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0200):	25.60	0.117	2.92	3.91
+ ID2= 2 (0860):	216.50	0.851	3.67	4.17
=====				
ID = 3 (2000):	242.10	0.949	3.58	4.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model With SWM Infrastructure - Output

```
| CALIB
| NASHYD ( 0300)| Area (ha)= 36.80 Curve Number (CN)= 83.1
| ID= 1 DT= 5.0 min| Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.90
```

Unit Hyd Qpeak (cms)= 1.562

```
PEAK FLOW (cms)= 0.174 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 4.323
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.173
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0031)| Area (ha)= 3.00 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min| Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.62
```

Unit Hyd Qpeak (cms)= 0.185

```
PEAK FLOW (cms)= 0.023 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 5.237
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.209
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0350)| Area (ha)= 1.50 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min| Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.38
```

Unit Hyd Qpeak (cms)= 0.151

```
PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 2.250
RUNOFF VOLUME (mm)= 4.367
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.175
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0850)|
| IN= 2--> OUT= 1| Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .300E+01 0.0 0.15 86.75
0.07 204.57 .120E+02 0.0 0.24 54.65
0.11 204.61 .270E+02 0.0 0.31 41.70
0.14 204.64 .480E+02 0.0 0.37 34.42
0.18 204.68 .750E+02 0.0 0.43 29.67
0.22 204.72 .108E+03 0.1 0.49 26.27
0.25 204.75 .147E+03 0.1 0.54 23.71
0.29 204.79 .192E+03 0.1 0.59 21.69
0.33 204.83 .243E+03 0.2 0.64 20.05
0.36 204.86 .300E+03 0.3 0.69 18.69
0.40 204.90 .363E+03 0.3 0.73 17.54
0.43 204.93 .488E+03 0.4 0.70 18.37
0.47 204.97 .860E+03 0.6 0.56 22.95
0.51 205.01 .144E+04 1.0 0.52 24.88
0.54 205.04 .217E+04 1.5 0.52 24.65
0.58 205.08 .304E+04 2.1 0.54 23.62
0.61 205.11 .407E+04 3.0 0.57 22.38
0.65 205.15 .524E+04 4.1 0.61 21.13
0.69 205.19 .656E+04 5.5 0.64 19.97
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0350) 1.50 0.01 2.25 4.37 0.11 0.31
OUTFLOW: ID= 1 ( 0850) 1.50 0.01 2.83 4.06 0.09 0.27
```

```
| CALIB
| NASHYD ( 0032)| Area (ha)= 28.00 Curve Number (CN)= 83.4
| ID= 1 DT= 5.0 min| Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
|-----|
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 3001)|
| 1 + 2 = 3| AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 3010): 88.90 0.355 3.33 4.24
+ ID2= 2 ( 0031): 3.00 0.023 2.58 5.24
=====
ID = 3 ( 3001): 91.90 0.370 3.33 4.27
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0852)|
| IN= 2--> OUT= 1| Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 /0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 /0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400
124.41 207.31 0.0400
129.31 207.24 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 205.46 .132E+02 0.0 0.21 32.83
0.19 205.56 .529E+02 0.0 0.33 20.68
0.28 205.65 .119E+03 0.1 0.43 15.78
0.38 205.75 .212E+03 0.3 0.52 13.03
0.47 205.84 .327E+03 0.5 0.62 10.84
0.57 205.94 .458E+03 0.8 0.72 9.42
0.66 206.03 .604E+03 1.2 0.80 8.44
0.76 206.13 .777E+03 1.7 0.91 7.41
0.86 206.23 .102E+04 2.4 0.97 6.97
0.96 206.33 .168E+04 3.6 0.87 7.76
1.06 206.43 .252E+04 5.4 0.87 7.80
1.16 206.53 .350E+04 7.7 0.89 7.56
1.26 206.63 .463E+04 10.7 0.93 7.24
1.37 206.74 .590E+04 14.3 0.98 6.90
1.47 206.84 .732E+04 18.6 1.03 6.58
1.57 206.94 .889E+04 23.6 1.08 6.28
```

U.H. Tp(hrs)= 0.95

Unit Hyd Qpeak (cms)= 1.126

```
PEAK FLOW (cms)= 0.133 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 4.464
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.179
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 3200)|
| 1 + 2 = 3| AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0032): 28.00 0.133 3.08 4.46
+ ID2= 2 ( 0850): 1.50 0.007 2.83 4.06
=====
ID = 3 ( 3200): 29.50 0.140 3.08 4.44
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0301)| Area (ha)= 59.40 Curve Number (CN)= 82.7
| ID= 1 DT= 5.0 min| Ia (mm)= 7.97 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.23
```

Unit Hyd Qpeak (cms)= 1.845

```
PEAK FLOW (cms)= 0.221 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 4.134
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.165
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 3010)|
| 1 + 2 = 3| AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0301): 59.40 0.221 3.58 4.13
+ ID2= 2 ( 3200): 29.50 0.140 3.08 4.44
=====
ID = 3 ( 3010): 88.90 0.355 3.33 4.24
```

Model With SWM Infrastructure - Output

1.67	207.04	.106E+05	29.5	1.13	6.00
1.77	207.14	.125E+05	36.1	1.17	5.75
1.87	207.24	.145E+05	43.7	1.22	5.52

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (3001)	91.90	0.37	3.33	4.27	0.42	0.56
OUTFLOW: ID= 1 (0852)	91.90	0.37	3.50	4.27	0.41	0.56

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0300):	36.80	0.174	3.08	4.32
+ ID2= 2 (0852):	91.90	0.366	3.50	4.27
=====				
ID = 3 (3000):	128.70	0.531	3.33	4.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0030)	Area (ha)=	1.10	Curve Number (CN)=	81.5
ID= 1 DT= 5.0 min	Ia (mm)=	5.76	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.30		

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)=	0.012 (i)
TIME TO PEAK (hrs)=	2.083
RUNOFF VOLUME (mm)=	4.812
TOTAL RAINFALL (mm)=	25.000
RUNOFF COEFFICIENT	= 0.192

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0854)	
ID= 2----> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400

48.71	205.45	0.0400 /0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 /0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0030)	1.10	0.01	2.08	4.81	0.10	0.35
OUTFLOW: ID= 1 (0854)	1.10	0.01	2.25	4.80	0.10	0.34

CALIB				
NASHYD (0340)	Area (ha)=	21.00	Curve Number (CN)=	82.8
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.69		

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)=	0.113 (i)
TIME TO PEAK (hrs)=	2.750
RUNOFF VOLUME (mm)=	4.181
TOTAL RAINFALL (mm)=	25.000

RUNOFF COEFFICIENT = 0.167

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0340):	21.00	0.113	2.75	4.18
+ ID2= 2 (0854):	1.10	0.011	2.25	4.80
=====				
ID = 3 (3400):	22.10	0.120	2.67	4.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0123)	Area (ha)=	24.60	Curve Number (CN)=	82.9
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.93		

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)=	0.111 (i)
TIME TO PEAK (hrs)=	3.083
RUNOFF VOLUME (mm)=	4.229
TOTAL RAINFALL (mm)=	25.000
RUNOFF COEFFICIENT	= 0.169

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0814)	
ID= 2----> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 /0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 /0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40
0.85	212.64	.204E+04	2.7	0.49	12.63
0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0123)	24.60	0.11	3.08	4.23	0.35	0.53
OUTFLOW: ID= 1 (0814)	24.60	0.11	3.25	4.23	0.34	0.52

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)=	0.226 (i)
TIME TO PEAK (hrs)=	2.417
RUNOFF VOLUME (mm)=	5.757
TOTAL RAINFALL (mm)=	25.000
RUNOFF COEFFICIENT	= 0.230

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0813)	

Model With SWM Infrastructure - Output

| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          214.06        0.0500
6.27          213.95        0.0500
20.38         214.11        0.0500
25.18         213.97        0.0500 / 0.0350 Main Channel
28.59         211.79        0.0350 Main Channel
32.89         214.16        0.0350 / 0.0500 Main Channel
42.61         212.54        0.0500
59.11         212.41        0.0500
84.10         212.83        0.0500
100.76        213.78        0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)    (m)   (cu.m.)  (cms)      (m/s)     (min)
0.12   211.91 .168E+02  0.0         0.26      43.17
0.24   212.03 .671E+02  0.0         0.41      27.20
0.36   212.15 .151E+03  0.1         0.54      20.76
0.48   212.27 .268E+03  0.3         0.66      17.13
0.61   212.40 .419E+03  0.5         0.76      14.77
0.73   212.52 .132E+04  1.0         0.50      22.79
0.85   212.64 .370E+04  2.7         0.49      23.22
0.97   212.76 .679E+04  5.7         0.57      19.92
1.09   212.88 .105E+05  10.3        0.66      17.01
1.21   213.00 .146E+05  16.7        0.77      14.59
1.33   213.12 .189E+05  24.5        0.87      12.90
1.45   213.24 .236E+05  33.7        0.97      11.66
1.57   213.36 .284E+05  44.3        1.05      10.70
1.70   213.49 .336E+05  56.3        1.14      9.94
1.82   213.61 .390E+05  69.8        1.21      9.31
1.94   213.73 .447E+05  84.8        1.28      8.78
2.06   213.85 .506E+05  102.3       1.37      8.24
2.18   213.97 .566E+05  122.0       1.46      7.73
2.37   214.16 .685E+05  157.6       1.56      7.25
```

```
<---- hydrograph ----> <-pipe / channel->
AREA  QPEAK  TPEAK  R.V.  MAX DEPTH  MAX VEL
(ha)  (cms)  (hrs)  (mm)  (m)        (m/s)
INFLOW : ID= 2 ( 0124) 24.30  0.23  2.42  5.76  0.45  0.63
OUTFLOW: ID= 1 ( 0813) 24.30  0.20  2.67  5.75  0.43  0.60
```

| ADD HYD (1221) |
| 1 + 2 = 3 |

AREA QPEAK TPEAK R.V.

INFLOW : ID= 2 (1221) 48.90 0.29 2.83 4.98 0.13 0.34
OUTFLOW: ID= 1 (0812) 48.90 0.29 2.92 4.98 0.13 0.34

CALIB
NASHYD (0122) Area (ha)= 31.80 Curve Number (CN)= 85.1
ID= 1 DT= 5.0 min Ia (mm)= 6.67 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.96

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 0.182 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 5.350
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.214

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1220) |
| 1 + 2 = 3 |

AREA QPEAK TPEAK R.V.

ID1= 1 (0122): 31.80 0.182 3.08 5.35
+ ID2= 2 (0812): 48.90 0.291 2.92 4.98
=====

ID = 3 (1220): 80.70 0.472 3.00 5.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0811) |
| IN= 2---> OUT= 1 |

Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.50        0.0400
29.68         206.77        0.0400
43.70         206.13        0.0400 / 0.0350 Main Channel
44.99         205.95        0.0350 Main Channel
47.70         206.24        0.0350 / 0.0450 Main Channel
60.54         206.32        0.0450
80.11         206.99        0.0450
102.29        207.42        0.0450 / 0.0400
132.78        206.84        0.0400
```

```
-----
ID1= 1 ( 0813):    24.30    0.199    2.67    5.75
+ ID2= 2 ( 0814):    24.60    0.110    3.25    4.23
=====
ID = 3 ( 1221):    48.90    0.292    2.83    4.98
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0812) |
| IN= 2---> OUT= 1 |

Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.49        0.0400
35.71         208.88        0.0400
53.04         208.89        0.0400
64.12         208.50        0.0400 / 0.0350 Main Channel
70.77         208.05        0.0350 Main Channel
74.98         208.02        0.0350 Main Channel
83.40         208.38        0.0350 / 0.0400 Main Channel
88.06         208.63        0.0400
94.94         209.13        0.0400
105.88        209.54        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)    (m)   (cu.m.)  (cms)      (m/s)     (min)
0.07   208.09 .533E+02  0.1         0.24      12.01
0.14   208.16 .150E+03  0.3         0.37      7.63
0.22   208.24 .280E+03  0.8         0.47      5.98
0.29   208.31 .444E+03  1.5         0.56      5.04
0.36   208.38 .642E+03  2.4         0.64      4.42
0.44   208.46 .896E+03  4.0         0.75      3.76
0.52   208.54 .119E+04  6.0         0.86      3.29
0.60   208.62 .153E+04  8.6         0.96      2.96
0.68   208.70 .192E+04  11.7        1.04      2.73
0.76   208.78 .235E+04  15.4        1.11      2.55
0.84   208.86 .283E+04  19.6        1.18      2.41
0.92   208.94 .351E+04  24.2        1.17      2.41
0.99   209.01 .435E+04  30.6        1.19      2.37
1.07   209.09 .528E+04  38.0        1.22      2.31
1.15   209.17 .628E+04  46.4        1.26      2.26
1.23   209.25 .737E+04  55.9        1.29      2.20
1.31   209.33 .855E+04  66.6        1.33      2.14
1.39   209.41 .982E+04  78.7        1.36      2.08
1.47   209.49 .112E+05  92.1        1.40      2.03
```

```
<---- hydrograph ----> <-pipe / channel->
AREA  QPEAK  TPEAK  R.V.  MAX DEPTH  MAX VEL
(ha)  (cms)  (hrs)  (mm)  (m)        (m/s)
```

INFLOW : ID= 2 (1220) 80.70 0.47 3.00 5.13 0.33 0.38
OUTFLOW: ID= 1 (0811) 80.70 0.43 3.42 5.12 0.32 0.38

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)    (m)   (cu.m.)  (cms)      (m/s)     (min)
0.06   206.01 .147E+02  0.0         0.14      60.26
0.12   206.07 .590E+02  0.0         0.22      37.96
0.18   206.13 .133E+03  0.1         0.29      28.97
0.26   206.21 .302E+03  0.2         0.36      22.81
0.34   206.29 .671E+03  0.5         0.39      21.40
0.42   206.37 .151E+04  1.2         0.39      20.95
0.50   206.45 .254E+04  2.3         0.45      18.38
0.58   206.53 .376E+04  3.7         0.49      16.98
0.66   206.61 .544E+04  5.6         0.51      16.11
0.74   206.69 .764E+04  8.4         0.54      15.19
0.83   206.78 .104E+05  12.1        0.58      14.27
0.91   206.86 .134E+05  17.4        0.64      12.84
0.99   206.94 .166E+05  23.6        0.71      11.71
1.07   207.02 .201E+05  30.7        0.76      10.88
1.15   207.10 .239E+05  38.8        0.81      10.26
1.23   207.18 .280E+05  48.0        0.85      9.72
1.31   207.26 .325E+05  58.5        0.89      9.26
1.39   207.34 .373E+05  70.3        0.94      8.84
1.47   207.42 .424E+05  83.4        0.98      8.48
```

```
<---- hydrograph ----> <-pipe / channel->
AREA  QPEAK  TPEAK  R.V.  MAX DEPTH  MAX VEL
(ha)  (cms)  (hrs)  (mm)  (m)        (m/s)
INFLOW : ID= 2 ( 1220) 80.70    0.47    3.00    5.13    0.33    0.38
OUTFLOW: ID= 1 ( 0811) 80.70    0.43    3.42    5.12    0.32    0.38
```

CALIB
NASHYD (0121) Area (ha)= 16.10 Curve Number (CN)= 86.5
ID= 1 DT= 5.0 min Ia (mm)= 5.94 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.89

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.114 (i)
TIME TO PEAK (hrs)= 2.917
RUNOFF VOLUME (mm)= 6.189
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.248

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
| ADD HYD ( 1210) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0121): 16.10 0.114 2.92 6.19
+ ID2= 2 ( 0811): 80.70 0.429 3.42 5.12
=====
ID = 3 ( 1210): 96.80 0.534 3.33 5.30
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0146) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 12.80 Curve Number (CN)= 83.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.55
```

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.080 (i)
TIME TO PEAK (hrs)= 2.500
RUNOFF VOLUME (mm)= 4.274
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.171

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0844) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 / 0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 / 0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .107E+01 0.0 0.13 37.04
0.08 207.60 .430E+01 0.0 0.20 23.33
0.12 207.64 .966E+01 0.0 0.27 17.81
0.16 207.68 .172E+02 0.0 0.32 14.70
0.19 207.71 .268E+02 0.0 0.38 12.67
0.23 207.75 .387E+02 0.1 0.42 11.22
0.27 207.79 .526E+02 0.1 0.47 10.12
```

```
0.31 207.83 .687E+02 0.1 0.51 9.26
0.35 207.87 .870E+02 0.2 0.56 8.56
0.39 207.91 .107E+03 0.2 0.60 7.98
0.43 207.95 .130E+03 0.3 0.64 7.49
0.47 207.99 .155E+03 0.4 0.67 7.07
0.50 208.02 .181E+03 0.5 0.71 6.70
0.54 208.06 .210E+03 0.6 0.75 6.38
0.58 208.10 .242E+03 0.7 0.78 6.09
0.62 208.14 .275E+03 0.8 0.82 5.83
0.67 208.19 .329E+03 1.0 0.87 5.50
0.72 208.24 .413E+03 1.3 0.89 5.36
0.77 208.29 .540E+03 1.7 0.87 5.45
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0146) 12.80 0.08 2.50 4.27 0.26 0.46
OUTFLOW: ID= 1 ( 0844) 12.80 0.08 2.67 4.27 0.26 0.46
```

```
| CALIB
| NASHYD ( 0145) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 12.60 Curve Number (CN)= 83.3
Ia (mm)= 7.63 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59
```

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.079 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 4.418
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.177

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1450) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0145): 12.60 0.079 2.58 4.42
+ ID2= 2 ( 0844): 12.80 0.078 2.67 4.27
=====
ID = 3 ( 1450): 25.40 0.156 2.67 4.34
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0843) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .144E+02 0.0 0.23 42.45
0.24 212.03 .578E+02 0.0 0.36 26.74
0.36 212.15 .130E+03 0.1 0.48 20.41
0.48 212.27 .231E+03 0.2 0.58 16.85
0.61 212.40 .361E+03 0.4 0.67 14.52
0.73 212.52 .114E+04 0.8 0.43 22.41
0.85 212.64 .319E+04 2.3 0.43 22.83
0.97 212.76 .585E+04 5.0 0.50 19.59
1.09 212.88 .907E+04 9.0 0.58 16.72
1.21 213.00 .126E+05 14.6 0.68 14.34
1.33 213.12 .163E+05 21.4 0.77 12.69
1.45 213.24 .203E+05 29.5 0.85 11.47
1.57 213.36 .245E+05 38.8 0.92 10.52
1.70 213.49 .289E+05 49.3 0.99 9.77
1.82 213.61 .336E+05 61.2 1.06 9.15
1.94 213.73 .385E+05 74.3 1.13 8.63
2.06 213.85 .436E+05 89.6 1.20 8.11
2.18 213.97 .488E+05 106.9 1.28 7.61
2.37 214.16 .590E+05 138.1 1.36 7.13
```

```
<----- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1450) 25.40 0.16 2.67 4.34 0.41 0.51
OUTFLOW: ID= 1 ( 0843) 25.40 0.14 2.92 4.33 0.40 0.50
```

```
| CALIB
```

```
| NASHYD ( 0144) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 28.60 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.97
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.126 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 4.229
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.169

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1440) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0144): 28.60 0.126 3.17 4.23
+ ID2= 2 ( 0843): 25.40 0.140 2.92 4.33
=====
ID = 3 ( 1440): 54.00 0.265 3.00 4.28
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0842) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 / 0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 / 0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .149E+01 0.0 0.09 81.67
0.09 205.28 .594E+01 0.0 0.14 51.45
0.13 205.32 .134E+02 0.0 0.18 39.26
0.17 205.36 .238E+02 0.0 0.22 32.41
0.22 205.41 .371E+02 0.0 0.25 27.93
```

Model With SWM Infrastructure - Output

0.26	205.45	.535E+02	0.0	0.28	24.73
0.31	205.50	.728E+02	0.1	0.31	22.32
0.35	205.54	.950E+02	0.1	0.34	20.42
0.39	205.58	.120E+03	0.1	0.37	18.87
0.44	205.63	.149E+03	0.1	0.40	17.59
0.48	205.67	.180E+03	0.2	0.42	16.60
0.52	205.71	.228E+03	0.2	0.34	20.59
0.57	205.76	.308E+03	0.2	0.33	21.41
0.61	205.80	.418E+03	0.3	0.34	20.79
0.66	205.85	.560E+03	0.5	0.36	19.66
0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1440)	54.00	0.27	3.00	4.28	0.58	0.33
OUTFLOW: ID= 1 (0842)	54.00	0.24	3.50	4.27	0.57	0.33

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB	
NASHYD (0143)	
ID= 1 DT= 5.0 min	

Area (ha)=	27.70	Curve Number (CN)=	82.9
Ia (mm)=	7.85	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.07		

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)=	0.115 (i)
TIME TO PEAK (hrs)=	3.333
RUNOFF VOLUME (mm)=	4.229
TOTAL RAINFALL (mm)=	25.000
RUNOFF COEFFICIENT	= 0.169

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)	
1 + 2 = 3	

ID1= 1 (0143):	27.70	0.115	3.33	4.23
+ ID2= 2 (0842):	54.00	0.239	3.50	4.27
=====				
ID = 3 (1430):	81.70	0.353	3.42	4.26

CALIB	
NASHYD (0142)	
ID= 1 DT= 5.0 min	

Area (ha)=	27.10	Curve Number (CN)=	82.9
Ia (mm)=	7.85	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.22		

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)=	0.104 (i)
TIME TO PEAK (hrs)=	3.583
RUNOFF VOLUME (mm)=	4.229
TOTAL RAINFALL (mm)=	25.000
RUNOFF COEFFICIENT	= 0.169

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)	
1 + 2 = 3	

ID1= 1 (0142):	27.10	0.104	3.58	4.23
+ ID2= 2 (0841):	81.70	0.313	4.00	4.25
=====				
ID = 3 (1420):	108.80	0.413	3.92	4.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)	
IN= 2----> OUT= 1	

Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	209.52	0.0400	
61.99	209.23	0.0400	
76.86	209.20	0.0400	
82.03	209.20	0.0400 / 0.0350	Main Channel
86.30	208.87	0.0350	Main Channel
89.86	209.20	0.0350 / 0.0300	Main Channel
96.27	209.24	0.0300	
103.53	209.40	0.0300	
127.96	209.50	0.0300	
158.58	209.70	0.0300	

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.706E+01	0.0	0.08	110.24
0.07	208.94	.282E+02	0.0	0.13	69.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0841)	
IN= 2----> OUT= 1	

Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 / 0.0350	Main Channel
43.44	208.24	0.0350	Main Channel
45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	
77.43	209.05	0.0400	
128.85	209.70	0.0400	

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.216E+02	0.0	0.15	113.45
0.13	208.37	.864E+02	0.0	0.24	71.47
0.19	208.43	.194E+03	0.1	0.31	54.54
0.25	208.49	.345E+03	0.1	0.38	45.02
0.32	208.56	.540E+03	0.2	0.44	38.80
0.38	208.62	.777E+03	0.4	0.49	34.36
0.46	208.70	.152E+04	0.7	0.50	33.99
0.54	208.78	.281E+04	1.4	0.50	33.61
0.62	208.86	.469E+04	2.5	0.53	31.90
0.70	208.94	.734E+04	4.0	0.56	30.28
0.78	209.02	.107E+05	6.3	0.59	28.55
0.86	209.10	.149E+05	9.3	0.63	26.78
0.94	209.18	.198E+05	13.1	0.68	25.09
1.02	209.26	.253E+05	17.9	0.72	23.58
1.10	209.34	.315E+05	23.6	0.76	22.24
1.18	209.42	.386E+05	30.0	0.79	21.42
1.26	209.50	.465E+05	37.7	0.82	20.56
1.34	209.58	.554E+05	46.8	0.86	19.73
1.42	209.66	.652E+05	57.3	0.90	18.94

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1430)	81.70	0.35	3.42	4.26	0.37	0.48
OUTFLOW: ID= 1 (0841)	81.70	0.31	4.00	4.25	0.35	0.47

0.10	208.97	.636E+02	0.0	0.17	53.00
0.13	209.00	.113E+03	0.0	0.21	43.75
0.17	209.04	.177E+03	0.1	0.24	37.70
0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75
0.37	209.24	.118E+04	0.7	0.34	26.61
0.40	209.27	.196E+04	1.2	0.33	27.88
0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61
0.58	209.45	.865E+04	6.3	0.40	22.94
0.61	209.48	.108E+05	8.1	0.41	22.09
0.65	209.52	.132E+05	10.4	0.43	21.10

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1420)	108.80	0.41	3.92	4.25	0.31	0.37
OUTFLOW: ID= 1 (0840)	108.80	0.39	4.33	4.24	0.30	0.36

CALIB	
NASHYD (0141)	
ID= 1 DT= 5.0 min	

Area (ha)=	8.10	Curve Number (CN)=	83.6
Ia (mm)=	7.47	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.78		

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)=	0.044 (i)
TIME TO PEAK (hrs)=	2.833
RUNOFF VOLUME (mm)=	4.562
TOTAL RAINFALL (mm)=	25.000
RUNOFF COEFFICIENT	= 0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1410)	
1 + 2 = 3	

ID1= 1 (0141):	8.10	0.044	2.83	4.56
+ ID2= 2 (0840):	108.80	0.395	4.33	4.24

Model With SWM Infrastructure - Output

=====

ID = 3 (1410): 116.90 0.419 4.25 4.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0151)	Area (ha)= 24.60	Curve Number (CN)= 82.8	
ID= 1 DT= 5.0 min	Ia (mm)= 7.91	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.00		

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.105 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 4.181
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.167

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0153)	Area (ha)= 33.30	Curve Number (CN)= 82.6	
ID= 1 DT= 5.0 min	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.08		

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 0.133 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 4.091
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.164

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1520)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0152):	16.20	0.071	3.08	4.09
+ ID2= 2 (0834):	33.30	0.129	3.67	4.09
=====				
ID = 3 (1520):	49.50	0.195	3.50	4.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0833)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.232E+03	0.1	0.19	65.23
0.14	208.16	.652E+03	0.3	0.30	41.42
0.22	208.24	.122E+04	0.6	0.38	32.47
0.29	208.31	.193E+04	1.2	0.45	27.40
0.36	208.38	.279E+04	1.9	0.51	24.03
0.44	208.46	.389E+04	3.2	0.60	20.41
0.52	208.54	.516E+04	4.8	0.69	17.88
0.60	208.62	.664E+04	6.9	0.77	16.07
0.68	208.70	.833E+04	9.4	0.83	14.80
0.76	208.78	.102E+05	12.3	0.89	13.84
0.84	208.86	.123E+05	15.7	0.94	13.07
0.92	208.94	.153E+05	19.4	0.94	13.11
0.99	209.01	.189E+05	24.5	0.96	12.89
1.07	209.09	.229E+05	30.4	0.98	12.57
1.15	209.17	.273E+05	37.1	1.01	12.25
1.23	209.25	.320E+05	44.7	1.03	11.94

42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.125E+02	0.0	0.21	40.70
0.24	212.03	.501E+02	0.0	0.33	25.64
0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48
0.85	212.64	.277E+04	2.1	0.39	21.89
0.97	212.76	.507E+04	4.5	0.45	18.78
1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

<---- hydrograph ----> <-pipe / channel->

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0153)	33.30	0.13	3.33	4.09	0.40	0.46
OUTFLOW: ID= 1 (0834)	33.30	0.13	3.67	4.09	0.40	0.45

CALIB			
NASHYD (0152)	Area (ha)= 16.20	Curve Number (CN)= 82.6	
ID= 1 DT= 5.0 min	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.93		

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.071 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 4.090
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.164

1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

<---- hydrograph ----> <-pipe / channel->

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1520)	49.50	0.19	3.50	4.09	0.12	0.25
OUTFLOW: ID= 1 (0833)	49.50	0.16	4.25	4.08	0.11	0.23

ADD HYD (1510)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0151):	24.60	0.105	3.25	4.18
+ ID2= 2 (0833):	49.50	0.160	4.25	4.08
=====				
ID = 3 (1510):	74.10	0.247	3.92	4.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0832)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 / 0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 / 0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 / 0.0400	
132.78	206.84	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	206.01	.158E+02	0.0	0.16	56.30
0.12	206.07	.633E+02	0.0	0.25	35.47
0.18	206.13	.142E+03	0.1	0.33	27.07
0.26	206.21	.324E+03	0.3	0.42	21.31
0.34	206.29	.720E+03	0.6	0.44	20.00
0.42	206.37	.162E+04	1.4	0.45	19.57
0.50	206.45	.272E+04	2.6	0.52	17.17

Model With SWM Infrastructure - Output

0.58	206.53	.404E+04	4.2	0.56	15.86
0.66	206.61	.584E+04	6.5	0.59	15.05
0.74	206.69	.820E+04	9.6	0.63	14.19
0.83	206.78	.111E+05	13.9	0.67	13.34
0.91	206.86	.143E+05	19.9	0.74	12.00
0.99	206.94	.178E+05	27.1	0.81	10.94
1.07	207.02	.215E+05	35.3	0.87	10.16
1.15	207.10	.256E+05	44.5	0.93	9.59
1.23	207.18	.301E+05	55.1	0.98	9.09
1.31	207.26	.349E+05	67.2	1.03	8.65
1.39	207.34	.400E+05	80.7	1.07	8.26
1.47	207.42	.455E+05	95.8	1.12	7.92

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<-pipe / channel-> MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1510)	74.10	0.25	3.92	4.12	0.26	0.41
OUTFLOW: ID= 1 (0832)	74.10	0.24	4.25	4.11	0.25	0.41

CALIB	Area	(ha)=	6.60	Curve Number (CN)=	83.7
NASHYD (0150)	Ia	(mm)=	7.41	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=		0.96		

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.032 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 4.614
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.185

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1500)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0150):	6.60	0.032	3.08	4.61
+ ID2= 2 (0832):	74.10	0.241	4.25	4.11
ID = 3 (1500):	80.70	0.264	4.17	4.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1401)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1410):	116.90	0.419	4.25	4.26
+ ID2= 2 (1500):	80.70	0.264	4.17	4.15
ID = 3 (1401):	197.60	0.683	4.25	4.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0830)	Routing time step (min)'=	5.00
IN= 2----> OUT= 1		
Distance	Elevation	Manning
0.00	207.71	0.0400
58.83	206.71	0.0400
66.88	206.59	0.0400 / 0.0350
72.32	206.34	0.0350
77.68	206.55	0.0350 / 0.0800
82.85	206.54	0.0800
90.20	206.02	0.0800
94.03	206.48	0.0800
99.83	206.40	0.0800 / 0.0400
114.32	206.50	0.0400
136.07	206.86	0.0400
174.41	207.56	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.224E+03	0.0	0.08	174.00
0.23	206.25	.505E+03	0.1	0.11	132.79
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34
0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	4.7	0.29	50.17
0.78	206.80	.196E+05	7.6	0.34	42.88
0.87	206.89	.258E+05	11.4	0.38	37.00
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11
1.37	207.39	.776E+05	54.6	0.61	23.71

1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<-pipe / channel-> MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1401)	197.60	0.68	4.25	4.22	0.48	0.15
OUTFLOW: ID= 1 (0830)	197.60	0.46	5.33	4.21	0.45	0.14

CALIB	Area	(ha)=	18.30	Curve Number (CN)=	83.6
NASHYD (0140)	Ia	(mm)=	7.47	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=		1.34		

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.072 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 4.562
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0140):	18.30	0.072	3.67	4.56
+ ID2= 2 (0830):	197.60	0.457	5.33	4.21
ID = 3 (1400):	215.90	0.501	5.17	4.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area	(ha)=	28.70	Curve Number (CN)=	82.1
NASHYD (0131)	Ia	(mm)=	8.30	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=		1.11		

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 0.106 (i)
TIME TO PEAK (hrs)= 3.417

RUNOFF VOLUME (mm)= 3.869
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.155

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area	(ha)=	132.00
STANDHYD (0011)	Total Imp(%)=	57.10	Dir. Conn.(%)= 45.00
ID= 1 DT= 5.0 min			

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	75.37	56.63
Dep. Storage (mm)=	1.00	8.95
Average Slope (%)=	1.00	1.00
Length (m)=	938.08	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.(mm/hr)=	40.86	4.77
over (min)	15.00	45.00
Storage Coeff. (min)=	14.00 (ii)	43.36 (ii)
Unit Hyd. Tpeak (min)=	15.00	45.00
Unit Hyd. peak (cms)=	0.08	0.03

PEAK FLOW (cms)=	4.65	0.34	*TOTALS*
TIME TO PEAK (hrs)=	1.92	2.58	4.727 (iii)
RUNOFF VOLUME (mm)=	24.00	3.69	12.83
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.15	0.51

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0874)	OUTFLOW IS OFF			
IN= 2----> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	2.4200	5.4280
	0.0950	1.5860	3.3930	6.6280
	1.2530	3.8390	0.0000	0.0000
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0011)	132.000	4.727	1.92	12.83

Model With SWM Infrastructure - Output

OUTFLOW: ID= 1 (0874) 132.000 0.095 4.92 12.46

PEAK FLOW REDUCTION [Qout/Qin](%)= 2.00
TIME SHIFT OF PEAK FLOW (min)=180.00
MAXIMUM STORAGE USED (ha.m.)= 1.5807

CALIB STANDHYD (0012) ID= 1 DT= 5.0 min	Area (ha)= 17.50 Total Imp(%)= 80.00	Dir. Conn.(%)= 70.00
Surface Area (ha)= 14.00 Dep. Storage (mm)= 1.00 Average Slope (%)= 1.00 Length (m)= 341.57 Mannings n = 0.013	IMPERVIOUS 3.50 PERVIOUS (i) 8.94 1.00 40.00 0.250	
Max.Eff.Inten.(mm/hr)= 53.25 over (min) 5.00 Storage Coeff. (min)= 6.87 (ii) Unit Hyd. Tpeak (min)= 5.00 Unit Hyd. peak (cms)= 0.18	8.02 35.00 30.70 (ii) 35.00 0.04	
PEAK FLOW (cms)= 1.48 TIME TO PEAK (hrs)= 1.75 RUNOFF VOLUME (mm)= 24.00 TOTAL RAINFALL (mm)= 25.00 RUNOFF COEFFICIENT = 0.96	0.04 1.489 (iii) 2.33 4.62 25.00 0.18	*TOTALS* 1.130 (iii) 1.75 18.18 25.00 0.73

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112) 1 + 2 = 3	AREA (ha) 17.50 132.00 149.50	QPEAK (cms) 1.489 0.095 1.505	TPEAK (hrs) 1.75 4.92 1.75	R.V. (mm) 18.18 12.46 13.13
ID1= 1 (0012): + ID2= 2 (0874): ID = 3 (1112):				

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0010) ID= 1 DT= 5.0 min	Area (ha)= 12.90 Total Imp(%)= 80.00	Dir. Conn.(%)= 70.00

Surface Area (ha)= 10.32 Dep. Storage (mm)= 1.00 Average Slope (%)= 1.00 Length (m)= 293.26 Mannings n = 0.013	IMPERVIOUS 2.58 PERVIOUS (i) 8.94 1.00 40.00 0.250	
Max.Eff.Inten.(mm/hr)= 53.25 over (min) 5.00 Storage Coeff. (min)= 6.27 (ii) Unit Hyd. Tpeak (min)= 5.00 Unit Hyd. peak (cms)= 0.19	8.02 35.00 30.10 (ii) 35.00 0.04	
PEAK FLOW (cms)= 1.13 TIME TO PEAK (hrs)= 1.75 RUNOFF VOLUME (mm)= 24.00 TOTAL RAINFALL (mm)= 25.00 RUNOFF COEFFICIENT = 0.96	0.03 2.33 4.62 25.00 0.18	*TOTALS* 1.130 (iii) 1.75 18.18 25.00 0.73

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311) 1 + 2 = 3	AREA (ha) 12.90 149.50 162.40	QPEAK (cms) 1.130 1.505 2.635	TPEAK (hrs) 1.75 1.75 1.75	R.V. (mm) 18.18 13.13 13.53
ID1= 1 (0010): + ID2= 2 (1112): ID = 3 (1311):				

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822) IN= 2--> OUT= 1	Routing time step (min)'= 5.00
Distance 0.00	Elevation 207.71
	Manning 0.0400

58.83 66.88 72.32 77.68 82.85 90.20 94.03 99.83 114.32 136.07 174.41	206.71 206.59 206.34 206.55 206.54 206.02 206.48 206.40 206.50 206.86 207.56	0.0400 0.0400 / 0.0350 0.0350 0.0350 / 0.0800 0.0800 0.0800 0.0800 0.0800 / 0.0400 0.0400 0.0400 0.0400	Main Channel Main Channel Main Channel

DEPTH (m) 0.08 0.15 0.23 0.30 0.38 0.45 0.53 0.61 0.70 0.78 0.87 0.95 1.04 1.12 1.20 1.29 1.37 1.46 1.54	ELEV (m) 206.10 206.17 206.25 206.32 206.40 206.47 206.55 206.63 206.72 206.80 206.89 206.97 207.06 207.14 207.22 207.31 207.39 207.48 207.56	VOLUME (cu.m.) .337E+02 .135E+03 .303E+03 .539E+03 .885E+03 .175E+04 .333E+04 .569E+04 .851E+04 .118E+05 .155E+05 .196E+05 .242E+05 .292E+05 .346E+05 .404E+05 .466E+05 .533E+05 .604E+05	FLOW RATE (cms) 0.0 0.0 0.1 0.2 0.3 0.6 1.4 3.4 6.3 10.2 15.2 21.4 28.9 37.7 47.9 59.6 72.9 87.8 104.5	VELOCITY (m/s) 0.07 0.11 0.15 0.18 0.20 0.19 0.23 0.31 0.39 0.45 0.51 0.57 0.63 0.68 0.73 0.77 0.82 0.86 0.91	TRAV.TIME (min) 124.18 78.23 59.70 49.28 43.17 46.91 38.64 27.90 22.56 19.28 17.00 15.28 13.96 12.90 12.02 11.29 10.66 10.11 9.63

INFLOW : ID= 2 (1311) OUTFLOW: ID= 1 (0822)	AREA (ha) 162.40 162.40	QPEAK (cms) 2.63 0.88	TPEAK (hrs) 1.75 1.92	R.V. (mm) 13.53 13.52	MAX DEPTH (m) 0.58 0.48	MAX VEL (m/s) 0.27 0.20

ADD HYD (1310) 1 + 2 = 3	AREA (ha) 28.70 162.40	QPEAK (cms) 0.106 0.879	TPEAK (hrs) 3.42 1.92	R.V. (mm) 3.87 13.52
ID1= 1 (0131): + ID2= 2 (0822):				

ID = 3 (1310):	191.10	0.889	1.92	12.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0821) IN= 2--> OUT= 1	Routing time step (min)'= 5.00

Distance 0.00	Elevation 207.71	Manning 0.0400
58.83	206.71	0.0400
66.88	206.59	0.0400 / 0.0350
72.32	206.34	0.0350
77.68	206.55	0.0350 / 0.0800
82.85	206.54	0.0800
90.20	206.02	0.0800
94.03	206.48	0.0800
99.83	206.40	0.0800 / 0.0400
114.32	206.50	0.0400
136.07	206.86	0.0400
174.41	207.56	0.0400

DEPTH (m) 0.08 0.15 0.23 0.30 0.38 0.45 0.53 0.61 0.70 0.78 0.87 0.95 1.04 1.12 1.20 1.29 1.37 1.46 1.54	ELEV (m) 206.10 206.17 206.25 206.32 206.40 206.47 206.55 206.63 206.72 206.80 206.89 206.97 207.06 207.14 207.22 207.31 207.39 207.48 207.56	VOLUME (cu.m.) .569E+02 .227E+03 .512E+03 .910E+03 .149E+04 .295E+04 .562E+04 .960E+04 .143E+05 .199E+05 .261E+05 .331E+05 .408E+05 .492E+05 .583E+05 .681E+05 .786E+05 .899E+05 .102E+06	FLOW RATE (cms) 0.0 0.0 0.1 0.2 0.3 0.6 1.3 3.0 5.6 9.1 13.6 19.1 25.8 33.7 42.9 53.3 65.2 78.6 93.4	VELOCITY (m/s) 0.06 0.10 0.13 0.16 0.18 0.17 0.20 0.28 0.35 0.40 0.46 0.51 0.56 0.61 0.65 0.69 0.73 0.77 0.81	TRAV.TIME (min) 234.14 147.50 112.56 92.92 81.40 88.45 72.86 52.60 42.53 36.35 32.05 28.81 26.32 24.32 22.67 21.28 20.10 19.07 18.16

INFLOW : ID= 2 (1310)	AREA (ha) 191.10	QPEAK (cms) 0.89	TPEAK (hrs) 1.92	R.V. (mm) 12.07	MAX DEPTH (m) 0.49	MAX VEL (m/s) 0.18

Model With SWM Infrastructure - Output

OUTFLOW: ID= 1 (0821) 191.10 0.48 3.58 12.04 0.43 0.17

```
-----
| CALIB |
| NASHYD ( 0130) | Area (ha)= 26.70 Curve Number (CN)= 81.7
| ID= 1 DT= 5.0 min | Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.32
```

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 0.085 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 3.698
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.148

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1300) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0130): 26.70 0.085 3.75 3.70
+ ID2= 2 ( 0821): 191.10 0.484 3.58 12.04
|=====|
| ID = 3 ( 1300): 217.80 0.569 3.67 11.02
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 1202) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 1300): 217.80 0.569 3.67 11.02
+ ID2= 2 ( 1400): 215.90 0.501 5.17 4.24
|=====|
| ID = 3 ( 1202): 433.70 0.984 4.42 7.64
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0820) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|-----|
|<----- DATA FOR SECTION ( 1.1) ----->
```

Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 / 0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 / 0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.681E+01	0.0	0.08	28.42
0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80
0.37	205.07	.292E+03	0.3	0.12	18.72
0.46	205.16	.859E+03	0.9	0.14	16.44
0.55	205.25	.182E+04	2.3	0.17	13.44
0.64	205.34	.311E+04	4.7	0.21	11.04
0.74	205.44	.487E+04	8.4	0.24	9.67
0.83	205.53	.676E+04	13.3	0.27	8.48
0.92	205.62	.877E+04	19.3	0.30	7.58
1.01	205.71	.109E+05	26.4	0.33	6.90
1.10	205.80	.132E+05	34.5	0.36	6.36
1.20	205.90	.155E+05	43.8	0.39	5.92
1.29	205.99	.181E+05	54.1	0.42	5.56
1.38	206.08	.207E+05	65.6	0.44	5.25
1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1202)	433.70	0.98	4.42	7.64	0.47	0.14
OUTFLOW: ID= 1 (0820)	433.70	0.96	4.58	7.64	0.47	0.14

```
-----
| ADD HYD ( 1201) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 1210): 96.80 0.534 3.33 5.30
+ ID2= 2 ( 0820): 433.70 0.961 4.58 7.64
|=====|
```

ID = 3 (1201): 530.50 1.345 4.25 7.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0810) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 / 0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 / 0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.229E+02	0.0	0.07	106.67
0.18	204.88	.915E+02	0.0	0.12	67.20
0.28	204.98	.208E+03	0.1	0.15	51.82
0.37	205.07	.981E+03	0.2	0.11	70.28
0.46	205.16	.288E+04	0.8	0.13	61.71
0.55	205.25	.610E+04	2.0	0.15	50.43
0.64	205.34	.105E+05	4.2	0.19	41.45
0.74	205.44	.163E+05	7.5	0.21	36.28
0.83	205.53	.227E+05	11.9	0.24	31.82
0.92	205.62	.294E+05	17.2	0.27	28.46
1.01	205.71	.366E+05	23.6	0.30	25.89
1.10	205.80	.442E+05	30.9	0.32	23.87
1.20	205.90	.522E+05	39.1	0.35	22.23
1.29	205.99	.606E+05	48.4	0.37	20.87
1.38	206.08	.694E+05	58.7	0.39	19.72
1.47	206.17	.786E+05	70.0	0.41	18.74
1.57	206.27	.883E+05	82.3	0.43	17.88
1.66	206.36	.983E+05	95.7	0.45	17.12
1.75	206.45	.109E+06	110.2	0.47	16.45

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1201)	530.50	1.34	4.25	7.22	0.50	0.14
OUTFLOW: ID= 1 (0810)	530.50	1.16	4.92	7.21	0.49	0.13

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.040 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 4.764
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.191

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1200) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0120): 9.00 0.040 3.42 4.76
+ ID2= 2 ( 0810): 530.50 1.164 4.92 7.21
|=====|
| ID = 3 ( 1200): 539.50 1.190 4.83 7.17
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0113) | Area (ha)= 13.50 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.87
```

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.061 (i)
TIME TO PEAK (hrs)= 3.000
RUNOFF VOLUME (mm)= 4.044
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.162

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0802) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

Model With SWM Infrastructure - Output

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 / 0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 / 0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .448E+01 0.0 0.12 164.32
0.08 207.60 .179E+02 0.0 0.19 103.51
0.12 207.64 .403E+02 0.0 0.25 79.00
0.16 207.68 .716E+02 0.0 0.30 65.21
0.19 207.71 .112E+03 0.0 0.35 56.20
0.23 207.75 .161E+03 0.1 0.40 49.76
0.27 207.79 .219E+03 0.1 0.44 44.90
0.31 207.83 .287E+03 0.1 0.48 41.88
0.35 207.87 .363E+03 0.2 0.52 37.98
0.39 207.91 .448E+03 0.2 0.56 35.40
0.43 207.95 .542E+03 0.3 0.60 33.22
0.47 207.99 .645E+03 0.3 0.63 31.35
0.50 208.02 .757E+03 0.4 0.67 29.72
0.54 208.06 .878E+03 0.5 0.70 28.29
0.58 208.10 .101E+04 0.6 0.74 27.02
0.62 208.14 .115E+04 0.7 0.77 25.88
0.67 208.19 .137E+04 0.9 0.81 24.42
0.72 208.24 .172E+04 1.2 0.84 23.79
0.77 208.29 .225E+04 1.6 0.82 24.20

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0113) 13.50 0.06 3.00 4.04 0.24 0.41
OUTFLOW: ID= 1 (0802) 13.50 0.05 3.75 3.98 0.22 0.38

CALIB NASHYD (0112) ID= 1 DT= 5.0 min
Area (ha)= 30.50 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.60
Unit Hyd Qpeak (cms)= 0.728
PEAK FLOW (cms)= 0.098 (i)

TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 4.181
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.167

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB NASHYD (0111) ID= 1 DT= 5.0 min
Area (ha)= 45.50 Curve Number (CN)= 82.3
Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.33

Unit Hyd Qpeak (cms)= 1.307
PEAK FLOW (cms)= 0.154 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 3.956
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.158

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0111): 45.50 0.154 3.75 3.96
+ ID2= 2 (0112): 30.50 0.098 4.08 4.18
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)
3 + 2 = 1
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 (1101): 76.00 0.251 3.92 4.05
+ ID2= 2 (0802): 13.50 0.048 3.75 3.98
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801)

IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.66 0.0400
19.50 209.34 0.0400
37.91 208.66 0.0400
41.73 208.62 0.0400 / 0.0350 Main Channel
43.44 208.24 0.0350 Main Channel
45.75 208.62 0.0350 / 0.0450 Main Channel
54.00 208.79 0.0450 / 0.0400
77.43 209.05 0.0400
128.85 209.70 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 208.30 .104E+02 0.0 0.10 83.26
0.13 208.37 .415E+02 0.0 0.16 52.45
0.19 208.43 .934E+02 0.0 0.20 40.03
0.25 208.49 .166E+03 0.1 0.25 33.04
0.32 208.56 .259E+03 0.2 0.29 28.47
0.38 208.62 .373E+03 0.2 0.32 25.22
0.46 208.70 .729E+03 0.5 0.33 24.94
0.54 208.78 .135E+04 0.9 0.33 24.67
0.62 208.86 .225E+04 1.6 0.35 23.41
0.70 208.94 .352E+04 2.6 0.37 22.23
0.78 209.02 .516E+04 4.1 0.39 20.96
0.86 209.10 .716E+04 6.1 0.41 19.65
0.94 209.18 .949E+04 8.6 0.44 18.42
1.02 209.26 .122E+05 11.7 0.47 17.31
1.10 209.34 .152E+05 15.5 0.50 16.32
1.18 209.42 .185E+05 19.7 0.52 15.72
1.26 209.50 .224E+05 24.7 0.54 15.09
1.34 209.58 .266E+05 30.6 0.56 14.48
1.42 209.66 .313E+05 37.5 0.59 13.90

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1101) 89.50 0.30 3.83 4.04 0.40 0.32
OUTFLOW: ID= 1 (0801) 89.50 0.29 4.33 4.03 0.39 0.32

CALIB NASHYD (0110) ID= 1 DT= 5.0 min
Area (ha)= 11.90 Curve Number (CN)= 83.4
Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.68

Unit Hyd Qpeak (cms)= 0.668
PEAK FLOW (cms)= 0.069 (i)
TIME TO PEAK (hrs)= 2.750
RUNOFF VOLUME (mm)= 4.464
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.179

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0110): 11.90 0.069 2.75 4.46
+ ID2= 2 (0801): 89.50 0.285 4.33 4.03
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (1100): 101.40 0.319 4.17 4.08
+ ID2= 2 (1200): 539.50 1.190 4.83 7.17
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 / 0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 / 0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400

Model With SWM Infrastructure - Output

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.255E+02	0.0	0.16	54.50
0.18	204.88	.102E+03	0.0	0.25	34.33
0.28	204.98	.232E+03	0.1	0.33	26.47
0.37	205.07	.109E+04	0.5	0.24	35.91
0.46	205.16	.321E+04	1.7	0.27	31.53
0.55	205.25	.680E+04	4.4	0.33	25.77
0.64	205.34	.116E+05	9.2	0.41	21.18
0.74	205.44	.182E+05	16.4	0.47	18.54
0.83	205.53	.253E+05	25.9	0.53	16.26
0.92	205.62	.328E+05	37.6	0.59	14.54
1.01	205.71	.408E+05	51.4	0.65	13.23
1.10	205.80	.492E+05	67.3	0.71	12.19
1.20	205.90	.581E+05	85.3	0.76	11.36
1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75
1.75	206.45	.121E+06	240.2	1.03	8.41

<--- hydrograph --->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1001)	640.90	1.48	4.67	6.68	0.44
OUTFLOW: ID= 1 (0800)	640.90	1.41	5.17	6.68	0.44

ADD HYD (1000)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0100):	54.70	0.216	3.58	4.37
+ ID2= 2 (0800):	640.90	1.410	5.17	6.68
=====				
ID = 3 (1000):	695.60	1.542	5.00	6.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0190)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	Curve Number	(CN)=
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H.	Tp(hrs)=	0.83	

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.067 (i)
TIME TO PEAK (hrs)= 2.917
RUNOFF VOLUME (mm)= 4.711
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.188

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0191)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	Curve Number	(CN)=
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H.	Tp(hrs)=	0.94	

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.081 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 3.825
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.153

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0192)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	Curve Number	(CN)=
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H.	Tp(hrs)=	1.06	

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 0.216 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 4.368
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.175

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 0.123 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 4.345
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.174

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1901)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0191):	20.10	0.081	3.17	3.82
+ ID2= 2 (0192):	28.30	0.123	3.25	4.35
=====				
ID = 3 (1901):	48.40	0.204	3.17	4.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0899)				
IN= 2---> OUT= 1				
Routing time step (min)'= 5.00				

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.49	0.0400		
35.71	208.88	0.0400		
53.04	208.89	0.0400		
64.12	208.50	0.0400 / 0.0350	Main Channel	
70.77	208.05	0.0350	Main Channel	
74.98	208.02	0.0350	Main Channel	
83.40	208.38	0.0350 / 0.0400	Main Channel	
88.06	208.63	0.0400		
94.94	209.13	0.0400		
105.88	209.54	0.0400		

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.349E+02	0.1	0.18	10.46
0.14	208.16	.981E+02	0.2	0.28	6.64
0.22	208.24	.183E+03	0.6	0.36	5.21
0.29	208.31	.291E+03	1.1	0.42	4.40
0.36	208.38	.420E+03	1.8	0.48	3.85
0.44	208.46	.586E+03	3.0	0.57	3.27
0.52	208.54	.777E+03	4.5	0.65	2.87
0.60	208.62	.999E+03	6.5	0.72	2.58

0.68	208.70	.125E+04	8.8	0.78	2.37
0.76	208.78	.154E+04	11.5	0.84	2.22
0.84	208.86	.185E+04	14.7	0.89	2.10
0.92	208.94	.230E+04	18.2	0.88	2.10
0.99	209.01	.285E+04	23.0	0.90	2.07
1.07	209.09	.345E+04	28.5	0.92	2.02
1.15	209.17	.411E+04	34.8	0.94	1.96
1.23	209.25	.482E+04	42.0	0.97	1.91
1.31	209.33	.559E+04	50.0	1.00	1.86
1.39	209.41	.643E+04	59.1	1.02	1.81
1.47	209.49	.732E+04	69.1	1.05	1.76

<--- hydrograph --->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1901)	48.40	0.20	3.17	4.13	0.13
OUTFLOW: ID= 1 (0899)	48.40	0.20	3.25	4.13	0.13

ADD HYD (1900)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0190):	12.30	0.067	2.92	4.71
+ ID2= 2 (0899):	48.40	0.204	3.25	4.13
=====				
ID = 3 (1900):	60.70	0.268	3.17	4.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0500)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	Curve Number	(CN)=
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H.	Tp(hrs)=	0.48	

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.050 (i)
TIME TO PEAK (hrs)= 2.417
RUNOFF VOLUME (mm)= 4.181
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.167

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
| CALIB
| NASHYD ( 0510) | Area (ha)= 12.70 Curve Number (CN)= 81.7
| ID= 1 DT= 5.0 min | Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 0.703

```
PEAK FLOW (cms)= 0.059 (i)
TIME TO PEAK (hrs)= 2.750
RUNOFF VOLUME (mm)= 3.697
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.148
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0520) | Area (ha)= 17.30 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.847

```
PEAK FLOW (cms)= 0.083 (i)
TIME TO PEAK (hrs)= 2.917
RUNOFF VOLUME (mm)= 4.044
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.162
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 5000) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
|-----| (ha) (cms) (hrs) (mm)
ID1= 1 ( 0500): 7.60 0.050 2.42 4.18
+ ID2= 2 ( 0510): 12.70 0.059 2.75 3.70
=====
ID = 3 ( 5000): 20.30 0.106 2.58 3.88
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 5000) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
|-----| (ha) (cms) (hrs) (mm)
ID1= 3 ( 5000): 20.30 0.106 2.58 3.88
```

```
+ ID2= 2 ( 0520): 17.30 0.083 2.92 4.04
=====
ID = 1 ( 5000): 37.60 0.186 2.75 3.95
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0600) | Area (ha)= 2.50 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.212

```
PEAK FLOW (cms)= 0.017 (i)
TIME TO PEAK (hrs)= 2.417
RUNOFF VOLUME (mm)= 4.043
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.162
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

FINISH

```
V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
```

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voain.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\VH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\59
9cb8af-aa15-40a5-b46c-ea198f823345\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\VH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\59
9cb8af-aa15-40a5-b46c-ea198f823345\sce

DATE: 10-17-2025 TIME: 02:54:11

USER:

COMMENTS: _____

```
*****
** SIMULATION : 2 **
*****
```

```
| READ STORM |
|-----|
| Ptotal= 45.20 mm |
|-----|
Filename: C:\Users\wraymond\AppData\Local\Temp\
f9e06f95-585c-465c-81d8-96408d74cab\5dc4d1b7
Comments: 2yr12hrAES
```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.08	6.78	6.17	1.36	9.25	0.00
0.08	5.88	3.17	6.78	6.25	1.36	9.33	0.00
0.17	5.88	3.25	6.78	6.33	1.36	9.42	0.00
0.25	5.88	3.33	6.78	6.42	1.36	9.50	0.00
0.33	5.88	3.42	6.78	6.50	1.36	9.58	0.00
0.42	5.88	3.50	6.78	6.58	1.36	9.67	0.00
0.50	5.88	3.58	6.78	6.67	1.36	9.75	0.00
0.58	5.88	3.67	6.78	6.75	1.36	9.83	0.00
0.67	5.88	3.75	6.78	6.83	1.36	9.92	0.00
0.75	5.88	3.83	6.78	6.92	1.36	10.00	0.00
0.83	5.88	3.92	6.78	7.00	1.36	10.08	0.00
0.92	5.88	4.00	6.78	7.08	0.45	10.17	0.00
1.00	5.88	4.08	6.33	7.17	0.45	10.25	0.00
1.08	11.75	4.17	6.33	7.25	0.45	10.33	0.00
1.17	11.75	4.25	6.33	7.33	0.45	10.42	0.00
1.25	11.75	4.33	6.33	7.42	0.45	10.50	0.00
1.33	11.75	4.42	6.33	7.50	0.45	10.58	0.00
1.42	11.75	4.50	6.33	7.58	0.45	10.67	0.00
1.50	11.75	4.58	6.33	7.67	0.45	10.75	0.00

1.58	11.75	4.67	6.33	7.75	0.45	10.83	0.00
1.67	11.75	4.75	6.33	7.83	0.45	10.92	0.00
1.75	11.75	4.83	6.33	7.92	0.45	11.00	0.00
1.83	11.75	4.92	6.33	8.00	0.45	11.08	0.00
1.92	11.75	5.00	6.33	8.08	0.00	11.17	0.00
2.00	11.75	5.08	3.62	8.17	0.00	11.25	0.00
2.08	9.04	5.17	3.62	8.25	0.00	11.33	0.00
2.17	9.04	5.25	3.62	8.33	0.00	11.42	0.00
2.25	9.04	5.33	3.62	8.42	0.00	11.50	0.00
2.33	9.04	5.42	3.62	8.50	0.00	11.58	0.00
2.42	9.04	5.50	3.62	8.58	0.00	11.67	0.00
2.50	9.04	5.58	3.62	8.67	0.00	11.75	0.00
2.58	9.04	5.67	3.62	8.75	0.00	11.83	0.00
2.67	9.04	5.75	3.62	8.83	0.00	11.92	0.00
2.75	9.04	5.83	3.62	8.92	0.00	12.00	0.00
2.83	9.04	5.92	3.62	9.00	0.00		
2.92	9.04	6.00	3.62	9.08	0.00		
3.00	9.04	6.08	1.36	9.17	0.00		

```
| CALIB
| NASHYD ( 0185) | Area (ha)= 2.00 Curve Number (CN)= 79.5
| ID= 1 DT= 5.0 min | Ia (mm)= 6.54 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.36
```

Unit Hyd Qpeak (cms)= 0.212

```
PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 14.346
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.317
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0180) | Area (ha)= 6.80 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.85
```

Unit Hyd Qpeak (cms)= 0.306

```
PEAK FLOW (cms)= 0.065 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.047
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.333
```

Model With SWM Infrastructure - Output

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0170)	Area (ha)= 5.80	Curve Number (CN)= 82.4	
ID= 1 DT= 5.0 min	Ia (mm)= 8.13	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.69		

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.057 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.047
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.333

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0160)	Area (ha)= 16.30	Curve Number (CN)= 83.2	
ID= 1 DT= 5.0 min	Ia (mm)= 7.69	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.15		

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.156 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 15.845
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.351

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0330)	Area (ha)= 22.30	Curve Number (CN)= 82.2	
ID= 1 DT= 5.0 min	Ia (mm)= 8.25	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.60		

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.217 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 14.847
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.328

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0270)	Area (ha)= 2.50	Curve Number (CN)= 81.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.95	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.24		

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.026 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 15.573
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.345

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0260)	Area (ha)= 7.00	Curve Number (CN)= 83.7	
ID= 1 DT= 5.0 min	Ia (mm)= 7.41	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.43		

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.074 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 16.365
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.362

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0250)	Area (ha)= 10.70	Curve Number (CN)= 81.9	
ID= 1 DT= 5.0 min	Ia (mm)= 8.42	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.54		

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.103 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 14.559
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.322

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0320)	Area (ha)= 11.70	Curve Number (CN)= 83.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.45		

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.120 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 15.641
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.346

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0420)	Area (ha)= 25.80	Curve Number (CN)= 83.6	
ID= 1 DT= 5.0 min	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.12		

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 0.253 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 16.258
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.360

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0423)	Area (ha)= 23.90	Curve Number (CN)= 84.1	
ID= 1 DT= 5.0 min	Ia (mm)= 7.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.80		

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 0.251 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 16.786
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.371

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0422)	Area (ha)= 6.90	Curve Number (CN)= 83.4	
ID= 1 DT= 5.0 min	Ia (mm)= 7.58	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.61		

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.071 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 16.050
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.355

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0896)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80

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0.43	204.93	.131E+03	0.4	0.69	5.03
0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0422)	6.90	0.07	5.17	16.05	0.22	0.49
OUTFLOW: ID= 1 (0896)	6.90	0.07	5.25	16.05	0.22	0.49

ADD HYD (4202)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0423):	23.90	0.251	5.17	16.79
+ ID2= 2 (0896):	6.90	0.071	5.25	16.05
ID = 3 (4202):	30.80	0.322	5.17	16.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0895)	Routing time step (min)'= 5.00
IN= 2----> OUT= 1	

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350 Main Channel
28.59	211.79	0.0350 Main Channel
32.89	214.16	0.0350 / 0.0500 Main Channel
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.170E+01	0.0	0.28	4.09

0.24	212.03	.679E+01	0.0	0.44	2.58
0.36	212.15	.153E+02	0.1	0.58	1.97
0.48	212.27	.272E+02	0.3	0.70	1.62
0.61	212.40	.424E+02	0.5	0.82	1.40
0.73	212.52	.134E+03	1.0	0.53	2.16
0.85	212.64	.375E+03	2.8	0.52	2.20
0.97	212.76	.687E+03	6.1	0.60	1.89
1.09	212.88	.107E+04	11.0	0.71	1.61
1.21	213.00	.148E+04	17.8	0.83	1.38
1.33	213.12	.192E+04	26.1	0.93	1.22
1.45	213.24	.238E+04	35.9	1.03	1.11
1.57	213.36	.288E+04	47.3	1.13	1.01
1.70	213.49	.340E+04	60.1	1.21	0.94
1.82	213.61	.395E+04	74.5	1.29	0.88
1.94	213.73	.452E+04	90.5	1.37	0.83
2.06	213.85	.512E+04	109.2	1.46	0.78
2.18	213.97	.573E+04	130.3	1.56	0.73
2.37	214.16	.694E+04	168.2	1.66	0.69

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4202)	30.80	0.32	5.17	16.62	0.51	0.72
OUTFLOW: ID= 1 (0895)	30.80	0.32	5.25	16.62	0.51	0.72

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0421)	10.40	82.8
ID= 1 DT= 5.0 min	Ia (mm)= 7.91	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.37	

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW	(cms)= 0.106 (i)
TIME TO PEAK	(hrs)= 5.083
RUNOFF VOLUME	(mm)= 15.439
TOTAL RAINFALL	(mm)= 45.200
RUNOFF COEFFICIENT	= 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0883)	Routing time step (min)'= 5.00
IN= 2----> OUT= 1	

Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 / 0.0350 Main Channel
70.77	208.05	0.0350 Main Channel
74.98	208.02	0.0350 Main Channel
83.40	208.38	0.0350 / 0.0400 Main Channel
88.06	208.63	0.0400
94.94	209.13	0.0400
105.88	209.54	0.0400

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0882)	Routing time step (min)'= 5.00
IN= 2----> OUT= 1	

Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 / 0.0350 Main Channel
70.77	208.05	0.0350 Main Channel
74.98	208.02	0.0350 Main Channel
83.40	208.38	0.0350 / 0.0400 Main Channel
88.06	208.63	0.0400
94.94	209.13	0.0400
105.88	209.54	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52
0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20
0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4201)	41.20	0.43	5.25	16.31	0.25	0.20
OUTFLOW: ID= 1 (0882)	41.20	0.42	5.33	16.30	0.25	0.20

ADD HYD (4201)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0883):	10.40	0.105	5.17	15.40
+ ID2= 2 (0895):	30.80	0.322	5.25	16.62
ID = 3 (4201):	41.20	0.427	5.25	16.31

Model With SWM Infrastructure - Output

```
-----
| ADD HYD ( 4200) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0420):      AREA   QPEAK   TPEAK   R.V.
+ ID2= 2 ( 0882):      (ha)   (cms)   (hrs)   (mm)
=====
ID = 3 ( 4200):      25.80  0.253   5.42  16.26
                   41.20  0.419   5.33  16.30
                   67.00  0.672   5.33  16.29
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0440) | Area (ha)= 31.60 Curve Number (CN)= 84.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.04 # of Linear Res.(N)= 3.00
|-----|
U.H. Tp(hrs)= 1.16
```

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 0.322 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 17.110
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.379

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0442) | Area (ha)= 2.40 Curve Number (CN)= 84.9
| ID= 1 DT= 5.0 min | Ia (mm)= 6.77 # of Linear Res.(N)= 3.00
|-----|
U.H. Tp(hrs)= 0.41
```

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.027 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 17.662
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.391

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0443) | Area (ha)= 21.30 Curve Number (CN)= 83.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.31 # of Linear Res.(N)= 3.00
|-----|
```

TOTAL RAINFALL (mm)= 45.20 45.20 45.20
RUNOFF COEFFICIENT = 0.98 0.28 0.56

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| RESERVOIR( 0873) |
| IN= 2----> OUT= 1 |
| DT= 5.0 min |
|-----|
OVERFLOW IS OFF
OUTFLOW STORAGE | OUTFLOW STORAGE
(cms) (ha.m.) | (cms) (ha.m.)
0.0000 0.0000 | 0.2250 0.3008
0.0240 0.0325 | 0.2650 0.3494
0.0370 0.0741 | 0.2990 0.3993
0.0460 0.1156 | 0.3290 0.4497
0.0530 0.1607 | 0.5720 0.5013
0.0600 0.2060 | 0.9900 0.5538
0.1750 0.2530 | 1.5230 0.6074
```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 (0043) 22.900 0.316 2.17 25.16
OUTFLOW: ID= 1 (0873) 22.900 0.211 5.58 25.15

PEAK FLOW REDUCTION [Qout/Qin](%)= 66.83
TIME SHIFT OF PEAK FLOW (min)=205.00
MAXIMUM STORAGE USED (ha.m.)= 0.2874

```
-----
| CALIB |
| STANDHYD ( 0045) | Area (ha)= 1.30
| ID= 1 DT= 5.0 min | Total Imp(%)= 65.00 Dir. Conn.(%)= 35.00
|-----|
```

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.84 0.46
Dep. Storage (mm)= 1.00 8.92
Average Slope (%)= 1.00 2.00
Length (m)= 93.09 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 11.75 8.50
over (min)= 5.00 25.00
Storage Coeff. (min)= 5.76 (ii) 24.68 (ii)
Unit Hyd. Tpeak (min)= 5.00 25.00
Unit Hyd. peak (cms)= 0.20 0.05

U.H. Tp(hrs)= 0.59

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)= 0.225 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 16.571
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.367

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0451) | Area (ha)= 12.30 Curve Number (CN)= 84.3
| ID= 1 DT= 5.0 min | Ia (mm)= 7.09 # of Linear Res.(N)= 3.00
|-----|
U.H. Tp(hrs)= 0.57
```

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 0.133 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 17.003
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.376

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| STANDHYD ( 0043) | Area (ha)= 22.90
| ID= 1 DT= 5.0 min | Total Imp(%)= 49.00 Dir. Conn.(%)= 40.00
|-----|
```

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 11.22 11.68
Dep. Storage (mm)= 1.00 8.92
Average Slope (%)= 1.00 2.00
Length (m)= 390.73 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 11.75 3.66
over (min)= 15.00 45.00
Storage Coeff. (min)= 13.63 (ii) 40.12 (ii)
Unit Hyd. Tpeak (min)= 15.00 45.00
Unit Hyd. peak (cms)= 0.08 0.03

TOTALS
PEAK FLOW (cms)= 0.30 0.11 0.316 (iii)
TIME TO PEAK (hrs)= 2.08 5.25 2.17
RUNOFF VOLUME (mm)= 44.20 12.47 25.16

TOTALS
PEAK FLOW (cms)= 0.01 0.01 0.021 (iii)
TIME TO PEAK (hrs)= 2.08 3.33 3.08
RUNOFF VOLUME (mm)= 44.20 18.45 27.45
TOTAL RAINFALL (mm)= 45.20 45.20 45.20
RUNOFF COEFFICIENT = 0.98 0.41 0.61

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4345) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0045):      AREA   QPEAK   TPEAK   R.V.
+ ID2= 2 ( 0873):      (ha)   (cms)   (hrs)   (mm)
=====
ID = 3 ( 4345):      1.30  0.021   3.08  27.45
                   22.90  0.211   5.58  25.15
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0893) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 / 0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 / 0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .596E+00 0.0 0.09 30.15
0.08 207.60 .238E+01 0.0 0.14 18.99
0.12 207.64 .536E+01 0.0 0.18 14.49
0.16 207.68 .954E+01 0.0 0.22 11.96
0.19 207.71 .149E+02 0.0 0.26 10.31
0.23 207.75 .215E+02 0.0 0.29 9.13
0.27 207.79 .292E+02 0.1 0.32 8.24

Model With SWM Infrastructure - Output

0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4345)	24.20	0.22	5.42	25.27	0.45	0.45
OUTFLOW: ID= 1 (0893)	24.20	0.22	5.50	25.27	0.44	0.45

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0451):	12.30	0.133	5.17	17.00
+ ID2= 2 (0893):	24.20	0.224	5.50	25.27
=====				
ID = 3 (4510):	36.50	0.354	5.17	22.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0451):	12.30	0.133	5.17	17.00
+ ID2= 2 (0893):	24.20	0.224	5.50	25.27
=====				
ID = 3 (4510):	36.50	0.354	5.17	22.48

ROUTING time step (min)'= 5.00

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 / 0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.279E+01	0.0	0.48	3.92
0.24	212.03	.112E+02	0.1	0.76	2.47
0.36	212.15	.251E+02	0.2	0.99	1.89
0.48	212.27	.446E+02	0.5	1.20	1.56
0.61	212.40	.697E+02	0.9	1.40	1.34
0.73	212.52	.220E+03	1.8	0.91	2.07
0.85	212.64	.616E+03	4.9	0.89	2.11
0.97	212.76	.113E+04	10.4	1.04	1.81
1.09	212.88	.175E+04	18.9	1.21	1.54
1.21	213.00	.243E+04	30.5	1.42	1.32
1.33	213.12	.315E+04	44.8	1.60	1.17
1.45	213.24	.392E+04	61.6	1.77	1.06
1.57	213.36	.473E+04	81.0	1.93	0.97
1.70	213.49	.558E+04	103.1	2.08	0.90
1.82	213.61	.648E+04	127.8	2.22	0.85
1.94	213.73	.742E+04	155.2	2.35	0.80
2.06	213.85	.841E+04	187.2	2.50	0.75
2.18	213.97	.941E+04	223.3	2.67	0.70
2.37	214.16	.114E+05	288.4	2.85	0.66

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4510)	36.50	0.35	5.17	22.48	0.43	1.09
OUTFLOW: ID= 1 (0892)	36.50	0.35	5.17	22.48	0.43	1.09

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0443):	21.30	0.225	5.17	16.57
+ ID2= 2 (0892):	36.50	0.354	5.17	22.48
=====				
ID = 3 (4411):	57.80	0.579	5.17	20.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Distance	Elevation	Manning
0.00	206.70	0.0400

2.35	206.02	0.0400 / 0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 / 0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 / 0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.621E+00	0.0	0.10	29.40
0.09	205.28	.248E+01	0.0	0.16	18.52
0.13	205.32	.559E+01	0.0	0.21	14.13
0.17	205.36	.994E+01	0.0	0.25	11.67
0.22	205.41	.155E+02	0.0	0.29	10.05
0.26	205.45	.224E+02	0.0	0.33	8.90
0.31	205.50	.304E+02	0.1	0.37	8.03
0.35	205.54	.398E+02	0.1	0.40	7.35
0.39	205.58	.503E+02	0.1	0.43	6.79
0.44	205.63	.621E+02	0.2	0.46	6.33
0.48	205.67	.752E+02	0.2	0.49	5.97
0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4411)	57.80	0.58	5.17	20.30	0.66	0.42
OUTFLOW: ID= 1 (0891)	57.80	0.58	5.25	20.30	0.66	0.42

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

	Area (ha)	Impervious (%)	Permeable (%)
Surface Area	1.35	1.65	
Dep. Storage	1.00	3.58	
Average Slope	2.00	2.00	

Length	(m)=	141.42	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		11.75	6.62
over (min)		5.00	30.00
Storage Coeff. (min)=		6.02 (ii)	26.93 (ii)
Unit Hyd. Tpeak (min)=		5.00	30.00
Unit Hyd. peak (cms)=		0.19	0.04
PEAK FLOW (cms)=		0.03	0.054 (iii)
TIME TO PEAK (hrs)=		2.08	3.33
RUNOFF VOLUME (mm)=		44.20	23.05
TOTAL RAINFALL (mm)=		45.20	45.20
RUNOFF COEFFICIENT	=	0.98	0.51
TOTALS			

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0441):	3.00	0.054	3.08	30.45
+ ID2= 2 (0891):	57.80	0.577	5.25	20.30
=====				
ID = 3 (4410):	60.80	0.616	5.08	20.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (4410):	60.80	0.616	5.08	20.80
+ ID2= 2 (0442):	2.40	0.027	3.33	17.66
=====				
ID = 3 (4401):	63.20	0.643	5.08	20.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	Area (ha)	Impervious (%)	Permeable (%)
Surface Area	1.35	1.65	
Dep. Storage	1.00	3.58	
Average Slope	2.00	2.00	

Model With SWM Infrastructure - Output

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 / 0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 / 0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .272E+01 0.0 0.09 142.50
0.09 205.28 .109E+02 0.0 0.14 89.77
0.13 205.32 .245E+02 0.0 0.19 68.51
0.17 205.36 .435E+02 0.0 0.23 56.55
0.22 205.41 .679E+02 0.0 0.26 48.73
0.26 205.45 .978E+02 0.0 0.30 43.16
0.31 205.50 .133E+03 0.1 0.33 38.94
0.35 205.54 .174E+03 0.1 0.36 35.63
0.39 205.58 .220E+03 0.1 0.39 32.93
0.44 205.63 .272E+03 0.1 0.42 30.70
0.48 205.67 .329E+03 0.2 0.44 28.96
0.52 205.71 .418E+03 0.2 0.36 35.92
0.57 205.76 .563E+03 0.3 0.34 37.36
0.61 205.80 .765E+03 0.4 0.35 36.28
0.66 205.85 .102E+04 0.5 0.37 34.31
0.70 205.89 .134E+04 0.7 0.40 32.17
0.74 205.93 .171E+04 0.9 0.43 30.13
0.79 205.98 .214E+04 1.3 0.45 28.27
0.83 206.02 .263E+04 1.6 0.48 26.60

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (4401) 63.20 0.64 5.08 20.68 0.69 0.39
OUTFLOW: ID= 1 (0889) 63.20 0.62 5.42 20.68 0.68 0.39

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

| ADD HYD (4400) |
| 1 + 2 = 3 |
ID1= 1 (0440): AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
31.60 0.322 5.42 17.11

+ ID2= 2 (0889): 63.20 0.624 5.42 20.68
=====

ID = 3 (4400): 94.80 0.946 5.42 19.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0888) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.66 0.0400
19.50 209.34 0.0400
37.91 208.66 0.0400
41.73 208.62 0.0400 / 0.0350 Main Channel
43.44 208.24 0.0350 Main Channel
45.75 208.62 0.0350 / 0.0450 Main Channel
54.00 208.79 0.0450 / 0.0400
77.43 209.05 0.0400
128.85 209.70 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 208.30 .519E+01 0.0 0.09 43.50
0.13 208.37 .208E+02 0.0 0.15 27.40
0.19 208.43 .467E+02 0.0 0.19 20.91
0.25 208.49 .830E+02 0.1 0.24 17.26
0.32 208.56 .130E+03 0.1 0.27 14.88
0.38 208.62 .187E+03 0.2 0.31 13.17
0.46 208.70 .365E+03 0.5 0.31 13.03
0.54 208.78 .674E+03 0.9 0.32 12.89
0.62 208.86 .113E+04 1.5 0.33 12.23
0.70 208.94 .176E+04 2.5 0.35 11.61
0.78 209.02 .258E+04 3.9 0.37 10.95
0.86 209.10 .358E+04 5.8 0.40 10.27
0.94 209.18 .475E+04 8.2 0.42 9.62
1.02 209.26 .608E+04 11.2 0.45 9.04
1.10 209.34 .758E+04 14.8 0.48 8.53
1.18 209.42 .927E+04 18.8 0.50 8.21
1.26 209.50 .112E+05 23.6 0.52 7.88
1.34 209.58 .133E+05 29.3 0.54 7.57
1.42 209.66 .157E+05 35.9 0.56 7.26

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (4400) 94.80 0.95 5.42 19.49 0.55 0.32
OUTFLOW: ID= 1 (0888) 94.80 0.94 5.58 19.49 0.55 0.32

| CALIB |
| STANDHYD (0042) |
| ID= 1 DT= 5.0 min |
Area (ha)= 20.50
Total Imp(%)= 83.00 Dir. Conn.(%)= 70.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 17.01 3.49
Dep. Storage (mm)= 1.00 6.98
Average Slope (%)= 2.00 2.00
Length (m)= 369.68 40.00
Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 11.75 9.20
over (min) 10.00 30.00
Storage Coeff. (min)= 10.71 (ii) 29.03 (ii)
Unit Hyd. Tpeak (min)= 10.00 30.00
Unit Hyd. peak (cms)= 0.11 0.04
TOTALS
PEAK FLOW (cms)= 0.47 0.08 0.514 (iii)
TIME TO PEAK (hrs)= 2.08 3.33 2.08
RUNOFF VOLUME (mm)= 44.20 21.09 37.27
TOTAL RAINFALL (mm)= 45.20 45.20 45.20
RUNOFF COEFFICIENT = 0.98 0.47 0.82

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| RESERVOIR(0872) |
| IN= 2----> OUT= 1 |
| DT= 5.0 min |
OVERFLOW IS OFF
OUTFLOW STORAGE OUTFLOW STORAGE
(cms) (ha.m.) (cms) (ha.m.)
0.0000 0.0000 0.1660 0.5172
0.0250 0.1344 0.2260 0.5585
0.0390 0.2425 0.5260 0.7280
0.0530 0.3962 0.9350 0.9090
0.0540 0.4360 1.2810 1.0589
0.0760 0.4361 2.3680 1.5187
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 (0042) 20.500 0.514 2.08 37.27
OUTFLOW: ID= 1 (0872) 20.500 0.198 6.00 37.20

PEAK FLOW REDUCTION [Qout/Qin](%)= 38.59
TIME SHIFT OF PEAK FLOW (min)=235.00
MAXIMUM STORAGE USED (ha.m.)= 0.5394

| ROUTE CHN(0898) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 101.50 0.0500
1.00 100.70 0.0500
1.50 100.55 0.0500 / 0.0300 Main Channel
2.00 99.50 0.0300 Main Channel
3.50 99.60 0.0300 Main Channel
4.50 100.65 0.0300 / 0.0500 Main Channel
6.00 101.45 0.0500

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.10 99.60 .152E+02 0.0 0.19 18.79
0.19 99.69 .482E+02 0.1 0.37 9.79
0.29 99.79 .840E+02 0.2 0.49 7.32
0.38 99.88 .123E+03 0.3 0.59 6.12
0.48 99.98 .164E+03 0.5 0.67 5.38
0.57 100.07 .208E+03 0.7 0.74 4.87
0.67 100.17 .255E+03 0.9 0.80 4.49
0.76 100.26 .305E+03 1.2 0.86 4.19
0.86 100.36 .358E+03 1.5 0.91 3.95
0.95 100.45 .413E+03 1.8 0.96 3.75
1.05 100.55 .471E+03 2.2 1.00 3.58
1.16 100.66 .547E+03 2.7 1.07 3.35
1.28 100.78 .635E+03 3.4 1.14 3.14
1.39 100.89 .732E+03 4.1 1.20 2.99
1.50 101.00 .838E+03 4.9 1.25 2.86
1.61 101.11 .952E+03 5.8 1.30 2.76
1.72 101.22 .107E+04 6.7 1.34 2.67
1.84 101.34 .120E+04 7.7 1.38 2.60
1.95 101.45 .134E+04 8.8 1.41 2.54

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0872) 20.50 0.20 6.00 37.20 0.29 0.49
OUTFLOW: ID= 1 (0898) 20.50 0.20 6.08 37.20 0.29 0.49

Model With SWM Infrastructure - Output

CALIB					
STANDHYD (0044)		Area (ha)= 8.90			
ID= 1 DT= 5.0 min		Total Imp(%)= 41.00		Dir. Conn.(%)= 20.00	
		IMPERVIOUS		PERVIOUS (i)	
Surface Area (ha)=		3.65		5.25	
Dep. Storage (mm)=		1.00		8.04	
Average Slope (%)=		2.00		2.00	
Length (m)=		243.58		40.00	
Mannings n =		0.013		0.250	
Max.Eff.Inten.(mm/hr)=		11.75		5.21	
over (min)		10.00		35.00	
Storage Coeff. (min)=		8.34 (ii)		31.36 (ii)	
Unit Hyd. Tpeak (min)=		10.00		35.00	
Unit Hyd. peak (cms)=		0.13		0.03	
				TOTALS	
PEAK FLOW (cms)=		0.06		0.07 0.105 (iii)	
TIME TO PEAK (hrs)=		2.08		5.08 3.08	
RUNOFF VOLUME (mm)=		44.20		15.67 21.37	
TOTAL RAINFALL (mm)=		45.20		45.20 45.20	
RUNOFF COEFFICIENT =		0.98		0.35 0.47	
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%					
YOU SHOULD CONSIDER SPLITTING THE AREA.					
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:					
CN* = 76.0 Ia = Dep. Storage (Above)					
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL					
THAN THE STORAGE COEFFICIENT.					
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.					

ADD HYD (4244)		AREA		QPEAK	
1 + 2 = 3		(ha)		(cms)	
				TPEAK	
				(hrs)	
				R.V.	
				(mm)	
ID1= 1 (0044):		8.90		0.105 3.08 21.37	
+ ID2= 2 (0898):		20.50		0.198 6.08 37.20	
		=====			
ID = 3 (4244):		29.40		0.279 5.33 32.41	
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.					

ROUTE CHN(0897)					
IN= 2--> OUT= 1		Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 /0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 /0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.140E+02	0.0	0.17	55.64
0.24	212.03	.559E+02	0.0	0.27	35.05
0.36	212.15	.126E+03	0.1	0.35	26.75
0.48	212.27	.224E+03	0.2	0.43	22.08
0.61	212.40	.350E+03	0.3	0.49	19.03
0.73	212.52	.110E+04	0.6	0.32	29.36
0.85	212.64	.309E+04	1.7	0.31	29.92
0.97	212.76	.566E+04	3.7	0.37	25.67
1.09	212.88	.878E+04	6.7	0.43	21.92
1.21	213.00	.122E+05	10.8	0.50	18.80
1.33	213.12	.158E+05	15.8	0.57	16.63
1.45	213.24	.196E+05	21.8	0.63	15.03
1.57	213.36	.237E+05	28.7	0.68	13.79
1.70	213.49	.280E+05	36.4	0.73	12.81
1.82	213.61	.325E+05	45.2	0.78	12.00
1.94	213.73	.372E+05	54.9	0.83	11.31
2.06	213.85	.422E+05	66.2	0.89	10.62
2.18	213.97	.472E+05	79.0	0.94	9.97
2.37	214.16	.571E+05	102.0	1.01	9.34

<---- hydrograph ---->					
<-pipe / channel->					
AREA QPEAK TPEAK R.V.					
(ha) (cms) (hrs) (mm)					
MAX DEPTH MAX VEL					
(m) (m/s)					
INFLOW : ID= 2 (4244)	29.40	0.28	5.33	32.41	0.58
OUTFLOW: ID= 1 (0897)	29.40	0.27	5.67	32.40	0.48

ADD HYD (4301)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
-----	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0888):	94.80	0.939	5.58	19.49

+ ID2= 2 (0897):	29.40	0.273	5.67	32.40
=====				
ID = 3 (4301):	124.20	1.211	5.58	22.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0887)					
IN= 2--> OUT= 1					

Routing time step (min)'= 5.00					

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.52	0.0400			
61.99	209.23	0.0400			
76.86	209.20	0.0400			
82.03	209.20	0.0400 /0.0350	Main Channel		
86.30	208.87	0.0350	Main Channel		
89.86	209.20	0.0350 /0.0300	Main Channel		
96.27	209.24	0.0300			
103.53	209.40	0.0300			
127.96	209.50	0.0300			
158.58	209.70	0.0300			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.143E+01	0.0	0.09	20.80
0.07	208.94	.572E+01	0.0	0.14	13.11
0.10	208.97	.129E+02	0.0	0.18	10.00
0.13	209.00	.229E+02	0.0	0.22	8.26
0.17	209.04	.357E+02	0.1	0.26	7.11
0.20	209.07	.514E+02	0.1	0.29	6.30
0.23	209.10	.700E+02	0.2	0.32	5.69
0.26	209.13	.915E+02	0.3	0.35	5.20
0.30	209.17	.116E+03	0.4	0.38	4.81
0.33	209.20	.143E+03	0.5	0.41	4.48
0.37	209.24	.239E+03	0.8	0.37	5.02
0.40	209.27	.396E+03	1.3	0.35	5.26
0.44	209.31	.589E+03	1.9	0.36	5.13
0.47	209.34	.818E+03	2.8	0.38	4.89
0.51	209.38	.108E+04	3.9	0.40	4.63
0.54	209.41	.139E+04	5.2	0.41	4.46
0.58	209.45	.175E+04	6.7	0.43	4.33
0.61	209.48	.218E+04	8.7	0.44	4.17
0.65	209.52	.266E+04	11.2	0.46	3.98
<---- hydrograph ---->					
<-pipe / channel->					
AREA QPEAK TPEAK R.V.					
(ha) (cms) (hrs) (mm)					
MAX DEPTH MAX VEL					
(m) (m/s)					
INFLOW : ID= 2 (4301)	124.20	1.21	5.58	22.54	0.40
OUTFLOW: ID= 1 (0887)	124.20	1.21	5.67	22.54	0.35

CALIB			
NASHYD (0430)			
ID= 1 DT= 5.0 min			

Area (ha)= 19.80 Curve Number (CN)= 83.6			
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00			
U.H. Tp(hrs)= 1.13			

Unit Hyd Qpeak (cms)=	0.669
PEAK FLOW (cms)=	0.194 (i)
TIME TO PEAK (hrs)=	5.417
RUNOFF VOLUME (mm)=	16.258
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT =	0.360

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4300)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0430):	19.80	0.194	5.42	16.26
+ ID2= 2 (0887):	124.20	1.209	5.67	22.54
=====				
ID = 3 (4300):	144.00	1.401	5.67	21.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0886)			
IN= 2--> OUT= 1			

Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.20	0.0400	
100.00	206.26	0.0400	
111.30	206.19	0.0400 /0.0350	Main Channel
112.02	205.76	0.0350	Main Channel
113.82	205.37	0.0350	Main Channel
115.62	206.03	0.0350 /0.0400	Main Channel
117.77	207.30	0.0400	
120.56	207.40	0.0400	
124.41	207.31	0.0400	
129.31	207.24	0.0400	

<----- TRAVEL TIME TABLE ----->

Model With SWM Infrastructure - Output

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	205.46	.110E+02	0.0	0.11	51.32
0.19	205.56	.438E+02	0.0	0.17	32.33
0.28	205.65	.986E+02	0.1	0.23	24.67
0.38	205.75	.175E+03	0.1	0.27	20.37
0.47	205.84	.271E+03	0.3	0.33	16.94
0.57	205.94	.379E+03	0.4	0.38	14.73
0.66	206.03	.501E+03	0.6	0.42	13.19
0.76	206.13	.644E+03	0.9	0.48	11.58
0.86	206.23	.845E+03	1.3	0.51	10.89
0.96	206.33	.140E+04	1.9	0.46	12.13
1.06	206.43	.209E+04	2.9	0.46	12.20
1.16	206.53	.290E+04	4.1	0.47	11.82
1.26	206.63	.383E+04	5.6	0.49	11.31
1.37	206.74	.489E+04	7.6	0.52	10.78
1.47	206.84	.607E+04	9.8	0.54	10.28
1.57	206.94	.737E+04	12.5	0.57	9.81
1.67	207.04	.879E+04	15.6	0.60	9.38
1.77	207.14	.103E+05	19.2	0.62	8.99
1.87	207.24	.120E+05	23.2	0.65	8.63

		<---- hydrograph ---->				<-pipe / channel->	
		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4300)	144.00	1.40	5.67	21.68	0.88	0.50	
OUTFLOW: ID= 1 (0886)	144.00	1.39	5.83	21.68	0.87	0.51	

CALIB					
NASHYD (0411)	Area (ha)=	4.50	Curve Number (CN)=	86.7	
ID= 1 DT= 5.0 min	Ia (mm)=	5.84	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.11			

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW (cms)= 0.052 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 19.779
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.438

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (4110)|

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0411):	4.50	0.052	5.33	19.78
+ ID2= 2 (0886):	144.00	1.389	5.83	21.68
ID = 3 (4110):	148.50	1.439	5.83	21.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0885)	Routing time step (min)'= 5.00
IN= 2--> OUT= 1	

		<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning			
0.00	208.48	0.0500			
43.69	207.97	0.0500			
66.92	207.94	0.0500			
76.98	208.01	0.0500			
87.94	208.25	0.0500			
89.93	208.44	0.0500 / 0.0350	Main Channel		
92.70	208.20	0.0350	Main Channel		
95.51	207.28	0.0350	Main Channel		
98.26	208.25	0.0350	Main Channel		

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	207.33	.134E+01	0.0	0.06	52.81
0.10	207.38	.536E+01	0.0	0.10	33.27
0.15	207.43	.121E+02	0.0	0.13	25.39
0.19	207.47	.214E+02	0.0	0.15	20.96
0.24	207.52	.335E+02	0.0	0.18	18.06
0.29	207.57	.483E+02	0.1	0.20	15.99
0.34	207.62	.657E+02	0.1	0.22	14.43
0.39	207.67	.858E+02	0.1	0.24	13.20
0.44	207.72	.109E+03	0.1	0.26	12.21
0.48	207.76	.134E+03	0.2	0.28	11.38
0.53	207.81	.162E+03	0.3	0.30	10.68
0.58	207.86	.193E+03	0.3	0.32	10.08
0.63	207.91	.227E+03	0.4	0.34	9.55
0.68	207.96	.295E+03	0.5	0.32	10.12
0.73	208.01	.613E+03	0.7	0.22	14.89
0.78	208.06	.103E+04	1.0	0.20	16.42
0.82	208.10	.150E+04	1.5	0.20	16.27
0.87	208.15	.204E+04	2.2	0.21	15.61
0.92	208.20	.264E+04	3.0	0.22	14.84

		<---- hydrograph ---->				<-pipe / channel->	
		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)

INFLOW : ID= 2 (4110) 148.50 1.44 5.83 21.62 0.81 0.20
OUTFLOW: ID= 1 (0885) 148.50 1.41 6.00 21.62 0.81 0.20

CALIB					
NASHYD (0041)	Area (ha)=	25.40	Curve Number (CN)=	83.6	
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.21			

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.245 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 16.258
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.360

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0894)|
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

		<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 / 0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		
32.89	214.16	0.0350 / 0.0500	Main Channel		
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.523E+01	0.0	0.10	36.03
0.24	212.03	.209E+02	0.0	0.15	22.70
0.36	212.15	.471E+02	0.0	0.20	17.32
0.48	212.27	.837E+02	0.1	0.25	14.30
0.61	212.40	.131E+03	0.2	0.29	12.32
0.73	212.52	.412E+03	0.4	0.18	19.01
0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62

1.09 212.88 .328E+04 3.9 0.25 14.19
1.21 213.00 .455E+04 6.2 0.29 12.17
1.33 213.12 .591E+04 9.1 0.33 10.77
1.45 213.24 .734E+04 12.6 0.36 9.73
1.57 213.36 .886E+04 16.5 0.39 8.93
1.70 213.49 .105E+05 21.0 0.42 8.29
1.82 213.61 .122E+05 26.1 0.45 7.77
1.94 213.73 .139E+05 31.7 0.48 7.33
2.06 213.85 .158E+05 38.2 0.51 6.88
2.18 213.97 .177E+05 45.6 0.54 6.45
2.37 214.16 .214E+05 58.9 0.58 6.05

		<---- hydrograph ---->				<-pipe / channel->	
		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0041)	25.40	0.25	5.50	16.26	0.65	0.24	
OUTFLOW: ID= 1 (0894)	25.40	0.24	5.67	16.26	0.65	0.24	

CALIB					
NASHYD (0040)	Area (ha)=	37.50	Curve Number (CN)=	84.2	
ID= 1 DT= 5.0 min	Ia (mm)=	7.14	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.98			

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 0.389 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 16.898
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.374

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0040):	37.50	0.389	5.25	16.90	
+ ID2= 2 (0894):	25.40	0.240	5.67	16.26	
ID = 3 (4140):	62.90	0.623	5.33	16.64	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model With SWM Infrastructure - Output

```
-----
| ADD HYD ( 4101) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 4140):    62.90    0.623    5.33    16.64
+ ID2= 2 ( 0885):   148.50    1.413    6.00    21.62
=====
ID = 3 ( 4101):    211.40    2.010    5.92    20.14
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0884) |
| IN= 2--> OUT= 1 |
-----
          Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          204.63          0.0400
45.24         204.34          0.0400
94.52         203.98          0.0400
140.93        203.58          0.0400
148.77        203.72          0.0400 / 0.0350 Main Channel
154.30        202.99          0.0350 Main Channel
158.02        203.77          0.0350 / 0.0400 Main Channel
174.30        203.79          0.0400
222.94        204.38          0.0400
285.62        204.03          0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)      (cu.m.)      (cms)      (m/s)      (min)
0.05      203.04      .620E+01      0.0      0.11      58.30
0.10      203.09      .248E+02      0.0      0.17      36.73
0.16      203.15      .558E+02      0.0      0.22      28.03
0.21      203.20      .992E+02      0.1      0.27      23.14
0.26      203.25      .155E+03      0.1      0.31      19.94
0.31      203.30      .223E+03      0.2      0.35      17.66
0.37      203.36      .304E+03      0.3      0.39      15.93
0.42      203.41      .397E+03      0.5      0.42      14.58
0.47      203.46      .502E+03      0.6      0.46      13.47
0.52      203.51      .620E+03      0.8      0.49      12.56
0.57      203.56      .750E+03      1.1      0.52      11.79
0.63      203.62      .934E+03      1.3      0.53      11.56
0.68      203.67      .129E+04      1.7      0.50      12.36
0.73      203.72      .184E+04      2.3      0.47      13.20
0.79      203.78      .270E+04      3.4      0.47      13.22
0.85      203.84      .412E+04      5.1      0.45      13.57
0.92      203.91      .583E+04      7.3      0.47      13.24
0.98      203.97      .783E+04      10.3      0.49      12.69
1.04      204.03      .101E+05      13.9      0.51      12.15
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4001) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0401):    23.00    0.230    5.17    15.75
+ ID2= 2 ( 4100):   219.90    2.073    6.00    20.07
=====
ID = 3 ( 4001):    242.90    2.271    5.92    19.66
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 4001) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 4001):    242.90    2.271    5.92    19.66
+ ID2= 2 ( 4200):    67.00    0.672    5.33    16.29
=====
ID = 1 ( 4001):    309.90    2.909    5.75    18.93
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0880) |
| IN= 2--> OUT= 1 |
-----
          Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          204.63          0.0400
45.24         204.34          0.0400
94.52         203.98          0.0400
140.93        203.58          0.0400
148.77        203.72          0.0400 / 0.0350 Main Channel
154.30        202.99          0.0350 Main Channel
158.02        203.77          0.0350 / 0.0400 Main Channel
174.30        203.79          0.0400
222.94        204.38          0.0400
285.62        204.03          0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)      (cu.m.)      (cms)      (m/s)      (min)
0.05      203.04      .647E+01      0.0      0.11      59.17
0.10      203.09      .259E+02      0.0      0.17      37.28
0.16      203.15      .582E+02      0.0      0.23      28.45
```

```
<---- hydrograph ----> <-pipe / channel->
          AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
          (ha)      (cms)      (hrs)      (mm)      (m)      (m/s)
INFLOW : ID= 2 ( 4101)  211.40    2.01    5.92    20.14    0.70    0.48
OUTFLOW: ID= 1 ( 0884)  211.40    1.99    6.17    20.14    0.70    0.48
```

```
-----
| CALIB
| NASHYD ( 0410) |
| ID= 1 DT= 5.0 min |
-----
          Area      (ha)= 8.50      Curve Number (CN)= 85.5
          Ia      (mm)= 6.46      # of Linear Res.(N)= 3.00
          U.H. Tp(hrs)= 0.94
```

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.095 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 18.343
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.406

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4100) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0410):    8.50    0.095    5.25    18.34
+ ID2= 2 ( 0884):   211.40    1.990    6.17    20.14
=====
ID = 3 ( 4100):    219.90    2.073    6.00    20.07
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0401) |
| ID= 1 DT= 5.0 min |
-----
          Area      (ha)= 23.00      Curve Number (CN)= 83.1
          Ia      (mm)= 7.74      # of Linear Res.(N)= 3.00
          U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.230 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.746
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.348

```
0.21 203.20 .103E+03 0.1 0.27 23.48
0.26 203.25 .162E+03 0.1 0.32 20.24
0.31 203.30 .233E+03 0.2 0.36 17.92
0.37 203.36 .317E+03 0.3 0.40 16.17
0.42 203.41 .414E+03 0.5 0.43 14.79
0.47 203.46 .524E+03 0.6 0.47 13.68
0.52 203.51 .647E+03 0.8 0.50 12.75
0.57 203.56 .782E+03 1.1 0.54 11.96
0.63 203.62 .974E+03 1.4 0.55 11.73
0.68 203.67 .135E+04 1.8 0.51 12.55
0.73 203.72 .192E+04 2.4 0.48 13.39
0.79 203.78 .282E+04 3.5 0.48 13.41
0.85 203.84 .430E+04 5.2 0.47 13.77
0.92 203.91 .608E+04 7.5 0.48 13.44
0.98 203.97 .816E+04 10.6 0.50 12.88
1.04 204.03 .105E+05 14.2 0.52 12.33
```

```
<---- hydrograph ----> <-pipe / channel->
          AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
          (ha)      (cms)      (hrs)      (mm)      (m)      (m/s)
INFLOW : ID= 2 ( 4001)  309.90    2.91    5.75    18.93    0.76    0.48
OUTFLOW: ID= 1 ( 0880)  309.90    2.89    6.00    18.93    0.76    0.48
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| CALIB
| NASHYD ( 0400) |
| ID= 1 DT= 5.0 min |
-----
          Area      (ha)= 27.60      Curve Number (CN)= 83.8
          Ia      (mm)= 7.36      # of Linear Res.(N)= 3.00
          U.H. Tp(hrs)= 0.88
```

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 0.284 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 16.469
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.364

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4000) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0400):    27.60    0.284    5.25    16.47
+ ID2= 2 ( 0880):   309.90    2.887    6.00    18.93
```

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=====

ID = 3 (4000): 337.50 3.142 5.83 18.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0200) | Area (ha)= 25.60 Curve Number (CN)= 82.2
ID= 1 DT= 5.0 min | Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.79

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 0.244 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 14.848
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.328

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0023) | Area (ha)= 7.00 Curve Number (CN)= 83.0
ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.73

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.070 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.641
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.346

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0022) | Area (ha)= 3.40 Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.20

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.039 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 16.890
TOTAL RAINFALL (mm)= 45.200

83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42
0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0021)	47.60	0.51	5.25	17.33	0.18	0.37
OUTFLOW: ID= 1 (0871)	47.60	0.49	5.50	17.32	0.18	0.37

ADD HYD (2110)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0211):	17.30	0.152	5.42	14.00
+ ID2= 2 (0022):	3.40	0.039	3.08	16.89
ID = 3 (2110):	20.70	0.186	5.08	14.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RUNOFF COEFFICIENT = 0.374

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0211) | Area (ha)= 17.30 Curve Number (CN)= 81.3
ID= 1 DT= 5.0 min | Ia (mm)= 8.76 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.02

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.152 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 13.998
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.310

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0021) | Area (ha)= 47.60 Curve Number (CN)= 84.6
ID= 1 DT= 5.0 min | Ia (mm)= 6.93 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.93

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 0.507 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 17.331
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.383

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0871)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 /0.0350 Main Channel
70.77	208.05	0.0350 Main Channel
74.98	208.02	0.0350 Main Channel

ADD HYD (2110)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (2110):	20.70	0.186	5.08	14.47
+ ID2= 2 (0871):	47.60	0.494	5.50	17.32
ID = 1 (2110):	68.30	0.672	5.33	16.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0220) | Area (ha)= 20.30 Curve Number (CN)= 81.6
ID= 1 DT= 5.0 min | Ia (mm)= 8.59 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.85

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 0.186 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 14.276
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.316

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0020) | Area (ha)= 12.60 Curve Number (CN)= 82.4
ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.72

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.122 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.047
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.333

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.00	0.0400

Model With SWM Infrastructure - Output

33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56
0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46
0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.05

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	<-pipe / channel->	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0020)	12.60	0.12	5.17	15.05	0.27
OUTFLOW: ID= 1 (0875)	12.60	0.12	5.33	15.01	0.26

ADD HYD (2200)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0220):	20.30	0.186	5.25	14.28	
+ ID2= 2 (0875):	12.60	0.121	5.33	15.01	
=====					
ID = 3 (2200):	32.90	0.307	5.33	14.56	

0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	<-pipe / channel->	
(ha)	(cms)	(hrs)	(mm)	MAX DEPTH	MAX VEL
INFLOW : ID= 2 (2101)	101.20	0.98	5.33	15.84	0.37
OUTFLOW: ID= 1 (0870)	101.20	0.97	5.58	15.84	0.37

CALIB					
NASHYD (0210)	Area	(ha)=	9.10	Curve Number (CN)=	82.3
ID= 1 DT= 5.0 min	Ia	(mm)=	8.19	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.64		

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW (cms)= 0.089 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 14.947
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2100)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0210):	9.10	0.089	5.17	14.95	
+ ID2= 2 (0870):	101.20	0.966	5.58	15.84	
=====					
ID = 3 (2100):	110.30	1.048	5.50	15.76	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0230)	Area	(ha)=	24.70	Curve Number (CN)=	82.9
ID= 1 DT= 5.0 min	Ia	(mm)=	7.85	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.82		

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 0.244 (i)
TIME TO PEAK (hrs)= 5.250

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (2110):	68.30	0.672	5.33	16.46	
+ ID2= 2 (2200):	32.90	0.307	5.33	14.56	
=====					
ID = 3 (2101):	101.20	0.979	5.33	15.84	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)					
IN= 2---->	OUT= 1	Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350
86.30	208.87	0.0350
89.86	209.20	0.0350 / 0.0300
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38

RUNOFF VOLUME (mm)= 15.544
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.344

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0231)	Area	(ha)=	29.50	Curve Number (CN)=	81.9
ID= 1 DT= 5.0 min	Ia	(mm)=	8.42	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.89		

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 0.274 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 14.559
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.322

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0240)	Area	(ha)=	10.10	Curve Number (CN)=	82.0
ID= 1 DT= 5.0 min	Ia	(mm)=	8.36	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.74		

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.096 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 14.657
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.324

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0241)	Area	(ha)=	26.70	Curve Number (CN)=	82.3
ID= 1 DT= 5.0 min	Ia	(mm)=	8.19	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.75		

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 0.257 (i)
TIME TO PEAK (hrs)= 5.250

Model With SWM Infrastructure - Output

RUNOFF VOLUME (mm)= 14.947
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.331

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0864)					
IN= 2--> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 /0.0350			Main Channel
28.59	211.79	0.0350			Main Channel
32.89	214.16	0.0350 /0.0500			Main Channel
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.118E+02	0.0	0.27	29.62
0.24	212.03	.471E+02	0.0	0.42	18.66
0.36	212.15	.106E+03	0.1	0.56	14.24
0.48	212.27	.188E+03	0.3	0.67	11.76
0.61	212.40	.294E+03	0.5	0.78	10.13
0.73	212.52	.928E+03	1.0	0.51	15.63
0.85	212.64	.260E+04	2.7	0.50	15.93
0.97	212.76	.477E+04	5.8	0.58	13.67
1.09	212.88	.739E+04	10.6	0.68	11.67
1.21	213.00	.103E+05	17.1	0.79	10.01
1.33	213.12	.133E+05	25.0	0.89	8.85
1.45	213.24	.165E+05	34.4	0.99	8.00
1.57	213.36	.200E+05	45.3	1.08	7.34
1.70	213.49	.236E+05	57.6	1.16	6.82
1.82	213.61	.274E+05	71.4	1.24	6.39
1.94	213.73	.314E+05	86.8	1.31	6.02
2.06	213.85	.355E+05	104.6	1.40	5.66
2.18	213.97	.398E+05	124.9	1.49	5.31
2.37	214.16	.481E+05	161.2	1.59	4.97
<---- hydrograph ---->					
	AREA	QPEAK	TPEAK	R.V.	<-pipe /
	(ha)	(cms)	(hrs)	(mm)	MAX DEPTH
					(m)
INFLOW : ID= 2 (0241)	26.70	0.26	5.25	14.95	0.48

OUTFLOW: ID= 1 (0864) 26.70 0.26 5.33 14.95 0.47 0.66

ADD HYD (2301)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0231):	29.50	0.274	5.25	14.56	
+ ID2= 2 (0240):	10.10	0.096	5.25	14.66	
=====					
ID = 3 (2301):	39.60	0.370	5.25	14.58	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2301)					
3 + 2 = 1					

	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 3 (2301):	39.60	0.370	5.25	14.58	
+ ID2= 2 (0864):	26.70	0.256	5.33	14.95	
=====					
ID = 1 (2301):	66.30	0.626	5.25	14.73	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0863)		Routing time step (min)'= 5.00			
IN= 2-->	OUT= 1				
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.70	0.0400			
2.35	206.02	0.0400 /0.0350		Main Channel	
5.23	205.19	0.0350		Main Channel	
5.34	205.67	0.0350		Main Channel	
19.05	206.06	0.0350 /0.0400		Main Channel	
21.11	206.05	0.0400			
22.02	206.13	0.0400 /0.0350			
40.10	206.15	0.0350			
56.50	206.04	0.0350			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.138E+01	0.0	0.11	58.11
0.09	205.28	.551E+01	0.0	0.18	36.61
0.13	205.32	.124E+02	0.0	0.23	27.94

0.17	205.36	.220E+02	0.0	0.28	23.06
0.22	205.41	.344E+02	0.0	0.33	19.87
0.26	205.45	.496E+02	0.0	0.37	17.60
0.31	205.50	.675E+02	0.1	0.41	15.88
0.35	205.54	.882E+02	0.1	0.45	14.53
0.39	205.58	.112E+03	0.1	0.48	13.43
0.44	205.63	.138E+03	0.2	0.52	12.52
0.48	205.67	.167E+03	0.2	0.55	11.81
0.52	205.71	.212E+03	0.2	0.44	14.65
0.57	205.76	.285E+03	0.3	0.43	15.23
0.61	205.80	.388E+03	0.4	0.44	14.79
0.66	205.85	.519E+03	0.6	0.47	13.99
0.70	205.89	.679E+03	0.9	0.50	13.12
0.74	205.93	.868E+03	1.2	0.53	12.29
0.79	205.98	.109E+04	1.6	0.56	11.53
0.83	206.02	.133E+04	2.0	0.60	10.85
<---- hydrograph ----> <-pipe / channel-->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	MAX DEPTH MAX VEL
					(m) (m/s)
INFLOW : ID= 2 (2301)	66.30	0.63	5.25	14.73	0.66 0.47
OUTFLOW: ID= 1 (0863)	66.30	0.62	5.42	14.73	0.66 0.47

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (2300)					
1 + 2 = 3					

	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0230):	24.70	0.244	5.25	15.54	
+ ID2= 2 (0863):	66.30	0.621	5.42	14.73	
=====					
ID = 3 (2300):	91.00	0.863	5.33	14.95	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2011)					
1 + 2 = 3					
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2100):		110.30	1.048	5.50	15.76
+ ID2= 2 (2300):		91.00	0.863	5.33	14.95
=====					
ID = 3 (2011):		201.30	1.909	5.42	15.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0862)					
IN= 2--> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	204.63	0.0400			
45.24	204.34	0.0400			
94.52	203.98	0.0400			
140.93	203.58	0.0400			
148.77	203.72	0.0400 /0.0350			Main Channel
154.30	202.99	0.0350			Main Channel
158.02	203.77	0.0350 /0.0400			Main Channel
174.30	203.79	0.0400			
222.94	204.38	0.0400			
285.62	204.03	0.0400			

<---- hydrograph ----> <-pipe / channel-->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	MAX DEPTH MAX VEL
					(m) (m/s)
INFLOW : ID= 2 (2011)	201.30	1.91	5.42	15.40	0.71 0.44
OUTFLOW: ID= 1 (0862)	201.30	1.89	5.58	15.39	0.71 0.44

| CALIB |

Model With SWM Infrastructure - Output

```
| NASHYD ( 0201) | Area (ha)= 8.20 Curve Number (CN)= 82.6
|ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.60
```

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.081 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.243
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.337

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 2010) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0201): | AREA QPEAK TPEAK R.V.
| ID2= 2 ( 0023): | (ha) (cms) (hrs) (mm)
|=====|
| ID = 3 ( 2010): | 15.20 0.151 5.17 15.43
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 2010) |
| 3 + 2 = 1 |
|-----|
| ID1= 3 ( 2010): | AREA QPEAK TPEAK R.V.
| ID2= 2 ( 0062): | (ha) (cms) (hrs) (mm)
|=====|
| ID = 1 ( 2010): | 216.50 2.035 5.50 15.40
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0860) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
|-----|
|<----- DATA FOR SECTION ( 1.1) ----->
| Distance Elevation Manning
| 0.00 208.48 0.0500
| 43.69 207.97 0.0500
| 66.92 207.94 0.0500
| 76.98 208.01 0.0500
| 87.94 208.25 0.0500
| 89.93 208.44 0.0500 /0.0350 Main Channel
```

```
92.70 208.20 0.0350 Main Channel
95.51 207.28 0.0350 Main Channel
98.26 208.25 0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 207.33 .155E+01 0.0 0.16 23.32
0.10 207.38 .620E+01 0.0 0.25 14.69
0.15 207.43 .140E+02 0.0 0.33 11.21
0.19 207.47 .248E+02 0.0 0.40 9.26
0.24 207.52 .388E+02 0.1 0.47 7.98
0.29 207.57 .558E+02 0.1 0.53 7.06
0.34 207.62 .760E+02 0.2 0.59 6.37
0.39 207.67 .992E+02 0.3 0.64 5.83
0.44 207.72 .126E+03 0.4 0.69 5.39
0.48 207.76 .155E+03 0.5 0.74 5.03
0.53 207.81 .188E+03 0.7 0.79 4.72
0.58 207.86 .223E+03 0.8 0.84 4.45
0.63 207.91 .262E+03 1.0 0.88 4.22
0.68 207.96 .341E+03 1.3 0.83 4.47
0.73 208.01 .708E+03 1.8 0.57 6.58
0.78 208.06 .119E+04 2.7 0.51 7.25
0.82 208.10 .174E+04 4.0 0.52 7.19
0.87 208.15 .236E+04 5.7 0.54 6.89
0.92 208.20 .305E+04 7.8 0.57 6.55
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2010) 216.50 2.03 5.50 15.40 0.74 0.55
OUTFLOW: ID= 1 ( 0860) 216.50 2.03 5.67 15.40 0.74 0.55
```

```
| ADD HYD ( 2000) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0200): | AREA QPEAK TPEAK R.V.
| ID2= 2 ( 0060): | (ha) (cms) (hrs) (mm)
|=====|
| ID = 3 ( 2000): | 242.10 2.261 5.58 15.34
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0300) | Area (ha)= 36.80 Curve Number (CN)= 83.1
```

```
|ID= 1 DT= 5.0 min | Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.90
```

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 0.364 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.746
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.348

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0031) | Area (ha)= 3.00 Curve Number (CN)= 82.5
|ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.62
```

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.031 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 16.922
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.374

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0350) | Area (ha)= 1.50 Curve Number (CN)= 83.2
|ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.38
```

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.016 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 15.842
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.350

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0850) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .300E+01 0.0 0.15 86.75
0.07 204.57 .120E+02 0.0 0.24 54.65
0.11 204.61 .270E+02 0.0 0.31 41.70
0.14 204.64 .480E+02 0.0 0.37 34.42
0.18 204.68 .750E+02 0.0 0.43 29.67
0.22 204.72 .108E+03 0.1 0.49 26.27
0.25 204.75 .147E+03 0.1 0.54 23.71
0.29 204.79 .192E+03 0.1 0.59 21.69
0.33 204.83 .243E+03 0.2 0.64 20.05
0.36 204.86 .300E+03 0.3 0.69 18.69
0.40 204.90 .363E+03 0.3 0.73 17.54
0.43 204.93 .488E+03 0.4 0.70 18.37
0.47 204.97 .860E+03 0.6 0.56 22.95
0.51 205.01 .144E+04 1.0 0.52 24.88
0.54 205.04 .217E+04 1.5 0.52 24.65
0.58 205.08 .304E+04 2.1 0.54 23.62
0.61 205.11 .407E+04 3.0 0.57 22.38
0.65 205.15 .524E+04 4.1 0.61 21.13
0.69 205.19 .656E+04 5.5 0.64 19.97
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0350) 1.50 0.02 5.08 15.84 0.12 0.33
OUTFLOW: ID= 1 ( 0850) 1.50 0.02 5.25 15.52 0.12 0.33
```

```
| CALIB
| NASHYD ( 0032) | Area (ha)= 28.00 Curve Number (CN)= 83.4
|ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.95
```

Model With SWM Infrastructure - Output

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.279 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 16.050
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.355

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3200)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0032):	28.00	0.279	5.25	16.05
+ ID2= 2 (0050):	1.50	0.015	5.25	15.52
=====				
ID = 3 (3200):	29.50	0.294	5.25	16.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)	Curve Number (CN)
NASHYD (0301)	59.40	82.7
ID= 1 DT= 5.0 min	Ia (mm)= 7.97	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.23	

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 0.543 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 15.339
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.359

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3010)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0301):	59.40	0.543	5.50	15.34
+ ID2= 2 (3200):	29.50	0.294	5.25	16.02
=====				
ID = 3 (3010):	88.90	0.835	5.42	15.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (3001)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (3010):	88.90	0.835	5.42	15.57
+ ID2= 2 (0031):	3.00	0.031	5.17	16.92
=====				
ID = 3 (3001):	91.90	0.865	5.42	15.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0852)	Routing time step (min)'
IN= 2----> OUT= 1	5.00

Distance	Elevation	Manning
0.00	209.20	0.0400
100.00	206.26	0.0400
111.30	206.19	0.0400 / 0.0350
112.02	205.76	0.0350
113.82	205.37	0.0350
115.62	206.03	0.0350 / 0.0400
117.77	207.30	0.0400
120.56	207.40	0.0400
124.41	207.31	0.0400
129.31	207.24	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	205.46	.132E+02	0.0	0.21	32.83
0.19	205.56	.529E+02	0.0	0.33	20.68
0.28	205.65	.119E+03	0.1	0.43	15.78
0.38	205.75	.212E+03	0.3	0.52	13.03
0.47	205.84	.327E+03	0.5	0.62	10.84
0.57	205.94	.458E+03	0.8	0.72	9.42
0.66	206.03	.604E+03	1.2	0.80	8.44
0.76	206.13	.777E+03	1.7	0.91	7.41
0.86	206.23	.102E+04	2.4	0.97	6.97
0.96	206.33	.168E+04	3.6	0.87	7.76
1.06	206.43	.252E+04	5.4	0.87	7.80
1.16	206.53	.350E+04	7.7	0.89	7.56
1.26	206.63	.463E+04	10.7	0.93	7.24
1.37	206.74	.590E+04	14.3	0.98	6.90
1.47	206.84	.732E+04	18.6	1.03	6.58
1.57	206.94	.889E+04	23.6	1.08	6.28
1.67	207.04	.106E+05	29.5	1.13	6.00
1.77	207.14	.125E+05	36.1	1.17	5.75

1.87	207.24	.145E+05	43.7	1.22	5.52
<---- hydrograph ---->					
INFLOW : ID= 2 (3001)	91.90	0.87	5.42	15.61	0.58
OUTFLOW: ID= 1 (0852)	91.90	0.86	5.50	15.61	0.58

ADD HYD (3000)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0300):	36.80	0.364	5.25	15.75
+ ID2= 2 (0852):	91.90	0.863	5.50	15.61
=====				
ID = 3 (3000):	128.70	1.223	5.42	15.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)	Curve Number (CN)
NASHYD (0030)	1.10	81.5
ID= 1 DT= 5.0 min	Ia (mm)= 5.76	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.30	

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 16.013
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.354

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0854)	Routing time step (min)'
IN= 2----> OUT= 1	5.00

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350

54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

INFLOW : ID= 2 (0030)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
OUTFLOW: ID= 1 (0854)	1.10	0.01	3.17	16.01	0.10	0.35
	1.10	0.01	3.25	16.00	0.10	0.35

CALIB	Area (ha)	Curve Number (CN)
NASHYD (0340)	21.00	82.8
ID= 1 DT= 5.0 min	Ia (mm)= 7.91	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.69	

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.209 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.441
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.342

Model With SWM Infrastructure - Output

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3400)				
1	2	3		
ID1= 1 (0340):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
+ ID2= 2 (0854):	21.00	0.209	5.17	15.44
	1.10	0.011	3.25	16.00
=====				
ID = 3 (3400):	22.10	0.220	5.17	15.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0123)				
ID= 1 DT= 5.0 min	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Qpeak (cms)
	24.60	7.85	0.93	

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 0.240 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.544
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.344

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0814)				
IN= 2---> OUT= 1	Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.78
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25

<----- hydrograph ----->				
AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (0124)	24.30	0.28	3.42	18.70
OUTFLOW: ID= 1 (0813)	24.30	0.28	5.17	18.69

ADD HYD (1221)				
1	2	3		
ID1= 1 (0813):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	24.30	0.280	5.17	18.69

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40
0.85	212.64	.204E+04	2.7	0.49	12.63
0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

<----- hydrograph ----->				
AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (0123)	24.60	0.24	5.25	15.54
OUTFLOW: ID= 1 (0814)	24.60	0.24	5.42	15.54

CALIB				
NASHYD (0124)				
ID= 1 DT= 5.0 min	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Qpeak (cms)
	24.30	6.30	0.51	

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 0.282 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 18.695
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.414

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0813)				
IN= 2---> OUT= 1	Routing time step (min)'= 5.00			

+ ID2= 2 (0814):	24.60	0.239	5.42	15.54
=====				
ID = 3 (1221):	48.90	0.518	5.25	17.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0812)				
IN= 2---> OUT= 1	Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.49	0.0400		
35.71	208.88	0.0400		
53.04	208.89	0.0400		
64.12	208.50	0.0400 / 0.0350	Main Channel	
70.77	208.05	0.0350	Main Channel	
74.98	208.02	0.0350	Main Channel	
83.40	208.38	0.0350 / 0.0400	Main Channel	
88.06	208.63	0.0400		
94.94	209.13	0.0400		
105.88	209.54	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.533E+02	0.1	0.24	12.01
0.14	208.16	.150E+03	0.3	0.37	7.63
0.22	208.24	.280E+03	0.8	0.47	5.98
0.29	208.31	.444E+03	1.5	0.56	5.04
0.36	208.38	.642E+03	2.4	0.64	4.42
0.44	208.46	.896E+03	4.0	0.75	3.76
0.52	208.54	.119E+04	6.0	0.86	3.29
0.60	208.62	.153E+04	8.6	0.96	2.96
0.68	208.70	.192E+04	11.7	1.04	2.73
0.76	208.78	.235E+04	15.4	1.11	2.55
0.84	208.86	.283E+04	19.6	1.18	2.41
0.92	208.94	.351E+04	24.2	1.17	2.41
0.99	209.01	.435E+04	30.6	1.19	2.37
1.07	209.09	.528E+04	38.0	1.22	2.31
1.15	209.17	.628E+04	46.4	1.26	2.26
1.23	209.25	.737E+04	55.9	1.29	2.20
1.31	209.33	.855E+04	66.6	1.33	2.14
1.39	209.41	.982E+04	78.7	1.36	2.08
1.47	209.49	.112E+05	92.1	1.40	2.03

<----- hydrograph ----->				
AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (1221)	48.90	0.52	5.25	17.11
OUTFLOW: ID= 1 (0812)	48.90	0.52	5.33	17.11

Model With SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0122)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 31.80 Curve Number (CN)= 85.1
Ia (mm)= 6.67 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.96
```

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 0.346 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 17.886
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.396

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1220)|
| 1 + 2 = 3 |
|-----|
Area QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0122): 31.80 0.346 5.25 17.89
+ ID2= 2 ( 0812): 48.90 0.517 5.33 17.11
=====
ID = 3 ( 1220): 80.70 0.862 5.25 17.41
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0811)|
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.50 0.0400
29.68 206.77 0.0400
43.70 206.13 0.0400 /0.0350 Main Channel
44.99 205.95 0.0350 Main Channel
47.70 206.24 0.0350 /0.0450 Main Channel
60.54 206.32 0.0450
80.11 206.99 0.0450
102.29 207.42 0.0450 /0.0400
132.78 206.84 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
```

	(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
	0.06	206.01	.147E+02	0.0	0.14	60.26
	0.12	206.07	.590E+02	0.0	0.22	37.96
	0.18	206.13	.133E+03	0.1	0.29	28.97
	0.26	206.21	.302E+03	0.2	0.36	22.81
	0.34	206.29	.671E+03	0.5	0.39	21.40
	0.42	206.37	.151E+04	1.2	0.39	20.95
	0.50	206.45	.254E+04	2.3	0.45	18.38
	0.58	206.53	.376E+04	3.7	0.49	16.98
	0.66	206.61	.544E+04	5.6	0.51	16.11
	0.74	206.69	.764E+04	8.4	0.54	15.19
	0.83	206.78	.104E+05	12.1	0.58	14.27
	0.91	206.86	.134E+05	17.4	0.64	12.84
	0.99	206.94	.166E+05	23.6	0.71	11.71
	1.07	207.02	.201E+05	30.7	0.76	10.88
	1.15	207.10	.239E+05	38.8	0.81	10.26
	1.23	207.18	.280E+05	48.0	0.85	9.72
	1.31	207.26	.325E+05	58.5	0.89	9.26
	1.39	207.34	.373E+05	70.3	0.94	8.84
	1.47	207.42	.424E+05	83.4	0.98	8.48

```
-----
|----- hydrograph -----> <-pipe / channel->
Area QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1220) 80.70 0.86 5.25 17.41 0.38 0.39
OUTFLOW: ID= 1 ( 0811) 80.70 0.85 5.50 17.41 0.38 0.39
```

```
-----
| CALIB
| NASHYD ( 0121)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 16.10 Curve Number (CN)= 86.5
Ia (mm)= 5.94 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.189 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 19.535
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.432

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1210)|
| 1 + 2 = 3 |
|-----|
Area QPEAK TPEAK R.V.
```

```
-----
ID1= 1 ( 0121): 16.10 0.189 5.17 19.53
+ ID2= 2 ( 0811): 80.70 0.852 5.50 17.41
=====
ID = 3 ( 1210): 96.80 1.038 5.42 17.76
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0146)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 12.80 Curve Number (CN)= 83.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.55
```

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.130 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.641
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.346

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0844)|
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 /0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 /0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .107E+01 0.0 0.13 37.04
0.08 207.60 .430E+01 0.0 0.20 23.33
0.12 207.64 .960E+01 0.0 0.27 17.81
0.16 207.68 .172E+02 0.0 0.32 14.70
0.19 207.71 .268E+02 0.0 0.38 12.67
0.23 207.75 .387E+02 0.1 0.42 11.22
0.27 207.79 .526E+02 0.1 0.47 10.12
0.31 207.83 .687E+02 0.1 0.51 9.26
0.35 207.87 .870E+02 0.2 0.56 8.56
```

0.39	207.91	.107E+03	0.2	0.60	7.98
0.43	207.95	.130E+03	0.3	0.64	7.49
0.47	207.99	.155E+03	0.4	0.67	7.07
0.50	208.02	.181E+03	0.5	0.71	6.70
0.54	208.06	.210E+03	0.6	0.75	6.38
0.58	208.10	.242E+03	0.7	0.78	6.09
0.62	208.14	.275E+03	0.8	0.82	5.83
0.67	208.19	.329E+03	1.0	0.87	5.50
0.72	208.24	.413E+03	1.3	0.89	5.36
0.77	208.29	.540E+03	1.7	0.87	5.45

```
-----
|----- hydrograph -----> <-pipe / channel->
Area QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0146) 12.80 0.13 5.17 15.64 0.32 0.52
OUTFLOW: ID= 1 ( 0844) 12.80 0.13 5.25 15.64 0.31 0.52
```

```
-----
| CALIB
| NASHYD ( 0145)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 12.60 Curve Number (CN)= 83.3
Ia (mm)= 7.63 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59
```

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.129 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.950
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.353

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1450)|
| 1 + 2 = 3 |
|-----|
Area QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0145): 12.60 0.129 5.17 15.95
+ ID2= 2 ( 0844): 12.80 0.129 5.25 15.64
=====
ID = 3 ( 1450): 25.40 0.259 5.17 15.79
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0843)|
```


Model With SWM Infrastructure - Output

| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.144E+02	0.0	0.23	42.45
0.24	212.03	.578E+02	0.0	0.36	26.74
0.36	212.15	.130E+03	0.1	0.48	20.41
0.48	212.27	.231E+03	0.2	0.58	16.85
0.61	212.40	.361E+03	0.4	0.67	14.52
0.73	212.52	.114E+04	0.8	0.43	22.41
0.85	212.64	.319E+04	2.3	0.43	22.83
0.97	212.76	.585E+04	5.0	0.50	19.59
1.09	212.88	.907E+04	9.0	0.58	16.72
1.21	213.00	.126E+05	14.6	0.68	14.34
1.33	213.12	.163E+05	21.4	0.77	12.69
1.45	213.24	.203E+05	29.5	0.85	11.47
1.57	213.36	.245E+05	38.8	0.92	10.52
1.70	213.49	.289E+05	49.3	0.99	9.77
1.82	213.61	.336E+05	61.2	1.06	9.15
1.94	213.73	.385E+05	74.3	1.13	8.63
2.06	213.85	.436E+05	89.6	1.20	8.11
2.18	213.97	.488E+05	106.9	1.28	7.61
2.37	214.16	.590E+05	138.1	1.36	7.13
<---- hydrograph ----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (1450)	25.40	0.26	5.17	15.79	0.50
OUTFLOW: ID= 1 (0843)	25.40	0.26	5.25	15.78	0.50

CALIB	
NASHYD (0144)	Area (ha)= 28.60
ID= 1 DT= 5.0 min	Ia (mm)= 7.85
	Curve Number (CN)= 82.9
	# of Linear Res.(N)= 3.00

----- U.H. Tp(hrs)= 0.97

Unit Hyd Qpeak (cms)=	1.126
PEAK FLOW (cms)=	0.277 (i)
TIME TO PEAK (hrs)=	5.333
RUNOFF VOLUME (mm)=	15.544
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT	= 0.344

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1440)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0144):	28.60	0.277	5.33	15.54	
+ ID2= 2 (0843):	25.40	0.257	5.25	15.78	
=====					
ID = 3 (1440):	54.00	0.533	5.33	15.66	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0842)					
IN= 2---> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.70	0.0400			
2.35	206.02	0.0400 / 0.0350	Main Channel		
5.23	205.19	0.0350	Main Channel		
5.34	205.67	0.0350	Main Channel		
19.05	206.06	0.0350 / 0.0400	Main Channel		
21.11	206.05	0.0400			
22.02	206.13	0.0400 / 0.0350			
40.10	206.15	0.0350			
56.50	206.04	0.0350			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.149E+01	0.0	0.09	81.67
0.09	205.28	.594E+01	0.0	0.14	51.45
0.13	205.32	.134E+02	0.0	0.18	39.26
0.17	205.36	.238E+02	0.0	0.22	32.41
0.22	205.41	.371E+02	0.0	0.25	27.93
0.26	205.45	.535E+02	0.0	0.28	24.73
0.31	205.50	.728E+02	0.1	0.31	22.32

0.35	205.54	.950E+02	0.1	0.34	20.42
0.39	205.58	.120E+03	0.1	0.37	18.87
0.44	205.63	.149E+03	0.1	0.40	17.59
0.48	205.67	.180E+03	0.2	0.42	16.60
0.52	205.71	.228E+03	0.2	0.34	20.59
0.57	205.76	.308E+03	0.2	0.33	21.41
0.61	205.80	.418E+03	0.3	0.34	20.79
0.66	205.85	.560E+03	0.5	0.36	19.66
0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24
<---- hydrograph ----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (1440)	54.00	0.53	5.33	15.66	0.67
OUTFLOW: ID= 1 (0842)	54.00	0.53	5.50	15.65	0.67

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB	
NASHYD (0143)	Area (ha)= 27.70
ID= 1 DT= 5.0 min	Ia (mm)= 7.85
	Curve Number (CN)= 82.9
	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.07

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)=	0.264 (i)
TIME TO PEAK (hrs)=	5.417
RUNOFF VOLUME (mm)=	15.544
TOTAL RAINFALL (mm)=	45.200
RUNOFF COEFFICIENT	= 0.344

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0143):	27.70	0.264	5.42	15.54	
+ ID2= 2 (0842):	54.00	0.527	5.50	15.65	
=====					
ID = 3 (1430):	81.70	0.791	5.42	15.62	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

----- ROUTE CHN(0841)

IN= 2---> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.66	0.0400			
19.50	209.34	0.0400			
37.91	208.66	0.0400			
41.73	208.62	0.0400 / 0.0350	Main Channel		
43.44	208.24	0.0350	Main Channel		
45.75	208.62	0.0350 / 0.0450	Main Channel		
54.00	208.79	0.0450 / 0.0400	Main Channel		
77.43	209.05	0.0400			
128.85	209.70	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.216E+02	0.0	0.15	113.45
0.13	208.37	.864E+02	0.0	0.24	71.47
0.19	208.43	.194E+03	0.1	0.31	54.54
0.25	208.49	.345E+03	0.1	0.38	45.02
0.32	208.56	.540E+03	0.2	0.44	38.80
0.38	208.62	.777E+03	0.4	0.49	34.36
0.46	208.70	.152E+04	0.7	0.50	33.99
0.54	208.78	.281E+04	1.4	0.50	33.61
0.62	208.86	.469E+04	2.5	0.53	31.90
0.70	208.94	.734E+04	4.0	0.56	30.28
0.78	209.02	.107E+05	6.3	0.59	28.55
0.86	209.10	.149E+05	9.3	0.63	26.78
0.94	209.18	.198E+05	13.1	0.68	25.09
1.02	209.26	.253E+05	17.9	0.72	23.58
1.10	209.34	.315E+05	23.6	0.76	22.24
1.18	209.42	.386E+05	30.0	0.79	21.42
1.26	209.50	.465E+05	37.7	0.82	20.56
1.34	209.58	.554E+05	46.8	0.86	19.73
1.42	209.66	.652E+05	57.3	0.90	18.94

<---- hydrograph ----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (1430)	81.70	0.79	5.42	15.62	0.47
OUTFLOW: ID= 1 (0841)	81.70	0.76	5.83	15.61	0.46

CALIB

Model With SWM Infrastructure - Output

```
| NASHYD ( 0142) | Area (ha)= 27.10 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.22
```

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 0.251 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 15.544
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.344

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1420) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0142): | AREA QPEAK TPEAK R.V.
| + ID2= 2 ( 0841): | (ha) (cms) (hrs) (mm)
|=====|
| ID = 3 ( 1420): | 108.80 1.010 5.75 15.59
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0840) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.52 0.0400
61.99 209.23 0.0400
76.86 209.20 0.0400
82.03 209.20 0.0400 / 0.0350 Main Channel
86.30 208.87 0.0350 Main Channel
89.86 209.20 0.0350 / 0.0300 Main Channel
96.27 209.24 0.0300
103.53 209.40 0.0300
127.96 209.50 0.0300
158.58 209.70 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.03 208.90 .706E+01 0.0 0.08 110.24
0.07 208.94 .282E+02 0.0 0.13 69.44
0.10 208.97 .636E+02 0.0 0.17 53.00
0.13 209.00 .113E+03 0.0 0.21 43.75
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB |
| NASHYD ( 0151) | Area (ha)= 24.60 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.00
```

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.236 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 15.441
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB |
| NASHYD ( 0153) | Area (ha)= 33.30 Curve Number (CN)= 82.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.08
```

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 0.312 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 15.243
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.337

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0834) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
```

0.17	209.04	.177E+03	0.1	0.24	37.70
0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75
0.37	209.24	.118E+04	0.7	0.34	26.61
0.40	209.27	.196E+04	1.2	0.33	27.88
0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61
0.58	209.45	.865E+04	6.3	0.40	22.94
0.61	209.48	.108E+05	8.1	0.41	22.09
0.65	209.52	.132E+05	10.4	0.43	21.10

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1420) 108.80 1.01 5.75 15.59 0.39 0.33
OUTFLOW: ID= 1 ( 0840) 108.80 0.98 6.25 15.59 0.39 0.33
```

```
| CALIB |
| NASHYD ( 0141) | Area (ha)= 8.10 Curve Number (CN)= 83.6
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.083 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 16.258
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.360

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1410) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0141): | AREA QPEAK TPEAK R.V.
| + ID2= 2 ( 0840): | (ha) (cms) (hrs) (mm)
|=====|
| ID = 3 ( 1410): | 116.90 1.049 6.17 15.63
```

Model With SWM Infrastructure - Output

```
-----
| ADD HYD ( 1520)|
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0152): 16.20 0.155 5.25 15.24
+ ID2= 2 ( 0834): 33.30 0.309 5.58 15.24
=====
ID = 3 ( 1520): 49.50 0.463 5.42 15.24
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0833)|
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.49      0.0400
35.71        208.88      0.0400
53.04        208.89      0.0400
64.12        208.50      0.0400 / 0.0350 Main Channel
70.77        208.05      0.0350 Main Channel
74.98        208.02      0.0350 Main Channel
83.40        208.38      0.0350 / 0.0400 Main Channel
88.06        208.63      0.0400
94.94        209.13      0.0400
105.88       209.54      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)    (m)   (cu.m.)  (cms)      (m/s)     (min)
0.07  208.09 .232E+03 0.1        0.19      65.23
0.14  208.16 .652E+03 0.3        0.30      41.42
0.22  208.24 .122E+04 0.6        0.38      32.47
0.29  208.31 .193E+04 1.2        0.45      27.40
0.36  208.38 .279E+04 1.9        0.51      24.03
0.44  208.46 .389E+04 3.2        0.60      20.41
0.52  208.54 .516E+04 4.8        0.69      17.88
0.60  208.62 .664E+04 6.9        0.77      16.07
0.68  208.70 .833E+04 9.4        0.83      14.80
0.76  208.78 .102E+05 12.3       0.89      13.84
0.84  208.86 .123E+05 15.7       0.94      13.07
0.92  208.94 .153E+05 19.4       0.94      13.11
0.99  209.01 .189E+05 24.5       0.96      12.89
1.07  209.09 .229E+05 30.4       0.98      12.57
1.15  209.17 .273E+05 37.1       1.01      12.25
1.23  209.25 .320E+05 44.7       1.03      11.94
1.31  209.33 .372E+05 53.3       1.06      11.62
1.39  209.41 .427E+05 63.0       1.09      11.30
```

```
0.74  206.69 .820E+04 9.6        0.63      14.19
0.83  206.78 .111E+05 13.9       0.67      13.34
0.91  206.86 .143E+05 19.9       0.74      12.00
0.99  206.94 .178E+05 27.1       0.81      10.94
1.07  207.02 .215E+05 35.3       0.87      10.16
1.15  207.10 .256E+05 44.5       0.93      9.59
1.23  207.18 .301E+05 55.1       0.98      9.09
1.31  207.26 .349E+05 67.2       1.03      8.65
1.39  207.34 .400E+05 80.7       1.07      8.26
1.47  207.42 .455E+05 95.8       1.12      7.92
```

```
<---- hydrograph ----> <-pipe / channel->
AREA  QPEAK  TPEAK  R.V.  MAX DEPTH  MAX VEL
(ha)  (cms)  (hrs)  (mm)  (m)        (m/s)
INFLOW : ID= 2 ( 1510) 74.10 0.67 5.67 15.30 0.35 0.44
OUTFLOW: ID= 1 ( 0832) 74.10 0.66 5.92 15.30 0.35 0.44
```

```
-----
| CALIB |
| NASHYD ( 0150)|
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 6.60 Curve Number (CN)= 83.7
Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.96
```

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.067 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 16.366
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.362

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1500)|
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0150): 6.60 0.067 5.25 16.37
+ ID2= 2 ( 0832): 74.10 0.664 5.92 15.30
=====
ID = 3 ( 1500): 80.70 0.726 5.83 15.39
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

1.47 209.49 .487E+05 73.7 1.12 11.00

```
<---- hydrograph ----> <-pipe / channel->
AREA  QPEAK  TPEAK  R.V.  MAX DEPTH  MAX VEL
(ha)  (cms)  (hrs)  (mm)  (m)        (m/s)
INFLOW : ID= 2 ( 1520) 49.50 0.46 5.42 15.24 0.18 0.34
OUTFLOW: ID= 1 ( 0833) 49.50 0.45 5.83 15.24 0.18 0.33
```

```
-----
| ADD HYD ( 1510)|
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0151): 24.60 0.236 5.33 15.44
+ ID2= 2 ( 0833): 49.50 0.446 5.83 15.24
=====
ID = 3 ( 1510): 74.10 0.674 5.67 15.30
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0832)|
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.50      0.0400
29.68        206.77      0.0400
43.70        206.13      0.0400 / 0.0350 Main Channel
44.99        205.95      0.0350 Main Channel
47.70        206.24      0.0350 / 0.0450 Main Channel
60.54        206.32      0.0450
80.11        206.99      0.0450
102.29       207.42      0.0450 / 0.0400
132.78       206.84      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)    (m)   (cu.m.)  (cms)      (m/s)     (min)
0.06  206.01 .158E+02 0.0        0.16      56.30
0.12  206.07 .633E+02 0.0        0.25      35.47
0.18  206.13 .142E+03 0.1        0.33      27.07
0.26  206.21 .324E+03 0.3        0.42      21.31
0.34  206.29 .720E+03 0.6        0.44      20.00
0.42  206.37 .162E+04 1.4        0.45      19.57
0.50  206.45 .272E+04 2.6        0.52      17.17
0.58  206.53 .404E+04 4.2        0.56      15.86
0.66  206.61 .584E+04 6.5        0.59      15.05
```

```
-----
| ADD HYD ( 1401)|
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 1410): 116.90 1.049 6.17 15.63
+ ID2= 2 ( 1500): 80.70 0.726 5.83 15.39
=====
ID = 3 ( 1401): 197.60 1.770 6.08 15.53
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0830)|
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          207.71      0.0400
58.83        206.71      0.0400
66.88        206.59      0.0400 / 0.0350 Main Channel
72.32        206.34      0.0350 Main Channel
77.68        206.55      0.0350 / 0.0800 Main Channel
82.85        206.54      0.0800
90.20        206.02      0.0800
94.03        206.48      0.0800
99.83        206.40      0.0800 / 0.0400
114.32       206.50      0.0400
136.07       206.86      0.0400
174.41       207.56      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)    (m)   (cu.m.)  (cms)      (m/s)     (min)
0.08  206.10 .561E+02 0.0        0.05      276.21
0.15  206.17 .224E+03 0.0        0.08      174.00
0.23  206.25 .505E+03 0.1        0.11      132.79
0.30  206.32 .898E+03 0.1        0.13      109.61
0.38  206.40 .147E+04 0.3        0.15      96.03
0.45  206.47 .291E+04 0.5        0.14      104.34
0.53  206.55 .555E+04 1.1        0.17      85.95
0.61  206.63 .948E+04 2.5        0.23      62.05
0.70  206.72 .142E+05 4.7        0.29      50.17
0.78  206.80 .196E+05 7.6        0.34      42.88
0.87  206.89 .258E+05 11.4       0.38      37.80
0.95  206.97 .327E+05 16.0       0.43      33.99
1.04  207.06 .403E+05 21.6       0.47      31.05
1.12  207.14 .485E+05 28.2       0.51      28.69
1.20  207.22 .575E+05 35.9       0.54      26.74
1.29  207.31 .672E+05 44.6       0.58      25.11
1.37  207.39 .776E+05 54.6       0.61      23.71
1.46  207.48 .887E+05 65.7       0.65      22.49
1.54  207.56 .101E+06 78.2       0.68      21.43
```

Model With SWM Infrastructure - Output

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1401) 197.60 1.77 6.08 15.53 0.57 0.19
OUTFLOW: ID= 1 (0830) 197.60 1.54 6.83 15.52 0.56 0.18

CALIB
NASHYD (0140)
ID= 1 DT= 5.0 min
Area (ha)= 18.30 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.34

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.172 (i)
TIME TO PEAK (hrs)= 5.583
RUNOFF VOLUME (mm)= 16.258
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.360

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400)
1 + 2 = 3
ID1= 1 (0140): 18.30 0.172 5.58 16.26
+ ID2= 2 (0830): 197.60 1.542 6.83 15.52
=====

ID = 3 (1400): 215.90 1.687 6.75 15.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0131)
ID= 1 DT= 5.0 min
Area (ha)= 28.70 Curve Number (CN)= 82.1
Ia (mm)= 8.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.11

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 0.260 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 14.755
TOTAL RAINFALL (mm)= 45.200

RUNOFF COEFFICIENT = 0.326

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0011)
ID= 1 DT= 5.0 min
Area (ha)= 132.00
Total Imp(%)= 57.10 Dir. Conn.(%)= 45.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 75.37 56.63
Dep. Storage (mm)= 1.00 8.95
Average Slope (%)= 1.00 1.00
Length (m)= 938.08 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 11.75 4.21
over (min) 25.00 55.00
Storage Coeff. (min)= 23.05 (ii) 53.89 (ii)
Unit Hyd. Tpeak (min)= 25.00 55.00
Unit Hyd. peak (cms)= 0.05 0.02

PEAK FLOW (cms)= 1.82 0.60 *TOTALS*
TIME TO PEAK (hrs)= 2.17 5.33 1.942 (iii)
RUNOFF VOLUME (mm)= 44.20 13.50 27.32
TOTAL RAINFALL (mm)= 45.20 45.20 45.20
RUNOFF COEFFICIENT = 0.98 0.30 0.60

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0874)
IN= 2---> OUT= 1
DT= 5.0 min
OVERFLOW IS OFF
OUTFLOW (cms) STORAGE (ha.m.) OUTFLOW (cms) STORAGE (ha.m.)
0.0000 0.0000 2.4200 5.4280
0.0950 1.5860 3.3930 6.6280
1.2530 3.8390 0.0000 0.0000

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 (0011) 132.000 1.942 2.33 27.32
OUTFLOW: ID= 1 (0874) 132.000 0.678 6.92 26.82

PEAK FLOW REDUCTION [Qout/Qin](%)= 34.93
TIME SHIFT OF PEAK FLOW (min)=275.00
MAXIMUM STORAGE USED (ha.m.)= 2.7209

CALIB
STANDHYD (0012)
ID= 1 DT= 5.0 min
Area (ha)= 17.50
Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 14.00 3.50
Dep. Storage (mm)= 1.00 8.94
Average Slope (%)= 1.00 1.00
Length (m)= 341.57 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 11.75 5.65
over (min) 15.00 40.00
Storage Coeff. (min)= 12.57 (ii) 39.99 (ii)
Unit Hyd. Tpeak (min)= 15.00 40.00
Unit Hyd. peak (cms)= 0.08 0.03

PEAK FLOW (cms)= 0.40 0.05 *TOTALS*
TIME TO PEAK (hrs)= 2.08 5.17 0.412 (iii)
RUNOFF VOLUME (mm)= 44.20 15.59 35.62
TOTAL RAINFALL (mm)= 45.20 45.20 45.20
RUNOFF COEFFICIENT = 0.98 0.35 0.79

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112)
1 + 2 = 3
ID1= 1 (0012): 17.50 0.412 2.08 35.62
+ ID2= 2 (0874): 132.00 0.678 6.92 26.82
=====

ID = 3 (1112): 149.50 0.802 6.17 27.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB

STANDHYD (0010)
ID= 1 DT= 5.0 min
Area (ha)= 12.90
Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 10.32 2.58
Dep. Storage (mm)= 1.00 8.94
Average Slope (%)= 1.00 1.00
Length (m)= 293.26 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 11.75 5.65
over (min) 10.00 40.00
Storage Coeff. (min)= 11.47 (ii) 38.89 (ii)
Unit Hyd. Tpeak (min)= 10.00 40.00
Unit Hyd. peak (cms)= 0.10 0.03

PEAK FLOW (cms)= 0.29 0.04 *TOTALS*
TIME TO PEAK (hrs)= 2.08 5.17 0.305 (iii)
RUNOFF VOLUME (mm)= 44.20 15.59 35.62
TOTAL RAINFALL (mm)= 45.20 45.20 45.20
RUNOFF COEFFICIENT = 0.98 0.35 0.79

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311)
1 + 2 = 3
ID1= 1 (0010): 12.90 0.305 2.08 35.62
+ ID2= 2 (1112): 149.50 0.802 6.17 27.85
=====

ID = 3 (1311): 162.40 0.943 5.17 28.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822)
IN= 2---> OUT= 1
Routing time step (min)= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 207.71 0.0400
58.83 206.71 0.0400
66.88 206.59 0.0400 / 0.0350 Main Channel

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72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	
174.41	207.56	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.337E+02	0.0	0.07	124.18
0.15	206.17	.135E+03	0.0	0.11	78.23
0.23	206.25	.303E+03	0.1	0.15	59.70
0.30	206.32	.539E+03	0.2	0.18	49.28
0.38	206.40	.885E+03	0.3	0.20	43.17
0.45	206.47	.175E+04	0.6	0.19	46.91
0.53	206.55	.333E+04	1.4	0.23	38.64
0.61	206.63	.569E+04	3.4	0.31	27.90
0.70	206.72	.851E+04	6.3	0.39	22.56
0.78	206.80	.118E+05	10.2	0.45	19.28
0.87	206.89	.155E+05	15.2	0.51	17.00
0.95	206.97	.196E+05	21.4	0.57	15.28
1.04	207.06	.242E+05	28.9	0.63	13.96
1.12	207.14	.292E+05	37.7	0.68	12.90
1.20	207.22	.346E+05	47.9	0.73	12.02
1.29	207.31	.404E+05	59.6	0.77	11.29
1.37	207.39	.466E+05	72.9	0.82	10.66
1.46	207.48	.533E+05	87.8	0.86	10.11
1.54	207.56	.604E+05	104.5	0.91	9.63

<---- hydrograph ---->				<-pipe / channel->		
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1311)	162.40	0.94	5.17	28.47	0.48	0.20
OUTFLOW: ID= 1 (0822)	162.40	0.89	6.17	28.45	0.48	0.20

| ADD HYD (1310) |
| 1 + 2 = 3 |

+ 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0131):	28.70	0.260	5.42	14.76
+ ID2= 2 (0822):	162.40	0.891	6.17	28.45
=====				
ID = 3 (1310):	191.10	1.132	6.08	26.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0821) |
| IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	207.71	0.0400	
58.83	206.71	0.0400	
66.88	206.59	0.0400 / 0.0350	Main Channel
72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	
174.41	207.56	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60
0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

<---- hydrograph ---->				<-pipe / channel->		
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1310)	191.10	1.13	6.08	26.39	0.51	0.19
OUTFLOW: ID= 1 (0821)	191.10	1.04	6.67	26.36	0.50	0.19

| CALIB |
| NASHYD (0130) |
| ID= 1 DT= 5.0 min |

Area (ha)=	26.70	Curve Number (CN)=	81.7
Ia (mm)=	8.53	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.32		

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 0.226 (i)
TIME TO PEAK (hrs)= 5.667
RUNOFF VOLUME (mm)= 14.372
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.318

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1300) |
| 1 + 2 = 3 |

+ 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0130):	26.70	0.226	5.67	14.37
+ ID2= 2 (0821):	191.10	1.037	6.67	26.36
=====				
ID = 3 (1300):	217.80	1.245	6.42	24.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (1202) |
| 1 + 2 = 3 |

+ 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1300):	217.80	1.245	6.42	24.89
+ ID2= 2 (1400):	215.90	1.687	6.75	15.59
=====				
ID = 3 (1202):	433.70	2.923	6.67	20.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0820) |
| IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	206.54	0.0450

43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 / 0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 / 0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	204.79	.681E+01	0.0	0.08	28.42
0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80
0.37	205.07	.292E+03	0.3	0.12	18.72
0.46	205.16	.859E+03	0.9	0.14	16.44
0.55	205.25	.182E+04	2.3	0.17	13.44
0.64	205.34	.311E+04	4.7	0.21	11.04
0.74	205.44	.487E+04	8.4	0.24	9.67
0.83	205.53	.676E+04	13.3	0.27	8.48
0.92	205.62	.877E+04	19.3	0.30	7.58
1.01	205.71	.109E+05	26.4	0.33	6.90
1.10	205.80	.132E+05	34.5	0.36	6.36
1.20	205.90	.155E+05	43.8	0.39	5.92
1.29	205.99	.181E+05	54.1	0.42	5.56
1.38	206.08	.207E+05	65.6	0.44	5.25
1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

<---- hydrograph ---->				<-pipe / channel->		
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1202)	433.70	2.92	6.67	20.26	0.58	0.18
OUTFLOW: ID= 1 (0820)	433.70	2.89	6.83	20.26	0.58	0.18

| ADD HYD (1201) |
| 1 + 2 = 3 |

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1210):	96.80	1.038	5.42	17.76
+ ID2= 2 (0820):	433.70	2.894	6.83	20.26
=====				
ID = 3 (1201):	530.50	3.741	6.33	19.80

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0810)|
| IN= 2----> OUT= 1 |
-----

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.54          0.0450
43.13         205.35          0.0450
67.41         205.27          0.0450
86.35         205.38          0.0450 / 0.0350 Main Channel
90.47         204.70          0.0350 Main Channel
93.03         205.16          0.0350 / 0.0400 Main Channel
101.99        205.21          0.0400
151.82        204.97          0.0400
252.14        206.45          0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV. TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.09       204.79       .229E+02     0.0            0.07          106.67
0.18       204.88       .915E+02     0.0            0.12          67.20
0.28       204.98       .208E+03     0.1            0.15          51.82
0.37       205.07       .981E+03     0.2            0.11          70.28
0.46       205.16       .288E+04     0.8            0.13          61.71
0.55       205.25       .610E+04     2.0            0.15          50.43
0.64       205.34       .105E+05     4.2            0.19          41.45
0.74       205.44       .163E+05     7.5            0.21          36.28
0.83       205.53       .227E+05     11.9           0.24          31.82
0.92       205.62       .294E+05     17.2           0.27          28.46
1.01       205.71       .366E+05     23.6           0.30          25.89
1.10       205.80       .442E+05     30.9           0.32          23.87
1.20       205.90       .522E+05     39.1           0.35          22.23
1.29       205.99       .606E+05     48.4           0.37          20.87
1.38       206.08       .694E+05     58.7           0.39          19.72
1.47       206.17       .786E+05     70.0           0.41          18.74
1.57       206.27       .883E+05     82.3           0.43          17.88
1.66       206.36       .983E+05     95.7           0.45          17.12
1.75       206.45       .109E+06     110.2          0.47          16.45
```

```
<---- hydrograph ----> <-pipe / channel->
                        AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
                        (ha)    (cms)  (hrs)  (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1201) 530.50  3.74   6.33  19.80   0.62        0.18
OUTFLOW: ID= 1 ( 0810) 530.50  3.52   6.75  19.80   0.62        0.18
```

```
| CALIB
| NASHYD ( 0120)| Area (ha)= 9.00 Curve Number (CN)= 84.0
| ID= 1 DT= 5.0 min| Ia (mm)= 7.25 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 1.16
```

Unit Hyd Qpeak (cms)= 0.296

```
PEAK FLOW (cms)= 0.090 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 16.682
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.369
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1200)|
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
              (ha) (cms) (hrs) (mm)
ID1= 1 ( 0120): 9.00 0.090 5.42 16.68
+ ID2= 2 ( 0810): 530.50 3.521 6.75 19.80
=====
ID = 3 ( 1200): 539.50 3.591 6.75 19.74
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0113)| Area (ha)= 13.50 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min| Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.87
```

Unit Hyd Qpeak (cms)= 0.593

```
PEAK FLOW (cms)= 0.130 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.142
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.335
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0802)|
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
```

```
0.00          208.29          0.0300
3.73          208.14          0.0300 / 0.0350 Main Channel
5.30          207.52          0.0350 Main Channel
6.93          208.18          0.0350 / 0.0300 Main Channel
8.96          208.27          0.0300
14.71         208.30          0.0300
23.86         208.59          0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV. TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04       207.56       .448E+01     0.0            0.12          164.32
0.08       207.60       .179E+02     0.0            0.19          103.51
0.12       207.64       .403E+02     0.0            0.25          79.00
0.16       207.68       .716E+02     0.0            0.30          65.21
0.19       207.71       .112E+03     0.0            0.35          56.20
0.23       207.75       .161E+03     0.1            0.40          49.76
0.27       207.79       .219E+03     0.1            0.44          44.90
0.31       207.83       .287E+03     0.1            0.48          41.08
0.35       207.87       .363E+03     0.2            0.52          37.98
0.39       207.91       .448E+03     0.2            0.56          35.40
0.43       207.95       .542E+03     0.3            0.60          33.22
0.47       207.99       .645E+03     0.3            0.63          31.35
0.50       208.02       .757E+03     0.4            0.67          29.72
0.54       208.06       .878E+03     0.5            0.70          28.29
0.58       208.10       .101E+04     0.6            0.74          27.02
0.62       208.14       .115E+04     0.7            0.77          25.88
0.67       208.19       .137E+04     0.9            0.81          24.42
0.72       208.24       .172E+04     1.2            0.84          23.79
0.77       208.29       .225E+04     1.6            0.82          24.20
```

```
<---- hydrograph ----> <-pipe / channel->
                        AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
                        (ha)    (cms)  (hrs)  (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 0113) 13.50  0.13  5.25  15.14   0.32        0.50
OUTFLOW: ID= 1 ( 0802) 13.50  0.12  5.58  15.07   0.32        0.49
```

```
-----
| CALIB
| NASHYD ( 0112)| Area (ha)= 30.50 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min| Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 1.60
```

Unit Hyd Qpeak (cms)= 0.728

```
PEAK FLOW (cms)= 0.260 (i)
TIME TO PEAK (hrs)= 6.000
RUNOFF VOLUME (mm)= 15.441
```

```
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.342
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0111)| Area (ha)= 45.50 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min| Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 1.33
```

Unit Hyd Qpeak (cms)= 1.307

```
PEAK FLOW (cms)= 0.399 (i)
TIME TO PEAK (hrs)= 5.667
RUNOFF VOLUME (mm)= 14.947
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.331
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV. TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04       207.56       .448E+01     0.0            0.12          164.32
0.08       207.60       .179E+02     0.0            0.19          103.51
0.12       207.64       .403E+02     0.0            0.25          79.00
0.16       207.68       .716E+02     0.0            0.30          65.21
0.19       207.71       .112E+03     0.0            0.35          56.20
0.23       207.75       .161E+03     0.1            0.40          49.76
0.27       207.79       .219E+03     0.1            0.44          44.90
0.31       207.83       .287E+03     0.1            0.48          41.08
0.35       207.87       .363E+03     0.2            0.52          37.98
0.39       207.91       .448E+03     0.2            0.56          35.40
0.43       207.95       .542E+03     0.3            0.60          33.22
0.47       207.99       .645E+03     0.3            0.63          31.35
0.50       208.02       .757E+03     0.4            0.67          29.72
0.54       208.06       .878E+03     0.5            0.70          28.29
0.58       208.10       .101E+04     0.6            0.74          27.02
0.62       208.14       .115E+04     0.7            0.77          25.88
0.67       208.19       .137E+04     0.9            0.81          24.42
0.72       208.24       .172E+04     1.2            0.84          23.79
0.77       208.29       .225E+04     1.6            0.82          24.20
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 1101)|
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
              (ha) (cms) (hrs) (mm)
ID1= 3 ( 1101): 76.00 0.656 5.75 15.15
+ ID2= 2 ( 0802): 13.50 0.124 5.58 15.07
=====
ID = 1 ( 1101): 89.50 0.780 5.75 15.13
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0801)|
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

Model With SWM Infrastructure - Output

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.66        0.0400
19.50         209.34        0.0400
37.91         208.66        0.0400
41.73         208.62        0.0400 / 0.0350 Main Channel
43.44         208.24        0.0350 Main Channel
45.75         208.62        0.0350 / 0.0450 Main Channel
54.00         208.79        0.0450 / 0.0400
77.43         209.05        0.0400
128.85        209.70        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.06 208.30 .104E+02 0.0 0.10 83.26
0.13 208.37 .415E+02 0.0 0.16 52.45
0.19 208.43 .934E+02 0.0 0.20 40.03
0.25 208.49 .166E+03 0.1 0.25 33.04
0.32 208.56 .259E+03 0.2 0.29 28.47
0.38 208.62 .373E+03 0.2 0.32 25.22
0.46 208.70 .729E+03 0.5 0.33 24.94
0.54 208.78 .135E+04 0.9 0.33 24.67
0.62 208.86 .225E+04 1.6 0.35 23.41
0.70 208.94 .352E+04 2.6 0.37 22.23
0.78 209.02 .516E+04 4.1 0.39 20.96
0.86 209.10 .716E+04 6.1 0.41 19.65
0.94 209.18 .949E+04 8.6 0.44 18.42
1.02 209.26 .122E+05 11.7 0.47 17.31
1.10 209.34 .152E+05 15.5 0.50 16.32
1.18 209.42 .185E+05 19.7 0.52 15.72
1.26 209.50 .224E+05 24.7 0.54 15.09
1.34 209.58 .266E+05 30.6 0.56 14.48
1.42 209.66 .313E+05 37.5 0.59 13.90
```

```
<---- hydrograph ----> <-pipe / channel->
                        AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
                        (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1101) 89.50 0.78 5.75 15.13 0.52 0.33
OUTFLOW: ID= 1 ( 0801) 89.50 0.76 6.17 15.13 0.51 0.33
```

```
-----
| CALIB |
| NASHYD ( 0110) | Area (ha)= 11.90 Curve Number (CN)= 83.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.68
```

Unit Hyd Qpeak (cms)= 0.668

```
PEAK FLOW (cms)= 0.122 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 16.050
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.355
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1100) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
              (ha) (cms) (hrs) (mm)
ID1= 1 ( 0110): 11.90 0.122 5.17 16.05
+ ID2= 2 ( 0801): 89.50 0.762 6.17 15.13
=====
ID = 3 ( 1100): 101.40 0.860 6.00 15.24
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 1001) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
              (ha) (cms) (hrs) (mm)
ID1= 1 ( 1100): 101.40 0.860 6.00 15.24
+ ID2= 2 ( 1200): 539.50 3.591 6.75 19.74
=====
ID = 3 ( 1001): 640.90 4.397 6.67 19.03
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0800) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.54        0.0450
43.13         205.35        0.0450
67.41         205.27        0.0450
86.35         205.38        0.0450 / 0.0350 Main Channel
90.47         204.70        0.0350 Main Channel
93.03         205.16        0.0350 / 0.0400 Main Channel
101.99        205.21        0.0400
151.82        204.97        0.0400
252.14        206.45        0.0400
```

<----- TRAVEL TIME TABLE ----->

```
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.09 204.79 .255E+02 0.0 0.16 54.50
0.18 204.88 .102E+03 0.0 0.25 34.33
0.28 204.98 .232E+03 0.1 0.33 26.47
0.37 205.07 .109E+04 0.5 0.24 35.91
0.46 205.16 .321E+04 1.7 0.27 31.53
0.55 205.25 .680E+04 4.4 0.33 25.77
0.64 205.34 .116E+05 9.2 0.41 21.18
0.74 205.44 .182E+05 16.4 0.47 18.54
0.83 205.53 .253E+05 25.9 0.53 16.26
0.92 205.62 .328E+05 37.6 0.59 14.54
1.01 205.71 .408E+05 51.4 0.65 13.23
1.10 205.80 .492E+05 67.3 0.71 12.19
1.20 205.90 .581E+05 85.3 0.76 11.36
1.29 205.99 .675E+05 105.5 0.81 10.66
1.38 206.08 .773E+05 127.9 0.86 10.08
1.47 206.17 .876E+05 152.5 0.90 9.57
1.57 206.27 .983E+05 179.4 0.94 9.13
1.66 206.36 .109E+06 208.6 0.99 8.75
1.75 206.45 .121E+06 240.2 1.03 8.41
```

```
<---- hydrograph ----> <-pipe / channel->
                        AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
                        (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1001) 640.90 4.40 6.67 19.03 0.55 0.33
OUTFLOW: ID= 1 ( 0800) 640.90 4.32 6.92 19.03 0.55 0.33
```

```
-----
| CALIB |
| NASHYD ( 0100) | Area (ha)= 54.70 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.23
```

Unit Hyd Qpeak (cms)= 1.699

```
PEAK FLOW (cms)= 0.515 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 15.845
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.351
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1000) |

```
-----
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
              (ha) (cms) (hrs) (mm)
ID1= 1 ( 0100): 54.70 0.515 5.50 15.84
+ ID2= 2 ( 0800): 640.90 4.324 6.92 19.03
=====
ID = 3 ( 1000): 695.60 4.731 6.75 18.78
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0190) | Area (ha)= 12.30 Curve Number (CN)= 83.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.31 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.83
```

Unit Hyd Qpeak (cms)= 0.566

```
PEAK FLOW (cms)= 0.128 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 16.572
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.367
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0191) | Area (ha)= 20.10 Curve Number (CN)= 82.0
| ID= 1 DT= 5.0 min | Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.94
```

Unit Hyd Qpeak (cms)= 0.817

```
PEAK FLOW (cms)= 0.186 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 14.657
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.324
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0192) | Area (ha)= 28.30 Curve Number (CN)= 80.3
| ID= 1 DT= 5.0 min | Ia (mm)= 6.23 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.06
```

Unit Hyd Qpeak (cms)= 1.020

Model With SWM Infrastructure - Output

PEAK FLOW (cms)= 0.255 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 14.994
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.332

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ADD HYD ( 1901)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0191): 20.10 0.186 5.33 14.66
+ ID2= 2 ( 0192): 28.30 0.255 5.33 14.99
=====
ID = 3 ( 1901): 48.40 0.442 5.33 14.85
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0899)
IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 / 0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 / 0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .349E+02 0.1 0.18 10.46
0.14 208.16 .981E+02 0.2 0.28 6.64
0.22 208.24 .183E+03 0.6 0.36 5.21
0.29 208.31 .291E+03 1.1 0.42 4.40
0.36 208.38 .420E+03 1.8 0.48 3.85
0.44 208.46 .586E+03 3.0 0.57 3.27
0.52 208.54 .777E+03 4.5 0.65 2.87
0.60 208.62 .999E+03 6.5 0.72 2.58
0.68 208.70 .125E+04 8.8 0.78 2.37
0.76 208.78 .154E+04 11.5 0.84 2.22
```

```
ID= 1 DT= 5.0 min | Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.119 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 14.372
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.318

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
CALIB
NASHYD ( 0520) | Area (ha)= 17.30 Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.168 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 15.142
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.335

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ADD HYD ( 5000)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0500): 7.60 0.077 5.17 15.44
+ ID2= 2 ( 0510): 12.70 0.119 5.17 14.37
=====
ID = 3 ( 5000): 20.30 0.196 5.17 14.77
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ADD HYD ( 5000)
3 + 2 = 1 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 5000): 20.30 0.196 5.17 14.77
+ ID2= 2 ( 0520): 17.30 0.168 5.25 15.14
=====
```

0.84	208.86	.185E+04	14.7	0.89	2.10
0.92	208.94	.230E+04	18.2	0.88	2.10
0.99	209.01	.285E+04	23.0	0.90	2.07
1.07	209.09	.345E+04	28.5	0.92	2.02
1.15	209.17	.411E+04	34.8	0.94	1.96
1.23	209.25	.482E+04	42.0	0.97	1.91
1.31	209.33	.559E+04	50.0	1.00	1.86
1.39	209.41	.643E+04	59.1	1.02	1.81
1.47	209.49	.732E+04	69.1	1.05	1.76

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1901) 48.40 0.44 5.33 14.85 0.19 0.32
OUTFLOW: ID= 1 ( 0899) 48.40 0.44 5.42 14.85 0.18 0.32
```

```
ADD HYD ( 1900)
1 + 2 = 3
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0190): 12.30 0.128 5.25 16.57
+ ID2= 2 ( 0899): 48.40 0.441 5.42 14.85
=====
ID = 3 ( 1900): 60.70 0.568 5.33 15.20
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
CALIB
NASHYD ( 0500) | Area (ha)= 7.60 Curve Number (CN)= 82.8
ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.48
```

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.077 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.440
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.342

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
CALIB
NASHYD ( 0510) | Area (ha)= 12.70 Curve Number (CN)= 81.7
```

ID = 1 (5000): 37.60 0.364 5.17 14.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
CALIB
NASHYD ( 0600) | Area (ha)= 2.50 Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.025 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 15.140
TOTAL RAINFALL (mm)= 45.200
RUNOFF COEFFICIENT = 0.335

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL
```

```
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
```

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\8a
fe9a4f-b08d-46df-9ffa-4715969c81da\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\8a
fe9a4f-b08d-46df-9ffa-4715969c81da\sce

Model With SWM Infrastructure - Output

DATE: 10-17-2025

TIME: 02:54:13

USER:

COMMENTS: _____

** SIMULATION : 3 **

READ STORM Filename: C:\Users\wraymond\AppData
 ata\Local\Temp\
 f9e06f95-585c-465c-81d8-96408d74cab\3bbce17f
Ptotal= 63.40 mm Comments: 5yr12hrAES

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.08	9.51	6.17	1.90	9.25	0.00
0.08	8.24	3.17	9.51	6.25	1.90	9.33	0.00
0.17	8.24	3.25	9.51	6.33	1.90	9.42	0.00
0.25	8.24	3.33	9.51	6.42	1.90	9.50	0.00
0.33	8.24	3.42	9.51	6.50	1.90	9.58	0.00
0.42	8.24	3.50	9.51	6.58	1.90	9.67	0.00
0.50	8.24	3.58	9.51	6.67	1.90	9.75	0.00
0.58	8.24	3.67	9.51	6.75	1.90	9.83	0.00
0.67	8.24	3.75	9.51	6.83	1.90	9.92	0.00
0.75	8.24	3.83	9.51	6.92	1.90	10.00	0.00
0.83	8.24	3.92	9.51	7.00	1.90	10.08	0.00
0.92	8.24	4.00	9.51	7.08	0.63	10.17	0.00
1.00	8.24	4.08	8.88	7.17	0.63	10.25	0.00
1.08	16.48	4.17	8.88	7.25	0.63	10.33	0.00
1.17	16.48	4.25	8.88	7.33	0.63	10.42	0.00
1.25	16.48	4.33	8.88	7.42	0.63	10.50	0.00
1.33	16.48	4.42	8.88	7.50	0.63	10.58	0.00
1.42	16.48	4.50	8.88	7.58	0.63	10.67	0.00
1.50	16.48	4.58	8.88	7.67	0.63	10.75	0.00
1.58	16.48	4.67	8.88	7.75	0.63	10.83	0.00
1.67	16.48	4.75	8.88	7.83	0.63	10.92	0.00
1.75	16.48	4.83	8.88	7.92	0.63	11.00	0.00
1.83	16.48	4.92	8.88	8.00	0.63	11.08	0.00
1.92	16.48	5.00	8.88	8.08	0.00	11.17	0.00
2.00	16.48	5.08	5.07	8.17	0.00	11.25	0.00
2.08	12.68	5.17	5.07	8.25	0.00	11.33	0.00

2.17	12.68	5.25	5.07	8.33	0.00	11.42	0.00
2.25	12.68	5.33	5.07	8.42	0.00	11.50	0.00
2.33	12.68	5.42	5.07	8.50	0.00	11.58	0.00
2.42	12.68	5.50	5.07	8.58	0.00	11.67	0.00
2.50	12.68	5.58	5.07	8.67	0.00	11.75	0.00
2.58	12.68	5.67	5.07	8.75	0.00	11.83	0.00
2.67	12.68	5.75	5.07	8.83	0.00	11.92	0.00
2.75	12.68	5.83	5.07	8.92	0.00	12.00	0.00
2.83	12.68	5.92	5.07	9.00	0.00		
2.92	12.68	6.00	5.07	9.08	0.00		
3.00	12.68	6.08	1.90	9.17	0.00		

CALIB
NASHYD (0185) Area (ha)= 2.00 Curve Number (CN)= 79.5
ID= 1 DT= 5.0 min Ia (mm)= 6.54 # of Linear Res.(N)= 3.00
 U.H. Tp(hrs)= 0.36

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.034 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 26.418
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.417

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0180) Area (ha)= 6.80 Curve Number (CN)= 82.4
ID= 1 DT= 5.0 min Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
 U.H. Tp(hrs)= 0.85

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.114 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.891
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0170) Area (ha)= 5.80 Curve Number (CN)= 82.4

ID= 1 DT= 5.0 min Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
 U.H. Tp(hrs)= 0.69

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.098 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.891
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0160) Area (ha)= 16.30 Curve Number (CN)= 83.2
ID= 1 DT= 5.0 min Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
 U.H. Tp(hrs)= 1.15

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.274 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 29.006
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.458

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0330) Area (ha)= 22.30 Curve Number (CN)= 82.2
ID= 1 DT= 5.0 min Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
 U.H. Tp(hrs)= 0.60

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.374 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 27.611
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.436

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0270) Area (ha)= 2.50 Curve Number (CN)= 81.0

ID= 1 DT= 5.0 min Ia (mm)= 5.95 # of Linear Res.(N)= 3.00
 U.H. Tp(hrs)= 0.24

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.047 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 28.176
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.444

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0260) Area (ha)= 7.00 Curve Number (CN)= 83.7
ID= 1 DT= 5.0 min Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
 U.H. Tp(hrs)= 0.43

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.133 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 29.724
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.469

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0250) Area (ha)= 10.70 Curve Number (CN)= 81.9
ID= 1 DT= 5.0 min Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
 U.H. Tp(hrs)= 0.54

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.179 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 27.203
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.429

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0320) Area (ha)= 11.70 Curve Number (CN)= 83.0

Model With SWM Infrastructure - Output

ID= 1 DT= 5.0 min	Ia (mm)= 7.58	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)= 0.61	

Unit Hyd Qpeak (cms)= 0.432

```

PEAK FLOW      (cms)=  0.123 (i)
TIME TO PEAK   (hrs)=  3.583
RUNOFF VOLUME  (mm)= 29.290
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.462

```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0896)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.45	205.49	0.0400 / 0.9350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.282E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.650E+02	0.2	0.63	5.40
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03
0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79

Unit Hyd Qpeak (cms)= 1.141

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0422) | Area (ha)= 6.90 Curve Number (CN)= 83.4

<---- hydrograph ---->			<-pipe / channel->	
QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(cms)	(hrs)	(mm)	(m)	(m/s)
0.12	3.58	29.29	0.27	0.56
0.12	3.67	29.29	0.27	0.56

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4202)	30.80	0.55	4.33	30.08	0.62	0.78
OUTFLOW: ID= 1 (0895)	30.80	0.55	4.42	30.08	0.62	0.78

```
| ROUTE CHN( 0895)|
| IN= 2---> OUT= 1| Routing time step (min)'= 5.00
```

CALIB		
NASHYD (0421)	Area (ha)= 10.40	Curve Number (CN)= 82.8
ID= 1 DT= 5.0 min	Ia (mm)= 7.91	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.37	

PEAK FLOW (cms)= 0.192 (i)

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```

| ROUTE CHN( 0883) |
| IN= 2---> OUT= 1 |
|
| Routing time step (min)'= 5.00
|
|----- DATA FOR SECTION ( 1.1) ----->
| Distance      Elevation      Manning
| 0.00          206.00        0.0400
| 33.24         205.47        0.0400
| 44.39         205.59        0.0400
| 48.71         205.45        0.0400 /0.0350 Main Channel
| 51.02         204.50        0.0350 Main Channel
| 54.33         205.44        0.0350 /0.0400 Main Channel
| 55.90         204.97        0.0400

```

Model With SWM Infrastructure - Output

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ADD HYD ( 4201) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0883): | 10.40 | 0.186 | 3.42 | 28.40 |
| + ID2= 2 ( 0895): | 30.80 | 0.549 | 4.42 | 30.08 |
|-----|
| ID = 3 ( 4201): | 41.20 | 0.727 | 5.17 | 29.65 |
|-----|
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
|-----|
| ROUTE CHN( 0882) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

```

CALIB					
NASHYD	(0442)	Area	(ha)=	2.40	Curve Number (CN)= 84.9
ID= 1 DT= 5.0 min		Ia	(mm)=	6.77	# of Linear Res.(N)= 3.00
		U.H.	Tp(hrs)=	0.41	

Unit Hyd Qpeak	(cms)=	0.224			
PEAK FLOW	(cms)=	0.049 (i)			
TIME TO PEAK	(hrs)=	3.250			
RUNOFF VOLUME	(mm)=	31.497			
TOTAL RAINFALL	(mm)=	63.400			
RUNOFF COEFFICIENT	=	0.497			
(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.					

CALIB					
NASHYD	(0443)	Area	(ha)=	21.30	Curve Number (CN)= 83.9
ID= 1 DT= 5.0 min		Ia	(mm)=	7.31	# of Linear Res.(N)= 3.00
		U.H.	Tp(hrs)=	0.59	

Unit Hyd Qpeak	(cms)=	1.379			
PEAK FLOW	(cms)=	0.392 (i)			
TIME TO PEAK	(hrs)=	3.500			
RUNOFF VOLUME	(mm)=	30.010			

TRAVEL TIME TABLE						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.07	208.09	.971E+02	0.0	0.09	55.71	
0.14	208.16	.273E+03	0.1	0.15	35.37	
0.22	208.24	.510E+03	0.3	0.19	27.73	
0.29	208.31	.808E+03	0.6	0.22	23.40	
0.36	208.38	.117E+04	0.9	0.25	20.52	
0.44	208.46	.163E+04	1.6	0.30	17.43	
0.52	208.54	.216E+04	2.4	0.34	15.27	
0.60	208.62	.278E+04	3.4	0.38	13.72	
0.68	208.70	.348E+04	4.6	0.41	12.64	
0.76	208.78	.427E+04	6.0	0.44	11.82	
0.84	208.86	.514E+04	7.7	0.46	11.16	
0.92	208.94	.638E+04	9.5	0.46	11.20	
0.99	209.01	.792E+04	12.0	0.47	11.01	
1.07	209.09	.960E+04	14.9	0.48	10.74	
1.15	209.17	.114E+05	18.2	0.49	10.46	
1.23	209.25	.134E+05	21.9	0.51	10.19	
1.31	209.33	.156E+05	26.1	0.52	9.92	
1.39	209.41	.179E+05	30.9	0.53	9.65	
1.47	209.49	.204E+05	36.1	0.55	9.40	

<---- hydrograph ---->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4201)	41.20	0.73	5.17	29.65	0.32
OUTFLOW: ID= 1 (0882)	41.20	0.72	5.25	29.65	0.23

TOTAL RAINFALL (mm) = 63.400
 RUNOFF COEFFICIENT = 0.473

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CAL TB			
NASHYD (0451)	Area (ha)=	12.30	Curve Number (CN)= 84.3
ID= 1 DT= 5.0 min	Ia (mm)=	7.09	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.57	

Unit Hyd Qpeak (cms) = 0.824

PEAK FLOW (cms) = 0.233 (i)
 TIME TO PEAK (hrs) = 3.417
 RUNOFF VOLUME (mm) = 30.601
 TOTAL RAINFALL (mm) = 63.400
 RUNOFF COEFFICIENT = 0.483

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

Model With SWM Infrastructure - Output

THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0873)		OVERFLOW IS OFF			
IN= 2--> OUT= 1					
DT= 5.0 min					

		OUTFLOW	STORAGE	OUTFLOW	STORAGE
		(cms)	(ha.m.)	(cms)	(ha.m.)
		0.0000	0.0000	0.2250	0.3008
		0.0240	0.0325	0.2650	0.3494
		0.0370	0.0741	0.2990	0.3993
		0.0460	0.1156	0.3290	0.4497
		0.0530	0.1607	0.5720	0.5013
		0.0600	0.2060	0.9900	0.5538
		0.1750	0.2530	1.5230	0.6074
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0043)	22.900	0.501	3.08	39.16	
OUTFLOW: ID= 1 (0873)	22.900	0.314	5.58	39.14	
PEAK FLOW REDUCTION		[Qout/Qin](%)= 62.67			
TIME SHIFT OF PEAK FLOW		(min)=150.00			
MAXIMUM STORAGE USED		(ha.m.)= 0.4242			

CALIB STANDHYD (0045) ID= 1 DT= 5.0 min					Area (ha)= 1.30 Total Imp(%)= 65.00 Dir. Conn.(%)= 35.00				
					IMPERVIOUS PERVIOUS (i)				
Surface Area (ha)=					0.84 0.46				
Dep. Storage (mm)=					1.00 8.92				
Average Slope (%)=					1.00 2.00				
Length (m)=					93.09 40.00				
Mannings n =					0.013 0.250				
Max.Eff.Inten.(mm/hr)=					16.48 14.73				
over (min)=					5.00 25.00				
Storage Coeff. (min)=					5.03 (ii) 20.22 (ii)				
Unit Hyd. Tpeak (min)=					5.00 25.00				
Unit Hyd. peak (cms)=					0.21 0.05				
					TOTALS				
PEAK FLOW (cms)=					0.02 0.02 0.034 (iii)				
TIME TO PEAK (hrs)=					2.08 3.25 2.08				
RUNOFF VOLUME (mm)=					62.40 32.19 42.76				
TOTAL RAINFALL (mm)=					63.40 63.40 63.40				
RUNOFF COEFFICIENT =					0.98 0.51 0.67				

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4345) 1 + 2 = 3					AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0045):					1.30	0.034	2.08	42.76
+ ID2= 2 (0873):					22.90	0.314	5.58	39.14
ID = 3 (4345):					24.20	0.335	5.08	39.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893) IN= 2--> OUT= 1					Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->					Distance	Elevation	Manning		
					0.00	208.29	0.0300		
					3.73	208.14	0.0300 /0.0350	Main	Channel
					5.30	207.52	0.0350	Main	Channel
					6.93	208.18	0.0350 /0.0300	Main	Channel
					8.96	208.27	0.0300		
					14.71	208.30	0.0300		
					23.86	208.59	0.0300		

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19

0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

<---- hydrograph ---->					<-pipe / channel->				
		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)		MAX VEL (m/s)	
INFLOW : ID= 2 (4345)		24.20	0.33	5.08	39.34	0.52		0.49	
OUTFLOW: ID= 1 (0893)		24.20	0.33	5.17	39.33	0.52		0.49	

ADD HYD (4510) 1 + 2 = 3					AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0451):					12.30	0.233	3.42	30.60
+ ID2= 2 (0893):					24.20	0.334	5.17	39.33
ID = 3 (4510):					36.50	0.555	5.17	36.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0892)			Routing time step (min)'= 5.00		
IN= 2--> OUT= 1					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 /0.0350	Main	Channel	
28.59	211.79	0.0350	Main	Channel	
32.89	214.16	0.0350 /0.0500	Main	Channel	
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.279E+01	0.0	0.48	3.92
0.24	212.03	.112E+02	0.1	0.76	2.47
0.36	212.15	.251E+02	0.2	0.99	1.89
0.48	212.27	.446E+02	0.5	1.20	1.56

<---- hydrograph ---->					<-pipe / channel->				
		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)		MAX VEL (m/s)	
INFLOW : ID= 2 (4510)		36.50	0.56	5.17	36.39	0.51		1.24	
OUTFLOW: ID= 1 (0892)		36.50	0.56	5.17	36.39	0.51		1.24	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4411) 1 + 2 = 3					AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0443):					21.30	0.392	3.50	30.01
+ ID2= 2 (0892):					36.50	0.556	5.17	36.39
ID = 3 (4411):					57.80	0.934	5.17	34.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0891) IN= 2--> OUT= 1					Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->					Distance	Elevation	Manning		
					0.00	206.70	0.0400		
					2.35	206.02	0.0400 /0.0350	Main	Channel
					5.23	205.19	0.0350	Main	Channel
					5.34	205.67	0.0350	Main	Channel
					19.05	206.06	0.0350 /0.0400	Main	Channel
					21.11	206.05	0.0400		
					22.02	206.13	0.0400 /0.0350		
					40.10	206.15	0.0350		

Model With SWM Infrastructure - Output

56.50 206.04 0.0350

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.04	205.23	.621E+00	0.0	0.10	29.40	
0.09	205.28	.248E+01	0.0	0.16	18.52	
0.13	205.32	.559E+01	0.0	0.21	14.13	
0.17	205.36	.994E+01	0.0	0.25	11.67	
0.22	205.41	.155E+02	0.0	0.29	10.05	
0.26	205.45	.224E+02	0.0	0.33	8.90	
0.31	205.50	.304E+02	0.1	0.37	8.03	
0.35	205.54	.398E+02	0.1	0.40	7.35	
0.39	205.58	.503E+02	0.1	0.43	6.79	
0.44	205.63	.621E+02	0.2	0.46	6.33	
0.48	205.67	.752E+02	0.2	0.49	5.97	
0.52	205.71	.954E+02	0.2	0.40	7.41	
0.57	205.76	.129E+03	0.3	0.38	7.71	
0.61	205.80	.175E+03	0.4	0.39	7.48	
0.66	205.85	.234E+03	0.6	0.41	7.08	
0.70	205.89	.306E+03	0.8	0.44	6.64	
0.74	205.93	.391E+03	1.0	0.47	6.22	
0.79	205.98	.490E+03	1.4	0.50	5.83	
0.83	206.02	.601E+03	1.8	0.53	5.49	
<---- hydrograph ----> <-pipe / channel-->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4411)	57.80	0.93	5.17	34.04	0.72	0.46
OUTFLOW: ID= 1 (0891)	57.80	0.93	5.17	34.04	0.72	0.46

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB			
STANDHYD (0441)			
ID= 1 DT= 5.0 min			
	Area (ha)=	3.00	
	Total Imp(%)=	45.00	Dir. Conn.(%)= 35.00
<----- IMPERVIOUS PERVIOUS (i) ----->			
Surface Area	(ha)=	1.35	1.65
Dep. Storage	(mm)=	1.00	3.58
Average Slope	(%)=	2.00	2.00
Length	(m)=	141.42	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		16.48	11.26
over (min)		5.00	25.00
Storage Coeff. (min)=		5.25 (ii)	22.16 (ii)
Unit Hyd. Tpeak (min)=		5.00	25.00

Unit Hyd. peak (cms)= 0.21 0.05

TOTALS

PEAK FLOW (cms)=	0.05	0.05	0.087 (iii)
TIME TO PEAK (hrs)=	2.08	3.17	2.08
RUNOFF VOLUME (mm)=	62.40	38.22	46.68
TOTAL RAINFALL (mm)=	63.40	63.40	63.40
RUNOFF COEFFICIENT =	0.98	0.60	0.74

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4410)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0441):	3.00	0.087	2.08	46.68
+ ID2= 2 (0891):	57.80	0.933	5.17	34.04
=====				
ID = 3 (4410):	60.80	0.996	5.08	34.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4401)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (4410):	60.80	0.996	5.08	34.66
+ ID2= 2 (0442):	2.40	0.049	3.25	31.50
=====				
ID = 3 (4401):	63.20	1.041	5.08	34.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0889)				
IN= 2----> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.70	0.0400		
2.35	206.02	0.0400 / 0.0350	Main Channel	
5.23	205.19	0.0350	Main Channel	
5.34	205.67	0.0350	Main Channel	
19.05	206.06	0.0350 / 0.0400	Main Channel	

21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.04	205.23	.272E+01	0.0	0.09	142.50	
0.09	205.28	.109E+02	0.0	0.14	89.77	
0.13	205.32	.245E+02	0.0	0.19	68.51	
0.17	205.36	.435E+02	0.0	0.23	56.55	
0.22	205.41	.679E+02	0.0	0.26	48.73	
0.26	205.45	.978E+02	0.0	0.30	43.16	
0.31	205.50	.133E+03	0.1	0.33	38.94	
0.35	205.54	.174E+03	0.1	0.36	35.63	
0.39	205.58	.220E+03	0.1	0.39	32.93	
0.44	205.63	.272E+03	0.1	0.42	30.70	
0.48	205.67	.329E+03	0.2	0.44	28.96	
0.52	205.71	.418E+03	0.2	0.36	35.92	
0.57	205.76	.563E+03	0.3	0.34	37.36	
0.61	205.80	.765E+03	0.4	0.35	36.28	
0.66	205.85	.102E+04	0.5	0.37	34.31	
0.70	205.89	.134E+04	0.7	0.40	32.17	
0.74	205.93	.171E+04	0.9	0.43	30.13	
0.79	205.98	.214E+04	1.3	0.45	28.27	
0.83	206.02	.263E+04	1.6	0.48	26.60	
<---- hydrograph ----> <-pipe / channel-->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4401)	63.20	1.04	5.08	34.54	0.76	0.43
OUTFLOW: ID= 1 (0889)	63.20	1.03	5.17	34.53	0.75	0.43

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (4400)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0440):	31.60	0.558	5.25	30.75
+ ID2= 2 (0889):	63.20	1.029	5.17	34.53
=====				
ID = 3 (4400):	94.80	1.587	5.25	33.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0888) |
| IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.66	0.0400		
19.50	209.34	0.0400		
37.91	208.66	0.0400		
41.73	208.62	0.0400 / 0.0350	Main Channel	
43.44	208.24	0.0350	Main Channel	
45.75	208.62	0.0350 / 0.0450	Main Channel	
54.00	208.79	0.0450 / 0.0400	Main Channel	
77.43	209.05	0.0400		
128.85	209.70	0.0400		

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.06	208.30	.519E+01	0.0	0.09	43.50	
0.13	208.37	.208E+02	0.0	0.15	27.40	
0.19	208.43	.467E+02	0.0	0.19	20.91	
0.25	208.49	.830E+02	0.1	0.24	17.26	
0.32	208.56	.130E+03	0.1	0.27	14.88	
0.38	208.62	.187E+03	0.2	0.31	13.17	
0.46	208.70	.365E+03	0.5	0.31	13.03	
0.54	208.78	.674E+03	0.9	0.32	12.89	
0.62	208.86	.113E+04	1.5	0.33	12.23	
0.70	208.94	.176E+04	2.5	0.35	11.61	
0.78	209.02	.258E+04	3.9	0.37	10.95	
0.86	209.10	.358E+04	5.8	0.40	10.27	
0.94	209.18	.475E+04	8.2	0.42	9.62	
1.02	209.26	.608E+04	11.2	0.45	9.04	
1.10	209.34	.758E+04	14.8	0.48	8.53	
1.18	209.42	.927E+04	18.8	0.50	8.21	
1.26	209.50	.112E+05	23.6	0.52	7.88	
1.34	209.58	.133E+05	29.3	0.54	7.57	
1.42	209.66	.157E+05	35.9	0.56	7.26	

<---- hydrograph ----> <-pipe / channel-->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4400)	94.80	1.59	5.25	33.27	0.62	0.33
OUTFLOW: ID= 1 (0888)	94.80	1.58	5.33	33.27	0.62	0.33

CALIB			
STANDHYD (0042)			
ID= 1 DT= 5.0 min			
	Area (ha)=	20.50	
	Total Imp(%)=	83.00	Dir. Conn.(%)= 70.00

Model With SWM Infrastructure - Output

```
-----
Surface Area (ha)= 17.01 3.49
Dep. Storage (mm)= 1.00 6.98
Average Slope (%)= 2.00 2.00
Length (m)= 369.68 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 16.48 15.70
over (min) 10.00 25.00
Storage Coeff. (min)= 9.35 (ii) 24.16 (ii)
Unit Hyd. Tpeak (min)= 10.00 25.00
Unit Hyd. peak (cms)= 0.12 0.05

*TOTALS*
PEAK FLOW (cms)= 0.66 0.14 0.762 (iii)
TIME TO PEAK (hrs)= 2.08 3.17 2.08
RUNOFF VOLUME (mm)= 62.40 35.74 54.40
TOTAL RAINFALL (mm)= 63.40 63.40 63.40
RUNOFF COEFFICIENT = 0.98 0.56 0.86
```

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| RESERVOIR( 0872) | OVERFLOW IS OFF
| IN= 2----> OUT= 1 |
| DT= 5.0 min |
-----

OUTFLOW STORAGE | OUTFLOW STORAGE
(cms) (ha.m.) | (cms) (ha.m.)
0.0000 0.0000 | 0.1660 0.5172
0.0250 0.1344 | 0.2260 0.5585
0.0390 0.2425 | 0.5260 0.7280
0.0530 0.3962 | 0.9350 0.9090
0.0540 0.4360 | 1.2810 1.0589
0.0760 0.4361 | 2.3680 1.5187

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 ( 0042) 20.500 0.762 2.08 54.40
OUTFLOW: ID= 1 ( 0872) 20.500 0.401 5.25 54.34

PEAK FLOW REDUCTION [Qout/Qin](%)= 52.59
TIME SHIFT OF PEAK FLOW (min)=190.00
MAXIMUM STORAGE USED (ha.m.)= 0.6573
-----
```

```
| ROUTE CHN( 0898) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 101.50 0.0500
1.00 100.70 0.0500
1.50 100.55 0.0500 /0.0300 Main Channel
2.00 99.50 0.0300 Main Channel
3.50 99.60 0.0300 Main Channel
4.50 100.65 0.0300 /0.0500 Main Channel
6.00 101.45 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.10 99.60 .152E+02 0.0 0.19 18.79
0.19 99.69 .482E+02 0.1 0.37 9.79
0.29 99.79 .840E+02 0.2 0.49 7.32
0.38 99.88 .123E+03 0.3 0.59 6.12
0.48 99.98 .164E+03 0.5 0.67 5.38
0.57 100.07 .208E+03 0.7 0.74 4.87
0.67 100.17 .255E+03 0.9 0.80 4.49
0.76 100.26 .305E+03 1.2 0.86 4.19
0.86 100.36 .358E+03 1.5 0.91 3.95
0.95 100.45 .413E+03 1.8 0.96 3.75
1.05 100.55 .471E+03 2.2 1.00 3.58
1.16 100.66 .547E+03 2.7 1.07 3.35
1.28 100.78 .635E+03 3.4 1.14 3.14
1.39 100.89 .732E+03 4.1 1.20 2.99
1.50 101.00 .838E+03 4.9 1.25 2.86
1.61 101.11 .952E+03 5.8 1.30 2.76
1.72 101.22 .107E+04 6.7 1.34 2.67
1.84 101.34 .120E+04 7.7 1.38 2.60
1.95 101.45 .134E+04 8.8 1.41 2.54
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0872) 20.50 0.40 5.25 54.34 0.42 0.61
OUTFLOW: ID= 1 ( 0898) 20.50 0.40 5.33 54.33 0.42 0.61
```

```
-----
| CALIB |
| STANDHYD ( 0044) | Area (ha)= 8.90
| ID= 1 DT= 5.0 min | Total Imp(%)= 41.00 Dir. Conn.(%)= 20.00
-----

IMPERVIOUS PERVIOUS (i)
```

```
Surface Area (ha)= 3.65 5.25
Dep. Storage (mm)= 1.00 8.04
Average Slope (%)= 2.00 2.00
Length (m)= 243.58 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 16.48 9.51
over (min) 5.00 30.00
Storage Coeff. (min)= 7.28 (ii) 25.37 (ii)
Unit Hyd. Tpeak (min)= 5.00 30.00
Unit Hyd. peak (cms)= 0.17 0.04

*TOTALS*
PEAK FLOW (cms)= 0.08 0.13 0.184 (iii)
TIME TO PEAK (hrs)= 2.08 3.33 3.08
RUNOFF VOLUME (mm)= 62.40 28.32 35.13
TOTAL RAINFALL (mm)= 63.40 63.40 63.40
RUNOFF COEFFICIENT = 0.98 0.45 0.55
```

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4244) |
| 1 + 2 = 3 |
-----

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0044): 8.90 0.184 3.08 35.13
+ ID2= 2 ( 0898): 20.50 0.400 5.33 54.33
-----
ID = 3 ( 4244): 29.40 0.556 5.08 48.52
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0897) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
```

```
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .140E+02 0.0 0.17 55.64
0.24 212.03 .559E+02 0.0 0.27 35.05
0.36 212.15 .126E+03 0.1 0.35 26.75
0.48 212.27 .224E+03 0.2 0.43 22.08
0.61 212.40 .350E+03 0.3 0.49 19.03
0.73 212.52 .110E+04 0.6 0.32 29.36
0.85 212.64 .309E+04 1.7 0.31 29.92
0.97 212.76 .566E+04 3.7 0.37 25.67
1.09 212.88 .878E+04 6.7 0.43 21.92
1.21 213.00 .122E+05 10.8 0.50 18.80
1.33 213.12 .158E+05 15.8 0.57 16.63
1.45 213.24 .196E+05 21.8 0.63 15.03
1.57 213.36 .237E+05 28.7 0.68 13.79
1.70 213.49 .280E+05 36.4 0.73 12.81
1.82 213.61 .325E+05 45.2 0.78 12.00
1.94 213.73 .372E+05 54.9 0.83 11.31
2.06 213.85 .422E+05 66.2 0.89 10.62
2.18 213.97 .472E+05 79.0 0.94 9.97
2.37 214.16 .571E+05 102.0 1.01 9.34
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4244) 29.40 0.56 5.08 48.52 0.70 0.35
OUTFLOW: ID= 1 ( 0897) 29.40 0.53 5.58 48.52 0.69 0.36
```

```
-----
| ADD HYD ( 4301) |
| 1 + 2 = 3 |
-----

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0888): 94.80 1.581 5.33 33.27
+ ID2= 2 ( 0897): 29.40 0.526 5.58 48.52
-----
ID = 3 ( 4301): 124.20 2.103 5.42 36.88
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model With SWM Infrastructure - Output

```
| ROUTE CHN( 0887) |
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.52        0.0400
61.99         209.23        0.0400
76.86         209.20        0.0400
82.03         209.20        0.0400 /0.0350 Main Channel
86.30         208.87        0.0350 Main Channel
89.86         209.20        0.0350 /0.0300 Main Channel
96.27         209.24        0.0300
103.53        209.40        0.0300
127.96        209.50        0.0300
158.58        209.70        0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.03       208.90      .143E+01     0.0             0.09          20.80
0.07       208.94      .572E+01     0.0             0.14          13.11
0.10       208.97      .129E+02     0.0             0.18          10.00
0.13       209.00      .229E+02     0.0             0.22          8.26
0.17       209.04      .357E+02     0.1             0.26          7.11
0.20       209.07      .514E+02     0.1             0.29          6.30
0.23       209.10      .700E+02     0.2             0.32          5.69
0.26       209.13      .915E+02     0.3             0.35          5.20
0.30       209.17      .116E+03     0.4             0.38          4.81
0.33       209.20      .143E+03     0.5             0.41          4.48
0.37       209.24      .239E+03     0.8             0.37          5.02
0.40       209.27      .396E+03     1.3             0.35          5.26
0.44       209.31      .589E+03     1.9             0.36          5.13
0.47       209.34      .818E+03     2.8             0.38          4.89
0.51       209.38      .108E+04     3.9             0.40          4.63
0.54       209.41      .139E+04     5.2             0.41          4.46
0.58       209.45      .175E+04     6.7             0.43          4.33
0.61       209.48      .218E+04     8.7             0.44          4.17
0.65       209.52      .266E+04     11.2            0.46          3.98

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4301) 124.20 2.10 5.42 36.88 0.44 0.36
OUTFLOW: ID= 1 ( 0887) 124.20 2.10 5.50 36.88 0.44 0.36
```

```
| CALIB
| NASHYD ( 0430) |
-----
Area (ha)= 19.80 Curve Number (CN)= 83.6
```

```
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
| IN= 2--> OUT= 1 | U.H. Tp(hrs)= 1.13
-----
```

```
Unit Hyd Qpeak (cms)= 0.669

PEAK FLOW (cms)= 0.340 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 29.578
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.467
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4300) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0430): 19.80 0.340 5.25 29.58
+ ID2= 2 ( 0887): 124.20 2.101 5.50 36.88
=====
ID = 3 ( 4300): 144.00 2.438 5.42 35.88
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0886) |
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.20        0.0400
100.00         206.26        0.0400
111.30         206.19        0.0400 /0.0350 Main Channel
112.02         205.76        0.0350 Main Channel
113.82         205.37        0.0350 Main Channel
115.62         206.03        0.0350 /0.0400 Main Channel
117.77         207.30        0.0400
120.56         207.40        0.0400
124.41         207.31        0.0400
129.31         207.24        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.09       205.46      .110E+02     0.0             0.11          51.32
0.19       205.56      .438E+02     0.0             0.17          32.33
0.28       205.65      .986E+02     0.1             0.23          24.67
0.38       205.75      .175E+03     0.1             0.27          20.37
0.47       205.84      .271E+03     0.3             0.33          16.94
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0885) |
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          208.48        0.0500
43.69         207.97        0.0500
66.92         207.94        0.0500
76.98         208.01        0.0500
87.94         208.25        0.0500
89.93         208.44        0.0500 /0.0350 Main Channel
92.70         208.20        0.0350 Main Channel
95.51         207.28        0.0350 Main Channel
98.26         208.25        0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.05       207.33      .134E+01     0.0             0.06          52.81
0.10       207.38      .536E+01     0.0             0.10          33.27
0.15       207.43      .121E+02     0.0             0.13          25.39
0.19       207.47      .214E+02     0.0             0.15          20.96
0.24       207.52      .335E+02     0.0             0.18          18.06
0.29       207.57      .483E+02     0.1             0.20          15.99
0.34       207.62      .657E+02     0.1             0.22          14.43
0.39       207.67      .858E+02     0.1             0.24          13.20
0.44       207.72      .109E+03     0.1             0.26          12.21
0.48       207.76      .134E+03     0.2             0.28          11.38
0.53       207.81      .162E+03     0.3             0.30          10.68
0.58       207.86      .193E+03     0.3             0.32          10.08
0.63       207.91      .227E+03     0.4             0.34          9.55
0.68       207.96      .295E+03     0.5             0.32          10.12
0.73       208.01      .613E+03     0.7             0.22          14.89
0.78       208.06      .103E+04     1.0             0.20          16.42
0.82       208.10      .150E+04     1.5             0.20          16.27
0.87       208.15      .204E+04     2.2             0.21          15.61
0.92       208.20      .264E+04     3.0             0.22          14.84
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4110) 148.50 2.51 5.58 35.83 0.89 0.21
OUTFLOW: ID= 1 ( 0885) 148.50 2.48 5.75 35.83 0.89 0.21
```

```
0.57       205.94      .379E+03     0.4             0.38          14.73
0.66       206.03      .501E+03     0.6             0.42          13.19
0.76       206.13      .644E+03     0.9             0.48          11.58
0.86       206.23      .845E+03     1.3             0.51          10.89
0.96       206.33      .140E+04     1.9             0.46          12.13
1.06       206.43      .209E+04     2.9             0.46          12.20
1.16       206.53      .290E+04     4.1             0.47          11.82
1.26       206.63      .383E+04     5.6             0.49          11.31
1.37       206.74      .489E+04     7.6             0.52          10.78
1.47       206.84      .607E+04     9.8             0.54          10.28
1.57       206.94      .737E+04     12.5            0.57          9.81
1.67       207.04      .879E+04     15.6             0.60          9.38
1.77       207.14      .103E+05     19.2             0.62          8.99
1.87       207.24      .120E+05     23.2             0.65          8.63

<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4300) 144.00 2.44 5.42 35.88 1.02 0.46
OUTFLOW: ID= 1 ( 0886) 144.00 2.42 5.58 35.87 1.01 0.46
```

```
| CALIB
| NASHYD ( 0411) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 4.50 Curve Number (CN)= 86.7
Ia (mm)= 5.84 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.11
```

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW (cms)= 0.088 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 34.324
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.541

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4110) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0411): 4.50 0.088 5.17 34.32
+ ID2= 2 ( 0886): 144.00 2.424 5.58 35.87
=====
ID = 3 ( 4110): 148.50 2.509 5.58 35.83
```

Model With SWM Infrastructure - Output

```
| CALIB
| NASHYD ( 0041) | Area (ha)= 25.40 Curve Number (CN)= 83.6
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.21
```

Unit Hyd Qpeak (cms)= 0.802

```
PEAK FLOW (cms)= 0.431 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 29.578
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.467
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0894) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .523E+01 0.0 0.10 36.03
0.24 212.03 .209E+02 0.0 0.15 22.70
0.36 212.15 .471E+02 0.0 0.20 17.32
0.48 212.27 .837E+02 0.1 0.25 14.30
0.61 212.40 .131E+03 0.2 0.29 12.32
0.73 212.52 .412E+03 0.4 0.18 19.01
0.85 212.64 .115E+04 1.0 0.18 19.37
0.97 212.76 .212E+04 2.1 0.21 16.62
1.09 212.88 .328E+04 3.9 0.25 14.19
1.21 213.00 .455E+04 6.2 0.29 12.17
1.33 213.12 .591E+04 9.1 0.33 10.77
1.45 213.24 .734E+04 12.6 0.36 9.73
1.57 213.36 .886E+04 16.5 0.39 8.93
1.70 213.49 .105E+05 21.0 0.42 8.29
1.82 213.61 .122E+05 26.1 0.45 7.77
```

ID = 3 (4101): 211.40 3.541 5.58 34.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0884) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 204.63 0.0400
45.24 204.34 0.0400
94.52 203.98 0.0400
140.93 203.58 0.0400
148.77 203.72 0.0400 /0.0350 Main Channel
154.30 202.99 0.0350 Main Channel
158.02 203.77 0.0350 /0.0400 Main Channel
174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 203.04 .620E+01 0.0 0.11 58.30
0.10 203.09 .248E+02 0.0 0.17 36.73
0.16 203.15 .558E+02 0.0 0.22 28.03
0.21 203.20 .992E+02 0.1 0.27 23.14
0.26 203.25 .155E+03 0.1 0.31 19.94
0.31 203.30 .223E+03 0.2 0.35 17.66
0.37 203.36 .304E+03 0.3 0.39 15.93
0.42 203.41 .397E+03 0.5 0.42 14.58
0.47 203.46 .502E+03 0.6 0.46 13.47
0.52 203.51 .620E+03 0.8 0.49 12.56
0.57 203.56 .750E+03 1.1 0.52 11.79
0.63 203.62 .934E+03 1.3 0.53 11.56
0.68 203.67 .129E+04 1.7 0.50 12.36
0.73 203.72 .184E+04 2.3 0.47 13.20
0.79 203.78 .270E+04 3.4 0.47 13.22
0.85 203.84 .412E+04 5.1 0.45 13.57
0.92 203.91 .583E+04 7.3 0.47 13.24
0.98 203.97 .783E+04 10.3 0.49 12.69
1.04 204.03 .101E+05 13.9 0.51 12.15
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4101) 211.40 3.54 5.58 34.12 0.80 0.46
OUTFLOW: ID= 1 ( 0884) 211.40 3.52 5.75 34.12 0.80 0.47
```

```
1.94 213.73 .139E+05 31.7 0.48 7.33
2.06 213.85 .158E+05 38.2 0.51 6.88
2.18 213.97 .177E+05 45.6 0.54 6.45
2.37 214.16 .214E+05 58.9 0.58 6.05
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0041) 25.40 0.43 5.33 29.58 0.74 0.18
OUTFLOW: ID= 1 ( 0894) 25.40 0.42 5.50 29.58 0.74 0.18
```

Unit Hyd Qpeak (cms)= 1.462

```
PEAK FLOW (cms)= 0.669 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 30.457
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.480
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4140) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0040): 37.50 0.669 5.17 30.46
+ ID2= 2 ( 0894): 25.40 0.423 5.50 29.58
=====
ID = 3 ( 4140): 62.90 1.085 5.25 30.10
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 4101) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 4140): 62.90 1.085 5.25 30.10
+ ID2= 2 ( 0885): 148.50 2.481 5.75 35.83
=====
```

Unit Hyd Qpeak (cms)= 0.345

```
PEAK FLOW (cms)= 0.160 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 32.416
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.511
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4100) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0410): 8.50 0.160 5.08 32.42
+ ID2= 2 ( 0884): 211.40 3.517 5.75 34.12
=====
ID = 3 ( 4100): 219.90 3.664 5.75 34.06
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0401) | Area (ha)= 23.00 Curve Number (CN)= 83.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 1.126

```
PEAK FLOW (cms)= 0.397 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 28.868
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.455
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4001) |
```


Model With SWM Infrastructure - Output

```
| 1 + 2 = 3 |
-----
ID1= 1 ( 0401): 23.00 0.397 5.17 28.87
+ ID2= 2 ( 4100): 219.90 3.664 5.75 34.06
=====
ID = 3 ( 4001): 242.90 4.026 5.67 33.57
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 4001) |
| 3 + 2 = 1 |
-----
ID1= 3 ( 4001): 242.90 4.026 5.67 33.57
+ ID2= 2 ( 4200): 67.00 1.167 5.25 29.62
=====
ID = 1 ( 4001): 309.90 5.165 5.50 32.71
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0880) |
| IN= 2---> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 204.63 0.0400
45.24 204.34 0.0400
94.52 203.98 0.0400
140.93 203.58 0.0400
148.77 203.72 0.0400 /0.0350 Main Channel
154.30 202.99 0.0350 Main Channel
158.02 203.77 0.0350 /0.0400 Main Channel
174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 203.04 .647E+01 0.0 0.11 59.17
0.10 203.09 .259E+02 0.0 0.17 37.28
0.16 203.15 .582E+02 0.0 0.23 28.45
0.21 203.20 .103E+03 0.1 0.27 23.48
0.26 203.25 .162E+03 0.1 0.32 20.24
0.31 203.30 .233E+03 0.2 0.36 17.92
0.37 203.36 .317E+03 0.3 0.40 16.17
0.42 203.41 .414E+03 0.5 0.43 14.79
0.47 203.46 .524E+03 0.6 0.47 13.68
0.52 203.51 .647E+03 0.8 0.50 12.75
```

```
0.57 203.56 .782E+03 1.1 0.54 11.96
0.63 203.62 .974E+03 1.4 0.55 11.73
0.68 203.67 .135E+04 1.8 0.51 12.55
0.73 203.72 .192E+04 2.4 0.48 13.39
0.79 203.78 .282E+04 3.5 0.48 13.41
0.85 203.84 .430E+04 5.2 0.47 13.77
0.92 203.91 .608E+04 7.5 0.48 13.44
0.98 203.97 .816E+04 10.6 0.50 12.88
1.04 204.03 .105E+05 14.2 0.52 12.33
```

```
<---- hydrograph ----> <-pipe / channel->
Area QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4001) 309.90 5.17 5.50 32.71 0.85 0.47
OUTFLOW: ID= 1 ( 0880) 309.90 5.13 5.75 32.71 0.85 0.47
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
| CALIB |
| NASHYD ( 0400) | Area (ha)= 27.60 Curve Number (CN)= 83.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.88
```

```
Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 0.488 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 29.869
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.471
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4000) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0400): 27.60 0.488 5.17 29.87
+ ID2= 2 ( 0880): 309.90 5.125 5.75 32.71
=====
ID = 3 ( 4000): 337.50 5.580 5.67 32.48
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB |
```

```
| NASHYD ( 0200) | Area (ha)= 25.60 Curve Number (CN)= 82.2
| ID= 1 DT= 5.0 min | Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.79
```

Unit Hyd Qpeak (cms)= 1.238

```
PEAK FLOW (cms)= 0.428 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.612
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.436
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB |
| NASHYD ( 0023) | Area (ha)= 7.00 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.73
```

Unit Hyd Qpeak (cms)= 0.366

```
PEAK FLOW (cms)= 0.121 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 28.723
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.453
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB |
| NASHYD ( 0022) | Area (ha)= 3.40 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.20
```

Unit Hyd Qpeak (cms)= 0.649

```
PEAK FLOW (cms)= 0.069 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 30.026
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.474
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB |
```

```
| NASHYD ( 0211) | Area (ha)= 17.30 Curve Number (CN)= 81.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.76 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.02
```

Unit Hyd Qpeak (cms)= 0.648

```
PEAK FLOW (cms)= 0.274 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 26.406
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.416
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB |
| NASHYD ( 0021) | Area (ha)= 47.60 Curve Number (CN)= 84.6
| ID= 1 DT= 5.0 min | Ia (mm)= 6.93 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 1.955

```
PEAK FLOW (cms)= 0.865 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 31.048
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.490
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0871) |
| IN= 2---> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
```

Model With SWM Infrastructure - Output

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42
0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

		<---- hydrograph ---->			<-pipe / channel-->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0021)	47.60	0.87	5.17	31.05	0.24	0.44
OUTFLOW: ID= 1 (0871)	47.60	0.86	5.33	31.04	0.23	0.44

ADD HYD (2110)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0211):	17.30	0.274	5.25	26.41
+ ID2= 2 (0022):	3.40	0.069	3.08	30.03
=====				
ID = 3 (2110):	20.70	0.333	5.08	27.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2110)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (2110):	20.70	0.333	5.08	27.00
+ ID2= 2 (0871):	47.60	0.858	5.33	31.04
=====				
ID = 1 (2110):	68.30	1.186	5.08	29.82

102.92 205.20 0.0400					
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56
0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46
0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.05

	<---- hydrograph ---->			<-pipe / channel-->		
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0020)	12.60	0.21	5.17	27.89	0.33	0.66
OUTFLOW: ID= 1 (0875)	12.60	0.21	5.25	27.85	0.33	0.66

ADD HYD (2200)				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0220):	20.30	0.330	5.17	26.80
+ ID2= 2 (0875):	12.60	0.212	5.25	27.85
=====				
ID = 3 (2200):	32.90	0.542	5.17	27.21

ADD HYD (2101)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0220)					
ID= 1 DT= 5.0 min					
	Area	(ha)=	20.30	Curve Number (CN)=	81.6
	Ia	(mm)=	8.59	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.85			

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 0.330 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 26.802
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.423

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0020)					
ID= 1 DT= 5.0 min					
	Area	(ha)=	12.60	Curve Number (CN)=	82.4
	Ia	(mm)=	8.13	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.72			

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.212 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.891
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.440

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.00	0.0400			
33.24	205.47	0.0400			
44.39	205.59	0.0400			
48.71	205.45	0.0400 / 0.0350	Main Channel		
51.02	204.50	0.0350	Main Channel		
54.33	205.44	0.0350 / 0.0400	Main Channel		
55.90	204.97	0.0400			
62.96	204.91	0.0400			

ID1= 1 (2110):	68.30	1.186	5.08	29.82
+ ID2= 2 (2200):	32.90	0.542	5.17	27.21
=====				
ID = 3 (2101):	101.20	1.728	5.17	28.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.52	0.0400			
61.99	209.23	0.0400			
76.86	209.20	0.0400			
82.03	209.20	0.0400 / 0.0350	Main Channel		
86.30	208.87	0.0350	Main Channel		
89.86	209.20	0.0350 / 0.0300	Main Channel		
96.27	209.24	0.0300			
103.53	209.40	0.0300			
127.96	209.50	0.0300			
158.58	209.70	0.0300			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

	<---- hydrograph ---->			<-pipe / channel-->		
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (2101)	101.20	1.73	5.17	28.97	0.41	0.42

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OUTFLOW: ID= 1 (0870) 101.20 1.71 5.33 28.96 0.41 0.42

```
| CALIB
| NASHYD ( 0210) | Area (ha)= 9.10 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.64
```

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW (cms)= 0.153 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 27.751
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.438

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 2100) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
ID1= 1 ( 0210): 9.10 0.153 5.08 27.75
+ ID2= 2 ( 0870): 101.20 1.715 5.33 28.96
=====
ID = 3 ( 2100): 110.30 1.865 5.25 28.86
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0230) | Area (ha)= 24.70 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.82
```

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 0.423 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 28.587
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.451

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0864) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .118E+02 0.0 0.27 29.62
0.24 212.03 .471E+02 0.0 0.42 18.66
0.36 212.15 .106E+03 0.1 0.56 14.24
0.48 212.27 .188E+03 0.3 0.67 11.76
0.61 212.40 .294E+03 0.5 0.78 10.13
0.73 212.52 .928E+03 1.0 0.51 15.63
0.85 212.64 .260E+04 2.7 0.50 15.93
0.97 212.76 .477E+04 5.8 0.58 13.67
1.09 212.88 .739E+04 10.6 0.68 11.67
1.21 213.00 .103E+05 17.1 0.79 10.01
1.33 213.12 .133E+05 25.0 0.89 8.85
1.45 213.24 .165E+05 34.4 0.99 8.00
1.57 213.36 .200E+05 45.3 1.08 7.34
1.70 213.49 .236E+05 57.6 1.16 6.82
1.82 213.61 .274E+05 71.4 1.24 6.39
1.94 213.73 .314E+05 86.8 1.31 6.02
2.06 213.85 .355E+05 104.6 1.40 5.66
2.18 213.97 .398E+05 124.9 1.49 5.31
2.37 214.16 .481E+05 161.2 1.59 4.97
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0241) 26.70 0.45 5.17 27.75 0.59 0.76
OUTFLOW: ID= 1 ( 0864) 26.70 0.45 5.17 27.75 0.59 0.76
```

```
| CALIB
| NASHYD ( 0231) | Area (ha)= 29.50 Curve Number (CN)= 81.9
| ID= 1 DT= 5.0 min | Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 0.484 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.204
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.429

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0240) | Area (ha)= 10.10 Curve Number (CN)= 82.0
| ID= 1 DT= 5.0 min | Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.74
```

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.168 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.342
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.431

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0241) | Area (ha)= 26.70 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.75
```

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 0.448 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.751
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.438

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 2301) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
ID1= 1 ( 0231): 29.50 0.484 5.17 27.20
+ ID2= 2 ( 0240): 10.10 0.168 5.17 27.34
=====
ID = 3 ( 2301): 39.60 0.652 5.17 27.24
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 2301) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
ID1= 3 ( 2301): 39.60 0.652 5.17 27.24
+ ID2= 2 ( 0864): 26.70 0.448 5.17 27.75
=====
ID = 1 ( 2301): 66.30 1.100 5.17 27.45
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0863) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 / 0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 / 0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .138E+01 0.0 0.11 58.11
0.09 205.28 .551E+01 0.0 0.18 36.61
0.13 205.32 .124E+02 0.0 0.23 27.94
0.17 205.36 .220E+02 0.0 0.28 23.06
0.22 205.41 .344E+02 0.0 0.33 19.87
0.26 205.45 .496E+02 0.0 0.37 17.60
0.31 205.50 .675E+02 0.1 0.41 15.88
0.35 205.54 .882E+02 0.1 0.45 14.53
0.39 205.58 .112E+03 0.1 0.48 13.43
0.44 205.63 .138E+03 0.2 0.52 12.52
```

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0.48	205.67	.167E+03	0.2	0.55	11.81
0.52	205.71	.212E+03	0.2	0.44	14.65
0.57	205.76	.285E+03	0.3	0.43	15.23
0.61	205.80	.388E+03	0.4	0.44	14.79
0.66	205.85	.519E+03	0.6	0.47	13.99
0.70	205.89	.679E+03	0.9	0.50	13.12
0.74	205.93	.868E+03	1.2	0.53	12.29
0.79	205.98	.109E+04	1.6	0.56	11.53
0.83	206.02	.133E+04	2.0	0.60	10.85

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (	2301)	66.30	1.10	5.17	27.45	0.73	0.52
OUTFLOW: ID= 1 (	0863)	66.30	1.10	5.25	27.44	0.73	0.52

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (	0230):	24.70	0.423	5.17	28.59
+ ID2= 2 (	0863):	66.30	1.097	5.25	27.44
ID = 3 (	2300):	91.00	1.519	5.25	27.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (	2100):	110.30	1.865	5.25	28.86
+ ID2= 2 (	2300):	91.00	1.519	5.25	27.75
ID = 3 (	2011):	201.30	3.384	5.25	28.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

		ROUTING time step (min)='
ROUTE CHN(	0862)	5.00
IN= 2----	OUT= 1	

Distance	Elevation	Manning
0.00	204.63	0.0400

TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 28.166
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.444

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (	0201):	8.20	0.141	3.58	28.17
+ ID2= 2 (	0023):	7.00	0.121	5.08	28.72
ID = 3 (	2010):	15.20	0.260	5.08	28.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (	2010):	15.20	0.260	5.08	28.42
+ ID2= 2 (	0862):	201.30	3.368	5.42	28.36
ID = 1 (	2010):	216.50	3.621	5.33	28.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

		ROUTING time step (min)='
ROUTE CHN(	0860)	5.00
IN= 2----	OUT= 1	

Distance	Elevation	Manning
0.00	208.48	0.0500
43.69	207.97	0.0500
66.92	207.94	0.0500
76.98	208.01	0.0500
87.94	208.25	0.0500
89.93	208.44	0.0500 / 0.0350
92.70	208.20	0.0350
95.51	207.28	0.0350
98.26	208.25	0.0350

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)

45.24	204.34	0.0400
94.52	203.98	0.0400
140.93	203.58	0.0400
148.77	203.72	0.0400 / 0.0350
154.30	202.99	0.0350
158.02	203.77	0.0350 / 0.0400
174.30	203.79	0.0400
222.94	204.38	0.0400
285.62	204.03	0.0400

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.465E+01	0.0	0.10	47.86
0.10	203.09	.186E+02	0.0	0.15	30.15
0.16	203.15	.418E+02	0.0	0.20	23.01
0.21	203.20	.744E+02	0.1	0.24	18.99
0.26	203.25	.116E+03	0.1	0.28	16.37
0.31	203.30	.167E+03	0.2	0.32	14.50
0.37	203.36	.228E+03	0.3	0.35	13.08
0.42	203.41	.297E+03	0.4	0.39	11.97
0.47	203.46	.376E+03	0.6	0.42	11.06
0.52	203.51	.465E+03	0.8	0.45	10.31
0.57	203.56	.562E+03	1.0	0.48	9.68
0.63	203.62	.700E+03	1.2	0.49	9.49
0.68	203.67	.969E+03	1.6	0.45	10.15
0.73	203.72	.138E+04	2.1	0.43	10.83
0.79	203.78	.203E+04	3.1	0.43	10.85
0.85	203.84	.309E+04	4.6	0.41	11.14
0.92	203.91	.437E+04	6.7	0.42	10.87
0.98	203.97	.586E+04	9.4	0.44	10.42
1.04	204.03	.757E+04	12.7	0.46	9.97

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (	2011)	201.30	3.38	5.25	28.36
OUTFLOW: ID= 1 (	0862)	201.30	3.37	5.42	28.36

CALIB	NASHYD (	0201)	Area (ha)=	8.20
ID= 1 DT= 5.0 min			Ia (mm)=	8.02
			U.H. Tp(hrs)=	0.60

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.141 (i)

0.05	207.33	.155E+01	0.0	0.16	23.32
0.10	207.38	.620E+01	0.0	0.25	14.69
0.15	207.43	.140E+02	0.0	0.33	11.21
0.19	207.47	.248E+02	0.0	0.40	9.26
0.24	207.52	.388E+02	0.1	0.47	7.98
0.29	207.57	.558E+02	0.1	0.53	7.06
0.34	207.62	.760E+02	0.2	0.59	6.37
0.39	207.67	.992E+02	0.3	0.64	5.83
0.44	207.72	.126E+03	0.4	0.69	5.39
0.48	207.76	.155E+03	0.5	0.74	5.03
0.53	207.81	.188E+03	0.7	0.79	4.72
0.58	207.86	.223E+03	0.8	0.84	4.45
0.63	207.91	.262E+03	1.0	0.88	4.22
0.68	207.96	.341E+03	1.3	0.83	4.47
0.73	208.01	.708E+03	1.8	0.57	6.58
0.78	208.06	.119E+04	2.7	0.51	7.25
0.82	208.10	.174E+04	4.0	0.52	7.19
0.87	208.15	.236E+04	5.7	0.54	6.89
0.92	208.20	.305E+04	7.8	0.57	6.55

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (	2010)	216.50	3.62	5.33	28.36
OUTFLOW: ID= 1 (	0860)	216.50	3.62	5.42	28.36

ADD HYD (	2000)			
1 + 2 = 3				
ID1= 1 (	0200):	25.60	0.428	5.17
+ ID2= 2 (	0860):	216.50	3.616	5.42
ID = 3 (	2000):	242.10	4.036	5.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD (	0300)	Area (ha)=	36.80
ID= 1 DT= 5.0 min			Ia (mm)=	7.74
			U.H. Tp(hrs)=	0.90

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 0.633 (i)

TIME TO PEAK (hrs)= 5.167

Model With SWM Infrastructure - Output

RUNOFF VOLUME (mm)= 28.868
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.455

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----  
| CALIB  
| NASHYD ( 0031) | Area (ha)= 3.00 Curve Number (CN)= 82.5  
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00  
|-----  
| U.H. Tp(hrs)= 0.62
```

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.054 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 30.082
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.474

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----  
| CALIB  
| NASHYD ( 0350) | Area (ha)= 1.50 Curve Number (CN)= 83.2  
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00  
|-----  
| U.H. Tp(hrs)= 0.38
```

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 29.001
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.457

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----  
| ROUTE CHN( 0850) |  
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00  
|-----
```

```
<----- DATA FOR SECTION ( 1.1) ----->  
Distance Elevation Manning  
0.00 206.00 0.0400  
33.24 205.47 0.0400  
44.39 205.59 0.0400  
48.71 205.45 0.0400 /0.0350 Main Channel
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----  
| ADD HYD ( 3200) |  
| 1 + 2 = 3 |  
|-----  
ID1= 1 ( 0032): 28.00 0.485 5.17 29.29  
+ ID2= 2 ( 0850): 1.50 0.026 5.17 28.68  
=====
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----  
| CALIB  
| NASHYD ( 0301) | Area (ha)= 59.40 Curve Number (CN)= 82.7  
| ID= 1 DT= 5.0 min | Ia (mm)= 7.97 # of Linear Res.(N)= 3.00  
|-----  
| U.H. Tp(hrs)= 1.23
```

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 0.967 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 28.301
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.446

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----  
| ADD HYD ( 3010) |  
| 1 + 2 = 3 |  
|-----  
ID1= 1 ( 0301): 59.40 0.967 5.33 28.30  
+ ID2= 2 ( 3200): 29.50 0.511 5.17 29.26  
=====
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----  
| ADD HYD ( 3001) |  
| 1 + 2 = 3 |  
|-----  
ID1= 1 ( 3010): 88.90 1.476 5.25 28.62
```

51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400

```
<----- TRAVEL TIME TABLE ----->  
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME  
(m) (m) (cu.m.) (cms) (m/s) (min)  
0.04 204.54 .300E+01 0.0 0.15 86.75  
0.07 204.57 .120E+02 0.0 0.24 54.65  
0.11 204.61 .270E+02 0.0 0.31 41.70  
0.14 204.64 .480E+02 0.0 0.37 34.42  
0.18 204.68 .750E+02 0.0 0.43 29.67  
0.22 204.72 .108E+03 0.1 0.49 26.27  
0.25 204.75 .147E+03 0.1 0.54 23.71  
0.29 204.79 .192E+03 0.1 0.59 21.69  
0.33 204.83 .243E+03 0.2 0.64 20.05  
0.36 204.86 .300E+03 0.3 0.69 18.69  
0.40 204.90 .363E+03 0.3 0.73 17.54  
0.43 204.93 .488E+03 0.4 0.70 18.37  
0.47 204.97 .860E+03 0.6 0.56 22.95  
0.51 205.01 .144E+04 1.0 0.52 24.88  
0.54 205.04 .217E+04 1.5 0.52 24.65  
0.58 205.08 .304E+04 2.1 0.54 23.62  
0.61 205.11 .407E+04 3.0 0.57 22.38  
0.65 205.15 .524E+04 4.1 0.61 21.13  
0.69 205.19 .656E+04 5.5 0.64 19.97
```

```
<---- hydrograph ----> <-pipe / channel->  
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL  
(ha) (cms) (hrs) (mm) (m) (m/s)  
INFLOW : ID= 2 ( 0350) 1.50 0.03 3.25 29.00 0.15 0.39  
OUTFLOW: ID= 1 ( 0850) 1.50 0.03 5.17 28.68 0.15 0.38
```

```
-----  
| CALIB  
| NASHYD ( 0032) | Area (ha)= 28.00 Curve Number (CN)= 83.4  
| ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00  
|-----  
| U.H. Tp(hrs)= 0.95
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.485 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 29.291
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.462

+ ID2= 2 (0031): 3.00 0.054 3.50 30.08
=====

ID = 3 (3001): 91.90 1.528 5.25 28.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----  
| ROUTE CHN( 0852) |  
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00  
|-----
```

```
<----- DATA FOR SECTION ( 1.1) ----->  
Distance Elevation Manning  
0.00 209.20 0.0400  
100.00 206.26 0.0400  
111.30 206.19 0.0400 /0.0350 Main Channel  
112.02 205.76 0.0350 Main Channel  
113.82 205.37 0.0350 Main Channel  
115.62 206.03 0.0350 /0.0400 Main Channel  
117.77 207.30 0.0400  
120.56 207.40 0.0400  
124.41 207.31 0.0400  
129.31 207.24 0.0400
```

```
<----- TRAVEL TIME TABLE ----->  
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME  
(m) (m) (cu.m.) (cms) (m/s) (min)  
0.09 205.46 .132E+02 0.0 0.21 32.83  
0.19 205.56 .529E+02 0.0 0.33 20.68  
0.28 205.65 .119E+03 0.1 0.43 15.78  
0.38 205.75 .212E+03 0.3 0.52 13.03  
0.47 205.84 .327E+03 0.5 0.62 10.84  
0.57 205.94 .458E+03 0.8 0.72 9.42  
0.66 206.03 .604E+03 1.2 0.80 8.44  
0.76 206.13 .777E+03 1.7 0.91 7.41  
0.86 206.23 .102E+04 2.4 0.97 6.97  
0.96 206.33 .168E+04 3.6 0.87 7.76  
1.06 206.43 .252E+04 5.4 0.87 7.80  
1.16 206.53 .350E+04 7.7 0.89 7.56  
1.26 206.63 .463E+04 10.7 0.93 7.24  
1.37 206.74 .590E+04 14.3 0.98 6.90  
1.47 206.84 .732E+04 18.6 1.03 6.58  
1.57 206.94 .889E+04 23.6 1.08 6.28  
1.67 207.04 .106E+05 29.5 1.13 6.00  
1.77 207.14 .125E+05 36.1 1.17 5.75  
1.87 207.24 .145E+05 43.7 1.22 5.52
```

```
<---- hydrograph ----> <-pipe / channel->  
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL  
(ha) (cms) (hrs) (mm) (m) (m/s)  
INFLOW : ID= 2 ( 3001) 91.90 1.53 5.25 28.67 0.72 0.86  
OUTFLOW: ID= 1 ( 0852) 91.90 1.53 5.33 28.67 0.72 0.86
```

Model With SWM Infrastructure - Output

```
ADD HYD ( 3000)
1 + 2 = 3
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0300):	36.80	0.633	5.17	28.87
+ ID2= 2 (0852):	91.90	1.526	5.33	28.67
=====				
ID = 3 (3000):	128.70	2.155	5.25	28.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
CALIB
NASHYD ( 0030)
ID= 1 DT= 5.0 min
```

Area (ha)=	1.10	Curve Number (CN)=	81.5
Ia (mm)=	5.76	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.30		

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)=	0.021 (i)
TIME TO PEAK (hrs)=	3.167
RUNOFF VOLUME (mm)=	28.804
TOTAL RAINFALL (mm)=	63.400
RUNOFF COEFFICIENT	= 0.454

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ROUTE CHN( 0854)
IN= 2--> OUT= 1
```

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

<---- hydrograph ---->				<-pipe / channel->		
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0030)	1.10	0.02	3.17	28.80	0.13	0.41
OUTFLOW: ID= 1 (0854)	1.10	0.02	3.25	28.79	0.13	0.40

```
CALIB
NASHYD ( 0340)
ID= 1 DT= 5.0 min
```

Area (ha)=	21.00	Curve Number (CN)=	82.8
Ia (mm)=	7.91	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.69		

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)=	0.360 (i)
TIME TO PEAK (hrs)=	5.083
RUNOFF VOLUME (mm)=	28.443
TOTAL RAINFALL (mm)=	63.400
RUNOFF COEFFICIENT	= 0.449

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ADD HYD ( 3400)
1 + 2 = 3
```

AREA	QPEAK	TPEAK	R.V.

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0340):	21.00	0.360	5.08	28.44
+ ID2= 2 (0854):	1.10	0.020	3.25	28.79
=====				
ID = 3 (3400):	22.10	0.378	5.08	28.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
CALIB
NASHYD ( 0123)
ID= 1 DT= 5.0 min
```

Area (ha)=	24.60	Curve Number (CN)=	82.9
Ia (mm)=	7.85	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.93		

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)=	0.419 (i)
TIME TO PEAK (hrs)=	5.167
RUNOFF VOLUME (mm)=	28.587
TOTAL RAINFALL (mm)=	63.400
RUNOFF COEFFICIENT	= 0.451

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ROUTE CHN( 0814)
IN= 2--> OUT= 1
```

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40

0.85	212.64	.204E+04	2.7	0.49	12.63
0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

<---- hydrograph ---->				<-pipe / channel->		
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0123)	24.60	0.42	5.17	28.59	0.57	0.74
OUTFLOW: ID= 1 (0814)	24.60	0.42	5.25	28.59	0.57	0.74

```
CALIB
NASHYD ( 0124)
ID= 1 DT= 5.0 min
```

Area (ha)=	24.30	Curve Number (CN)=	85.8
Ia (mm)=	6.30	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.51		

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)=	0.505 (i)
TIME TO PEAK (hrs)=	3.333
RUNOFF VOLUME (mm)=	32.886
TOTAL RAINFALL (mm)=	63.400
RUNOFF COEFFICIENT	= 0.519

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ROUTE CHN( 0813)
IN= 2--> OUT= 1
```

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel

Model With SWM Infrastructure - Output

32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.78
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25

	<---- hydrograph ---->				<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0124)	24.30	0.51	3.33	32.89	0.61	0.74
OUTFLOW: ID= 1 (0813)	24.30	0.49	3.67	32.88	0.61	0.75

| ADD HYD (1221) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0813):	24.30	0.494	3.67	32.88
+ ID2= 2 (0814):	24.60	0.418	5.25	28.59
=====				
ID = 3 (1221):	48.90	0.878	4.33	30.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0812) |
| IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 /0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 /0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.533E+02	0.1	0.24	12.01
0.14	208.16	.150E+03	0.3	0.37	7.63
0.22	208.24	.280E+03	0.8	0.47	5.98
0.29	208.31	.444E+03	1.5	0.56	5.04
0.36	208.38	.642E+03	2.4	0.64	4.42
0.44	208.46	.896E+03	4.0	0.75	3.76
0.52	208.54	.119E+04	6.0	0.86	3.29
0.60	208.62	.153E+04	8.6	0.96	2.96
0.68	208.70	.192E+04	11.7	1.04	2.73
0.76	208.78	.235E+04	15.4	1.11	2.55
0.84	208.86	.283E+04	19.6	1.18	2.41
0.92	208.94	.351E+04	24.2	1.17	2.41
0.99	209.01	.435E+04	30.6	1.19	2.37
1.07	209.09	.528E+04	38.0	1.22	2.31
1.15	209.17	.628E+04	46.4	1.26	2.26
1.23	209.25	.737E+04	55.9	1.29	2.20
1.31	209.33	.855E+04	66.6	1.33	2.14
1.39	209.41	.982E+04	78.7	1.36	2.08
1.47	209.49	.112E+05	92.1	1.40	2.03

<---- hydrograph ---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	MAX DEPTH MAX VEL
				(m)	(m/s)
INFLW : ID= 2 (1221)	48.90	0.88	4.33	30.72	0.23 0.48
OUTFLOW: ID= 1 (0812)	48.90	0.88	4.42	30.72	0.23 0.48

| CALIB
| NASHYD (0122) |

Area (ha)= 31.80 Curve Number (CN)= 85.1

| ID= 1 DT= 5.0 min |

Ia (mm)= 6.67 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.96

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 0.588 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 31.800
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1220) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0122):	31.80	0.588	5.08	31.80
+ ID2= 2 (0812):	48.90	0.878	4.42	30.72
=====				
ID = 3 (1220):	80.70	1.466	5.17	31.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0811) |
| IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 /0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 /0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 /0.0400	
132.78	206.84	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	206.01	.147E+02	0.0	0.14	60.26
0.12	206.07	.590E+02	0.0	0.22	37.96
0.18	206.13	.133E+03	0.1	0.29	28.97
0.26	206.21	.302E+03	0.2	0.36	22.81
0.34	206.29	.671E+03	0.5	0.39	21.40
0.42	206.37	.151E+04	1.2	0.39	20.95

	<---- hydrograph ---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1220)	80.70	1.47	5.17	31.14	0.44	0.41
OUTFLOW: ID= 1 (0811)	80.70	1.46	5.25	31.14	0.44	0.41

| CALIB
| NASHYD (0121) |

Area (ha)= 16.10 Curve Number (CN)= 86.5
Ia (mm)= 5.94 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.89

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.318 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 34.002
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.536

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1210) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0121):	16.10	0.318	4.33	34.00
+ ID2= 2 (0811):	80.70	1.462	5.25	31.14
=====				
ID = 3 (1210):	96.80	1.775	5.17	31.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model With SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0146) | Area (ha)= 12.80 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.55
|
```

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.227 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 28.723
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.453

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0844) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 /0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 /0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .107E+01 0.0 0.13 37.04
0.08 207.60 .430E+01 0.0 0.20 23.33
0.12 207.64 .966E+01 0.0 0.27 17.81
0.16 207.68 .172E+02 0.0 0.32 14.70
0.19 207.71 .268E+02 0.0 0.38 12.67
0.23 207.75 .387E+02 0.1 0.42 11.22
0.27 207.79 .526E+02 0.1 0.47 10.12
0.31 207.83 .687E+02 0.1 0.51 9.26
0.35 207.87 .870E+02 0.2 0.56 8.56
0.39 207.91 .107E+03 0.2 0.60 7.98
0.43 207.95 .130E+03 0.3 0.64 7.49
0.47 207.99 .155E+03 0.4 0.67 7.07
0.50 208.02 .181E+03 0.5 0.71 6.70
0.54 208.06 .210E+03 0.6 0.75 6.38
0.58 208.10 .242E+03 0.7 0.78 6.09
0.62 208.14 .275E+03 0.8 0.82 5.83
```

```
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .144E+02 0.0 0.23 42.45
0.24 212.03 .578E+02 0.0 0.36 26.74
0.36 212.15 .130E+03 0.1 0.48 20.41
0.48 212.27 .231E+03 0.2 0.58 16.85
0.61 212.40 .361E+03 0.4 0.67 14.52
0.73 212.52 .114E+04 0.8 0.43 22.41
0.85 212.64 .319E+04 2.3 0.43 22.83
0.97 212.76 .585E+04 5.0 0.50 19.59
1.09 212.88 .907E+04 9.0 0.58 16.72
1.21 213.00 .126E+05 14.6 0.68 14.34
1.33 213.12 .163E+05 21.4 0.77 12.69
1.45 213.24 .203E+05 29.5 0.85 11.47
1.57 213.36 .245E+05 38.8 0.92 10.52
1.70 213.49 .289E+05 49.3 0.99 9.77
1.82 213.61 .336E+05 61.2 1.06 9.15
1.94 213.73 .385E+05 74.3 1.13 8.63
2.06 213.85 .436E+05 89.6 1.20 8.11
2.18 213.97 .488E+05 106.9 1.28 7.61
2.37 214.16 .590E+05 138.1 1.36 7.13
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1450) 25.40 0.45 3.58 28.93 0.62 0.64
OUTFLOW: ID= 1 ( 0843) 25.40 0.44 4.08 28.92 0.61 0.65
```

```
-----
| CALIB
| NASHYD ( 0144) | Area (ha)= 28.60 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.97
|
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.485 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 28.587

```
0.67 208.19 .329E+03 1.0 0.87 5.50
0.72 208.24 .413E+03 1.3 0.89 5.36
0.77 208.29 .540E+03 1.7 0.87 5.45
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0146) 12.80 0.23 3.42 28.72 0.39 0.60
OUTFLOW: ID= 1 ( 0844) 12.80 0.23 3.58 28.72 0.39 0.60
```

```
-----
| CALIB
| NASHYD ( 0145) | Area (ha)= 12.60 Curve Number (CN)= 83.3
| ID= 1 DT= 5.0 min | Ia (mm)= 7.63 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.59
|
```

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.225 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 29.151
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.460

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1450) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0145): 12.60 0.225 3.50 29.15
+ ID2= 2 ( 0844): 12.80 0.226 3.58 28.72
=====
ID = 3 ( 1450): 25.40 0.451 3.58 28.93
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0843) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
```

TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.451

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1440) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0144): 28.60 0.485 5.17 28.59
+ ID2= 2 ( 0843): 25.40 0.444 4.08 28.92
=====
ID = 3 ( 1440): 54.00 0.925 5.17 28.75
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0842) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 /0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 /0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 /0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .149E+01 0.0 0.09 81.67
0.09 205.28 .594E+01 0.0 0.14 51.45
0.13 205.32 .134E+02 0.0 0.18 39.26
0.17 205.36 .238E+02 0.0 0.22 32.41
0.22 205.41 .371E+02 0.0 0.25 27.93
0.26 205.45 .535E+02 0.0 0.28 24.73
0.31 205.50 .728E+02 0.1 0.31 22.32
0.35 205.54 .950E+02 0.1 0.34 20.42
0.39 205.58 .120E+03 0.1 0.37 18.87
0.44 205.63 .149E+03 0.1 0.40 17.59
0.48 205.67 .180E+03 0.2 0.42 16.60
0.52 205.71 .228E+03 0.2 0.34 20.59
0.57 205.76 .308E+03 0.2 0.33 21.41
0.61 205.80 .418E+03 0.3 0.34 20.79
```


Model With SWM Infrastructure - Output

0.66	205.85	.560E+03	0.5	0.36	19.66
0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1440)	54.00	0.92	5.17	28.75	0.75	0.41
OUTFLOW: ID= 1 (0842)	54.00	0.92	5.33	28.74	0.74	0.41

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB					
NASHYD (0143)	Area (ha)=	27.70	Curve Number (CN)=	82.9	
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.07			

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)=	0.465 (i)
TIME TO PEAK (hrs)=	5.250
RUNOFF VOLUME (mm)=	28.587
TOTAL RAINFALL (mm)=	63.400
RUNOFF COEFFICIENT	= 0.451

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0143):	27.70	0.465	5.25	28.59
+ ID2= 2 (0842):	54.00	0.922	5.33	28.74
=====				
ID = 3 (1430):	81.70	1.387	5.25	28.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0841)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning
<----- DATA FOR SECTION (1.1) ----->		

TIME TO PEAK (hrs)=	5.333
RUNOFF VOLUME (mm)=	28.587
TOTAL RAINFALL (mm)=	63.400
RUNOFF COEFFICIENT	= 0.451

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0142):	27.10	0.446	5.33	28.59
+ ID2= 2 (0841):	81.70	1.355	5.67	28.68
=====				
ID = 3 (1420):	108.80	1.797	5.58	28.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning
<----- DATA FOR SECTION (1.1) ----->		
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350 Main Channel
86.30	208.87	0.0350 Main Channel
89.86	209.20	0.0350 / 0.0300 Main Channel
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.03	208.90	.706E+01	0.0	0.08	110.24
0.07	208.94	.282E+02	0.0	0.13	69.44
0.10	208.97	.636E+02	0.0	0.17	53.00
0.13	209.00	.113E+03	0.0	0.21	43.75
0.17	209.04	.177E+03	0.1	0.24	37.70
0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75
0.37	209.24	.118E+04	0.7	0.34	26.61

0.00	209.66	0.0400
19.50	209.34	0.0400
37.91	208.66	0.0400
41.73	208.62	0.0400 / 0.0350 Main Channel
43.44	208.24	0.0350 Main Channel
45.75	208.62	0.0350 / 0.0450 Main Channel
54.00	208.79	0.0450 / 0.0400
77.43	209.05	0.0400
128.85	209.70	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	208.30	.216E+02	0.0	0.15	113.45
0.13	208.37	.864E+02	0.0	0.24	71.47
0.19	208.43	.194E+03	0.1	0.31	54.54
0.25	208.49	.345E+03	0.1	0.38	45.02
0.32	208.56	.540E+03	0.2	0.44	38.80
0.38	208.62	.777E+03	0.4	0.49	34.36
0.46	208.70	.152E+04	0.7	0.50	33.99
0.54	208.78	.281E+04	1.4	0.50	33.61
0.62	208.86	.469E+04	2.5	0.53	31.90
0.70	208.94	.734E+04	4.0	0.56	30.28
0.78	209.02	.107E+05	6.3	0.59	28.55
0.86	209.10	.149E+05	9.3	0.63	26.78
0.94	209.18	.198E+05	13.1	0.68	25.09
1.02	209.26	.253E+05	17.9	0.72	23.58
1.10	209.34	.315E+05	23.6	0.76	22.24
1.18	209.42	.386E+05	30.0	0.79	21.42
1.26	209.50	.465E+05	37.7	0.82	20.56
1.34	209.58	.554E+05	46.8	0.86	19.73
1.42	209.66	.652E+05	57.3	0.90	18.94

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1430)	81.70	1.39	5.25	28.69	0.54	0.50
OUTFLOW: ID= 1 (0841)	81.70	1.35	5.67	28.68	0.53	0.50

CALIB					
NASHYD (0142)	Area (ha)=	27.10	Curve Number (CN)=	82.9	
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.22			

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 0.446 (i)

0.40	209.27	.196E+04	1.2	0.33	27.88
0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61
0.58	209.45	.865E+04	6.3	0.40	22.94
0.61	209.48	.108E+05	8.1	0.41	22.09
0.65	209.52	.132E+05	10.4	0.43	21.10

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1420)	108.80	1.80	5.58	28.66	0.44	0.34
OUTFLOW: ID= 1 (0840)	108.80	1.76	5.92	28.65	0.43	0.33

CALIB					
NASHYD (0141)	Area (ha)=	8.10	Curve Number (CN)=	83.6	
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.78			

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)=	0.143 (i)
TIME TO PEAK (hrs)=	5.083
RUNOFF VOLUME (mm)=	29.578
TOTAL RAINFALL (mm)=	63.400
RUNOFF COEFFICIENT	= 0.467

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1410)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0141):	8.10	0.143	5.08	29.58
+ ID2= 2 (0840):	108.80	1.760	5.92	28.65
=====				
ID = 3 (1410):	116.90	1.883	5.83	28.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0151)	Area (ha)=	24.60	Curve Number (CN)=	82.8	
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00	

Model With SWM Infrastructure - Output

----- U.H. Tp(hrs)= 1.00

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.415 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 28.444
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.449

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0153) | Area (ha)= 33.30 Curve Number (CN)= 82.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 1.08

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 0.552 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 28.166
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.444

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0834) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .125E+02 0.0 0.21 40.70

0.24	212.03	.501E+02	0.0	0.33	25.64
0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48
0.85	212.64	.277E+04	2.1	0.39	21.89
0.97	212.76	.507E+04	4.5	0.45	18.78
1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0153) 33.30 0.55 5.25 28.17 0.66 0.49
OUTFLOW: ID= 1 (0834) 33.30 0.54 5.50 28.17 0.66 0.49

| CALIB |
| NASHYD (0152) | Area (ha)= 16.20 Curve Number (CN)= 82.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.93

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.273 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 28.166
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.444

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1520) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0152): 16.20 0.273 5.17 28.17

+ ID2= 2 (0834): 33.30 0.543 5.50 28.17
=====

ID = 3 (1520): 49.50 0.812 5.42 28.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0833) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .232E+03 0.1 0.19 65.23
0.14 208.16 .652E+03 0.3 0.30 41.42
0.22 208.24 .122E+04 0.6 0.38 32.47
0.29 208.31 .193E+04 1.2 0.45 27.40
0.36 208.38 .279E+04 1.9 0.51 24.03
0.44 208.46 .389E+04 3.2 0.60 20.41
0.52 208.54 .516E+04 4.8 0.69 17.88
0.60 208.62 .664E+04 6.9 0.77 16.07
0.68 208.70 .833E+04 9.4 0.83 14.80
0.76 208.78 .102E+05 12.3 0.89 13.84
0.84 208.86 .123E+05 15.7 0.94 13.07
0.92 208.94 .153E+05 19.4 0.94 13.11
0.99 209.01 .189E+05 24.5 0.96 12.89
1.07 209.09 .229E+05 30.4 0.98 12.57
1.15 209.17 .273E+05 37.1 1.01 12.25
1.23 209.25 .320E+05 44.7 1.03 11.94
1.31 209.33 .372E+05 53.3 1.06 11.62
1.39 209.41 .427E+05 63.0 1.09 11.30
1.47 209.49 .487E+05 73.7 1.12 11.00

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1520) 49.50 0.81 5.42 28.17 0.24 0.40
OUTFLOW: ID= 1 (0833) 49.50 0.80 5.67 28.16 0.24 0.40

| ADD HYD (1510) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0151): 24.60 0.415 5.25 28.44
+ ID2= 2 (0833): 49.50 0.795 5.67 28.16
=====

ID = 3 (1510): 74.10 1.200 5.50 28.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0832) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.50 0.0400
29.68 206.77 0.0400
43.70 206.13 0.0400 /0.0350 Main Channel
44.99 205.95 0.0350 Main Channel
47.70 206.24 0.0350 /0.0450 Main Channel
60.54 206.32 0.0450
80.11 206.99 0.0450
102.29 207.42 0.0450 /0.0400
132.78 206.84 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 206.01 .158E+02 0.0 0.16 56.30
0.12 206.07 .633E+02 0.0 0.25 35.47
0.18 206.13 .142E+03 0.1 0.33 27.07
0.26 206.21 .324E+03 0.3 0.42 21.31
0.34 206.29 .720E+03 0.6 0.44 20.00
0.42 206.37 .162E+04 1.4 0.45 19.57
0.50 206.45 .272E+04 2.6 0.52 17.17
0.58 206.53 .404E+04 4.2 0.56 15.86
0.66 206.61 .584E+04 6.5 0.59 15.05
0.74 206.69 .820E+04 9.6 0.63 14.19
0.83 206.78 .111E+05 13.9 0.67 13.34
0.91 206.86 .143E+05 19.9 0.74 12.00
0.99 206.94 .178E+05 27.1 0.81 10.94
1.07 207.02 .215E+05 35.3 0.87 10.16
1.15 207.10 .256E+05 44.5 0.93 9.59
1.23 207.18 .301E+05 55.1 0.98 9.09

Model With SWM Infrastructure - Output

1.31	207.26	.349E+05	67.2	1.03	8.65
1.39	207.34	.400E+05	80.7	1.07	8.26
1.47	207.42	.455E+05	95.8	1.12	7.92

			<---- hydrograph ---->		<-pipe / channel->
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (1510)	74.10	1.20	5.50	28.25	0.40
OUTFLOW: ID= 1 (0832)	74.10	1.19	5.75	28.25	0.40

CALIB					
NASHYD (0150)	Area (ha)=	6.60	Curve Number (CN)=	83.7	
ID= 1 DT= 5.0 min	Ia (mm)=	7.41	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.96			

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.116 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 29.727
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.469

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1500)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0150):	6.60	0.116	5.17	29.73	
+ ID2= 2 (0832):	74.10	1.186	5.75	28.25	
=====					
ID = 3 (1500):	80.70	1.295	5.67	28.37	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1401)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (1410):	116.90	1.883	5.83	28.72	
+ ID2= 2 (1500):	80.70	1.295	5.67	28.37	
=====					
ID = 3 (1401):	197.60	3.176	5.75	28.57	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0830)					
IN= 2----> OUT= 1					
			Routing time step (min)'=	5.00	
	<-----	DATA FOR SECTION (	1.1)	----->	
	Distance	Elevation	Manning		
	0.00	207.71	0.0400		
	58.83	206.71	0.0400		
	66.88	206.59	0.0400 / 0.0350	Main Channel	
	72.32	206.34	0.0350	Main Channel	
	77.68	206.55	0.0350 / 0.0800	Main Channel	
	82.85	206.54	0.0800		
	90.20	206.02	0.0800		
	94.03	206.48	0.0800		
	99.83	206.40	0.0800 / 0.0400		
	114.32	206.50	0.0400		
	136.07	206.86	0.0400		
	174.41	207.56	0.0400		

			TRAVEL TIME TABLE		
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.224E+03	0.0	0.08	174.00
0.23	206.25	.505E+03	0.1	0.11	132.79
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34
0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	4.7	0.29	50.17
0.78	206.80	.196E+05	7.6	0.34	42.88
0.87	206.89	.258E+05	11.4	0.38	37.80
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11
1.37	207.39	.776E+05	54.6	0.61	23.71
1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43

			<---- hydrograph ---->		<-pipe / channel->
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (1401)	197.60	3.18	5.75	28.57	0.64
OUTFLOW: ID= 1 (0830)	197.60	2.94	6.42	28.57	0.63

CALIB					
NASHYD (0140)	Area (ha)=	18.30	Curve Number (CN)=	83.6	
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.34			

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.304 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 29.578
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.467

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0140):	18.30	0.304	5.42	29.58	
+ ID2= 2 (0830):	197.60	2.945	6.42	28.57	
=====					
ID = 3 (1400):	215.90	3.219	6.33	28.65	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0131)	Area (ha)=	28.70	Curve Number (CN)=	82.1	
ID= 1 DT= 5.0 min	Ia (mm)=	8.30	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.11			

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 0.464 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 27.480
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.433

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

STANDHYD (0011)	Area (ha)=	132.00
ID= 1 DT= 5.0 min	Total Imp(%)=	57.10
	Dir. Conn.(%)=	45.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	75.37	56.63
Dep. Storage (mm)=	1.00	8.95
Average Slope (%)=	1.00	1.00
Length (m)=	938.08	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.(mm/hr)=	16.48	7.92
over (min)	20.00	45.00
Storage Coeff. (min)=	20.13 (ii)	44.09 (ii)
Unit Hyd. Tpeak (min)=	20.00	45.00
Unit Hyd. peak (cms)=	0.06	0.03

			TOTALS
PEAK FLOW (cms)=	2.60	1.09	3.025 (iii)
TIME TO PEAK (hrs)=	2.08	5.17	2.25
RUNOFF VOLUME (mm)=	62.40	25.18	41.93
TOTAL RAINFALL (mm)=	63.40	63.40	63.40
RUNOFF COEFFICIENT =	0.98	0.40	0.66

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0874)					
IN= 2----> OUT= 1					
DT= 5.0 min					
	OUTFLOW	STORAGE	OUTFLOW	STORAGE	
	(cms)	(ha.m.)	(cms)	(ha.m.)	
	0.0000	0.0000	2.4200	5.4200	
	0.0050	1.5860	3.3930	6.6280	
	1.2530	3.8390	0.0000	0.0000	

	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (0011)	132.000	3.025	2.25	41.93	
OUTFLOW: ID= 1 (0874)	132.000	1.254	6.58	41.40	

PEAK FLOW REDUCTION [Qout/Qin](%)= 41.45
TIME SHIFT OF PEAK FLOW (min)=260.00
MAXIMUM STORAGE USED (ha.m.)= 3.8406

CALIB

CALIB

Model With SWM Infrastructure - Output

```
| STANDHYD ( 0012) | Area (ha)= 17.50
|ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00
|-----|
```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	14.00	3.50
Dep. Storage (mm)=	1.00	8.94
Average Slope (%)=	1.00	1.00
Length (m)=	341.57	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	16.48	10.38
over (min)	10.00	35.00
Storage Coeff. (min)=	10.98 (ii)	32.49 (ii)
Unit Hyd. Tpeak (min)=	10.00	35.00
Unit Hyd. peak (cms)=	0.11	0.03
		TOTALS
PEAK FLOW (cms)=	0.56	0.09
TIME TO PEAK (hrs)=	2.08	3.50
RUNOFF VOLUME (mm)=	62.40	28.22
TOTAL RAINFALL (mm)=	63.40	63.40
RUNOFF COEFFICIENT =	0.98	0.45

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1112) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0012): AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)
+ ID2= 2 ( 0874): 17.50 0.604 2.08 52.14
+ ID2= 2 ( 0874): 132.00 1.254 6.58 41.40
=====
ID = 3 ( 1112): 149.50 1.465 6.08 42.66
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
|STANDHYD ( 0010) | Area (ha)= 12.90
|ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00
|-----|
|-----|
Surface Area (ha)= 10.32 IMPERVIOUS PERVIOUS (i)
Dep. Storage (mm)= 1.00 2.58
Average Slope (%)= 1.00 8.94
1.00 1.00
```

Length (m)=	293.26	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	16.48	10.38
over (min)	10.00	35.00
Storage Coeff. (min)=	10.02 (ii)	31.53 (ii)
Unit Hyd. Tpeak (min)=	10.00	35.00
Unit Hyd. peak (cms)=	0.11	0.03
		TOTALS
PEAK FLOW (cms)=	0.41	0.07
TIME TO PEAK (hrs)=	2.08	3.50
RUNOFF VOLUME (mm)=	62.40	28.22
TOTAL RAINFALL (mm)=	63.40	63.40
RUNOFF COEFFICIENT =	0.98	0.45

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1311) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0010): AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)
+ ID2= 2 ( 1112): 12.90 0.446 2.08 52.14
+ ID2= 2 ( 1112): 149.50 1.465 6.08 42.66
=====
ID = 3 ( 1311): 162.40 1.724 5.08 43.41
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0822) |
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 207.71 0.0400
58.83 206.71 0.0400
66.88 206.59 0.0400 / 0.0350 Main Channel
72.32 206.34 0.0350 Main Channel
77.68 206.55 0.0350 / 0.0800 Main Channel
82.85 206.54 0.0800
90.20 206.02 0.0800
94.03 206.48 0.0800
99.83 206.40 0.0800 / 0.0400
114.32 206.50 0.0400
```

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.08	206.10	.337E+02	0.0	0.07	124.18
0.15	206.17	.135E+03	0.0	0.11	78.23
0.23	206.25	.303E+03	0.1	0.15	59.70
0.30	206.32	.539E+03	0.2	0.18	49.28
0.38	206.40	.885E+03	0.3	0.20	43.17
0.45	206.47	.175E+04	0.6	0.19	46.91
0.53	206.55	.333E+04	1.4	0.23	38.64
0.61	206.63	.569E+04	3.4	0.31	27.90
0.70	206.72	.851E+04	6.3	0.39	22.56
0.78	206.80	.118E+05	10.2	0.45	19.28
0.87	206.89	.155E+05	15.2	0.51	17.00
0.95	206.97	.196E+05	21.4	0.57	15.28
1.04	207.06	.242E+05	28.9	0.63	13.96
1.12	207.14	.292E+05	37.7	0.68	12.90
1.20	207.22	.346E+05	47.9	0.73	12.02
1.29	207.31	.404E+05	59.6	0.77	11.29
1.37	207.39	.466E+05	72.9	0.82	10.66
1.46	207.48	.533E+05	87.8	0.86	10.11
1.54	207.56	.604E+05	104.5	0.91	9.63

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1311)	162.40	1.72	5.08	43.41	0.54	0.24
OUTFLOW: ID= 1 (0822)	162.40	1.62	6.08	43.39	0.54	0.23

```
| ADD HYD ( 1310) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0131): AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)
+ ID2= 2 ( 0822): 28.70 0.464 5.33 27.48
+ ID2= 2 ( 0822): 162.40 1.622 6.08 43.39
=====
ID = 3 ( 1310): 191.10 2.074 5.25 41.00
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0821) |
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60
0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1310)	191.10	2.07	5.25	41.00	0.57	0.23
OUTFLOW: ID= 1 (0821)	191.10	1.95	6.25	40.97	0.56	0.23

```
| CALIB
| NASHYD ( 0130) | Area (ha)= 26.70 Curve Number (CN)= 81.7
|ID= 1 DT= 5.0 min | Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
```

Model With SWM Infrastructure - Output

U.H. Tp(hrs)= 1.32

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 0.410 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 26.938
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.425

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1300)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0130):	26.70	0.410	5.50	26.94
+ ID2= 2 (0821):	191.10	1.952	6.25	40.97
=====				
ID = 3 (1300):	217.80	2.336	6.17	39.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1202)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (1300):	217.80	2.336	6.17	39.25
+ ID2= 2 (1400):	215.90	3.219	6.33	28.65
=====				
ID = 3 (1202):	433.70	5.548	6.25	33.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0820)	Routing time step (min)'= 5.00	
IN= 2--> OUT= 1		
<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 / 0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 / 0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400

252.14 206.45 0.0400

<----- TRAVEL TIME TABLE ----->						
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)	
0.09	204.79	.681E+01	0.0	0.08	28.42	
0.18	204.88	.272E+02	0.0	0.13	17.90	
0.28	204.98	.620E+02	0.1	0.17	13.80	
0.37	205.07	.292E+03	0.3	0.12	18.72	
0.46	205.16	.859E+03	0.9	0.14	16.44	
0.55	205.25	.182E+04	2.3	0.17	13.44	
0.64	205.34	.311E+04	4.7	0.21	11.04	
0.74	205.44	.487E+04	8.4	0.24	9.67	
0.83	205.53	.676E+04	13.3	0.27	8.48	
0.92	205.62	.877E+04	19.3	0.30	7.58	
1.01	205.71	.109E+05	26.4	0.33	6.90	
1.10	205.80	.132E+05	34.5	0.36	6.36	
1.20	205.90	.155E+05	43.8	0.39	5.92	
1.29	205.99	.181E+05	54.1	0.42	5.56	
1.38	206.08	.207E+05	65.6	0.44	5.25	
1.47	206.17	.234E+05	78.2	0.46	4.99	
1.57	206.27	.263E+05	92.0	0.48	4.76	
1.66	206.36	.293E+05	107.0	0.51	4.56	
1.75	206.45	.324E+05	123.2	0.53	4.38	

<---- hydrograph ---->				<-pipe / channel-->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1202)	433.70	5.55	6.25	33.97	0.67
OUTFLOW: ID= 1 (0820)	433.70	5.51	6.42	33.97	0.66

ADD HYD (1201)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (1210):	96.80	1.775	5.17	31.62
+ ID2= 2 (0820):	433.70	5.505	6.42	33.97
=====				
ID = 3 (1201):	530.50	7.035	6.17	33.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0810)	Routing time step (min)'= 5.00
IN= 2--> OUT= 1	
<----- DATA FOR SECTION (1.1) ----->	

Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 / 0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 / 0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

PEAK FLOW (cms)= 0.156 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 30.161
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.476

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

<----- TRAVEL TIME TABLE ----->						
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)	
0.09	204.79	.229E+02	0.0	0.07	106.67	
0.18	204.88	.915E+02	0.0	0.12	67.20	
0.28	204.98	.208E+03	0.1	0.15	51.82	
0.37	205.07	.981E+03	0.2	0.11	70.28	
0.46	205.16	.288E+04	0.8	0.13	61.71	
0.55	205.25	.610E+04	2.0	0.15	50.43	
0.64	205.34	.105E+05	4.2	0.19	41.45	
0.74	205.44	.163E+05	7.5	0.21	36.28	
0.83	205.53	.227E+05	11.9	0.24	31.82	
0.92	205.62	.294E+05	17.2	0.27	28.46	
1.01	205.71	.366E+05	23.6	0.30	25.89	
1.10	205.80	.442E+05	30.9	0.32	23.87	
1.20	205.90	.522E+05	39.1	0.35	22.23	
1.29	205.99	.606E+05	48.4	0.37	20.87	
1.38	206.08	.694E+05	58.7	0.39	19.72	
1.47	206.17	.786E+05	70.0	0.41	18.74	
1.57	206.27	.883E+05	82.3	0.43	17.88	
1.66	206.36	.983E+05	95.7	0.45	17.12	
1.75	206.45	.109E+06	110.2	0.47	16.45	

<---- hydrograph ---->				<-pipe / channel-->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1201)	530.50	7.03	6.17	33.54	0.72
OUTFLOW: ID= 1 (0810)	530.50	6.70	6.50	33.54	0.71

CALIB	Area (ha)	Curve Number (CN)
NASHYD (0120)	9.00	84.0
ID= 1 DT= 5.0 min	7.25	3.00
U.H. Tp(hrs)=	1.16	

Unit Hyd Qpeak (cms)= 0.296

CALIB	Area (ha)	Curve Number (CN)
NASHYD (0113)	13.50	82.5
ID= 1 DT= 5.0 min	8.08	3.00
U.H. Tp(hrs)=	0.87	

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.227 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 28.025
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.442

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0802)	Routing time step (min)'= 5.00
IN= 2--> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

Model With SWM Infrastructure - Output

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.448E+01	0.0	0.12	164.32
0.08	207.60	.179E+02	0.0	0.19	103.51
0.12	207.64	.403E+02	0.0	0.25	79.00
0.16	207.68	.716E+02	0.0	0.30	65.21
0.19	207.71	.112E+03	0.0	0.35	56.20
0.23	207.75	.161E+03	0.1	0.40	49.76
0.27	207.79	.219E+03	0.1	0.44	44.90
0.31	207.83	.287E+03	0.1	0.48	41.08
0.35	207.87	.363E+03	0.2	0.52	37.98
0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88
0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79
0.77	208.29	.225E+04	1.6	0.82	24.20

<---- hydrograph ---->				<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0113)	13.50	0.23	5.17	28.02	0.40
OUTFLOW: ID= 1 (0802)	13.50	0.22	5.42	27.96	0.40

CALIB					
NASHYD (0111)	Area (ha)=	45.50	Curve Number (CN)=	82.3	
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.33			

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 0.716 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 27.751
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.438

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0111):	45.50	0.716	5.50	27.75	
+ ID2= 2 (0112):	30.50	0.465	5.75	28.44	
ID = 3 (1101):	76.00	1.179	5.58	28.03	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 3 (1101):	76.00	1.179	5.58	28.03	
+ ID2= 2 (0802):	13.50	0.223	5.42	27.96	
ID = 1 (1101):	89.50	1.401	5.50	28.02	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801)					
IN= 2--> OUT= 1		Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.66	0.0400			
19.50	209.34	0.0400			
37.91	208.66	0.0400			
41.73	208.62	0.0400 / 0.0350	Main Channel		
43.44	208.24	0.0350	Main Channel		

45.75	208.62	0.0350 / 0.0450	Main Channel		
54.00	208.79	0.0450 / 0.0400			
77.43	209.05	0.0400			
128.85	209.70	0.0400			

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	208.30	.104E+02	0.0	0.10	83.26
0.13	208.37	.415E+02	0.0	0.16	52.45
0.19	208.43	.934E+02	0.0	0.20	40.03
0.25	208.49	.166E+03	0.1	0.25	33.04
0.32	208.56	.259E+03	0.2	0.29	28.47
0.38	208.62	.373E+03	0.2	0.32	25.22
0.46	208.70	.729E+03	0.5	0.33	24.94
0.54	208.78	.135E+04	0.9	0.33	24.67
0.62	208.86	.225E+04	1.6	0.35	23.41
0.70	208.94	.352E+04	2.6	0.37	22.23
0.78	209.02	.516E+04	4.1	0.39	20.96
0.86	209.10	.716E+04	6.1	0.41	19.65
0.94	209.18	.949E+04	8.6	0.44	18.42
1.02	209.26	.122E+05	11.7	0.47	17.31
1.10	209.34	.152E+05	15.5	0.50	16.32
1.18	209.42	.185E+05	19.7	0.52	15.72
1.26	209.50	.224E+05	24.7	0.54	15.09
1.34	209.58	.266E+05	30.6	0.56	14.48
1.42	209.66	.313E+05	37.5	0.59	13.90

<---- hydrograph ---->				<-pipe / channel->	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1101)	89.50	1.40	5.50	28.02	0.60
OUTFLOW: ID= 1 (0801)	89.50	1.37	5.83	28.02	0.59

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0110):	11.90	0.209	3.83	29.29	
+ ID2= 2 (0801):	89.50	1.374	5.83	28.02	
ID = 3 (1100):	101.40	1.554	5.67	28.17	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (1100):	101.40	1.554	5.67	28.17	
+ ID2= 2 (1200):	539.50	6.830	6.50	33.48	
ID = 3 (1001):	640.90	8.301	6.25	32.64	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)					
IN= 2--> OUT= 1		Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.54	0.0450			
43.13	205.35	0.0450			
67.41	205.27	0.0450			
86.35	205.38	0.0450 / 0.0350	Main Channel		
90.47	204.70	0.0350	Main Channel		
93.03	205.16	0.0350 / 0.0400	Main Channel		
101.99	205.21	0.0400			
151.82	204.97	0.0400			
252.14	206.45	0.0400			

TRAVEL TIME TABLE					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	204.79	.255E+02	0.0	0.16	54.50
0.18	204.88	.102E+03	0.0	0.25	34.33
0.28	204.98	.232E+03	0.1	0.33	26.47
0.37	205.07	.109E+04	0.5	0.24	35.91
0.46	205.16	.321E+04	1.7	0.27	31.53

CALIB					
NASHYD (0110)	Area (ha)=	11.90	Curve Number (CN)=	83.4	
ID= 1 DT= 5.0 min	Ia (mm)=	7.58	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.68			

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.209 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 29.290
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.462

Model With SWM Infrastructure - Output

0.55	205.25	.680E+04	4.4	0.33	25.77
0.64	205.34	.116E+05	9.2	0.41	21.18
0.74	205.44	.182E+05	16.4	0.47	18.54
0.83	205.53	.253E+05	25.9	0.53	16.26
0.92	205.62	.328E+05	37.6	0.59	14.54
1.01	205.71	.408E+05	51.4	0.65	13.23
1.10	205.80	.492E+05	67.3	0.71	12.19
1.20	205.90	.581E+05	85.3	0.76	11.36
1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75
1.75	206.45	.121E+06	240.2	1.03	8.41

<---- hydrograph ---->				<-pipe / channel-->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (1001)	640.90	8.30	6.25	32.64	0.63	0.39
OUTFLOW: ID= 1 (0800)	640.90	8.22	6.58	32.64	0.63	0.39

CALIB					
NASHYD (0100)	Area (ha)=	54.70	Curve Number (CN)=	83.2	
ID= 1 DT= 5.0 min	Ia (mm)=	7.69	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.23			

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 0.910 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 29.006
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.458

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1000)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0100):	54.70	0.910	5.33	29.01	
+ ID2= 2 (0800):	640.90	8.220	6.58	32.64	
=====					
ID = 3 (1000):	695.60	8.983	6.50	32.35	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0190)	Area (ha)=	12.30	Curve Number (CN)=	83.9	
ID= 1 DT= 5.0 min	Ia (mm)=	7.31	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.83			

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.219 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 30.011
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.473

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0191)	Area (ha)=	20.10	Curve Number (CN)=	82.0	
ID= 1 DT= 5.0 min	Ia (mm)=	8.36	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.94			

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.330 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 27.342
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.431

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0192)	Area (ha)=	28.30	Curve Number (CN)=	80.3	
ID= 1 DT= 5.0 min	Ia (mm)=	6.23	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.06			

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 0.450 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 27.354
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.431

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1901)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0191):	20.10	0.330	5.17	27.34	
+ ID2= 2 (0192):	28.30	0.450	5.25	27.35	
=====					
ID = 3 (1901):	48.40	0.780	5.25	27.35	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0899)					
IN= 2--> OUT= 1	Routing time step (min)='	5.00			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.349E+02	0.1	0.18	10.46
0.14	208.16	.981E+02	0.2	0.28	6.64
0.22	208.24	.183E+03	0.6	0.36	5.21
0.29	208.31	.291E+03	1.1	0.42	4.40
0.36	208.38	.420E+03	1.8	0.48	3.85
0.44	208.46	.586E+03	3.0	0.57	3.27
0.52	208.54	.777E+03	4.5	0.65	2.87
0.60	208.62	.999E+03	6.5	0.72	2.58
0.68	208.70	.125E+04	8.8	0.78	2.37
0.76	208.78	.154E+04	11.5	0.84	2.22
0.84	208.86	.185E+04	14.7	0.89	2.10
0.92	208.94	.230E+04	18.2	0.88	2.10
0.99	209.01	.285E+04	23.0	0.90	2.07
1.07	209.09	.345E+04	28.5	0.92	2.02
1.15	209.17	.411E+04	34.8	0.94	1.96
1.23	209.25	.482E+04	42.0	0.97	1.91
1.31	209.33	.559E+04	50.0	1.00	1.86

1.39	209.41	.643E+04	59.1	1.02	1.81
1.47	209.49	.732E+04	69.1	1.05	1.76

<----- hydrograph ---->				<-pipe / channel-->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (1901)	48.40	0.78	5.25	27.35	0.24	0.38
OUTFLOW: ID= 1 (0899)	48.40	0.78	5.25	27.35	0.24	0.38

ADD HYD (1900)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0190):	12.30	0.219	5.08	30.01	
+ ID2= 2 (0899):	48.40	0.779	5.25	27.35	
=====					
ID = 3 (1900):	60.70	0.997	5.25	27.89	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0500)	Area (ha)=	7.60	Curve Number (CN)=	82.8	
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.48			

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.136 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 28.442
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.449

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0510)	Area (ha)=	12.70	Curve Number (CN)=	81.7	
ID= 1 DT= 5.0 min	Ia (mm)=	8.53	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.69			

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.209 (i)
TIME TO PEAK (hrs)= 5.167

Model With SWM Infrastructure - Output

RUNOFF VOLUME (mm)= 26.938
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.425

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0520)	Area (ha)= 17.30	Curve Number (CN)= 82.5	
ID= 1 DT= 5.0 min	Ia (mm)= 8.08	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.78		

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.292 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 28.025
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.442

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (5000)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0500):	7.60	0.136	3.33	28.44
+ ID2= 2 (0510):	12.70	0.209	5.17	26.94
=====				
ID = 3 (5000):	20.30	0.340	5.08	27.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (5000)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (5000):	20.30	0.340	5.08	27.50
+ ID2= 2 (0520):	17.30	0.292	5.17	28.02
=====				
ID = 1 (5000):	37.60	0.632	5.08	27.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0600)	Area (ha)= 2.50	Curve Number (CN)= 82.5	

ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.45

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.044 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 28.022
TOTAL RAINFALL (mm)= 63.400
RUNOFF COEFFICIENT = 0.442

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSSS UUUU A A LLLLL
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y Y M M O O
000 T T H H Y Y M M 000

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voain.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\0f65fe11-c762-4802-a0f7-1c56705ca456\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\0f65fe11-c762-4802-a0f7-1c56705ca456\sce

DATE: 10-17-2025 TIME: 02:54:06

USER:

COMMENTS: _____

2.75	15.08	5.83	6.03	8.92	0.00	12.00	0.00
2.83	15.08	5.92	6.03	9.00	0.00		
2.92	15.08	6.00	6.03	9.08	0.00		
3.00	15.08	6.08	2.26	9.17	0.00		

** SIMULATION : 4 **

READ STORM	Filename: C:\Users\wraymond\AppData\Local\Temp\
Ptotal= 75.40 mm	f9e06f95-585c-465c-81d8-96408d74cabce151f037
	Comments: 10yr12hrAES

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.08	11.31	6.17	2.26	9.25	0.00
0.08	9.80	3.17	11.31	6.25	2.26	9.33	0.00
0.17	9.80	3.25	11.31	6.33	2.26	9.42	0.00
0.25	9.80	3.33	11.31	6.42	2.26	9.50	0.00
0.33	9.80	3.42	11.31	6.50	2.26	9.58	0.00
0.42	9.80	3.50	11.31	6.58	2.26	9.67	0.00
0.50	9.80	3.58	11.31	6.67	2.26	9.75	0.00
0.58	9.80	3.67	11.31	6.75	2.26	9.83	0.00
0.67	9.80	3.75	11.31	6.83	2.26	9.92	0.00
0.75	9.80	3.83	11.31	6.92	2.26	10.00	0.00
0.83	9.80	3.92	11.31	7.00	2.26	10.08	0.00
0.92	9.80	4.00	11.31	7.08	0.75	10.17	0.00
1.00	9.80	4.08	10.56	7.17	0.75	10.25	0.00
1.08	19.60	4.17	10.56	7.25	0.75	10.33	0.00
1.17	19.60	4.25	10.56	7.33	0.75	10.42	0.00
1.25	19.60	4.33	10.56	7.42	0.75	10.50	0.00
1.33	19.60	4.42	10.56	7.50	0.75	10.58	0.00
1.42	19.60	4.50	10.56	7.58	0.75	10.67	0.00
1.50	19.60	4.58	10.56	7.67	0.75	10.75	0.00
1.58	19.60	4.67	10.56	7.75	0.75	10.83	0.00
1.67	19.60	4.75	10.56	7.83	0.75	10.92	0.00
1.75	19.60	4.83	10.56	7.92	0.75	11.00	0.00
1.83	19.60	4.92	10.56	8.00	0.75	11.08	0.00
1.92	19.60	5.00	10.56	8.08	0.00	11.17	0.00
2.00	19.60	5.08	6.03	8.17	0.00	11.25	0.00
2.08	15.08	5.17	6.03	8.25	0.00	11.33	0.00
2.17	15.08	5.25	6.03	8.33	0.00	11.42	0.00
2.25	15.08	5.33	6.03	8.42	0.00	11.50	0.00
2.33	15.08	5.42	6.03	8.50	0.00	11.58	0.00
2.42	15.08	5.50	6.03	8.58	0.00	11.67	0.00
2.50	15.08	5.58	6.03	8.67	0.00	11.75	0.00
2.58	15.08	5.67	6.03	8.75	0.00	11.83	0.00
2.67	15.08	5.75	6.03	8.83	0.00	11.92	0.00

CALIB			
NASHYD (0185)	Area (ha)= 2.00	Curve Number (CN)= 79.5	
ID= 1 DT= 5.0 min	Ia (mm)= 6.54	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.36		

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.045 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 35.285
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.468

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0180)	Area (ha)= 6.80	Curve Number (CN)= 82.4	
ID= 1 DT= 5.0 min	Ia (mm)= 8.13	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.85		

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.149 (i)
TIME TO PEAK (hrs)= 4.500
RUNOFF VOLUME (mm)= 37.237
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.494

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0170)	Area (ha)= 5.80	Curve Number (CN)= 82.4	
ID= 1 DT= 5.0 min	Ia (mm)= 8.13	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.69		

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.130 (i)
TIME TO PEAK (hrs)= 3.667

Model With SWM Infrastructure - Output

RUNOFF VOLUME (mm)= 37.237
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.494

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0160)	Area (ha)= 16.30	Curve Number (CN)= 83.2	
ID= 1 DT= 5.0 min	Ia (mm)= 7.69	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.15		

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.358 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 38.527
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.511

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0330)	Area (ha)= 22.30	Curve Number (CN)= 82.2	
ID= 1 DT= 5.0 min	Ia (mm)= 8.25	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.60		

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.505 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 36.913
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.490

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0270)	Area (ha)= 2.50	Curve Number (CN)= 81.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.95	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.24		

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.062 (i)
TIME TO PEAK (hrs)= 3.083

RUNOFF VOLUME (mm)= 38.198
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.507

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0420)	Area (ha)= 25.80	Curve Number (CN)= 83.6	
ID= 1 DT= 5.0 min	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.12		

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 0.577 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 39.186
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.520

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0423)	Area (ha)= 23.90	Curve Number (CN)= 84.1	
ID= 1 DT= 5.0 min	Ia (mm)= 7.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.80		

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 0.563 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 40.020
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.531

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0422)	Area (ha)= 6.90	Curve Number (CN)= 83.4	
ID= 1 DT= 5.0 min	Ia (mm)= 7.58	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.61		

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.165 (i)
TIME TO PEAK (hrs)= 3.417

RUNOFF VOLUME (mm)= 37.346
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.495

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0260)	Area (ha)= 7.00	Curve Number (CN)= 83.7	
ID= 1 DT= 5.0 min	Ia (mm)= 7.41	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.43		

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.178 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 39.353
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.522

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0250)	Area (ha)= 10.70	Curve Number (CN)= 81.9	
ID= 1 DT= 5.0 min	Ia (mm)= 8.42	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.54		

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.243 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 36.439
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.483

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0320)	Area (ha)= 11.70	Curve Number (CN)= 83.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.45		

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.287 (i)
TIME TO PEAK (hrs)= 3.250

RUNOFF VOLUME (mm)= 38.854
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.515

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0896)
IN= 2---> OUT= 1 Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03
0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0422)	6.90	0.16	3.42	38.85	0.30
OUTFLOW: ID= 1 (0896)	6.90	0.16	3.58	38.85	0.30

Model With SWM Infrastructure - Output

ADD HYD (4202)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0423):	23.90	0.563	4.00	40.02
+ ID2= 2 (0896):	6.90	0.165	3.58	38.85
=====				
ID = 3 (4202):	30.80	0.725	3.83	39.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0895)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.170E+01	0.0	0.28	4.09
0.24	212.03	.679E+01	0.0	0.44	2.58
0.36	212.15	.153E+02	0.1	0.58	1.97
0.48	212.27	.272E+02	0.3	0.70	1.62
0.61	212.40	.424E+02	0.5	0.82	1.40
0.73	212.52	.134E+03	1.0	0.53	2.16
0.85	212.64	.375E+03	2.8	0.52	2.20
0.97	212.76	.687E+03	6.1	0.60	1.89
1.09	212.88	.107E+04	11.0	0.71	1.61
1.21	213.00	.148E+04	17.8	0.83	1.38
1.33	213.12	.192E+04	26.1	0.93	1.22
1.45	213.24	.238E+04	35.9	1.03	1.11
1.57	213.36	.288E+04	47.3	1.13	1.01
1.70	213.49	.340E+04	60.1	1.21	0.94
1.82	213.61	.395E+04	74.5	1.29	0.88

1.94	213.73	.452E+04	90.5	1.37	0.83
2.06	213.85	.512E+04	109.2	1.46	0.78
2.18	213.97	.573E+04	130.3	1.56	0.73
2.37	214.16	.694E+04	168.2	1.66	0.69

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4202)	30.80	0.72	3.83	39.76	0.66	0.67
OUTFLOW: ID= 1 (0895)	30.80	0.72	3.83	39.76	0.66	0.67

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)=	0.257 (i)
TIME TO PEAK (hrs)=	3.167
RUNOFF VOLUME (mm)=	37.871
TOTAL RAINFALL (mm)=	75.400
RUNOFF COEFFICIENT =	0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0883)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.344E+01	0.0	0.19	78.41

0.07	204.57	.137E+02	0.0	0.30	49.40
0.11	204.61	.309E+02	0.0	0.39	37.70
0.14	204.64	.550E+02	0.0	0.47	31.12
0.18	204.68	.859E+02	0.1	0.55	26.82
0.22	204.72	.124E+03	0.1	0.62	23.75
0.25	204.75	.168E+03	0.1	0.69	21.43
0.29	204.79	.220E+03	0.2	0.75	19.60
0.33	204.83	.278E+03	0.3	0.81	18.12
0.36	204.86	.344E+03	0.3	0.87	16.89
0.40	204.90	.416E+03	0.4	0.93	15.85
0.43	204.93	.559E+03	0.6	0.89	16.61
0.47	204.97	.986E+03	0.8	0.71	20.75
0.51	205.01	.165E+04	1.2	0.65	22.49
0.54	205.04	.248E+04	1.9	0.66	22.28
0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0421)	10.40	0.26	3.17	37.87	0.33	0.81
OUTFLOW: ID= 1 (0883)	10.40	0.25	3.33	37.83	0.32	0.81

ADD HYD (4201)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0883):	10.40	0.250	3.33	37.83
+ ID2= 2 (0895):	30.80	0.725	3.83	39.76
=====				
ID = 3 (4201):	41.20	0.965	3.67	39.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0882)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel

74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52
0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20
0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4201)	41.20	0.96	3.67	39.27	0.36	0.25
OUTFLOW: ID= 1 (0882)	41.20	0.94	4.42	39.26	0.36	0.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4200)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0420):	25.80	0.577	5.17	39.19
+ ID2= 2 (0882):	41.20	0.945	4.42	39.26
=====				
ID = 3 (4200):	67.00	1.512	5.08	39.23

Model With SWM Infrastructure - Output

CALIB			
NASHYD (0440)	Area (ha)= 31.60	Curve Number (CN)= 84.4	
ID= 1 DT= 5.0 min	Ia (mm)= 7.04	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.16		

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 0.724 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 40.527
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.537

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0442)	Area (ha)= 2.40	Curve Number (CN)= 84.9	
ID= 1 DT= 5.0 min	Ia (mm)= 6.77	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.41		

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.065 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 41.382
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.549

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0443)	Area (ha)= 21.30	Curve Number (CN)= 83.9	
ID= 1 DT= 5.0 min	Ia (mm)= 7.31	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.59		

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)= 0.524 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 39.682
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.526

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0451)	Area (ha)= 12.30	Curve Number (CN)= 84.3	
ID= 1 DT= 5.0 min	Ia (mm)= 7.09	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.57		

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 0.310 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 40.359
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.535

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0043)	Area (ha)= 22.90		
ID= 1 DT= 5.0 min	Total Imp(%)= 49.00	Dir. Conn.(%)= 40.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	11.22	11.68
Dep. Storage (mm)=	1.00	8.92
Average Slope (%)=	1.00	2.00
Length (m)=	390.73	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	19.60	9.34
over (min)	10.00	30.00
Storage Coeff. (min)=	11.11 (ii)	29.33 (ii)
Unit Hyd. Tpeak (min)=	10.00	30.00
Unit Hyd. peak (cms)=	0.10	0.04

TOTALS

PEAK FLOW (cms)=	0.50	0.27	0.641 (iii)
TIME TO PEAK (hrs)=	2.08	3.42	3.08
RUNOFF VOLUME (mm)=	74.40	32.01	48.97
TOTAL RAINFALL (mm)=	75.40	75.40	75.40
RUNOFF COEFFICIENT =	0.99	0.42	0.65

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 74.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0873)	OVERFLOW IS OFF
IN= 2----> OUT= 1	

DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2250	0.3008
	0.0240	0.0325	0.2650	0.3494
	0.0370	0.0741	0.2990	0.3993
	0.0460	0.1156	0.3290	0.4497
	0.0530	0.1607	0.5720	0.5013
	0.0600	0.2060	0.9900	0.5538
	0.1750	0.2530	1.5230	0.6074

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0043)	22.900	0.641	3.08	48.97
OUTFLOW: ID= 1 (0873)	22.900	0.505	5.17	48.95

PEAK FLOW REDUCTION [Qout/Qin](%)= 78.69
TIME SHIFT OF PEAK FLOW (min)=125.00
MAXIMUM STORAGE USED (ha.m.)= 0.4871

CALIB			
STANDHYD (0045)	Area (ha)= 1.30		
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00	Dir. Conn.(%)= 35.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.84	0.46
Dep. Storage (mm)=	1.00	8.92
Average Slope (%)=	1.00	2.00
Length (m)=	93.09	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.(mm/hr)=	19.60	19.33	
over (min)	5.00	20.00	
Storage Coeff. (min)=	4.70 (ii)	18.32 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.22	0.06	
PEAK FLOW (cms)=	0.02	0.02	*TOTALS*
TIME TO PEAK (hrs)=	2.08	3.17	0.044 (iii)
RUNOFF VOLUME (mm)=	74.40	42.01	53.34
TOTAL RAINFALL (mm)=	75.40	75.40	75.40
RUNOFF COEFFICIENT =	0.99	0.56	0.71

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4345)				
1 + 2 = 3				
ID1= 1 (0045):	1.30	0.044	2.08	53.34
+ ID2= 2 (0873):	22.90	0.505	5.17	48.95
ID = 3 (4345):	24.20	0.535	5.08	49.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893)	Routing time step (min)'= 5.00
IN= 2----> OUT= 1	

Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 /0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 /0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

Model With SWM Infrastructure - Output

```
<---- hydrograph <----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4345) 24.20 0.53 5.08 49.19 0.62 0.56
OUTFLOW: ID= 1 ( 0893) 24.20 0.53 5.17 49.19 0.62 0.56
```

```
ADD HYD ( 4510)
1 + 2 = 3
ID1= 1 ( 0451): 12.30 0.310 3.33 40.36
+ ID2= 2 ( 0893): 24.20 0.533 5.17 49.19
=====
ID = 3 ( 4510): 36.50 0.816 5.17 46.21
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0892)
IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) <----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE <----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .279E+01 0.0 0.48 3.92
0.24 212.03 .112E+02 0.1 0.76 2.47
0.36 212.15 .251E+02 0.2 0.99 1.89
0.48 212.27 .446E+02 0.5 1.20 1.56
0.61 212.40 .697E+02 0.9 1.40 1.34
0.73 212.52 .220E+03 1.8 0.91 2.07
0.85 212.64 .616E+03 4.9 0.89 2.11
0.97 212.76 .113E+04 10.4 1.04 1.81
1.09 212.88 .175E+04 18.9 1.21 1.54
1.21 213.00 .243E+04 30.5 1.42 1.32
```

```
0.09 205.28 .248E+01 0.0 0.16 18.52
0.13 205.32 .559E+01 0.0 0.21 14.13
0.17 205.36 .994E+01 0.0 0.25 11.67
0.22 205.41 .155E+02 0.0 0.29 10.05
0.26 205.45 .224E+02 0.0 0.33 8.90
0.31 205.50 .304E+02 0.1 0.37 8.03
0.35 205.54 .398E+02 0.1 0.40 7.35
0.39 205.58 .503E+02 0.1 0.43 6.79
0.44 205.63 .621E+02 0.2 0.46 6.33
0.48 205.67 .752E+02 0.2 0.49 5.97
0.52 205.71 .954E+02 0.2 0.40 7.41
0.57 205.76 .129E+03 0.3 0.38 7.71
0.61 205.80 .175E+03 0.4 0.39 7.48
0.66 205.85 .234E+03 0.6 0.41 7.08
0.70 205.89 .306E+03 0.8 0.44 6.64
0.74 205.93 .391E+03 1.0 0.47 6.22
0.79 205.98 .490E+03 1.4 0.50 5.83
0.83 206.02 .601E+03 1.8 0.53 5.49
```

```
<---- hydrograph <----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4411) 57.80 1.30 5.17 43.80 0.77 0.49
OUTFLOW: ID= 1 ( 0891) 57.80 1.30 5.17 43.80 0.77 0.49
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
CALIB
STANDHYD ( 0441) | Area (ha)= 3.00
ID= 1 DT= 5.0 min | Total Imp(%)= 45.00 Dir. Conn.(%)= 35.00
```

```
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 1.35 1.65
Dep. Storage (mm)= 1.00 3.58
Average Slope (%)= 2.00 2.00
Length (m)= 141.42 40.00
Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 19.60 14.74
over (min) 5.00 25.00
Storage Coeff. (min)= 4.90 (ii) 20.08 (ii)
Unit Hyd. Tpeak (min)= 5.00 25.00
Unit Hyd. peak (cms)= 0.22 0.05
*TOTALS*
PEAK FLOW (cms)= 0.06 0.06 0.111 (iii)
TIME TO PEAK (hrs)= 2.08 3.17 2.08
RUNOFF VOLUME (mm)= 74.40 48.79 57.75
TOTAL RAINFALL (mm)= 75.40 75.40 75.40
```

```
1.33 213.12 .315E+04 44.8 1.60 1.17
1.45 213.24 .392E+04 61.6 1.77 1.06
1.57 213.36 .473E+04 81.0 1.93 0.97
1.70 213.49 .558E+04 103.1 2.08 0.90
1.82 213.61 .648E+04 127.8 2.22 0.85
1.94 213.73 .742E+04 155.2 2.35 0.80
2.06 213.85 .841E+04 187.2 2.50 0.75
2.18 213.97 .941E+04 223.3 2.67 0.70
2.37 214.16 .114E+05 288.4 2.85 0.66
```

```
<---- hydrograph <----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4510) 36.50 0.82 5.17 46.21 0.59 1.37
OUTFLOW: ID= 1 ( 0892) 36.50 0.82 5.17 46.21 0.59 1.37
```

```
ADD HYD ( 4411)
1 + 2 = 3
ID1= 1 ( 0443): 21.30 0.524 3.42 39.68
+ ID2= 2 ( 0892): 36.50 0.816 5.17 46.21
=====
ID = 3 ( 4411): 57.80 1.300 5.17 43.80
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0891)
IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) <----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 / 0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 / 0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

```
<----- TRAVEL TIME TABLE <----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .621E+00 0.0 0.10 29.40
```

RUNOFF COEFFICIENT = 0.99 0.65 0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ADD HYD ( 4410)
1 + 2 = 3
ID1= 1 ( 0441): 3.00 0.111 2.08 57.75
+ ID2= 2 ( 0891): 57.80 1.298 5.17 43.80
=====
ID = 3 ( 4410): 60.80 1.374 5.08 44.49
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ADD HYD ( 4401)
1 + 2 = 3
ID1= 1 ( 4410): 60.80 1.374 5.08 44.49
+ ID2= 2 ( 0442): 2.40 0.065 3.17 41.38
=====
ID = 3 ( 4401): 63.20 1.430 5.08 44.37
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0889)
IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) <----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 / 0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 / 0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

Model With SWM Infrastructure - Output

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.272E+01	0.0	0.09	142.50
0.09	205.28	.109E+02	0.0	0.14	89.77
0.13	205.32	.245E+02	0.0	0.19	68.51
0.17	205.36	.435E+02	0.0	0.23	56.55
0.22	205.41	.679E+02	0.0	0.26	48.73
0.26	205.45	.978E+02	0.0	0.30	43.16
0.31	205.50	.133E+03	0.1	0.33	38.94
0.35	205.54	.174E+03	0.1	0.36	35.63
0.39	205.58	.220E+03	0.1	0.39	32.93
0.44	205.63	.272E+03	0.1	0.42	30.70
0.48	205.67	.329E+03	0.2	0.44	28.96
0.52	205.71	.418E+03	0.2	0.36	35.92
0.57	205.76	.563E+03	0.3	0.34	37.36
0.61	205.80	.765E+03	0.4	0.35	36.28
0.66	205.85	.102E+04	0.5	0.37	34.31
0.70	205.89	.134E+04	0.7	0.40	32.17
0.74	205.93	.171E+04	0.9	0.43	30.13
0.79	205.98	.214E+04	1.3	0.45	28.27
0.83	206.02	.263E+04	1.6	0.48	26.60

<---- hydrograph ---->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4401)	63.20	1.43	5.08	44.37	0.81
OUTFLOW: ID= 1 (0889)	63.20	1.40	5.25	44.37	0.80

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (4400)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0440):	31.60	0.724	5.17	40.53
+ ID2= 2 (0889):	63.20	1.403	5.25	44.37
=====				
ID = 3 (4400):	94.80	2.126	5.25	43.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0888)				
IN= 2---> OUT= 1				

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning	Routing time step (min)'= 5.00	

0.00	209.66	0.0400
19.50	209.34	0.0400
37.91	208.66	0.0400
41.73	208.62	0.0400 /0.0350
43.44	208.24	0.0350
45.75	208.62	0.0350 /0.0450
54.00	208.79	0.0450 /0.0400
77.43	209.05	0.0400
128.85	209.70	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.519E+01	0.0	0.09	43.50
0.13	208.37	.208E+02	0.0	0.15	27.40
0.19	208.43	.467E+02	0.0	0.19	20.91
0.25	208.49	.830E+02	0.1	0.24	17.26
0.32	208.56	.130E+03	0.1	0.27	14.88
0.38	208.62	.187E+03	0.2	0.31	13.17
0.46	208.70	.365E+03	0.5	0.31	13.03
0.54	208.78	.674E+03	0.9	0.32	12.89
0.62	208.86	.113E+04	1.5	0.33	12.23
0.70	208.94	.176E+04	2.5	0.35	11.61
0.78	209.02	.258E+04	3.9	0.37	10.95
0.86	209.10	.358E+04	5.8	0.40	10.27
0.94	209.18	.475E+04	8.2	0.42	9.62
1.02	209.26	.608E+04	11.2	0.45	9.04
1.10	209.34	.758E+04	14.8	0.48	8.53
1.18	209.42	.927E+04	18.8	0.50	8.21
1.26	209.50	.112E+05	23.6	0.52	7.88
1.34	209.58	.133E+05	29.3	0.54	7.57
1.42	209.66	.157E+05	35.9	0.56	7.26

<---- hydrograph ---->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4400)	94.80	2.13	5.25	43.09	0.67
OUTFLOW: ID= 1 (0888)	94.80	2.11	5.42	43.08	0.67

CALIB				
STANDHYD (0042)				
ID= 1 DT= 5.0 min				

Area (ha)= 20.50				
Total Imp(%)= 83.00				
Dir. Conn.(%)= 70.00				

IMPERVIOUS				
PERVIOUS (i)				
Surface Area	(ha)=	17.01	3.49	
Dep. Storage	(mm)=	1.00	6.98	
Average Slope	(%)=	2.00	2.00	

Length	(m)=	369.68	40.00
Mannings n	=	0.013	0.250

Max.Eff.Inten.(mm/hr)=	19.60	20.78	
over (min)	10.00	25.00	
Storage Coeff. (min)=	8.73 (ii)	21.96 (ii)	
Unit Hyd. Tpeak (min)=	10.00	25.00	
Unit Hyd. peak (cms)=	0.12	0.05	

PEAK FLOW	(cms)=	0.78	0.18
TIME TO PEAK	(hrs)=	2.08	3.17
RUNOFF VOLUME	(mm)=	74.40	46.04
TOTAL RAINFALL	(mm)=	75.40	75.40
RUNOFF COEFFICIENT	=	0.99	0.61

TOTALS			
PEAK FLOW	(cms)=	0.78	0.930 (iii)
TIME TO PEAK	(hrs)=	2.08	2.08
RUNOFF VOLUME	(mm)=	74.40	65.89
TOTAL RAINFALL	(mm)=	75.40	75.40
RUNOFF COEFFICIENT	=	0.99	0.87

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0872)				
IN= 2---> OUT= 1				
DT= 5.0 min				

OVERFLOW IS OFF				
OUTFLOW	STORAGE	OUTFLOW	STORAGE	
(cms)	(ha.m.)	(cms)	(ha.m.)	
0.0000	0.0000	0.1660	0.5172	
0.0250	0.1344	0.2260	0.5585	
0.0390	0.2425	0.5260	0.7280	
0.0530	0.3962	0.9350	0.9090	
0.0540	0.4360	1.2810	1.0589	
0.0760	0.4361	2.3680	1.5187	

AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (0042)	20.500	0.930	2.08	65.89
OUTFLOW: ID= 1 (0872)	20.500	0.518	5.17	65.83

PEAK FLOW REDUCTION [Qout/Qin](%)= 55.71
TIME SHIFT OF PEAK FLOW (min)=185.00
MAXIMUM STORAGE USED (ha.m.)= 0.7238

ROUTE CHN(0898)				
IN= 2---> OUT= 1				

Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		

0.00	101.50	0.0500
1.00	100.70	0.0500
1.50	100.55	0.0500 /0.0300
2.00	99.50	0.0300
3.50	99.60	0.0300
4.50	100.65	0.0300 /0.0500
6.00	101.45	0.0500

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.10	99.60	.152E+02	0.0	0.19	18.79
0.19	99.69	.482E+02	0.1	0.37	9.79
0.29	99.79	.840E+02	0.2	0.49	7.32
0.38	99.88	.123E+03	0.3	0.59	6.12
0.48	99.98	.164E+03	0.5	0.67	5.38
0.57	100.07	.208E+03	0.7	0.74	4.87
0.67	100.17	.255E+03	0.9	0.80	4.49
0.76	100.26	.305E+03	1.2	0.86	4.19
0.86	100.36	.358E+03	1.5	0.91	3.95
0.95	100.45	.413E+03	1.8	0.96	3.75
1.05	100.55	.471E+03	2.2	1.00	3.58
1.16	100.66	.547E+03	2.7	1.07	3.35
1.28	100.78	.635E+03	3.4	1.14	3.14
1.39	100.89	.732E+03	4.1	1.20	2.99
1.50	101.00	.838E+03	4.9	1.25	2.86
1.61	101.11	.952E+03	5.8	1.30	2.76
1.72	101.22	.107E+04	6.7	1.34	2.67
1.84	101.34	.120E+04	7.7	1.38	2.60
1.95	101.45	.134E+04	8.8	1.41	2.54

<---- hydrograph ---->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0872)	20.50	0.52	5.17	65.83	0.48
OUTFLOW: ID= 1 (0898)	20.50	0.52	5.25	65.82	0.48

CALIB				
STANDHYD (0044)				
ID= 1 DT= 5.0 min				

Area (ha)= 8.90				
Total Imp(%)= 41.00				
Dir. Conn.(%)= 20.00				

IMPERVIOUS				
PERVIOUS (i)				
Surface Area	(ha)=	3.65	5.25	
Dep. Storage	(mm)=	1.00	8.04	
Average Slope	(%)=	2.00	2.00	
Length	(m)=	243.58	40.00	
Mannings n	=	0.013	0.250	

Model With SWM Infrastructure - Output

```
Max.Eff.Inten.(mm/hr)= 19.60 12.55
over (min) 5.00 25.00
Storage Coeff. (min)= 6.79 (ii) 22.98 (ii)
Unit Hyd. Tpeak (min)= 5.00 25.00
Unit Hyd. peak (cms)= 0.18 0.05

PEAK FLOW (cms)= 0.10 0.17 0.242 (iii)
TIME TO PEAK (hrs)= 2.08 3.25 3.08
RUNOFF VOLUME (mm)= 74.40 37.52 44.90
TOTAL RAINFALL (mm)= 75.40 75.40 75.40
RUNOFF COEFFICIENT = 0.99 0.50 0.60
```

***** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4244) |
| 1 + 2 = 3 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0044): 8.90 0.242 3.08 44.90
+ ID2= 2 ( 0898): 20.50 0.517 5.25 65.82
=====
ID = 3 ( 4244): 29.40 0.719 5.08 59.49
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0897) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
0.00 209.52 0.0400
61.99 209.23 0.0400
76.86 209.20 0.0400
82.03 209.20 0.0400 / 0.0350 Main Channel
86.30 208.87 0.0350 Main Channel
89.86 209.20 0.0350 / 0.0300 Main Channel
96.27 209.24 0.0300
103.53 209.40 0.0300
127.96 209.50 0.0300
158.58 209.70 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.03 208.90 .143E+01 0.0 0.09 20.80
0.07 208.94 .572E+01 0.0 0.14 13.11
0.10 208.97 .129E+02 0.0 0.18 10.00
0.13 209.00 .229E+02 0.0 0.22 8.26
0.17 209.04 .357E+02 0.1 0.26 7.11
0.20 209.07 .514E+02 0.1 0.29 6.30
0.23 209.10 .700E+02 0.2 0.32 5.69
0.26 209.13 .915E+02 0.3 0.35 5.20
0.30 209.17 .116E+03 0.4 0.38 4.81
0.33 209.20 .143E+03 0.5 0.41 4.48
0.37 209.24 .239E+03 0.8 0.37 5.02
0.40 209.27 .396E+03 1.3 0.35 5.26
0.44 209.31 .589E+03 1.9 0.36 5.13
0.47 209.34 .818E+03 2.8 0.38 4.89
0.51 209.38 .108E+04 3.9 0.40 4.63
0.54 209.41 .139E+04 5.2 0.41 4.46
0.58 209.45 .175E+04 6.7 0.43 4.33
0.61 209.48 .218E+04 8.7 0.44 4.17
0.65 209.52 .266E+04 11.2 0.46 3.98

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4301) 124.20 2.80 5.42 46.97 0.47 0.38
OUTFLOW: ID= 1 ( 0887) 124.20 2.80 5.42 46.97 0.47 0.38
```

```
| CALIB |
| NASHYD ( 0430) |
| ID= 1 DT= 5.0 min |
Area (ha)= 19.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.13
```

Unit Hyd Qpeak (cms)= 0.669

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .140E+02 0.0 0.17 55.64
0.24 212.03 .559E+02 0.0 0.27 35.05
0.36 212.15 .126E+03 0.1 0.35 26.75
0.48 212.27 .224E+03 0.2 0.43 22.08
0.61 212.40 .350E+03 0.3 0.49 19.03
0.73 212.52 .110E+04 0.6 0.32 29.36
0.85 212.64 .309E+04 1.7 0.31 29.92
0.97 212.76 .566E+04 3.7 0.37 25.67
1.09 212.88 .878E+04 6.7 0.43 21.92
1.21 213.00 .122E+05 10.8 0.50 18.80
1.33 213.12 .158E+05 15.8 0.57 16.63
1.45 213.24 .196E+05 21.8 0.63 15.03
1.57 213.36 .237E+05 28.7 0.68 13.79
1.70 213.49 .280E+05 36.4 0.73 12.81
1.82 213.61 .325E+05 45.2 0.78 12.00
1.94 213.73 .372E+05 54.9 0.83 11.31
2.06 213.85 .422E+05 66.2 0.89 10.62
2.18 213.97 .472E+05 79.0 0.94 9.97
2.37 214.16 .571E+05 102.0 1.01 9.34
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4244) 29.40 0.72 5.08 59.49 0.74 0.32
OUTFLOW: ID= 1 ( 0897) 29.40 0.69 5.33 59.49 0.73 0.32
```

```
| ADD HYD ( 4301) |
| 1 + 2 = 3 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0888): 94.80 2.114 5.42 43.08
+ ID2= 2 ( 0897): 29.40 0.688 5.33 59.49
=====
ID = 3 ( 4301): 124.20 2.801 5.42 46.97
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0887) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
```

```
PEAK FLOW (cms)= 0.442 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 39.186
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.520
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4300) |
| 1 + 2 = 3 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0430): 19.80 0.442 5.17 39.19
+ ID2= 2 ( 0887): 124.20 2.800 5.42 46.97
=====
ID = 3 ( 4300): 144.00 3.239 5.42 45.90
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0886) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 / 0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 / 0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400
124.41 207.31 0.0400
129.31 207.24 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 205.46 .110E+02 0.0 0.11 51.32
0.19 205.56 .438E+02 0.0 0.17 32.33
0.28 205.65 .986E+02 0.1 0.23 24.67
0.38 205.75 .175E+03 0.1 0.27 20.37
0.47 205.84 .271E+03 0.3 0.33 16.94
0.57 205.94 .379E+03 0.4 0.38 14.73
0.66 206.03 .501E+03 0.6 0.42 13.19
0.76 206.13 .644E+03 0.9 0.48 11.58
0.86 206.23 .845E+03 1.3 0.51 10.89
0.96 206.33 .140E+04 1.9 0.46 12.13
```

Model With SWM Infrastructure - Output

1.06	206.43	.209E+04	2.9	0.46	12.20
1.16	206.53	.290E+04	4.1	0.47	11.82
1.26	206.63	.383E+04	5.6	0.49	11.31
1.37	206.74	.489E+04	7.6	0.52	10.78
1.47	206.84	.607E+04	9.8	0.54	10.28
1.57	206.94	.737E+04	12.5	0.57	9.81
1.67	207.04	.879E+04	15.6	0.60	9.38
1.77	207.14	.103E+05	19.2	0.62	8.99
1.87	207.24	.120E+05	23.2	0.65	8.63

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLW : ID= 2 (4300)	144.00	3.24	5.42	45.90	1.09	0.46
OUTFLOW: ID= 1 (0886)	144.00	3.22	5.50	45.90	1.09	0.46

CALIB				
NASHYD (0411)	Area (ha)=	4.50	Curve Number (CN)=	86.7
ID= 1 DT= 5.0 min	Ia (mm)=	5.84	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.11		

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW	(cms)=	0.112 (i)
TIME TO PEAK	(hrs)=	4.750
RUNOFF VOLUME	(mm)=	44.585
TOTAL RAINFALL	(mm)=	75.400
RUNOFF COEFFICIENT	=	0.591

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4110)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0411):	4.50	0.112	4.75	44.58
+ ID2= 2 (0886):	144.00	3.221	5.50	45.90
=====				
ID = 3 (4110):	148.50	3.330	5.50	45.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0885)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	208.48	0.0500
43.69	207.97	0.0500
66.92	207.94	0.0500
76.98	208.01	0.0500
87.94	208.25	0.0500
89.93	208.44	0.0500 / 0.0350
92.70	208.20	0.0350
95.51	207.28	0.0350
98.26	208.25	0.0350

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	207.33	.134E+01	0.0	0.06	52.81
0.10	207.38	.536E+01	0.0	0.10	33.27
0.15	207.43	.121E+02	0.0	0.13	25.39
0.19	207.47	.214E+02	0.0	0.15	20.96
0.24	207.52	.335E+02	0.0	0.18	18.06
0.29	207.57	.483E+02	0.1	0.20	15.99
0.34	207.62	.657E+02	0.1	0.22	14.43
0.39	207.67	.858E+02	0.1	0.24	13.20
0.44	207.72	.109E+03	0.1	0.26	12.21
0.48	207.76	.134E+03	0.2	0.28	11.38
0.53	207.81	.162E+03	0.3	0.30	10.68
0.58	207.86	.193E+03	0.3	0.32	10.08
0.63	207.91	.227E+03	0.4	0.34	9.55
0.68	207.96	.295E+03	0.5	0.32	10.12
0.73	208.01	.613E+03	0.7	0.22	14.89
0.78	208.06	.103E+04	1.0	0.20	16.42
0.82	208.10	.150E+04	1.5	0.20	16.27
0.87	208.15	.204E+04	2.2	0.21	15.61
0.92	208.20	.264E+04	3.0	0.22	14.84

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLW : ID= 2 (4110)	148.50	3.33	5.50	45.86	0.92	0.22
OUTFLOW: ID= 1 (0885)	148.50	3.31	5.75	45.86	0.92	0.22

CALIB				
NASHYD (0041)	Area (ha)=	25.40	Curve Number (CN)=	83.6
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.21		

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW	(cms)=	0.562 (i)
TIME TO PEAK	(hrs)=	5.250
RUNOFF VOLUME	(mm)=	39.186
TOTAL RAINFALL	(mm)=	75.400
RUNOFF COEFFICIENT	=	0.520

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0894)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 / 0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.523E+01	0.0	0.10	36.03
0.24	212.03	.209E+02	0.0	0.15	22.70
0.36	212.15	.471E+02	0.0	0.20	17.32
0.48	212.27	.837E+02	0.1	0.25	14.30
0.61	212.40	.131E+03	0.2	0.29	12.32
0.73	212.52	.412E+03	0.4	0.18	19.01
0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62
1.09	212.88	.328E+04	3.9	0.25	14.19
1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.880E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLW : ID= 2 (0041)	25.40	0.56	5.25	39.19	0.77	0.18
OUTFLOW: ID= 1 (0894)	25.40	0.55	5.50	39.19	0.76	0.18

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW	(cms)=	0.866 (i)
TIME TO PEAK	(hrs)=	4.667
RUNOFF VOLUME	(mm)=	40.194
TOTAL RAINFALL	(mm)=	75.400
RUNOFF COEFFICIENT	=	0.533

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0040):	37.50	0.866	4.67	40.19
+ ID2= 2 (0894):	25.40	0.554	5.50	39.19
=====				
ID = 3 (4140):	62.90	1.413	5.17	39.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4101)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (4140):	62.90	1.413	5.17	39.79
+ ID2= 2 (0885):	148.50	3.305	5.75	45.86
=====				
ID = 3 (4101):	211.40	4.681	5.58	44.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model With SWM Infrastructure - Output

```
-----
| ROUTE CHN( 0884)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00           204.63          0.0400
45.24          204.34          0.0400
94.52          203.98          0.0400
140.93         203.58          0.0400
148.77         203.72          0.0400 / 0.0350 Main Channel
154.30         202.99          0.0350 Main Channel
158.02         203.77          0.0350 / 0.0400 Main Channel
174.30         203.79          0.0400
222.94         204.38          0.0400
285.62         204.03          0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV. TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.05  203.04  .620E+01    0.0             0.11          58.30
0.10  203.09  .248E+02    0.0             0.17          36.73
0.16  203.15  .558E+02    0.0             0.22          28.03
0.21  203.20  .992E+02    0.1             0.27          23.14
0.26  203.25  .155E+03    0.1             0.31          19.94
0.31  203.30  .223E+03    0.2             0.35          17.66
0.37  203.36  .304E+03    0.3             0.39          15.93
0.42  203.41  .397E+03    0.5             0.42          14.58
0.47  203.46  .502E+03    0.6             0.46          13.47
0.52  203.51  .620E+03    0.8             0.49          12.56
0.57  203.56  .750E+03    1.1             0.52          11.79
0.63  203.62  .934E+03    1.3             0.53          11.56
0.68  203.67  .129E+04    1.7             0.50          12.36
0.73  203.72  .184E+04    2.3             0.47          13.20
0.79  203.78  .270E+04    3.4             0.47          13.22
0.85  203.84  .412E+04    5.1             0.45          13.57
0.92  203.91  .583E+04    7.3             0.47          13.24
0.98  203.97  .783E+04    10.3            0.49          12.69
1.04  204.03  .101E+05    13.9            0.51          12.15
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4101) 211.40 4.68 5.58 44.05 0.84 0.46
OUTFLOW: ID= 1 ( 0884) 211.40 4.65 5.75 44.05 0.84 0.46
```

```
-----
| CALIB
|
-----
```

```
| NASHYD ( 0410)| Area (ha)= 8.50 Curve Number (CN)= 85.5
|ID= 1 DT= 5.0 min| Ia (mm)= 6.46 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.94
```

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.207 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 42.429
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.563

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4100)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 0410): 8.50 0.207 4.33 42.43
+ ID2= 2 ( 0884): 211.40 4.652 5.75 44.05
=====
ID = 3 ( 4100): 219.90 4.839 5.75 43.99
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0401)| Area (ha)= 23.00 Curve Number (CN)= 83.1
|ID= 1 DT= 5.0 min| Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.521 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 38.367
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.509

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4001)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 0401): 23.00 0.521 4.08 38.37
+ ID2= 2 ( 4100): 219.90 4.839 5.75 43.99
```

```
=====
ID = 3 ( 4001): 242.90 5.309 5.58 43.45
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 4001)|
| 3 + 2 = 1 |
-----
ID1= 3 ( 4001): 242.90 5.309 5.58 43.45
+ ID2= 2 ( 4200): 67.00 1.512 5.08 39.23
=====
ID = 1 ( 4001): 309.90 6.788 5.42 42.54
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0880)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00           204.63          0.0400
45.24          204.34          0.0400
94.52          203.98          0.0400
140.93         203.58          0.0400
148.77         203.72          0.0400 / 0.0350 Main Channel
154.30         202.99          0.0350 Main Channel
158.02         203.77          0.0350 / 0.0400 Main Channel
174.30         203.79          0.0400
222.94         204.38          0.0400
285.62         204.03          0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV. TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.05  203.04  .647E+01    0.0             0.11          59.17
0.10  203.09  .259E+02    0.0             0.17          37.28
0.16  203.15  .582E+02    0.0             0.23          28.45
0.21  203.20  .103E+03    0.1             0.27          23.48
0.26  203.25  .162E+03    0.1             0.32          20.24
0.31  203.30  .233E+03    0.2             0.36          17.92
0.37  203.36  .317E+03    0.3             0.40          16.17
0.42  203.41  .414E+03    0.5             0.43          14.79
0.47  203.46  .524E+03    0.6             0.47          13.68
0.52  203.51  .647E+03    0.8             0.50          12.75
0.57  203.56  .782E+03    1.1             0.54          11.96
0.63  203.62  .974E+03    1.4             0.55          11.73
0.68  203.67  .135E+04    1.8             0.51          12.55
0.73  203.72  .192E+04    2.4             0.48          13.39
```

```
0.79  203.78  .282E+04    3.5             0.48          13.41
0.85  203.84  .430E+04    5.2             0.47          13.77
0.92  203.91  .608E+04    7.5             0.48          13.44
0.98  203.97  .816E+04    10.6            0.50          12.88
1.04  204.03  .105E+05    14.2            0.52          12.33
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4001) 309.90 6.79 5.42 42.54 0.90 0.47
OUTFLOW: ID= 1 ( 0880) 309.90 6.75 5.58 42.54 0.89 0.47
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| CALIB
| NASHYD ( 0400)| Area (ha)= 27.60 Curve Number (CN)= 83.8
|ID= 1 DT= 5.0 min| Ia (mm)= 7.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.88
```

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 0.635 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 39.519
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.524

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4000)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 0400): 27.60 0.635 4.33 39.52
+ ID2= 2 ( 0880): 309.90 6.747 5.58 42.54
=====
ID = 3 ( 4000): 337.50 7.344 5.58 42.29
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0200)| Area (ha)= 25.60 Curve Number (CN)= 82.2
|ID= 1 DT= 5.0 min| Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.79
```


Model With SWM Infrastructure - Output

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 0.558 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 36.913
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.490

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0023)	Area (ha)= 7.00	Curve Number (CN)= 83.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.73		

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.159 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 38.200
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.507

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0022)	Area (ha)= 3.40	Curve Number (CN)= 82.5	
ID= 1 DT= 5.0 min	Ia (mm)= 5.38	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.20		

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.090 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 39.496
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.524

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0211)	Area (ha)= 17.30	Curve Number (CN)= 81.3	
ID= 1 DT= 5.0 min	Ia (mm)= 8.76	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.02		

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.360 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 35.509
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.471

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0021)	Area (ha)= 47.60	Curve Number (CN)= 84.6	
ID= 1 DT= 5.0 min	Ia (mm)= 6.93	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.93		

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 1.123 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 40.871
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.542

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0871)			
IN= 2----> OUT= 1	Routing time step (min)'= 5.00		

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30

0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42
0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

<---- hydrograph ---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (0021)	47.60	1.12	4.42	40.87	0.27
OUTFLOW: ID= 1 (0871)	47.60	1.11	5.08	40.86	0.47

ADD HYD (2110)				
1 + 2 = 3				
ID1= 1 (0211):	17.30	0.360	5.17	35.51
+ ID2= 2 (0022):	3.40	0.090	3.08	39.50
=====				
ID = 3 (2110):	20.70	0.436	5.08	36.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2110)				
3 + 2 = 1				
ID1= 3 (2110):	20.70	0.436	5.08	36.16
+ ID2= 2 (0871):	47.60	1.113	5.08	40.86
=====				
ID = 1 (2110):	68.30	1.549	5.08	39.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0220)	Area (ha)= 20.30	Curve Number (CN)= 81.6	
ID= 1 DT= 5.0 min	Ia (mm)= 8.59	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.85		

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 0.431 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 35.972
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.477

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0020)	Area (ha)= 12.60	Curve Number (CN)= 82.4	
ID= 1 DT= 5.0 min	Ia (mm)= 8.13	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.72		

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.280 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 37.237
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.494

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)			
IN= 2----> OUT= 1	Routing time step (min)'= 5.00		

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME

Model With SWM Infrastructure - Output

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)			
0.04	204.54	.311E+01	0.0	0.15	87.07			
0.07	204.57	.124E+02	0.0	0.24	54.85			
0.11	204.61	.280E+02	0.0	0.32	41.86			
0.14	204.64	.497E+02	0.0	0.39	34.56			
0.18	204.68	.777E+02	0.0	0.45	29.78			
0.22	204.72	.112E+03	0.1	0.50	26.37			
0.25	204.75	.152E+03	0.1	0.56	23.80			
0.29	204.79	.199E+03	0.2	0.61	21.77			
0.33	204.83	.252E+03	0.2	0.66	20.12			
0.36	204.86	.311E+03	0.3	0.71	18.76			
0.40	204.90	.376E+03	0.4	0.76	17.60			
0.43	204.93	.505E+03	0.5	0.72	18.44			
0.47	204.97	.892E+03	0.6	0.58	23.04			
0.51	205.01	.149E+04	1.0	0.53	24.97			
0.54	205.04	.225E+04	1.5	0.54	24.74			
0.58	205.08	.315E+04	2.2	0.56	23.71			
0.61	205.11	.421E+04	3.1	0.59	22.46			
0.65	205.15	.543E+04	4.3	0.63	21.21			
0.69	205.19	.679E+04	5.6	0.66	20.05			
			<--- hydrograph --->		<-pipe / channel->			
			AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
			(ha)	(cms)	(hrs)	(m/s)	(m)	(m/s)
INFLOW :	ID= 2 (0020)	12.60	0.28	3.83	37.24	0.36	0.71	
OUTFLOW:	ID= 1 (0875)	12.60	0.28	4.42	37.20	0.36	0.71	

ADD HYD (2200)				
1 + 2 = 3				
ID1= 1 (0220):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID2= 2 (0875):	20.30	0.431	5.08	35.97
	12.60	0.278	4.42	37.20
=====				
ID = 3 (2200):	32.90	0.708	4.50	36.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (2110):	68.30	1.549	5.08	39.44
ID2= 2 (2200):	32.90	0.708	4.50	36.44
ID = 3 (2101):	101.20	2.256	5.08	38.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

ROUTE CHN( 0870) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
    0.00      209.52      0.0400
   61.99      209.23      0.0400
   76.86      209.20      0.0400
   82.03      209.20      0.0400 / 0.0350 Main Channel
   86.30      208.87      0.0350 Main Channel
   89.86      209.20      0.0350 / 0.0300 Main Channel
   96.27      209.24      0.0300
  103.53      209.40      0.0300
  127.96      209.50      0.0300
  158.58      209.70      0.0300

```

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m)	(cms)	(m/s)	(min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (2101)	101.20	2.26	5.08	38.46	0.44	0.42
OUTFLOW: ID= 1 (0870)	101.20	2.25	5.25	38.46	0.44	0.42

CALIB			
NASHVD (0210)	Area (ha)=	9.10	Curve Number (CN)= 82.3
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.64	

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW	(cms)=	0.205 (i)
TIME TO PEAK	(hrs)=	3.583
RUNOFF VOLUME	(mm)=	37.075
TOTAL RAINFALL	(mm)=	75.400
RUNOFF COEFFICIENT	=	0.492

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2100)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0210):	9.10	0.205	3.58	37.07
ID2= 2 (0870):	101.20	2.246	5.25	38.46
=====				
ID = 3 (2100):	110.30	2.444	5.17	38.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHVD (0230)	Area (ha)=	24.70	Curve Number (CN)= 82.9
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.82	

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW	(cms)=	0.552 (i)
TIME TO PEAK	(hrs)=	4.250
RUNOFF VOLUME	(mm)=	38.043
TOTAL RAINFALL	(mm)=	75.400
RUNOFF COEFFICIENT	=	0.505

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

U.H. $T_p(\text{hrs}) = 0.89$

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 0.632 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 36.440
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.483

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0240)	Area (ha)=	10.10	Curve Number (CN)= 82.0
ID= 1 DT= 5.0 min	Ia (mm)=	8.36	# of Linear Res.(N)= 3.00
-----	U.H. Tp(hrs)=	0.74	

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.220 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 36.600
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.485

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0241)	Area (ha)=	26.70	Curve Number (CN)= 82.3
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.75	

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 0.587 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 37.075
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.492

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHVD (0231)	Area (ha)=	29.50	Curve Number (CN)= 81.9
ID= 1 DT= 5.0 min	Ia (mm)=	8.42	# of Linear Res.(N)= 3.00

```
| ROUTE CHN( 0864)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

Model With SWM Infrastructure - Output

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          214.06        0.0500
6.27          213.95        0.0500
20.38         214.11        0.0500
25.18         213.97        0.0500 / 0.0350 Main Channel
28.59         211.79        0.0350 Main Channel
32.89         214.16        0.0350 / 0.0500 Main Channel
42.61         212.54        0.0500
59.11         212.41        0.0500
84.10         212.83        0.0500
100.76        213.78        0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.12 211.91 .118E+02 0.0 0.27 29.62
0.24 212.03 .471E+02 0.0 0.42 18.66
0.36 212.15 .106E+03 0.1 0.56 14.24
0.48 212.27 .188E+03 0.3 0.67 11.76
0.61 212.40 .294E+03 0.5 0.78 10.13
0.73 212.52 .928E+03 1.0 0.51 15.63
0.85 212.64 .260E+04 2.7 0.50 15.93
0.97 212.76 .477E+04 5.8 0.58 13.67
1.09 212.88 .739E+04 10.6 0.68 11.67
1.21 213.00 .103E+05 17.1 0.79 10.01
1.33 213.12 .133E+05 25.0 0.89 8.85
1.45 213.24 .165E+05 34.4 0.99 8.00
1.57 213.36 .200E+05 45.3 1.08 7.34
1.70 213.49 .236E+05 57.6 1.16 6.82
1.82 213.61 .274E+05 71.4 1.24 6.39
1.94 213.73 .314E+05 86.8 1.31 6.02
2.06 213.85 .355E+05 104.6 1.40 5.66
2.18 213.97 .398E+05 124.9 1.49 5.31
2.37 214.16 .481E+05 161.2 1.59 4.97

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0241) 26.70 0.59 4.08 37.08 0.63 0.70
OUTFLOW: ID= 1 ( 0864) 26.70 0.59 4.50 37.07 0.63 0.71
```

```
| ADD HYD ( 2301) |
| 1 + 2 = 3 |
ID1= 1 ( 0231): 29.50 0.632 5.08 36.44
```

```
+ ID2= 2 ( 0240): 10.10 0.220 4.08 36.60
=====
ID = 3 ( 2301): 39.60 0.850 5.08 36.48
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 2301) |
| 3 + 2 = 1 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 2301): 39.60 0.850 5.08 36.48
+ ID2= 2 ( 0864): 26.70 0.585 4.50 37.07
=====
ID = 1 ( 2301): 66.30 1.433 4.58 36.72
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0863) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.70        0.0400
2.35          206.02        0.0400 / 0.0350 Main Channel
5.23          205.19        0.0350 Main Channel
5.34          205.67        0.0350 Main Channel
19.05         206.06        0.0350 / 0.0400 Main Channel
21.11         206.05        0.0400
22.02         206.13        0.0400 / 0.0350
40.10         206.15        0.0350
56.50         206.04        0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.04 205.23 .138E+01 0.0 0.11 58.11
0.09 205.28 .551E+01 0.0 0.18 36.61
0.13 205.32 .124E+02 0.0 0.23 27.94
0.17 205.36 .220E+02 0.0 0.28 23.06
0.22 205.41 .344E+02 0.0 0.33 19.87
0.26 205.45 .496E+02 0.0 0.37 17.60
0.31 205.50 .675E+02 0.1 0.41 15.88
0.35 205.54 .882E+02 0.1 0.45 14.53
0.39 205.58 .112E+03 0.1 0.48 13.43
0.44 205.63 .138E+03 0.2 0.52 12.52
0.48 205.67 .167E+03 0.2 0.55 11.81
0.52 205.71 .212E+03 0.2 0.44 14.65
0.57 205.76 .285E+03 0.3 0.43 15.23
0.61 205.80 .388E+03 0.4 0.44 14.79
```

```
0.66 205.85 .519E+03 0.6 0.47 13.99
0.70 205.89 .679E+03 0.9 0.50 13.12
0.74 205.93 .868E+03 1.2 0.53 12.29
0.79 205.98 .109E+04 1.6 0.56 11.53
0.83 206.02 .133E+04 2.0 0.60 10.85
```

```
<----- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2301) 66.30 1.43 4.58 36.72 0.77 0.55
OUTFLOW: ID= 1 ( 0863) 66.30 1.43 4.83 36.72 0.77 0.55
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
| ADD HYD ( 2300) |
| 1 + 2 = 3 |
ID1= 1 ( 0230): 24.70 0.552 4.25 38.04
+ ID2= 2 ( 0863): 66.30 1.432 4.83 36.72
=====
ID = 3 ( 2300): 91.00 1.981 4.67 37.08
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 2011) |
| 1 + 2 = 3 |
ID1= 1 ( 2100): 110.30 2.444 5.17 38.35
+ ID2= 2 ( 2300): 91.00 1.981 4.67 37.08
=====
ID = 3 ( 2011): 201.30 4.423 5.17 37.77
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0862) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          204.63        0.0400
45.24         204.34        0.0400
94.52         203.98        0.0400
140.93        203.58        0.0400
148.77        203.72        0.0400 / 0.0350 Main Channel
```

```
154.30 202.99 0.0350 Main Channel
158.02 203.77 0.0350 / 0.0400 Main Channel
174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.05 203.04 .465E+01 0.0 0.10 47.86
0.10 203.09 .186E+02 0.0 0.15 30.15
0.16 203.15 .418E+02 0.0 0.20 23.01
0.21 203.20 .744E+02 0.1 0.24 18.99
0.26 203.25 .116E+03 0.1 0.28 16.37
0.31 203.30 .167E+03 0.2 0.32 14.50
0.37 203.36 .228E+03 0.3 0.35 13.08
0.42 203.41 .297E+03 0.4 0.39 11.97
0.47 203.46 .376E+03 0.6 0.42 11.06
0.52 203.51 .465E+03 0.8 0.45 10.31
0.57 203.56 .562E+03 1.0 0.48 9.68
0.63 203.62 .700E+03 1.2 0.49 9.49
0.68 203.67 .969E+03 1.6 0.45 10.15
0.73 203.72 .138E+04 2.1 0.43 10.83
0.79 203.78 .203E+04 3.1 0.43 10.85
0.85 203.84 .309E+04 4.6 0.41 11.14
0.92 203.91 .437E+04 6.7 0.42 10.87
0.98 203.97 .586E+04 9.4 0.44 10.42
1.04 204.03 .757E+04 12.7 0.46 9.97
```

```
<----- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2011) 201.30 4.42 5.17 37.77 0.85 0.42
OUTFLOW: ID= 1 ( 0862) 201.30 4.41 5.25 37.77 0.84 0.42
```

```
| CALIB
| NASHYD ( 0201) | Area (ha)= 8.20 Curve Number (CN)= 82.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.60
```

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.189 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 37.555
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.498

Model With SWM Infrastructure - Output

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2010)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0201):	8.20	0.189	3.50	37.56
+ ID2= 2 (0023):	7.00	0.159	3.75	38.20
=====				
ID = 3 (2010):	15.20	0.347	3.58	37.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2010)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (2010):	15.20	0.347	3.58	37.85
+ ID2= 2 (0062):	201.30	4.413	5.25	37.77
=====				
ID = 1 (2010):	216.50	4.746	5.25	37.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0860)				
IN= 2----> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	208.48	0.0500		
43.69	207.97	0.0500		
66.92	207.94	0.0500		
76.98	208.01	0.0500		
87.94	208.25	0.0500		
89.93	208.44	0.0500 / 0.0350	Main Channel	
92.70	208.20	0.0350	Main Channel	
95.51	207.28	0.0350	Main Channel	
98.26	208.25	0.0350	Main Channel	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	207.33	.155E+01	0.0	0.16	23.32
0.10	207.38	.620E+01	0.0	0.25	14.69
0.15	207.43	.140E+02	0.0	0.33	11.21
0.19	207.47	.248E+02	0.0	0.40	9.26

0.24	207.52	.388E+02	0.1	0.47	7.98
0.29	207.57	.558E+02	0.1	0.53	7.06
0.34	207.62	.760E+02	0.2	0.59	6.37
0.39	207.67	.992E+02	0.3	0.64	5.83
0.44	207.72	.126E+03	0.4	0.69	5.39
0.48	207.76	.155E+03	0.5	0.74	5.03
0.53	207.81	.188E+03	0.7	0.79	4.72
0.58	207.86	.223E+03	0.8	0.84	4.45
0.63	207.91	.262E+03	1.0	0.88	4.22
0.68	207.96	.341E+03	1.3	0.83	4.47
0.73	208.01	.708E+03	1.8	0.57	6.58
0.78	208.06	.119E+04	2.7	0.51	7.25
0.82	208.10	.174E+04	4.0	0.52	7.19
0.87	208.15	.236E+04	5.7	0.54	6.89
0.92	208.20	.305E+04	7.8	0.57	6.55

		AREA	QPEAK	TPEAK	R.V.	<-pipe / channel->	
		(ha)	(cms)	(hrs)	(mm)	MAX DEPTH	MAX VEL
INFLOW :	ID= 2 (2010)	216.50	4.75	5.25	37.78	0.85	0.53
OUTFLOW:	ID= 1 (0860)	216.50	4.74	5.33	37.78	0.84	0.53

ADD HYD (2000)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0200):	25.60	0.558	4.25	36.91
+ ID2= 2 (0060):	216.50	4.741	5.33	37.78
=====				
ID = 3 (2000):	242.10	5.292	5.25	37.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0300)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	36.80	Curve Number (CN)= 83.1
	Ia	(mm)=	7.74	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.90		

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 0.822 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 38.367
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.509

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0031)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	3.00	Curve Number (CN)= 82.5
	Ia	(mm)=	5.38	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.62		

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.072 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 39.570
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.525

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0350)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	1.50	Curve Number (CN)= 83.2
	Ia	(mm)=	7.69	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.38		

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.038 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 38.520
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.511

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0850)				
IN= 2----> OUT= 1				
Routing time step (min)'= 5.00				

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.00	0.0400		
33.24	205.47	0.0400		
44.39	205.59	0.0400		
48.71	205.45	0.0400 / 0.0350	Main Channel	
51.02	204.50	0.0350	Main Channel	
54.33	205.44	0.0350 / 0.0400	Main Channel	
55.90	204.97	0.0400		
62.96	204.91	0.0400		

102.92 205.20 0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.300E+01	0.0	0.15	86.75
0.07	204.57	.120E+02	0.0	0.24	54.65
0.11	204.61	.270E+02	0.0	0.31	41.70
0.14	204.64	.480E+02	0.0	0.37	34.42
0.18	204.68	.750E+02	0.0	0.43	29.67
0.22	204.72	.108E+03	0.1	0.49	26.27
0.25	204.75	.147E+03	0.1	0.54	23.71
0.29	204.79	.192E+03	0.1	0.59	21.69
0.33	204.83	.243E+03	0.2	0.64	20.05
0.36	204.86	.300E+03	0.3	0.69	18.69
0.40	204.90	.363E+03	0.3	0.73	17.54
0.43	204.93	.488E+03	0.4	0.70	18.37
0.47	204.97	.860E+03	0.6	0.56	22.95
0.51	205.01	.144E+04	1.0	0.52	24.88
0.54	205.04	.217E+04	1.5	0.52	24.65
0.58	205.08	.304E+04	2.1	0.54	23.62
0.61	205.11	.407E+04	3.0	0.57	22.38
0.65	205.15	.524E+04	4.1	0.61	21.13
0.69	205.19	.656E+04	5.5	0.64	19.97

		AREA	QPEAK	TPEAK	R.V.	<-pipe / channel->	
		(ha)	(cms)	(hrs)	(mm)	MAX DEPTH	MAX VEL
INFLOW :	ID= 2 (0350)	1.50	0.04	3.17	38.52	0.17	0.42
OUTFLOW:	ID= 1 (0850)	1.50	0.03	3.58	38.20	0.17	0.41

CALIB				
NASHYD (0032)				
ID= 1 DT= 5.0 min				
	Area	(ha)=	28.00	Curve Number (CN)= 83.4
	Ia	(mm)=	7.58	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.95		

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.630 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 38.855
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.515

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
| ADD HYD ( 3200) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0032): 28.00 0.630 5.08 38.86
+ ID2= 2 ( 0850): 1.50 0.035 3.58 38.20
=====
ID = 3 ( 3200): 29.50 0.663 5.08 38.82
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0301) |
| ID= 1 DT= 5.0 min |
=====
Area (ha)= 59.40 Curve Number (CN)= 82.7
Ia (mm)= 7.97 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.23
```

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 1.269 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 37.713
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.500

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 3010) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0301): 59.40 1.269 5.33 37.71
+ ID2= 2 ( 3200): 29.50 0.663 5.08 38.82
=====
ID = 3 ( 3010): 88.90 1.929 5.25 38.08
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 3001) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 3010): 88.90 1.929 5.25 38.08
+ ID2= 2 ( 0031): 3.00 0.072 3.42 39.57
=====
ID = 3 ( 3001): 91.90 1.995 5.25 38.13
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 3000) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0300): 36.80 0.822 4.58 38.37
+ ID2= 2 ( 0852): 91.90 1.993 5.25 38.13
=====
ID = 3 ( 3000): 128.70 2.810 5.25 38.20
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0030) |
| ID= 1 DT= 5.0 min |
=====
Area (ha)= 1.10 Curve Number (CN)= 81.5
Ia (mm)= 5.76 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30
```

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.027 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 38.082
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.505

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0854) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .753E+00 0.0 0.18 18.23
0.07 204.57 .301E+01 0.0 0.28 11.48
0.11 204.61 .677E+01 0.0 0.37 8.76
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0852) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 /0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 /0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400
124.41 207.31 0.0400
129.31 207.24 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 205.46 .132E+02 0.0 0.21 32.83
0.19 205.56 .529E+02 0.0 0.33 20.68
0.28 205.65 .119E+03 0.1 0.43 15.78
0.38 205.75 .212E+03 0.3 0.52 13.03
0.47 205.84 .327E+03 0.5 0.62 10.84
0.57 205.94 .458E+03 0.8 0.72 9.42
0.66 206.03 .604E+03 1.2 0.80 8.44
0.76 206.13 .777E+03 1.7 0.91 7.41
0.86 206.23 .102E+04 2.4 0.97 6.97
0.96 206.33 .168E+04 3.6 0.87 7.76
1.06 206.43 .252E+04 5.4 0.87 7.80
1.16 206.53 .350E+04 7.7 0.89 7.56
1.26 206.63 .463E+04 10.7 0.93 7.24
1.37 206.74 .590E+04 14.3 0.98 6.90
1.47 206.84 .732E+04 18.6 1.03 6.58
1.57 206.94 .889E+04 23.6 1.08 6.28
1.67 207.04 .106E+05 29.5 1.13 6.00
1.77 207.14 .125E+05 36.1 1.17 5.75
1.87 207.24 .145E+05 43.7 1.22 5.52
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 3001) 91.90 2.00 5.25 38.13 0.80 0.93
OUTFLOW: ID= 1 ( 0852) 91.90 1.99 5.25 38.13 0.79 0.93
```

```
0.14 204.64 .120E+02 0.0 0.45 7.23
0.18 204.68 .188E+02 0.1 0.52 6.23
0.22 204.72 .271E+02 0.1 0.58 5.52
0.25 204.75 .369E+02 0.1 0.65 4.98
0.29 204.79 .482E+02 0.2 0.71 4.56
0.33 204.83 .610E+02 0.2 0.77 4.21
0.36 204.86 .753E+02 0.3 0.82 3.93
0.40 204.90 .911E+02 0.4 0.88 3.69
0.43 204.93 .122E+03 0.5 0.84 3.86
0.47 204.97 .216E+03 0.7 0.67 4.82
0.51 205.01 .361E+03 1.2 0.62 5.23
0.54 205.04 .544E+03 1.7 0.62 5.18
0.58 205.08 .763E+03 2.6 0.65 4.96
0.61 205.11 .102E+04 3.6 0.69 4.70
0.65 205.15 .131E+04 4.9 0.73 4.44
0.69 205.19 .165E+04 6.5 0.77 4.20
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0030) 1.10 0.03 3.17 38.08 0.14 0.44
OUTFLOW: ID= 1 ( 0854) 1.10 0.03 3.17 38.07 0.14 0.44
```

```
| CALIB
| NASHYD ( 0340) |
| ID= 1 DT= 5.0 min |
=====
Area (ha)= 21.00 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.478 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 37.877
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 3400) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0340): 21.00 0.478 3.67 37.88
+ ID2= 2 ( 0854): 1.10 0.027 3.17 38.07
=====
```

Model With SWM Infrastructure - Output

ID = 3 (3400): 22.10 0.502 3.58 37.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0123)|
|ID= 1 DT= 5.0 min|
|-----
Area (ha)= 24.60 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 0.544 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 38.043
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.505

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0814)|
| IN= 2----> OUT= 1 |
|-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .923E+01 0.0 0.26 23.49
0.24 212.03 .369E+02 0.0 0.42 14.80
0.36 212.15 .831E+02 0.1 0.55 11.29
0.48 212.27 .148E+03 0.3 0.67 9.32
0.61 212.40 .231E+03 0.5 0.77 8.03
0.73 212.52 .727E+03 1.0 0.50 12.40
0.85 212.64 .204E+04 2.7 0.49 12.63
0.97 212.76 .374E+04 5.7 0.57 10.84
1.09 212.88 .580E+04 10.4 0.67 9.25
1.21 213.00 .804E+04 16.9 0.78 7.94
```

100.76 213.78 0.0500

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .168E+02 0.0 0.26 43.17
0.24 212.03 .671E+02 0.0 0.41 27.20
0.36 212.15 .151E+03 0.1 0.54 20.76
0.48 212.27 .268E+03 0.3 0.66 17.13
0.61 212.40 .419E+03 0.5 0.76 14.77
0.73 212.52 .132E+04 1.0 0.50 22.79
0.85 212.64 .370E+04 2.7 0.49 23.22
0.97 212.76 .679E+04 5.7 0.57 19.92
1.09 212.88 .105E+05 10.3 0.66 17.01
1.21 213.00 .146E+05 16.7 0.77 14.59
1.33 213.12 .189E+05 24.5 0.87 12.90
1.45 213.24 .236E+05 33.7 0.97 11.66
1.57 213.36 .284E+05 44.3 1.05 10.70
1.70 213.49 .336E+05 56.3 1.14 9.94
1.82 213.61 .390E+05 69.8 1.21 9.31
1.94 213.73 .447E+05 84.8 1.28 8.78
2.06 213.85 .506E+05 102.3 1.37 8.24
2.18 213.97 .566E+05 122.0 1.46 7.73
2.37 214.16 .685E+05 157.6 1.56 7.25
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0124) 24.30 0.66 3.25 42.96 0.65 0.63
OUTFLOW: ID= 1 ( 0813) 24.30 0.64 3.67 42.95 0.65 0.64
```

```
-----
| ADD HYD ( 1221)|
| 1 + 2 = 3 |
|-----
ID1= 1 ( 0813): 24.30 0.640 3.67 42.95
+ ID2= 2 ( 0814): 24.60 0.544 5.17 38.04
=====
ID = 3 ( 1221): 48.90 1.152 4.08 40.48
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0812)|
| IN= 2----> OUT= 1 |
|-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
```

1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0123) 24.60 0.54 5.08 38.04 0.62 0.72
OUTFLOW: ID= 1 ( 0814) 24.60 0.54 5.17 38.04 0.62 0.72
```

```
-----
| CALIB
| NASHYD ( 0124)|
|ID= 1 DT= 5.0 min|
|-----
Area (ha)= 24.30 Curve Number (CN)= 85.8
Ia (mm)= 6.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.51
```

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 0.665 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 42.961
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.570

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0813)|
| IN= 2----> OUT= 1 |
|-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
```

Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 /0.0350 Main Channel
70.77	208.05	0.0350 Main Channel
74.98	208.02	0.0350 Main Channel
83.40	208.38	0.0350 /0.0400 Main Channel
88.06	208.63	0.0400
94.94	209.13	0.0400
105.88	209.54	0.0400

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .533E+02 0.1 0.24 12.01
0.14 208.16 .150E+03 0.3 0.37 7.63
0.22 208.24 .280E+03 0.8 0.47 5.98
0.29 208.31 .444E+03 1.5 0.56 5.04
0.36 208.38 .642E+03 2.4 0.64 4.42
0.44 208.46 .896E+03 4.0 0.75 3.76
0.52 208.54 .119E+04 6.0 0.86 3.29
0.60 208.62 .153E+04 8.6 0.96 2.96
0.68 208.70 .192E+04 11.7 1.04 2.73
0.76 208.78 .235E+04 15.4 1.11 2.55
0.84 208.86 .283E+04 19.6 1.18 2.41
0.92 208.94 .351E+04 24.2 1.17 2.41
0.99 209.01 .435E+04 30.6 1.19 2.37
1.07 209.09 .528E+04 38.0 1.22 2.31
1.15 209.17 .628E+04 46.4 1.26 2.26
1.23 209.25 .737E+04 55.9 1.29 2.20
1.31 209.33 .855E+04 66.6 1.33 2.14
1.39 209.41 .982E+04 78.7 1.36 2.08
1.47 209.49 .112E+05 92.1 1.40 2.03
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1221) 48.90 1.15 4.08 40.48 0.25 0.52
OUTFLOW: ID= 1 ( 0812) 48.90 1.15 4.17 40.48 0.25 0.52
```

```
-----
| CALIB
| NASHYD ( 0122)|
|ID= 1 DT= 5.0 min|
|-----
Area (ha)= 31.80 Curve Number (CN)= 85.1
Ia (mm)= 6.67 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.96
```

Unit Hyd Qpeak (cms)= 1.265

Model With SWM Infrastructure - Output

PEAK FLOW (cms)= 0.762 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 41.729
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.553

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1220) |
| 1 + 2 = 3 |
-----
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0122): 31.80 0.762 4.42 41.73
+ ID2= 2 ( 0812): 48.90 1.151 4.17 40.48
=====
ID = 3 ( 1220): 80.70 1.912 4.33 40.97
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0811) |
| IN= 2--> OUT= 1 |
-----
      Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       206.50      0.0400
29.68      206.77      0.0400
43.70      206.13      0.0400 / 0.0350 Main Channel
44.99      205.95      0.0350 Main Channel
47.70      206.24      0.0350 / 0.0450 Main Channel
60.54      206.32      0.0450
80.11      206.99      0.0450
102.29     207.42      0.0450 / 0.0400
132.78     206.84      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)     (m)     (cu.m.)   (cms)        (m/s)      (min)
0.06    206.01  .147E+02  0.0           0.14       60.26
0.12    206.07  .590E+02  0.0           0.22       37.96
0.18    206.13  .133E+03  0.1           0.29       28.97
0.26    206.21  .302E+03  0.2           0.36       22.81
0.34    206.29  .671E+03  0.5           0.39       21.40
0.42    206.37  .151E+04  1.2           0.39       20.95
0.50    206.45  .254E+04  2.3           0.45       18.38
0.58    206.53  .376E+04  3.7           0.49       16.98
0.66    206.61  .544E+04  5.6           0.51       16.11
0.74    206.69  .764E+04  8.4           0.54       15.19
```

0.83	206.78	.104E+05	12.1	0.58	14.27
0.91	206.86	.134E+05	17.4	0.64	12.84
0.99	206.94	.166E+05	23.6	0.71	11.71
1.07	207.02	.201E+05	30.7	0.76	10.88
1.15	207.10	.239E+05	38.8	0.81	10.26
1.23	207.18	.280E+05	48.0	0.85	9.72
1.31	207.26	.325E+05	58.5	0.89	9.26
1.39	207.34	.373E+05	70.3	0.94	8.84
1.47	207.42	.424E+05	83.4	0.98	8.48

```
-----
<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1220) 80.70 1.91 4.33 40.97 0.47 0.43
OUTFLOW: ID= 1 ( 0811) 80.70 1.90 4.75 40.97 0.47 0.43
```

```
-----
| CALIB
| NASHYD ( 0121) |
| ID= 1 DT= 5.0 min |
-----
      Area   (ha)= 16.10   Curve Number (CN)= 86.5
      Ia     (mm)= 5.94    # of Linear Res.(N)= 3.00
      U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.413 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 44.222
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.586

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1210) |
| 1 + 2 = 3 |
-----
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0121): 16.10 0.413 4.00 44.22
+ ID2= 2 ( 0811): 80.70 1.901 4.75 40.97
=====
ID = 3 ( 1210): 96.80 2.306 4.58 41.51
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0146) |
| ID= 1 DT= 5.0 min |
-----
      Area   (ha)= 12.80   Curve Number (CN)= 83.0
      Ia     (mm)= 7.63    # of Linear Res.(N)= 3.00
      U.H. Tp(hrs)= 0.59
```

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.305 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 38.200
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.507

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0844) |
| IN= 2--> OUT= 1 |
-----
      Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       208.29      0.0300
3.73       208.14      0.0300 / 0.0350 Main Channel
5.30       207.52      0.0350 Main Channel
6.93       208.18      0.0350 / 0.0300 Main Channel
8.96       208.27      0.0300
14.71      208.30      0.0300
23.86      208.59      0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)     (m)     (cu.m.)   (cms)        (m/s)      (min)
0.04    207.56  .107E+01  0.0           0.13       37.04
0.08    207.60  .430E+01  0.0           0.20       23.33
0.12    207.64  .966E+01  0.0           0.27       17.81
0.16    207.68  .172E+02  0.0           0.32       14.70
0.19    207.71  .268E+02  0.0           0.38       12.67
0.23    207.75  .387E+02  0.1           0.42       11.22
0.27    207.79  .526E+02  0.1           0.47       10.12
0.31    207.83  .687E+02  0.1           0.51       9.26
0.35    207.87  .870E+02  0.2           0.56       8.56
0.39    207.91  .107E+03  0.2           0.60       7.98
0.43    207.95  .130E+03  0.3           0.64       7.49
0.47    207.99  .155E+03  0.4           0.67       7.07
0.50    208.02  .181E+03  0.5           0.71       6.70
0.54    208.06  .210E+03  0.6           0.75       6.38
0.58    208.10  .242E+03  0.7           0.78       6.09
0.62    208.14  .275E+03  0.8           0.82       5.83
0.67    208.19  .329E+03  1.0           0.87       5.50
0.72    208.24  .413E+03  1.3           0.89       5.36
0.77    208.29  .540E+03  1.7           0.87       5.45
```

```
-----
<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 0146) 12.80 0.31 3.33 38.20 0.43 0.64
OUTFLOW: ID= 1 ( 0844) 12.80 0.30 3.50 38.20 0.43 0.64
```

```
-----
| CALIB
| NASHYD ( 0145) |
| ID= 1 DT= 5.0 min |
-----
      Area   (ha)= 12.60   Curve Number (CN)= 83.3
      Ia     (mm)= 7.63    # of Linear Res.(N)= 3.00
      U.H. Tp(hrs)= 0.59
```

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.301 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 38.694
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.513

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1450) |
| 1 + 2 = 3 |
-----
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0145): 12.60 0.301 3.42 38.69
+ ID2= 2 ( 0844): 12.80 0.304 3.50 38.20
=====
ID = 3 ( 1450): 25.40 0.605 3.42 38.44
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0843) |
| IN= 2--> OUT= 1 |
-----
      Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       214.06      0.0500
6.27       213.95      0.0500
20.38      214.11      0.0500
25.18      213.97      0.0500 / 0.0350 Main Channel
28.59      211.79      0.0350 Main Channel
32.89      214.16      0.0350 / 0.0500 Main Channel
42.61      212.54      0.0500
```

Model With SWM Infrastructure - Output

59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.12	211.91	.144E+02	0.0	0.23	42.45	
0.24	212.03	.578E+02	0.0	0.36	26.74	
0.36	212.15	.130E+03	0.1	0.48	20.41	
0.48	212.27	.231E+03	0.2	0.58	16.85	
0.61	212.40	.361E+03	0.4	0.67	14.52	
0.73	212.52	.114E+04	0.8	0.43	22.41	
0.85	212.64	.319E+04	2.3	0.43	22.83	
0.97	212.76	.585E+04	5.0	0.50	19.59	
1.09	212.88	.907E+04	9.0	0.58	16.72	
1.21	213.00	.126E+05	14.6	0.68	14.34	
1.33	213.12	.163E+05	21.4	0.77	12.69	
1.45	213.24	.203E+05	29.5	0.85	11.47	
1.57	213.36	.245E+05	38.8	0.92	10.52	
1.70	213.49	.289E+05	49.3	0.99	9.77	
1.82	213.61	.336E+05	61.2	1.06	9.15	
1.94	213.73	.385E+05	74.3	1.13	8.63	
2.06	213.85	.436E+05	89.6	1.20	8.11	
2.18	213.97	.488E+05	106.9	1.28	7.61	
2.37	214.16	.590E+05	138.1	1.36	7.13	
<---- hydrograph ----> <-pipe / channel-->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1450)	25.40	0.60	3.42	38.44	0.66	0.54
OUTFLOW: ID= 1 (0843)	25.40	0.59	4.00	38.43	0.65	0.55

CALIB						
NASHYD (0144)	Area	(ha)=	28.60	Curve Number	(CN)=	82.9
ID= 1 DT= 5.0 min	Ia	(mm)=	7.85	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.97				

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.632 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 38.043
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.505

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1440)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0144):	28.60	0.632	5.08	38.04	
+ ID2= 2 (0843):	25.40	0.586	4.00	38.43	
=====					
ID = 3 (1440):	54.00	1.207	4.58	38.23	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0842)					
IN= 2--> OUT= 1	Routing time step (min)'=	5.00			
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.70	0.0400			
2.35	206.02	0.0400 /0.0350	Main Channel		
5.23	205.19	0.0350	Main Channel		
5.34	205.67	0.0350	Main Channel		
19.05	206.06	0.0350 /0.0400	Main Channel		
21.11	206.05	0.0400			
22.02	206.13	0.0400 /0.0350			
40.10	206.15	0.0350			
56.50	206.04	0.0350			

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.04	205.23	.149E+01	0.0	0.09	81.67	
0.09	205.28	.594E+01	0.0	0.14	51.45	
0.13	205.32	.134E+02	0.0	0.18	39.26	
0.17	205.36	.238E+02	0.0	0.22	32.41	
0.22	205.41	.371E+02	0.0	0.25	27.93	
0.26	205.45	.535E+02	0.0	0.28	24.73	
0.31	205.50	.728E+02	0.1	0.31	22.32	
0.35	205.54	.950E+02	0.1	0.34	20.42	
0.39	205.58	.120E+03	0.1	0.37	18.87	
0.44	205.63	.149E+03	0.1	0.40	17.59	
0.48	205.67	.180E+03	0.2	0.42	16.60	
0.52	205.71	.228E+03	0.2	0.34	20.59	
0.57	205.76	.308E+03	0.2	0.33	21.41	
0.61	205.80	.418E+03	0.3	0.34	20.79	
0.66	205.85	.560E+03	0.5	0.36	19.66	
0.70	205.89	.732E+03	0.7	0.38	18.44	
0.74	205.93	.936E+03	0.9	0.41	17.27	
0.79	205.98	.117E+04	1.2	0.43	16.20	

0.83	206.02	.144E+04	1.6	0.46	15.24	
<---- hydrograph ----> <-pipe / channel-->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1440)	54.00	1.21	4.58	38.23	0.79	0.43
OUTFLOW: ID= 1 (0842)	54.00	1.20	4.75	38.22	0.79	0.43

CALIB						
NASHYD (0143)	Area	(ha)=	27.70	Curve Number	(CN)=	82.9
ID= 1 DT= 5.0 min	Ia	(mm)=	7.85	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.07				

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)= 0.607 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 38.043
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.505

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0143):	27.70	0.607	5.17	38.04	
+ ID2= 2 (0842):	54.00	1.204	4.75	38.22	
=====					
ID = 3 (1430):	81.70	1.810	5.08	38.16	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0841)					
IN= 2--> OUT= 1	Routing time step (min)'=	5.00			
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.66	0.0400			
19.50	209.34	0.0400			
37.91	208.66	0.0400			
41.73	208.62	0.0400 /0.0350	Main Channel		
43.44	208.24	0.0350	Main Channel		

45.75	208.62	0.0350 /0.0450	Main Channel		
54.00	208.79	0.0450 /0.0400			
77.43	209.05	0.0400			
128.85	209.70	0.0400			

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.06	208.30	.216E+02	0.0	0.15	113.45	
0.13	208.37	.864E+02	0.0	0.24	71.47	
0.19	208.43	.194E+03	0.1	0.31	54.54	
0.25	208.49	.345E+03	0.1	0.38	45.02	
0.32	208.56	.540E+03	0.2	0.44	38.00	
0.38	208.62	.777E+03	0.4	0.49	34.36	
0.46	208.70	.152E+04	0.7	0.50	33.99	
0.54	208.78	.281E+04	1.4	0.50	33.61	
0.62	208.86	.469E+04	2.5	0.53	31.90	
0.70	208.94	.734E+04	4.0	0.56	30.28	
0.78	209.02	.107E+05	6.3	0.59	28.55	
0.86	209.10	.149E+05	9.3	0.63	26.78	
0.94	209.18	.198E+05	13.1	0.68	25.09	
1.02	209.26	.253E+05	17.9	0.72	23.58	
1.10	209.34	.315E+05	23.6	0.76	22.24	
1.18	209.42	.386E+05	30.0	0.79	21.42	
1.26	209.50	.465E+05	37.7	0.82	20.56	
1.34	209.58	.554E+05	46.8	0.86	19.73	
1.42	209.66	.652E+05	57.3	0.90	18.94	

<---- hydrograph ----> <-pipe / channel-->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1430)	81.70	1.81	5.08	38.16	0.57	0.52
OUTFLOW: ID= 1 (0841)	81.70	1.78	5.50	38.15	0.57	0.51

CALIB						
NASHYD (0142)	Area	(ha)=	27.10	Curve Number	(CN)=	82.9
ID= 1 DT= 5.0 min	Ia	(mm)=	7.85	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.22				

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 0.584 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 38.043
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.505

Model With SWM Infrastructure - Output

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)				
1	2	3		

ID1= 1 (0142):	27.10	0.584	5.25	38.04
+ ID2= 2 (0841):	81.70	1.779	5.50	38.15
=====				
ID = 3 (1420):	108.80	2.359	5.42	38.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)	
IN= 2--> OUT= 1	

Routing time step (min)'= 5.00	

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.52	0.0400		
61.99	209.23	0.0400		
76.86	209.20	0.0400		
82.03	209.20	0.0400 / 0.0350	Main Channel	
86.30	208.87	0.0350	Main Channel	
89.86	209.20	0.0350 / 0.0300	Main Channel	
96.27	209.24	0.0300		
103.53	209.40	0.0300		
127.96	209.50	0.0300		
158.58	209.70	0.0300		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.706E+01	0.0	0.08	110.24
0.07	208.94	.282E+02	0.0	0.13	69.44
0.10	208.97	.636E+02	0.0	0.17	53.00
0.13	209.00	.113E+03	0.0	0.21	43.75
0.17	209.04	.177E+03	0.1	0.24	37.70
0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75
0.37	209.24	.118E+04	0.7	0.34	26.61
0.40	209.27	.196E+04	1.2	0.33	27.88
0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61

TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 37.877
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0153)	
ID= 1 DT= 5.0 min	

Area (ha)= 33.30	Curve Number (CN)= 82.6
Ia (mm)= 8.02	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.08	

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 0.722 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 37.556
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.498

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)	
IN= 2--> OUT= 1	

Routing time step (min)'= 5.00	

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.125E+02	0.0	0.21	40.70
0.24	212.03	.501E+02	0.0	0.33	25.64
0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48

0.58	209.45	.865E+04	6.3	0.40	22.94
0.61	209.48	.108E+05	8.1	0.41	22.09
0.65	209.52	.132E+05	10.4	0.43	21.10

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1420)	108.80	2.36	5.42	38.13	0.46
OUTFLOW: ID= 1 (0840)	108.80	2.32	5.75	38.12	0.46

CALIB	
NASHYD (0141)	
ID= 1 DT= 5.0 min	

Area (ha)= 8.10	Curve Number (CN)= 83.6
Ia (mm)= 7.47	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78	

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.187 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 39.186
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.520

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1410)				
1	2	3		

ID1= 1 (0141):	8.10	0.187	3.92	39.19
+ ID2= 2 (0840):	108.80	2.321	5.75	38.12
=====				
ID = 3 (1410):	116.90	2.486	5.67	38.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0151)	
ID= 1 DT= 5.0 min	

Area (ha)= 24.60	Curve Number (CN)= 82.8
Ia (mm)= 7.91	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.00	

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.540 (i)

TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 37.877
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0153)	
ID= 1 DT= 5.0 min	

Area (ha)= 33.30	Curve Number (CN)= 82.6
Ia (mm)= 8.02	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.08	

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 0.722 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 37.556
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.498

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)	
IN= 2--> OUT= 1	

Routing time step (min)'= 5.00	

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.125E+02	0.0	0.21	40.70
0.24	212.03	.501E+02	0.0	0.33	25.64
0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48

0.85	212.64	.277E+04	2.1	0.39	21.89
0.97	212.76	.507E+04	4.5	0.45	18.78
1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0153)	33.30	0.72	5.17	37.56	0.71
OUTFLOW: ID= 1 (0834)	33.30	0.71	5.58	37.56	0.71

CALIB	
NASHYD (0152)	
ID= 1 DT= 5.0 min	

Area (ha)= 16.20	Curve Number (CN)= 82.6
Ia (mm)= 8.02	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.93	

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.355 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 37.556
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.498

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1520)				
1	2	3		

ID1= 1 (0152):	16.20	0.355	5.08	37.56
+ ID2= 2 (0834):	33.30	0.710	5.58	37.56
=====				
ID = 3 (1520):	49.50	1.060	5.33	37.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model With SWM Infrastructure - Output

```
-----
| ROUTE CHN( 0833)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
```

Days	Low	High	Low	High	Low	High
0.00	209.49	0.0400				
35.71	208.88	0.0400				
53.04	208.89	0.0400				
64.12	208.50	0.0400 / 0.0350	Main	Channel		
70.77	208.05	0.0350	Main	Channel		
74.98	208.02	0.0350	Main	Channel		
83.40	208.38	0.0350 / 0.0400	Main	Channel		
88.06	208.63	0.0400				
94.94	209.13	0.0400				
105.88	209.54	0.0400				

```
<----- TRAVEL TIME TABLE ----->
```

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.07	208.09	.232E+03	0.1	0.19	65.23
0.14	208.16	.652E+03	0.3	0.30	41.42
0.22	208.24	.122E+04	0.6	0.38	32.47
0.29	208.31	.193E+04	1.2	0.45	27.40
0.36	208.38	.279E+04	1.9	0.51	24.03
0.44	208.46	.389E+04	3.2	0.60	20.41
0.52	208.54	.516E+04	4.8	0.69	17.88
0.60	208.62	.664E+04	6.9	0.77	16.88
0.68	208.70	.833E+04	9.4	0.83	14.80
0.76	208.78	.102E+05	12.3	0.89	13.84
0.84	208.86	.123E+05	15.7	0.94	13.07
0.92	208.94	.153E+05	19.4	0.94	13.11
0.99	209.01	.189E+05	24.5	0.96	12.89
1.07	209.09	.229E+05	30.4	0.98	12.57
1.15	209.17	.273E+05	37.1	1.01	12.25
1.23	209.25	.320E+05	44.7	1.03	11.94
1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

```
<---- hydrograph ---->
```

```
<-pipe / channel->
```

		<--- hydrograph <---			<-pipe / channel-	
	AREA	QPEAK	TPEAK	R. V.	MAX DEPTH	MAX VE
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1520)	49.50	1.06	5.33	37.56	0.27	0.43
OUTFLOW: ID= 1 (0833)	49.50	1.04	5.58	37.55	0.27	0.43

```

| ADD HYD ( 1510)
| 1 + 2 = 3

```

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0151):	24.60	0.540	5.17	37.88
+ ID2= 2 (0833):	49.50	1.044	5.58	37.55
=====				
ID = 3 (1510):	74.10	1.575	5.42	37.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0832)|
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 / 0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 / 0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 / 0.0400	
132.78	206.84	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.06	206.01	.158E+02	0.0	0.16	56.30
0.12	206.07	.633E+02	0.0	0.25	35.47
0.18	206.13	.142E+03	0.1	0.33	27.07
0.26	206.21	.324E+03	0.3	0.42	21.31
0.34	206.29	.720E+03	0.6	0.44	20.00
0.42	206.37	.162E+04	1.4	0.45	19.57
0.50	206.45	.720E+04	2.6	0.52	17.52
0.58	206.53	.400E+04	4.2	0.55	15.86
0.66	206.61	.584E+04	6.5	0.59	15.05
0.74	206.69	.820E+04	9.6	0.63	14.19
0.83	206.78	.111E+05	13.9	0.67	13.34
0.91	206.86	.143E+05	19.9	0.74	12.00
0.99	206.94	.178E+05	27.1	0.81	10.94
1.07	207.02	.215E+05	35.3	0.87	10.16
1.15	207.10	.256E+05	44.5	0.93	9.59
1.23	207.18	.301E+05	55.1	1.08	9.09
1.31	207.26	.349E+05	67.2	1.03	8.65
1.39	207.34	.400E+05	80.7	1.07	8.26
1.47	207.42	.455E+05	95.8	1.12	7.92

```
<---- hydrograph ----> <-pipe / channel->
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R. V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1510)	74.10	1.58	5.42	37.66	0.43	0.46
OUTFLOW: ID= 1 (0832)	74.10	1.56	5.58	37.65	0.43	0.46

| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
```

Distance	Elevation	Manning	
0.00	207.71	0.0400	
58.83	206.71	0.0400	
66.88	206.59	0.0400 / 0.0350	Main Channel
72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	
174.41	207.56	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.224E+03	0.0	0.08	174.00
0.23	206.25	.505E+03	0.1	0.11	132.79
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34
0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	7.7	0.29	50.17
0.78	206.80	.196E+05	4.6	0.34	42.88
0.87	206.89	.254E+05	11.4	0.38	37.38
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11
1.37	207.39	.776E+05	54.6	0.61	23.71
1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43

```
<---- hydrograph ---->    <-pipe / channel->
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1401)	197.60	4.19	5.58	38.03	0.68	0.27
OUTFLOW: ID= 1 (0830)	197.60	3.93	6.25	38.02	0.67	0.27

CALIB			
NASHVD (0150)	Area (ha)=	6.60	Curve Number (CN)= 83.7
ID= 1 DT= 5.0 min	Ia (mm)=	7.41	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.96	

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.150 (i)
TIME TO PEAK (hrs)= 4.750
RUNOFF VOLUME (mm)= 39.356
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.522

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1500)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0150)	6.60	0.150	4.75	39.36
+ ID2= 2 (0832)	74.10	1.560	5.58	37.65
=====	=====	=====	=====	=====
ID = 3 (1500)	80.70	1.704	5.50	37.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1401)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1410):	116.90	2.486	5.67	38.19
+ ID2= 2 (1500):	80.70	1.704	5.50	37.79
=====				
ID = 3 (1401):	197.60	4.188	5.58	38.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0830) |

| CALIB

Model With SWM Infrastructure - Output

```
| NASHYD ( 0140) | Area (ha)= 18.30 Curve Number (CN)= 83.6
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.34
```

Unit Hyd Qpeak (cms)= 0.522

```
PEAK FLOW (cms)= 0.397 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 39.186
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.520
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1400) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0140): | AREA QPEAK TPEAK R.V.
| | (ha) (cms) (hrs) (mm)
+ ID2= 2 ( 0830): | 18.30 0.397 5.33 39.19
| 197.60 3.932 6.25 38.02
=====
| ID = 3 ( 1400): | 215.90 4.296 6.17 38.12
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB |
| NASHYD ( 0131) | Area (ha)= 28.70 Curve Number (CN)= 82.1
| ID= 1 DT= 5.0 min | Ia (mm)= 8.30 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.11
```

Unit Hyd Qpeak (cms)= 0.988

```
PEAK FLOW (cms)= 0.609 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 36.761
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.488
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB |
| STANDHYD ( 0011) | Area (ha)= 132.00
| ID= 1 DT= 5.0 min | Total Imp(%)= 57.10 Dir. Conn.(%)= 45.00
|-----|
| IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 75.37 56.63
```

```
Dep. Storage (mm)= 1.00 8.95
Average Slope (%)= 1.00 1.00
Length (m)= 938.08 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 19.60 10.63
over (min) 20.00 45.00
Storage Coeff. (min)= 18.78 (ii) 40.08 (ii)
Unit Hyd. Tpeak (min)= 20.00 45.00
Unit Hyd. peak (cms)= 0.06 0.03

*TOTALS*
PEAK FLOW (cms)= 3.12 1.44 3.810 (iii)
TIME TO PEAK (hrs)= 2.08 5.08 3.08
RUNOFF VOLUME (mm)= 74.40 33.83 52.08
TOTAL RAINFALL (mm)= 75.40 75.40 75.40
RUNOFF COEFFICIENT = 0.99 0.45 0.69
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| RESERVOIR( 0874) | OVERFLOW IS OFF
| IN= 2----> OUT= 1 |
| DT= 5.0 min |
|-----|
| OUTFLOW STORAGE | OUTFLOW STORAGE
| (cms) (ha.m.) | (cms) (ha.m.)
| 0.0000 0.0000 | 2.4200 5.4280
| 0.0950 1.5860 | 3.3930 6.6280
| 1.2530 3.8390 | 0.0000 0.0000

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 ( 0011) 132.000 3.810 3.08 52.08
OUTFLOW: ID= 1 ( 0874) 132.000 1.771 6.42 51.54

PEAK FLOW REDUCTION [Qout/Qin](%)= 46.49
TIME SHIFT OF PEAK FLOW (min)=200.00
MAXIMUM STORAGE USED (ha.m.)= 4.5454
```

```
| CALIB |
| STANDHYD ( 0012) | Area (ha)= 17.50
| ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00
|-----|
| IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 14.00 3.50
```

```
Dep. Storage (mm)= 1.00 8.94
Average Slope (%)= 1.00 1.00
Length (m)= 341.57 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 19.60 13.84
over (min) 10.00 30.00
Storage Coeff. (min)= 10.24 (ii) 29.41 (ii)
Unit Hyd. Tpeak (min)= 10.00 30.00
Unit Hyd. peak (cms)= 0.11 0.04

*TOTALS*
PEAK FLOW (cms)= 0.67 0.12 0.740 (iii)
TIME TO PEAK (hrs)= 2.08 3.33 2.08
RUNOFF VOLUME (mm)= 74.40 37.40 63.30
TOTAL RAINFALL (mm)= 75.40 75.40 75.40
RUNOFF COEFFICIENT = 0.99 0.50 0.84
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1112) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0012): | AREA QPEAK TPEAK R.V.
| | (ha) (cms) (hrs) (mm)
+ ID2= 2 ( 0874): | 17.50 0.740 2.08 63.30
| 132.00 1.771 6.42 51.54
=====
| ID = 3 ( 1112): | 149.50 2.036 6.08 52.92
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB |
| STANDHYD ( 0010) | Area (ha)= 12.90
| ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00
|-----|
| IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 10.32 2.58
Dep. Storage (mm)= 1.00 8.94
Average Slope (%)= 1.00 1.00
Length (m)= 293.26 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 19.60 13.84
over (min) 10.00 30.00
```

```
Storage Coeff. (min)= 9.35 (ii) 28.52 (ii)
Unit Hyd. Tpeak (min)= 10.00 30.00
Unit Hyd. peak (cms)= 0.12 0.04

*TOTALS*
PEAK FLOW (cms)= 0.49 0.09 0.546 (iii)
TIME TO PEAK (hrs)= 2.08 3.33 2.08
RUNOFF VOLUME (mm)= 74.40 37.40 63.30
TOTAL RAINFALL (mm)= 75.40 75.40 75.40
RUNOFF COEFFICIENT = 0.99 0.50 0.84
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1311) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0010): | AREA QPEAK TPEAK R.V.
| | (ha) (cms) (hrs) (mm)
+ ID2= 2 ( 1112): | 12.90 0.546 2.08 63.30
| 149.50 2.036 6.08 52.92
=====
| ID = 3 ( 1311): | 162.40 2.312 5.08 53.74
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0822) |
| IN= 2----> OUT= 1 |
|-----|
| Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 207.71 0.0400
58.83 206.71 0.0400
66.88 206.59 0.0400 / 0.0350 Main Channel
72.32 206.34 0.0350 Main Channel
77.68 206.55 0.0350 / 0.0800 Main Channel
82.85 206.54 0.0800
90.20 206.02 0.0800
94.03 206.48 0.0800
99.83 206.40 0.0800 / 0.0400
114.32 206.50 0.0400
136.07 206.86 0.0400
174.41 207.56 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
```

Model With SWM Infrastructure - Output

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.337E+02	0.0	0.07	124.18
0.15	206.17	.135E+03	0.0	0.11	78.23
0.23	206.25	.303E+03	0.1	0.15	59.70
0.30	206.32	.539E+03	0.2	0.18	49.28
0.38	206.40	.885E+03	0.3	0.20	43.17
0.45	206.47	.175E+04	0.6	0.19	46.91
0.53	206.55	.333E+04	1.4	0.23	38.64
0.61	206.63	.569E+04	3.4	0.31	27.90
0.70	206.72	.851E+04	6.3	0.39	22.56
0.78	206.80	.118E+05	10.2	0.45	19.28
0.87	206.89	.155E+05	15.2	0.51	17.00
0.95	206.97	.196E+05	21.4	0.57	15.28
1.04	207.06	.242E+05	28.9	0.63	13.96
1.12	207.14	.292E+05	37.7	0.68	12.90
1.20	207.22	.346E+05	47.9	0.73	12.02
1.29	207.31	.404E+05	59.6	0.77	11.29
1.37	207.39	.466E+05	72.9	0.82	10.66
1.46	207.48	.533E+05	87.8	0.86	10.11
1.54	207.56	.604E+05	104.5	0.91	9.63

<---- hydrograph >----> <-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1311)	162.40	2.31	5.08	53.74	0.57
OUTFLOW: ID= 1 (0822)	162.40	2.22	6.08	53.72	0.56

72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 /0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 /0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	
174.41	207.56	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60
0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

<---- hydrograph >----> <-pipe / channel->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1310)	191.10	2.79	5.18	0.60	0.26
OUTFLOW: ID= 1 (0821)	191.10	2.69	6.17	0.60	0.26

CALIB	Area (ha)=		Curve Number (CN)=	
NASHYD (0130)	26.70		81.7	
IN= 1 DT= 5.0 min	Ia (mm)= 8.53		# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.32			

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 0.542 (i)

TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 36.130
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.479

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1300)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0130):	26.70	0.542	5.42	36.13
+ ID2= 2 (0821):	191.10	2.689	6.17	51.14
ID = 3 (1300):	217.80	3.197	6.08	49.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1202)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1300):	217.80	3.197	6.08	49.30
+ ID2= 2 (1400):	215.90	4.296	6.17	38.12
ID = 3 (1202):	433.70	7.490	6.17	43.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0820)	ROUTING time step (min)'= 5.00
IN= 2----> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 /0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 /0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.00	206.54				
43.13	205.35				
67.41	205.27				
86.35	205.38				

0.09	204.79	.681E+01	0.0	0.08	28.42
0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80
0.37	205.07	.292E+03	0.3	0.12	18.72
0.46	205.16	.859E+03	0.9	0.14	16.44
0.55	205.25	.182E+04	2.3	0.17	13.44
0.64	205.34	.311E+04	4.7	0.21	11.04
0.74	205.44	.487E+04	8.4	0.24	9.67
0.83	205.53	.676E+04	13.3	0.27	8.48
0.92	205.62	.877E+04	19.3	0.30	7.58
1.01	205.71	.109E+05	26.4	0.33	6.90
1.10	205.80	.132E+05	34.5	0.36	6.36
1.20	205.90	.155E+05	43.8	0.39	5.92
1.29	205.99	.181E+05	54.1	0.42	5.56
1.38	206.08	.207E+05	65.6	0.44	5.25
1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

<---- hydrograph >----> <-pipe / channel->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1202)	433.70	7.49	6.17	43.73	0.71
OUTFLOW: ID= 1 (0820)	433.70	7.45	6.08	43.73	0.71

ADD HYD (1201)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (1210):	96.80	2.306	4.58	41.51
+ ID2= 2 (0820):	433.70	7.449	6.08	43.73
ID = 3 (1201):	530.50	9.481	6.08	43.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0810)	ROUTING time step (min)'= 5.00
IN= 2----> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.54	0.0450	
43.13	205.35	0.0450	
67.41	205.27	0.0450	
86.35	205.38	0.0450 / 0.0350	Main Channel

Model With SWM Infrastructure - Output

90.47	204.70	0.0350	Main Channel
93.03	205.16	0.0350 / 0.0400	Main Channel
101.99	205.21	0.0400	
151.82	204.97	0.0400	
252.14	206.45	0.0400	

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)         (m/s)       (min)
0.09  204.79  .229E+02    0.0           0.07       106.67
0.18  204.88  .915E+02    0.0           0.12       67.20
0.28  204.98  .208E+03    0.1           0.15       51.82
0.37  205.07  .981E+03    0.2           0.11       70.28
0.46  205.16  .288E+04    0.8           0.13       61.71
0.55  205.25  .610E+04    2.0           0.15       50.43
0.64  205.34  .105E+05    4.2           0.19       41.45
0.74  205.44  .163E+05    7.5           0.21       36.28
0.83  205.53  .227E+05    11.9          0.24       31.82
0.92  205.62  .294E+05    17.2          0.27       28.46
1.01  205.71  .366E+05    23.6          0.30       25.89
1.10  205.80  .442E+05    30.9          0.32       23.87
1.20  205.90  .522E+05    39.1          0.35       22.23
1.29  205.99  .606E+05    48.4          0.37       20.87
1.38  206.08  .694E+05    58.7          0.39       19.72
1.47  206.17  .786E+05    70.0          0.41       18.74
1.57  206.27  .883E+05    82.3          0.43       17.88
1.66  206.36  .983E+05    95.7          0.45       17.12
1.75  206.45  .109E+06    110.2         0.47       16.45
```

```
<---- hydrograph ----> <-pipe / channel->
                        AREA   QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                        (ha)   (cms)  (hrs)  (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1201) 530.50  9.48   6.08  43.33   0.78       0.23
OUTFLOW: ID= 1 ( 0810) 530.50  9.06   6.42  43.32   0.77       0.22
```

```
-----
| CALIB                                     |
| NASHYD ( 0120) | Area (ha)= 9.00   Curve Number (CN)= 84.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.25   # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 1.16
```

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.203 (i)

TIME TO PEAK (hrs)= 5.167

RUNOFF VOLUME (mm)= 39.855

TOTAL RAINFALL (mm)= 75.400

RUNOFF COEFFICIENT = 0.529

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1200) |
| 1 + 2 = 3 |
-----
                        AREA   QPEAK   TPEAK   R.V.
                        (ha)   (cms)  (hrs)  (mm)
ID1= 1 ( 0120): 9.00   0.203  5.17  39.86
+ ID2= 2 ( 0810): 530.50  9.056  6.42  43.32
=====
ID = 3 ( 1200): 539.50  9.224  6.25  43.26
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB                                     |
| NASHYD ( 0113) | Area (ha)= 13.50   Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08   # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.87
```

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.295 (i)

TIME TO PEAK (hrs)= 4.583

RUNOFF VOLUME (mm)= 37.393

TOTAL RAINFALL (mm)= 75.400

RUNOFF COEFFICIENT = 0.496

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0802) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance    Elevation    Manning
0.00        208.29        0.0300
3.73        208.14        0.0300 / 0.0350 Main Channel
5.30        207.52        0.0350 Main Channel
6.93        208.18        0.0350 / 0.0300 Main Channel
8.96        208.27        0.0300
14.71       208.30        0.0300
23.86       208.59        0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)         (m/s)       (min)
0.04  207.56  .448E+01    0.0           0.12       164.32
```

0.08	207.60	.179E+02	0.0	0.19	103.51
0.12	207.64	.403E+02	0.0	0.25	79.00
0.16	207.68	.716E+02	0.0	0.30	65.21
0.19	207.71	.112E+03	0.0	0.35	56.20
0.23	207.75	.161E+03	0.1	0.40	49.76
0.27	207.79	.219E+03	0.1	0.44	44.90
0.31	207.83	.287E+03	0.1	0.48	41.08
0.35	207.87	.363E+03	0.2	0.52	37.98
0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88
0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79
0.77	208.29	.225E+04	1.6	0.82	24.20

```
<---- hydrograph ----> <-pipe / channel->
                        AREA   QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                        (ha)   (cms)  (hrs)  (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 0113) 13.50  0.30   4.58  37.39   0.44       0.61
OUTFLOW: ID= 1 ( 0802) 13.50  0.29   5.25  37.32   0.44       0.61
```

```
-----
| CALIB                                     |
| NASHYD ( 0112) | Area (ha)= 30.50   Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91   # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 1.60
```

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 0.613 (i)

TIME TO PEAK (hrs)= 5.667

RUNOFF VOLUME (mm)= 37.877

TOTAL RAINFALL (mm)= 75.400

RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB                                     |
| NASHYD ( 0111) | Area (ha)= 45.50   Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19   # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 1.33
```

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 0.943 (i)

TIME TO PEAK (hrs)= 5.417

RUNOFF VOLUME (mm)= 37.076

TOTAL RAINFALL (mm)= 75.400

RUNOFF COEFFICIENT = 0.492

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1101) |
| 1 + 2 = 3 |
-----
                        AREA   QPEAK   TPEAK   R.V.
                        (ha)   (cms)  (hrs)  (mm)
ID1= 1 ( 0111): 45.50  0.943  5.42  37.08
+ ID2= 2 ( 0112): 30.50  0.613  5.67  37.88
=====
ID = 3 ( 1101): 76.00  1.553  5.50  37.40
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 1101) |
| 3 + 2 = 1 |
-----
                        AREA   QPEAK   TPEAK   R.V.
                        (ha)   (cms)  (hrs)  (mm)
ID1= 3 ( 1101): 76.00  1.553  5.50  37.40
+ ID2= 2 ( 0802): 13.50  0.293  5.25  37.32
=====
ID = 1 ( 1101): 89.50  1.844  5.42  37.39
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0801) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance    Elevation    Manning
0.00        209.66        0.0400
19.50       209.34        0.0400
37.91       208.66        0.0400
41.73       208.62        0.0400 / 0.0350 Main Channel
43.44       208.24        0.0350 Main Channel
45.75       208.62        0.0350 / 0.0450 Main Channel
54.00       208.79        0.0450 / 0.0400
77.43       209.05        0.0400
128.85      209.70        0.0400
```

Model With SWM Infrastructure - Output

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.06	208.30	.104E+02	0.0	0.10	83.26	
0.13	208.37	.415E+02	0.0	0.16	52.45	
0.19	208.43	.934E+02	0.0	0.20	40.03	
0.25	208.49	.166E+03	0.1	0.25	33.04	
0.32	208.56	.259E+03	0.2	0.29	28.47	
0.38	208.62	.373E+03	0.2	0.32	25.22	
0.46	208.70	.729E+03	0.5	0.33	24.94	
0.54	208.78	.135E+04	0.9	0.33	24.67	
0.62	208.86	.225E+04	1.6	0.35	23.41	
0.70	208.94	.352E+04	2.6	0.37	22.23	
0.78	209.02	.516E+04	4.1	0.39	20.96	
0.86	209.10	.716E+04	6.1	0.41	19.65	
0.94	209.18	.949E+04	8.6	0.44	18.42	
1.02	209.26	.122E+05	11.7	0.47	17.31	
1.10	209.34	.152E+05	15.5	0.50	16.32	
1.18	209.42	.185E+05	19.7	0.52	15.72	
1.26	209.50	.224E+05	24.7	0.54	15.09	
1.34	209.58	.266E+05	30.6	0.56	14.48	
1.42	209.66	.313E+05	37.5	0.59	13.90	
<---- hydrograph ----> <-pipe / channel-->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1101)	89.50	1.84	5.42	37.39	0.64	0.35
OUTFLOW: ID= 1 (0801)	89.50	1.81	5.75	37.38	0.64	0.35

CALIB						
NASHYD (0110)	Area	(ha)=	11.90	Curve Number	(CN)=	83.4
ID= 1 DT= 5.0 min	Ia	(mm)=	7.58	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=		0.68			

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.279 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 38.855
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.515

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0110):	11.90	0.279	3.58	38.85	
+ ID2= 2 (0801):	89.50	1.814	5.75	37.38	
=====					
ID = 3 (1100):	101.40	2.052	5.58	37.56	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (1100):	101.40	2.052	5.58	37.56	
+ ID2= 2 (1200):	539.50	9.224	6.25	43.26	
=====					
ID = 3 (1001):	640.90	11.200	6.17	42.36	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)					
IN= 2--> OUT= 1		Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.54	0.0450			
43.13	205.35	0.0450			
67.41	205.27	0.0450			
86.35	205.38	0.0450 / 0.0350	Main Channel		
90.47	204.70	0.0350	Main Channel		
93.03	205.16	0.0350 / 0.0400	Main Channel		
101.99	205.21	0.0400			
151.82	204.97	0.0400			
252.14	206.45	0.0400			

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.09	204.79	.255E+02	0.0	0.16	54.50	
0.18	204.88	.102E+03	0.0	0.25	34.33	
0.28	204.98	.232E+03	0.1	0.33	26.47	
0.37	205.07	.109E+04	0.5	0.24	35.91	
0.46	205.16	.321E+04	1.7	0.27	31.53	
0.55	205.25	.680E+04	4.4	0.33	25.77	
0.64	205.34	.116E+05	9.2	0.41	21.18	
0.74	205.44	.182E+05	16.4	0.47	18.54	
0.83	205.53	.253E+05	25.9	0.53	16.26	
0.92	205.62	.328E+05	37.6	0.59	14.54	

1.01	205.71	.408E+05	51.4	0.65	13.23	
1.10	205.80	.492E+05	67.3	0.71	12.19	
1.20	205.90	.581E+05	85.3	0.76	11.36	
1.29	205.99	.675E+05	105.5	0.81	10.66	
1.38	206.08	.773E+05	127.9	0.86	10.08	
1.47	206.17	.876E+05	152.5	0.90	9.57	
1.57	206.27	.983E+05	179.4	0.94	9.13	
1.66	206.36	.109E+06	208.6	0.99	8.75	
1.75	206.45	.121E+06	240.2	1.03	8.41	

<---- hydrograph ----> <-pipe / channel-->						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1001)	640.90	11.20	6.17	42.36	0.67	0.42
OUTFLOW: ID= 1 (0800)	640.90	11.08	6.50	42.36	0.67	0.42

CALIB						
NASHYD (0100)	Area	(ha)=	54.70	Curve Number	(CN)=	83.2
ID= 1 DT= 5.0 min	Ia	(mm)=	7.69	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=		1.23			

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 1.190 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 38.527
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.511

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1000)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0100):	54.70	1.190	5.25	38.53	
+ ID2= 2 (0800):	640.90	11.076	6.50	42.36	
=====					
ID = 3 (1000):	695.60	12.094	6.33	42.06	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB						
NASHYD (0190)	Area	(ha)=	12.30	Curve Number	(CN)=	83.9

ID= 1 DT= 5.0 min	Ia	(mm)=	7.31	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.83		

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.286 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 39.683
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.526

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB						
NASHYD (0191)	Area	(ha)=	20.10	Curve Number	(CN)=	82.0
ID= 1 DT= 5.0 min	Ia	(mm)=	8.36	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=		0.94			

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.431 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 36.600
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.485

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB						
NASHYD (0192)	Area	(ha)=	28.30	Curve Number	(CN)=	80.3
ID= 1 DT= 5.0 min	Ia	(mm)=	6.23	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=		1.06			

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 0.589 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 36.388
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.483

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1901)					

Model With SWM Infrastructure - Output

```
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
-----
ID1= 1 ( 0191): 20.10 0.431 5.17 36.60
+ ID2= 2 ( 0192): 28.30 0.589 5.17 36.39
=====
ID = 3 ( 1901): 48.40 1.020 5.17 36.48
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0899) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .349E+02 0.1 0.18 10.46
0.14 208.16 .981E+02 0.2 0.28 6.64
0.22 208.24 .183E+03 0.6 0.36 5.21
0.29 208.31 .291E+03 1.1 0.42 4.40
0.36 208.38 .420E+03 1.8 0.48 3.85
0.44 208.46 .586E+03 3.0 0.57 3.27
0.52 208.54 .777E+03 4.5 0.65 2.87
0.60 208.62 .999E+03 6.5 0.72 2.58
0.68 208.70 .125E+04 8.8 0.78 2.37
0.76 208.78 .154E+04 11.5 0.84 2.22
0.84 208.86 .185E+04 14.7 0.89 2.10
0.92 208.94 .230E+04 18.2 0.88 2.10
0.99 209.01 .285E+04 23.0 0.90 2.07
1.07 209.09 .345E+04 28.5 0.92 2.02
1.15 209.17 .411E+04 34.8 0.94 1.96
1.23 209.25 .482E+04 42.0 0.97 1.91
1.31 209.33 .559E+04 50.0 1.00 1.86
1.39 209.41 .643E+04 59.1 1.02 1.81
1.47 209.49 .732E+04 69.1 1.05 1.76
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
```

```
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1901) 48.40 1.02 5.17 36.48 0.28 0.41
OUTFLOW: ID= 1 ( 0899) 48.40 1.02 5.17 36.48 0.28 0.41
```

```
| ADD HYD ( 1900) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0190): 12.30 0.286 4.17 39.68
+ ID2= 2 ( 0899): 48.40 1.019 5.17 36.48
=====
ID = 3 ( 1900): 60.70 1.301 5.17 37.13
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0500) | Area (ha)= 7.60 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.48
```

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.183 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 37.875
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.502

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0510) | Area (ha)= 12.70 Curve Number (CN)= 81.7
| ID= 1 DT= 5.0 min | Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.275 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 36.130
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.479

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0520) | Area (ha)= 17.30 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.382 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 37.393
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.496

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 5000) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0500): 7.60 0.183 3.25 37.88
+ ID2= 2 ( 0510): 12.70 0.275 3.75 36.13
=====
ID = 3 ( 5000): 20.30 0.453 3.50 36.78
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 5000) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 5000): 20.30 0.453 3.50 36.78
+ ID2= 2 ( 0520): 17.30 0.382 4.17 37.39
=====
ID = 1 ( 5000): 37.60 0.828 3.75 37.06
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0600) | Area (ha)= 2.50 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.060 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 37.390
TOTAL RAINFALL (mm)= 75.400
RUNOFF COEFFICIENT = 0.496

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
```

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voain.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\VS\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\31
8c5f02-dc07-4d7b-9ca3-d22081f232d1\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\VS\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\31
8c5f02-dc07-4d7b-9ca3-d22081f232d1\sce

DATE: 10-17-2025

TIME: 02:54:09

USER:

COMMENTS: _____

Model With SWM Infrastructure - Output

** SIMULATION : 5 **

READ STORM
Filename: C:\Users\wraymond\AppData\Local\Temp\fae06f95-585c-465c-81d8-96408d74cabcf79ae8473
Ptotal= 90.80 mm
Comments: 25yr12hrAES

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	3.08	13.62	6.17	2.72	9.25	0.00
0.08	11.80	3.17	13.62	6.25	2.72	9.33	0.00
0.17	11.80	3.25	13.62	6.33	2.72	9.42	0.00
0.25	11.80	3.33	13.62	6.42	2.72	9.50	0.00
0.33	11.80	3.42	13.62	6.50	2.72	9.58	0.00
0.42	11.80	3.50	13.62	6.58	2.72	9.67	0.00
0.50	11.80	3.58	13.62	6.67	2.72	9.75	0.00
0.58	11.80	3.67	13.62	6.75	2.72	9.83	0.00
0.67	11.80	3.75	13.62	6.83	2.72	9.92	0.00
0.75	11.80	3.83	13.62	6.92	2.72	10.00	0.00
0.83	11.80	3.92	13.62	7.00	2.72	10.08	0.00
0.92	11.80	4.00	13.62	7.08	0.91	10.17	0.00
1.00	11.80	4.08	12.71	7.17	0.91	10.25	0.00
1.08	23.61	4.17	12.71	7.25	0.91	10.33	0.00
1.17	23.61	4.25	12.71	7.33	0.91	10.42	0.00
1.25	23.61	4.33	12.71	7.42	0.91	10.50	0.00
1.33	23.61	4.42	12.71	7.50	0.91	10.58	0.00
1.42	23.61	4.50	12.71	7.58	0.91	10.67	0.00
1.50	23.61	4.58	12.71	7.67	0.91	10.75	0.00
1.58	23.61	4.67	12.71	7.75	0.91	10.83	0.00
1.67	23.61	4.75	12.71	7.83	0.91	10.92	0.00
1.75	23.61	4.83	12.71	7.92	0.91	11.00	0.00
1.83	23.61	4.92	12.71	8.00	0.91	11.08	0.00
1.92	23.61	5.00	12.71	8.08	0.00	11.17	0.00
2.00	23.61	5.08	7.26	8.17	0.00	11.25	0.00
2.08	18.16	5.17	7.26	8.25	0.00	11.33	0.00
2.17	18.16	5.25	7.26	8.33	0.00	11.42	0.00
2.25	18.16	5.33	7.26	8.42	0.00	11.50	0.00
2.33	18.16	5.42	7.26	8.50	0.00	11.58	0.00
2.42	18.16	5.50	7.26	8.58	0.00	11.67	0.00
2.50	18.16	5.58	7.26	8.67	0.00	11.75	0.00
2.58	18.16	5.67	7.26	8.75	0.00	11.83	0.00
2.67	18.16	5.75	7.26	8.83	0.00	11.92	0.00
2.75	18.16	5.83	7.26	8.92	0.00	12.00	0.00
2.83	18.16	5.92	7.26	9.00	0.00		
2.92	18.16	6.00	7.26	9.08	0.00		
3.00	18.16	6.08	2.72	9.17	0.00		

CALIB
NASHYD (0185)
ID= 1 DT= 5.0 min
Area (ha)= 2.00
Ia (mm)= 6.54
U.H. Tp(hrs)= 0.36
Curve Number (CN)= 79.5
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.061 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 47.399
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.522

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0180)
ID= 1 DT= 5.0 min
Area (ha)= 6.80
Ia (mm)= 8.13
U.H. Tp(hrs)= 0.85
Curve Number (CN)= 82.4
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.198 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 49.913
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.550

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0170)
ID= 1 DT= 5.0 min
Area (ha)= 5.80
Ia (mm)= 8.13
U.H. Tp(hrs)= 0.69
Curve Number (CN)= 82.4
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.175 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 49.913
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.550

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0160)
ID= 1 DT= 5.0 min
Area (ha)= 16.30
Ia (mm)= 7.69
U.H. Tp(hrs)= 1.15
Curve Number (CN)= 83.2
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.470 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 51.394
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.566

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0330)
ID= 1 DT= 5.0 min
Area (ha)= 22.30
Ia (mm)= 8.25
U.H. Tp(hrs)= 0.60
Curve Number (CN)= 82.2
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.685 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 49.540
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.546

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0270)
ID= 1 DT= 5.0 min
Area (ha)= 2.50
Ia (mm)= 5.95
U.H. Tp(hrs)= 0.24
Curve Number (CN)= 81.0
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.082 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 49.801
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.548

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0260)
ID= 1 DT= 5.0 min
Area (ha)= 7.00
Ia (mm)= 7.41
U.H. Tp(hrs)= 0.43
Curve Number (CN)= 83.7
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.237 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 52.337
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.576

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0250)
ID= 1 DT= 5.0 min
Area (ha)= 10.70
Ia (mm)= 8.42
U.H. Tp(hrs)= 0.54
Curve Number (CN)= 81.9
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.330 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 48.993
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.540

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0320)
ID= 1 DT= 5.0 min
Area (ha)= 11.70
Ia (mm)= 7.80
U.H. Tp(hrs)= 0.45
Curve Number (CN)= 83.0
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.385 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 51.017
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.562

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
| CALIB
| NASHYD ( 0420) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 25.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.12
```

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 0.755 (i)
TIME TO PEAK (hrs)= 5.000
RUNOFF VOLUME (mm)= 52.148
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0423) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 23.90 Curve Number (CN)= 84.1
Ia (mm)= 7.20 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.80
```

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 0.750 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 53.099
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.585

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0422) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 6.90 Curve Number (CN)= 83.4
Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.61
```

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.222 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 51.768
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.570

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0896) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .808E+00 0.0 0.15 23.76
0.07 204.57 .323E+01 0.0 0.23 14.97
0.11 204.61 .727E+01 0.0 0.30 11.42
0.14 204.64 .129E+02 0.0 0.37 9.43
0.18 204.68 .202E+02 0.0 0.43 8.13
0.22 204.72 .291E+02 0.1 0.48 7.20
0.25 204.75 .396E+02 0.1 0.53 6.49
0.29 204.79 .517E+02 0.1 0.58 5.94
0.33 204.83 .654E+02 0.2 0.63 5.49
0.36 204.86 .808E+02 0.3 0.68 5.12
0.40 204.90 .977E+02 0.3 0.72 4.80
0.43 204.93 .131E+03 0.4 0.69 5.03
0.47 204.97 .232E+03 0.6 0.55 6.29
0.51 205.01 .388E+03 0.9 0.51 6.81
0.54 205.04 .584E+03 1.4 0.51 6.75
0.58 205.08 .819E+03 2.1 0.54 6.47
0.61 205.11 .110E+04 3.0 0.56 6.13
0.65 205.15 .141E+04 4.1 0.60 5.79
0.69 205.19 .177E+04 5.4 0.63 5.47
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0422) 6.90 0.22 3.42 51.77 0.34 0.65
OUTFLOW: ID= 1 ( 0896) 6.90 0.22 3.42 51.77 0.34 0.65
```

```
| ADD HYD ( 4202) |
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0423): 23.90 0.750 3.75 53.10
+ ID2= 2 ( 0896): 6.90 0.221 3.42 51.77
=====
ID = 3 ( 4202): 30.80 0.969 3.67 52.80
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0895) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .170E+01 0.0 0.28 4.09
0.24 212.03 .679E+01 0.0 0.44 2.58
0.36 212.15 .153E+02 0.1 0.58 1.97
0.48 212.27 .272E+02 0.3 0.70 1.62
0.61 212.40 .424E+02 0.5 0.82 1.40
0.73 212.52 .134E+03 1.0 0.53 2.16
0.85 212.64 .375E+03 2.8 0.52 2.20
0.97 212.76 .687E+03 6.1 0.60 1.89
1.09 212.88 .107E+04 11.0 0.71 1.61
1.21 213.00 .148E+04 17.8 0.83 1.38
1.33 213.12 .192E+04 26.1 0.93 1.22
1.45 213.24 .238E+04 35.9 1.03 1.11
1.57 213.36 .288E+04 47.3 1.13 1.01
1.70 213.49 .340E+04 60.1 1.21 0.94
1.82 213.61 .395E+04 74.5 1.29 0.88
1.94 213.73 .452E+04 90.5 1.37 0.83
2.06 213.85 .512E+04 109.2 1.46 0.78
2.18 213.97 .573E+04 130.3 1.56 0.73
2.37 214.16 .694E+04 168.2 1.66 0.69
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4202) 30.80 0.97 3.67 52.80 0.71 0.55
OUTFLOW: ID= 1 ( 0895) 30.80 0.97 3.75 52.80 0.71 0.55
```

```
| CALIB
| NASHYD ( 0421) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 10.40 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.37
```

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)= 0.345 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 50.641
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0883) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .344E+01 0.0 0.19 78.41
0.07 204.57 .137E+02 0.0 0.30 49.40
0.11 204.61 .309E+02 0.0 0.39 37.70
0.14 204.64 .550E+02 0.0 0.47 31.12
0.18 204.68 .859E+02 0.1 0.55 26.82
0.22 204.72 .124E+03 0.1 0.62 23.75
```

Model With SWM Infrastructure - Output

0.25	204.75	.168E+03	0.1	0.69	21.43
0.29	204.79	.220E+03	0.2	0.75	19.60
0.33	204.83	.278E+03	0.3	0.81	18.12
0.36	204.86	.344E+03	0.3	0.87	16.89
0.40	204.90	.416E+03	0.4	0.93	15.85
0.43	204.93	.559E+03	0.6	0.89	16.61
0.47	204.97	.986E+03	0.8	0.71	20.75
0.51	205.01	.165E+04	1.2	0.65	22.49
0.54	205.04	.248E+04	1.9	0.66	22.28
0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0421)	10.40	0.35	3.17	50.64	0.36	0.88
OUTFLOW: ID= 1 (0883)	10.40	0.34	3.33	50.60	0.36	0.87

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0883):	10.40	0.338	3.33	50.60
+ ID2= 2 (0895):	30.80	0.969	3.75	52.80
=====				
ID = 3 (4201):	41.20	1.295	3.50	52.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0882)	Routing time step (min)'	
IN= 2---> OUT= 1	5.00	
<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 / 0.0350
70.77	208.05	0.0350
74.98	208.02	0.0350
83.40	208.38	0.0350 / 0.0400
88.06	208.63	0.0400
94.94	209.13	0.0400
105.88	209.54	0.0400

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 0.944 (i)
TIME TO PEAK (hrs)= 5.000
RUNOFF VOLUME (mm)= 53.675
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.591

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)	Curve Number (CN)
NASHYD (0442)	2.40	84.9
ID= 1 DT= 5.0 min	Ia (mm)= 6.77	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.41	

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.085 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 54.643
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)	Curve Number (CN)
NASHYD (0443)	21.30	83.9
ID= 1 DT= 5.0 min	Ia (mm)= 7.31	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.59	

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)= 0.702 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 52.714
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)	Curve Number (CN)
NASHYD (0451)	12.30	84.3
ID= 1 DT= 5.0 min	Ia (mm)= 7.09	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.57	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52
0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20
0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4201)	41.20	1.29	3.50	52.24	0.41	0.27
OUTFLOW: ID= 1 (0882)	41.20	1.26	3.92	52.24	0.40	0.27

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0420):	25.80	0.755	5.00	52.15
+ ID2= 2 (0882):	41.20	1.258	3.92	52.24
=====				
ID = 3 (4200):	67.00	1.994	4.33	52.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)	Curve Number (CN)
NASHYD (0440)	31.60	84.4
ID= 1 DT= 5.0 min	Ia (mm)= 7.04	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.16	

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 0.414 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 53.484
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)	Dir. Conn.(%)
STANDHYD (0043)	22.90	40.00
ID= 1 DT= 5.0 min	Total Imp(%)= 49.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)	11.22	11.68
Dep. Storage (mm)	1.00	8.92
Average Slope (%)	1.00	2.00
Length (m)	390.73	40.00
Mannings n	0.013	0.250
Max.Eff.Inten.(mm/hr)= over (min)	23.61	12.65
Storage Coeff. (min)	10.31 (ii)	26.45 (ii)
Unit Hyd. Tpeak (min)	10.00	30.00
Unit Hyd. peak (cms)	0.11	0.04

	TOTALS
PEAK FLOW (cms)	0.60
TIME TO PEAK (hrs)	2.88
RUNOFF VOLUME (mm)	89.80
TOTAL RAINFALL (mm)	90.80
RUNOFF COEFFICIENT	0.99

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0873)	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
IN= 2---> OUT= 1	0.0000	0.0000	0.2250	0.3008
DT= 5.0 min	0.0240	0.0325	0.2650	0.3494
	0.0370	0.0741	0.2990	0.3993

Model With SWM Infrastructure - Output

0.0460	0.1156	0.3290	0.4497
0.0530	0.1607	0.5720	0.5013
0.0600	0.2060	0.9900	0.5538
0.1750	0.2530	1.5230	0.6074

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0043)	22.900	0.829	2.17	62.04
OUTFLOW: ID= 1 (0873)	22.900	0.681	4.25	62.03

PEAK FLOW REDUCTION [Qout/Qin](%)= 82.12
TIME SHIFT OF PEAK FLOW (min)=125.00
MAXIMUM STORAGE USED (ha.m.)= 0.5150

CALIB	Area (ha)=	1.30
STANDHYD (0045)	Total Imp(%)=	65.00
ID= 1 DT= 5.0 min	Dir. Conn.(%)=	35.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.84	0.46
Dep. Storage (mm)=	1.00	8.92
Average Slope (%)=	1.00	2.00
Length (m)=	93.09	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	23.61	26.15
over (min)	5.00	20.00
Storage Coeff. (min)=	4.36 (ii)	16.43 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.23	0.06
		TOTALS
PEAK FLOW (cms)=	0.03	0.03
TIME TO PEAK (hrs)=	2.00	3.08
RUNOFF VOLUME (mm)=	89.80	55.17
TOTAL RAINFALL (mm)=	90.80	90.80
RUNOFF COEFFICIENT =	0.99	0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (4345)|

1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0045):	1.30	0.057	2.08	67.28
+ ID2= 2 (0873):	22.90	0.681	4.25	62.03
=====				
ID = 3 (4345):	24.20	0.723	4.25	62.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893)	Routing time step (min)'=	5.00
IN= 2----> OUT= 1		

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	208.29	0.0300		
3.73	208.14	0.0300 / 0.0350	Main Channel	
5.30	207.52	0.0350	Main Channel	
6.93	208.18	0.0350 / 0.0300	Main Channel	
8.96	208.27	0.0300		
14.71	208.30	0.0300		
23.86	208.59	0.0300		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

<---- hydrograph ---->					<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4345)	24.20	0.72	4.25	62.31	0.68	0.59
OUTFLOW: ID= 1 (0893)	24.20	0.72	4.33	62.31	0.68	0.59

1.94	213.73	.742E+04	155.2	2.35	0.80
2.06	213.85	.841E+04	187.2	2.50	0.75
2.18	213.97	.941E+04	223.3	2.67	0.70
2.37	214.16	.114E+05	288.4	2.85	0.66

<---- hydrograph ---->					<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4510)	36.50	1.10	4.17	59.33	0.64	1.23
OUTFLOW: ID= 1 (0892)	36.50	1.10	4.25	59.33	0.64	1.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0892)	Routing time step (min)'=	5.00
IN= 2----> OUT= 1		

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.279E+01	0.0	0.48	3.92
0.24	212.03	.112E+02	0.1	0.76	2.47
0.36	212.15	.251E+02	0.2	0.99	1.89
0.48	212.27	.446E+02	0.5	1.20	1.56
0.61	212.40	.697E+02	0.9	1.40	1.34
0.73	212.52	.220E+03	1.8	0.91	2.07
0.85	212.64	.616E+03	4.9	0.89	2.11
0.97	212.76	.113E+04	10.4	1.04	1.81
1.09	212.88	.175E+04	18.9	1.21	1.54
1.21	213.00	.243E+04	30.5	1.42	1.32
1.33	213.12	.315E+04	44.8	1.60	1.17
1.45	213.24	.392E+04	61.6	1.77	1.06
1.57	213.36	.473E+04	81.0	1.93	0.97
1.70	213.49	.558E+04	103.1	2.08	0.90
1.82	213.61	.648E+04	127.8	2.22	0.85

ADD HYD (4411)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0443):	21.30	0.702	3.33	52.71
+ ID2= 2 (0892):	36.50	1.098	4.25	59.33
=====				
ID = 3 (4411):	57.80	1.750	3.92	56.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0891)	Routing time step (min)'=	5.00
IN= 2----> OUT= 1		

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.70	0.0400		
2.35	206.02	0.0400 / 0.0350	Main Channel	
5.23	205.19	0.0350	Main Channel	
5.34	205.67	0.0350	Main Channel	
19.05	206.06	0.0350 / 0.0400	Main Channel	
21.11	206.05	0.0400		
22.02	206.13	0.0400 / 0.0350		
40.10	206.15	0.0350		
56.50	206.04	0.0350		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.621E+00	0.0	0.10	29.40
0.09	205.28	.248E+01	0.0	0.16	18.52
0.13	205.32	.559E+01	0.0	0.21	14.13
0.17	205.36	.994E+01	0.0	0.25	11.67
0.22	205.41	.155E+02	0.0	0.29	10.05
0.26	205.45	.224E+02	0.0	0.33	8.90

Model With SWM Infrastructure - Output

0.31	205.50	.304E+02	0.1	0.37	8.03
0.35	205.54	.398E+02	0.1	0.40	7.35
0.39	205.58	.503E+02	0.1	0.43	6.79
0.44	205.63	.621E+02	0.2	0.46	6.33
0.48	205.67	.752E+02	0.2	0.49	5.97
0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4411)	57.80	1.75	3.92	56.89	0.82	0.53	
OUTFLOW: ID= 1 (0891)	57.80	1.75	4.17	56.89	0.82	0.53	

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB				
STANDHYD (0441)	Area (ha)=	3.00		
ID= 1 DT= 5.0 min	Total Imp(%)=	45.00	Dir. Conn.(%)=	35.00

	IMPERVIOUS (ha)	PERVIOUS (i) (mm)
Surface Area	1.35	1.65
Dep. Storage	1.00	3.58
Average Slope	2.00	2.00
Length	141.42	40.00
Mannings n	0.013	0.250

Max.Eff.Inten.(mm/hr)=	23.61	19.65
over (min)	5.00	20.00
Storage Coeff. (min)=	4.55 (ii)	18.08 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.23	0.06
PEAK FLOW (cms)=	0.07	0.08
TIME TO PEAK (hrs)=	2.08	2.25
RUNOFF VOLUME (mm)=	89.80	62.75
TOTAL RAINFALL (mm)=	90.80	90.80
RUNOFF COEFFICIENT =	0.99	0.69

TOTALS

0.145 (iii)	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4410)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0441):	3.00	0.145	2.08	72.22
+ ID2= 2 (0891):	57.80	1.749	4.17	56.89
ID = 3 (4410):	60.80	1.853	4.08	57.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4401)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (4410):	60.80	1.853	4.08	57.65
+ ID2= 2 (0442):	2.40	0.085	3.17	54.64
ID = 3 (4401):	63.20	1.927	4.08	57.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0889)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	206.70	0.0400	
2.35	206.02	0.0400 / 0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 / 0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 / 0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.272E+01	0.0	0.09	142.50
0.09	205.28	.109E+02	0.0	0.14	89.77

0.13	205.32	.245E+02	0.0	0.19	68.51
0.17	205.36	.435E+02	0.0	0.23	56.55
0.22	205.41	.679E+02	0.0	0.26	48.73
0.26	205.45	.978E+02	0.0	0.30	43.16
0.31	205.50	.133E+03	0.1	0.33	38.94
0.35	205.54	.174E+03	0.1	0.36	35.63
0.39	205.58	.220E+03	0.1	0.39	32.93
0.44	205.63	.272E+03	0.1	0.42	30.70
0.48	205.67	.329E+03	0.2	0.44	28.96
0.52	205.71	.418E+03	0.2	0.36	35.92
0.57	205.76	.563E+03	0.3	0.34	37.36
0.61	205.80	.765E+03	0.4	0.35	36.28
0.66	205.85	.102E+04	0.5	0.37	34.31
0.70	205.89	.134E+04	0.7	0.40	32.17
0.74	205.93	.171E+04	0.9	0.43	30.13
0.79	205.98	.214E+04	1.3	0.45	28.27
0.83	206.02	.263E+04	1.6	0.48	26.60

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4401)	63.20	1.93	4.08	57.53	0.83	0.48
OUTFLOW: ID= 1 (0889)	63.20	1.89	4.67	57.53	0.83	0.48

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (4400)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0440):	31.60	0.944	5.00	53.67
+ ID2= 2 (0889):	63.20	1.889	4.67	57.53
ID = 3 (4400):	94.80	2.831	4.75	56.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0888)	
IN= 2---> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 / 0.0350	Main Channel

43.44	208.24	0.0350	Main Channel
45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	
77.43	209.05	0.0400	
128.85	209.70	0.0400	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	208.30	.519E+01	0.0	0.09	43.50
0.13	208.37	.208E+02	0.0	0.15	27.40
0.19	208.43	.467E+02	0.0	0.19	20.91
0.25	208.49	.830E+02	0.1	0.24	17.26
0.32	208.56	.130E+03	0.1	0.27	14.88
0.38	208.62	.187E+03	0.2	0.31	13.17
0.46	208.70	.365E+03	0.5	0.31	13.03
0.54	208.78	.674E+03	0.9	0.32	12.89
0.62	208.86	.113E+04	1.5	0.33	12.23
0.70	208.94	.176E+04	2.5	0.35	11.61
0.78	209.02	.258E+04	3.9	0.37	10.95
0.86	209.10	.358E+04	5.8	0.40	10.27
0.94	209.18	.475E+04	8.2	0.42	9.62
1.02	209.26	.608E+04	11.2	0.45	9.04
1.10	209.34	.758E+04	14.8	0.48	8.53
1.18	209.42	.927E+04	18.8	0.50	8.21
1.26	209.50	.112E+05	23.6	0.52	7.88
1.34	209.58	.133E+05	29.3	0.54	7.57
1.42	209.66	.157E+05	35.9	0.56	7.26

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4400)	94.80	2.83	4.75	56.24	0.72	0.36
OUTFLOW: ID= 1 (0888)	94.80	2.82	5.00	56.24	0.72	0.36

CALIB				
STANDHYD (0042)	Area (ha)=	20.50		
ID= 1 DT= 5.0 min	Total Imp(%)=	83.00	Dir. Conn.(%)=	70.00

	IMPERVIOUS (ha)	PERVIOUS (i) (mm)
Surface Area	17.01	3.49
Dep. Storage	1.00	6.98
Average Slope	2.00	2.00
Length	369.68	40.00
Mannings n	0.013	0.250

Max.Eff.Inten.(mm/hr)=	23.61	27.60

Model With SWM Infrastructure - Output

```
over (min)      10.00      20.00
Storage Coeff. (min)= 8.10 (ii) 19.91 (ii)
Unit Hyd. Tpeak (min)= 10.00      20.00
Unit Hyd. peak  (cms)= 0.13      0.06

PEAK FLOW (cms)= 0.94      0.24      1.158 (iii)
TIME TO PEAK (hrs)= 2.08      3.08
RUNOFF VOLUME (mm)= 89.80      59.73      80.78
TOTAL RAINFALL (mm)= 90.80      90.80      90.80
RUNOFF COEFFICIENT = 0.99      0.66      0.89
```

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
RESERVOIR( 0872) |
IN= 2---> OUT= 1 |
DT= 5.0 min |

OVERFLOW IS OFF

OUTFLOW STORAGE OUTFLOW STORAGE
(cms) (ha.m.) (cms) (ha.m.)
0.0000 0.0000 0.1660 0.5172
0.0250 0.1344 0.2260 0.5585
0.0390 0.2425 0.5260 0.7280
0.0530 0.3962 0.9350 0.9090
0.0540 0.4360 1.2810 1.0589
0.0760 0.4361 2.3680 1.5187

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 ( 0042) 20.500 1.158 2.08 80.78
OUTFLOW: ID= 1 ( 0872) 20.500 0.677 5.08 80.71

PEAK FLOW REDUCTION [Qout/Qin](%)= 58.50
TIME SHIFT OF PEAK FLOW (min)=180.00
MAXIMUM STORAGE USED (ha.m.)= 0.7953
```

```
ROUTE CHN( 0898) |
IN= 2---> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 101.50 0.0500
1.00 100.70 0.0500
1.50 100.55 0.0500 /0.0300 Main Channel
2.00 99.50 0.0300 Main Channel
```

```
Unit Hyd. Tpeak (min)= 5.00      25.00
Unit Hyd. peak (cms)= 0.19      0.05

PEAK FLOW (cms)= 0.12      0.23      0.317 (iii)
TIME TO PEAK (hrs)= 2.08      3.17      3.08
RUNOFF VOLUME (mm)= 89.80      50.01      57.97
TOTAL RAINFALL (mm)= 90.80      90.80      90.80
RUNOFF COEFFICIENT = 0.99      0.55      0.64
```

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ADD HYD ( 4244) |
1 + 2 = 3 |

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0044): 8.90 0.317 3.08 57.97
+ ID2= 2 ( 0898): 20.50 0.677 5.17 80.71
=====
ID = 3 ( 4244): 29.40 0.937 5.08 73.83
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0897) |
IN= 2---> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
```

```
3.50 99.60 0.0300 Main Channel
4.50 100.65 0.0300 /0.0500 Main Channel
6.00 101.45 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.10 99.60 .152E+02 0.0 0.19 18.79
0.19 99.69 .482E+02 0.1 0.37 9.79
0.29 99.79 .840E+02 0.2 0.49 7.32
0.38 99.88 .123E+03 0.3 0.59 6.12
0.48 99.98 .164E+03 0.5 0.67 5.38
0.57 100.07 .208E+03 0.7 0.74 4.87
0.67 100.17 .255E+03 0.9 0.80 4.49
0.76 100.26 .305E+03 1.2 0.86 4.19
0.86 100.36 .358E+03 1.5 0.91 3.95
0.95 100.45 .413E+03 1.8 0.96 3.75
1.05 100.55 .471E+03 2.2 1.00 3.58
1.16 100.66 .547E+03 2.7 1.07 3.35
1.28 100.78 .635E+03 3.4 1.14 3.14
1.39 100.89 .732E+03 4.1 1.20 2.99
1.50 101.00 .838E+03 4.9 1.25 2.86
1.61 101.11 .952E+03 5.8 1.30 2.76
1.72 101.22 .107E+04 6.7 1.34 2.67
1.84 101.34 .120E+04 7.7 1.38 2.60
1.95 101.45 .134E+04 8.8 1.41 2.54
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0872) 20.50 0.68 5.08 80.71 0.56 0.72
OUTFLOW: ID= 1 ( 0898) 20.50 0.68 5.17 80.71 0.55 0.72
```

```
CALIB |
STANDHYD ( 0044) |
ID= 1 DT= 5.0 min |

Area (ha)= 8.90
Total Imp(%)= 41.00 Dir. Conn.(%)= 20.00
```

```
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 3.65 5.25
Dep. Storage (mm)= 1.00 8.04
Average Slope (%)= 2.00 2.00
Length (m)= 243.58 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 23.61 16.74
over (min) 5.00 25.00
Storage Coeff. (min)= 6.31 (ii) 20.73 (ii)
```

```
0.12 211.91 .140E+02 0.0 0.17 55.64
0.24 212.03 .559E+02 0.0 0.27 35.05
0.36 212.15 .126E+03 0.1 0.35 26.75
0.48 212.27 .224E+03 0.2 0.43 22.08
0.61 212.40 .350E+03 0.3 0.49 19.03
0.73 212.52 .110E+04 0.6 0.32 29.36
0.85 212.64 .309E+04 1.7 0.31 29.92
0.97 212.76 .566E+04 3.7 0.37 25.67
1.09 212.88 .878E+04 6.7 0.43 21.92
1.21 213.00 .122E+05 10.8 0.50 18.80
1.33 213.12 .158E+05 15.8 0.57 16.63
1.45 213.24 .196E+05 21.8 0.63 15.03
1.57 213.36 .237E+05 28.7 0.68 13.79
1.70 213.49 .280E+05 36.4 0.73 12.81
1.82 213.61 .325E+05 45.2 0.78 12.00
1.94 213.73 .372E+05 54.9 0.83 11.31
2.06 213.85 .422E+05 66.2 0.89 10.62
2.18 213.97 .472E+05 79.0 0.94 9.97
2.37 214.16 .571E+05 102.0 1.01 9.34
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4244) 29.40 0.94 5.08 73.83 0.76 0.32
OUTFLOW: ID= 1 ( 0897) 29.40 0.92 5.17 73.82 0.76 0.32
```

```
ADD HYD ( 4301) |
1 + 2 = 3 |

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0888): 94.80 2.825 5.00 56.24
+ ID2= 2 ( 0897): 29.40 0.916 5.17 73.82
=====
ID = 3 ( 4301): 124.20 3.739 5.17 60.40
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0887) |
IN= 2---> OUT= 1 |

Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.52 0.0400
61.99 209.23 0.0400
76.86 209.20 0.0400
82.03 209.20 0.0400 /0.0350 Main Channel
```

Model With SWM Infrastructure - Output

86.30	208.87	0.0350	Main Channel
89.86	209.20	0.0350 / 0.0300	Main Channel
96.27	209.24	0.0300	
103.53	209.40	0.0300	
127.96	209.50	0.0300	
158.58	209.70	0.0300	

TRAVEL TIME TABLE						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.03	208.90	.143E+01	0.0	0.09	20.80	
0.07	208.94	.572E+01	0.0	0.14	13.11	
0.10	208.97	.129E+02	0.0	0.18	10.00	
0.13	209.00	.229E+02	0.0	0.22	8.26	
0.17	209.04	.357E+02	0.1	0.26	7.11	
0.20	209.07	.514E+02	0.1	0.29	6.30	
0.23	209.10	.700E+02	0.2	0.32	5.69	
0.26	209.13	.915E+02	0.3	0.35	5.20	
0.30	209.17	.116E+03	0.4	0.38	4.81	
0.33	209.20	.143E+03	0.5	0.41	4.48	
0.37	209.24	.239E+03	0.8	0.37	5.02	
0.40	209.27	.396E+03	1.3	0.35	5.26	
0.44	209.31	.589E+03	1.9	0.36	5.13	
0.47	209.34	.818E+03	2.8	0.38	4.89	
0.51	209.38	.108E+04	3.9	0.40	4.63	
0.54	209.41	.139E+04	5.2	0.41	4.46	
0.58	209.45	.175E+04	6.7	0.43	4.33	
0.61	209.48	.218E+04	8.7	0.44	4.17	
0.65	209.52	.266E+04	11.2	0.46	3.98	

<---- hydrograph ---->					<-pipe / channel-->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (4301)	124.20	3.74	5.17	60.40	0.50	
OUTFLOW: ID= 1 (0887)	124.20	3.74	5.17	60.40	0.50	

CALIB					
NASHYD (0430)	Area (ha)=	19.80	Curve Number (CN)=	83.6	
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.13			

Unit Hyd Qpeak (cms)=	0.669
PEAK FLOW (cms)=	0.579 (i)
TIME TO PEAK (hrs)=	5.083
RUNOFF VOLUME (mm)=	52.148
TOTAL RAINFALL (mm)=	90.800

RUNOFF COEFFICIENT = 0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4300)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0430):	19.80	0.579	5.08	52.15
+ ID2= 2 (0887):	124.20	3.738	5.17	60.40
=====				
ID = 3 (4300):	144.00	4.317	5.17	59.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0886)					
IN= 2--> OUT= 1	Routing time step (min)'= 5.00				

DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.20	0.0400		
100.00	206.26	0.0400		
111.30	206.19	0.0400 / 0.0350	Main Channel	
112.02	205.76	0.0350	Main Channel	
113.82	205.37	0.0350	Main Channel	
115.62	206.03	0.0350 / 0.0400	Main Channel	
117.77	207.30	0.0400		
120.56	207.40	0.0400		
124.41	207.31	0.0400		
129.31	207.24	0.0400		

TRAVEL TIME TABLE						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.09	205.46	.110E+02	0.0	0.11	51.32	
0.19	205.56	.438E+02	0.0	0.17	32.33	
0.28	205.65	.986E+02	0.1	0.23	24.67	
0.38	205.75	.175E+03	0.1	0.27	20.37	
0.47	205.84	.271E+03	0.3	0.33	16.94	
0.57	205.94	.379E+03	0.4	0.38	14.73	
0.66	206.03	.501E+03	0.6	0.42	13.19	
0.76	206.13	.644E+03	0.9	0.48	11.58	
0.86	206.23	.845E+03	1.3	0.51	10.89	
0.96	206.33	.140E+04	1.9	0.46	12.13	
1.06	206.43	.209E+04	2.9	0.46	12.20	
1.16	206.53	.290E+04	4.1	0.47	11.82	
1.26	206.63	.383E+04	5.6	0.49	11.31	
1.37	206.74	.489E+04	7.6	0.52	10.78	

1.47	206.84	.607E+04	9.8	0.54	10.28
1.57	206.94	.737E+04	12.5	0.57	9.81
1.67	207.04	.879E+04	15.6	0.60	9.38
1.77	207.14	.103E+05	19.2	0.62	8.99
1.87	207.24	.120E+05	23.2	0.65	8.63

<---- hydrograph ---->					<-pipe / channel-->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (4300)	144.00	4.32	5.17	59.27	1.18	
OUTFLOW: ID= 1 (0886)	144.00	4.30	5.25	59.27	1.18	

CALIB					
NASHYD (0411)	Area (ha)=	4.50	Curve Number (CN)=	86.7	
ID= 1 DT= 5.0 min	Ia (mm)=	5.84	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.11			

Unit Hyd Qpeak (cms)=	0.155
PEAK FLOW (cms)=	0.146 (i)
TIME TO PEAK (hrs)=	4.417
RUNOFF VOLUME (mm)=	58.246
TOTAL RAINFALL (mm)=	90.800
RUNOFF COEFFICIENT	= 0.641

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4110)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0411):	4.50	0.146	4.42	58.25	
+ ID2= 2 (0886):	144.00	4.304	5.25	59.27	
=====					
ID = 3 (4110):	148.50	4.447	5.25	59.24	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0885)					
IN= 2--> OUT= 1	Routing time step (min)'= 5.00				

DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	208.48	0.0500

43.69	207.97	0.0500		
66.92	207.94	0.0500		
76.98	208.01	0.0500		
87.94	208.25	0.0500		
89.93	208.44	0.0500 / 0.0350	Main Channel	
92.70	208.20	0.0350	Main Channel	
95.51	207.28	0.0350	Main Channel	
98.26	208.25	0.0350	Main Channel	

TRAVEL TIME TABLE						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.05	207.33	.134E+01	0.0	0.06	52.81	
0.10	207.38	.536E+01	0.0	0.10	33.27	
0.15	207.43	.121E+02	0.0	0.13	25.39	
0.19	207.47	.214E+02	0.0	0.15	20.96	
0.24	207.52	.335E+02	0.0	0.18	18.06	
0.29	207.57	.483E+02	0.1	0.20	15.99	
0.34	207.62	.657E+02	0.1	0.22	14.43	
0.39	207.67	.858E+02	0.1	0.24	13.20	
0.44	207.72	.109E+03	0.1	0.26	12.21	
0.48	207.76	.134E+03	0.2	0.28	11.38	
0.53	207.81	.162E+03	0.3	0.30	10.68	
0.58	207.86	.193E+03	0.3	0.32	10.08	
0.63	207.91	.227E+03	0.4	0.34	9.55	
0.68	207.96	.295E+03	0.5	0.32	10.12	
0.73	208.01	.613E+03	0.7	0.22	14.89	
0.78	208.06	.103E+04	1.0	0.20	16.42	
0.82	208.10	.150E+04	1.5	0.20	16.27	
0.87	208.15	.204E+04	2.2	0.21	15.61	
0.92	208.20	.264E+04	3.0	0.22	14.84	

**** WARNING: TRAVEL TIME TABLE EXCEEDED

<---- hydrograph ---->					<-pipe / channel-->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (4110)	148.50	4.45	5.25	59.24	0.92	
OUTFLOW: ID= 1 (0885)	148.50	4.43	5.50	59.24	0.92	

CALIB					
NASHYD (0041)	Area (ha)=	25.40	Curve Number (CN)=	83.6	
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.21			

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.737 (i)

Model With SWM Infrastructure - Output

TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 52.148
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0894)		Routing time step (min)'= 5.00			
IN= 2--> OUT= 1					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 / 0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		
32.89	214.16	0.0350 / 0.0500	Main Channel		
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			
<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.12	211.91	.523E+01	0.0	0.10	36.03
0.24	212.03	.209E+02	0.0	0.15	22.70
0.36	212.15	.471E+02	0.0	0.20	17.32
0.48	212.27	.837E+02	0.1	0.25	14.30
0.61	212.40	.131E+03	0.2	0.29	12.32
0.73	212.52	.412E+03	0.4	0.18	19.01
0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62
1.09	212.88	.328E+04	3.9	0.25	14.19
1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05
<---- hydrograph ---->				<-pipe /	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPT (m)	

INFLOW : ID= 2 (0041) 25.40 0.74 5.17 52.15 0.80 0.18
OUTFLOW: ID= 1 (0894) 25.40 0.73 5.25 52.15 0.80 0.18

CALIB				
NASHYD (0040)	Area (ha)=	37.50	Curve Number (CN)=	84.2
ID= 1 DT= 5.0 min	Ia (mm)=	7.14	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.98		

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 1.141 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 53.296
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.587

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0040):	37.50	1.141	4.33	53.30
+ ID2= 2 (0894):	25.40	0.728	5.25	52.15
=====				
ID = 3 (4140):	62.90	1.845	5.17	52.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4101)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (4140):	62.90	1.845	5.17	52.83
+ ID2= 2 (0885):	148.50	4.426	5.50	59.24
=====				
ID = 3 (4101):	211.40	6.253	5.33	57.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0884)				
IN= 2--> OUT= 1	Routing time step (min)'=	5.00		

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	204.63	0.0400	
45.24	204.34	0.0400	
94.52	203.98	0.0400	
140.93	203.58	0.0400	
148.77	203.72	0.0400 / 0.0350	Main Channel
154.30	202.99	0.0350	Main Channel
158.02	203.77	0.0350 / 0.0400	Main Channel
174.30	203.79	0.0400	
222.94	204.38	0.0400	
285.62	204.03	0.0400	
<----- TRAVEL TIME TABLE ----->			
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)
0.05	203.04	.620E+01	0.0
0.10	203.09	.248E+02	0.0
0.16	203.15	.558E+02	0.0
0.21	203.20	.992E+02	0.1
0.26	203.25	.155E+03	0.1
0.31	203.30	.223E+03	0.2
0.37	203.36	.304E+03	0.3
0.42	203.41	.397E+03	0.5
0.47	203.46	.502E+03	0.6
0.52	203.51	.620E+03	0.8
0.57	203.56	.750E+03	1.1
0.63	203.62	.934E+03	1.3
0.68	203.67	.129E+04	1.7
0.73	203.72	.184E+04	2.3
0.79	203.78	.270E+04	3.4
0.85	203.84	.412E+04	5.1
0.92	203.91	.583E+04	7.3
0.98	203.97	.783E+04	10.3
1.04	204.03	.101E+05	13.9
<----- hydrograph ----->			
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
<-pipe / channel->			
		MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4101)	211.40	6.25	57.33
OUTFLOW: ID= 1 (0884)	211.40	6.22	57.33

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.273 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 55.827
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.615

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4100)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0410):	8.50	0.273	4.08	55.83
+ ID2= 2 (0884):	211.40	6.220	5.50	57.33
=====				
ID = 3 (4100):	219.90	6.472	5.50	57.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0401)	Area (ha)=	23.00	Curve Number (CN)=	83.1
ID= 1 DT= 5.0 min	Ia (mm)=	7.74	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.78		

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.698 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 51.211
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.564

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4001)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0401):	23.00	0.698	3.75	51.21
+ ID2= 2 (4100):	219.90	6.472	5.50	57.27
=====				
ID = 3 (4001):	242.90	7.115	5.33	56.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model With SWM Infrastructure - Output

```
-----
| ADD HYD ( 4001)|
| 3 + 2 = 1 |
|-----|
ID1= 3 ( 4001): 242.90 7.115 5.33 56.70
+ ID2= 2 ( 4200): 67.00 1.994 4.33 52.20
=====
ID = 1 ( 4001): 309.90 9.066 5.33 55.73
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0880)|
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          204.63          0.0400
45.24         204.34          0.0400
94.52         203.98          0.0400
140.93        203.58          0.0400
148.77        203.72          0.0400 / 0.0350 Main Channel
154.30        202.99          0.0350 Main Channel
158.02        203.77          0.0350 / 0.0400 Main Channel
174.30        203.79          0.0400
222.94        204.38          0.0400
285.62        204.03          0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)    (m)   (cu.m.) (cms)      (m/s)    (min)
0.05   203.04 .647E+01 0.0        0.11     59.17
0.10   203.09 .259E+02 0.0        0.17     37.28
0.16   203.15 .582E+02 0.0        0.23     28.45
0.21   203.20 .103E+03 0.1        0.27     23.48
0.26   203.25 .162E+03 0.1        0.32     20.24
0.31   203.30 .233E+03 0.2        0.36     17.92
0.37   203.36 .317E+03 0.3        0.40     16.17
0.42   203.41 .414E+03 0.5        0.43     14.79
0.47   203.46 .524E+03 0.6        0.47     13.68
0.52   203.51 .647E+03 0.8        0.50     12.75
0.57   203.56 .782E+03 1.1        0.54     11.96
0.63   203.62 .974E+03 1.4        0.55     11.73
0.68   203.67 .135E+04 1.8        0.51     12.55
0.73   203.72 .192E+04 2.4        0.48     13.39
0.79   203.78 .282E+04 3.5        0.48     13.41
0.85   203.84 .430E+04 5.2        0.47     13.77
0.92   203.91 .608E+04 7.5        0.48     13.44
0.98   203.97 .816E+04 10.6       0.50     12.88
```

```
RUNOFF VOLUME (mm)= 49.541
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.546
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0023)|
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 7.00 Curve Number (CN)= 83.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.73
```

Unit Hyd Qpeak (cms)= 0.366

```
PEAK FLOW (cms)= 0.214 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 51.020
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.562
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0022)|
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 3.40 Curve Number (CN)= 82.5
Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.20
```

Unit Hyd Qpeak (cms)= 0.649

```
PEAK FLOW (cms)= 0.119 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 52.281
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.576
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0211)|
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 17.30 Curve Number (CN)= 81.3
Ia (mm)= 8.76 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.02
```

Unit Hyd Qpeak (cms)= 0.648

```
PEAK FLOW (cms)= 0.476 (i)
TIME TO PEAK (hrs)= 5.083
```

```
1.04 204.03 .105E+05 14.2 0.52 12.33
<---- hydrograph ----> <-pipe / channel->
Area (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm) MAX DEPTH (m) MAX VEL (m/s)
INFLOW : ID= 2 ( 4001) 309.90 9.07 5.33 55.73 0.95 0.49
OUTFLOW: ID= 1 ( 0880) 309.90 9.02 5.50 55.73 0.95 0.49
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| CALIB
| NASHYD ( 0400)|
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 27.60 Curve Number (CN)= 83.8
Ia (mm)= 7.36 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.88
```

Unit Hyd Qpeak (cms)= 1.198

```
PEAK FLOW (cms)= 0.842 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 52.528
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.579
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4000)|
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0400): 27.60 0.842 4.00 52.53
+ ID2= 2 ( 0880): 309.90 9.019 5.50 55.73
=====
ID = 3 ( 4000): 337.50 9.812 5.42 55.46
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0200)|
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 25.60 Curve Number (CN)= 82.2
Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.79
```

Unit Hyd Qpeak (cms)= 1.238

```
PEAK FLOW (cms)= 0.748 (i)
TIME TO PEAK (hrs)= 3.833
```

```
RUNOFF VOLUME (mm)= 47.917
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.528
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0021)|
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 47.60 Curve Number (CN)= 84.6
Ia (mm)= 6.93 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 1.955

```
PEAK FLOW (cms)= 1.481 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 54.065
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.595
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0871)|
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.49          0.0400
35.71         208.88          0.0400
53.04         208.89          0.0400
64.12         208.50          0.0400 / 0.0350 Main Channel
70.77         208.05          0.0350 Main Channel
74.98         208.02          0.0350 Main Channel
83.40         208.38          0.0350 / 0.0400 Main Channel
88.06         208.63          0.0400
94.94         209.13          0.0400
105.88        209.54          0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH  ELEV  VOLUME  FLOW RATE  VELOCITY  TRAV.TIME
(m)    (m)   (cu.m.) (cms)      (m/s)    (min)
0.07   208.09 .241E+03 0.1        0.21     60.89
0.14   208.16 .678E+03 0.3        0.33     38.66
0.22   208.24 .127E+04 0.7        0.42     30.30
0.29   208.31 .201E+04 1.3        0.50     25.57
0.36   208.38 .290E+04 2.2        0.57     22.42
0.44   208.46 .405E+04 3.5        0.67     19.05
0.52   208.54 .537E+04 5.4        0.77     16.69
```


Model With SWM Infrastructure - Output

0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0021)	47.60	1.48	4.17	54.06	0.30	0.51
OUTFLOW: ID= 1 (0871)	47.60	1.46	4.58	54.06	0.30	0.51

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0211):	17.30	0.476	5.08	47.92
+ ID2= 2 (0022):	3.40	0.119	3.08	52.28
=====				
ID = 3 (2110):	20.70	0.573	5.08	48.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (2110):	20.70	0.573	5.08	48.63
+ ID2= 2 (0871):	47.60	1.462	4.58	54.06
=====				
ID = 1 (2110):	68.30	2.032	4.67	52.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	20.30	Curve Number (CN)=	81.6
NASHYD (0020)	Ia (mm)=	8.59	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.85		

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 0.574 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 48.453
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.534

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	12.60	Curve Number (CN)=	82.4
NASHYD (0020)	Ia (mm)=	8.13	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.72		

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.378 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 49.913
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.550

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)	Routing time step (min)'=	5.00
IN= 2---> OUT= 1		

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86

0.14	204.64	.497E+02	0.0	0.39	34.56
0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46
0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.05

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0020)	12.60	0.38	3.58	49.91	0.41	0.75
OUTFLOW: ID= 1 (0875)	12.60	0.37	4.08	49.88	0.40	0.75

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0220):	20.30	0.574	4.17	48.45
+ ID2= 2 (0875):	12.60	0.372	4.08	49.88
=====				
ID = 3 (2200):	32.90	0.946	4.17	49.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2110):	68.30	2.032	4.67	52.41
+ ID2= 2 (2200):	32.90	0.946	4.17	49.00
=====				
ID = 3 (2101):	101.20	2.971	4.50	51.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)	Routing time step (min)'=	5.00
IN= 2---> OUT= 1		

Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350
86.30	208.87	0.0350
89.86	209.20	0.0350 / 0.0300
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2101)	101.20	2.97	4.50	51.30	0.46	0.44
OUTFLOW: ID= 1 (0870)	101.20	2.96	4.92	51.30	0.46	0.44

CALIB	Area (ha)=	9.10	Curve Number (CN)=	82.3
NASHYD (0210)				

Model With SWM Infrastructure - Output

|ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.64

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW (cms)= 0.277 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 49.726
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.548

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (2100) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0210): 9.10 0.277 3.50 49.73
+ ID2= 2 (0870): 101.20 2.959 4.92 51.30
=====

ID = 3 (2100): 110.30 3.217 4.83 51.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| NASHYD (0230) | Area (ha)= 24.70 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.82

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 0.737 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 50.839
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.560

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0231) | Area (ha)= 29.50 Curve Number (CN)= 81.9
| ID= 1 DT= 5.0 min | Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.89

Unit Hyd Qpeak (cms)= 1.266

20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.118E+02	0.0	0.27	29.62
0.24	212.03	.471E+02	0.0	0.42	18.66
0.36	212.15	.106E+03	0.1	0.56	14.24
0.48	212.27	.188E+03	0.3	0.67	11.76
0.61	212.40	.294E+03	0.5	0.78	10.13
0.73	212.52	.928E+03	1.0	0.51	15.63
0.85	212.64	.260E+04	2.7	0.50	15.93
0.97	212.76	.477E+04	5.8	0.58	13.67
1.09	212.88	.739E+04	10.6	0.68	11.67
1.21	213.00	.103E+05	17.1	0.79	10.01
1.33	213.12	.133E+05	25.0	0.89	8.85
1.45	213.24	.165E+05	34.4	0.99	8.00
1.57	213.36	.200E+05	45.3	1.08	7.34
1.70	213.49	.236E+05	57.6	1.16	6.82
1.82	213.61	.274E+05	71.4	1.24	6.39
1.94	213.73	.314E+05	86.8	1.31	6.02
2.06	213.85	.355E+05	104.6	1.40	5.66
2.18	213.97	.398E+05	124.9	1.49	5.31
2.37	214.16	.481E+05	161.2	1.59	4.97

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0241)	26.70	0.79	3.67	49.73	0.68	0.59
OUTFLOW: ID= 1 (0864)	26.70	0.78	4.25	49.73	0.68	0.59

| ADD HYD (2301) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0231): 29.50 0.839 4.25 48.99
+ ID2= 2 (0240): 10.10 0.296 3.67 49.18
=====

ID = 3 (2301): 39.60 1.131 4.17 49.04

PEAK FLOW (cms)= 0.839 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 48.994
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.540

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0240) | Area (ha)= 10.10 Curve Number (CN)= 82.0
| ID= 1 DT= 5.0 min | Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.74

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.296 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 49.178
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.542

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0241) | Area (ha)= 26.70 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.75

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 0.791 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 49.727
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.548

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0864) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (2301) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 (2301): 39.60 1.131 4.17 49.04
+ ID2= 2 (0864): 26.70 0.782 4.25 49.73
=====

ID = 1 (2301): 66.30 1.912 4.17 49.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0863) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 / 0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 / 0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .138E+01 0.0 0.11 58.11
0.09 205.28 .551E+01 0.0 0.18 36.61
0.13 205.32 .124E+02 0.0 0.23 27.94
0.17 205.36 .220E+02 0.0 0.28 23.06
0.22 205.41 .344E+02 0.0 0.33 19.87
0.26 205.45 .496E+02 0.0 0.37 17.60
0.31 205.50 .675E+02 0.1 0.41 15.88
0.35 205.54 .882E+02 0.1 0.45 14.53
0.39 205.58 .112E+03 0.1 0.48 13.43
0.44 205.63 .138E+03 0.2 0.52 12.52
0.48 205.67 .167E+03 0.2 0.55 11.81
0.52 205.71 .212E+03 0.2 0.44 14.65
0.57 205.76 .285E+03 0.3 0.43 15.23
0.61 205.80 .388E+03 0.4 0.44 14.79
0.66 205.85 .519E+03 0.6 0.47 13.99
0.70 205.89 .679E+03 0.9 0.50 13.12
0.74 205.93 .868E+03 1.2 0.53 12.29
0.79 205.98 .109E+04 1.6 0.56 11.53

Model With SWM Infrastructure - Output

```
0.83    206.02    .133E+04    2.0    0.60    10.85

<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 2301) 66.30   1.91   4.17  49.32   0.82   0.59
OUTFLOW: ID= 1 ( 0863) 66.30   1.91   4.42  49.32   0.82   0.59
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
| ADD HYD ( 2300) |
| 1 + 2 = 3 |
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0230): 24.70  0.737  3.92  50.84
+ ID2= 2 ( 0863): 66.30  1.909  4.42  49.32
=====
ID = 3 ( 2300): 91.00  2.640  4.33  49.73
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 2011) |
| 1 + 2 = 3 |
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 2100): 110.30  3.217  4.83  51.17
+ ID2= 2 ( 2300): 91.00  2.640  4.33  49.73
=====
ID = 3 ( 2011): 201.30  5.837  4.58  50.52
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0862) |
| IN= 2--> OUT= 1 |
      Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       204.63      0.0400
45.24      204.34      0.0400
94.52      203.98      0.0400
140.93      203.58      0.0400
148.77      203.72      0.0400 / 0.0350 Main Channel
154.30      202.99      0.0350 Main Channel
158.02      203.77      0.0350 / 0.0400 Main Channel
174.30      203.79      0.0400
222.94      204.38      0.0400
```

```
285.62    204.03    0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)      (m)   (cu.m.)   (cms)        (m/s)      (min)
0.05    203.04 .465E+01   0.0          0.10       47.86
0.10    203.09 .186E+02   0.0          0.15       30.15
0.16    203.15 .418E+02   0.0          0.20       23.01
0.21    203.20 .744E+02   0.1          0.24       18.99
0.26    203.25 .116E+03   0.1          0.28       16.37
0.31    203.30 .167E+03   0.2          0.32       14.50
0.37    203.36 .228E+03   0.3          0.35       13.08
0.42    203.41 .297E+03   0.4          0.39       11.97
0.47    203.46 .376E+03   0.6          0.42       11.06
0.52    203.51 .465E+03   0.8          0.45       10.31
0.57    203.56 .562E+03   1.0          0.48       9.68
0.63    203.62 .700E+03   1.2          0.49       9.49
0.68    203.67 .969E+03   1.6          0.45       10.15
0.73    203.72 .138E+04   2.1          0.43       10.83
0.79    203.78 .203E+04   3.1          0.43       10.85
0.85    203.84 .309E+04   4.6          0.41       11.14
0.92    203.91 .437E+04   6.7          0.42       10.87
0.98    203.97 .586E+04   9.4          0.44       10.42
1.04    204.03 .757E+04   12.7         0.46       9.97
```

```
<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 2011) 201.30   5.84   4.58  50.52   0.89   0.42
OUTFLOW: ID= 1 ( 0862) 201.30   5.82   4.83  50.52   0.89   0.42
```

```
| CALIB
| NASHYD ( 0201) | Area (ha)= 8.20 Curve Number (CN)= 82.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.60
```

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.256 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 50.279
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.554

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 2010) |
| 1 + 2 = 3 |
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0201): 8.20  0.256  3.42  50.28
+ ID2= 2 ( 0023): 7.00  0.214  3.58  51.02
=====
ID = 3 ( 2010): 15.20  0.469  3.50  50.62
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 2010) |
| 3 + 2 = 1 |
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 3 ( 2010): 15.20  0.469  3.50  50.62
+ ID2= 2 ( 0862): 201.30  5.823  4.83  50.52
=====
ID = 1 ( 2010): 216.50  6.260  4.83  50.52
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0860) |
| IN= 2--> OUT= 1 |
      Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       208.48      0.0500
43.69      207.97      0.0500
66.92      207.94      0.0500
76.98      208.01      0.0500
87.94      208.25      0.0500
89.93      208.44      0.0500 / 0.0350 Main Channel
92.70      208.20      0.0350 Main Channel
95.51      207.28      0.0350 Main Channel
98.26      208.25      0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)      (m)   (cu.m.)   (cms)        (m/s)      (min)
0.05    207.33 .155E+01   0.0          0.16       23.32
0.10    207.38 .620E+01   0.0          0.25       14.69
0.15    207.43 .140E+02   0.0          0.33       11.21
0.19    207.47 .248E+02   0.0          0.40       9.26
0.24    207.52 .388E+02   0.1          0.47       7.98
0.29    207.57 .558E+02   0.1          0.53       7.06
0.34    207.62 .760E+02   0.2          0.59       6.37
0.39    207.67 .992E+02   0.3          0.64       5.83
```

```
0.44    207.72 .126E+03   0.4          0.69       5.39
0.48    207.76 .155E+03   0.5          0.74       5.03
0.53    207.81 .188E+03   0.7          0.79       4.72
0.58    207.86 .223E+03   0.8          0.84       4.45
0.63    207.91 .262E+03   1.0          0.88       4.22
0.68    207.96 .341E+03   1.3          0.83       4.47
0.73    208.01 .708E+03   1.8          0.57       6.58
0.78    208.06 .119E+04   2.7          0.51       7.25
0.82    208.10 .174E+04   4.0          0.52       7.19
0.87    208.15 .236E+04   5.7          0.54       6.89
0.92    208.20 .305E+04   7.8          0.57       6.55
```

```
<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 2010) 216.50   6.26   4.83  50.52   0.89   0.55
OUTFLOW: ID= 1 ( 0860) 216.50   6.26   4.92  50.52   0.88   0.55
```

```
| ADD HYD ( 2000) |
| 1 + 2 = 3 |
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0200): 25.60  0.748  3.83  49.54
+ ID2= 2 ( 0860): 216.50  6.257  4.92  50.52
=====
ID = 3 ( 2000): 242.10  6.984  4.92  50.42
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0300) | Area (ha)= 36.80 Curve Number (CN)= 83.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.90
```

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 1.091 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 51.211
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.564

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
| CALIB
| NASHYD ( 0031) | Area (ha)= 3.00 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.62
```

Unit Hyd Qpeak (cms)= 0.185

```
PEAK FLOW (cms)= 0.096 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 52.379
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.577
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0350) | Area (ha)= 1.50 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.38
```

Unit Hyd Qpeak (cms)= 0.151

```
PEAK FLOW (cms)= 0.050 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 51.386
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.566
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0850) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
```

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.300E+01	0.0	0.15	86.75
0.07	204.57	.120E+02	0.0	0.24	54.65
0.11	204.61	.270E+02	0.0	0.31	41.70
0.14	204.64	.480E+02	0.0	0.37	34.42
0.18	204.68	.750E+02	0.0	0.43	29.67
0.22	204.72	.108E+03	0.1	0.49	26.27
0.25	204.75	.147E+03	0.1	0.54	23.71
0.29	204.79	.192E+03	0.1	0.59	21.69
0.33	204.83	.243E+03	0.2	0.64	20.05
0.36	204.86	.300E+03	0.3	0.69	18.69
0.40	204.90	.363E+03	0.3	0.73	17.54
0.43	204.93	.488E+03	0.4	0.70	18.37
0.47	204.97	.860E+03	0.6	0.56	22.95
0.51	205.01	.144E+04	1.0	0.52	24.88
0.54	205.04	.217E+04	1.5	0.52	24.65
0.58	205.08	.304E+04	2.1	0.54	23.62
0.61	205.11	.407E+04	3.0	0.57	22.38
0.65	205.15	.524E+04	4.1	0.61	21.13
0.69	205.19	.656E+04	5.5	0.64	19.97

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0350) 1.50 0.05 3.17 51.39 0.19 0.45
OUTFLOW: ID= 1 ( 0850) 1.50 0.05 3.42 51.06 0.19 0.44
```

```
| CALIB
| NASHYD ( 0032) | Area (ha)= 28.00 Curve Number (CN)= 83.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.95
```

Unit Hyd Qpeak (cms)= 1.126

```
PEAK FLOW (cms)= 0.832 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 51.770
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.570
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 3200) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
```

```
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0032): 28.00 0.832 4.33 51.77
+ ID2= 2 ( 0850): 1.50 0.048 3.42 51.06
=====
ID = 3 ( 3200): 29.50 0.877 4.25 51.73
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0301) | Area (ha)= 59.40 Curve Number (CN)= 82.7
| ID= 1 DT= 5.0 min | Ia (mm)= 7.97 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.23
```

Unit Hyd Qpeak (cms)= 1.845

```
PEAK FLOW (cms)= 1.671 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 50.460
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.556
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 3010) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0301): 59.40 1.671 5.25 50.46
+ ID2= 2 ( 3200): 29.50 0.877 4.25 51.73
=====
ID = 3 ( 3010): 88.90 2.533 5.17 50.88
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 3001) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 3010): 88.90 2.533 5.17 50.88
+ ID2= 2 ( 0031): 3.00 0.096 3.33 52.38
=====
ID = 3 ( 3001): 91.90 2.619 5.17 50.93
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0852) |
```

```
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 /0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 /0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400
124.41 207.31 0.0400
129.31 207.24 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 205.46 .132E+02 0.0 0.21 32.83
0.19 205.56 .529E+02 0.0 0.33 20.68
0.28 205.65 .119E+03 0.1 0.43 15.78
0.38 205.75 .212E+03 0.3 0.52 13.03
0.47 205.84 .327E+03 0.5 0.62 10.84
0.57 205.94 .458E+03 0.8 0.72 9.42
0.66 206.03 .604E+03 1.2 0.80 8.44
0.76 206.13 .777E+03 1.7 0.91 7.41
0.86 206.23 .102E+04 2.4 0.97 6.97
0.96 206.33 .168E+04 3.6 0.87 7.76
1.06 206.43 .252E+04 5.4 0.87 7.80
1.16 206.53 .350E+04 7.7 0.89 7.56
1.26 206.63 .463E+04 10.7 0.93 7.24
1.37 206.74 .590E+04 14.3 0.98 6.90
1.47 206.84 .732E+04 18.6 1.03 6.58
1.57 206.94 .889E+04 23.6 1.08 6.28
1.67 207.04 .106E+05 29.5 1.13 6.00
1.77 207.14 .125E+05 36.1 1.17 5.75
1.87 207.24 .145E+05 43.7 1.22 5.52
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 3001) 91.90 2.62 5.17 50.93 0.88 0.95
OUTFLOW: ID= 1 ( 0852) 91.90 2.62 5.25 50.93 0.88 0.95
```

```
| ADD HYD ( 3000) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
```

Model With SWM Infrastructure - Output

```
-----
              (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0300): 36.80  1.091  4.17  51.21
+ ID2= 2 ( 0852): 91.90  2.616  5.25  50.93
=====
ID = 3 ( 3000): 128.70  3.683  5.08  51.01
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0030) | Area (ha)= 1.10 Curve Number (CN)= 81.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.76 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.30
```

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.036 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 50.659
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0854) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 / 0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 / 0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .753E+00 0.0 0.18 18.23
0.07 204.57 .301E+01 0.0 0.28 11.48
0.11 204.61 .677E+01 0.0 0.37 8.76
0.14 204.64 .120E+02 0.0 0.45 7.23
0.18 204.68 .188E+02 0.1 0.52 6.23
0.22 204.72 .271E+02 0.1 0.58 5.52
0.25 204.75 .369E+02 0.1 0.65 4.98
```

```
0.29 204.79 .482E+02 0.2 0.71 4.56
0.33 204.83 .610E+02 0.2 0.77 4.21
0.36 204.86 .753E+02 0.3 0.82 3.93
0.40 204.90 .911E+02 0.4 0.88 3.69
0.43 204.93 .122E+03 0.5 0.84 3.86
0.47 204.97 .216E+03 0.7 0.67 4.82
0.51 205.01 .361E+03 1.2 0.62 5.23
0.54 205.04 .544E+03 1.7 0.62 5.18
0.58 205.08 .763E+03 2.6 0.65 4.96
0.61 205.11 .102E+04 3.6 0.69 4.70
0.65 205.15 .131E+04 4.9 0.73 4.44
0.69 205.19 .165E+04 6.5 0.77 4.20
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0030) 1.10 0.04 3.17 50.66 0.16 0.47
OUTFLOW: ID= 1 ( 0854) 1.10 0.04 3.17 50.65 0.16 0.47
```

```
-----
| CALIB
| NASHYD ( 0340) | Area (ha)= 21.00 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.644 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 50.649
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 3400) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0340): 21.00 0.644 3.50 50.65
+ ID2= 2 ( 0854): 1.10 0.036 3.17 50.65
=====
ID = 3 ( 3400): 22.10 0.678 3.50 50.65
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0123) | Area (ha)= 24.60 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 0.721 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 50.839
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.560

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0814) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .923E+01 0.0 0.26 23.49
0.24 212.03 .369E+02 0.0 0.42 14.80
0.36 212.15 .831E+02 0.1 0.55 11.29
0.48 212.27 .148E+03 0.3 0.67 9.32
0.61 212.40 .231E+03 0.5 0.77 8.03
0.73 212.52 .727E+03 1.0 0.50 12.40
0.85 212.64 .204E+04 2.7 0.49 12.63
0.97 212.76 .374E+04 5.7 0.57 10.84
1.09 212.88 .580E+04 10.4 0.67 9.25
1.21 213.00 .804E+04 16.9 0.78 7.94
1.33 213.12 .104E+05 24.8 0.88 7.02
1.45 213.24 .130E+05 34.1 0.98 6.35
1.57 213.36 .157E+05 44.8 1.07 5.82
1.70 213.49 .185E+05 57.0 1.15 5.41
```

```
1.82 213.61 .215E+05 70.6 1.23 5.06
1.94 213.73 .246E+05 85.8 1.30 4.78
2.06 213.85 .278E+05 103.5 1.38 4.49
2.18 213.97 .312E+05 123.5 1.48 4.21
2.37 214.16 .377E+05 159.4 1.57 3.94
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0123) 24.60 0.72 4.33 50.84 0.66 0.61
OUTFLOW: ID= 1 ( 0814) 24.60 0.72 4.67 50.84 0.66 0.61
```

```
-----
| CALIB
| NASHYD ( 0124) | Area (ha)= 24.30 Curve Number (CN)= 85.8
| ID= 1 DT= 5.0 min | Ia (mm)= 6.30 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.51
```

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 0.878 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 56.425
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.621

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0813) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
```

Model With SWM Infrastructure - Output

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.78
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25

<---- hydrograph <----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0124)	24.30	0.88	3.25	56.43	0.70	0.53
OUTFLOW: ID= 1 (0813)	24.30	0.84	3.67	56.42	0.70	0.54

ADD HYD (1221)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0813):	24.30	0.837	3.67	56.42
+ ID2= 2 (0814):	24.60	0.718	4.67	50.84
=====				
ID = 3 (1221):	48.90	1.525	4.00	53.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0812)
IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) <----->

Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400

64.12	208.50	0.0400 /0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 /0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE <----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.533E+02	0.1	0.24	12.01
0.14	208.16	.150E+03	0.3	0.37	7.63
0.22	208.24	.280E+03	0.8	0.47	5.98
0.29	208.31	.444E+03	1.5	0.56	5.04
0.36	208.38	.642E+03	2.4	0.64	4.42
0.44	208.46	.896E+03	4.0	0.75	3.76
0.52	208.54	.119E+04	6.0	0.86	3.29
0.60	208.62	.153E+04	8.6	0.96	2.96
0.68	208.70	.192E+04	11.7	1.04	2.73
0.76	208.78	.235E+04	15.4	1.11	2.55
0.84	208.86	.283E+04	19.6	1.18	2.41
0.92	208.94	.351E+04	24.2	1.17	2.41
0.99	209.01	.435E+04	30.6	1.19	2.37
1.07	209.09	.528E+04	38.0	1.22	2.31
1.15	209.17	.628E+04	46.4	1.26	2.26
1.23	209.25	.737E+04	55.9	1.29	2.20
1.31	209.33	.855E+04	66.6	1.33	2.14
1.39	209.41	.982E+04	78.7	1.36	2.08
1.47	209.49	.112E+05	92.1	1.40	2.03

<---- hydrograph <----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1221)	48.90	1.53	4.00	53.61	0.29	0.57
OUTFLOW: ID= 1 (0812)	48.90	1.52	4.08	53.61	0.29	0.57

CALIB
NASHYD (0122)
ID= 1 DT= 5.0 min

Area (ha)= 31.80
Ia (mm)= 6.67
U.H. Tp(hrs)= 0.96

Curve Number (CN)= 85.1
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 1.002 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 55.037

TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.606

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1220)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0122):	31.80	1.002	4.17	55.04
+ ID2= 2 (0812):	48.90	1.524	4.08	53.61
=====				
ID = 3 (1220):	80.70	2.525	4.08	54.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0811)
IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) <----->

Distance	Elevation	Manning
0.00	206.50	0.0400
29.68	206.77	0.0400
43.70	206.13	0.0400 /0.0350 Main Channel
44.99	205.95	0.0350 Main Channel
47.70	206.24	0.0350 /0.0450 Main Channel
60.54	206.32	0.0450
80.11	206.99	0.0450
102.29	207.42	0.0450 /0.0400
132.78	206.84	0.0400

<----- TRAVEL TIME TABLE <----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	206.01	.147E+02	0.0	0.14	60.26
0.12	206.07	.590E+02	0.0	0.22	37.96
0.18	206.13	.133E+03	0.1	0.29	28.97
0.26	206.21	.302E+03	0.2	0.36	22.81
0.34	206.29	.671E+03	0.5	0.39	21.40
0.42	206.37	.151E+04	1.2	0.39	20.95
0.50	206.45	.254E+04	2.3	0.45	18.38
0.58	206.53	.376E+04	3.7	0.49	16.98
0.66	206.61	.544E+04	5.6	0.51	16.11
0.74	206.69	.764E+04	8.4	0.54	15.19
0.83	206.78	.104E+05	12.1	0.58	14.27
0.91	206.86	.134E+05	17.4	0.64	12.84
0.99	206.94	.166E+05	23.6	0.71	11.71
1.07	207.02	.201E+05	30.7	0.76	10.88

1.15	207.10	.239E+05	38.8	0.81	10.26
1.23	207.18	.280E+05	48.0	0.85	9.72
1.31	207.26	.325E+05	58.5	0.89	9.26
1.39	207.34	.373E+05	70.3	0.94	8.84
1.47	207.42	.424E+05	83.4	0.98	8.48

<---- hydrograph <----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1220)	80.70	2.53	4.08	54.17	0.52	0.46
OUTFLOW: ID= 1 (0811)	80.70	2.50	4.50	54.17	0.51	0.45

CALIB
NASHYD (0121)
ID= 1 DT= 5.0 min

Area (ha)= 16.10
Ia (mm)= 5.94
U.H. Tp(hrs)= 0.89

Curve Number (CN)= 86.5
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.542 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 57.840
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.637

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1210)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0121):	16.10	0.542	3.83	57.84
+ ID2= 2 (0811):	80.70	2.504	4.50	54.17
=====				
ID = 3 (1210):	96.80	3.034	4.42	54.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0146)
ID= 1 DT= 5.0 min

Area (ha)= 12.80
Ia (mm)= 7.80
U.H. Tp(hrs)= 0.55

Curve Number (CN)= 83.0
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.889

Model With SWM Infrastructure - Output

PEAK FLOW (cms)= 0.411 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 51.019
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.562

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0844)					
IN= 2----> OUT= 1		Routing time step (min)'= 5.00			
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	208.29	0.0300			
3.73	208.14	0.0300 / 0.0350	Main Channel		
5.30	207.52	0.0350	Main Channel		
6.93	208.18	0.0350 / 0.0300	Main Channel		
8.96	208.27	0.0300			
14.71	208.30	0.0300			
23.86	208.59	0.0300			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.107E+01	0.0	0.13	37.04
0.08	207.60	.430E+01	0.0	0.20	23.33
0.12	207.64	.966E+01	0.0	0.27	17.81
0.16	207.68	.172E+02	0.0	0.32	14.70
0.19	207.71	.268E+02	0.0	0.38	12.67
0.23	207.75	.387E+02	0.1	0.42	11.22
0.27	207.79	.526E+02	0.1	0.47	10.12
0.31	207.83	.687E+02	0.1	0.51	9.26
0.35	207.87	.870E+02	0.2	0.56	8.56
0.39	207.91	.107E+03	0.2	0.60	7.98
0.43	207.95	.130E+03	0.3	0.64	7.49
0.47	207.99	.155E+03	0.4	0.67	7.07
0.50	208.02	.181E+03	0.5	0.71	6.70
0.54	208.06	.210E+03	0.6	0.75	6.38
0.58	208.10	.242E+03	0.7	0.78	6.09
0.62	208.14	.275E+03	0.8	0.82	5.83
0.67	208.19	.329E+03	1.0	0.87	5.50
0.72	208.24	.413E+03	1.3	0.89	5.36
0.77	208.29	.540E+03	1.7	0.87	5.45
<----- hydrograph ----->					
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0146)		12.80	0.41	3.33	51.02
					MAX DEPTH
					(m)

OUTFLOW: ID= 1 (0844) 12.80 0.41 3.42 51.01 0.48 0.69

CALIB
NASHYD (0145)
ID= 1 DT= 5.0 min

Area (ha)= 12.60
Ia (mm)= 7.63
U.H. Tp(hrs)= 0.59

Curve Number (CN)= 83.3
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.405 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 51.584
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.568

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1450)
1 + 2 = 3

AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)

ID1= 1 (0145): 12.60 0.405 3.33 51.58
+ ID2= 2 (0844): 12.80 0.410 3.42 51.01
=====

ID = 3 (1450): 25.40 0.815 3.42 51.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0843)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 / 0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		
32.89	214.16	0.0350 / 0.0500	Main Channel		
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.144E+02	0.0	0.23	42.45
0.24	212.03	.578E+02	0.0	0.36	26.74
0.36	212.15	.130E+03	0.1	0.48	20.41
0.48	212.27	.231E+03	0.2	0.58	16.85
0.61	212.40	.361E+03	0.4	0.67	14.52
0.73	212.52	.114E+04	0.8	0.43	22.41
0.85	212.64	.319E+04	2.3	0.43	22.83
0.97	212.76	.585E+04	5.0	0.50	19.59
1.09	212.88	.907E+04	9.0	0.58	16.72
1.21	213.00	.126E+05	14.6	0.68	14.34
1.33	213.12	.163E+05	21.4	0.77	12.69
1.45	213.24	.203E+05	29.5	0.85	11.47
1.57	213.36	.245E+05	38.8	0.92	10.52
1.70	213.49	.289E+05	49.3	0.99	9.77
1.82	213.61	.336E+05	61.2	1.06	9.15
1.94	213.73	.385E+05	74.3	1.13	8.63
2.06	213.85	.436E+05	89.6	1.20	8.11
2.18	213.97	.488E+05	106.9	1.28	7.61
2.37	214.16	.590E+05	138.1	1.36	7.13
<----- hydrograph -----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m) (m/s)
INFLOW : ID= 2 (1450)	25.40	0.81	3.42	51.30	0.72 0.45
OUTFLOW: ID= 1 (0843)	25.40	0.78	4.00	51.29	0.71 0.46

ADD HYD (1440)
1 + 2 = 3

AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)

ID1= 1 (0144): 28.60 0.833 4.42 50.84
+ ID2= 2 (0843): 25.40 0.777 4.00 51.29
=====

ID = 3 (1440): 54.00 1.605 4.17 51.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0842)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning			
0.00	206.70	0.0400			
2.35	206.02	0.0400 / 0.0350	Main Channel		
5.23	205.19	0.0350	Main Channel		
5.34	205.67	0.0350	Main Channel		
19.05	206.06	0.0350 / 0.0400	Main Channel		
21.11	206.05	0.0400			
22.02	206.13	0.0400 / 0.0350			
40.10	206.15	0.0350			
56.50	206.04	0.0350			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.149E+01	0.0	0.09	81.67
0.09	205.28	.594E+01	0.0	0.14	51.45
0.13	205.32	.134E+02	0.0	0.18	39.26
0.17	205.36	.238E+02	0.0	0.22	32.41
0.22	205.41	.371E+02	0.0	0.25	27.93
0.26	205.45	.535E+02	0.0	0.28	24.73
0.31	205.50	.728E+02	0.1	0.31	22.32
0.35	205.54	.950E+02	0.1	0.34	20.42
0.39	205.58	.120E+03	0.1	0.37	18.87
0.44	205.63	.149E+03	0.1	0.40	17.59
0.48	205.67	.180E+03	0.2	0.42	16.60
0.52	205.71	.228E+03	0.2	0.34	20.59
0.57	205.76	.308E+03	0.2	0.33	21.41
0.61	205.80	.418E+03	0.3	0.34	20.79
0.66	205.85	.560E+03	0.5	0.36	19.66
0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24

**** WARNING: TRAVEL TIME TABLE EXCEEDED

<----- hydrograph -----> <-pipe / channel->

CALIB
NASHYD (0144)
ID= 1 DT= 5.0 min

Area (ha)= 28.60
Ia (mm)= 7.85
U.H. Tp(hrs)= 0.97

Curve Number (CN)= 82.9
of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.833 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 50.839
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.560

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1440)	54.00	1.60	4.17	51.05	0.83	0.46
OUTFLOW: ID= 1 (0842)	54.00	1.60	4.50	51.05	0.83	0.46

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB				
NASHYD (0143)	Area (ha)= 27.70	Curve Number (CN)= 82.9		
ID= 1 DT= 5.0 min	Ia (mm)= 7.85	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.07			

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)= 0.797 (i)
TIME TO PEAK (hrs)= 4.917
RUNOFF VOLUME (mm)= 50.839
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.560

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0143):	27.70	0.797	4.92	50.84
+ ID2= 2 (0842):	54.00	1.597	4.50	51.05
=====				
ID = 3 (1430):	81.70	2.392	4.58	50.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0841)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 / 0.0350	Main Channel
43.44	208.24	0.0350	Main Channel
45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	

77.43	209.05	0.0400
128.85	209.70	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	208.30	.216E+02	0.0	0.15	113.45
0.13	208.37	.864E+02	0.0	0.24	71.47
0.19	208.43	.194E+03	0.1	0.31	54.54
0.25	208.49	.345E+03	0.1	0.38	45.02
0.32	208.56	.540E+03	0.2	0.44	38.80
0.38	208.62	.777E+03	0.4	0.49	34.36
0.46	208.70	.152E+04	0.7	0.50	33.99
0.54	208.78	.281E+04	1.4	0.50	33.61
0.62	208.86	.469E+04	2.5	0.53	31.90
0.70	208.94	.734E+04	4.0	0.56	30.28
0.78	209.02	.107E+05	6.3	0.59	28.55
0.86	209.10	.149E+05	9.3	0.63	26.78
0.94	209.18	.198E+05	13.1	0.68	25.09
1.02	209.26	.253E+05	17.9	0.72	23.58
1.10	209.34	.315E+05	23.6	0.76	22.24
1.18	209.42	.386E+05	30.0	0.79	21.42
1.26	209.50	.465E+05	37.7	0.82	20.56
1.34	209.58	.554E+05	46.8	0.86	19.73
1.42	209.66	.652E+05	57.3	0.90	18.94

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1430)	81.70	2.39	4.58	50.98	0.62	0.53
OUTFLOW: ID= 1 (0841)	81.70	2.35	5.33	50.97	0.61	0.53

CALIB				
NASHYD (0142)	Area (ha)= 27.10	Curve Number (CN)= 82.9		
ID= 1 DT= 5.0 min	Ia (mm)= 7.85	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.22			

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 0.768 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 50.839
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.560

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0142):	27.10	0.768	5.17	50.84
+ ID2= 2 (0841):	81.70	2.350	5.33	50.97
=====				
ID = 3 (1420):	108.80	3.117	5.33	50.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	209.52	0.0400	
61.99	209.23	0.0400	
76.86	209.20	0.0400	
82.03	209.20	0.0400 / 0.0350	Main Channel
86.30	208.87	0.0350	Main Channel
89.86	209.20	0.0350 / 0.0300	Main Channel
96.27	209.24	0.0300	
103.53	209.40	0.0300	
127.96	209.50	0.0300	
158.58	209.70	0.0300	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.03	208.90	.706E+01	0.0	0.08	110.24
0.07	208.94	.282E+02	0.0	0.13	69.44
0.10	208.97	.636E+02	0.0	0.17	53.00
0.13	209.00	.113E+03	0.0	0.21	43.75
0.17	209.04	.177E+03	0.1	0.24	37.70
0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75
0.37	209.24	.118E+04	0.7	0.34	26.61
0.40	209.27	.196E+04	1.2	0.33	27.88
0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61
0.58	209.45	.865E+04	6.3	0.40	22.94
0.61	209.48	.108E+05	8.1	0.41	22.09

0.65	209.52	.132E+05	10.4	0.43	21.10

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1420)	108.80	3.12	5.33	50.94	0.49	0.36
OUTFLOW: ID= 1 (0840)	108.80	3.08	5.67	50.93	0.49	0.36

CALIB				
NASHYD (0141)	Area (ha)= 8.10	Curve Number (CN)= 83.6		
ID= 1 DT= 5.0 min	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.78			

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.251 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 52.147
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1410)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0141):	8.10	0.251	3.67	52.15
+ ID2= 2 (0840):	108.80	3.077	5.67	50.93
=====				
ID = 3 (1410):	116.90	3.297	5.50	51.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0151)	Area (ha)= 24.60	Curve Number (CN)= 82.8		
ID= 1 DT= 5.0 min	Ia (mm)= 7.91	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.00			

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.711 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 50.649

Model With SWM Infrastructure - Output

TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0153) | Area (ha)= 33.30 Curve Number (CN)= 82.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.08
-----
```

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 0.948 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 50.280
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.554

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0834) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
-----
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .125E+02 0.0 0.21 40.70
0.24 212.03 .501E+02 0.0 0.33 25.64
0.36 212.15 .113E+03 0.1 0.43 19.56
0.48 212.27 .200E+03 0.2 0.52 16.15
0.61 212.40 .313E+03 0.4 0.61 13.92
0.73 212.52 .987E+03 0.8 0.39 21.48
0.85 212.64 .277E+04 2.1 0.39 21.89
0.97 212.76 .507E+04 4.5 0.45 18.78
```

1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0153) 33.30 0.95 5.08 50.28 0.74 0.39
OUTFLOW: ID= 1 ( 0834) 33.30 0.94 5.33 50.28 0.74 0.39
```

```
-----
| CALIB
| NASHYD ( 0152) | Area (ha)= 16.20 Curve Number (CN)= 82.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.93
-----
```

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.470 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 50.280
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.554

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1520) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0152): 16.20 0.470 4.33 50.28
+ ID2= 2 ( 0834): 33.30 0.942 5.33 50.28
-----
ID = 3 ( 1520): 49.50 1.404 5.17 50.28
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0833) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
-----
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 / 0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 / 0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .232E+03 0.1 0.19 65.23
0.14 208.16 .652E+03 0.3 0.30 41.42
0.22 208.24 .122E+04 0.6 0.38 32.47
0.29 208.31 .193E+04 1.2 0.45 27.40
0.36 208.38 .279E+04 1.9 0.51 24.03
0.44 208.46 .389E+04 3.2 0.60 20.41
0.52 208.54 .516E+04 4.8 0.69 17.88
0.60 208.62 .664E+04 6.9 0.77 16.07
0.68 208.70 .833E+04 9.4 0.83 14.80
0.76 208.78 .102E+05 12.3 0.89 13.84
0.84 208.86 .123E+05 15.7 0.94 13.07
0.92 208.94 .153E+05 19.4 0.94 13.11
0.99 209.01 .189E+05 24.5 0.96 12.89
1.07 209.09 .229E+05 30.4 0.98 12.57
1.15 209.17 .273E+05 37.1 1.01 12.25
1.23 209.25 .320E+05 44.7 1.03 11.94
1.31 209.33 .372E+05 53.3 1.06 11.62
1.39 209.41 .427E+05 63.0 1.09 11.30
1.47 209.49 .487E+05 73.7 1.12 11.00
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1520) 49.50 1.40 5.17 50.28 0.31 0.47
OUTFLOW: ID= 1 ( 0833) 49.50 1.39 5.42 50.27 0.31 0.47
```

```
<-----
| 1 + 2 = 3 |
-----
ID1= 1 ( 0151): 24.60 0.711 4.58 50.65
+ ID2= 2 ( 0833): 49.50 1.388 5.42 50.27
-----
ID = 3 ( 1510): 74.10 2.088 5.25 50.40
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0832) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
-----
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.50 0.0400
29.68 206.77 0.0400
43.70 206.13 0.0400 / 0.0350 Main Channel
44.99 205.95 0.0350 Main Channel
47.70 206.24 0.0350 / 0.0450 Main Channel
60.54 206.32 0.0450
80.11 206.99 0.0450
102.29 207.42 0.0450 / 0.0400
132.78 206.84 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 206.01 .158E+02 0.0 0.16 56.30
0.12 206.07 .633E+02 0.0 0.25 35.47
0.18 206.13 .142E+03 0.1 0.33 27.07
0.26 206.21 .324E+03 0.3 0.42 21.31
0.34 206.29 .720E+03 0.6 0.44 20.00
0.42 206.37 .162E+04 1.4 0.45 19.57
0.50 206.45 .272E+04 2.6 0.52 17.17
0.58 206.53 .404E+04 4.2 0.56 15.86
0.66 206.61 .584E+04 6.5 0.59 15.05
0.74 206.69 .820E+04 9.6 0.63 14.19
0.83 206.78 .111E+05 13.9 0.67 13.34
0.91 206.86 .143E+05 19.9 0.74 12.00
0.99 206.94 .178E+05 27.1 0.81 10.94
1.07 207.02 .215E+05 35.3 0.87 10.16
1.15 207.10 .256E+05 44.5 0.93 9.59
1.23 207.18 .301E+05 55.1 0.98 9.09
1.31 207.26 .349E+05 67.2 1.03 8.65
1.39 207.34 .400E+05 80.7 1.07 8.26
1.47 207.42 .455E+05 95.8 1.12 7.92
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
```

Model With SWM Infrastructure - Output

INFLOW : ID= 2 (1510) 74.10 2.09 5.25 50.40 0.47 0.49
OUTFLOW: ID= 1 (0832) 74.10 2.08 5.42 50.39 0.47 0.49

CALIB
NASHYD (0150) | Area (ha)= 6.60 Curve Number (CN)= 83.7
ID= 1 DT= 5.0 min | Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.96

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.198 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 52.342
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.576

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1500) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0150): 6.60 0.198 4.33 52.34
+ ID2= 2 (0832): 74.10 2.075 5.42 50.39
=====

ID = 3 (1500): 80.70 2.265 5.42 50.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1401) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (1410): 116.90 3.297 5.50 51.01
+ ID2= 2 (1500): 80.70 2.265 5.42 50.55
=====

ID = 3 (1401): 197.60 5.560 5.50 50.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0830) |
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 207.71 0.0400
58.83 206.71 0.0400
66.88 206.59 0.0400 /0.0350 Main Channel
72.32 206.34 0.0350 Main Channel
77.68 206.55 0.0350 /0.0800 Main Channel
82.85 206.54 0.0800
90.20 206.02 0.0800
94.03 206.48 0.0800
99.83 206.40 0.0800 /0.0400
114.32 206.50 0.0400
136.07 206.86 0.0400
174.41 207.56 0.0400

TRAVEL TIME TABLE
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.08 206.10 .561E+02 0.0 0.05 276.21
0.15 206.17 .224E+03 0.0 0.08 174.00
0.23 206.25 .505E+03 0.1 0.11 132.79
0.30 206.32 .898E+03 0.1 0.13 109.61
0.38 206.40 .147E+04 0.3 0.15 96.03
0.45 206.47 .291E+04 0.5 0.14 104.34
0.53 206.55 .555E+04 1.1 0.17 85.95
0.61 206.63 .948E+04 2.5 0.23 62.05
0.70 206.72 .142E+05 4.7 0.29 50.17
0.78 206.80 .196E+05 7.6 0.34 42.88
0.87 206.89 .258E+05 11.4 0.38 37.80
0.95 206.97 .327E+05 16.0 0.43 33.99
1.04 207.06 .403E+05 21.6 0.47 31.05
1.12 207.14 .485E+05 28.2 0.51 28.69
1.20 207.22 .575E+05 35.9 0.54 26.74
1.29 207.31 .672E+05 44.6 0.58 25.11
1.37 207.39 .776E+05 54.6 0.61 23.71
1.46 207.48 .887E+05 65.7 0.65 22.49
1.54 207.56 .101E+06 78.2 0.68 21.43

hydrograph <----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1401) 197.60 5.56 5.50 50.83 0.72 0.30
OUTFLOW: ID= 1 (0830) 197.60 5.28 6.08 50.82 0.71 0.30

CALIB
NASHYD (0140) | Area (ha)= 18.30 Curve Number (CN)= 83.6
ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 1.34

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.522 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 52.148
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.574

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0140): 18.30 0.522 5.25 52.15
+ ID2= 2 (0830): 197.60 5.280 6.08 50.82
=====

ID = 3 (1400): 215.90 5.769 6.00 50.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0131) | Area (ha)= 28.70 Curve Number (CN)= 82.1
ID= 1 DT= 5.0 min | Ia (mm)= 8.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.11

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 0.803 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 49.364
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.544

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0011) | Area (ha)= 132.00
ID= 1 DT= 5.0 min | Total Imp(%)= 57.10 Dir. Conn.(%)= 45.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 75.37 56.63
Dep. Storage (mm)= 1.00 8.95
Average Slope (%)= 1.00 1.00

Length (m)= 938.08 40.00
Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 23.61 14.43
over (min)= 15.00 40.00
Storage Coeff. (min)= 17.44 (ii) 36.28 (ii)
Unit Hyd. Tpeak (min)= 15.00 40.00
Unit Hyd. peak (cms)= 0.07 0.03
TOTALS
PEAK FLOW (cms)= 3.80 1.98 4.894 (iii)
TIME TO PEAK (hrs)= 2.08 3.50 3.08
RUNOFF VOLUME (mm)= 89.80 45.68 65.54
TOTAL RAINFALL (mm)= 90.80 90.80 90.80
RUNOFF COEFFICIENT = 0.99 0.50 0.72

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0874) | OVERFLOW IS OFF
IN= 2---> OUT= 1 |
DT= 5.0 min |
OUTFLOW STORAGE | OUTFLOW STORAGE
(cms) (ha.m.) | (cms) (ha.m.)
0.0000 0.0000 | 2.4200 5.4280
0.0950 1.5860 | 3.3930 6.6280
1.2530 3.8390 | 0.0000 0.0000
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 (0011) 132.000 4.894 3.08 65.54
OUTFLOW: ID= 1 (0874) 132.000 2.421 6.25 64.98

PEAK FLOW REDUCTION [Qout/Qin](%)= 49.46
TIME SHIFT OF PEAK FLOW (min)=190.00
MAXIMUM STORAGE USED (ha.m.)= 5.4292

CALIB
STANDHYD (0012) | Area (ha)= 17.50
ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 14.00 3.50
Dep. Storage (mm)= 1.00 8.94
Average Slope (%)= 1.00 1.00

Model With SWM Infrastructure - Output

Length (m)=	341.57	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	23.61	18.33	
over (min)	10.00	30.00	
Storage Coeff. (min)=	9.51 (ii)	26.64 (ii)	
Unit Hyd. Tpeak (min)=	10.00	30.00	
Unit Hyd. peak (cms)=	0.12	0.04	
PEAK FLOW (cms)=	0.80	0.16	0.915 (iii)
TIME TO PEAK (hrs)=	2.08	3.25	2.08
RUNOFF VOLUME (mm)=	89.80	49.87	77.82
TOTAL RAINFALL (mm)=	90.80	90.80	90.80
RUNOFF COEFFICIENT =	0.99	0.55	0.86

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):	17.50	0.915	2.08	77.82
+ ID2= 2 (0874):	132.00	2.421	6.25	64.98
=====				
ID = 3 (1112):	149.50	2.765	5.17	66.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
STANDHYD (0010)	Area	(ha)=	12.90	
ID= 1 DT= 5.0 min	Total Imp(%)=	80.00	Dir. Conn.(%)=	70.00
	IMPERVIOUS	PERVIOUS (i)		
Surface Area (ha)=	10.32	2.58		
Dep. Storage (mm)=	1.00	8.94		
Average Slope (%)=	1.00	1.00		
Length (m)=	293.26	40.00		
Mannings n =	0.013	0.250		
Max.Eff.Inten.(mm/hr)=	23.61	18.33		
over (min)	10.00	30.00		
Storage Coeff. (min)=	8.68 (ii)	25.81 (ii)		
Unit Hyd. Tpeak (min)=	10.00	30.00		

Unit Hyd. peak (cms)=	0.12	0.04	
PEAK FLOW (cms)=	0.59	0.12	*TOTALS* 0.676 (iii)
TIME TO PEAK (hrs)=	2.08	3.25	2.08
RUNOFF VOLUME (mm)=	89.80	49.87	77.82
TOTAL RAINFALL (mm)=	90.80	90.80	90.80
RUNOFF COEFFICIENT =	0.99	0.55	0.86

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):	12.90	0.676	2.08	77.82
+ ID2= 2 (1112):	149.50	2.765	5.17	66.49
=====				
ID = 3 (1311):	162.40	3.185	5.08	67.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822)				
IN= 2--> OUT= 1	Routing time step (min)'=	5.00		
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	207.71	0.0400		
58.83	206.71	0.0400		
66.88	206.59	0.0400 / 0.0350	Main Channel	
72.32	206.34	0.0350	Main Channel	
77.68	206.55	0.0350 / 0.0800	Main Channel	
82.85	206.54	0.0800		
90.20	206.02	0.0800		
94.03	206.48	0.0800		
99.83	206.40	0.0800 / 0.0400		
114.32	206.50	0.0400		
136.07	206.86	0.0400		
174.41	207.56	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.337E+02	0.0	0.07	124.18

0.15	206.17	.135E+03	0.0	0.11	78.23
0.23	206.25	.303E+03	0.1	0.15	59.70
0.30	206.32	.539E+03	0.2	0.18	49.28
0.38	206.40	.885E+03	0.3	0.20	43.17
0.45	206.47	.175E+04	0.6	0.19	46.91
0.53	206.55	.333E+04	1.4	0.23	38.64
0.61	206.63	.569E+04	3.4	0.31	27.90
0.70	206.72	.851E+04	6.3	0.39	22.56
0.78	206.80	.118E+05	10.2	0.45	19.28
0.87	206.89	.155E+05	15.2	0.51	17.00
0.95	206.97	.196E+05	21.4	0.57	15.28
1.04	207.06	.242E+05	28.9	0.63	13.96
1.12	207.14	.292E+05	37.7	0.68	12.90
1.20	207.22	.346E+05	47.9	0.73	12.02
1.29	207.31	.404E+05	59.6	0.77	11.29
1.37	207.39	.466E+05	72.9	0.82	10.66
1.46	207.48	.533E+05	87.8	0.86	10.11
1.54	207.56	.604E+05	104.5	0.91	9.63
<---- hydrograph ---->	<-pipe / channel->				
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1311)	162.40	3.18	5.08	67.39	0.60
OUTFLOW: ID= 1 (0822)	162.40	3.08	5.17	67.37	0.60

ADD HYD (1310)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0131):	28.70	0.803	5.17	49.36
+ ID2= 2 (0822):	162.40	3.085	5.17	67.37
=====				
ID = 3 (1310):	191.10	3.888	5.17	64.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0821)				
IN= 2--> OUT= 1	Routing time step (min)'=	5.00		
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	207.71	0.0400		
58.83	206.71	0.0400		
66.88	206.59	0.0400 / 0.0350	Main Channel	
72.32	206.34	0.0350	Main Channel	
77.68	206.55	0.0350 / 0.0800	Main Channel	

82.85	206.54	0.0800		
90.20	206.02	0.0800		
94.03	206.48	0.0800		
99.83	206.40	0.0800 / 0.0400		
114.32	206.50	0.0400		
136.07	206.86	0.0400		
174.41	207.56	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60
0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

<---- hydrograph ---->	<-pipe / channel->				
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1310)	191.10	3.89	5.17	64.66	0.64
OUTFLOW: ID= 1 (0821)	191.10	3.69	6.08	64.63	0.63

CALIB				
NASHYD (0130)	Area	(ha)=	26.70	Curve Number (CN)= 81.7
ID= 1 DT= 5.0 min	Ia	(mm)=	8.53	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	1.32		

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)=	0.719 (i)
TIME TO PEAK (hrs)=	5.333
RUNOFF VOLUME (mm)=	48.636

Model With SWM Infrastructure - Output

TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.536

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1300) |
| 1 + 2 = 3 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0130): 26.70 0.719 5.33 48.64
+ ID2= 2 ( 0821): 191.10 3.690 6.08 64.63
=====
ID = 3 ( 1300): 217.80 4.370 5.92 62.67
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 1202) |
| 1 + 2 = 3 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 1300): 217.80 4.370 5.92 62.67
+ ID2= 2 ( 1400): 215.90 5.769 6.00 50.93
=====
ID = 3 ( 1202): 433.70 10.137 6.00 56.82
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0820) |
| IN= 2---> OUT= 1 |
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 /0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 /0.0400 Main Channel
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV. TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .681E+01 0.0 0.08 28.42
0.18 204.88 .272E+02 0.0 0.13 17.90
```

```
101.99 205.21 0.0400
151.82 204.97 0.0400
252.14 206.45 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV. TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .229E+02 0.0 0.07 106.67
0.18 204.88 .915E+02 0.0 0.12 67.20
0.28 204.98 .208E+03 0.1 0.15 51.82
0.37 205.07 .981E+03 0.2 0.11 70.28
0.46 205.16 .288E+04 0.8 0.13 61.71
0.55 205.25 .610E+04 2.0 0.15 50.43
0.64 205.34 .105E+05 4.2 0.19 41.45
0.74 205.44 .163E+05 7.5 0.21 36.28
0.83 205.53 .227E+05 11.9 0.24 31.82
0.92 205.62 .294E+05 17.2 0.27 28.46
1.01 205.71 .366E+05 23.6 0.30 25.89
1.10 205.80 .442E+05 30.9 0.32 23.87
1.20 205.90 .522E+05 39.1 0.35 22.23
1.29 205.99 .606E+05 48.4 0.37 20.87
1.38 206.08 .694E+05 58.7 0.39 19.72
1.47 206.17 .786E+05 70.0 0.41 18.74
1.57 206.27 .883E+05 82.3 0.43 17.88
1.66 206.36 .983E+05 95.7 0.45 17.12
1.75 206.45 .109E+06 110.2 0.47 16.45
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1201) 530.50 12.80 5.92 56.45 0.84 0.25
OUTFLOW: ID= 1 ( 0810) 530.50 12.35 6.08 56.44 0.84 0.25
```

```
| CALIB
| NASHYD ( 0120) |
| ID= 1 DT= 5.0 min |
Area (ha)= 9.00 Curve Number (CN)= 84.0
Ia (mm)= 7.25 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.16
```

Unit Hyd Qpeak (cms)= 0.296
PEAK FLOW (cms)= 0.266 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 52.911
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.583

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
0.28 204.98 .620E+02 0.1 0.17 13.80
0.37 205.07 .292E+03 0.3 0.12 18.72
0.46 205.16 .859E+03 0.9 0.14 16.44
0.55 205.25 .182E+04 2.3 0.17 13.44
0.64 205.34 .311E+04 4.7 0.21 11.04
0.74 205.44 .487E+04 8.4 0.24 9.67
0.83 205.53 .676E+04 13.3 0.27 8.48
0.92 205.62 .877E+04 19.3 0.30 7.58
1.01 205.71 .109E+05 26.4 0.33 6.90
1.10 205.80 .132E+05 34.5 0.36 6.36
1.20 205.90 .155E+05 43.8 0.39 5.92
1.29 205.99 .181E+05 54.1 0.42 5.56
1.38 206.08 .207E+05 65.6 0.44 5.25
1.47 206.17 .234E+05 78.2 0.46 4.99
1.57 206.27 .263E+05 92.0 0.48 4.76
1.66 206.36 .293E+05 107.0 0.51 4.56
1.75 206.45 .324E+05 123.2 0.53 4.38
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1202) 433.70 10.14 6.00 56.82 0.77 0.25
OUTFLOW: ID= 1 ( 0820) 433.70 10.11 6.08 56.82 0.77 0.25
```

```
| ADD HYD ( 1201) |
| 1 + 2 = 3 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 1210): 96.80 3.034 4.42 54.78
+ ID2= 2 ( 0820): 433.70 10.113 6.08 56.82
=====
ID = 3 ( 1201): 530.50 12.798 5.92 56.45
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0810) |
| IN= 2---> OUT= 1 |
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.54 0.0450
43.13 205.35 0.0450
67.41 205.27 0.0450
86.35 205.38 0.0450 /0.0350 Main Channel
90.47 204.70 0.0350 Main Channel
93.03 205.16 0.0350 /0.0400 Main Channel
```

```
| ADD HYD ( 1200) |
| 1 + 2 = 3 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0120): 9.00 0.266 5.08 52.91
+ ID2= 2 ( 0810): 530.50 12.351 6.08 56.44
=====
ID = 3 ( 1200): 539.50 12.587 6.08 56.38
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0113) |
| ID= 1 DT= 5.0 min |
Area (ha)= 13.50 Curve Number (CN)= 82.5
Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.87
```

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.393 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 50.092
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.552

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0802) |
| IN= 2---> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 /0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 /0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV. TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .448E+01 0.0 0.12 164.32
0.08 207.60 .179E+02 0.0 0.19 103.31
0.12 207.64 .403E+02 0.0 0.25 79.00
```

Model With SWM Infrastructure - Output

0.16	207.68	.716E+02	0.0	0.30	65.21
0.19	207.71	.112E+03	0.0	0.35	56.20
0.23	207.75	.161E+03	0.1	0.40	49.76
0.27	207.79	.219E+03	0.1	0.44	44.90
0.31	207.83	.287E+03	0.1	0.48	41.08
0.35	207.87	.363E+03	0.2	0.52	37.98
0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88
0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79
0.77	208.29	.225E+04	1.6	0.82	24.20

<---- hydrograph <---->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0113)	13.50	0.39	4.17	50.09	0.49
OUTFLOW: ID= 1 (0802)	13.50	0.39	4.92	50.02	0.48
					0.65

CALIB					
NASHYD (0112)	Area (ha)=	30.50	Curve Number (CN)=	82.8	
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.60			

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 0.811 (i)
TIME TO PEAK (hrs)= 5.583
RUNOFF VOLUME (mm)= 50.649
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0111)	Area (ha)=	45.50	Curve Number (CN)=	82.3	
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.33			

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 1.247 (i)
TIME TO PEAK (hrs)= 5.333
RUNOFF VOLUME (mm)= 49.727
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.548

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0111):	45.50	1.247	5.33	49.73	
+ ID2= 2 (0112):	30.50	0.811	5.58	50.65	
ID = 3 (1101):	76.00	2.055	5.42	50.10	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 3 (1101):	76.00	2.055	5.42	50.10	
+ ID2= 2 (0802):	13.50	0.386	4.92	50.02	
ID = 1 (1101):	89.50	2.438	5.33	50.09	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801)					
IN= 2----> OUT= 1		Routing time step (min)'= 5.00			
----- DATA FOR SECTION (1.1) -----					
Distance	Elevation	Manning			
0.00	209.66	0.0400			
19.50	209.34	0.0400			
37.91	208.66	0.0400			
41.73	208.62	0.0400 / 0.0350	Main Channel		
43.44	208.24	0.0350	Main Channel		
45.75	208.62	0.0350 / 0.0450	Main Channel		
54.00	208.79	0.0450 / 0.0400			
77.43	209.05	0.0400			
128.85	209.70	0.0400			

<----- TRAVEL TIME TABLE <----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.104E+02	0.0	0.10	83.26
0.13	208.37	.415E+02	0.0	0.16	52.45
0.19	208.43	.934E+02	0.0	0.20	40.03
0.25	208.49	.166E+03	0.1	0.25	33.04
0.32	208.56	.259E+03	0.2	0.29	28.47
0.38	208.62	.373E+03	0.2	0.32	25.22
0.46	208.70	.729E+03	0.5	0.33	24.94
0.54	208.78	.135E+04	0.9	0.33	24.67
0.62	208.86	.225E+04	1.6	0.35	23.41
0.70	208.94	.352E+04	2.6	0.37	22.23
0.78	209.02	.516E+04	4.1	0.39	20.96
0.86	209.10	.716E+04	6.1	0.41	19.65
0.94	209.18	.949E+04	8.6	0.44	18.42
1.02	209.26	.122E+05	11.7	0.47	17.31
1.10	209.34	.152E+05	15.5	0.50	16.32
1.18	209.42	.185E+05	19.7	0.52	15.72
1.26	209.50	.224E+05	24.7	0.54	15.09
1.34	209.58	.266E+05	30.6	0.56	14.48
1.42	209.66	.313E+05	37.5	0.59	13.90

<---- hydrograph <---->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1101)	89.50	2.44	5.33	50.09	0.68
OUTFLOW: ID= 1 (0801)	89.50	2.40	5.67	50.08	0.68
					0.36

CALIB					
NASHYD (0110)	Area (ha)=	11.90	Curve Number (CN)=	83.4	
ID= 1 DT= 5.0 min	Ia (mm)=	7.58	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.68			

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.375 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 51.769
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.570

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	

(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0110):	11.90	0.375	3.50
+ ID2= 2 (0801):	89.50	2.403	5.67
ID = 3 (1100):	101.40	2.723	5.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (1100):	101.40	2.723	5.42	50.28	
+ ID2= 2 (1200):	539.50	12.587	6.08	56.38	
ID = 3 (1001):	640.90	15.223	6.00	55.42	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)					
IN= 2----> OUT= 1		Routing time step (min)'= 5.00			
<----- DATA FOR SECTION (1.1) <----->					
Distance	Elevation	Manning			
0.00	206.54	0.0450			
43.13	205.35	0.0450			
67.41	205.27	0.0450			
86.35	205.38	0.0450 / 0.0350	Main Channel		
90.47	204.70	0.0350	Main Channel		
93.03	205.16	0.0350 / 0.0400	Main Channel		
101.99	205.21	0.0400			
151.82	204.97	0.0400			
252.14	206.45	0.0400			

<----- TRAVEL TIME TABLE <----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 204.79 .255E+02 0.0 0.16 54.50
0.18 204.88 .102E+03 0.0 0.25 34.33
0.28 204.98 .232E+03 0.1 0.33 26.47
0.37 205.07 .109E+04 0.5 0.24 35.91
0.46 205.16 .321E+04 1.7 0.27 31.53
0.55 205.25 .680E+04 4.4 0.33 25.77
0.64 205.34 .116E+05 9.2 0.41 21.18
0.74 205.44 .182E+05 16.4 0.47 18.54
0.83 205.53 .253E+05 25.9 0.53 16.26
0.92 205.62 .328E+05 37.6 0.59 14.54
1.01 205.71 .408E+05 51.4 0.65 13.23
1.10 205.80 .492E+05 67.3 0.71 12.19

Model With SWM Infrastructure - Output

1.20	205.90	.581E+05	85.3	0.76	11.36
1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75
1.75	206.45	.121E+06	240.2	1.03	8.41

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1001)	640.90	15.22	6.00	55.42	0.72	0.46
OUTFLOW: ID= 1 (0800)	640.90	15.07	6.25	55.42	0.72	0.45

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0100)	54.70	83.2
ID= 1 DT= 5.0 min	Ia (mm)= 7.69	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.23	

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 1.563 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 51.394
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.566

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1000)	Area (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0100):	54.70	1.563	5.17	51.39
+ ID2= 2 (0800):	640.90	15.067	6.25	55.42
ID = 3 (1000):	695.60	16.458	6.08	55.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0190)	12.30	83.9
ID= 1 DT= 5.0 min	Ia (mm)= 7.31	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.83	

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.380 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 52.715
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0191)	20.10	82.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.36	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.94	

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.570 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 49.179
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.542

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0192)	28.30	80.3
ID= 1 DT= 5.0 min	Ia (mm)= 6.23	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.06	

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 0.775 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 48.692
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.536

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1901)	Area (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				

ID1= 1 (0191):	20.10	0.570	4.42	49.18
+ ID2= 2 (0192):	28.30	0.775	5.08	48.69
ID = 3 (1901):	48.40	1.343	4.67	48.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0899)	Routing time step (min)'= 5.00
IN= 2----> OUT= 1	

Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 / 0.0350
70.77	208.05	0.0350
74.98	208.02	0.0350
83.40	208.38	0.0350 / 0.0400
88.06	208.63	0.0400
94.94	209.13	0.0400
105.88	209.54	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.349E+02	0.1	0.18	10.46
0.14	208.16	.981E+02	0.2	0.28	6.64
0.22	208.24	.183E+03	0.6	0.36	5.21
0.29	208.31	.291E+03	1.1	0.42	4.40
0.36	208.38	.420E+03	1.8	0.48	3.85
0.44	208.46	.586E+03	3.0	0.57	3.27
0.52	208.54	.777E+03	4.5	0.65	2.87
0.60	208.62	.999E+03	6.5	0.72	2.58
0.68	208.70	.125E+04	8.8	0.78	2.37
0.76	208.78	.154E+04	11.5	0.84	2.22
0.84	208.86	.185E+04	14.7	0.89	2.10
0.92	208.94	.230E+04	18.2	0.88	2.10
0.99	209.01	.285E+04	23.0	0.90	2.07
1.07	209.09	.345E+04	28.5	0.92	2.02
1.15	209.17	.411E+04	34.8	0.94	1.96
1.23	209.25	.482E+04	42.0	0.97	1.91
1.31	209.33	.559E+04	50.0	1.00	1.86
1.39	209.41	.643E+04	59.1	1.02	1.81
1.47	209.49	.732E+04	69.1	1.05	1.76

<---- hydrograph ----> <-pipe / channel->

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1901)	48.40	1.34	4.67	48.89	0.31
					0.44

OUTFLOW: ID= 1 (0899) 48.40 1.34 4.75 48.89 0.31 0.44

ADD HYD (1900)	Area (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0190):	12.30	0.380	3.83	52.71
+ ID2= 2 (0899):	48.40	1.342	4.75	48.89
ID = 3 (1900):	60.70	1.713	4.58	49.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0500)	7.60	82.8
ID= 1 DT= 5.0 min	Ia (mm)= 7.91	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.48	

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.247 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 50.646
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.558

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0510)	12.70	81.7
ID= 1 DT= 5.0 min	Ia (mm)= 8.53	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.69	

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.373 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 48.635
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.536

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0520) | Area (ha)= 17.30 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
|-----
| U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.513 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 50.092
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.552

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 5000) |
| 1 + 2 = 3 |
|-----
| ID1= 1 ( 0500): 7.60 0.247 3.25 50.65
| + ID2= 2 ( 0510): 12.70 0.373 3.58 48.64
|-----
| ID = 3 ( 5000): 20.30 0.614 3.42 49.39
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 5000) |
| 3 + 2 = 1 |
|-----
| ID1= 3 ( 5000): 20.30 0.614 3.42 49.39
| + ID2= 2 ( 0520): 17.30 0.513 3.75 50.09
|-----
| ID = 1 ( 5000): 37.60 1.120 3.58 49.71
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0600) | Area (ha)= 2.50 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
|-----
| U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.081 (i)
TIME TO PEAK (hrs)= 3.250

RUNOFF VOLUME (mm)= 50.088
TOTAL RAINFALL (mm)= 90.800
RUNOFF COEFFICIENT = 0.552

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
=====
V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U AAAAA L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL
```

```
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
```

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\d4
2dec98-e695-4b72-b905-3ea902a31df7\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\d4
2dec98-e695-4b72-b905-3ea902a31df7\sce

DATE: 10-17-2025

TIME: 02:54:20

USER:

COMMENTS: _____

```
-----
*****
** SIMULATION : 6 **
```

```
-----
| READ STORM |
|-----
| Ptotal=101.20 mm |
|-----
| Filename: C:\Users\wraymond\AppData\Local\Temp\
| f9e06f95-585c-465c-81d8-96408d74cabce823bd36
| Comments: 50yr12hrAES
```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.08	15.18	6.17	3.04	9.25	0.00
0.08	13.16	3.17	15.18	6.25	3.04	9.33	0.00
0.17	13.16	3.25	15.18	6.33	3.04	9.42	0.00
0.25	13.16	3.33	15.18	6.42	3.04	9.50	0.00
0.33	13.16	3.42	15.18	6.50	3.04	9.58	0.00
0.42	13.16	3.50	15.18	6.58	3.04	9.67	0.00
0.50	13.16	3.58	15.18	6.67	3.04	9.75	0.00
0.58	13.16	3.67	15.18	6.75	3.04	9.83	0.00
0.67	13.16	3.75	15.18	6.83	3.04	9.92	0.00
0.75	13.16	3.83	15.18	6.92	3.04	10.00	0.00
0.83	13.16	3.92	15.18	7.00	3.04	10.08	0.00
0.92	13.16	4.00	15.18	7.08	1.01	10.17	0.00
1.00	13.16	4.08	14.17	7.17	1.01	10.25	0.00
1.08	26.31	4.17	14.17	7.25	1.01	10.33	0.00
1.17	26.31	4.25	14.17	7.33	1.01	10.42	0.00
1.25	26.31	4.33	14.17	7.42	1.01	10.50	0.00
1.33	26.31	4.42	14.17	7.50	1.01	10.58	0.00
1.42	26.31	4.50	14.17	7.58	1.01	10.67	0.00
1.50	26.31	4.58	14.17	7.67	1.01	10.75	0.00
1.58	26.31	4.67	14.17	7.75	1.01	10.83	0.00
1.67	26.31	4.75	14.17	7.83	1.01	10.92	0.00
1.75	26.31	4.83	14.17	7.92	1.01	11.00	0.00
1.83	26.31	4.92	14.17	8.00	1.01	11.08	0.00
1.92	26.31	5.00	14.17	8.08	0.00	11.17	0.00
2.00	26.31	5.08	8.10	8.17	0.00	11.25	0.00
2.08	20.24	5.17	8.10	8.25	0.00	11.33	0.00
2.17	20.24	5.25	8.10	8.33	0.00	11.42	0.00
2.25	20.24	5.33	8.10	8.42	0.00	11.50	0.00
2.33	20.24	5.42	8.10	8.50	0.00	11.58	0.00
2.42	20.24	5.50	8.10	8.58	0.00	11.67	0.00
2.50	20.24	5.58	8.10	8.67	0.00	11.75	0.00
2.58	20.24	5.67	8.10	8.75	0.00	11.83	0.00
2.67	20.24	5.75	8.10	8.83	0.00	11.92	0.00
2.75	20.24	5.83	8.10	8.92	0.00	12.00	0.00
2.83	20.24	5.92	8.10	9.00	0.00		
2.92	20.24	6.00	8.10	9.08	0.00		
3.00	20.24	6.08	3.04	9.17	0.00		

```
-----
| CALIB
| NASHYD ( 0185) | Area (ha)= 2.00 Curve Number (CN)= 79.5
| ID= 1 DT= 5.0 min | Ia (mm)= 6.54 # of Linear Res.(N)= 3.00
|-----
| U.H. Tp(hrs)= 0.36
```

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.072 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 55.937
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.553

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0180) | Area (ha)= 6.80 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
|-----
| U.H. Tp(hrs)= 0.85
```

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.234 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 58.796
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0170) | Area (ha)= 5.80 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
|-----
| U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.207 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 58.795
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0160)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 16.30 Curve Number (CN)= 83.2
Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.15
```

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.548 (i)
TIME TO PEAK (hrs)= 4.833
RUNOFF VOLUME (mm)= 60.388
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.597

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0330)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 22.30 Curve Number (CN)= 82.2
Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.60
```

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.811 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 58.394
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.577

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0270)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 2.50 Curve Number (CN)= 81.0
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.24
```

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.097 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 58.542
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.578

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0260)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 7.00 Curve Number (CN)= 83.7
Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.43
```

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.279 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 61.399
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.607

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0250)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 10.70 Curve Number (CN)= 81.9
Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.54
```

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.391 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 57.804
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.571

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0320)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 11.70 Curve Number (CN)= 83.0
Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.454 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 59.982
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.593

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0420)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 25.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.12
```

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 0.881 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 61.197
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0423)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 23.90 Curve Number (CN)= 84.1
Ia (mm)= 7.20 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.80
```

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 0.883 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 62.215
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.615

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0422)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 6.90 Curve Number (CN)= 83.4
Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.61
```

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.262 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 60.790
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.601

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0896)|
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .808E+00 0.0 0.15 23.76
0.07 204.57 .323E+01 0.0 0.23 14.97
0.11 204.61 .727E+01 0.0 0.30 11.42
0.14 204.64 .129E+02 0.0 0.37 9.43
0.18 204.68 .202E+02 0.0 0.43 8.13
0.22 204.72 .291E+02 0.1 0.48 7.20
0.25 204.75 .396E+02 0.1 0.53 6.49
0.29 204.79 .517E+02 0.1 0.58 5.94
0.33 204.83 .654E+02 0.2 0.63 5.49
0.36 204.86 .808E+02 0.3 0.68 5.12
0.40 204.90 .977E+02 0.3 0.72 4.80
0.43 204.93 .131E+03 0.4 0.69 5.03
0.47 204.97 .232E+03 0.6 0.55 6.29
0.51 205.01 .388E+03 0.9 0.51 6.81
0.54 205.04 .584E+03 1.4 0.51 6.75
0.58 205.08 .819E+03 2.1 0.54 6.47
0.61 205.11 .110E+04 3.0 0.56 6.13
0.65 205.15 .141E+04 4.1 0.60 5.79
0.69 205.19 .177E+04 5.4 0.63 5.47
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0422) 6.90 0.26 3.33 60.79 0.36 0.68
OUTFLOW: ID= 1 ( 0896) 6.90 0.26 3.42 60.79 0.36 0.67
```

```
-----
| ADD HYD ( 4202)|
|-----|
```


Model With SWM Infrastructure - Output

```
| 1 + 2 = 3 |
-----
ID1= 1 ( 0423): 23.90 0.883 3.67 62.22
+ ID2= 2 ( 0896): 6.90 0.261 3.42 60.79
=====
ID = 3 ( 4202): 30.80 1.141 3.58 61.90
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0895)|
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .170E+01 0.0 0.28 4.09
0.24 212.03 .679E+01 0.0 0.44 2.58
0.36 212.15 .153E+02 0.1 0.58 1.97
0.48 212.27 .272E+02 0.3 0.70 1.62
0.61 212.40 .424E+02 0.5 0.82 1.40
0.73 212.52 .134E+03 1.0 0.53 2.16
0.85 212.64 .375E+03 2.8 0.52 2.20
0.97 212.76 .687E+03 6.1 0.60 1.89
1.09 212.88 .107E+04 11.0 0.71 1.61
1.21 213.00 .148E+04 17.8 0.83 1.38
1.33 213.12 .192E+04 26.1 0.93 1.22
1.45 213.24 .238E+04 35.9 1.03 1.11
1.57 213.36 .288E+04 47.3 1.13 1.01
1.70 213.49 .340E+04 60.1 1.21 0.94
1.82 213.61 .395E+04 74.5 1.29 0.88
1.94 213.73 .452E+04 90.5 1.37 0.83
2.06 213.85 .512E+04 109.2 1.46 0.78
2.18 213.97 .573E+04 130.3 1.56 0.73
2.37 214.16 .694E+04 168.2 1.66 0.69
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
```

```
0.33 204.83 .278E+03 0.3 0.81 18.12
0.36 204.86 .344E+03 0.3 0.87 16.89
0.40 204.90 .416E+03 0.4 0.93 15.85
0.43 204.93 .559E+03 0.6 0.89 16.61
0.47 204.97 .986E+03 0.8 0.71 20.75
0.51 205.01 .165E+04 1.2 0.65 22.49
0.54 205.04 .248E+04 1.9 0.66 22.28
0.58 205.08 .349E+04 2.7 0.69 21.35
0.61 205.11 .466E+04 3.8 0.73 20.23
0.65 205.15 .600E+04 5.2 0.77 19.10
0.69 205.19 .751E+04 6.9 0.82 18.05
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0421) 10.40 0.41 3.17 59.58 0.39 0.91
OUTFLOW: ID= 1 ( 0883) 10.40 0.40 3.25 59.53 0.38 0.90
```

```
| ADD HYD ( 4201)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 0883): 10.40 0.399 3.25 59.53
+ ID2= 2 ( 0895): 30.80 1.141 3.58 61.90
=====
ID = 3 ( 4201): 41.20 1.529 3.50 61.30
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0882)|
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
```

```
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4202) 30.80 1.14 3.58 61.90 0.73 0.53
OUTFLOW: ID= 1 ( 0895) 30.80 1.14 3.58 61.90 0.73 0.53
```

```
| CALIB
| NASHYO ( 0421)| Area (ha)= 10.40 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.37
```

Unit Hyd Qpeak (cms)= 1.074

```
PEAK FLOW (cms)= 0.406 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 59.578
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.589
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0883)|
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .344E+01 0.0 0.19 78.41
0.07 204.57 .137E+02 0.0 0.30 49.40
0.11 204.61 .309E+02 0.0 0.39 37.70
0.14 204.64 .550E+02 0.0 0.47 31.12
0.18 204.68 .859E+02 0.1 0.55 26.82
0.22 204.72 .124E+03 0.1 0.62 23.75
0.25 204.75 .168E+03 0.1 0.69 21.43
0.29 204.79 .220E+03 0.2 0.75 19.60
```

```
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .971E+02 0.0 0.09 55.71
0.14 208.16 .273E+03 0.1 0.15 35.37
0.22 208.24 .510E+03 0.3 0.19 27.73
0.29 208.31 .808E+03 0.6 0.22 23.40
0.36 208.38 .117E+04 0.9 0.25 20.52
0.44 208.46 .163E+04 1.6 0.30 17.43
0.52 208.54 .216E+04 2.4 0.34 15.27
0.60 208.62 .278E+04 3.4 0.38 13.72
0.68 208.70 .348E+04 4.6 0.41 12.64
0.76 208.78 .427E+04 6.0 0.44 11.82
0.84 208.86 .514E+04 7.7 0.46 11.16
0.92 208.94 .638E+04 9.5 0.46 11.20
0.99 209.01 .792E+04 12.0 0.47 11.01
1.07 209.09 .960E+04 14.9 0.48 10.74
1.15 209.17 .114E+05 18.2 0.49 10.46
1.23 209.25 .134E+05 21.9 0.51 10.19
1.31 209.33 .156E+05 26.1 0.52 9.92
1.39 209.41 .179E+05 30.9 0.53 9.65
1.47 209.49 .204E+05 36.1 0.55 9.40
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4201) 41.20 1.53 3.50 61.30 0.44 0.29
OUTFLOW: ID= 1 ( 0882) 41.20 1.49 3.67 61.29 0.43 0.29
```

```
| ADD HYD ( 4200)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 0420): 25.80 0.881 4.67 61.20
+ ID2= 2 ( 0882): 41.20 1.487 3.67 61.29
=====
ID = 3 ( 4200): 67.00 2.338 4.17 61.26
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYO ( 0440)| Area (ha)= 31.60 Curve Number (CN)= 84.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.04 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.16
```

Unit Hyd Qpeak (cms)= 1.040

Model With SWM Infrastructure - Output

PEAK FLOW (cms)= 1.099 (i)
TIME TO PEAK (hrs)= 4.750
RUNOFF VOLUME (mm)= 62.832
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.621

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0442)	Area (ha)= 2.40	Curve Number (CN)= 84.9	
ID= 1 DT= 5.0 min	Ia (mm)= 6.77	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.41		

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.100 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 63.866
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.631

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0443)	Area (ha)= 21.30	Curve Number (CN)= 83.9	
ID= 1 DT= 5.0 min	Ia (mm)= 7.31	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.59		

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)= 0.827 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 61.803
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.611

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0451)	Area (ha)= 12.30	Curve Number (CN)= 84.3	
ID= 1 DT= 5.0 min	Ia (mm)= 7.09	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.57		

Unit Hyd Qpeak (cms)= 0.824

	0.0600	0.2060	0.9900	0.5538
	0.1750	0.2530	1.5230	0.6074

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0043)	22.900	0.981	2.08	71.11
OUTFLOW: ID= 1 (0873)	22.900	0.818	3.58	71.09

PEAK FLOW REDUCTION [Qout/Qin](%)= 83.42
TIME SHIFT OF PEAK FLOW (min)= 90.00
MAXIMUM STORAGE USED (ha.m.)= 0.5322

CALIB			
STANDHYD (0045)	Area (ha)= 1.30		
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00	Dir. Conn.(%)= 35.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.84	0.46
Dep. Storage (mm)=	1.00	8.92
Average Slope (%)=	1.00	2.00
Length (m)=	93.09	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.(mm/hr)=	26.31	30.95
over (min)=	5.00	20.00
Storage Coeff. (min)=	4.17 (ii)	15.46 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.24	0.07

			TOTALS
PEAK FLOW (cms)=	0.03	0.04	0.067 (iii)
TIME TO PEAK (hrs)=	2.00	3.08	2.08
RUNOFF VOLUME (mm)=	100.20	64.33	76.88
TOTAL RAINFALL (mm)=	101.20	101.20	101.20
RUNOFF COEFFICIENT =	0.99	0.64	0.76

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4345)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)

PEAK FLOW (cms)= 0.487 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 62.627
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.619

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0043)	Area (ha)= 22.90		
ID= 1 DT= 5.0 min	Total Imp(%)= 49.00	Dir. Conn.(%)= 40.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	11.22	11.68
Dep. Storage (mm)=	1.00	8.92
Average Slope (%)=	1.00	2.00
Length (m)=	390.73	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.(mm/hr)=	26.31	14.98
over (min)=	10.00	25.00
Storage Coeff. (min)=	9.87 (ii)	24.95 (ii)
Unit Hyd. Tpeak (min)=	10.00	25.00
Unit Hyd. peak (cms)=	0.11	0.05

			TOTALS
PEAK FLOW (cms)=	0.67	0.45	0.981 (iii)
TIME TO PEAK (hrs)=	2.08	3.25	2.08
RUNOFF VOLUME (mm)=	100.20	51.71	71.11
TOTAL RAINFALL (mm)=	101.20	101.20	101.20
RUNOFF COEFFICIENT =	0.99	0.51	0.70

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0873)	OVERFLOW IS OFF			
IN= 2----> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2250	0.3008
	0.0240	0.0325	0.2650	0.3494
	0.0370	0.0741	0.2990	0.3993
	0.0460	0.1156	0.3290	0.4497
	0.0530	0.1607	0.5720	0.5013

ID1= 1 (0045):	1.30	0.067	2.08	76.88
+ ID2= 2 (0873):	22.90	0.818	3.58	71.09
=====				
ID = 3 (4345):	24.20	0.868	3.58	71.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893)	
IN= 2----> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	208.29	0.0300		
3.73	208.14	0.0300 / 0.0350	Main Channel	
5.30	207.52	0.0350	Main Channel	
6.93	208.18	0.0350 / 0.0300	Main Channel	
8.96	208.27	0.0300		
14.71	208.30	0.0300		
23.86	208.59	0.0300		

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

	AREA	<---- hydrograph ---->		<-pipe / channel->	
	(ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)
INFLOW : ID= 2 (4345)	24.20	0.87	3.58	71.40	0.72
OUTFLOW: ID= 1 (0893)	24.20	0.87	3.67	71.40	0.72

Model With SWM Infrastructure - Output

```
| ADD HYD ( 4510) |
| 1 + 2 = 3 |
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0451):	12.30	0.487	3.25	62.63
+ ID2= 2 (0893):	24.20	0.866	3.67	71.40
=====				
ID = 3 (4510):	36.50	1.339	3.58	68.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0892) |
| IN= 2--> OUT= 1 |
```

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.279E+01	0.0	0.48	3.92
0.24	212.03	.112E+02	0.1	0.76	2.47
0.36	212.15	.251E+02	0.2	0.99	1.89
0.48	212.27	.446E+02	0.5	1.20	1.56
0.61	212.40	.697E+02	0.9	1.40	1.34
0.73	212.52	.220E+03	1.8	0.91	2.07
0.85	212.64	.616E+03	4.9	0.89	2.11
0.97	212.76	.113E+04	10.4	1.04	1.81
1.09	212.88	.175E+04	18.9	1.21	1.54
1.21	213.00	.243E+04	30.5	1.42	1.32
1.33	213.12	.315E+04	44.8	1.60	1.17
1.45	213.24	.392E+04	61.6	1.77	1.06
1.57	213.36	.473E+04	81.0	1.93	0.97
1.70	213.49	.558E+04	103.1	2.08	0.90
1.82	213.61	.648E+04	127.8	2.22	0.85
1.94	213.73	.742E+04	155.2	2.35	0.80
2.06	213.85	.841E+04	187.2	2.50	0.75

0.39	205.58	.503E+02	0.1	0.43	6.79
0.44	205.63	.621E+02	0.2	0.46	6.33
0.48	205.67	.752E+02	0.2	0.49	5.97
0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4411):	57.80	2.15	3.50	66.00	0.83	0.53
OUTFLOW: ID= 1 (0891):	57.80	2.14	3.58	66.00	0.83	0.53

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
| CALIB
| STANDHYD ( 0441) |
| ID= 1 DT= 5.0 min |
```

Area (ha)= 3.00
Total Imp(%)= 45.00 Dir. Conn.(%)= 35.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.35	1.65
Dep. Storage (mm)=	1.00	3.58
Average Slope (%)=	2.00	2.00
Length (m)=	141.42	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	26.31	22.88
over (min)	5.00	20.00
Storage Coeff. (min)=	4.36 (ii)	17.09 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.23	0.06
TOTALS		
PEAK FLOW (cms)=	0.08	0.09
TIME TO PEAK (hrs)=	2.08	2.25
RUNOFF VOLUME (mm)=	100.20	72.38
TOTAL RAINFALL (mm)=	101.20	101.20
RUNOFF COEFFICIENT =	0.99	0.72
		0.81

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)

2.18	213.97	.941E+04	223.3	2.67	0.70
2.37	214.16	.114E+05	288.4	2.85	0.66

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4510):	36.50	1.34	3.58	68.44	0.67	1.09
OUTFLOW: ID= 1 (0892):	36.50	1.34	3.58	68.44	0.67	1.09

```
| ADD HYD ( 4411) |
| 1 + 2 = 3 |
```

ID1= 1 (0443):	21.30	0.827	3.33	61.80
+ ID2= 2 (0892):	36.50	1.337	3.58	68.44
=====				
ID = 3 (4411):	57.80	2.152	3.50	66.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0891) |
| IN= 2--> OUT= 1 |
```

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	206.70	0.0400	
2.35	206.02	0.0400 / 0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 / 0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 / 0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.621E+00	0.0	0.10	29.40
0.09	205.28	.248E+01	0.0	0.16	18.52
0.13	205.32	.559E+01	0.0	0.21	14.13
0.17	205.36	.994E+01	0.0	0.25	11.67
0.22	205.41	.155E+02	0.0	0.29	10.05
0.26	205.45	.224E+02	0.0	0.33	8.90
0.31	205.50	.304E+02	0.1	0.37	8.03
0.35	205.54	.398E+02	0.1	0.40	7.35

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4410) |
| 1 + 2 = 3 |
```

ID1= 1 (0441):	3.00	0.168	2.08	82.11
+ ID2= 2 (0891):	57.80	2.142	3.58	66.00
=====				
ID = 3 (4410):	60.80	2.264	3.58	66.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 4401) |
| 1 + 2 = 3 |
```

ID1= 1 (4410):	60.80	2.264	3.58	66.79
+ ID2= 2 (0442):	2.40	0.100	3.17	63.87
=====				
ID = 3 (4401):	63.20	2.356	3.58	66.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0889) |
| IN= 2--> OUT= 1 |
```

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	206.70	0.0400	
2.35	206.02	0.0400 / 0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 / 0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 / 0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.272E+01	0.0	0.09	142.50
0.09	205.28	.109E+02	0.0	0.14	89.77
0.13	205.32	.245E+02	0.0	0.19	68.51

Model With SWM Infrastructure - Output

0.17	205.36	.435E+02	0.0	0.23	56.55
0.22	205.41	.679E+02	0.0	0.26	48.73
0.26	205.45	.978E+02	0.0	0.30	43.16
0.31	205.50	.133E+03	0.1	0.33	38.94
0.35	205.54	.174E+03	0.1	0.36	35.63
0.39	205.58	.220E+03	0.1	0.39	32.93
0.44	205.63	.272E+03	0.1	0.42	30.70
0.48	205.67	.329E+03	0.2	0.44	28.96
0.52	205.71	.418E+03	0.2	0.36	35.92
0.57	205.76	.563E+03	0.3	0.34	37.36
0.61	205.80	.765E+03	0.4	0.35	36.28
0.66	205.85	.102E+04	0.5	0.37	34.31
0.70	205.89	.134E+04	0.7	0.40	32.17
0.74	205.93	.171E+04	0.9	0.43	30.13
0.79	205.98	.214E+04	1.3	0.45	28.27
0.83	206.02	.263E+04	1.6	0.48	26.60

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4401)	63.20	2.36	3.58	66.68	0.83	0.48
OUTFLOW: ID= 1 (0889)	63.20	2.25	4.25	66.67	0.83	0.48

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (4400)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0440):	31.60	1.099	4.75	62.83
+ ID2= 2 (0889):	63.20	2.247	4.25	66.67
=====				
ID = 3 (4400):	94.80	3.338	4.42	65.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0888)	ROUTING time step (min)'= 5.00		
IN= 2---> OUT= 1			
<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 / 0.0350	Main Channel
43.44	208.24	0.0350	Main Channel

Storage Coeff. (min)=	7.76 (ii)	18.84 (ii)	
Unit Hyd. Tpeak (min)=	10.00	20.00	
Unit Hyd. peak (cms)=	0.13	0.06	
TOTALS			
PEAK FLOW (cms)=	1.05	0.28	1.310 (iii)
TIME TO PEAK (hrs)=	2.08	2.33	2.08
RUNOFF VOLUME (mm)=	100.20	69.19	90.90
TOTAL RAINFALL (mm)=	101.20	101.20	101.20
RUNOFF COEFFICIENT =	0.99	0.68	0.90

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0872)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min				
OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)	
0.0000	0.0000	0.1660	0.5172	
0.0250	0.1344	0.2260	0.5585	
0.0390	0.2425	0.5260	0.7280	
0.0530	0.3962	0.9350	0.9090	
0.0540	0.4360	1.2810	1.0589	
0.0760	0.4361	2.3680	1.5187	
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
INFLOW : ID= 2 (0042)	20.500	1.310	2.08	90.90
OUTFLOW: ID= 1 (0872)	20.500	0.777	5.08	90.83

PEAK FLOW REDUCTION [Qout/Qin](%)=	59.32
TIME SHIFT OF PEAK FLOW (min)=	180.00
MAXIMUM STORAGE USED (ha.m.)=	0.8391

ROUTE CHN(0898)	ROUTING time step (min)'= 5.00		
IN= 2---> OUT= 1			
<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	101.50	0.0500	
1.00	100.70	0.0500	
1.50	100.55	0.0500 / 0.0300	Main Channel
2.00	99.50	0.0300	Main Channel
3.50	99.60	0.0300	Main Channel

45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	
77.43	209.05	0.0400	
128.85	209.70	0.0400	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	208.30	.519E+01	0.0	0.09	43.50
0.13	208.37	.208E+02	0.0	0.15	27.40
0.19	208.43	.467E+02	0.0	0.19	20.91
0.25	208.49	.830E+02	0.1	0.24	17.26
0.32	208.56	.130E+03	0.1	0.27	14.88
0.38	208.62	.187E+03	0.2	0.31	13.17
0.46	208.70	.365E+03	0.5	0.31	13.03
0.54	208.78	.674E+03	0.9	0.32	12.89
0.62	208.86	.113E+04	1.5	0.33	12.23
0.70	208.94	.176E+04	2.5	0.35	11.61
0.78	209.02	.258E+04	3.9	0.37	10.95
0.86	209.10	.358E+04	5.8	0.40	10.27
0.94	209.18	.475E+04	8.2	0.42	9.62
1.02	209.26	.608E+04	11.2	0.45	9.04
1.10	209.34	.758E+04	14.8	0.48	8.53
1.18	209.42	.927E+04	18.8	0.50	8.21
1.26	209.50	.112E+05	23.6	0.52	7.88
1.34	209.58	.133E+05	29.3	0.54	7.57
1.42	209.66	.157E+05	35.9	0.56	7.26

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4400)	94.80	3.34	4.42	65.39	0.75	0.36
OUTFLOW: ID= 1 (0888)	94.80	3.33	4.58	65.39	0.74	0.36

CALIB	Area (ha)=	Dir. Conn.(%)=
STANDHYD (0042)	20.50	70.00
ID= 1 DT= 5.0 min	Total Imp(%)= 83.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	17.01	3.49
Dep. Storage (mm)=	1.00	6.98
Average Slope (%)=	2.00	2.00
Length (m)=	369.68	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	26.31	32.35
over (min)	10.00	20.00

4.50	100.65	0.0300 / 0.0500	Main Channel
6.00	101.45	0.0500	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.10	99.60	.152E+02	0.0	0.19	18.79
0.19	99.69	.482E+02	0.1	0.37	9.79
0.29	99.79	.840E+02	0.2	0.49	7.32
0.38	99.88	.123E+03	0.3	0.59	6.12
0.48	99.98	.164E+03	0.5	0.67	5.38
0.57	100.07	.208E+03	0.7	0.74	4.87
0.67	100.17	.255E+03	0.9	0.80	4.49
0.76	100.26	.305E+03	1.2	0.86	4.19
0.86	100.36	.358E+03	1.5	0.91	3.95
0.95	100.45	.413E+03	1.8	0.96	3.75
1.05	100.55	.471E+03	2.2	1.00	3.58
1.16	100.66	.547E+03	2.7	1.07	3.35
1.28	100.78	.635E+03	3.4	1.14	3.14
1.39	100.89	.732E+03	4.1	1.20	2.99
1.50	101.00	.838E+03	4.9	1.25	2.86
1.61	101.11	.952E+03	5.8	1.30	2.76
1.72	101.22	.107E+04	6.7	1.34	2.67
1.84	101.34	.120E+04	7.7	1.38	2.60
1.95	101.45	.134E+04	8.8	1.41	2.54

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0872)	20.50	0.78	5.08	90.83	0.60	0.75
OUTFLOW: ID= 1 (0898)	20.50	0.78	5.08	90.83	0.60	0.75

CALIB	Area (ha)=	Dir. Conn.(%)=
STANDHYD (0044)	8.90	20.00
ID= 1 DT= 5.0 min	Total Imp(%)= 41.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	3.65	5.25
Dep. Storage (mm)=	1.00	8.04
Average Slope (%)=	2.00	2.00
Length (m)=	243.58	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	26.31	20.04
over (min)	5.00	20.00
Storage Coeff. (min)=	6.04 (ii)	19.46 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00

Model With SWM Infrastructure - Output

```
Unit Hyd. peak (cms)=      0.19      0.06      *TOTALS*
PEAK FLOW (cms)=      0.13      0.27      0.371 (iii)
TIME TO PEAK (hrs)=      2.08      3.17      3.08
RUNOFF VOLUME (mm)=      100.20      58.78      67.06
TOTAL RAINFALL (mm)=      101.20      101.20      101.20
RUNOFF COEFFICIENT =      0.99      0.58      0.66
```

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4244) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0044):      8.90      0.371      3.08      67.06
+ ID2= 2 ( 0098):      20.50      0.777      5.08      90.83
=====
ID = 3 ( 4244):      29.40      1.075      5.08      83.63
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0897) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          214.06      0.0500
6.27          213.95      0.0500
20.38         214.11      0.0500
25.18         213.97      0.0500 /0.0350 Main Channel
28.59         211.79      0.0350 Main Channel
32.89         214.16      0.0350 /0.0500 Main Channel
42.61         212.54      0.0500
59.11         212.41      0.0500
84.10         212.83      0.0500
100.76        213.78      0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV. TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.12      211.91      .140E+02      0.0            0.17          55.64
```

```
89.86      209.20      0.0350 /0.0300 Main Channel
96.27      209.24      0.0300
103.53     209.40      0.0300
127.96     209.50      0.0300
158.58     209.70      0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV. TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.03      208.90      .143E+01      0.0            0.09          20.80
0.07      208.94      .572E+01      0.0            0.14          13.11
0.10      208.97      .129E+02      0.0            0.18          10.00
0.13      209.00      .229E+02      0.0            0.22          8.26
0.17      209.04      .357E+02      0.1            0.26          7.11
0.20      209.07      .514E+02      0.1            0.29          6.30
0.23      209.10      .700E+02      0.2            0.32          5.69
0.26      209.13      .915E+02      0.3            0.35          5.20
0.30      209.17      .116E+03      0.4            0.38          4.81
0.33      209.20      .143E+03      0.5            0.41          4.48
0.37      209.24      .239E+03      0.8            0.37          5.02
0.40      209.27      .396E+03      1.3            0.35          5.26
0.44      209.31      .589E+03      1.9            0.36          5.13
0.47      209.34      .818E+03      2.8            0.38          4.89
0.51      209.38      .108E+04      3.9            0.40          4.63
0.54      209.41      .139E+04      5.2            0.41          4.46
0.58      209.45      .175E+04      6.7            0.43          4.33
0.61      209.48      .218E+04      8.7            0.44          4.17
0.65      209.52      .266E+04      11.2           0.46          3.98
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4301) 124.20      4.37      4.67      69.71      0.52      0.40
OUTFLOW: ID= 1 ( 0887) 124.20      4.37      4.75      69.71      0.52      0.40
```

```
| CALIB |
| NASHYD ( 0430) |
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 19.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.13
```

```
Unit Hyd Qpeak (cms)= 0.669
PEAK FLOW (cms)= 0.675 (i)
TIME TO PEAK (hrs)= 4.750
RUNOFF VOLUME (mm)= 61.197
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.605
```

```
0.24      212.03      .559E+02      0.0            0.27      35.05
0.36      212.15      .126E+03      0.1            0.35      26.75
0.48      212.27      .224E+03      0.2            0.43      22.08
0.61      212.40      .350E+03      0.3            0.49      19.03
0.73      212.52      .110E+04      0.6            0.32      29.36
0.85      212.64      .309E+04      1.7            0.31      29.92
0.97      212.76      .566E+04      3.7            0.37      25.67
1.09      212.88      .878E+04      6.7            0.43      21.92
1.21      213.00      .122E+05      10.8           0.50      18.80
1.33      213.12      .158E+05      15.8           0.57      16.63
1.45      213.24      .196E+05      21.8           0.63      15.03
1.57      213.36      .237E+05      28.7           0.68      13.79
1.70      213.49      .280E+05      36.4           0.73      12.81
1.82      213.61      .325E+05      45.2           0.78      12.00
1.94      213.73      .372E+05      54.9           0.83      11.31
2.06      213.85      .422E+05      66.2           0.89      10.62
2.18      213.97      .472E+05      79.0           0.94      9.97
2.37      214.16      .571E+05      102.0          1.01      9.34
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 4244) 29.40      1.07      5.08      83.63      0.78      0.32
OUTFLOW: ID= 1 ( 0897) 29.40      1.06      5.08      83.63      0.77      0.32
```

```
| ADD HYD ( 4301) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0888):      94.80      3.326      4.58      65.39
+ ID2= 2 ( 0897):      29.40      1.062      5.08      83.63
=====
ID = 3 ( 4301):      124.20      4.372      4.67      69.71
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0887) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.52      0.0400
61.99         209.23      0.0400
76.86         209.20      0.0400
82.03         209.20      0.0400 /0.0350 Main Channel
86.30         208.87      0.0350 Main Channel
```

- (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4300) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0430):      19.80      0.675      4.75      61.20
+ ID2= 2 ( 0887):      124.20      4.371      4.75      69.71
=====
ID = 3 ( 4300):      144.00      5.046      4.75      68.54
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0886) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.20      0.0400
100.00         206.26      0.0400
111.30         206.19      0.0400 /0.0350 Main Channel
112.02         205.76      0.0350 Main Channel
113.82         205.37      0.0350 Main Channel
115.62         206.03      0.0350 /0.0400 Main Channel
117.77         207.30      0.0400
120.56         207.40      0.0400
124.41         207.31      0.0400
129.31         207.24      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV. TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.09      205.46      .110E+02      0.0            0.11          51.32
0.19      205.56      .438E+02      0.0            0.17          32.33
0.28      205.65      .986E+02      0.1            0.23          24.67
0.38      205.75      .175E+03      0.1            0.27          20.37
0.47      205.84      .271E+03      0.3            0.33          16.94
0.57      205.94      .379E+03      0.4            0.38          14.73
0.66      206.03      .501E+03      0.6            0.42          13.19
0.76      206.13      .644E+03      0.9            0.48          11.58
0.86      206.23      .845E+03      1.3            0.51          10.89
0.96      206.33      .140E+04      1.9            0.46          12.13
1.06      206.43      .209E+04      2.9            0.46          12.20
1.16      206.53      .290E+04      4.1            0.47          11.82
1.26      206.63      .383E+04      5.6            0.49          11.31
1.37      206.74      .489E+04      7.6            0.52          10.78
1.47      206.84      .607E+04      9.8            0.54          10.28
```

Model With SWM Infrastructure - Output

1.57	206.94	.737E+04	12.5	0.57	9.81
1.67	207.04	.879E+04	15.6	0.60	9.38
1.77	207.14	.103E+05	19.2	0.62	8.99
1.87	207.24	.120E+05	23.2	0.65	8.63

<---- hydrograph <----> <-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLW : ID= 2 (4300)	144.00	5.05	4.75	68.54	1.23
OUTFLOW: ID= 1 (0886)	144.00	5.03	5.08	68.54	1.22

CALIB					
NASHYD (0411)	Area (ha)=	4.50	Curve Number (CN)=	86.7	
ID= 1 DT= 5.0 min	Ia (mm)=	5.84	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.11			

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW (cms)= 0.169 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 67.698
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.669

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4110)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0411):	4.50	0.169	4.33	67.70	
+ ID2= 2 (0886):	144.00	5.025	5.08	68.54	
=====					
ID = 3 (4110):	148.50	5.192	5.00	68.51	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0885)					
IN= 2----> OUT= 1	Routing time step (min)'=	5.00			

Distance	Elevation	Manning
0.00	208.48	0.0500
43.69	207.97	0.0500

66.92	207.94	0.0500			
76.98	208.01	0.0500			
87.94	208.25	0.0500			
89.93	208.44	0.0500 / 0.0350	Main Channel		
92.70	208.20	0.0350	Main Channel		
95.51	207.28	0.0350	Main Channel		
98.26	208.25	0.0350	Main Channel		

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	207.33	.134E+01	0.0	0.06	52.81
0.10	207.38	.536E+01	0.0	0.10	33.27
0.15	207.43	.121E+02	0.0	0.13	25.39
0.19	207.47	.214E+02	0.0	0.15	20.96
0.24	207.52	.335E+02	0.0	0.18	18.06
0.29	207.57	.483E+02	0.1	0.20	15.99
0.34	207.62	.657E+02	0.1	0.22	14.43
0.39	207.67	.858E+02	0.1	0.24	13.20
0.44	207.72	.109E+03	0.1	0.26	12.21
0.48	207.76	.134E+03	0.2	0.28	11.38
0.53	207.81	.162E+03	0.3	0.30	10.68
0.58	207.86	.193E+03	0.3	0.32	10.08
0.63	207.91	.227E+03	0.4	0.34	9.55
0.68	207.96	.295E+03	0.5	0.32	10.12
0.73	208.01	.613E+03	0.7	0.22	14.89
0.78	208.06	.103E+04	1.0	0.20	16.42
0.82	208.10	.150E+04	1.5	0.20	16.27
0.87	208.15	.204E+04	2.2	0.21	15.61
0.92	208.20	.264E+04	3.0	0.22	14.84

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLW : ID= 2 (4110)	148.50	5.19	5.00	68.51	0.92
OUTFLOW: ID= 1 (0885)	148.50	5.18	5.25	68.51	0.92

CALIB					
NASHYD (0041)	Area (ha)=	25.40	Curve Number (CN)=	83.6	
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.21			

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.858 (i)
TIME TO PEAK (hrs)= 5.083

RUNOFF VOLUME (mm)= 61.197
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0894)					
IN= 2----> OUT= 1	Routing time step (min)'=	5.00			

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 / 0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.523E+01	0.0	0.10	36.03
0.24	212.03	.209E+02	0.0	0.15	22.70
0.36	212.15	.471E+02	0.0	0.20	17.32
0.48	212.27	.837E+02	0.1	0.25	14.30
0.61	212.40	.131E+03	0.2	0.29	12.32
0.73	212.52	.412E+03	0.4	0.18	19.01
0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62
1.09	212.88	.328E+04	3.9	0.25	14.19
1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLW : ID= 2 (0041)	25.40	0.86	5.08	61.20	0.82
					0.18

OUTFLOW: ID= 1 (0894) 25.40 0.85 5.33 61.20 0.82 0.18

CALIB					
NASHYD (0040)	Area (ha)=	37.50	Curve Number (CN)=	84.2	
ID= 1 DT= 5.0 min	Ia (mm)=	7.14	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.98			

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 1.335 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 62.427
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0040):	37.50	1.335	4.17	62.43	
+ ID2= 2 (0894):	25.40	0.846	5.33	61.20	
=====					
ID = 3 (4140):	62.90	2.148	4.75	61.93	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4101)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (4140):	62.90	2.148	4.75	61.93	
+ ID2= 2 (0885):	148.50	5.175	5.25	68.51	
=====					
ID = 3 (4101):	211.40	7.312	5.17	66.55	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0884)					
IN= 2----> OUT= 1	Routing time step (min)'=	5.00			

<----- DATA FOR SECTION (1.1) <----->

Model With SWM Infrastructure - Output

Distance	Elevation	Manning
0.00	204.63	0.0400
45.24	204.34	0.0400
94.52	203.98	0.0400
140.93	203.58	0.0400
148.77	203.72	0.0400 / 0.0350
154.30	202.99	0.0350
158.02	203.77	0.0350 / 0.0400
174.30	203.79	0.0400
222.94	204.38	0.0400
285.62	204.03	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.620E+01	0.0	0.11	58.30
0.10	203.09	.248E+02	0.0	0.17	36.73
0.16	203.15	.558E+02	0.0	0.22	28.03
0.21	203.20	.992E+02	0.1	0.27	23.14
0.26	203.25	.155E+03	0.1	0.31	19.94
0.31	203.30	.223E+03	0.2	0.35	17.66
0.37	203.36	.304E+03	0.3	0.39	15.93
0.42	203.41	.397E+03	0.5	0.42	14.58
0.47	203.46	.502E+03	0.6	0.46	13.47
0.52	203.51	.620E+03	0.8	0.49	12.56
0.57	203.56	.750E+03	1.1	0.52	11.79
0.63	203.62	.934E+03	1.3	0.53	11.56
0.68	203.67	.129E+04	1.7	0.50	12.36
0.73	203.72	.184E+04	2.3	0.47	13.20
0.79	203.78	.270E+04	3.4	0.47	13.22
0.85	203.84	.412E+04	5.1	0.45	13.57
0.92	203.91	.583E+04	7.3	0.47	13.24
0.98	203.97	.783E+04	10.3	0.49	12.69
1.04	204.03	.101E+05	13.9	0.51	12.15

<---- hydrograph ---->					
<-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (4101)	211.40	7.31	5.17	66.55	0.92
OUTFLOW: ID= 1 (0884)	211.40	7.28	5.33	66.55	0.91

CALIB					
NASHYD (0410)					
ID= 1 DT= 5.0 min					
Area	(ha)=	8.50	Curve Number	(CN)=	85.5
Ia	(mm)=	6.46	# of Linear Res.(N)=	3.00	
U.H. Tp(hrs)=	0.94				

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.318 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 65.127
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.644

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4100)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0410):	8.50	0.318	3.92	65.13	
+ ID2= 2 (0884):	211.40	7.285	5.33	66.55	
=====					
ID = 3 (4100):	219.90	7.582	5.33	66.50	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0401)					
ID= 1 DT= 5.0 min					
Area	(ha)=	23.00	Curve Number	(CN)=	83.1
Ia	(mm)=	7.74	# of Linear Res.(N)=	3.00	
U.H. Tp(hrs)=	0.78				

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.824 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 60.191
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.595

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4001)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0401):	23.00	0.824	3.67	60.19	
+ ID2= 2 (4100):	219.90	7.582	5.33	66.50	
=====					
ID = 3 (4001):	242.90	8.340	5.25	65.90	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4001)					
3 + 2 = 1					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 3 (4001):	242.90	8.340	5.25	65.90	
+ ID2= 2 (4200):	67.00	2.338	4.17	61.26	
=====					
ID = 1 (4001):	309.90	10.607	5.17	64.90	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0880)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	204.63	0.0400			
45.24	204.34	0.0400			
94.52	203.98	0.0400			
140.93	203.58	0.0400			
148.77	203.72	0.0400 / 0.0350	Main Channel		
154.30	202.99	0.0350	Main Channel		
158.02	203.77	0.0350 / 0.0400	Main Channel		
174.30	203.79	0.0400			
222.94	204.38	0.0400			
285.62	204.03	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.647E+01	0.0	0.11	59.17
0.10	203.09	.259E+02	0.0	0.17	37.28
0.16	203.15	.582E+02	0.0	0.23	28.45
0.21	203.20	.103E+03	0.1	0.27	23.48
0.26	203.25	.162E+03	0.1	0.32	20.24
0.31	203.30	.233E+03	0.2	0.36	17.92
0.37	203.36	.317E+03	0.3	0.40	16.17
0.42	203.41	.414E+03	0.5	0.43	14.79
0.47	203.46	.524E+03	0.6	0.47	13.68
0.52	203.51	.647E+03	0.8	0.50	12.75
0.57	203.56	.782E+03	1.1	0.54	11.96
0.63	203.62	.974E+03	1.4	0.55	11.73
0.68	203.67	.135E+04	1.8	0.51	12.55
0.73	203.72	.192E+04	2.4	0.48	13.39
0.79	203.78	.282E+04	3.5	0.48	13.41
0.85	203.84	.430E+04	5.2	0.47	13.77
0.92	203.91	.608E+04	7.5	0.48	13.44
0.98	203.97	.816E+04	10.6	0.50	12.88
1.04	204.03	.105E+05	14.2	0.52	12.33

<---- hydrograph ---->					
<-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (4001)	309.90	10.61	5.17	64.90	0.98
OUTFLOW: ID= 1 (0880)	309.90	10.57	5.33	64.90	0.98

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB					
NASHYD (0400)					
ID= 1 DT= 5.0 min					
Area	(ha)=	27.60	Curve Number	(CN)=	83.8
Ia	(mm)=	7.36	# of Linear Res.(N)=	3.00	
U.H. Tp(hrs)=	0.88				

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 0.989 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 61.604
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.609

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4000)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0400):	27.60	0.989	3.92	61.60	
+ ID2= 2 (0880):	309.90	10.567	5.33	64.90	
=====					
ID = 3 (4000):	337.50	11.493	5.33	64.63	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0200)					
ID= 1 DT= 5.0 min					
Area	(ha)=	25.60	Curve Number	(CN)=	82.2
Ia	(mm)=	8.25	# of Linear Res.(N)=	3.00	
U.H. Tp(hrs)=	0.79				

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 0.885 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 58.395

Model With SWM Infrastructure - Output

TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.577

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0023)	Area (ha)=	7.00	Curve Number (CN)=	83.0	
ID= 1 DT= 5.0 min	Ia (mm)=	7.80	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.73			

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.253 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 59.986
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.593

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0022)	Area (ha)=	3.40	Curve Number (CN)=	82.5	
ID= 1 DT= 5.0 min	Ia (mm)=	5.38	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.20			

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.139 (i)
TIME TO PEAK (hrs)= 2.167
RUNOFF VOLUME (mm)= 61.216
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0211)	Area (ha)=	17.30	Curve Number (CN)=	81.3	
ID= 1 DT= 5.0 min	Ia (mm)=	8.76	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.02			

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.558 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 56.642

0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0021)	47.60	1.73	4.00	63.25	0.32	0.53
OUTFLOW: ID= 1 (0871)	47.60	1.71	4.42	63.24	0.32	0.53

ADD HYD (2110)					
1 + 2 = 3					
ID1= 1 (0211):	17.30	0.558	4.58	56.64	
+ ID2= 2 (0022):	3.40	0.139	2.17	61.22	
=====					
ID = 3 (2110):	20.70	0.668	4.83	57.39	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2110)					
3 + 2 = 1					
ID1= 3 (2110):	20.70	0.668	4.83	57.39	
+ ID2= 2 (0871):	47.60	1.709	4.42	63.24	
=====					
ID = 1 (2110):	68.30	2.377	4.42	61.47	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0220)	Area (ha)=	20.30	Curve Number (CN)=	81.6	
ID= 1 DT= 5.0 min	Ia (mm)=	8.59	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.85			

TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.560

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0021)	Area (ha)=	47.60	Curve Number (CN)=	84.6	
ID= 1 DT= 5.0 min	Ia (mm)=	6.93	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.93			

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 1.734 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 63.248
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.625

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0871)					
IN= 2----> OUT= 1					
	Routing time step (min)='	5.00			

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.49	0.0400			
35.71	208.88	0.0400			
53.04	208.89	0.0400			
64.12	208.50	0.0400 / 0.0350	Main Channel		
70.77	208.05	0.0350	Main Channel		
74.98	208.02	0.0350	Main Channel		
83.40	208.38	0.0350 / 0.0400	Main Channel		
88.06	208.63	0.0400			
94.94	209.13	0.0400			
105.88	209.54	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42
0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)= 0.678 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 57.221
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.565

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0020)	Area (ha)=	12.60	Curve Number (CN)=	82.4	
ID= 1 DT= 5.0 min	Ia (mm)=	8.13	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.72			

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.447 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 58.796
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)					
IN= 2----> OUT= 1					
	Routing time step (min)='	5.00			

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.00	0.0400			
33.24	205.47	0.0400			
44.39	205.59	0.0400			
48.71	205.45	0.0400 / 0.0350	Main Channel		
51.02	204.50	0.0350	Main Channel		
54.33	205.44	0.0350 / 0.0400	Main Channel		
55.90	204.97	0.0400			
62.96	204.91	0.0400			
102.92	205.20	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56

Model With SWM Infrastructure - Output

0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46
0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.05

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0820)	12.60	0.45	3.58	58.80	0.43	0.73
OUTFLOW: ID= 1 (0875)	12.60	0.44	4.00	58.76	0.43	0.73

ADD HYD (2200)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0220):	20.30	0.678	4.00	57.22
+ ID2= 2 (0875):	12.60	0.438	4.00	58.76
=====				
ID = 3 (2200):	32.90	1.116	4.00	57.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2110):	68.30	2.377	4.42	61.47
+ ID2= 2 (2200):	32.90	1.116	4.00	57.81
=====				
ID = 3 (2101):	101.20	3.483	4.33	60.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)

IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350 Main Channel
86.30	208.87	0.0350 Main Channel
89.86	209.20	0.0350 / 0.0300 Main Channel
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2101)	101.20	3.48	4.33	60.28	0.48	0.45
OUTFLOW: ID= 1 (0870)	101.20	3.47	4.67	60.28	0.48	0.45

CALIB
NASHYD (0210)
ID= 1 DT= 5.0 min

Area	(ha)=	9.10	Curve Number (CN)=	82.3
Ia	(mm)=	8.19	# of Linear Res.(N)=	3.00

U.H. Tp(hrs)= 0.64

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW (cms)= 0.329 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 58.594
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.579

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2100)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0210):	9.10	0.329	3.42	58.59
+ ID2= 2 (0870):	101.20	3.466	4.67	60.28
=====				
ID = 3 (2100):	110.30	3.767	4.58	60.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0230)
ID= 1 DT= 5.0 min

Area	(ha)=	24.70	Curve Number (CN)=	82.9
Ia	(mm)=	7.85	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.82			

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 0.869 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 59.791
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.591

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0231)
ID= 1 DT= 5.0 min

Area	(ha)=	29.50	Curve Number (CN)=	81.9
Ia	(mm)=	8.42	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.89			

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 0.988 (i)

TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 57.806
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.571

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0240)
ID= 1 DT= 5.0 min

Area	(ha)=	10.10	Curve Number (CN)=	82.0
Ia	(mm)=	8.36	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.74			

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.351 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 58.004
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.573

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0241)
ID= 1 DT= 5.0 min

Area	(ha)=	26.70	Curve Number (CN)=	82.3
Ia	(mm)=	8.19	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.75			

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 0.936 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 58.595
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.579

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0864)
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500

Model With SWM Infrastructure - Output

```
25.18      213.97      0.0500 /0.0350 Main Channel
28.59      211.79      0.0350      Main Channel
32.89      214.16      0.0350 /0.0500 Main Channel
42.61      212.54      0.0500
59.11      212.41      0.0500
84.10      212.83      0.0500
100.76     213.78      0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)        (m/s)       (min)
0.12     211.91    .118E+02    0.0           0.27        29.62
0.24     212.03    .471E+02    0.0           0.42        18.66
0.36     212.15    .106E+03    0.1           0.56        14.24
0.48     212.27    .188E+03    0.3           0.67        11.76
0.61     212.40    .294E+03    0.5           0.78        10.13
0.73     212.52    .928E+03    1.0           0.51        15.63
0.85     212.64    .260E+04    2.7           0.50        15.93
0.97     212.76    .477E+04    5.8           0.58        13.67
1.09     212.88    .739E+04    10.6          0.68        11.67
1.21     213.00    .103E+05    17.1          0.79        10.01
1.33     213.12    .133E+05    25.0          0.89        8.85
1.45     213.24    .165E+05    34.4          0.99        8.00
1.57     213.36    .200E+05    45.3          1.08        7.34
1.70     213.49    .236E+05    57.6          1.16        6.82
1.82     213.61    .274E+05    71.4          1.24        6.39
1.94     213.73    .314E+05    86.8          1.31        6.02
2.06     213.85    .355E+05    104.6         1.40        5.66
2.18     213.97    .398E+05    124.9         1.49        5.31
2.37     214.16    .481E+05    161.2         1.59        4.97
```

```
<---- hydrograph ----> <-pipe / channel->
                AREA   QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                (ha)    (cms)  (hrs)  (mm)   (m)        (m/s)
INFLOW : ID= 2 ( 0241) 26.70  0.94  3.58  58.59  0.71  0.53
OUTFLOW: ID= 1 ( 0864) 26.70  0.92  4.17  58.59  0.71  0.53
```

```
ADD HYD ( 2301)
1 + 2 = 3
ID1= 1 ( 0231): 29.50  0.988  4.08  57.81
+ ID2= 2 ( 0240): 10.10  0.351  3.58  58.00
ID = 3 ( 2301): 39.60  1.334  3.92  57.86
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ADD HYD ( 2301)
3 + 2 = 1
ID1= 3 ( 2301): 39.60  1.334  3.92  57.86
+ ID2= 2 ( 0864): 26.70  0.919  4.17  58.59
ID = 1 ( 2301): 66.30  2.251  4.08  58.15
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0863)
IN= 2----> OUT= 1 Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance    Elevation    Manning
0.00        206.70      0.0400
2.35        206.02      0.0400 /0.0350 Main Channel
5.23        205.19      0.0350      Main Channel
5.34        205.67      0.0350      Main Channel
19.05       206.06      0.0350 /0.0400 Main Channel
21.11       206.05      0.0400
22.02       206.13      0.0400 /0.0350
40.10       206.15      0.0350
56.50       206.04      0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)        (m/s)       (min)
0.04     205.23    .138E+01    0.0           0.11        58.11
0.09     205.28    .551E+01    0.0           0.18        36.61
0.13     205.32    .124E+02    0.0           0.23        27.94
0.17     205.36    .220E+02    0.0           0.28        23.06
0.22     205.41    .344E+02    0.0           0.33        19.87
0.26     205.45    .496E+02    0.0           0.37        17.60
0.31     205.50    .675E+02    0.1           0.41        15.88
0.35     205.54    .882E+02    0.1           0.45        14.53
0.39     205.58    .112E+03    0.1           0.48        13.43
0.44     205.63    .138E+03    0.2           0.52        12.52
0.48     205.67    .167E+03    0.2           0.55        11.81
0.52     205.71    .212E+03    0.2           0.44        14.65
0.57     205.76    .285E+03    0.3           0.43        15.23
0.61     205.80    .388E+03    0.4           0.44        14.79
0.66     205.85    .519E+03    0.6           0.47        13.99
0.70     205.89    .679E+03    0.9           0.50        13.12
0.74     205.93    .868E+03    1.2           0.53        12.29
0.79     205.98    .109E+04    1.6           0.56        11.53
0.83     206.02    .133E+04    2.0           0.60        10.85
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<---- hydrograph ----> <-pipe / channel->
                AREA   QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                (ha)    (cms)  (hrs)  (mm)   (m)        (m/s)
INFLOW : ID= 2 ( 2301) 66.30  2.25  4.08  58.15  0.83  0.60
OUTFLOW: ID= 1 ( 0863) 66.30  2.24  4.33  58.15  0.83  0.60
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
ADD HYD ( 2300)
1 + 2 = 3
ID1= 1 ( 0230): 24.70  0.869  3.75  59.79
+ ID2= 2 ( 0863): 66.30  2.245  4.33  58.15
ID = 3 ( 2300): 91.00  3.103  4.17  58.60
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ADD HYD ( 2011)
1 + 2 = 3
ID1= 1 ( 2100): 110.30  3.767  4.58  60.14
+ ID2= 2 ( 2300): 91.00  3.103  4.17  58.60
ID = 3 ( 2011): 201.30  6.852  4.42  59.44
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0862)
IN= 2----> OUT= 1 Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance    Elevation    Manning
0.00        204.63      0.0400
45.24       204.34      0.0400
94.52       203.98      0.0400
140.93      203.58      0.0400
148.77      203.72      0.0400 /0.0350 Main Channel
154.30      202.99      0.0350      Main Channel
158.02      203.77      0.0350 /0.0400 Main Channel
174.30      203.79      0.0400
222.94      204.38      0.0400
```

285.62 204.03 0.0400

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)        (m/s)       (min)
0.05     203.04    .465E+01    0.0           0.10        47.86
0.10     203.09    .186E+02    0.0           0.15        30.15
0.16     203.15    .418E+02    0.0           0.20        23.01
0.21     203.20    .744E+02    0.1           0.24        18.99
0.26     203.25    .116E+03    0.1           0.28        16.37
0.31     203.30    .167E+03    0.2           0.32        14.50
0.37     203.36    .228E+03    0.3           0.35        13.08
0.42     203.41    .297E+03    0.4           0.39        11.97
0.47     203.46    .376E+03    0.6           0.42        11.06
0.52     203.51    .465E+03    0.8           0.45        10.31
0.57     203.56    .562E+03    1.0           0.48        9.68
0.63     203.62    .700E+03    1.2           0.49        9.49
0.68     203.67    .969E+03    1.6           0.45        10.15
0.73     203.72    .138E+04    2.1           0.43        10.83
0.79     203.78    .203E+04    3.1           0.43        10.85
0.85     203.84    .309E+04    4.6           0.41        11.14
0.92     203.91    .437E+04    6.7           0.42        10.87
0.98     203.97    .586E+04    9.4           0.44        10.42
1.04     204.03    .757E+04    12.7          0.46        9.97
```

```
<---- hydrograph ----> <-pipe / channel->
                AREA   QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                (ha)    (cms)  (hrs)  (mm)   (m)        (m/s)
INFLOW : ID= 2 ( 2011) 201.30  6.85  4.42  59.44  0.92  0.43
OUTFLOW: ID= 1 ( 0862) 201.30  6.83  4.67  59.44  0.92  0.43
```

```
CALIB
NASHYD ( 0201) Area (ha)= 8.20 Curve Number (CN)= 82.6
ID= 1 DT= 5.0 min Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.60
```

```
Unit Hyd Qpeak (cms)= 0.522
PEAK FLOW (cms)= 0.303 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 59.190
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.585
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
-----
| ADD HYD ( 2010) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0201): 8.20 0.303 3.33 59.19
+ ID2= 2 ( 0023): 7.00 0.253 3.58 59.99
=====
ID = 3 ( 2010): 15.20 0.555 3.42 59.56
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2010) |
| 3 + 2 = 1 |
-----
ID1= 3 ( 2010): 15.20 0.555 3.42 59.56
+ ID2= 2 ( 0062): 201.30 6.830 4.67 59.44
=====
ID = 1 ( 2010): 216.50 7.339 4.67 59.45
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0860) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.48 0.0500
43.69 207.97 0.0500
66.92 207.94 0.0500
76.98 208.01 0.0500
87.94 208.25 0.0500
89.93 208.44 0.0500 / 0.0350 Main Channel
92.70 208.20 0.0350 Main Channel
95.51 207.28 0.0350 Main Channel
98.26 208.25 0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 207.33 .155E+01 0.0 0.16 23.32
0.10 207.38 .620E+01 0.0 0.25 14.69
0.15 207.43 .140E+02 0.0 0.33 11.21
0.19 207.47 .248E+02 0.0 0.40 9.26
0.24 207.52 .388E+02 0.1 0.47 7.98
0.29 207.57 .558E+02 0.1 0.53 7.06
0.34 207.62 .760E+02 0.2 0.59 6.37
0.39 207.67 .992E+02 0.3 0.64 5.83
```

```
0.44 207.72 .126E+03 0.4 0.69 5.39
0.48 207.76 .155E+03 0.5 0.74 5.03
0.53 207.81 .188E+03 0.7 0.79 4.72
0.58 207.86 .223E+03 0.8 0.84 4.45
0.63 207.91 .262E+03 1.0 0.88 4.22
0.68 207.96 .341E+03 1.3 0.83 4.47
0.73 208.01 .708E+03 1.8 0.57 6.58
0.78 208.06 .119E+04 2.7 0.51 7.25
0.82 208.10 .174E+04 4.0 0.52 7.19
0.87 208.15 .236E+04 5.7 0.54 6.89
0.92 208.20 .305E+04 7.8 0.57 6.55
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2010) 216.50 7.34 4.67 59.45 0.91 0.56
OUTFLOW: ID= 1 ( 0860) 216.50 7.34 4.75 59.45 0.91 0.56
```

```
-----
| ADD HYD ( 2000) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0200): 25.60 0.885 3.75 58.39
+ ID2= 2 ( 0060): 216.50 7.335 4.75 59.45
=====
ID = 3 ( 2000): 242.10 8.187 4.67 59.34
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0300) | Area (ha)= 36.80 Curve Number (CN)= 83.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.90
```

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 1.282 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 60.191
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.595

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0031) | Area (ha)= 3.00 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.62
```

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.114 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 61.331
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.606

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0350) | Area (ha)= 1.50 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.38
```

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.059 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 60.379
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.597

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0850) |
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 / 0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 / 0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0350) 1.50 0.06 3.17 60.38 0.20 0.47
OUTFLOW: ID= 1 ( 0850) 1.50 0.06 3.42 60.06 0.20 0.46
```

```
-----
| CALIB |
| NASHYD ( 0032) | Area (ha)= 28.00 Curve Number (CN)= 83.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.95
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.976 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 60.791
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.601

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 3200) |
| 1 + 2 = 3 |
-----
AREA QPEAK TPEAK R.V.
```

Model With SWM Infrastructure - Output

```
-----
              (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0032): 28.00  0.976  4.17  60.79
+ ID2= 2 ( 0850): 1.50  0.056  3.42  60.06
=====
ID = 3 ( 3200): 29.50  1.028  4.17  60.75
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0301)|
|ID= 1 DT= 5.0 min|
|-----|
| Area (ha)= 59.40 Curve Number (CN)= 82.7
| Ia (mm)= 7.97 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.23
```

Unit Hyd Qpeak (cms)= 1.845

```
PEAK FLOW (cms)= 1.951 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 59.385
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.587
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 3010)|
| 1 + 2 = 3 |
|-----|
| Area QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
ID1= 1 ( 0301): 59.40 1.951 5.17 59.38
+ ID2= 2 ( 3200): 29.50 1.028 4.17 60.75
=====
ID = 3 ( 3010): 88.90 2.951 4.92 59.84
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 3001)|
| 1 + 2 = 3 |
|-----|
| Area QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
ID1= 1 ( 3010): 88.90 2.951 4.92 59.84
+ ID2= 2 ( 0031): 3.00 0.114 3.33 61.33
=====
ID = 3 ( 3001): 91.90 3.051 4.92 59.89
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0852)|
```

| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 /0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 /0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400
124.41 207.31 0.0400
129.31 207.24 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.09 205.46 .132E+02 0.0 0.21 32.83
0.19 205.56 .529E+02 0.0 0.33 20.68
0.28 205.65 .119E+03 0.1 0.43 15.78
0.38 205.75 .212E+03 0.3 0.52 13.03
0.47 205.84 .327E+03 0.5 0.62 10.84
0.57 205.94 .458E+03 0.8 0.72 9.42
0.66 206.03 .604E+03 1.2 0.80 8.44
0.76 206.13 .777E+03 1.7 0.91 7.41
0.86 206.23 .102E+04 2.4 0.97 6.97
0.96 206.33 .168E+04 3.6 0.87 7.76
1.06 206.43 .252E+04 5.4 0.87 7.80
1.16 206.53 .350E+04 7.7 0.89 7.56
1.26 206.63 .463E+04 10.7 0.93 7.24
1.37 206.74 .590E+04 14.3 0.98 6.90
1.47 206.84 .732E+04 18.6 1.03 6.58
1.57 206.94 .889E+04 23.6 1.08 6.28
1.67 207.04 .106E+05 29.5 1.13 6.00
1.77 207.14 .125E+05 36.1 1.17 5.75
1.87 207.24 .145E+05 43.7 1.22 5.52
```

```
<---- hydrograph ----> <-pipe / channel->
              AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
              (ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 3001) 91.90 3.05 4.92 59.89 0.91 0.92
OUTFLOW: ID= 1 ( 0852) 91.90 3.05 5.08 59.89 0.91 0.92
```

```
-----
| ADD HYD ( 3000)|
| 1 + 2 = 3 |
|-----|
| Area QPEAK TPEAK R.V.
```

```
-----
              (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0300): 36.80  1.282  4.00  60.19
+ ID2= 2 ( 0852): 91.90  3.049  5.08  59.89
=====
ID = 3 ( 3000): 128.70  4.297  4.67  59.97
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0030)|
|ID= 1 DT= 5.0 min|
|-----|
| Area (ha)= 1.10 Curve Number (CN)= 81.5
| Ia (mm)= 5.76 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.30
```

Unit Hyd Qpeak (cms)= 0.140

```
PEAK FLOW (cms)= 0.043 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 59.473
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.588
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0854)|
| IN= 2---> OUT= 1 |
|-----|
| Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .753E+00 0.0 0.18 18.23
0.07 204.57 .301E+01 0.0 0.28 11.48
0.11 204.61 .677E+01 0.0 0.37 8.76
0.14 204.64 .120E+02 0.0 0.45 7.23
0.18 204.68 .188E+02 0.1 0.52 6.23
0.22 204.72 .271E+02 0.1 0.58 5.52
0.25 204.75 .369E+02 0.1 0.65 4.98
```

```
0.29 204.79 .482E+02 0.2 0.71 4.56
0.33 204.83 .610E+02 0.2 0.77 4.21
0.36 204.86 .753E+02 0.3 0.82 3.93
0.40 204.90 .911E+02 0.4 0.88 3.69
0.43 204.93 .122E+03 0.5 0.84 3.86
0.47 204.97 .216E+03 0.7 0.67 4.82
0.51 205.01 .361E+03 1.2 0.62 5.23
0.54 205.04 .544E+03 1.7 0.62 5.18
0.58 205.08 .763E+03 2.6 0.65 4.96
0.61 205.11 .102E+04 3.6 0.69 4.70
0.65 205.15 .131E+04 4.9 0.73 4.44
0.69 205.19 .165E+04 6.5 0.77 4.20
```

```
<---- hydrograph ----> <-pipe / channel->
              AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
              (ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0030) 1.10 0.04 3.08 59.47 0.17 0.49
OUTFLOW: ID= 1 ( 0854) 1.10 0.04 3.17 59.46 0.17 0.49
```

```
-----
| CALIB
| NASHYD ( 0340)|
|ID= 1 DT= 5.0 min|
|-----|
| Area (ha)= 21.00 Curve Number (CN)= 82.8
| Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 1.162

```
PEAK FLOW (cms)= 0.762 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 59.587
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.589
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 3400)|
| 1 + 2 = 3 |
|-----|
| Area QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
ID1= 1 ( 0340): 21.00 0.762 3.50 59.59
+ ID2= 2 ( 0854): 1.10 0.043 3.17 59.46
=====
ID = 3 ( 3400): 22.10 0.802 3.42 59.58
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model With SWM Infrastructure - Output

```
-----
| CALIB                                     |
| NASHYD ( 0123) | Area (ha)= 24.60 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 0.846 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 59.791
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.591

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0814) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .923E+01 0.0 0.26 23.49
0.24 212.03 .369E+02 0.0 0.42 14.80
0.36 212.15 .831E+02 0.1 0.55 11.29
0.48 212.27 .148E+03 0.3 0.67 9.32
0.61 212.40 .231E+03 0.5 0.77 8.03
0.73 212.52 .727E+03 1.0 0.50 12.40
0.85 212.64 .204E+04 2.7 0.49 12.63
0.97 212.76 .374E+04 5.7 0.57 10.84
1.09 212.88 .580E+04 10.4 0.67 9.25
1.21 213.00 .804E+04 16.9 0.78 7.94
1.33 213.12 .104E+05 24.8 0.88 7.02
1.45 213.24 .130E+05 34.1 0.98 6.35
1.57 213.36 .157E+05 44.8 1.07 5.82
1.70 213.49 .185E+05 57.0 1.15 5.41
```

```
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .168E+02 0.0 0.26 43.17
0.24 212.03 .671E+02 0.0 0.41 27.20
0.36 212.15 .151E+03 0.1 0.54 20.76
0.48 212.27 .268E+03 0.3 0.66 17.13
0.61 212.40 .419E+03 0.5 0.76 14.77
0.73 212.52 .132E+04 1.0 0.50 22.79
0.85 212.64 .370E+04 2.7 0.49 23.22
0.97 212.76 .679E+04 5.7 0.57 19.92
1.09 212.88 .105E+05 10.3 0.66 17.01
1.21 213.00 .146E+05 16.7 0.77 14.59
1.33 213.12 .189E+05 24.5 0.87 12.90
1.45 213.24 .236E+05 33.7 0.97 11.66
1.57 213.36 .284E+05 44.3 1.05 10.70
1.70 213.49 .336E+05 56.3 1.14 9.94
1.82 213.61 .390E+05 69.8 1.21 9.31
1.94 213.73 .447E+05 84.8 1.28 8.78
2.06 213.85 .506E+05 102.3 1.37 8.24
2.18 213.97 .566E+05 122.0 1.46 7.73
2.37 214.16 .685E+05 157.6 1.56 7.25
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0124) 24.30 1.03 3.17 65.76 0.73 0.49
OUTFLOW: ID= 1 ( 0813) 24.30 0.97 3.75 65.75 0.73 0.50
```

```
-----
| ADD HYD ( 1221) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0813): 24.30 0.966 3.75 65.75
| + ID2= 2 ( 0814): 24.60 0.841 4.50 59.79
|-----|
| ID = 3 ( 1221): 48.90 1.781 4.00 62.75
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0812) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
```

```
1.82 213.61 .215E+05 70.6 1.23 5.06
1.94 213.73 .246E+05 85.8 1.30 4.78
2.06 213.85 .278E+05 103.5 1.38 4.49
2.18 213.97 .312E+05 123.5 1.48 4.21
2.37 214.16 .377E+05 159.4 1.57 3.94
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0123) 24.60 0.85 4.17 59.79 0.69 0.55
OUTFLOW: ID= 1 ( 0814) 24.60 0.84 4.50 59.79 0.69 0.55
```

```
-----
| CALIB                                     |
| NASHYD ( 0124) | Area (ha)= 24.30 Curve Number (CN)= 85.8
| ID= 1 DT= 5.0 min | Ia (mm)= 6.30 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.51
```

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 1.025 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 65.764
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.650

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0813) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
```

```
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .533E+02 0.1 0.24 12.01
0.14 208.16 .150E+03 0.3 0.37 7.63
0.22 208.24 .280E+03 0.8 0.47 5.98
0.29 208.31 .444E+03 1.5 0.56 5.04
0.36 208.38 .642E+03 2.4 0.64 4.42
0.44 208.46 .896E+03 4.0 0.75 3.76
0.52 208.54 .119E+04 6.0 0.86 3.29
0.60 208.62 .153E+04 8.6 0.96 2.96
0.68 208.70 .192E+04 11.7 1.04 2.73
0.76 208.78 .235E+04 15.4 1.11 2.55
0.84 208.86 .283E+04 19.6 1.18 2.41
0.92 208.94 .351E+04 24.2 1.17 2.41
0.99 209.01 .435E+04 30.6 1.19 2.37
1.07 209.09 .528E+04 38.0 1.22 2.31
1.15 209.17 .628E+04 46.4 1.26 2.26
1.23 209.25 .737E+04 55.9 1.29 2.20
1.31 209.33 .855E+04 66.6 1.33 2.14
1.39 209.41 .982E+04 78.7 1.36 2.08
1.47 209.49 .112E+05 92.1 1.40 2.03
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1221) 48.90 1.78 4.00 62.75 0.31 0.59
OUTFLOW: ID= 1 ( 0812) 48.90 1.78 4.00 62.75 0.31 0.58
```

```
-----
| CALIB                                     |
| NASHYD ( 0122) | Area (ha)= 31.80 Curve Number (CN)= 85.1
| ID= 1 DT= 5.0 min | Ia (mm)= 6.67 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.96
```

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 1.170 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 64.286

Model With SWM Infrastructure - Output

TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.635

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1220) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0122): 31.80 1.170 4.00 64.29
+ ID2= 2 ( 0812): 48.90 1.780 4.08 62.75
=====
ID = 3 ( 1220): 80.70 2.950 4.08 63.36
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0811) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.50 0.0400
29.68 206.77 0.0400
43.70 206.13 0.0400 /0.0350 Main Channel
44.99 205.95 0.0350 Main Channel
47.70 206.24 0.0350 /0.0450 Main Channel
60.54 206.32 0.0450
80.11 206.99 0.0450
102.29 207.42 0.0450 /0.0400
132.78 206.84 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 206.01 .147E+02 0.0 0.14 60.26
0.12 206.07 .590E+02 0.0 0.22 37.96
0.18 206.13 .133E+03 0.1 0.29 28.97
0.26 206.21 .302E+03 0.2 0.36 22.81
0.34 206.29 .671E+03 0.5 0.39 21.40
0.42 206.37 .151E+04 1.2 0.39 20.95
0.50 206.45 .254E+04 2.3 0.45 18.38
0.58 206.53 .376E+04 3.7 0.49 16.98
0.66 206.61 .544E+04 5.6 0.51 16.11
0.74 206.69 .764E+04 8.4 0.54 15.19
0.83 206.78 .104E+05 12.1 0.58 14.27
0.91 206.86 .134E+05 17.4 0.64 12.84
0.99 206.94 .166E+05 23.6 0.71 11.71
1.07 207.02 .201E+05 30.7 0.76 10.88
```

PEAK FLOW (cms)= 0.486 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 59.985
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.593

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0844) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 /0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 /0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .107E+01 0.0 0.13 37.04
0.08 207.60 .430E+01 0.0 0.20 23.33
0.12 207.64 .966E+01 0.0 0.27 17.81
0.16 207.68 .172E+02 0.0 0.32 14.70
0.19 207.71 .268E+02 0.0 0.38 12.67
0.23 207.75 .387E+02 0.1 0.42 11.22
0.27 207.79 .526E+02 0.1 0.47 10.12
0.31 207.83 .687E+02 0.1 0.51 9.26
0.35 207.87 .870E+02 0.2 0.56 8.56
0.39 207.91 .107E+03 0.2 0.60 7.98
0.43 207.95 .130E+03 0.3 0.64 7.49
0.47 207.99 .155E+03 0.4 0.67 7.07
0.50 208.02 .181E+03 0.5 0.71 6.70
0.54 208.06 .210E+03 0.6 0.75 6.38
0.58 208.10 .242E+03 0.7 0.78 6.09
0.62 208.14 .275E+03 0.8 0.82 5.83
0.67 208.19 .329E+03 1.0 0.87 5.50
0.72 208.24 .413E+03 1.3 0.89 5.36
0.77 208.29 .540E+03 1.7 0.89 5.45
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0146) 12.80 0.49 3.25 59.98 0.52 0.72
```

1.15	207.10	.239E+05	38.8	0.81	10.26
1.23	207.18	.280E+05	48.0	0.85	9.72
1.31	207.26	.325E+05	58.5	0.89	9.26
1.39	207.34	.373E+05	70.3	0.94	8.84
1.47	207.42	.424E+05	83.4	0.98	8.48

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1220) 80.70 2.95 4.08 63.36 0.54 0.47
OUTFLOW : ID= 1 ( 0811) 80.70 2.92 4.42 63.35 0.54 0.47
```

```
| CALIB
| NASHYD ( 0121) | Area (ha)= 16.10 Curve Number (CN)= 86.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.94 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.632 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 67.267
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.665

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1210) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0121): 16.10 0.632 3.75 67.27
+ ID2= 2 ( 0811): 80.70 2.923 4.42 63.35
=====
ID = 3 ( 1210): 96.80 3.538 4.33 64.00
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0146) | Area (ha)= 12.80 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.55
```

Unit Hyd Qpeak (cms)= 0.889

OUTFLOW: ID= 1 (0844) 12.80 0.48 3.33 59.98 0.52 0.72

```
| CALIB
| NASHYD ( 0145) | Area (ha)= 12.60 Curve Number (CN)= 83.3
| ID= 1 DT= 5.0 min | Ia (mm)= 7.63 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.59
```

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.479 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 60.592
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.599

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1450) |
| 1 + 2 = 3 |
=====
ID1= 1 ( 0145): 12.60 0.479 3.33 60.59
+ ID2= 2 ( 0844): 12.80 0.484 3.33 59.98
=====
ID = 3 ( 1450): 25.40 0.963 3.33 60.28
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0843) |
| IN= 2----> OUT= 1 |
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

Model With SWM Infrastructure - Output

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)         (m/s)        (min)
0.12     211.91    .144E+02    0.0           0.23         42.45
0.24     212.03    .578E+02    0.0           0.36         26.74
0.36     212.15    .130E+03    0.1           0.48         20.41
0.48     212.27    .231E+03    0.2           0.58         16.85
0.61     212.40    .361E+03    0.4           0.67         14.52
0.73     212.52    .114E+04    0.8           0.43         22.41
0.85     212.64    .319E+04    2.3           0.43         22.83
0.97     212.76    .585E+04    5.0           0.50         19.59
1.09     212.88    .907E+04    9.0           0.58         16.72
1.21     213.00    .126E+05    14.6          0.68         14.34
1.33     213.12    .163E+05    21.4          0.77         12.69
1.45     213.24    .203E+05    29.5          0.85         11.47
1.57     213.36    .245E+05    38.8          0.92         10.52
1.70     213.49    .289E+05    49.3          0.99          9.77
1.82     213.61    .336E+05    61.2          1.06          9.15
1.94     213.73    .385E+05    74.3          1.13          8.63
2.06     213.85    .436E+05    89.6          1.20          8.11
2.18     213.97    .488E+05    106.9         1.28          7.61
2.37     214.16    .590E+05    138.1         1.36          7.13

<---- hydrograph ----> <-pipe / channel->
AREA    QPEAK    TPEAK    R.V.    MAX DEPTH    MAX VEL
(ha)     (cms)    (hrs)    (mm)     (m)          (m/s)
INFLOW : ID= 2 ( 1450) 25.40    0.96    3.33    60.28      0.74    0.43
OUTFLOW: ID= 1 ( 0843) 25.40    0.92    3.83    60.28      0.73    0.43
```

```
| CALIB
| NASHYD ( 0144) | Area (ha)= 28.60 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.97
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.977 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 59.791
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.591

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1440) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0144): 28.60 0.977 4.25 59.79
+ ID2= 2 ( 0843): 25.40 0.915 3.83 60.28
=====
ID = 3 ( 1440): 54.00 1.885 4.00 60.02
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0842) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 / 0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 / 0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)         (m/s)        (min)
0.04     205.23    .149E+01    0.0           0.09         81.67
0.09     205.28    .594E+01    0.0           0.14         51.45
0.13     205.32    .134E+02    0.0           0.18         39.26
0.17     205.36    .238E+02    0.0           0.22         32.41
0.22     205.41    .371E+02    0.0           0.25         27.93
0.26     205.45    .535E+02    0.0           0.28         24.73
0.31     205.50    .728E+02    0.1           0.31         22.32
0.35     205.54    .950E+02    0.1           0.34         20.42
0.39     205.58    .120E+03    0.1           0.37         18.87
0.44     205.63    .149E+03    0.1           0.40         17.59
0.48     205.67    .180E+03    0.2           0.42         16.60
0.52     205.71    .228E+03    0.2           0.34         20.59
0.57     205.76    .308E+03    0.2           0.33         21.41
0.61     205.80    .418E+03    0.3           0.34         20.79
0.66     205.85    .560E+03    0.5           0.36         19.66
0.70     205.89    .732E+03    0.7           0.38         18.44
0.74     205.93    .936E+03    0.9           0.41         17.27
0.79     205.98    .117E+04    1.2           0.43         16.20
0.83     206.02    .144E+04    1.6           0.46         15.24
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED
<---- hydrograph ----> <-pipe / channel->

128.85 209.70 0.0400

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)         (m/s)        (min)
0.06     208.30    .216E+02    0.0           0.15         113.45
0.13     208.37    .864E+02    0.0           0.24         71.47
0.19     208.43    .194E+03    0.1           0.31         54.54
0.25     208.49    .345E+03    0.1           0.38         45.02
0.32     208.56    .540E+03    0.2           0.44         38.80
0.38     208.62    .777E+03    0.4           0.49         34.36
0.46     208.70    .152E+04    0.7           0.50         33.99
0.54     208.78    .281E+04    1.4           0.50         33.61
0.62     208.86    .469E+04    2.5           0.53         31.90
0.70     208.94    .734E+04    4.0           0.56         30.28
0.78     209.02    .107E+05    6.3           0.59         28.55
0.86     209.10    .149E+05    9.3           0.63         26.78
0.94     209.18    .198E+05    13.1          0.68         25.09
1.02     209.26    .253E+05    17.9          0.72         23.58
1.10     209.34    .315E+05    23.6          0.76         22.24
1.18     209.42    .386E+05    30.0          0.79         21.42
1.26     209.50    .465E+05    37.7          0.82         20.56
1.34     209.58    .554E+05    46.8          0.86         19.73
1.42     209.66    .652E+05    57.3          0.90         18.94
```

```
<---- hydrograph ----> <-pipe / channel->
AREA    QPEAK    TPEAK    R.V.    MAX DEPTH    MAX VEL
(ha)     (cms)    (hrs)    (mm)     (m)          (m/s)
INFLOW : ID= 2 ( 1430) 81.70    2.80    4.42    59.94      0.64    0.54
OUTFLOW: ID= 1 ( 0841) 81.70    2.74    5.25    59.93      0.63    0.54
```

```
| ADD HYD ( 1430) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0143): 27.70 0.932 4.58 59.79
+ ID2= 2 ( 0842): 54.00 1.870 4.33 60.02
=====
ID = 3 ( 1430): 81.70 2.801 4.42 59.94
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0841) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.66 0.0400
19.50 209.34 0.0400
37.91 208.66 0.0400
41.73 208.62 0.0400 / 0.0350 Main Channel
43.44 208.24 0.0350 Main Channel
45.75 208.62 0.0350 / 0.0450 Main Channel
54.00 208.79 0.0450 / 0.0400
77.43 209.05 0.0400
```

```
| CALIB
| NASHYD ( 0142) | Area (ha)= 27.10 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 1.22
```

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 0.896 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 59.792
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.591

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
-----
| ADD HYD ( 1420) |
| 1 + 2 = 3 |
-----
      AREA      QPEAK      TPEAK      R.V.
      (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0142): 27.10  0.896  5.17  59.79
+ ID2= 2 ( 0841): 81.70  2.740  5.25  59.93
=====
ID = 3 ( 1420): 108.80  3.635  5.17  59.90
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0840) |
| IN= 2--> OUT= 1 |
-----
      Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.52        0.0400
61.99         209.23        0.0400
76.86         209.20        0.0400
82.03         209.20        0.0400 / 0.0350 Main Channel
86.30         208.87        0.0350 Main Channel
89.86         209.20        0.0350 / 0.0300 Main Channel
96.27         209.24        0.0300
103.53        209.40        0.0300
127.96        209.50        0.0300
158.58        209.70        0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.03 208.90 .706E+01 0.0 0.08 110.24
0.07 208.94 .282E+02 0.0 0.13 69.44
0.10 208.97 .636E+02 0.0 0.17 53.00
0.13 209.00 .113E+03 0.0 0.21 43.75
0.17 209.04 .177E+03 0.1 0.24 37.70
0.20 209.07 .254E+03 0.1 0.27 33.38
0.23 209.10 .346E+03 0.2 0.30 30.12
0.26 209.13 .452E+03 0.3 0.33 27.56
0.30 209.17 .572E+03 0.4 0.36 25.48
0.33 209.20 .706E+03 0.5 0.38 23.75
0.37 209.24 .118E+04 0.7 0.34 26.61
0.40 209.27 .196E+04 1.2 0.33 27.88
0.44 209.31 .291E+04 1.8 0.34 27.18
0.47 209.34 .404E+04 2.6 0.35 25.91
0.51 209.38 .536E+04 3.6 0.37 24.55
0.54 209.41 .686E+04 4.8 0.39 23.61
0.58 209.45 .865E+04 6.3 0.40 22.94
0.61 209.48 .108E+05 8.1 0.41 22.09
0.65 209.52 .132E+05 10.4 0.43 21.10
```

RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0153) |
| ID= 1 DT= 5.0 min |
-----
      Area (ha)= 33.30 Curve Number (CN)= 82.6
      Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
      U.H. Tp(hrs)= 1.08
```

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 1.109 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 59.191
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.585

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0834) |
| IN= 2--> OUT= 1 |
-----
      Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          214.06        0.0500
6.27          213.95        0.0500
20.38         214.11        0.0500
25.18         213.97        0.0500 / 0.0350 Main Channel
28.59         211.79        0.0350 Main Channel
32.89         214.16        0.0350 / 0.0500 Main Channel
42.61         212.54        0.0500
59.11         212.41        0.0500
84.10         212.83        0.0500
100.76        213.78        0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.12 211.91 .125E+02 0.0 0.21 40.70
0.24 212.03 .501E+02 0.0 0.33 25.64
0.36 212.15 .113E+03 0.1 0.43 19.56
0.48 212.27 .200E+03 0.2 0.52 16.15
0.61 212.40 .313E+03 0.4 0.61 13.92
0.73 212.52 .987E+03 0.8 0.39 21.48
0.85 212.64 .277E+04 2.1 0.39 21.89
0.97 212.76 .507E+04 4.5 0.45 18.78
1.09 212.88 .786E+04 8.2 0.53 16.03
```

```
<---- hydrograph ----> <-pipe / channel->
      AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
      (ha)      (cms)      (hrs)      (mm)      (m)      (m/s)
INFLOW : ID= 2 ( 1420) 108.80  3.63  5.17  59.90  0.51  0.37
OUTFLOW: ID= 1 ( 0840) 108.80  3.60  5.58  59.89  0.51  0.37
```

```
-----
| CALIB |
| NASHYD ( 0141) |
| ID= 1 DT= 5.0 min |
-----
      Area (ha)= 8.10 Curve Number (CN)= 83.6
      Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
      U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.295 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 61.196
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1410) |
| 1 + 2 = 3 |
-----
      AREA      QPEAK      TPEAK      R.V.
      (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0141): 8.10  0.295  3.67  61.20
+ ID2= 2 ( 0840): 108.80  3.596  5.58  59.89
=====
ID = 3 ( 1410): 116.90  3.855  5.42  59.98
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0151) |
| ID= 1 DT= 5.0 min |
-----
      Area (ha)= 24.60 Curve Number (CN)= 82.8
      Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
      U.H. Tp(hrs)= 1.00
```

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.834 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 59.588
TOTAL RAINFALL (mm)= 101.200

1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

```
<---- hydrograph ----> <-pipe / channel->
      AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
      (ha)      (cms)      (hrs)      (mm)      (m)      (m/s)
INFLOW : ID= 2 ( 0153) 33.30  1.11  4.67  59.19  0.76  0.39
OUTFLOW: ID= 1 ( 0834) 33.30  1.10  5.25  59.19  0.76  0.39
```

```
-----
| CALIB |
| NASHYD ( 0152) |
| ID= 1 DT= 5.0 min |
-----
      Area (ha)= 16.20 Curve Number (CN)= 82.6
      Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
      U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.552 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 59.191
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.585

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1520) |
| 1 + 2 = 3 |
-----
      AREA      QPEAK      TPEAK      R.V.
      (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0152): 16.20  0.552  4.17  59.19
+ ID2= 2 ( 0834): 33.30  1.101  5.25  59.19
=====
ID = 3 ( 1520): 49.50  1.639  5.00  59.19
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0833) |
-----
```


Model With SWM Infrastructure - Output

| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .232E+03 0.1 0.19 65.23
0.14 208.16 .652E+03 0.3 0.30 41.42
0.22 208.24 .122E+04 0.6 0.38 32.47
0.29 208.31 .193E+04 1.2 0.45 27.40
0.36 208.38 .279E+04 1.9 0.51 24.03
0.44 208.46 .389E+04 3.2 0.60 20.41
0.52 208.54 .516E+04 4.8 0.69 17.88
0.60 208.62 .664E+04 6.9 0.77 16.07
0.68 208.70 .833E+04 9.4 0.83 14.80
0.76 208.78 .102E+05 12.3 0.89 13.84
0.84 208.86 .123E+05 15.7 0.94 13.07
0.92 208.94 .153E+05 19.4 0.94 13.11
0.99 209.01 .189E+05 24.5 0.96 12.89
1.07 209.09 .229E+05 30.4 0.98 12.57
1.15 209.17 .273E+05 37.1 1.01 12.25
1.23 209.25 .320E+05 44.7 1.03 11.94
1.31 209.33 .372E+05 53.3 1.06 11.62
1.39 209.41 .427E+05 63.0 1.09 11.30
1.47 209.49 .487E+05 73.7 1.12 11.00

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1520) 49.50 1.64 5.00 59.19 0.33 0.49
OUTFLOW: ID= 1 (0833) 49.50 1.63 5.33 59.18 0.33 0.49

| ADD HYD (1510) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.

OUTFLOW: ID= 1 (0832) 74.10 2.43 5.33 59.31 0.49 0.50

| CALIB |
| NASHYD (0150) | Area (ha)= 6.60 Curve Number (CN)= 83.7
| ID= 1 DT= 5.0 min | Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.96

Unit Hyd Qpeak (cms)= 0.263
PEAK FLOW (cms)= 0.232 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 61.405
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.607

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1500) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
+ ID1= 1 (0150): 6.60 0.232 4.17 61.40
+ ID2= 2 (0832): 74.10 2.433 5.33 59.31
=====

ID = 3 (1500): 80.70 2.655 5.33 59.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (1401) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
+ ID1= 1 (1410): 116.90 3.855 5.42 59.98
+ ID2= 2 (1500): 80.70 2.655 5.33 59.48
=====

ID = 3 (1401): 197.60 6.507 5.42 59.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0830) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
----- DATA FOR SECTION (1.1) ----->

----- (ha) (cms) (hrs) (mm)
ID1= 1 (0151): 24.60 0.834 4.33 59.59
+ ID2= 2 (0833): 49.50 1.627 5.33 59.18
=====

ID = 3 (1510): 74.10 2.443 5.17 59.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0832) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.50 0.0400
29.68 206.77 0.0400
43.70 206.13 0.0400 /0.0350 Main Channel
44.99 205.95 0.0350 Main Channel
47.70 206.24 0.0350 /0.0450 Main Channel
60.54 206.32 0.0450
80.11 206.99 0.0450
102.29 207.42 0.0450 /0.0400
132.78 206.84 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 206.01 .158E+02 0.0 0.16 56.30
0.12 206.07 .633E+02 0.0 0.25 35.47
0.18 206.13 .142E+03 0.1 0.33 27.07
0.26 206.21 .324E+03 0.3 0.42 21.31
0.34 206.29 .720E+03 0.6 0.44 20.00
0.42 206.37 .162E+04 1.4 0.45 19.57
0.50 206.45 .272E+04 2.6 0.52 17.17
0.58 206.53 .404E+04 4.2 0.56 15.86
0.66 206.61 .584E+04 6.5 0.59 15.05
0.74 206.69 .820E+04 9.6 0.63 14.19
0.83 206.78 .111E+05 13.9 0.67 13.34
0.91 206.86 .143E+05 19.9 0.74 12.00
0.99 206.94 .178E+05 27.1 0.81 10.94
1.07 207.02 .215E+05 35.3 0.87 10.16
1.15 207.10 .256E+05 44.5 0.93 9.59
1.23 207.18 .301E+05 55.1 0.98 9.09
1.31 207.26 .349E+05 67.2 1.03 8.65
1.39 207.34 .400E+05 80.7 1.07 8.26
1.47 207.42 .455E+05 95.8 1.12 7.92

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1510) 74.10 2.44 5.17 59.32 0.49 0.51

Distance Elevation Manning
0.00 207.71 0.0400
58.83 206.71 0.0400
66.88 206.59 0.0400 /0.0350 Main Channel
72.32 206.34 0.0350 Main Channel
77.68 206.55 0.0350 /0.0800 Main Channel
82.85 206.54 0.0800
90.20 206.02 0.0800
94.03 206.48 0.0800
99.83 206.40 0.0800 /0.0400
114.32 206.50 0.0400
136.07 206.86 0.0400
174.41 207.56 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.08 206.10 .561E+02 0.0 0.05 276.21
0.15 206.17 .224E+03 0.0 0.08 174.00
0.23 206.25 .505E+03 0.1 0.11 132.79
0.30 206.32 .898E+03 0.1 0.13 109.61
0.38 206.40 .147E+04 0.3 0.15 96.03
0.45 206.47 .291E+04 0.5 0.14 104.34
0.53 206.55 .555E+04 1.1 0.17 85.95
0.61 206.63 .948E+04 2.5 0.23 62.05
0.70 206.72 .142E+05 4.7 0.29 50.17
0.78 206.80 .196E+05 7.6 0.34 42.88
0.87 206.89 .258E+05 11.4 0.38 37.80
0.95 206.97 .327E+05 16.0 0.43 33.99
1.04 207.06 .403E+05 21.6 0.47 31.05
1.12 207.14 .485E+05 28.2 0.51 28.69
1.20 207.22 .575E+05 35.9 0.54 26.74
1.29 207.31 .672E+05 44.6 0.58 25.11
1.37 207.39 .776E+05 54.6 0.61 23.71
1.46 207.48 .887E+05 65.7 0.65 22.49
1.54 207.56 .101E+06 78.2 0.68 21.43

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1401) 197.60 6.51 5.42 59.78 0.75 0.32
OUTFLOW: ID= 1 (0830) 197.60 6.21 5.92 59.77 0.74 0.31

| CALIB |
| NASHYD (0140) | Area (ha)= 18.30 Curve Number (CN)= 83.6
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.34

Model With SWM Infrastructure - Output

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.608 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 61.197
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.605

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0140):	18.30	0.608	5.25	61.20
+ ID2= 2 (0830):	197.60	6.209	5.92	59.77
=====				
ID = 3 (1400):	215.90	6.786	5.83	59.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)	Curve Number (CN)
NASHYD (0131)	28.70	82.1
ID= 1 DT= 5.0 min	Ia (mm)= 8.30	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.11	

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 0.938 (i)
TIME TO PEAK (hrs)= 4.917
RUNOFF VOLUME (mm)= 58.204
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.575

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)	Dir. Conn.(%)
STANDHYD (0011)	132.00	45.00
ID= 1 DT= 5.0 min	Total Imp(%)= 57.10	

	IMPERVIOUS (ha)	PERVIOUS (i)
Surface Area	75.37	56.63
Dep. Storage	1.00	8.95
Average Slope	1.00	1.00
Length	938.08	40.00

Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 26.31 17.02
over (min) 15.00 35.00
Storage Coeff. (min)= 16.70 (ii) 34.34 (ii)
Unit Hyd. Tpeak (min)= 15.00 35.00
Unit Hyd. peak (cms)= 0.07 0.03

PEAK FLOW (cms)= 4.25 2.38 *TOTALS*
TIME TO PEAK (hrs)= 2.08 3.42 5.727 (iii)
RUNOFF VOLUME (mm)= 100.20 54.07 74.83
TOTAL RAINFALL (mm)= 101.20 101.20 101.20
RUNOFF COEFFICIENT = 0.99 0.53 0.74

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0874)	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
IN= 2----> OUT= 1	0.0000	0.0000	2.4200	5.4280
DT= 5.0 min	0.0950	1.5860	3.3930	6.6280
	1.2530	3.8390	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0011)	132.000	5.727	2.25	74.83
OUTFLOW: ID= 1 (0874)	132.000	2.896	6.08	74.27

PEAK FLOW REDUCTION [Qout/Qin](%)= 50.57
TIME SHIFT OF PEAK FLOW (min)=230.00
MAXIMUM STORAGE USED (ha.m.)= 6.0156

CALIB	Area (ha)	Dir. Conn.(%)
STANDHYD (0012)	17.50	70.00
ID= 1 DT= 5.0 min	Total Imp(%)= 80.00	

	IMPERVIOUS (ha)	PERVIOUS (i)
Surface Area	14.00	3.50
Dep. Storage	1.00	8.94
Average Slope	1.00	1.00
Length	341.57	40.00

Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 26.31 21.63
over (min) 10.00 30.00
Storage Coeff. (min)= 9.11 (ii) 25.14 (ii)
Unit Hyd. Tpeak (min)= 10.00 30.00
Unit Hyd. peak (cms)= 0.12 0.04

PEAK FLOW (cms)= 0.89 0.19 *TOTALS*
TIME TO PEAK (hrs)= 2.08 3.25 1.036 (iii)
RUNOFF VOLUME (mm)= 100.20 58.62 87.73
TOTAL RAINFALL (mm)= 101.20 101.20 101.20
RUNOFF COEFFICIENT = 0.99 0.58 0.87

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0012):	17.50	1.036	2.08	87.73
+ ID2= 2 (0874):	132.00	2.896	6.08	74.27
=====				
ID = 3 (1112):	149.50	3.320	5.17	75.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)	Dir. Conn.(%)
STANDHYD (0010)	12.90	70.00
ID= 1 DT= 5.0 min	Total Imp(%)= 80.00	

	IMPERVIOUS (ha)	PERVIOUS (i)
Surface Area	10.32	2.58
Dep. Storage	1.00	8.94
Average Slope	1.00	1.00
Length	293.26	40.00
Mannings n	0.013	0.250

Max.Eff.Inten.(mm/hr)= 26.31 21.63
over (min) 10.00 25.00
Storage Coeff. (min)= 8.31 (ii) 24.34 (ii)
Unit Hyd. Tpeak (min)= 10.00 25.00
Unit Hyd. peak (cms)= 0.13 0.05

PEAK FLOW (cms)= 0.66 0.14 *TOTALS*
TIME TO PEAK (hrs)= 2.08 3.17 0.770 (iii)
RUNOFF VOLUME (mm)= 100.20 58.62 87.73
TOTAL RAINFALL (mm)= 101.20 101.20 101.20
RUNOFF COEFFICIENT = 0.99 0.58 0.87

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0010):	12.90	0.770	2.08	87.73
+ ID2= 2 (1112):	149.50	3.320	5.17	75.84
=====				
ID = 3 (1311):	162.40	3.792	5.08	76.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822)	Routing time step (min)'= 5.00
IN= 2----> OUT= 1	

Distance	Elevation	Manning	
0.00	207.71	0.0400	
58.83	206.71	0.0400	
66.88	206.59	0.0400 / 0.0350	Main Channel
72.32	206.34	0.0350	Main Channel
77.68	206.55	0.0350 / 0.0800	Main Channel
82.85	206.54	0.0800	
90.20	206.02	0.0800	
94.03	206.48	0.0800	
99.83	206.40	0.0800 / 0.0400	
114.32	206.50	0.0400	
136.07	206.86	0.0400	
174.41	207.56	0.0400	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.337E+02	0.0	0.07	124.18
0.15	206.17	.135E+03	0.0	0.11	78.23

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0.23	206.25	.303E+03	0.1	0.15	59.70
0.30	206.32	.539E+03	0.2	0.18	49.28
0.38	206.40	.885E+03	0.3	0.20	43.17
0.45	206.47	.175E+04	0.6	0.19	46.91
0.53	206.55	.333E+04	1.4	0.23	38.64
0.61	206.63	.569E+04	3.4	0.31	27.90
0.70	206.72	.851E+04	6.3	0.39	22.56
0.78	206.80	.118E+05	10.2	0.45	19.28
0.87	206.89	.155E+05	15.2	0.51	17.00
0.95	206.97	.196E+05	21.4	0.57	15.28
1.04	207.06	.242E+05	28.9	0.63	13.96
1.12	207.14	.292E+05	37.7	0.68	12.90
1.20	207.22	.346E+05	47.9	0.73	12.02
1.29	207.31	.404E+05	59.6	0.77	11.29
1.37	207.39	.466E+05	72.9	0.82	10.66
1.46	207.48	.533E+05	87.8	0.86	10.11
1.54	207.56	.604E+05	104.5	0.91	9.63

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1311)	162.40	3.79	5.08	76.79	0.63	0.32
OUTFLOW: ID= 1 (0822)	162.40	3.65	5.25	76.77	0.62	0.32

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0131):	28.70	0.938	4.92	58.20
+ ID2= 2 (0822):	162.40	3.652	5.25	76.77
=====				
ID = 3 (1310):	191.10	4.587	5.25	73.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0131):	28.70	0.938	4.92	58.20
+ ID2= 2 (0822):	162.40	3.652	5.25	76.77
=====				
ID = 3 (1310):	191.10	4.587	5.25	73.98

ROUTING time step (min)'= 5.00

Distance	Elevation	Manning
0.00	207.71	0.0400
58.83	206.71	0.0400
66.88	206.59	0.0400 / 0.0350
72.32	206.34	0.0350
77.68	206.55	0.0350 / 0.0800
82.85	206.54	0.0800

90.20	206.02	0.0800
94.03	206.48	0.0800
99.83	206.40	0.0800 / 0.0400
114.32	206.50	0.0400
136.07	206.86	0.0400
174.41	207.56	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60
0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1310)	191.10	4.59	5.25	73.98	0.66	0.32
OUTFLOW: ID= 1 (0821)	191.10	4.40	5.92	73.94	0.66	0.31

CALIB	NASHYD (0130)	Area (ha)= 26.70	Curve Number (CN)= 81.7
ID= 1 DT= 5.0 min		Ia (mm)= 8.53	# of Linear Res.(N)= 3.00
		U.H. Tp(hrs)= 1.32	

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW	(cms)= 0.842 (i)
TIME TO PEAK	(hrs)= 5.250
RUNOFF VOLUME	(mm)= 57.419
TOTAL RAINFALL	(mm)= 101.200

RUNOFF COEFFICIENT = 0.567

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0130):	26.70	0.842	5.25	57.42
+ ID2= 2 (0821):	191.10	4.398	5.92	73.94
=====				
ID = 3 (1300):	217.80	5.210	5.75	71.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1300):	217.80	5.210	5.75	71.92
+ ID2= 2 (1400):	215.90	6.786	5.83	59.89
=====				
ID = 3 (1202):	433.70	11.991	5.83	65.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1210):	96.80	3.538	4.33	64.00
+ ID2= 2 (0820):	433.70	11.958	5.92	65.93
=====				
ID = 3 (1201):	530.50	15.131	5.83	65.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0810)	ROUTING time step (min)'= 5.00
ID= 2	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	204.79	.681E+01	0.0	0.08	28.42
0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80

Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 / 0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 / 0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

Model With SWM Infrastructure - Output

151.82 204.97 0.0400
252.14 206.45 0.0400

TRAVEL TIME TABLE						
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)	
0.09	204.79	.229E+02	0.0	0.07	106.67	
0.18	204.88	.915E+02	0.0	0.12	67.20	
0.28	204.98	.208E+03	0.1	0.15	51.82	
0.37	205.07	.981E+03	0.2	0.11	70.28	
0.46	205.16	.288E+04	0.8	0.13	61.71	
0.55	205.25	.610E+04	2.0	0.15	50.43	
0.64	205.34	.105E+05	4.2	0.19	41.45	
0.74	205.44	.163E+05	7.5	0.21	36.28	
0.83	205.53	.227E+05	11.9	0.24	31.82	
0.92	205.62	.294E+05	17.2	0.27	28.46	
1.01	205.71	.366E+05	23.6	0.30	25.89	
1.10	205.80	.442E+05	30.9	0.32	23.87	
1.20	205.90	.522E+05	39.1	0.35	22.23	
1.29	205.99	.606E+05	48.4	0.37	20.87	
1.38	206.08	.694E+05	58.7	0.39	19.72	
1.47	206.17	.786E+05	70.0	0.41	18.74	
1.57	206.27	.883E+05	82.3	0.43	17.88	
1.66	206.36	.983E+05	95.7	0.45	17.12	
1.75	206.45	.109E+06	110.2	0.47	16.45	
<---- hydrograph ----> <-pipe / channel-->						
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1201)	530.50	15.13	5.83	65.58	0.88	0.26
OUTFLOW: ID= 1 (0810)	530.50	14.64	5.92	65.57	0.88	0.26

CALIB	NASHYD (0120)	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Curve Number (CN)= 84.0	# of Linear Res.(N)= 3.00
		9.00	7.25	1.16		

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.309 (i)
TIME TO PEAK (hrs)= 4.750
RUNOFF VOLUME (mm)= 62.014
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.613

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1200)	1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0120):		9.00	0.309	4.75	62.01
+ ID2= 2 (0810):		530.50	14.640	5.92	65.57
=====					
ID = 3 (1200):		539.50	14.921	5.92	65.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD (0113)	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Curve Number (CN)= 82.5	# of Linear Res.(N)= 3.00
		13.50	8.08	0.87		

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.463 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 58.989
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.583

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0802)	IN= 2----> OUT= 1	Routing time step (min)'= 5.00

DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	208.29	0.0300		
3.73	208.14	0.0300 / 0.0350	Main Channel	
5.30	207.52	0.0350	Main Channel	
6.93	208.18	0.0350 / 0.0300	Main Channel	
8.96	208.27	0.0300		
14.71	208.30	0.0300		
23.86	208.59	0.0300		

TRAVEL TIME TABLE						
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)	
0.04	207.56	.448E+01	0.0	0.12	164.32	
0.08	207.60	.179E+02	0.0	0.19	103.51	
0.12	207.64	.403E+02	0.0	0.25	79.00	
0.16	207.68	.716E+02	0.0	0.30	65.21	

0.19	207.71	.112E+03	0.0	0.35	56.20	
0.23	207.75	.161E+03	0.1	0.40	49.76	
0.27	207.79	.219E+03	0.1	0.44	44.90	
0.31	207.83	.287E+03	0.1	0.48	41.08	
0.35	207.87	.363E+03	0.2	0.52	37.98	
0.39	207.91	.448E+03	0.2	0.56	35.40	
0.43	207.95	.542E+03	0.3	0.60	33.22	
0.47	207.99	.645E+03	0.3	0.63	31.35	
0.50	208.02	.757E+03	0.4	0.67	29.72	
0.54	208.06	.878E+03	0.5	0.70	28.29	
0.58	208.10	.101E+04	0.6	0.74	27.02	
0.62	208.14	.115E+04	0.7	0.77	25.88	
0.67	208.19	.137E+04	0.9	0.81	24.42	
0.72	208.24	.172E+04	1.2	0.84	23.79	
0.77	208.29	.225E+04	1.6	0.82	24.20	

<---- hydrograph ----> <-pipe / channel-->						
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0113)	13.50	0.46	4.00	58.99	0.52	0.68
OUTFLOW: ID= 1 (0802)	13.50	0.45	4.67	58.92	0.52	0.68

CALIB	NASHYD (0112)	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Curve Number (CN)= 82.8	# of Linear Res.(N)= 3.00
		30.50	7.91	1.60		

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 0.949 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 59.588
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	NASHYD (0111)	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Curve Number (CN)= 82.3	# of Linear Res.(N)= 3.00
		45.50	8.19	1.33		

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 1.459 (i)

TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 58.595
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.579

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)	1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0111):		45.50	1.459	5.25	58.60
+ ID2= 2 (0812):		30.50	0.949	5.50	59.59
=====					
ID = 3 (1101):		76.00	2.403	5.33	58.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)	3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (1101):		76.00	2.403	5.33	58.99
+ ID2= 2 (0802):		13.50	0.454	4.67	58.92
=====					
ID = 1 (1101):		89.50	2.851	5.33	58.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801)	IN= 2----> OUT= 1	Routing time step (min)'= 5.00

DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.66	0.0400		
19.50	209.34	0.0400		
37.91	208.66	0.0400		
41.73	208.62	0.0400 / 0.0350	Main Channel	
43.44	208.24	0.0350	Main Channel	
45.75	208.62	0.0350 / 0.0450	Main Channel	
54.00	208.79	0.0450 / 0.0400	Main Channel	
77.43	209.05	0.0400		
128.85	209.70	0.0400		

TRAVEL TIME TABLE						
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)	

Model With SWM Infrastructure - Output

0.06	208.30	.104E+02	0.0	0.10	83.26
0.13	208.37	.415E+02	0.0	0.16	52.45
0.19	208.43	.934E+02	0.0	0.20	40.03
0.25	208.49	.166E+03	0.1	0.25	33.04
0.32	208.56	.259E+03	0.2	0.29	28.47
0.38	208.62	.373E+03	0.2	0.32	25.22
0.46	208.70	.729E+03	0.5	0.33	24.94
0.54	208.78	.135E+04	0.9	0.33	24.67
0.62	208.86	.225E+04	1.6	0.35	23.41
0.70	208.94	.352E+04	2.6	0.37	22.23
0.78	209.02	.516E+04	4.1	0.39	20.96
0.86	209.10	.716E+04	6.1	0.41	19.65
0.94	209.18	.949E+04	8.6	0.44	18.42
1.02	209.26	.122E+05	11.7	0.47	17.31
1.10	209.34	.152E+05	15.5	0.50	16.32
1.18	209.42	.185E+05	19.7	0.52	15.72
1.26	209.50	.224E+05	24.7	0.54	15.09
1.34	209.58	.266E+05	30.6	0.56	14.48
1.42	209.66	.313E+05	37.5	0.59	13.90

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1101)	89.50	2.85	5.33	58.98	0.71	0.37
OUTFLOW: ID= 1 (0801)	89.50	2.82	5.58	58.98	0.71	0.37

CALIB				
NASHYD (0110)	Area (ha)= 11.90	Curve Number (CN)= 83.4		
ID= 1 DT= 5.0 min	Ia (mm)= 7.58	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.68			

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.443 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 60.791
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.601

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

ID1= 1 (0110):	11.90	0.443	3.42	60.79
+ ID2= 2 (0801):	89.50	2.816	5.58	58.98
=====				
ID = 3 (1100):	101.40	3.188	5.42	59.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1100):	101.40	3.188	5.42	59.19
+ ID2= 2 (1200):	539.50	14.921	5.92	65.51
=====				
ID = 3 (1001):	640.90	18.021	5.92	64.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->		
Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 /0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 /0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	204.79	.255E+02	0.0	0.16	54.50
0.18	204.88	.102E+03	0.0	0.25	34.33
0.28	204.98	.232E+03	0.1	0.33	26.47
0.37	205.07	.109E+04	0.5	0.24	35.91
0.46	205.16	.321E+04	1.7	0.27	31.53
0.55	205.25	.680E+04	4.4	0.33	25.77
0.64	205.34	.116E+05	9.2	0.41	21.18
0.74	205.44	.182E+05	16.4	0.47	18.54
0.83	205.53	.253E+05	25.9	0.53	16.26
0.92	205.62	.328E+05	37.6	0.59	14.54
1.01	205.71	.408E+05	51.4	0.65	13.23
1.10	205.80	.492E+05	67.3	0.71	12.19
1.20	205.90	.581E+05	85.3	0.76	11.36

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.448 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 61.805
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.611

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0191)	Area (ha)= 20.10	Curve Number (CN)= 82.0		
ID= 1 DT= 5.0 min	Ia (mm)= 8.36	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.94			

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.670 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 58.004
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.573

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0192)	Area (ha)= 28.30	Curve Number (CN)= 80.3		
ID= 1 DT= 5.0 min	Ia (mm)= 6.23	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.06			

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 0.908 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 57.344
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.567

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1901)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0191):	20.10	0.670	4.25	58.00

1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75
1.75	206.45	.121E+06	240.2	1.03	8.41

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1001)	640.90	18.02	5.92	64.51	0.75	0.48
OUTFLOW: ID= 1 (0800)	640.90	17.84	6.08	64.51	0.75	0.47

CALIB				
NASHYD (0100)	Area (ha)= 54.70	Curve Number (CN)= 83.2		
ID= 1 DT= 5.0 min	Ia (mm)= 7.69	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.23			

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 1.822 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 60.388
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.597

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1000)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0100):	54.70	1.822	5.17	60.39
+ ID2= 2 (0800):	640.90	17.835	6.08	64.51
=====				
ID = 3 (1000):	695.60	19.479	6.00	64.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0190)	Area (ha)= 12.30	Curve Number (CN)= 83.9		
ID= 1 DT= 5.0 min	Ia (mm)= 7.31	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.83			

Model With SWM Infrastructure - Output

```
+ ID2= 2 ( 0192): 28.30 0.908 4.58 57.34
=====
ID = 3 ( 1901): 48.40 1.576 4.42 57.62
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0899)|
| IN= 2--> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.49          0.0400
35.71         208.88          0.0400
53.04         208.89          0.0400
64.12         208.50          0.0400 / 0.0350 Main Channel
70.77         208.05          0.0350 Main Channel
74.98         208.02          0.0350 Main Channel
83.40         208.38          0.0350 / 0.0400 Main Channel
88.06         208.63          0.0400
94.94         209.13          0.0400
105.88        209.54          0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.07        208.09      .349E+02      0.1            0.18          10.46
0.14        208.16      .981E+02      0.2            0.28          6.64
0.22        208.24      .183E+03      0.6            0.36          5.21
0.29        208.31      .291E+03      1.1            0.42          4.40
0.36        208.38      .420E+03      1.8            0.48          3.85
0.44        208.46      .586E+03      3.0            0.57          3.27
0.52        208.54      .777E+03      4.5            0.65          2.87
0.60        208.62      .999E+03      6.5            0.72          2.58
0.68        208.70      .125E+04      8.8            0.78          2.37
0.76        208.78      .154E+04      11.5           0.84          2.22
0.84        208.86      .185E+04      14.7           0.89          2.10
0.92        208.94      .230E+04      18.2           0.88          2.10
0.99        209.01      .285E+04      23.0           0.90          2.07
1.07        209.09      .345E+04      28.5           0.92          2.02
1.15        209.17      .411E+04      34.8           0.94          1.96
1.23        209.25      .482E+04      42.0           0.97          1.91
1.31        209.33      .559E+04      50.0           1.00          1.86
1.39        209.41      .643E+04      59.1           1.02          1.81
1.47        209.49      .732E+04      69.1           1.05          1.76
```

```
<---- hydrograph ----> <-pipe / channel->
AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
(ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 1901) 48.40 1.58 4.42 57.62 0.34 0.46
OUTFLOW: ID= 1 ( 0899) 48.40 1.58 4.50 57.62 0.34 0.46
```

```
-----
| ADD HYD ( 1900)|
| 1 + 2 = 3      |
-----
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0190): 12.30 0.448 3.75 61.80
+ ID2= 2 ( 0899): 48.40 1.576 4.50 57.62
=====
ID = 3 ( 1900): 60.70 2.011 4.42 58.47
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0500)|
| ID= 1 DT= 5.0 min |
-----
Area      (ha)= 7.60 Curve Number (CN)= 82.8
Ia        (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.48
```

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.291 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 59.584
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0510)|
| ID= 1 DT= 5.0 min |
-----
Area      (ha)= 12.70 Curve Number (CN)= 81.7
Ia        (mm)= 8.53 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.443 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 57.418
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.567

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0520)|
| ID= 1 DT= 5.0 min |
-----
Area      (ha)= 17.30 Curve Number (CN)= 82.5
Ia        (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.606 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 58.989
TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.583

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 5000)|
| 1 + 2 = 3      |
-----
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0500): 7.60 0.291 3.25 59.58
+ ID2= 2 ( 0510): 12.70 0.443 3.50 57.42
=====
ID = 3 ( 5000): 20.30 0.728 3.33 58.23
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 5000)|
| 3 + 2 = 1      |
-----
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 5000): 20.30 0.728 3.33 58.23
+ ID2= 2 ( 0520): 17.30 0.606 3.67 58.99
=====
ID = 1 ( 5000): 37.60 1.327 3.50 58.58
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0600)|
| ID= 1 DT= 5.0 min |
-----
Area      (ha)= 2.50 Curve Number (CN)= 82.5
Ia        (mm)= 8.08 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.095 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 58.984

TOTAL RAINFALL (mm)= 101.200
RUNOFF COEFFICIENT = 0.583

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
=====
V V I SSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL
```

```
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y M M O O
O O T T H H Y Y M M O O
000 T T H H Y Y M M 000
```

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voain.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\VH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\ba
c698ba-ed05-46fa-81d3-fa0297be8087\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\VH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\ba
c698ba-ed05-46fa-81d3-fa0297be8087\sce

DATE: 10-17-2025 TIME: 02:54:18

USER:

COMMENTS: _____

```
-----
*****
** SIMULATION : 7 **
*****
```

Model With SWM Infrastructure - Output

READ STORM	Filename: C:\Users\wraymond\AppData\Local\Temp\
Ptotal=112.20 mm	f9e06f95-585c-465c-81d8-96408d74cabcf7b91d363
	Comments: 100yr12hrAES

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.08	16.83	6.17	3.37	9.25	0.00
0.08	14.59	3.17	16.83	6.25	3.37	9.33	0.00
0.17	14.59	3.25	16.83	6.33	3.37	9.42	0.00
0.25	14.59	3.33	16.83	6.42	3.37	9.50	0.00
0.33	14.59	3.42	16.83	6.50	3.37	9.58	0.00
0.42	14.59	3.50	16.83	6.58	3.37	9.67	0.00
0.50	14.59	3.58	16.83	6.67	3.37	9.75	0.00
0.58	14.59	3.67	16.83	6.75	3.37	9.83	0.00
0.67	14.59	3.75	16.83	6.83	3.37	9.92	0.00
0.75	14.59	3.83	16.83	6.92	3.37	10.00	0.00
0.83	14.59	3.92	16.83	7.00	3.37	10.08	0.00
0.92	14.59	4.00	16.83	7.08	1.12	10.17	0.00
1.00	14.59	4.08	15.71	7.17	1.12	10.25	0.00
1.08	29.17	4.17	15.71	7.25	1.12	10.33	0.00
1.17	29.17	4.25	15.71	7.33	1.12	10.42	0.00
1.25	29.17	4.33	15.71	7.42	1.12	10.50	0.00
1.33	29.17	4.42	15.71	7.50	1.12	10.58	0.00
1.42	29.17	4.50	15.71	7.58	1.12	10.67	0.00
1.50	29.17	4.58	15.71	7.67	1.12	10.75	0.00
1.58	29.17	4.67	15.71	7.75	1.12	10.83	0.00
1.67	29.17	4.75	15.71	7.83	1.12	10.92	0.00
1.75	29.17	4.83	15.71	7.92	1.12	11.00	0.00
1.83	29.17	4.92	15.71	8.00	1.12	11.08	0.00
1.92	29.17	5.00	15.71	8.08	0.00	11.17	0.00
2.00	29.17	5.08	8.98	8.17	0.00	11.25	0.00
2.08	22.44	5.17	8.98	8.25	0.00	11.33	0.00
2.17	22.44	5.25	8.98	8.33	0.00	11.42	0.00
2.25	22.44	5.33	8.98	8.42	0.00	11.50	0.00
2.33	22.44	5.42	8.98	8.50	0.00	11.58	0.00
2.42	22.44	5.50	8.98	8.58	0.00	11.67	0.00
2.50	22.44	5.58	8.98	8.67	0.00	11.75	0.00
2.58	22.44	5.67	8.98	8.75	0.00	11.83	0.00
2.67	22.44	5.75	8.98	8.83	0.00	11.92	0.00
2.75	22.44	5.83	8.98	8.92	0.00	12.00	0.00
2.83	22.44	5.92	8.98	9.00	0.00		
2.92	22.44	6.00	8.98	9.08	0.00		
3.00	22.44	6.08	3.37	9.17	0.00		

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0185)	Ia (mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.084 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 65.214
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.581

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0180)	Ia (mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.272 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 68.408
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.610

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0170)	Ia (mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.242 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 68.407
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.610

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0160)	Ia (mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.633 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 70.105
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.625

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0330)	Ia (mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 0.949 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 67.978
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.606

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0270)	Ia (mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.112 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 68.012
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.606

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0260)	Ia (mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.324 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 71.180
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.634

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0250)	Ia (mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.457 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 67.348
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.600

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0320)	Ia (mm)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.528 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 69.673
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.621

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
| CALIB
| NASHYD ( 0420) | Area (ha)= 25.80 Curve Number (CN)= 83.6
| ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.12
```

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 1.018 (i)
TIME TO PEAK (hrs)= 4.500
RUNOFF VOLUME (mm)= 70.966
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0423) | Area (ha)= 23.90 Curve Number (CN)= 84.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.20 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.80
```

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 1.026 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 72.048
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.642

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0422) | Area (ha)= 6.90 Curve Number (CN)= 83.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.61
```

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.305 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 70.533
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.629

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0896) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .808E+00 0.0 0.15 23.76
0.07 204.57 .323E+01 0.0 0.23 14.97
0.11 204.61 .727E+01 0.0 0.30 11.42
0.14 204.64 .129E+02 0.0 0.37 9.43
0.18 204.68 .202E+02 0.0 0.43 8.13
0.22 204.72 .291E+02 0.1 0.48 7.20
0.25 204.75 .396E+02 0.1 0.53 6.49
0.29 204.79 .517E+02 0.1 0.58 5.94
0.33 204.83 .654E+02 0.2 0.63 5.49
0.36 204.86 .808E+02 0.3 0.68 5.12
0.40 204.90 .977E+02 0.3 0.72 4.80
0.43 204.93 .131E+03 0.4 0.69 5.03
0.47 204.97 .232E+03 0.6 0.55 6.29
0.51 205.01 .388E+03 0.9 0.51 6.81
0.54 205.04 .584E+03 1.4 0.51 6.75
0.58 205.08 .819E+03 2.1 0.54 6.47
0.61 205.11 .110E+04 3.0 0.56 6.13
0.65 205.15 .141E+04 4.1 0.60 5.79
0.69 205.19 .177E+04 5.4 0.63 5.47
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0422) 6.90 0.30 3.33 70.53 0.38 0.70
OUTFLOW: ID= 1 ( 0896) 6.90 0.30 3.42 70.53 0.38 0.70
```

```
| ADD HYD ( 4202) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
```

```
-----
ID1= 1 ( 0423): (ha) (cms) (hrs) (mm)
+ ID2= 2 ( 0896): 23.90 1.026 3.58 72.05
+ ID2= 2 ( 0896): 6.90 0.304 3.42 70.53
-----
ID = 3 ( 4202): 30.80 1.328 3.50 71.71
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0895) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .170E+01 0.0 0.28 4.09
0.24 212.03 .679E+01 0.0 0.44 2.58
0.36 212.15 .153E+02 0.1 0.58 1.97
0.48 212.27 .272E+02 0.3 0.70 1.62
0.61 212.40 .424E+02 0.5 0.82 1.40
0.73 212.52 .134E+03 1.0 0.53 2.16
0.85 212.64 .375E+03 2.8 0.52 2.20
0.97 212.76 .687E+03 6.1 0.60 1.89
1.09 212.88 .107E+04 11.0 0.71 1.61
1.21 213.00 .148E+04 17.8 0.83 1.38
1.33 213.12 .192E+04 26.1 0.93 1.22
1.45 213.24 .238E+04 35.9 1.03 1.11
1.57 213.36 .288E+04 47.3 1.13 1.01
1.70 213.49 .340E+04 60.1 1.21 0.94
1.82 213.61 .395E+04 74.5 1.29 0.88
1.94 213.73 .452E+04 90.5 1.37 0.83
2.06 213.85 .512E+04 109.2 1.46 0.78
2.18 213.97 .573E+04 130.3 1.56 0.73
2.37 214.16 .694E+04 168.2 1.66 0.69
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
```

```
INFLOW : ID= 2 ( 4202) 30.80 1.33 3.50 71.71 0.75 0.53
OUTFLOW: ID= 1 ( 0895) 30.80 1.33 3.58 71.71 0.75 0.53
```

```
| CALIB
| NASHYD ( 0421) | Area (ha)= 10.40 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.37
```

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)= 0.472 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 69.241
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0883) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .344E+01 0.0 0.19 78.41
0.07 204.57 .137E+02 0.0 0.30 49.40
0.11 204.61 .309E+02 0.0 0.39 37.70
0.14 204.64 .550E+02 0.0 0.47 31.12
0.18 204.68 .859E+02 0.1 0.55 26.82
0.22 204.72 .124E+03 0.1 0.62 23.75
0.25 204.75 .168E+03 0.1 0.69 21.43
0.29 204.79 .220E+03 0.2 0.75 19.60
0.33 204.83 .278E+03 0.3 0.81 18.12
```


Model With SWM Infrastructure - Output

0.36	204.86	.344E+03	0.3	0.87	16.89
0.40	204.90	.416E+03	0.4	0.93	15.85
0.43	204.93	.559E+03	0.6	0.89	16.61
0.47	204.97	.986E+03	0.8	0.71	20.75
0.51	205.01	.165E+04	1.2	0.65	22.49
0.54	205.04	.248E+04	1.9	0.66	22.28
0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0421)	10.40	0.47	3.17	69.24	0.41	0.92
OUTFLOW : ID= 1 (0883)	10.40	0.46	3.33	69.20	0.40	0.92

ADD HYD (4201)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0883):	10.40	0.462	3.33	69.20
+ ID2= 2 (0895):	30.80	1.327	3.58	71.71
=====				
ID = 3 (4201):	41.20	1.782	3.50	71.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0882)	ROUTING time step (min)'= 5.00
IN= 2----> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.49	0.0400		
35.71	208.88	0.0400		
53.04	208.89	0.0400		
64.12	208.50	0.0400 / 0.0350	Main Channel	
70.77	208.05	0.0350	Main Channel	
74.98	208.02	0.0350	Main Channel	
83.40	208.38	0.0350 / 0.0400	Main Channel	
88.06	208.63	0.0400		
94.94	209.13	0.0400		
105.88	209.54	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52
0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20
0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4201)	41.20	1.78	3.50	71.07	0.46	0.31
OUTFLOW : ID= 1 (0882)	41.20	1.74	3.67	71.07	0.46	0.30

ADD HYD (4200)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0420):	25.80	1.018	4.50	70.97
+ ID2= 2 (0882):	41.20	1.738	3.67	71.07
=====				
ID = 3 (4200):	67.00	2.718	3.92	71.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	Ia (mm)=	U.H. Tp(hrs)=	Curve Number (CN)=	# of Linear Res.(N)=
NASHYD (0440)	31.60	7.04	1.16	84.4	3.00

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 1.267 (i)

TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 72.702
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.648

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Ia (mm)=	U.H. Tp(hrs)=	Curve Number (CN)=	# of Linear Res.(N)=
NASHYD (0442)	2.40	6.77	0.41	84.9	3.00

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.115 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 73.797
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.658

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Ia (mm)=	U.H. Tp(hrs)=	Curve Number (CN)=	# of Linear Res.(N)=
NASHYD (0443)	21.30	7.31	0.59	83.9	3.00

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)= 0.961 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 71.610
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.638

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Ia (mm)=	U.H. Tp(hrs)=	Curve Number (CN)=	# of Linear Res.(N)=
NASHYD (0451)	12.30	7.09	0.57	84.3	3.00

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 0.565 (i)

TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 72.485
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.646

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	Total Imp(%)=	Dir. Conn.(%)=
STANDHYD (0043)	22.90	49.00	40.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	11.22	11.68
Dep. Storage (mm)=	1.00	8.92
Average Slope (%)=	1.00	2.00
Length (m)=	390.73	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	29.17	17.63
over (min)	10.00	25.00
Storage Coeff. (min)=	9.47 (ii)	23.60 (ii)
Unit Hyd. Tpeak (min)=	10.00	25.00
Unit Hyd. peak (cms)=	0.12	0.05
TOTALS		
PEAK FLOW (cms)=	0.74	0.53
TIME TO PEAK (hrs)=	2.08	3.25
RUNOFF VOLUME (mm)=	111.20	60.64
TOTAL RAINFALL (mm)=	112.20	112.20
RUNOFF COEFFICIENT =	0.99	0.54

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0073)	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
IN= 2----> OUT= 1				
DT= 5.0 min				
	0.0000	0.0000	0.2250	0.3008
	0.0240	0.0325	0.2650	0.3494
	0.0370	0.0741	0.2990	0.3993
	0.0460	0.1156	0.3290	0.4497
	0.0530	0.1607	0.5720	0.5013
	0.0600	0.2060	0.9900	0.5538

Model With SWM Infrastructure - Output

0.1750 0.2530 | 1.5230 0.6074

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0043)	22.900	1.132	2.08	80.87
OUTFLOW: ID= 1 (0873)	22.900	0.989	3.33	80.85

PEAK FLOW REDUCTION [Qout/Qin](%)= 87.39
TIME SHIFT OF PEAK FLOW (min)= 75.00
MAXIMUM STORAGE USED (ha.m.)= 0.5538

	IMPERVIOUS (ha)	PERVIOUS (i) (ha)	
Surface Area	0.84	0.46	
Dep. Storage	1.00	8.92	
Average Slope	1.00	2.00	
Length	93.09	40.00	
Mannings n	0.013	0.250	
Max.Eff.Inten.(mm/hr)= over	29.17	36.14	
Storage Coeff. (min)=	5.00	15.00	
Unit Hyd. Tpeak (min)=	4.01 (ii)	14.61 (ii)	
Unit Hyd. peak (cms)=	5.00	15.00	
	0.24	0.08	
		TOTALS	
PEAK FLOW (cms)=	0.04	0.04	0.078 (iii)
TIME TO PEAK (hrs)=	2.00	2.17	2.08
RUNOFF VOLUME (mm)=	111.20	74.20	87.14
TOTAL RAINFALL (mm)=	112.20	112.20	112.20
RUNOFF COEFFICIENT =	0.99	0.66	0.78

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ADD HYD (4345) 1 + 2 = 3				
ID1= 1 (0045):	1.30	0.078	2.08	87.14

+ ID2= 2 (0873): 22.90 0.989 3.33 80.85
=====

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID = 3 (4345):	24.20	1.048	3.33	81.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	ROUTING time step (min)'= 5.00
ROUTE CHN(0893) IN= 2---> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4345)	24.20	1.05	3.33	81.19	0.75	0.60
OUTFLOW: ID= 1 (0893)	24.20	1.04	3.42	81.19	0.75	0.60

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ADD HYD (4510) 1 + 2 = 3				
ID1= 1 (0451):	12.30	0.565	3.25	72.48
+ ID2= 2 (0893):	24.20	1.042	3.42	81.19
ID = 3 (4510):	36.50	1.602	3.42	78.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	ROUTING time step (min)'= 5.00
ROUTE CHN(0892) IN= 2---> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.279E+01	0.0	0.48	3.92
0.24	212.03	.112E+02	0.1	0.76	2.47
0.36	212.15	.251E+02	0.2	0.99	1.89
0.48	212.27	.446E+02	0.5	1.20	1.56
0.61	212.40	.697E+02	0.9	1.40	1.34
0.73	212.52	.220E+03	1.8	0.91	2.07
0.85	212.64	.616E+03	4.9	0.89	2.11
0.97	212.76	.113E+04	10.4	1.04	1.81
1.09	212.88	.175E+04	18.9	1.21	1.54
1.21	213.00	.243E+04	30.5	1.42	1.32
1.33	213.12	.315E+04	44.8	1.60	1.17
1.45	213.24	.392E+04	61.6	1.77	1.06
1.57	213.36	.473E+04	81.0	1.93	0.97
1.70	213.49	.558E+04	103.1	2.08	0.90
1.82	213.61	.648E+04	127.8	2.22	0.85
1.94	213.73	.742E+04	155.2	2.35	0.80
2.06	213.85	.841E+04	187.2	2.50	0.75
2.18	213.97	.941E+04	223.3	2.67	0.70

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
2.37	214.16	.114E+05	288.4	2.85	0.66	

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4510)	36.50	1.60	3.42	78.25	0.70	0.97
OUTFLOW: ID= 1 (0892)	36.50	1.60	3.42	78.25	0.70	0.97

	ROUTING time step (min)'= 5.00
ADD HYD (4411) 1 + 2 = 3	

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0443):	21.30	0.961	3.25	71.61
+ ID2= 2 (0892):	36.50	1.600	3.42	78.25
ID = 3 (4411):	57.80	2.555	3.42	75.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	ROUTING time step (min)'= 5.00
ROUTE CHN(0891) IN= 2---> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	206.70	0.0400	
2.35	206.02	0.0400 / 0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 / 0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 / 0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.621E+00	0.0	0.10	29.40
0.09	205.28	.248E+01	0.0	0.16	18.52
0.13	205.32	.559E+01	0.0	0.21	14.13
0.17	205.36	.994E+01	0.0	0.25	11.67
0.22	205.41	.155E+02	0.0	0.29	10.05
0.26	205.45	.224E+02	0.0	0.33	8.90
0.31	205.50	.304E+02	0.1	0.37	8.03
0.35	205.54	.398E+02	0.1	0.40	7.35
0.39	205.58	.503E+02	0.1	0.43	6.79

Model With SWM Infrastructure - Output

0.44	205.63	.621E+02	0.2	0.46	6.33
0.48	205.67	.752E+02	0.2	0.49	5.97
0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph ---->			<-pipe / channel->		
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
		(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (	4411)	57.80	2.56	3.42	75.81	0.83	0.53
OUTFLOW: ID= 1 (	0891)	57.80	2.55	3.50	75.81	0.83	0.53

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB			
STANDHYD (	0441)	Area (ha)=	3.00
ID= 1 DT= 5.0 min		Total Imp(%)=	45.00
		Dir. Conn.(%)=	35.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.35	1.65
Dep. Storage (mm)=	1.00	3.58
Average Slope (%)=	2.00	2.00
Length (m)=	141.42	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.(mm/hr)=	29.17	26.33
over (min)	5.00	20.00
Storage Coeff. (min)=	4.18 (ii)	16.22 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.24	0.06

TOTALS

PEAK FLOW (cms)=	0.09	0.11	0.192 (iii)
TIME TO PEAK (hrs)=	2.08	2.25	2.08
RUNOFF VOLUME (mm)=	111.20	82.67	92.66
TOTAL RAINFALL (mm)=	112.20	112.20	112.20
RUNOFF COEFFICIENT =	0.99	0.74	0.83

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (	4410)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3			(ha)	(cms)	(hrs)	(mm)
ID1= 1 (	0441):	3.00	0.192	2.08	92.66	
+ ID2= 2 (	0891):	57.80	2.545	3.50	75.81	
=====						
ID = 3 (	4410):	60.80	2.684	3.50	76.64	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (	4401)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3			(ha)	(cms)	(hrs)	(mm)
ID1= 1 (	4410):	60.80	2.684	3.50	76.64	
+ ID2= 2 (	0442):	2.40	0.115	3.17	73.80	
=====						
ID = 3 (	4401):	63.20	2.792	3.50	76.53	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(	0889)	
IN= 2--> OUT= 1		Routing time step (min)'= 5.00

<----- DATA FOR SECTION (						1.1)	----->
Distance	Elevation	Manning					
0.00	206.70	0.0400					
2.35	206.02	0.0400 / 0.0350	Main Channel				
5.23	205.19	0.0350	Main Channel				
5.34	205.67	0.0350	Main Channel				
19.05	206.06	0.0350 / 0.0400	Main Channel				
21.11	206.05	0.0400					
22.02	206.13	0.0400 / 0.0350					
40.10	206.15	0.0350					
56.50	206.04	0.0350					

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.272E+01	0.0	0.09	142.50
0.09	205.28	.109E+02	0.0	0.14	89.77
0.13	205.32	.245E+02	0.0	0.19	68.51
0.17	205.36	.435E+02	0.0	0.23	56.55

0.22	205.41	.679E+02	0.0	0.26	48.73
0.26	205.45	.978E+02	0.0	0.30	43.16
0.31	205.50	.133E+03	0.1	0.33	38.94
0.35	205.54	.174E+03	0.1	0.36	35.63
0.39	205.58	.220E+03	0.1	0.39	32.93
0.44	205.63	.272E+03	0.1	0.42	30.70
0.48	205.67	.329E+03	0.2	0.44	28.96
0.52	205.71	.418E+03	0.2	0.36	35.92
0.57	205.76	.563E+03	0.3	0.34	37.36
0.61	205.80	.765E+03	0.4	0.35	36.28
0.66	205.85	.102E+04	0.5	0.37	34.31
0.70	205.89	.134E+04	0.7	0.40	32.17
0.74	205.93	.171E+04	0.9	0.43	30.13
0.79	205.98	.214E+04	1.3	0.45	28.27
0.83	206.02	.263E+04	1.6	0.48	26.60

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph ---->			<-pipe / channel->		
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
		(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (	4401)	63.20	2.79	3.50	76.53	0.83	0.48
OUTFLOW: ID= 1 (	0889)	63.20	2.63	4.08	76.52	0.83	0.48

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (	4400)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3			(ha)	(cms)	(hrs)	(mm)
ID1= 1 (	0440):	31.60	1.267	4.58	72.70	
+ ID2= 2 (	0889):	63.20	2.630	4.08	76.52	
=====						
ID = 3 (	4400):	94.80	3.883	4.17	75.25	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(	0888)	
IN= 2--> OUT= 1		Routing time step (min)'= 5.00

<----- DATA FOR SECTION (						1.1)	----->
Distance	Elevation	Manning					
0.00	209.66	0.0400					
19.50	209.34	0.0400					
37.91	208.66	0.0400					
41.73	208.62	0.0400 / 0.0350	Main Channel				
43.44	208.24	0.0350	Main Channel				
45.75	208.62	0.0350 / 0.0450	Main Channel				

54.00	208.79	0.0450 / 0.0400
77.43	209.05	0.0400
128.85	209.70	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.519E+01	0.0	0.09	43.50
0.13	208.37	.208E+02	0.0	0.15	27.40
0.19	208.43	.467E+02	0.0	0.19	20.91
0.25	208.49	.830E+02	0.1	0.24	17.26
0.32	208.56	.130E+03	0.1	0.27	14.88
0.38	208.62	.187E+03	0.2	0.31	13.17
0.46	208.70	.365E+03	0.5	0.31	13.03
0.54	208.78	.674E+03	0.9	0.32	12.89
0.62	208.86	.113E+04	1.5	0.33	12.23
0.70	208.94	.176E+04	2.5	0.35	11.61
0.78	209.02	.258E+04	3.9	0.37	10.95
0.86	209.10	.358E+04	5.8	0.40	10.27
0.94	209.18	.475E+04	8.2	0.42	9.62
1.02	209.26	.608E+04	11.2	0.45	9.04
1.10	209.34	.758E+04	14.8	0.48	8.53
1.18	209.42	.927E+04	18.8	0.50	8.21
1.26	209.50	.112E+05	23.6	0.52	7.88
1.34	209.58	.133E+05	29.3	0.54	7.57
1.42	209.66	.157E+05	35.9	0.56	7.26

		<---- hydrograph ---->			<-pipe / channel->		
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
		(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (	4400)	94.80	3.88	4.17	75.25	0.78	0.37
OUTFLOW: ID= 1 (	0888)	94.80	3.86	4.42	75.25	0.77	0.37

CALIB			
STANDHYD (	0042)	Area (ha)=	20.50
ID= 1 DT= 5.0 min		Total Imp(%)=	83.00
		Dir. Conn.(%)=	70.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	17.01	3.49
Dep. Storage (mm)=	1.00	6.98
Average Slope (%)=	2.00	2.00
Length (m)=	369.68	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.(mm/hr)=	29.17	37.44
over (min)	5.00	20.00
Storage Coeff. (min)=	7.44 (ii)	17.90 (ii)

Model With SWM Infrastructure - Output

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
[ ROUTE CHN( 0898) ]
[ IN= 2--> OUT= 1 ]      Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          101.50        0.0500
1.00          100.70        0.0500
1.50          100.55        0.0500 /0.0300 Main Channel
2.00          99.50        0.0300 Main Channel
3.50          99.60        0.0300 Main Channel
4.50          100.65        0.0300 /0.0500 Main Channel
```

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.140E+02	0.0	0.17	55.64
0.24	212.03	.559E+02	0.0	0.27	35.05

			<---- hydrograph ---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
		(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW :	ID= 2 (0872)	20.50	0.89	4.33	101.58	0.64	0.78
OUTFLOW:	ID= 1 (0898)	20.50	0.89	4.33	101.58	0.64	0.78

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	3.65	5.25
Dep. Storage (mm)=	1.00	8.04
Average Slope (%)=	2.00	2.00
Length (m)=	243.58	40.00
Mannings n =	0.013	0.250
Max. Eff. Inten. (mm/hr)=	29.17	23.64
over (min)	5.00	20.00
Storage Coeff. (min)=	5.79 (ii)	18.36 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.20	0.06

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4244)	29.40	1.23	4.08	94.09	0.79	0.32
OUTFLOW: ID= 1 (0897)	29.40	1.21	5.08	94.09	0.79	0.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.52          0.0400
61.99         209.23          0.0400
76.86         209.20          0.0400
82.03         209.20          0.0400 / 0.0350  Main Channel
86.30         208.87          0.0350      Main Channel
89.86         209.20          0.0350 / 0.0300  Main Channel

```

Model With SWM Infrastructure - Output

96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)      (m)      (cu.m.)    (cms)        (m/s)       (min)
0.03  208.90  .143E+01    0.0          0.09       20.80
0.07  208.94  .572E+01    0.0          0.14       13.11
0.10  208.97  .129E+02    0.0          0.18       10.00
0.13  209.00  .229E+02    0.0          0.22       8.26
0.17  209.04  .357E+02    0.1          0.26       7.11
0.20  209.07  .514E+02    0.1          0.29       6.30
0.23  209.10  .700E+02    0.2          0.32       5.69
0.26  209.13  .915E+02    0.3          0.35       5.20
0.30  209.17  .116E+03    0.4          0.38       4.81
0.33  209.20  .143E+03    0.5          0.41       4.48
0.37  209.24  .239E+03    0.8          0.37       5.02
0.40  209.27  .396E+03    1.3          0.35       5.26
0.44  209.31  .589E+03    1.9          0.36       5.13
0.47  209.34  .818E+03    2.8          0.38       4.89
0.51  209.38  .108E+04    3.9          0.40       4.63
0.54  209.41  .139E+04    5.2          0.41       4.46
0.58  209.45  .175E+04    6.7          0.43       4.33
0.61  209.48  .218E+04    8.7          0.44       4.17
0.65  209.52  .266E+04   11.2        0.46       3.98

<---- hydrograph ----> <-pipe / channel->
AREA    QPEAK    TPEAK    R.V.    MAX DEPTH    MAX VEL
(ha)    (cms)    (hrs)    (mm)    (m)          (m/s)
INFLOW : ID= 2 ( 4301) 124.20 5.07 4.42 79.71 0.54 0.41
OUTFLOW: ID= 1 ( 0887) 124.20 5.06 4.58 79.71 0.54 0.41
```

```
-----
| CALIB |
| NASHYD ( 0430) |
| ID= 1 DT= 5.0 min |
|-----|
Unit Hyd Qpeak (cms)= 0.669

Area (ha)= 19.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.13
```

PEAK FLOW (cms)= 0.780 (i)
TIME TO PEAK (hrs)= 4.500
RUNOFF VOLUME (mm)= 70.966
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4300) |
| 1 + 2 = 3 |
|-----|
AREA    QPEAK    TPEAK    R.V.
(ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0430): 19.80 0.780 4.50 70.97
+ ID2= 2 ( 0887): 124.20 5.062 4.58 79.71
=====
ID = 3 ( 4300): 144.00 5.842 4.58 78.50
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0886) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance    Elevation    Manning
0.00        209.20        0.0400
100.00      206.26        0.0400
111.30      206.19        0.0400 /0.0350 Main Channel
112.02      205.76        0.0350 Main Channel
113.82      205.37        0.0350 Main Channel
115.62      206.03        0.0350 /0.0400 Main Channel
117.77      207.30        0.0400
120.56      207.40        0.0400
124.41      207.31        0.0400
129.31      207.24        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)      (m)      (cu.m.)    (cms)        (m/s)       (min)
0.09  205.46  .110E+02    0.0          0.11       51.32
0.19  205.56  .438E+02    0.0          0.17       32.33
0.28  205.65  .986E+02    0.1          0.23       24.67
0.38  205.75  .175E+03    0.1          0.27       20.37
0.47  205.84  .271E+03    0.3          0.33       16.94
0.57  205.94  .379E+03    0.4          0.38       14.73
0.66  206.03  .501E+03    0.6          0.42       13.19
0.76  206.13  .644E+03    0.9          0.48       11.58
0.86  206.23  .845E+03    1.3          0.51       10.89
0.96  206.33  .140E+04    1.9          0.46       12.13
1.06  206.43  .209E+04    2.9          0.46       12.20
1.16  206.53  .290E+04    4.1          0.47       11.82
1.26  206.63  .383E+04    5.6          0.49       11.31
1.37  206.74  .489E+04    7.6          0.52       10.78
1.47  206.84  .607E+04    9.8          0.54       10.28
1.57  206.94  .737E+04   12.5        0.57       9.81
```

1.67	207.04	.879E+04	15.6	0.60	9.38
1.77	207.14	.103E+05	19.2	0.62	8.99
1.87	207.24	.120E+05	23.2	0.65	8.63

```
<---- hydrograph ----> <-pipe / channel->
AREA    QPEAK    TPEAK    R.V.    MAX DEPTH    MAX VEL
(ha)    (cms)    (hrs)    (mm)    (m)          (m/s)
INFLOW : ID= 2 ( 4300) 144.00 5.84 4.58 78.50 1.28 0.50
OUTFLOW: ID= 1 ( 0886) 144.00 5.81 4.75 78.50 1.27 0.50
```

```
-----
| CALIB |
| NASHYD ( 0411) |
| ID= 1 DT= 5.0 min |
|-----|
Unit Hyd Qpeak (cms)= 0.155

Area (ha)= 4.50 Curve Number (CN)= 86.7
Ia (mm)= 5.84 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.11
```

PEAK FLOW (cms)= 0.195 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 77.842
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.694

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4110) |
| 1 + 2 = 3 |
|-----|
AREA    QPEAK    TPEAK    R.V.
(ha)    (cms)    (hrs)    (mm)
ID1= 1 ( 0411): 4.50 0.195 4.25 77.84
+ ID2= 2 ( 0886): 144.00 5.808 4.75 78.50
=====
ID = 3 ( 4110): 148.50 6.000 4.75 78.48
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0885) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance    Elevation    Manning
0.00        208.48        0.0500
43.69      207.97        0.0500
66.92      207.94        0.0500
```

76.98	208.01	0.0500
87.94	208.25	0.0500
89.93	208.44	0.0500 /0.0350 Main Channel
92.70	208.20	0.0350 Main Channel
95.51	207.28	0.0350 Main Channel
98.26	208.25	0.0350 Main Channel

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)      (m)      (cu.m.)    (cms)        (m/s)       (min)
0.05  207.33  .134E+01    0.0          0.06       52.81
0.10  207.38  .536E+01    0.0          0.10       33.27
0.15  207.43  .121E+02    0.0          0.13       25.39
0.19  207.47  .214E+02    0.0          0.15       20.96
0.24  207.52  .335E+02    0.0          0.18       18.06
0.29  207.57  .483E+02    0.1          0.20       15.99
0.34  207.62  .657E+02    0.1          0.22       14.43
0.39  207.67  .858E+02    0.1          0.24       13.20
0.44  207.72  .109E+03    0.1          0.26       12.21
0.48  207.76  .134E+03    0.2          0.28       11.38
0.53  207.81  .162E+03    0.3          0.30       10.68
0.58  207.86  .193E+03    0.3          0.32       10.08
0.63  207.91  .227E+03    0.4          0.34       9.55
0.68  207.96  .295E+03    0.5          0.32       10.12
0.73  208.01  .613E+03    0.7          0.22       14.89
0.78  208.06  .103E+04    1.0          0.20       16.42
0.82  208.10  .150E+04    1.5          0.20       16.27
0.87  208.15  .204E+04    2.2          0.21       15.61
0.92  208.20  .264E+04    3.0          0.22       14.84
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<---- hydrograph ----> <-pipe / channel->
AREA    QPEAK    TPEAK    R.V.    MAX DEPTH    MAX VEL
(ha)    (cms)    (hrs)    (mm)    (m)          (m/s)
INFLOW : ID= 2 ( 4110) 148.50 6.00 4.75 78.48 0.92 0.22
OUTFLOW: ID= 1 ( 0885) 148.50 5.98 5.08 78.48 0.92 0.22
```

```
-----
| CALIB |
| NASHYD ( 0041) |
| ID= 1 DT= 5.0 min |
|-----|
Unit Hyd Qpeak (cms)= 0.802

Area (ha)= 25.40 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.21
```

PEAK FLOW (cms)= 0.989 (i)
TIME TO PEAK (hrs)= 4.833
RUNOFF VOLUME (mm)= 70.966

Model With SWM Infrastructure - Output

TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0894)|
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          214.06        0.0500
6.27          213.95        0.0500
20.38         214.11        0.0500
25.18         213.97        0.0500 / 0.0350 Main Channel
28.59         211.79        0.0350 Main Channel
32.89         214.16        0.0350 / 0.0500 Main Channel
42.61         212.54        0.0500
59.11         212.41        0.0500
84.10         212.83        0.0500
100.76        213.78        0.0500

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.12 211.91 .523E+01 0.0 0.10 36.03
0.24 212.03 .209E+02 0.0 0.15 22.70
0.36 212.15 .471E+02 0.0 0.20 17.32
0.48 212.27 .837E+02 0.1 0.25 14.30
0.61 212.40 .131E+03 0.2 0.29 12.32
0.73 212.52 .412E+03 0.4 0.18 19.01
0.85 212.64 .115E+04 1.0 0.18 19.37
0.97 212.76 .212E+04 2.1 0.21 16.62
1.09 212.88 .328E+04 3.9 0.25 14.19
1.21 213.00 .455E+04 6.2 0.29 12.17
1.33 213.12 .591E+04 9.1 0.33 10.77
1.45 213.24 .734E+04 12.6 0.36 9.73
1.57 213.36 .886E+04 16.5 0.39 8.93
1.70 213.49 .105E+05 21.0 0.42 8.29
1.82 213.61 .122E+05 26.1 0.45 7.77
1.94 213.73 .139E+05 31.7 0.48 7.33
2.06 213.85 .158E+05 38.2 0.51 6.88
2.18 213.97 .177E+05 45.6 0.54 6.45
2.37 214.16 .214E+05 58.9 0.58 6.05

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0041) 25.40 0.99 4.83 70.97 0.85 0.18
OUTFLOW: ID= 1 ( 0894) 25.40 0.98 5.08 70.97 0.84 0.18
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| CALIB
| NASHYD ( 0040)| Area (ha)= 37.50 Curve Number (CN)= 84.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.14 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.98
-----
```

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 1.546 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 72.272
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.644

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4140)|
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0040): 37.50 1.546 4.08 72.27
+ ID2= 2 ( 0894): 25.40 0.977 5.08 70.97
=====
ID = 3 ( 4140): 62.90 2.477 4.67 71.74
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 4101)|
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 4140): 62.90 2.477 4.67 71.74
+ ID2= 2 ( 0885): 148.50 5.977 5.08 78.48
=====
ID = 3 ( 4101): 211.40 8.443 5.00 76.48
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0884)|
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
-----
<----- DATA FOR SECTION ( 1.1) ----->
```

```
Distance      Elevation      Manning
0.00          204.63        0.0400
45.24         204.34        0.0400
94.52         203.98        0.0400
140.93        203.58        0.0400
148.77        203.72        0.0400 / 0.0350 Main Channel
154.30        202.99        0.0350 Main Channel
158.02        203.77        0.0350 / 0.0400 Main Channel
174.30        203.79        0.0400
222.94        204.38        0.0400
285.62        204.03        0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)          (m/s)         (min)
0.05 203.04 .620E+01 0.0 0.11 58.30
0.10 203.09 .248E+02 0.0 0.17 36.73
0.16 203.15 .558E+02 0.0 0.22 28.03
0.21 203.20 .992E+02 0.1 0.27 23.14
0.26 203.25 .155E+03 0.1 0.31 19.94
0.31 203.30 .223E+03 0.2 0.35 17.66
0.37 203.36 .304E+03 0.3 0.39 15.93
0.42 203.41 .397E+03 0.5 0.42 14.58
0.47 203.46 .502E+03 0.6 0.46 13.47
0.52 203.51 .620E+03 0.8 0.49 12.56
0.57 203.56 .750E+03 1.1 0.52 11.79
0.63 203.62 .934E+03 1.3 0.53 11.56
0.68 203.67 .129E+04 1.7 0.50 12.36
0.73 203.72 .184E+04 2.3 0.47 13.20
0.79 203.78 .270E+04 3.4 0.47 13.22
0.85 203.84 .412E+04 5.1 0.45 13.57
0.92 203.91 .583E+04 7.3 0.47 13.24
0.98 203.97 .783E+04 10.3 0.49 12.69
1.04 204.03 .101E+05 13.9 0.51 12.15

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4101) 211.40 8.44 5.00 76.48 0.94 0.47
OUTFLOW: ID= 1 ( 0884) 211.40 8.42 5.17 76.48 0.94 0.47
```

PEAK FLOW (cms)= 0.368 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 75.132
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.670

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4100)|
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0410): 8.50 0.368 3.83 75.13
+ ID2= 2 ( 0884): 211.40 8.417 5.17 76.48
=====
ID = 3 ( 4100): 219.90 8.760 5.17 76.43
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0401)| Area (ha)= 23.00 Curve Number (CN)= 83.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.78
-----
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 0.961 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 69.895
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.623

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4001)|
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0401): 23.00 0.961 3.58 69.90
+ ID2= 2 ( 4100): 219.90 8.760 5.17 76.43
=====
ID = 3 ( 4001): 242.90 9.637 5.17 75.81
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0410)| Area (ha)= 8.50 Curve Number (CN)= 85.5
| ID= 1 DT= 5.0 min | Ia (mm)= 6.46 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.94
-----
```

Unit Hyd Qpeak (cms)= 0.345

Model With SWM Infrastructure - Output

```
| ADD HYD ( 4001) |
| 3 + 2 = 1 |
|
| AREA QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
|
| ID1= 3 ( 4001): 242.90 9.637 5.17 75.81
| + ID2= 2 ( 4200): 67.00 2.718 3.92 71.03
|
| =====
| ID = 1 ( 4001): 309.90 12.251 5.08 74.77
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0880) |
| IN= 2---> OUT= 1 |
|
| Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 204.63 0.0400
45.24 204.34 0.0400
94.52 203.98 0.0400
140.93 203.58 0.0400
148.77 203.72 0.0400 /0.0350 Main Channel
154.30 202.99 0.0350 Main Channel
158.02 203.77 0.0350 /0.0400 Main Channel
174.30 203.79 0.0400
222.94 204.38 0.0400
285.62 204.03 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 203.04 .647E+01 0.0 0.11 59.17
0.10 203.09 .259E+02 0.0 0.17 37.28
0.16 203.15 .582E+02 0.0 0.23 28.45
0.21 203.20 .103E+03 0.1 0.27 23.48
0.26 203.25 .162E+03 0.1 0.32 20.24
0.31 203.30 .233E+03 0.2 0.36 17.92
0.37 203.36 .317E+03 0.3 0.40 16.17
0.42 203.41 .414E+03 0.5 0.43 14.79
0.47 203.46 .524E+03 0.6 0.47 13.68
0.52 203.51 .647E+03 0.8 0.50 12.75
0.57 203.56 .782E+03 1.1 0.54 11.96
0.63 203.62 .974E+03 1.4 0.55 11.73
0.68 203.67 .135E+04 1.8 0.51 12.55
0.73 203.72 .192E+04 2.4 0.48 13.39
0.79 203.78 .282E+04 3.5 0.48 13.41
0.85 203.84 .430E+04 5.2 0.47 13.77
0.92 203.91 .608E+04 7.5 0.48 13.44
0.98 203.97 .816E+04 10.6 0.50 12.88
1.04 204.03 .105E+05 14.2 0.52 12.33
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4001) 309.90 12.25 5.08 74.77 1.01 0.51
OUTFLOW: ID= 1 ( 0880) 309.90 12.22 5.25 74.77 1.00 0.51
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
| CALIB
| NASHYD ( 0400) | Area (ha)= 27.60 Curve Number (CN)= 83.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.88
```

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 1.149 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 71.399
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.636

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 4000) |
| 1 + 2 = 3 |
|
| AREA QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
| ID1= 1 ( 0400): 27.60 1.149 3.75 71.40
| + ID2= 2 ( 0880): 309.90 12.219 5.25 74.77
|
| =====
| ID = 3 ( 4000): 337.50 13.292 5.17 74.50
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0200) | Area (ha)= 25.60 Curve Number (CN)= 82.2
| ID= 1 DT= 5.0 min | Ia (mm)= 8.25 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.79
```

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 1.034 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 67.979

TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.606

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0023) | Area (ha)= 7.00 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.73
```

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.295 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 69.677
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.621

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0022) | Area (ha)= 3.40 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.20
```

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.163 (i)
TIME TO PEAK (hrs)= 2.167
RUNOFF VOLUME (mm)= 70.870
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0211) | Area (ha)= 17.30 Curve Number (CN)= 81.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.76 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 1.02
```

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.649 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 66.104

TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.589

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| CALIB
| NASHYD ( 0021) | Area (ha)= 47.60 Curve Number (CN)= 84.6
| ID= 1 DT= 5.0 min | Ia (mm)= 6.93 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 2.008 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 73.144
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0871) |
| IN= 2---> OUT= 1 |
|
| Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .241E+03 0.1 0.21 60.89
0.14 208.16 .678E+03 0.3 0.33 38.66
0.22 208.24 .127E+04 0.7 0.42 30.30
0.29 208.31 .201E+04 1.3 0.50 25.57
0.36 208.38 .290E+04 2.2 0.57 22.42
0.44 208.46 .405E+04 3.5 0.67 19.05
0.52 208.54 .537E+04 5.4 0.77 16.69
0.60 208.62 .690E+04 7.7 0.85 15.00
```

Model With SWM Infrastructure - Output

0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0021)	47.60	2.01	3.83	73.14	0.35	0.56
OUTFLOW: ID= 1 (0871)	47.60	1.98	4.33	73.14	0.34	0.55

ADD HYD (2110)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0211):	17.30	0.649	4.42	66.10
+ ID2= 2 (0022):	3.40	0.163	2.17	70.87
=====				
ID = 3 (2110):	20.70	0.776	4.25	66.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2110)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (2110):	20.70	0.776	4.25	66.89
+ ID2= 2 (0871):	47.60	1.978	4.33	73.14
=====				
ID = 1 (2110):	68.30	2.754	4.25	71.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0020)
ID= 1 DT= 5.0 min

Area (ha)=	20.30	Curve Number (CN)=	81.6
Ia (mm)=	8.59	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.85		

Unit Hyd Qpeak (cms)= 0.912

PEAK FLOW (cms)=	0.792 (i)
TIME TO PEAK (hrs)=	3.833
RUNOFF VOLUME (mm)=	66.725
TOTAL RAINFALL (mm)=	112.200
RUNOFF COEFFICIENT	= 0.595

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0020)
ID= 1 DT= 5.0 min

Area (ha)=	12.60	Curve Number (CN)=	82.4
Ia (mm)=	8.13	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.72		

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)=	0.522 (i)
TIME TO PEAK (hrs)=	3.500
RUNOFF VOLUME (mm)=	68.407
TOTAL RAINFALL (mm)=	112.200
RUNOFF COEFFICIENT	= 0.610

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56

0.18	204.68	.777E+02	0.0	0.45	29.78
0.22	204.72	.112E+03	0.1	0.50	26.37
0.25	204.75	.152E+03	0.1	0.56	23.80
0.29	204.79	.199E+03	0.2	0.61	21.77
0.33	204.83	.252E+03	0.2	0.66	20.12
0.36	204.86	.311E+03	0.3	0.71	18.76
0.40	204.90	.376E+03	0.4	0.76	17.60
0.43	204.93	.505E+03	0.5	0.72	18.44
0.47	204.97	.892E+03	0.6	0.58	23.04
0.51	205.01	.149E+04	1.0	0.53	24.97
0.54	205.04	.225E+04	1.5	0.54	24.74
0.58	205.08	.315E+04	2.2	0.56	23.71
0.61	205.11	.421E+04	3.1	0.59	22.46
0.65	205.15	.543E+04	4.3	0.63	21.21
0.69	205.19	.679E+04	5.6	0.66	20.05

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0020)	12.60	0.52	3.50	68.41	0.45	0.66
OUTFLOW: ID= 1 (0875)	12.60	0.51	4.08	68.37	0.44	0.68

ADD HYD (2200)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0220):	20.30	0.792	3.83	66.72
+ ID2= 2 (0875):	12.60	0.508	4.08	68.37
=====				
ID = 3 (2200):	32.90	1.298	4.00	67.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2110):	68.30	2.754	4.25	71.24
+ ID2= 2 (2200):	32.90	1.298	4.00	67.35
=====				
ID = 3 (2101):	101.20	4.045	4.17	69.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0870)

IN= 2---> OUT= 1 Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350
86.30	208.87	0.0350
89.86	209.20	0.0350 / 0.0300
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2101)	101.20	4.05	4.17	69.98	0.49	0.46
OUTFLOW: ID= 1 (0870)	101.20	4.02	4.50	69.97	0.49	0.46

CALIB
NASHYD (0210)
ID= 1 DT= 5.0 min

Area (ha)=	9.10	Curve Number (CN)=	82.3
Ia (mm)=	8.19	# of Linear Res.(N)=	3.00

Model With SWM Infrastructure - Output

----- U.H. Tp(hrs)= 0.64

Unit Hyd Qpeak (cms)= 0.543

PEAK FLOW (cms)= 0.384 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 68.192
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.608

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (2100) |
1 + 2 = 3
ID1= 1 (0210): 9.10 0.384 3.42 68.19
+ ID2= 2 (0870): 101.20 4.021 4.50 69.97
=====

ID = 3 (2100): 110.30 4.370 4.50 69.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| NASHYD (0230) |
ID= 1 DT= 5.0 min
Area (ha)= 24.70 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.82

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 1.014 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 69.469
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.619

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0231) |
ID= 1 DT= 5.0 min
Area (ha)= 29.50 Curve Number (CN)= 81.9
Ia (mm)= 8.42 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.89

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 1.152 (i)

25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 / 0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.118E+02	0.0	0.27	29.62
0.24	212.03	.471E+02	0.0	0.42	18.66
0.36	212.15	.106E+03	0.1	0.56	14.24
0.48	212.27	.188E+03	0.3	0.67	11.76
0.61	212.40	.294E+03	0.5	0.78	10.13
0.73	212.52	.928E+03	1.0	0.51	15.63
0.85	212.64	.260E+04	2.7	0.50	15.93
0.97	212.76	.477E+04	5.8	0.58	13.67
1.09	212.88	.739E+04	10.6	0.68	11.67
1.21	213.00	.103E+05	17.1	0.79	10.01
1.33	213.12	.133E+05	25.0	0.89	8.85
1.45	213.24	.165E+05	34.4	0.99	8.00
1.57	213.36	.200E+05	45.3	1.08	7.34
1.70	213.49	.236E+05	57.6	1.16	6.82
1.82	213.61	.274E+05	71.4	1.24	6.39
1.94	213.73	.314E+05	86.8	1.31	6.02
2.06	213.85	.355E+05	104.6	1.40	5.66
2.18	213.97	.398E+05	124.9	1.49	5.31
2.37	214.16	.481E+05	161.2	1.59	4.97

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0241)	26.70	1.09	3.58	68.19	0.73	0.51
OUTFLOW: ID= 1 (0864)	26.70	1.07	4.00	68.19	0.73	0.51

| ADD HYD (2301) |
1 + 2 = 3
ID1= 1 (0231): 29.50 1.152 3.92 67.35
+ ID2= 2 (0240): 10.10 0.411 3.58 67.56
=====

ID = 3 (2301): 39.60 1.558 3.83 67.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 67.350
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.600

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0240) |
ID= 1 DT= 5.0 min
Area (ha)= 10.10 Curve Number (CN)= 82.0
Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.74

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.411 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 67.562
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0241) |
ID= 1 DT= 5.0 min
Area (ha)= 26.70 Curve Number (CN)= 82.3
Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.75

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 1.094 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 68.193
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.608

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0864) |
IN= 2----> OUT= 1
Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500

| ADD HYD (2301) |
3 + 2 = 1
ID1= 3 (2301): 39.60 1.558 3.83 67.40
+ ID2= 2 (0864): 26.70 1.074 4.00 68.19
=====

ID = 1 (2301): 66.30 2.630 3.92 67.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0863) |
IN= 2----> OUT= 1
Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 / 0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 / 0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 / 0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.138E+01	0.0	0.11	58.11
0.09	205.28	.551E+01	0.0	0.18	36.61
0.13	205.32	.124E+02	0.0	0.23	27.94
0.17	205.36	.220E+02	0.0	0.28	23.06
0.22	205.41	.344E+02	0.0	0.33	19.87
0.26	205.45	.496E+02	0.0	0.37	17.60
0.31	205.50	.675E+02	0.1	0.41	15.88
0.35	205.54	.882E+02	0.1	0.45	14.53
0.39	205.58	.112E+03	0.1	0.48	13.43
0.44	205.63	.138E+03	0.2	0.52	12.52
0.48	205.67	.167E+03	0.2	0.55	11.81
0.52	205.71	.212E+03	0.2	0.44	14.65
0.57	205.76	.285E+03	0.3	0.43	15.23
0.61	205.80	.388E+03	0.4	0.44	14.79
0.66	205.85	.519E+03	0.6	0.47	13.99
0.70	205.89	.679E+03	0.9	0.50	13.12
0.74	205.93	.868E+03	1.2	0.53	12.29
0.79	205.98	.109E+04	1.6	0.56	11.53
0.83	206.02	.133E+04	2.0	0.60	10.85

Model With SWM Infrastructure - Output

```
**** WARNING: TRAVEL TIME TABLE EXCEEDED

<----- hydrograph -----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 2301) 66.30   2.63   3.92  67.72   0.83   0.60
OUTFLOW: ID= 1 ( 0863) 66.30   2.62   4.17  67.72   0.83   0.60
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| ADD HYD ( 2300) |
| 1 + 2 = 3 |
-----
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0230): 24.70   1.014   3.67   69.47
+ ID2= 2 ( 0863): 66.30   2.618   4.17   67.72
=====
ID = 3 ( 2300):  91.00   3.618   4.08   68.19
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2011) |
| 1 + 2 = 3 |
-----
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 2100): 110.30   4.370   4.50   69.83
+ ID2= 2 ( 2300):  91.00   3.618   4.08   68.19
=====
ID = 3 ( 2011): 201.30   7.963   4.25   69.09
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0862) |
| IN= 2--> OUT= 1 |
-----
      Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       204.63       0.0400
45.24      204.34       0.0400
94.52      203.98       0.0400
140.93     203.58       0.0400
148.77     203.72       0.0400 / 0.0350 Main Channel
154.30     202.99       0.0350 Main Channel
158.02     203.77       0.0350 / 0.0400 Main Channel
174.30     203.79       0.0400
222.94     204.38       0.0400
```

```
-----
| ADD HYD ( 2010) |
| 1 + 2 = 3 |
-----
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0201):  8.20   0.354   3.33   68.83
+ ID2= 2 ( 0023):  7.00   0.295   3.50   69.68
=====
ID = 3 ( 2010): 15.20   0.647   3.42   69.22
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2010) |
| 3 + 2 = 1 |
-----
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 3 ( 2010): 15.20   0.647   3.42   69.22
+ ID2= 2 ( 0862): 201.30   7.938   4.50   69.09
=====
ID = 1 ( 2010): 216.50   8.530   4.42   69.10
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0860) |
| IN= 2--> OUT= 1 |
-----
      Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance   Elevation   Manning
0.00       208.48       0.0500
43.69      207.97       0.0500
66.92      207.94       0.0500
76.98      208.01       0.0500
87.94      208.25       0.0500
89.93      208.44       0.0500 / 0.0350 Main Channel
92.70      208.20       0.0350 Main Channel
95.51      207.28       0.0350 Main Channel
98.26      208.25       0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)     (m)     (cu.m.)   (cms)       (m/s)      (min)
0.05    207.33   .155E+01   0.0         0.16       23.32
0.10    207.38   .620E+01   0.0         0.25       14.69
0.15    207.43   .140E+02   0.0         0.33       11.21
0.19    207.47   .248E+02   0.0         0.40       9.26
0.24    207.52   .388E+02   0.1         0.47       7.98
0.29    207.57   .558E+02   0.1         0.53       7.06
0.34    207.62   .760E+02   0.2         0.59       6.37
0.39    207.67   .992E+02   0.3         0.64       5.83
```

285.62 204.03 0.0400

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)     (m)     (cu.m.)   (cms)       (m/s)      (min)
0.05    203.04   .465E+01   0.0         0.10       47.86
0.10    203.09   .186E+02   0.0         0.15       30.15
0.16    203.15   .418E+02   0.0         0.20       23.01
0.21    203.20   .744E+02   0.1         0.24       18.99
0.26    203.25   .116E+03   0.1         0.28       16.37
0.31    203.30   .167E+03   0.2         0.32       14.50
0.37    203.36   .228E+03   0.3         0.35       13.08
0.42    203.41   .297E+03   0.4         0.39       11.97
0.47    203.46   .376E+03   0.6         0.42       11.06
0.52    203.51   .465E+03   0.8         0.45       10.31
0.57    203.56   .562E+03   1.0         0.48       9.68
0.63    203.62   .700E+03   1.2         0.49       9.49
0.68    203.67   .969E+03   1.6         0.45       10.15
0.73    203.72   .138E+04   2.1         0.43       10.83
0.79    203.78   .203E+04   3.1         0.43       10.85
0.85    203.84   .309E+04   4.6         0.41       11.14
0.92    203.91   .437E+04   6.7         0.42       10.87
0.98    203.97   .586E+04   9.4         0.44       10.42
1.04    204.03   .757E+04   12.7        0.46       9.97
```

```
<----- hydrograph -----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 2011) 201.30   7.96   4.25   69.09   0.95   0.43
OUTFLOW: ID= 1 ( 0862) 201.30   7.94   4.50   69.09   0.94   0.43
```

```
-----
| CALIB |
| NASHYD ( 0201) | Area (ha)= 8.20 Curve Number (CN)= 82.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.60 |
-----
```

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.354 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 68.828
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.613

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
0.44 207.72 .126E+03 0.4 0.69 5.39
0.48 207.76 .155E+03 0.5 0.74 5.03
0.53 207.81 .188E+03 0.7 0.79 4.72
0.58 207.86 .223E+03 0.8 0.84 4.45
0.63 207.91 .262E+03 1.0 0.88 4.22
0.68 207.96 .341E+03 1.3 0.83 4.47
0.73 208.01 .708E+03 1.8 0.57 6.58
0.78 208.06 .119E+04 2.7 0.51 7.25
0.82 208.10 .174E+04 4.0 0.52 7.19
0.87 208.15 .236E+04 5.7 0.54 6.89
0.92 208.20 .305E+04 7.8 0.57 6.55
```

```
**** WARNING: TRAVEL TIME TABLE EXCEEDED

<----- hydrograph -----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 2010) 216.50   8.53   4.42   69.10   0.92   0.57
OUTFLOW: ID= 1 ( 0860) 216.50   8.52   4.58   69.10   0.92   0.57
```

```
-----
| ADD HYD ( 2000) |
| 1 + 2 = 3 |
-----
      AREA   QPEAK   TPEAK   R.V.
      (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0200): 25.60   1.034   3.67   67.98
+ ID2= 2 ( 0860): 216.50   8.522   4.58   69.10
=====
ID = 3 ( 2000): 242.10   9.511   4.50   68.98
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0300) | Area (ha)= 36.80 Curve Number (CN)= 83.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.90 |
-----
```

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 1.491 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 69.896
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.623

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
-----
| CALIB |
| NASHYD ( 0031) | Area (ha)= 3.00 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.62 |

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.132 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 71.004
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.633
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0350) | Area (ha)= 1.50 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.38 |
```

Unit Hyd Qpeak (cms)= 0.151

```
PEAK FLOW (cms)= 0.069 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 70.094
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.625
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0850) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 / 0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 / 0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.300E+01	0.0	0.15	86.75
0.07	204.57	.120E+02	0.0	0.24	54.65
0.11	204.61	.270E+02	0.0	0.31	41.70
0.14	204.64	.480E+02	0.0	0.37	34.42
0.18	204.68	.750E+02	0.0	0.43	29.67
0.22	204.72	.108E+03	0.1	0.49	26.27
0.25	204.75	.147E+03	0.1	0.54	23.71
0.29	204.79	.192E+03	0.1	0.59	21.69
0.33	204.83	.243E+03	0.2	0.64	20.05
0.36	204.86	.300E+03	0.3	0.69	18.69
0.40	204.90	.363E+03	0.3	0.73	17.54
0.43	204.93	.488E+03	0.4	0.70	18.37
0.47	204.97	.860E+03	0.6	0.56	22.95
0.51	205.01	.144E+04	1.0	0.52	24.88
0.54	205.04	.217E+04	1.5	0.52	24.65
0.58	205.08	.304E+04	2.1	0.54	23.62
0.61	205.11	.407E+04	3.0	0.57	22.38
0.65	205.15	.524E+04	4.1	0.61	21.13
0.69	205.19	.656E+04	5.5	0.64	19.97

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0350)	1.50	0.07	3.17	70.09	0.22	0.49
OUTFLOW: ID= 1 (0850)	1.50	0.07	3.33	69.77	0.21	0.48

```
-----
| CALIB |
| NASHYD ( 0032) | Area (ha)= 28.00 Curve Number (CN)= 83.4
| ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.95 |
```

Unit Hyd Qpeak (cms)= 1.126

```
PEAK FLOW (cms)= 1.133 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 70.534
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.629
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 3200) |
|-----|
```

```
-----
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0032): 28.00 1.133 4.00 70.53
| + ID2= 2 ( 0850): 1.50 0.066 3.33 69.77
|-----|
| ID = 3 ( 3200): 29.50 1.194 4.00 70.50
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0301) | Area (ha)= 59.40 Curve Number (CN)= 82.7
| ID= 1 DT= 5.0 min | Ia (mm)= 7.97 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 1.23 |
```

Unit Hyd Qpeak (cms)= 1.845

```
PEAK FLOW (cms)= 2.252 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 69.036
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.615
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 3010) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 0301): 59.40 2.252 5.08 69.04
| + ID2= 2 ( 3200): 29.50 1.194 4.00 70.50
|-----|
| ID = 3 ( 3010): 88.90 3.411 4.67 69.52
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 3001) |
| 1 + 2 = 3 |
|-----|
| ID1= 1 ( 3010): 88.90 3.411 4.67 69.52
| + ID2= 2 ( 0031): 3.00 0.132 3.33 71.00
|-----|
| ID = 3 ( 3001): 91.90 3.526 4.58 69.57
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0852) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
|-----|
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 / 0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 / 0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400
124.41 207.31 0.0400
129.31 207.24 0.0400
```

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	205.46	.132E+02	0.0	0.21	32.83
0.19	205.56	.529E+02	0.0	0.33	20.68
0.28	205.65	.119E+03	0.1	0.43	15.78
0.38	205.75	.212E+03	0.3	0.52	13.03
0.47	205.84	.327E+03	0.5	0.62	10.84
0.57	205.94	.458E+03	0.8	0.72	9.42
0.66	206.03	.604E+03	1.2	0.80	8.44
0.76	206.13	.777E+03	1.7	0.91	7.41
0.86	206.23	.102E+04	2.4	0.97	6.97
0.96	206.33	.168E+04	3.6	0.87	7.76
1.06	206.43	.252E+04	5.4	0.87	7.80
1.16	206.53	.350E+04	7.7	0.89	7.56
1.26	206.63	.463E+04	10.7	0.93	7.24
1.37	206.74	.590E+04	14.3	0.98	6.90
1.47	206.84	.732E+04	18.6	1.03	6.58
1.57	206.94	.889E+04	23.6	1.08	6.28
1.67	207.04	.106E+05	29.5	1.13	6.00
1.77	207.14	.125E+05	36.1	1.17	5.75
1.87	207.24	.145E+05	43.7	1.22	5.52

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (3001)	91.90	3.53	4.58	69.57	0.95	0.88
OUTFLOW: ID= 1 (0852)	91.90	3.52	4.83	69.57	0.95	0.88

```
-----
| ADD HYD ( 3000) |
|-----|
```

Model With SWM Infrastructure - Output

```
| 1 + 2 = 3 |
-----
ID1= 1 ( 0300): 36.80 1.491 3.92 69.90
+ ID2= 2 ( 0852): 91.90 3.521 4.83 69.57
=====
ID = 3 ( 3000): 128.70 4.973 4.58 69.66
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB |
| NASHYD ( 0030) | Area (ha)= 1.10 Curve Number (CN)= 81.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.76 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.30
```

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.049 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 69.014
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.615

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0854) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.00 0.0400
33.24 205.47 0.0400
44.39 205.59 0.0400
48.71 205.45 0.0400 /0.0350 Main Channel
51.02 204.50 0.0350 Main Channel
54.33 205.44 0.0350 /0.0400 Main Channel
55.90 204.97 0.0400
62.96 204.91 0.0400
102.92 205.20 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 204.54 .753E+00 0.0 0.18 18.23
0.07 204.57 .301E+01 0.0 0.28 11.48
0.11 204.61 .677E+01 0.0 0.37 8.76
0.14 204.64 .120E+02 0.0 0.45 7.23
0.18 204.68 .188E+02 0.1 0.52 6.23
0.22 204.72 .271E+02 0.1 0.58 5.52
```

0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0030) 1.10 0.05 3.08 69.01 0.18 0.51
OUTFLOW: ID= 1 ( 0854) 1.10 0.05 3.17 69.00 0.18 0.51
```

```
| CALIB |
| NASHYD ( 0340) | Area (ha)= 21.00 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.69
```

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 0.890 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 69.252
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 3400) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0340): 21.00 0.890 3.42 69.25
+ ID2= 2 ( 0854): 1.10 0.049 3.17 69.00
=====
ID = 3 ( 3400): 22.10 0.937 3.42 69.24
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB |
| NASHYD ( 0123) | Area (ha)= 24.60 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 0.984 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 69.469
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.619

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0814) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .923E+01 0.0 0.26 23.49
0.24 212.03 .369E+02 0.0 0.42 14.80
0.36 212.15 .831E+02 0.1 0.55 11.29
0.48 212.27 .148E+03 0.3 0.67 9.32
0.61 212.40 .231E+03 0.5 0.77 8.03
0.73 212.52 .727E+03 1.0 0.50 12.40
0.85 212.64 .204E+04 2.7 0.49 12.63
0.97 212.76 .374E+04 5.7 0.57 10.84
1.09 212.88 .580E+04 10.4 0.67 9.25
1.21 213.00 .804E+04 16.9 0.78 7.94
1.33 213.12 .104E+05 24.8 0.88 7.02
1.45 213.24 .130E+05 34.1 0.98 6.35
1.57 213.36 .157E+05 44.8 1.07 5.82
```

1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 0123) 24.60 0.98 4.00 69.47 0.73 0.50
OUTFLOW: ID= 1 ( 0814) 24.60 0.98 4.42 69.47 0.72 0.50
```

```
| CALIB |
| NASHYD ( 0124) | Area (ha)= 24.30 Curve Number (CN)= 85.8
| ID= 1 DT= 5.0 min | Ia (mm)= 6.30 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.51
```

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 1.184 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 75.804
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.676

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0813) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
```

Model With SWM Infrastructure - Output

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.78
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25

<---- hydrograph ---->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0124)	24.30	1.18	3.17	75.80	0.74
OUTFLOW: ID= 1 (0813)	24.30	1.13	3.50	75.79	0.49

ADD HYD (1221)			
1 + 2 = 3			
AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0813):	24.30	1.133	3.50
+ ID2= 2 (0814):	24.60	0.976	4.42
=====			
ID = 3 (1221):	48.90	2.051	3.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0812)			
IN= 2----> OUT= 1			
Routing time step (min)'= 5.00			
<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	

53.04	208.89	0.0400
64.12	208.50	0.0400 /0.0350
70.77	208.05	0.0350
74.98	208.02	0.0350
83.40	208.38	0.0350 /0.0400
88.06	208.63	0.0400
94.94	209.13	0.0400
105.88	209.54	0.0400

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.533E+02	0.1	0.24	12.01
0.14	208.16	.150E+03	0.3	0.37	7.63
0.22	208.24	.280E+03	0.8	0.47	5.98
0.29	208.31	.444E+03	1.5	0.56	5.04
0.36	208.38	.642E+03	2.4	0.64	4.42
0.44	208.46	.896E+03	4.0	0.75	3.76
0.52	208.54	.119E+04	6.0	0.86	3.29
0.60	208.62	.153E+04	8.6	0.96	2.96
0.68	208.70	.192E+04	11.7	1.04	2.73
0.76	208.78	.235E+04	15.4	1.11	2.55
0.84	208.86	.283E+04	19.6	1.18	2.41
0.92	208.94	.351E+04	24.2	1.17	2.41
0.99	209.01	.435E+04	30.6	1.19	2.37
1.07	209.09	.528E+04	38.0	1.22	2.31
1.15	209.17	.628E+04	46.4	1.26	2.26
1.23	209.25	.737E+04	55.9	1.29	2.20
1.31	209.33	.855E+04	66.6	1.33	2.14
1.39	209.41	.982E+04	78.7	1.36	2.08
1.47	209.49	.112E+05	92.1	1.40	2.03

<---- hydrograph ---->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1221)	48.90	2.05	3.83	72.61	0.33
OUTFLOW: ID= 1 (0812)	48.90	2.05	3.92	72.61	0.33

CALIB			
NASHYD (0122)			
ID= 1 DT= 5.0 min			
Area	(ha)=	31.80	Curve Number (CN)= 85.1
Ia	(mm)=	6.67	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=	0.96		

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 1.354 (i)
TIME TO PEAK (hrs)= 3.917

RUNOFF VOLUME (mm)= 74.242
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.662

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1220)			
1 + 2 = 3			
AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0122):	31.80	1.354	3.92
+ ID2= 2 (0812):	48.90	2.051	3.92
=====			
ID = 3 (1220):	80.70	3.404	3.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0811)			
IN= 2----> OUT= 1			
Routing time step (min)'= 5.00			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 /0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 /0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 /0.0400	
132.78	206.84	0.0400	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	206.01	.147E+02	0.0	0.14	60.26
0.12	206.07	.590E+02	0.0	0.22	37.96
0.18	206.13	.133E+03	0.1	0.29	28.97
0.26	206.21	.302E+03	0.2	0.36	22.81
0.34	206.29	.671E+03	0.5	0.39	21.40
0.42	206.37	.151E+04	1.2	0.39	20.95
0.50	206.45	.254E+04	2.3	0.45	18.38
0.58	206.53	.376E+04	3.7	0.49	16.98
0.66	206.61	.544E+04	5.6	0.51	16.11
0.74	206.69	.764E+04	8.4	0.54	15.19
0.83	206.78	.104E+05	12.1	0.58	14.27
0.91	206.86	.134E+05	17.4	0.64	12.84
0.99	206.94	.166E+05	23.6	0.71	11.71

1.07	207.02	.201E+05	30.7	0.76	10.88
1.15	207.10	.239E+05	38.8	0.81	10.26
1.23	207.18	.280E+05	48.0	0.85	9.72
1.31	207.26	.325E+05	58.5	0.89	9.26
1.39	207.34	.373E+05	70.3	0.94	8.84
1.47	207.42	.424E+05	83.4	0.98	8.48

<---- hydrograph ---->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1220)	80.70	3.40	3.92	73.25	0.57
OUTFLOW: ID= 1 (0811)	80.70	3.37	4.25	73.25	0.56

CALIB			
NASHYD (0121)			
ID= 1 DT= 5.0 min			
Area	(ha)=	16.10	Curve Number (CN)= 86.5
Ia	(mm)=	5.94	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=	0.89		

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 0.729 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 77.388
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.690

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1210)			
1 + 2 = 3			
AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0121):	16.10	0.729	3.67
+ ID2= 2 (0811):	80.70	3.369	4.25
=====			
ID = 3 (1210):	96.80	4.081	4.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0146)			
ID= 1 DT= 5.0 min			
Area	(ha)=	12.80	Curve Number (CN)= 83.0
Ia	(mm)=	7.80	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)=	0.55		

Model With SWM Infrastructure - Output

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 0.566 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 69.676
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.621

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0844)
IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 /0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 /0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .107E+01 0.0 0.13 37.04
0.08 207.60 .430E+01 0.0 0.20 23.33
0.12 207.64 .966E+01 0.0 0.27 17.81
0.16 207.68 .172E+02 0.0 0.32 14.70
0.19 207.71 .268E+02 0.0 0.38 12.67
0.23 207.75 .387E+02 0.1 0.42 11.22
0.27 207.79 .526E+02 0.1 0.47 10.12
0.31 207.83 .687E+02 0.1 0.51 9.26
0.35 207.87 .870E+02 0.2 0.56 8.56
0.39 207.91 .107E+03 0.2 0.60 7.98
0.43 207.95 .130E+03 0.3 0.64 7.49
0.47 207.99 .155E+03 0.4 0.67 7.07
0.50 208.02 .181E+03 0.5 0.71 6.70
0.54 208.06 .210E+03 0.6 0.75 6.38
0.58 208.10 .242E+03 0.7 0.78 6.09
0.62 208.14 .275E+03 0.8 0.82 5.83
0.67 208.19 .329E+03 1.0 0.87 5.50
0.72 208.24 .413E+03 1.3 0.89 5.36
0.77 208.29 .540E+03 1.7 0.87 5.45

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)

INFLOW : ID= 2 (0146) 12.80 0.57 3.25 69.68 0.55 0.75
OUTFLOW: ID= 1 (0844) 12.80 0.56 3.33 69.67 0.55 0.75

CALIB
NASHYD (0145) | Area (ha)= 12.60 Curve Number (CN)= 83.3
ID= 1 DT= 5.0 min | Ia (mm)= 7.63 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.557 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 70.322
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.627

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1450)
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0145): 12.60 0.557 3.33 70.32
+ ID2= 2 (0844): 12.80 0.565 3.33 69.67
=====

ID = 3 (1450): 25.40 1.122 3.33 69.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0843)
IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .144E+02 0.0 0.23 42.45
0.24 212.03 .578E+02 0.0 0.36 26.74
0.36 212.15 .130E+03 0.1 0.48 20.41
0.48 212.27 .231E+03 0.2 0.58 16.85
0.61 212.40 .361E+03 0.4 0.67 14.52
0.73 212.52 .114E+04 0.8 0.43 22.41
0.85 212.64 .319E+04 2.3 0.43 22.83
0.97 212.76 .585E+04 5.0 0.50 19.59
1.09 212.88 .907E+04 9.0 0.58 16.72
1.21 213.00 .126E+05 14.6 0.68 14.34
1.33 213.12 .163E+05 21.4 0.77 12.69
1.45 213.24 .203E+05 29.5 0.85 11.47
1.57 213.36 .245E+05 38.8 0.92 10.52
1.70 213.49 .289E+05 49.3 0.99 9.77
1.82 213.61 .336E+05 61.2 1.06 9.15
1.94 213.73 .385E+05 74.3 1.13 8.63
2.06 213.85 .436E+05 89.6 1.20 8.11
2.18 213.97 .488E+05 106.9 1.28 7.61
2.37 214.16 .590E+05 138.1 1.36 7.13

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)

INFLOW : ID= 2 (1450) 25.40 1.12 3.33 69.99 0.75 0.43
OUTFLOW: ID= 1 (0843) 25.40 1.07 3.75 69.98 0.75 0.43

CALIB
NASHYD (0144) | Area (ha)= 28.60 Curve Number (CN)= 82.9
ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.97

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 1.135 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 69.469
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.619

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1440)
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0144): 28.60 1.135 4.17 69.47
+ ID2= 2 (0843): 25.40 1.073 3.75 69.98
=====

ID = 3 (1440): 54.00 2.198 3.83 69.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0842)
IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 206.70 0.0400
2.35 206.02 0.0400 /0.0350 Main Channel
5.23 205.19 0.0350 Main Channel
5.34 205.67 0.0350 Main Channel
19.05 206.06 0.0350 /0.0400 Main Channel
21.11 206.05 0.0400
22.02 206.13 0.0400 /0.0350
40.10 206.15 0.0350
56.50 206.04 0.0350

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 205.23 .149E+01 0.0 0.09 81.67
0.09 205.28 .594E+01 0.0 0.14 51.45
0.13 205.32 .134E+02 0.0 0.18 39.26
0.17 205.36 .238E+02 0.0 0.22 32.41
0.22 205.41 .371E+02 0.0 0.25 27.93
0.26 205.45 .535E+02 0.0 0.28 24.73
0.31 205.50 .728E+02 0.1 0.31 22.32
0.35 205.54 .950E+02 0.1 0.34 20.42
0.39 205.58 .120E+03 0.1 0.37 18.87
0.44 205.63 .149E+03 0.1 0.40 17.59
0.48 205.67 .180E+03 0.2 0.42 16.60
0.52 205.71 .228E+03 0.2 0.34 20.59
0.57 205.76 .308E+03 0.2 0.33 21.41
0.61 205.80 .418E+03 0.3 0.34 20.79
0.66 205.85 .560E+03 0.5 0.36 19.66
0.70 205.89 .732E+03 0.7 0.38 18.44
0.74 205.93 .936E+03 0.9 0.41 17.27
0.79 205.98 .117E+04 1.2 0.43 16.20
0.83 206.02 .144E+04 1.6 0.46 15.24

**** WARNING: TRAVEL TIME TABLE EXCEEDED

Model With SWM Infrastructure - Output

```
<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1440) 54.00   2.20   3.83  69.71   0.83   0.46
OUTFLOW: ID= 1 ( 0842) 54.00   2.18   4.25  69.71   0.83   0.46
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| CALIB
| NASHYD ( 0143) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 27.70 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.07
```

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)= 1.080 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 69.470
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.619

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1430) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0143): 27.70 1.080 4.42 69.47
+ ID2= 2 ( 0842): 54.00 2.177 4.25 69.71
=====
ID = 3 ( 1430): 81.70 3.255 4.25 69.63
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0841) |
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.66 0.0400
19.50 209.34 0.0400
37.91 208.66 0.0400
41.73 208.62 0.0400 /0.0350 Main Channel
43.44 208.24 0.0350 Main Channel
45.75 208.62 0.0350 /0.0450 Main Channel
```

```
54.00 208.79 0.0450 /0.0400
77.43 209.05 0.0400
128.85 209.70 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 208.30 .216E+02 0.0 0.15 113.45
0.13 208.37 .864E+02 0.0 0.24 71.47
0.19 208.43 .194E+03 0.1 0.31 54.54
0.25 208.49 .345E+03 0.1 0.38 45.02
0.32 208.56 .540E+03 0.2 0.44 38.00
0.38 208.62 .777E+03 0.4 0.49 34.36
0.46 208.70 .152E+04 0.7 0.50 33.99
0.54 208.78 .281E+04 1.4 0.50 33.61
0.62 208.86 .469E+04 2.5 0.53 31.90
0.70 208.94 .734E+04 4.0 0.56 30.28
0.78 209.02 .107E+05 6.3 0.59 28.55
0.86 209.10 .149E+05 9.3 0.63 26.78
0.94 209.18 .198E+05 13.1 0.68 25.09
1.02 209.26 .253E+05 17.9 0.72 23.58
1.10 209.34 .315E+05 23.6 0.76 22.24
1.18 209.42 .386E+05 30.0 0.79 21.42
1.26 209.50 .465E+05 37.7 0.82 20.56
1.34 209.58 .554E+05 46.8 0.86 19.73
1.42 209.66 .652E+05 57.3 0.90 18.94
```

```
<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1430) 81.70 3.26 4.25 69.63 0.66 0.55
OUTFLOW: ID= 1 ( 0841) 81.70 3.17 5.08 69.62 0.66 0.54
```

```
-----
| CALIB
| NASHYD ( 0142) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 27.10 Curve Number (CN)= 82.9
Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.22
```

Unit Hyd Qpeak (cms)= 0.848

PEAK FLOW (cms)= 1.034 (i)
TIME TO PEAK (hrs)= 5.000
RUNOFF VOLUME (mm)= 69.470
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.619

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1420) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0142): 27.10 1.034 5.00 69.47
+ ID2= 2 ( 0841): 81.70 3.171 5.08 69.62
=====
ID = 3 ( 1420): 108.80 4.204 5.08 69.58
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0840) |
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.52 0.0400
61.99 209.23 0.0400
76.86 209.20 0.0400
82.03 209.20 0.0400 /0.0350 Main Channel
86.30 208.87 0.0350 Main Channel
89.86 209.20 0.0350 /0.0300 Main Channel
96.27 209.24 0.0300
103.53 209.40 0.0300
127.96 209.50 0.0300
158.58 209.70 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.03 208.90 .706E+01 0.0 0.08 110.24
0.07 208.94 .282E+02 0.0 0.13 69.44
0.10 208.97 .636E+02 0.0 0.17 53.00
0.13 209.00 .113E+03 0.0 0.21 43.75
0.17 209.04 .177E+03 0.1 0.24 37.70
0.20 209.07 .254E+03 0.1 0.27 33.38
0.23 209.10 .346E+03 0.2 0.30 30.12
0.26 209.13 .452E+03 0.3 0.33 27.56
0.30 209.17 .572E+03 0.4 0.36 25.48
0.33 209.20 .706E+03 0.5 0.38 23.75
0.37 209.24 .118E+04 0.7 0.34 26.61
0.40 209.27 .196E+04 1.2 0.33 27.88
0.44 209.31 .291E+04 1.8 0.34 27.18
0.47 209.34 .404E+04 2.6 0.35 25.91
0.51 209.38 .536E+04 3.6 0.37 24.55
0.54 209.41 .686E+04 4.8 0.39 23.61
0.58 209.45 .865E+04 6.3 0.40 22.94
```

```
0.61 209.48 .108E+05 8.1 0.41 22.09
0.65 209.52 .132E+05 10.4 0.43 21.10
```

```
<---- hydrograph ----> <-pipe / channel->
      AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
      (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1420) 108.80 4.20 5.08 69.58 0.52 0.38
OUTFLOW: ID= 1 ( 0840) 108.80 4.16 5.42 69.58 0.52 0.38
```

```
-----
| CALIB
| NASHYD ( 0141) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 8.10 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.344 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 70.965
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1410) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0141): 8.10 0.344 3.58 70.97
+ ID2= 2 ( 0840): 108.80 4.159 5.42 69.58
=====
ID = 3 ( 1410): 116.90 4.461 5.33 69.67
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0151) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 24.60 Curve Number (CN)= 82.8
Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.00
```

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 0.968 (i)
TIME TO PEAK (hrs)= 4.250

Model With SWM Infrastructure - Output

RUNOFF VOLUME (mm)= 69.253
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0153)	Area (ha)= 33.30	Curve Number (CN)= 82.6	
ID= 1 DT= 5.0 min	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 1.08		

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 1.285 (i)
TIME TO PEAK (hrs)= 4.500
RUNOFF VOLUME (mm)= 68.829
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.613

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0834)	
ID= 2----> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.125E+02	0.0	0.21	40.70
0.24	212.03	.501E+02	0.0	0.33	25.64
0.36	212.15	.113E+03	0.1	0.43	19.56
0.48	212.27	.200E+03	0.2	0.52	16.15
0.61	212.40	.313E+03	0.4	0.61	13.92
0.73	212.52	.987E+03	0.8	0.39	21.48
0.85	212.64	.277E+04	2.1	0.39	21.89

0.97	212.76	.507E+04	4.5	0.45	18.78
1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

		<---- hydrograph ---->				<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
		(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0153)	33.30	1.28	4.50	68.83	0.77	0.39	
OUTFLOW: ID= 1 (0834)	33.30	1.27	5.00	68.83	0.77	0.39	

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.642 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 68.829
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.613

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1520)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0152):	16.20	0.642	4.00	68.83
+ ID2= 2 (0834):	33.30	1.273	5.00	68.83

ID = 3 (1520):	49.50	1.896	4.83	68.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0833)	
ID= 2----> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.232E+03	0.1	0.19	65.23
0.14	208.16	.652E+03	0.3	0.30	41.42
0.22	208.24	.122E+04	0.6	0.38	32.47
0.29	208.31	.193E+04	1.2	0.45	27.40
0.36	208.38	.279E+04	1.9	0.51	24.03
0.44	208.46	.389E+04	3.2	0.60	20.41
0.52	208.54	.516E+04	4.8	0.69	17.88
0.60	208.62	.664E+04	6.9	0.77	16.07
0.68	208.70	.833E+04	9.4	0.83	14.80
0.76	208.78	.102E+05	12.3	0.89	13.84
0.84	208.86	.123E+05	15.7	0.94	13.07
0.92	208.94	.153E+05	19.4	0.94	13.11
0.99	209.01	.189E+05	24.5	0.96	12.89
1.07	209.09	.229E+05	30.4	0.98	12.57
1.15	209.17	.273E+05	37.1	1.01	12.25
1.23	209.25	.320E+05	44.7	1.03	11.94
1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

		<---- hydrograph ---->				<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
		(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1520)	49.50	1.90	4.83	68.83	0.36	0.51	
OUTFLOW: ID= 1 (0833)	49.50	1.88	5.17	68.82	0.35	0.51	

ADD HYD (1510)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0151):	24.60	0.968	4.25	69.25
+ ID2= 2 (0833):	49.50	1.884	5.17	68.82

ID = 3 (1510):	74.10	2.827	5.08	68.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0832)	
ID= 2----> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.50	0.0400	
29.68	206.77	0.0400	
43.70	206.13	0.0400 / 0.0350	Main Channel
44.99	205.95	0.0350	Main Channel
47.70	206.24	0.0350 / 0.0450	Main Channel
60.54	206.32	0.0450	
80.11	206.99	0.0450	
102.29	207.42	0.0450 / 0.0400	
132.78	206.84	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	206.01	.158E+02	0.0	0.16	56.30
0.12	206.07	.633E+02	0.0	0.25	35.47
0.18	206.13	.142E+03	0.1	0.33	27.07
0.26	206.21	.324E+03	0.3	0.42	21.31
0.34	206.29	.720E+03	0.6	0.44	20.00
0.42	206.37	.162E+04	1.4	0.45	19.57
0.50	206.45	.272E+04	2.6	0.52	17.17
0.58	206.53	.404E+04	4.2	0.56	15.86
0.66	206.61	.584E+04	6.5	0.59	15.05
0.74	206.69	.820E+04	9.6	0.63	14.19
0.83	206.78	.111E+05	13.9	0.67	13.34
0.91	206.86	.143E+05	19.9	0.74	12.00
0.99	206.94	.178E+05	27.1	0.81	10.94
1.07	207.02	.215E+05	35.3	0.87	10.16
1.15	207.10	.256E+05	44.5	0.93	9.59
1.23	207.18	.301E+05	55.1	0.98	9.09
1.31	207.26	.349E+05	67.2	1.03	8.65
1.39	207.34	.400E+05	80.7	1.07	8.26
1.47	207.42	.455E+05	95.8	1.12	7.92

		<---- hydrograph ---->				<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
		(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)

Model With SWM Infrastructure - Output

INFLOW : ID= 2 (1510) (ha) (cms) (hrs) (mm) (m) (m/s)
OUTFLOW: ID= 1 (0832) 74.10 2.83 5.08 68.96 0.51 0.52
74.10 2.82 5.25 68.96 0.51 0.52

CALIB
NASHYD (0150) | Area (ha)= 6.60 Curve Number (CN)= 83.7
ID= 1 DT= 5.0 min | Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.96

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.269 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 71.186
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.634

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1500) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0150): 6.60 0.269 4.00 71.19
+ ID2= 2 (0832): 74.10 2.817 5.25 68.96
=====

ID = 3 (1500): 80.70 3.073 5.25 69.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1401) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (1410): 116.90 4.461 5.33 69.67
+ ID2= 2 (1500): 80.70 3.073 5.25 69.14
=====

ID = 3 (1401): 197.60 7.531 5.33 69.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0830) |
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

ID= 1 DT= 5.0 min | Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.34

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.701 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 70.966
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.632

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400) |
1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 (0140): 18.30 0.701 5.17 70.97
+ ID2= 2 (0830): 197.60 7.235 5.83 69.45
=====

ID = 3 (1400): 215.90 7.909 5.75 69.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0131) | Area (ha)= 28.70 Curve Number (CN)= 82.1
ID= 1 DT= 5.0 min | Ia (mm)= 8.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.11

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 1.087 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 67.775
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.604

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0011) | Area (ha)= 132.00
ID= 1 DT= 5.0 min | Total Imp(%)= 57.10 Dir. Conn.(%)= 45.00
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 75.37 56.63
Dep. Storage (mm)= 1.00 8.95

DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 207.71 0.0400
58.83 206.71 0.0400
66.88 206.59 0.0400 /0.0350 Main Channel
72.32 206.34 0.0350 Main Channel
77.68 206.55 0.0350 /0.0800 Main Channel
82.85 206.54 0.0800
90.20 206.02 0.0800
94.03 206.48 0.0800
99.83 206.40 0.0800 /0.0400
114.32 206.50 0.0400
136.07 206.86 0.0400
174.41 207.56 0.0400

TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.224E+03	0.0	0.08	174.00
0.23	206.25	.505E+03	0.1	0.11	132.79
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34
0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	4.7	0.29	50.17
0.78	206.80	.196E+05	7.6	0.34	42.88
0.87	206.89	.258E+05	11.4	0.38	37.80
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11
1.37	207.39	.776E+05	54.6	0.61	23.71
1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43

hydrograph -----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (1401) 197.60 7.53 5.33 69.46 0.78 0.34
OUTFLOW: ID= 1 (0830) 197.60 7.24 5.83 69.45 0.77 0.33

CALIB
NASHYD (0140) | Area (ha)= 18.30 Curve Number (CN)= 83.6

Average Slope (%)= 1.00 1.00
Length (m)= 938.08 40.00
Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 29.17 19.81
over (min) 15.00 35.00
Storage Coeff. (min)= 16.02 (ii) 32.63 (ii)
Unit Hyd. Tpeak (min)= 15.00 35.00
Unit Hyd. peak (cms)= 0.07 0.03
TOTALS
PEAK FLOW (cms)= 4.73 2.81 6.573 (iii)
TIME TO PEAK (hrs)= 2.08 3.33 2.25
RUNOFF VOLUME (mm)= 111.20 63.19 84.80
TOTAL RAINFALL (mm)= 112.20 112.20 112.20
RUNOFF COEFFICIENT = 0.99 0.56 0.76

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0874) | OVERFLOW IS OFF
IN= 2---> OUT= 1 |
DT= 5.0 min |
OUTFLOW STORAGE | OUTFLOW STORAGE
(cms) (ha.m.) | (cms) (ha.m.)
0.0000 0.0000 | 2.4200 5.4280
0.0950 1.5860 | 3.3930 6.6280
1.2530 3.8390 | 0.0000 0.0000
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 (0011) 132.000 6.573 2.25 84.80
OUTFLOW: ID= 1 (0874) 132.000 3.393 6.00 84.23

PEAK FLOW REDUCTION [Qout/Qin](%)= 51.62
TIME SHIFT OF PEAK FLOW (min)=225.00
MAXIMUM STORAGE USED (ha.m.)= 6.6283

CALIB
STANDHYD (0012) | Area (ha)= 17.50
ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00
IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 14.00 3.50
Dep. Storage (mm)= 1.00 8.94

Model With SWM Infrastructure - Output

Average Slope (%)= 1.00 1.00
Length (m)= 341.57 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 29.17 26.07
over (min) 10.00 25.00
Storage Coeff. (min)= 8.74 (ii) 23.62 (ii)
Unit Hyd. Tpeak (min)= 10.00 25.00
Unit Hyd. peak (cms)= 0.12 0.05

PEAK FLOW (cms)= 0.99 0.23
TIME TO PEAK (hrs)= 2.08 3.17
RUNOFF VOLUME (mm)= 111.20 68.10
TOTAL RAINFALL (mm)= 112.20 112.20
RUNOFF COEFFICIENT = 0.99 0.61

TOTALS
1.175 (iii)
2.08
98.27
112.20
0.88

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0012):	17.50	1.175	2.08	98.27
+ ID2= 2 (0874):	132.00	3.393	6.00	84.23
=====				
ID = 3 (1112):	149.50	3.906	5.17	85.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0010)
ID= 1 DT= 5.0 min

	Area (ha)	Dir. Conn.(%)
Area	12.90	70.00
Total Imp(%)	80.00	

IMPERVIOUS PERVIOUS (i)

	Area (ha)	Dep. Storage (mm)	Average Slope (%)	Length (m)	Mannings n
Surface Area	10.32	1.00	1.00	293.26	0.013
Dep. Storage	1.00	8.94	1.00	40.00	0.250
Average Slope	1.00	1.00	1.00	29.17	26.07
Length	293.26	40.00	10.00	25.00	7.97 (ii)
Mannings n	0.013	0.250	22.85 (ii)		

Max.Eff.Inten.(mm/hr)= 29.17 26.07
over (min) 10.00 25.00
Storage Coeff. (min)= 7.97 (ii) 22.85 (ii)

Unit Hyd. Tpeak (min)= 10.00 25.00
Unit Hyd. peak (cms)= 0.13 0.05

TOTALS
0.868 (iii)
2.08
98.27
112.20
0.88

PEAK FLOW (cms)= 0.73 0.17
TIME TO PEAK (hrs)= 2.08 3.17
RUNOFF VOLUME (mm)= 111.20 68.10
TOTAL RAINFALL (mm)= 112.20 112.20
RUNOFF COEFFICIENT = 0.99 0.61

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	12.90	0.868	2.08	98.27
+ ID2= 2 (1112):	149.50	3.906	5.17	85.88
=====				
ID = 3 (1311):	162.40	4.438	5.08	86.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822)
IN= 2--> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	207.71	0.0400
58.83	206.71	0.0400
66.88	206.59	0.0400 / 0.0350
72.32	206.34	0.0350
77.68	206.55	0.0350 / 0.0800
82.85	206.54	0.0800
90.20	206.02	0.0800
94.03	206.48	0.0800
99.83	206.40	0.0800 / 0.0400
114.32	206.50	0.0400
136.07	206.86	0.0400
174.41	207.56	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.337E+02	0.0	0.07	124.18
0.15	206.17	.135E+03	0.0	0.11	78.23
0.23	206.25	.303E+03	0.1	0.15	59.70
0.30	206.32	.539E+03	0.2	0.18	49.28
0.38	206.40	.885E+03	0.3	0.20	43.17
0.45	206.47	.175E+04	0.6	0.19	46.91
0.53	206.55	.333E+04	1.4	0.23	38.64
0.61	206.63	.569E+04	3.4	0.31	27.90
0.70	206.72	.851E+04	6.3	0.39	22.56
0.78	206.80	.118E+05	10.2	0.45	19.28
0.87	206.89	.155E+05	15.2	0.51	17.00
0.95	206.97	.196E+05	21.4	0.57	15.28
1.04	207.06	.242E+05	28.9	0.63	13.96
1.12	207.14	.292E+05	37.7	0.68	12.90
1.20	207.22	.346E+05	47.9	0.73	12.02
1.29	207.31	.404E+05	59.6	0.77	11.29
1.37	207.39	.466E+05	72.9	0.82	10.66
1.46	207.48	.533E+05	87.8	0.86	10.11
1.54	207.56	.604E+05	104.5	0.91	9.63

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60
0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1310)	191.10	5.36	5.17	83.98	0.69	0.34
OUTFLOW: ID= 1 (0821)	191.10	5.15	5.75	83.94	0.68	0.33

CALIB
NASHYD (0130)
ID= 1 DT= 5.0 min

Area	(ha)	Curve Number (CN)=
Ia	8.53	81.7
U.H. Tp(hrs)=	1.32	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 0.975 (i)
TIME TO PEAK (hrs)= 5.250

Model With SWM Infrastructure - Output

RUNOFF VOLUME (mm)= 66.936
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.597

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1300)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0130):	26.70	0.975	5.25	66.94	
+ ID2= 2 (0821):	191.10	5.150	5.75	83.94	
=====					
ID = 3 (1300):	217.80	6.103	5.58	81.85	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1202)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (1300):	217.80	6.103	5.58	81.85	
+ ID2= 2 (1400):	215.90	7.909	5.75	69.58	
=====					
ID = 3 (1202):	433.70	14.006	5.67	75.74	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0820)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.54	0.0450			
43.13	205.35	0.0450			
67.41	205.27	0.0450			
86.35	205.38	0.0450 / 0.0350	Main Channel		
90.47	204.70	0.0350	Main Channel		
93.03	205.16	0.0350 / 0.0400	Main Channel		
101.99	205.21	0.0400			
151.82	204.97	0.0400			
252.14	206.45	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.681E+01	0.0	0.08	28.42

93.03	205.16	0.0350 / 0.0400	Main Channel
101.99	205.21	0.0400	
151.82	204.97	0.0400	
252.14	206.45	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.229E+02	0.0	0.07	106.67
0.18	204.88	.915E+02	0.0	0.12	67.20
0.28	204.98	.208E+03	0.1	0.15	51.82
0.37	205.07	.981E+03	0.2	0.11	70.28
0.46	205.16	.288E+04	0.8	0.13	61.71
0.55	205.25	.610E+04	2.0	0.15	50.43
0.64	205.34	.105E+05	4.2	0.19	41.45
0.74	205.44	.163E+05	7.5	0.21	36.28
0.83	205.53	.227E+05	11.9	0.24	31.82
0.92	205.62	.294E+05	17.2	0.27	28.46
1.01	205.71	.366E+05	23.6	0.30	25.89
1.10	205.80	.442E+05	30.9	0.32	23.87
1.20	205.90	.522E+05	39.1	0.35	22.23
1.29	205.99	.606E+05	48.4	0.37	20.87
1.38	206.08	.694E+05	58.7	0.39	19.72
1.47	206.17	.786E+05	70.0	0.41	18.74
1.57	206.27	.883E+05	82.3	0.43	17.88
1.66	206.36	.983E+05	95.7	0.45	17.12
1.75	206.45	.109E+06	110.2	0.47	16.45

<---- hydrograph ---->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (1201)	530.50	17.67	5.67	75.41	0.93
OUTFLOW: ID= 1 (0810)	530.50	17.10	5.92	75.41	0.92

CALIB					
NASHYD (0120)					
ID= 1 DT= 5.0 min					
Area	(ha)=	9.00	Curve Number (CN)=	84.0	
Ia	(mm)=	7.25	# of Linear Res.(N)=	3.00	
U.H. Tp	(hrs)=	1.16			

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.357 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 71.834
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.640

0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80
0.37	205.07	.292E+03	0.3	0.12	18.72
0.46	205.16	.859E+03	0.9	0.14	16.44
0.55	205.25	.182E+04	2.3	0.17	13.44
0.64	205.34	.311E+04	4.7	0.21	11.04
0.74	205.44	.487E+04	8.4	0.24	9.67
0.83	205.53	.676E+04	13.3	0.27	8.48
0.92	205.62	.877E+04	19.3	0.30	7.58
1.01	205.71	.109E+05	26.4	0.33	6.90
1.10	205.80	.132E+05	34.5	0.36	6.36
1.20	205.90	.155E+05	43.8	0.39	5.92
1.29	205.99	.181E+05	54.1	0.42	5.56
1.38	206.08	.207E+05	65.6	0.44	5.25
1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

<---- hydrograph ---->					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (1202)	433.70	14.01	5.67	75.74	0.84
OUTFLOW: ID= 1 (0820)	433.70	13.98	5.75	75.74	0.84

ADD HYD (1201)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (1210):	96.80	4.081	4.17	73.94	
+ ID2= 2 (0820):	433.70	13.977	5.75	75.74	
=====					
ID = 3 (1201):	530.50	17.672	5.67	75.41	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0810)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.54	0.0450			
43.13	205.35	0.0450			
67.41	205.27	0.0450			
86.35	205.38	0.0450 / 0.0350	Main Channel		
90.47	204.70	0.0350	Main Channel		

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1200)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0120):	9.00	0.357	4.58	71.83	
+ ID2= 2 (0810):	530.50	17.096	5.92	75.41	
=====					
ID = 3 (1200):	539.50	17.416	5.92	75.35	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0113)					
ID= 1 DT= 5.0 min					
Area	(ha)=	13.50	Curve Number (CN)=	82.5	
Ia	(mm)=	8.08	# of Linear Res.(N)=	3.00	
U.H. Tp	(hrs)=	0.87			

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.540 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 68.614
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.612

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0802)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	208.29	0.0300			
3.73	208.14	0.0300 / 0.0350	Main Channel		
5.30	207.52	0.0350	Main Channel		
6.93	208.18	0.0350 / 0.0300	Main Channel		
8.96	208.27	0.0300			
14.71	208.30	0.0300			
23.86	208.59	0.0300			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.448E+01	0.0	0.12	164.32
0.08	207.60	.179E+02	0.0	0.19	103.51

Model With SWM Infrastructure - Output

0.12	207.64	.403E+02	0.0	0.25	79.00
0.16	207.68	.716E+02	0.0	0.30	65.21
0.19	207.71	.112E+03	0.0	0.35	56.20
0.23	207.75	.161E+03	0.1	0.40	49.76
0.27	207.79	.219E+03	0.1	0.44	44.90
0.31	207.83	.287E+03	0.1	0.48	41.08
0.35	207.87	.363E+03	0.2	0.52	37.98
0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88
0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79
0.77	208.29	.225E+04	1.6	0.82	24.20

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0113)	13.50	0.54	3.83	68.61	0.55	0.71
OUTFLOW: ID= 1 (0802)	13.50	0.53	4.42	68.54	0.55	0.71

CALIB					
NASHYD (0112)	Area (ha)=	30.50	Curve Number (CN)=	82.8	
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.60			

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 1.097 (i)
TIME TO PEAK (hrs)= 5.500
RUNOFF VOLUME (mm)= 69.253
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0111)	Area (ha)=	45.50	Curve Number (CN)=	82.3	
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.33			

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 1.686 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 68.194
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.608

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0111):	45.50	1.686	5.25	68.19
+ ID2= 2 (0112):	30.50	1.097	5.50	69.25
ID = 3 (1101):	76.00	2.778	5.33	68.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (1101):	76.00	2.778	5.33	68.62
+ ID2= 2 (0802):	13.50	0.528	4.42	68.54
ID = 1 (1101):	89.50	3.294	5.25	68.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801)	
IN= 2----> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 / 0.0350	Main Channel
43.44	208.24	0.0350	Main Channel
45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	
77.43	209.05	0.0400	
128.85	209.70	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	208.30	.104E+02	0.0	0.10	83.26
0.13	208.37	.415E+02	0.0	0.16	52.45
0.19	208.43	.934E+02	0.0	0.20	40.03
0.25	208.49	.166E+03	0.1	0.25	33.04
0.32	208.56	.259E+03	0.2	0.29	28.47
0.38	208.62	.373E+03	0.2	0.32	25.22
0.46	208.70	.729E+03	0.5	0.33	24.94
0.54	208.78	.135E+04	0.9	0.33	24.67
0.62	208.86	.225E+04	1.6	0.35	23.41
0.70	208.94	.352E+04	2.6	0.37	22.23
0.78	209.02	.516E+04	4.1	0.39	20.96
0.86	209.10	.716E+04	6.1	0.41	19.65
0.94	209.18	.949E+04	8.6	0.44	18.42
1.02	209.26	.122E+05	11.7	0.47	17.31
1.10	209.34	.152E+05	15.5	0.50	16.32
1.18	209.42	.185E+05	19.7	0.52	15.72
1.26	209.50	.224E+05	24.7	0.54	15.09
1.34	209.58	.266E+05	30.6	0.56	14.48
1.42	209.66	.313E+05	37.5	0.59	13.90

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1101)	89.50	3.29	5.25	68.61	0.74	0.38
OUTFLOW: ID= 1 (0801)	89.50	3.26	5.50	68.61	0.73	0.38

CALIB					
NASHYD (0110)	Area (ha)=	11.90	Curve Number (CN)=	83.4	
ID= 1 DT= 5.0 min	Ia (mm)=	7.58	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.68			

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.516 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 70.534
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.629

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0110):	11.90	0.516	3.42	70.53
+ ID2= 2 (0801):	89.50	3.258	5.50	68.61
ID = 3 (1100):	101.40	3.691	5.33	68.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1100):	101.40	3.691	5.33	68.83
+ ID2= 2 (1200):	539.50	17.416	5.92	75.35
ID = 3 (1001):	640.90	21.005	5.75	74.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)	
IN= 2----> OUT= 1	Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	206.54	0.0450	
43.13	205.35	0.0450	
67.41	205.27	0.0450	
86.35	205.38	0.0450 / 0.0350	Main Channel
90.47	204.70	0.0350	Main Channel
93.03	205.16	0.0350 / 0.0400	Main Channel
101.99	205.21	0.0400	
151.82	204.97	0.0400	
252.14	206.45	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.09	204.79	.255E+02	0.0	0.16	54.50
0.18	204.88	.102E+03	0.0	0.25	34.33
0.28	204.98	.232E+03	0.1	0.33	26.47
0.37	205.07	.109E+04	0.5	0.24	35.91
0.46	205.16	.321E+04	1.7	0.27	31.53
0.55	205.25	.680E+04	4.4	0.33	25.77
0.64	205.34	.116E+05	9.2	0.41	21.18
0.74	205.44	.182E+05	16.4	0.47	18.54
0.83	205.53	.253E+05	25.9	0.53	16.26
0.92	205.62	.328E+05	37.6	0.59	14.54
1.01	205.71	.408E+05	51.4	0.65	13.23

Model With SWM Infrastructure - Output

1.10	205.80	.492E+05	67.3	0.71	12.19
1.20	205.90	.581E+05	85.3	0.76	11.36
1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75
1.75	206.45	.121E+06	240.2	1.03	8.41

<---- hydrograph ---->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1001)	640.90	21.00	5.75	74.32	0.78
OUTFLOW: ID= 1 (0800)	640.90	20.85	6.00	74.31	0.78

CALIB					
NASHYD (0100)	Area (ha)=	54.70	Curve Number (CN)=	83.2	
ID= 1 DT= 5.0 min	Ia (mm)=	7.69	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.23			

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 2.101 (i)
TIME TO PEAK (hrs)= 5.000
RUNOFF VOLUME (mm)= 70.105
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.625

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1000)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0100):	54.70	2.101	5.00	70.11	
+ ID2= 2 (0800):	640.90	20.851	6.00	74.31	
=====					
ID = 3 (1000):	695.60	22.763	5.92	73.98	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0190)	Area (ha)=	12.30	Curve Number (CN)=	83.9	
ID= 1 DT= 5.0 min	Ia (mm)=	7.31	# of Linear Res.(N)=	3.00	

	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0191):	20.10	0.780	4.17	67.56	
+ ID2= 2 (0192):	28.30	1.054	4.42	66.73	
=====					
ID = 3 (1901):	48.40	1.831	4.33	67.08	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0899)					
IN= 2----> OUT= 1	Routing time step (min)'=	5.00			

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	209.49	0.0400			
35.71	208.88	0.0400			
53.04	208.89	0.0400			
64.12	208.50	0.0400 / 0.0350	Main Channel		
70.77	208.05	0.0350	Main Channel		
74.98	208.02	0.0350	Main Channel		
83.40	208.38	0.0350 / 0.0400	Main Channel		
88.06	208.63	0.0400			
94.94	209.13	0.0400			
105.88	209.54	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.349E+02	0.1	0.18	10.46
0.14	208.16	.981E+02	0.2	0.28	6.64
0.22	208.24	.183E+03	0.6	0.36	5.21
0.29	208.31	.291E+03	1.1	0.42	4.40
0.36	208.38	.420E+03	1.8	0.48	3.85
0.44	208.46	.586E+03	3.0	0.57	3.27
0.52	208.54	.777E+03	4.5	0.65	2.87
0.60	208.62	.999E+03	6.5	0.72	2.58
0.68	208.70	.125E+04	8.8	0.78	2.37
0.76	208.78	.154E+04	11.5	0.84	2.22
0.84	208.86	.185E+04	14.7	0.89	2.10
0.92	208.94	.230E+04	18.2	0.88	2.10
0.99	209.01	.285E+04	23.0	0.90	2.07
1.07	209.09	.345E+04	28.5	0.92	2.02
1.15	209.17	.411E+04	34.8	0.94	1.96
1.23	209.25	.482E+04	42.0	0.97	1.91
1.31	209.33	.559E+04	50.0	1.00	1.86
1.39	209.41	.643E+04	59.1	1.02	1.81
1.47	209.49	.732E+04	69.1	1.05	1.76

<---- hydrograph ---->			<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)

U.H. Tp(hrs)= 0.83

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.520 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 71.612
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.638

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0191)	Area (ha)=	20.10	Curve Number (CN)=	82.0	
ID= 1 DT= 5.0 min	Ia (mm)=	8.36	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.94			

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.780 (i)
TIME TO PEAK (hrs)= 4.167
RUNOFF VOLUME (mm)= 67.562
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.602

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0192)	Area (ha)=	28.30	Curve Number (CN)=	80.3	
ID= 1 DT= 5.0 min	Ia (mm)=	6.23	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.06			

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 1.054 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 66.730
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.595

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1901)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	

INFLOW : ID= 2 (1901)	48.40	1.83	4.33	67.08	0.36	0.48
OUTFLOW: ID= 1 (0899)	48.40	1.83	4.33	67.08	0.36	0.48

ADD HYD (1900)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0190):	12.30	0.520	3.67	71.61	
+ ID2= 2 (0899):	48.40	1.831	4.33	67.08	
=====					
ID = 3 (1900):	60.70	2.336	4.17	67.99	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0500)	Area (ha)=	7.60	Curve Number (CN)=	82.8	
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.48			

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.339 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 69.249
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.617

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0510)	Area (ha)=	12.70	Curve Number (CN)=	81.7	
ID= 1 DT= 5.0 min	Ia (mm)=	8.53	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.69			

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.518 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 66.935
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.597

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
-----
| CALIB |
| NASHYD ( 0520) | Area (ha)= 17.30 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
|-----|
U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.708 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 68.614
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.612

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 5000) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
|-----| (ha) (cms) (hrs) (mm)
ID1= 1 ( 0500): 7.60 0.339 3.17 69.25
+ ID2= 2 ( 0510): 12.70 0.518 3.50 66.93
=====
ID = 3 ( 5000): 20.30 0.852 3.33 67.80
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 5000) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
|-----| (ha) (cms) (hrs) (mm)
ID1= 3 ( 5000): 20.30 0.852 3.33 67.80
+ ID2= 2 ( 0520): 17.30 0.708 3.58 68.61
=====
ID = 1 ( 5000): 37.60 1.552 3.42 68.17
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0600) | Area (ha)= 2.50 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
|-----|
U.H. Tp(hrs)= 0.45
```

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.111 (i)

TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 68.609
TOTAL RAINFALL (mm)= 112.200
RUNOFF COEFFICIENT = 0.611

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
=====
V V I SSSSS U U A L (v 6.2.2017)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL
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```
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y M M O O
O O T T H H Y Y M M O O
000 T T H H Y Y M M 000
```

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voain.dat

Output filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\al
5f9ea3-7174-4855-bb10-7527dca2ab40\sce
Summary filename:
C:\Users\wraymond\AppData\Local\Civica\XH5\8db98796-a625-4c9d-9c33-5ecbf8ae0d75\al
5f9ea3-7174-4855-bb10-7527dca2ab40\sce

DATE: 10-17-2025

TIME: 02:54:15

USER:

COMMENTS: _____

** SIMULATION : 8 **

```
-----
| READ STORM |
|-----|
Ptotal=285.00 mm |
|-----|
Filename: C:\Users\wraymond\AppData\Local\Temp\
f9e06f95-585c-465c-81d8-96408d74cab0\2375f8f4
Comments: Hazel-48hr-2.0
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	2.00	12.00	2.00	24.00	2.00	36.00	6.00
0.25	2.00	12.25	2.00	24.25	2.00	36.25	6.00
0.50	2.00	12.50	2.00	24.50	2.00	36.50	6.00
0.75	2.00	12.75	2.00	24.75	2.00	36.75	6.00
1.00	2.00	13.00	2.00	25.00	2.00	37.00	4.00
1.25	2.00	13.25	2.00	25.25	2.00	37.25	4.00
1.50	2.00	13.50	2.00	25.50	2.00	37.50	4.00
1.75	2.00	13.75	2.00	25.75	2.00	37.75	4.00
2.00	2.00	14.00	2.00	26.00	2.00	38.00	6.00
2.25	2.00	14.25	2.00	26.25	2.00	38.25	6.00
2.50	2.00	14.50	2.00	26.50	2.00	38.50	6.00
2.75	2.00	14.75	2.00	26.75	2.00	38.75	6.00
3.00	2.00	15.00	2.00	27.00	2.00	39.00	13.00
3.25	2.00	15.25	2.00	27.25	2.00	39.25	13.00
3.50	2.00	15.50	2.00	27.50	2.00	39.50	13.00
3.75	2.00	15.75	2.00	27.75	2.00	39.75	13.00
4.00	2.00	16.00	2.00	28.00	2.00	40.00	17.00
4.25	2.00	16.25	2.00	28.25	2.00	40.25	17.00
4.50	2.00	16.50	2.00	28.50	2.00	40.50	17.00
4.75	2.00	16.75	2.00	28.75	2.00	40.75	17.00
5.00	2.00	17.00	2.00	29.00	2.00	41.00	13.00
5.25	2.00	17.25	2.00	29.25	2.00	41.25	13.00
5.50	2.00	17.50	2.00	29.50	2.00	41.50	13.00
5.75	2.00	17.75	2.00	29.75	2.00	41.75	13.00
6.00	2.00	18.00	2.00	30.00	2.00	42.00	23.00
6.25	2.00	18.25	2.00	30.25	2.00	42.25	23.00
6.50	2.00	18.50	2.00	30.50	2.00	42.50	23.00
6.75	2.00	18.75	2.00	30.75	2.00	42.75	23.00
7.00	2.00	19.00	2.00	31.00	2.00	43.00	13.00
7.25	2.00	19.25	2.00	31.25	2.00	43.25	13.00
7.50	2.00	19.50	2.00	31.50	2.00	43.50	13.00
7.75	2.00	19.75	2.00	31.75	2.00	43.75	13.00
8.00	2.00	20.00	2.00	32.00	2.00	44.00	13.00
8.25	2.00	20.25	2.00	32.25	2.00	44.25	13.00
8.50	2.00	20.50	2.00	32.50	2.00	44.50	13.00
8.75	2.00	20.75	2.00	32.75	2.00	44.75	13.00
9.00	2.00	21.00	2.00	33.00	2.00	45.00	53.00
9.25	2.00	21.25	2.00	33.25	2.00	45.25	53.00
9.50	2.00	21.50	2.00	33.50	2.00	45.50	53.00

9.75	2.00	21.75	2.00	33.75	2.00	45.75	53.00
10.00	2.00	22.00	2.00	34.00	2.00	46.00	38.00
10.25	2.00	22.25	2.00	34.25	2.00	46.25	38.00
10.50	2.00	22.50	2.00	34.50	2.00	46.50	38.00
10.75	2.00	22.75	2.00	34.75	2.00	46.75	38.00
11.00	2.00	23.00	2.00	35.00	3.00	47.00	13.00
11.25	2.00	23.25	2.00	35.25	3.00	47.25	13.00
11.50	2.00	23.50	2.00	35.50	3.00	47.50	13.00
11.75	2.00	23.75	2.00	35.75	3.00	47.75	13.00

```
-----
| CALIB |
| NASHYD ( 0185) | Area (ha)= 2.00 Curve Number (CN)= 79.5
| ID= 1 DT= 5.0 min | Ia (mm)= 6.54 # of Linear Res.(N)= 3.00
|-----|
U.H. Tp(hrs)= 0.36
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

```
-----
----- TRANSFORMED HYETOGRAPH -----
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
0.083 2.00 12.083 2.00 24.083 2.00 36.08 6.00
0.167 2.00 12.167 2.00 24.167 2.00 36.17 6.00
0.250 2.00 12.250 2.00 24.250 2.00 36.25 6.00
0.333 2.00 12.333 2.00 24.333 2.00 36.33 6.00
0.417 2.00 12.417 2.00 24.417 2.00 36.42 6.00
0.500 2.00 12.500 2.00 24.500 2.00 36.50 6.00
0.583 2.00 12.583 2.00 24.583 2.00 36.58 6.00
0.667 2.00 12.667 2.00 24.667 2.00 36.67 6.00
0.750 2.00 12.750 2.00 24.750 2.00 36.75 6.00
0.833 2.00 12.833 2.00 24.833 2.00 36.83 6.00
0.917 2.00 12.917 2.00 24.917 2.00 36.92 6.00
1.000 2.00 13.000 2.00 25.000 2.00 37.00 6.00
1.083 2.00 13.083 2.00 25.083 2.00 37.08 4.00
1.167 2.00 13.167 2.00 25.167 2.00 37.17 4.00
1.250 2.00 13.250 2.00 25.250 2.00 37.25 4.00
1.333 2.00 13.333 2.00 25.333 2.00 37.33 4.00
1.417 2.00 13.417 2.00 25.417 2.00 37.42 4.00
1.500 2.00 13.500 2.00 25.500 2.00 37.50 4.00
1.583 2.00 13.583 2.00 25.583 2.00 37.58 4.00
1.667 2.00 13.667 2.00 25.667 2.00 37.67 4.00
1.750 2.00 13.750 2.00 25.750 2.00 37.75 4.00
1.833 2.00 13.833 2.00 25.833 2.00 37.83 4.00
1.917 2.00 13.917 2.00 25.917 2.00 37.92 4.00
2.000 2.00 14.000 2.00 26.000 2.00 38.00 4.00
2.083 2.00 14.083 2.00 26.083 2.00 38.08 6.00
2.167 2.00 14.167 2.00 26.167 2.00 38.17 6.00
2.250 2.00 14.250 2.00 26.250 2.00 38.25 6.00
```

Model With SWM Infrastructure - Output

2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00

6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00

10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.264 (i)
TIME TO PEAK (hrs)= 46.083
RUNOFF VOLUME (mm)= 225.392
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.791

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	6.80	Curve Number (CN)=	82.4
NASHYD (0180)	Ia (mm)=	8.13	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.85		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00

1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00

Model With SWM Infrastructure - Output

5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00

9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.737 (i)
TIME TO PEAK (hrs)= 47.000
RUNOFF VOLUME (mm)= 231.505
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.812

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	(	0170)	Area (ha)=	5.80	Curve Number (CN)=	82.4
NASHYD	(	mm)=	Ia (mm)=	8.13	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min			U.H. Tp(hrs)=	0.69		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00

4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00

Model With SWM Infrastructure - Output

TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.812

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0160) | Area (ha)= 16.30 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 1.15

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----											
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00				
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00				
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00				
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00				
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00				
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00				
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00				
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00				
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00				
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00				
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00				
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00				
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00				
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00				
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00				
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00				
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00				
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00				
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00				
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00				
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00				
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00				
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00				
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00				
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00				
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00				
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00				
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00				
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00				
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00				
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00				
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00				
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00				

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.661 (i)
TIME TO PEAK (hrs)= 46.583
RUNOFF VOLUME (mm)= 231.503

2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00

7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00

Model With SWM Infrastructure - Output

11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 1.625 (i)
TIME TO PEAK (hrs)= 47.250
RUNOFF VOLUME (mm)= 234.026
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.821

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0330)	Area (ha)= 22.30	Curve Number (CN)= 82.2	
ID= 1 DT= 5.0 min	Ia (mm)= 8.25	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.60		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00

1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00

5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00

10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.00							

Model With SWM Infrastructure - Output

0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00

4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00

8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.348 (i)
TIME TO PEAK (hrs)= 46.000
RUNOFF VOLUME (mm)= 229.738
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.806

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0260)
ID= 1 DT= 5.0 min

Area (ha)= 7.00
Ia (mm)= 7.41
U.H. Tp(hrs)= 0.43

Curve Number (CN)= 83.7
of Linear Res.(N)= 3.00

NOTE

Model With SWM Infrastructure - Output

3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00

7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00

11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.910 (i)
TIME TO PEAK (hrs)= 46.167
RUNOFF VOLUME (mm)= 235.585
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.827

(1) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)= 10.70	Curve Number (CN)= 81.9
NASHYD (0250)	Ia (mm)= 8.42	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 0.54	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00

2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.95
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00

Model With SWM Infrastructure - Output

6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00

10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 1.300 (i)
TIME TO PEAK (hrs)= 46.333
RUNOFF VOLUME (mm)= 229.908
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.807

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0320)	Area (ha)= 11.70	Curve Number (CN)= 83.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.45		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00

0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00

5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00

Model With SWM Infrastructure - Output

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 1.500 (i)
TIME TO PEAK (hrs)= 46.167
RUNOFF VOLUME (mm)= 233.379
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.819

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)= 25.80	Curve Number (CN)= 83.6
NASHYD (0420)	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 1.12	

---- TRANSFORMED HYETOGRAPH ----											
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00				
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00				
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00				
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00				
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00				
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00				
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00				
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00				
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00				
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00				
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00				
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00				
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00				
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00				
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00				
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00				
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00				
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00				
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00				
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00				
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00				
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00				
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00				
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00				
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00				
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00				
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00				
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00				
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00				
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00				
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00				
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00				
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00				
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00				
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00				
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00				
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00				
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00				
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00				
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00				
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00				
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00				
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00				
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00				
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00				

Unit Hyd Qpeak (cms)= 0.880

3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00

8.083	2.00	20.083	2.00	32.083	2.00	44.08

Model With SWM Infrastructure - Output

PEAK FLOW (cms)= 2.600 (i)
TIME TO PEAK (hrs)= 47.250
RUNOFF VOLUME (mm)= 235.286
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.826

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	23.90	Curve Number (CN)=	84.1
NASHYD (0423)	Ia (mm)=	7.20	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.80		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00

2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00

6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00

11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model With SWM Infrastructure - Output

1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00

5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00

9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.817 (i)
 TIME TO PEAK (hrs)= 46.417
 RUNOFF VOLUME (mm)= 234.651
 TOTAL RAINFALL (mm)= 285.000
 RUNOFF COEFFICIENT = 0.823

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0896) |
 IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel

55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03
0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79
0.69	205.19	.177E+04	5.4	0.63	5.47

Model With SWM Infrastructure - Output

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.12	211.91	.170E+01	0.0	0.28	4.09
0.24	212.03	.679E+01	0.0	0.44	2.58
0.36	212.15	.153E+02	0.1	0.58	1.97
0.48	212.27	.272E+02	0.3	0.70	1.62
0.61	212.40	.424E+02	0.5	0.82	1.40
0.73	212.52	.134E+03	1.0	0.53	2.16
0.85	212.64	.375E+03	2.8	0.52	2.20
0.97	212.76	.687E+03	6.1	0.60	1.89
1.09	212.88	.107E+04	11.0	0.71	1.61
1.21	213.00	.148E+04	17.8	0.83	1.38
1.33	213.12	.192E+04	26.1	0.93	1.22
1.45	213.24	.238E+04	35.9	1.03	1.11
1.57	213.36	.288E+04	47.3	1.13	1.01
1.70	213.49	.340E+04	60.1	1.21	0.94
1.82	213.61	.395E+04	74.5	1.29	0.88
1.94	213.73	.452E+04	90.5	1.37	0.83
2.06	213.85	.512E+04	109.2	1.46	0.78
2.18	213.97	.573E+04	130.3	1.56	0.73
2.37	214.16	.694E+04	168.2	1.66	0.69

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4202)	30.80	3.45	46.75	236.36	0.87	0.53
OUTFLOW: ID= 1 (0895)	30.80	3.45	46.83	236.36	0.87	0.53

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00

CALIB						
NASHYD (0421)	Area (ha)=	10.40	Curve Number (CN)=	82.8		
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.37				

3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00

Unit Hyd Qpeak (cms)= 1.074

Model With SWM Infrastructure - Output

PEAK FLOW (cms)= 1.390 (i)
TIME TO PEAK (hrs)= 46.083
RUNOFF VOLUME (mm)= 232.728
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.817

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0883)		Routing time step (min)'= 5.00	
IN= 2---> OUT= 1			
<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 /0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 /0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.344E+01	0.0	0.19	78.41
0.07	204.57	.137E+02	0.0	0.30	49.40
0.11	204.61	.309E+02	0.0	0.39	37.70
0.14	204.64	.550E+02	0.0	0.47	31.12
0.18	204.68	.859E+02	0.1	0.55	26.82
0.22	204.72	.124E+03	0.1	0.62	23.75
0.25	204.75	.168E+03	0.1	0.69	21.43
0.29	204.79	.220E+03	0.2	0.75	19.60
0.33	204.83	.278E+03	0.3	0.81	18.12
0.36	204.86	.344E+03	0.3	0.87	16.89
0.40	204.90	.416E+03	0.4	0.93	15.85
0.43	204.93	.559E+03	0.6	0.89	16.61
0.47	204.97	.986E+03	0.8	0.71	20.75
0.51	205.01	.165E+04	1.2	0.65	22.49
0.54	205.04	.248E+04	1.9	0.66	22.28
0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL

0.99	209.01	.792E+04	12.0	0.47	11.01
1.07	209.09	.960E+04	14.9	0.48	10.74
1.15	209.17	.114E+05	18.2	0.49	10.46
1.23	209.25	.134E+05	21.9	0.51	10.19
1.31	209.33	.156E+05	26.1	0.52	9.92
1.39	209.41	.179E+05	30.9	0.53	9.65
1.47	209.49	.204E+05	36.1	0.55	9.40

	<---- hydrograph ---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4201)	41.20	4.66	46.67	235.43	0.68	0.41
OUTFLOW: ID= 1 (0882)	41.20	4.55	47.00	235.42	0.68	0.41

ADD HYD (4200)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0420):	25.80	2.600	47.25	235.29	
+ ID2= 2 (0882):	41.20	4.554	47.00	235.42	
=====					
ID = 3 (4200):	67.00	7.125	47.08	235.37	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD	(0440)	Area (ha)=	31.60	Curve Number (CN)=	84.4
ID= 1	DT= 5.0 min	Ia (mm)=	7.04	# of Linear Res.(N)=	3.00
-----		U.H. Tp(hrs)=	1.16		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00

	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0421)	10.40	1.39	46.08	232.73	0.52	0.66
OUTFLOW: ID= 1 (0883)	10.40	1.23	46.50	232.68	0.51	0.65

ADD HYD (4201)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0883):		10.40	1.235	46.50	232.68
+ ID2= 2 (0895):		30.80	3.445	46.83	236.36
=====					
ID = 3 (4201):		41.20	4.657	46.67	235.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0882)		Routing time step (min)'= 5.00	
IN= 2----> OUT= 1			
<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 /0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 /0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.971E+02	0.0	0.09	55.71
0.14	208.16	.273E+03	0.1	0.15	35.37
0.22	208.24	.510E+03	0.3	0.19	27.73
0.29	208.31	.808E+03	0.6	0.22	23.40
0.36	208.38	.117E+04	0.9	0.25	20.52
0.44	208.46	.163E+04	1.6	0.30	17.43
0.52	208.54	.216E+04	2.4	0.34	15.27
0.60	208.62	.278E+04	3.4	0.38	13.72
0.68	208.70	.348E+04	4.6	0.41	12.64
0.76	208.78	.427E+04	6.0	0.44	11.82
0.84	208.86	.514E+04	7.7	0.46	11.16
0.92	208.94	.638E+04	9.5	0.46	11.20

0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00

Model With SWM Infrastructure - Output

5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00

9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 3.158 (i)
TIME TO PEAK (hrs)= 47.250
RUNOFF VOLUME (mm)= 237.795
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.834

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0442)	Area (ha)=	2.40	Curve Number (CN)=	84.9	
ID= 1 DT= 5.0 min	Ia (mm)=	6.77	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.41			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00

3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00

Model With SWM Infrastructure - Output

TIME TO PEAK (hrs)= 46.167
RUNOFF VOLUME (mm)= 239.338
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.840

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYO (0443)
ID= 1 DT= 5.0 min

Area (ha)= 21.30
Ia (mm)= 7.31
U.H. Tp(hrs)= 0.59

Curve Number (CN)= 83.9
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00		
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00		
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00		
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00		
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00		
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00		
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00		
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00		

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.317 (i)

2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00

6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04

Model With SWM Infrastructure - Output

11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)= 2.552 (i)
TIME TO PEAK (hrs)= 46.417
RUNOFF VOLUME (mm)= 236.220
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.829

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0451)	Area (ha)= 12.30	Curve Number (CN)= 84.3	
ID= 1 DT= 5.0 min	Ia (mm)= 7.09	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.57		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00

1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00

5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	22.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 1.490 (i)
TIME TO PEAK (hrs)= 46.333
RUNOFF VOLUME (mm)= 237.479
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.833

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0043)	Area (ha)= 22.90		
ID= 1 DT= 5.0 min	Total Imp(%)= 49.00	Dir. Conn.(%)= 40.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	11.22	11.68
Dep. Storage (mm)=	1.00	8.92
Average Slope (%)=	1.00	2.00
Length (m)=	390.73	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

Model With SWM Infrastructure - Output

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00		
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00		
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00		
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00		
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00		
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00		
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00		
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00		
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00		
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00		
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00		
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00		
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00		
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00		
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00		
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00		
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00		
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00		
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00		
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00		
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00		
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00		
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00		

3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00

8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model With SWM Infrastructure - Output

Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00

3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00

7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model With SWM Infrastructure - Output

0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45
0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
		(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (	4345)	24.20	3.11	46.08	244.86	0.77	0.60
OUTFLOW: ID= 1 (	0893)	24.20	3.09	46.17	244.86	0.77	0.60

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0451):	12.30	1.490	46.33	237.48
+ ID2= 2 (0893):	24.20	3.091	46.17	244.86
=====				
ID = 3 (4510):	36.50	4.553	46.25	242.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0451):	12.30	1.490	46.33	237.48
+ ID2= 2 (0893):	24.20	3.091	46.17	244.86
=====				
ID = 3 (4510):	36.50	4.553	46.25	242.37

Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350 Main Channel

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0443):	21.30	2.552	46.42	236.22
+ ID2= 2 (0892):	36.50	4.552	46.25	242.37
=====				
ID = 3 (4411):	57.80	7.080	46.33	240.11

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (	4510)	36.50	4.55	46.25	242.37	0.84	0.89
OUTFLOW: ID= 1 (	0892)	36.50	4.55	46.25	242.37	0.83	0.89

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0443):	21.30	2.552	46.42	236.22
+ ID2= 2 (0892):	36.50	4.552	46.25	242.37
=====				
ID = 3 (4411):	57.80	7.080	46.33	240.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0443):	21.30	2.552	46.42	236.22
+ ID2= 2 (0892):	36.50	4.552	46.25	242.37
=====				
ID = 3 (4411):	57.80	7.080	46.33	240.11

	Area	(ha)=	3.00
	Total Imp(%)=	45.00	Dir. Conn.(%)= 35.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.35	1.65
Dep. Storage (mm)=	1.00	3.58
Average Slope (%)=	2.00	2.00
Length (m)=	141.42	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.621E+00	0.0	0.10	29.40
0.09	205.28	.248E+01	0.0	0.16	18.52
0.13	205.32	.559E+01	0.0	0.21	14.13
0.17	205.36	.994E+01	0.0	0.25	11.67
0.22	205.41	.155E+02	0.0	0.29	10.05
0.26	205.45	.224E+02	0.0	0.33	8.90
0.31	205.50	.304E+02	0.1	0.37	8.03
0.35	205.54	.398E+02	0.1	0.40	7.35
0.39	205.58	.503E+02	0.1	0.43	6.79
0.44	205.63	.621E+02	0.2	0.46	6.33
0.48	205.67	.752E+02	0.2	0.49	5.97
0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (	4411)	57.80	7.08	46.33	240.11	0.83	0.53
OUTFLOW: ID= 1 (	0891)	57.80	7.04	46.42	240.10	0.83	0.53

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00

Model With SWM Infrastructure - Output

2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01

7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00

11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 61.51
over (min) 5.00 15.00
Storage Coeff. (min)= 3.29 (ii) 11.87 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.27 0.09

TOTALS
PEAK FLOW (cms)= 0.15 0.28 0.434 (iii)
TIME TO PEAK (hrs)= 46.00 46.00
RUNOFF VOLUME (mm)= 284.00 250.84 262.45
TOTAL RAINFALL (mm)= 285.00 285.00 285.00
RUNOFF COEFFICIENT = 1.00 0.88 0.92

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4410)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0441):	3.00	0.434	46.00	262.45
+ ID2= 2 (0891):	57.80	7.043	46.42	240.10
=====				
ID = 3 (4410):	60.80	7.373	46.42	241.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4401)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (4410):	60.80	7.373	46.42	241.21
+ ID2= 2 (0442):	2.40	0.317	46.17	239.34
=====				
ID = 3 (4401):	63.20	7.671	46.42	241.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0889)				
IN= 2----> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.70	0.0400		
2.35	206.02	0.0400 / 0.0350	Main Channel	
5.23	205.19	0.0350	Main Channel	
5.34	205.67	0.0350	Main Channel	
19.05	206.06	0.0350 / 0.0400	Main Channel	
21.11	206.05	0.0400		
22.02	206.13	0.0400 / 0.0350		
40.10	206.15	0.0350		
56.50	206.04	0.0350		

----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.272E+01	0.0	0.09	142.50
0.09	205.28	.109E+02	0.0	0.14	89.77
0.13	205.32	.245E+02	0.0	0.19	68.51
0.17	205.36	.435E+02	0.0	0.23	56.55
0.22	205.41	.679E+02	0.0	0.26	48.73
0.26	205.45	.978E+02	0.0	0.30	43.16
0.31	205.50	.133E+03	0.1	0.33	38.94
0.35	205.54	.174E+03	0.1	0.36	35.63
0.39	205.58	.220E+03	0.1	0.39	32.93
0.44	205.63	.272E+03	0.1	0.42	30.70
0.48	205.67	.329E+03	0.2	0.44	28.96
0.52	205.71	.418E+03	0.2	0.36	35.92
0.57	205.76	.563E+03	0.3	0.34	37.36
0.61	205.80	.765E+03	0.4	0.35	36.28
0.66	205.85	.102E+04	0.5	0.37	34.31
0.70	205.89	.134E+04	0.7	0.40	32.17
0.74	205.93	.171E+04	0.9	0.43	30.13
0.79	205.98	.214E+04	1.3	0.45	28.27
0.83	206.02	.263E+04	1.6	0.48	26.60

Model With SWM Infrastructure - Output

ADD HYD (4400)
1 + 2 = 3

ID1= 1 (0440): 31.60 3.158 47.25 237.80
+ ID2= 2 (0889): 63.20 7.070 47.00 241.13
=====

ID = 3 (4400): 94.80 10.177 47.08 240.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0888)
IN= 2--> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 / 0.0350	Main Channel
43.44	208.24	0.0350	Main Channel
45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	
77.43	209.05	0.0400	
128.85	209.70	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.519E+01	0.0	0.09	43.50
0.13	208.37	.208E+02	0.0	0.15	27.40
0.19	208.43	.467E+02	0.0	0.19	20.91
0.25	208.49	.830E+02	0.1	0.24	17.26
0.32	208.56	.130E+03	0.1	0.27	14.88
0.38	208.62	.187E+03	0.2	0.31	13.17
0.46	208.70	.365E+03	0.5	0.31	13.03
0.54	208.78	.674E+03	0.9	0.32	12.89
0.62	208.86	.113E+04	1.5	0.33	12.23
0.70	208.94	.176E+04	2.5	0.35	11.61
0.78	209.02	.258E+04	3.9	0.37	10.95
0.86	209.10	.358E+04	5.8	0.40	10.27
0.94	209.18	.475E+04	8.2	0.42	9.62
1.02	209.26	.608E+04	11.2	0.45	9.04
1.10	209.34	.758E+04	14.8	0.48	8.53
1.18	209.42	.927E+04	18.8	0.50	8.21
1.26	209.50	.112E+05	23.6	0.52	7.88
1.34	209.58	.133E+05	29.3	0.54	7.57

1.42 209.66 .157E+05 35.9 0.56 7.26

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (4400) 94.80 10.18 47.08 240.02 0.99 0.44
OUTFLOW: ID= 1 (0888) 94.80 10.08 47.17 240.02 0.99 0.44

CALIB
STANDHYD (0042)
ID= 1 DT= 5.0 min

Area (ha)= 20.50
Total Imp(%)= 83.00 Dir. Conn.(%)= 70.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	17.01	3.49
Dep. Storage (mm)=	1.00	6.98
Average Slope (%)=	2.00	2.00
Length (m)=	369.68	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00

1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99

6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00		

Model With SWM Infrastructure - Output

10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Max.Eff.Inten.(mm/hr)= 53.00 91.46
over (min) 5.00 15.00
Storage Coeff. (min)= 5.86 (ii) 13.18 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.20 0.08

TOTALS
PEAK FLOW (cms)= 2.11 0.87 2.985 (iii)
TIME TO PEAK (hrs)= 46.00 46.00 46.00
RUNOFF VOLUME (mm)= 284.00 246.47 272.74
TOTAL RAINFALL (mm)= 285.00 285.00 285.00
RUNOFF COEFFICIENT = 1.00 0.86 0.96

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0872)
IN= 2----> OUT= 1
DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1660	0.5172
0.0250	0.1344	0.2260	0.5585
0.0390	0.2425	0.5260	0.7280
0.0530	0.3962	0.9350	0.9090
0.0540	0.4360	1.2810	1.0589

0.0760 0.4361 | 2.3680 1.5187

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 (0042) 20.500 2.985 46.00 272.74
OUTFLOW: ID= 1 (0872) 20.500 2.099 47.00 272.68

PEAK FLOW REDUCTION [Qout/Qin](%)= 70.31
TIME SHIFT OF PEAK FLOW (min)= 60.00
MAXIMUM STORAGE USED (ha.m.)= 1.4056

ROUTE CHN(0898)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

Distance	Elevation	Manning
0.00	101.50	0.0500
1.00	100.70	0.0500
1.50	100.55	0.0500 / 0.0300
2.00	99.50	0.0300
3.50	99.60	0.0300
4.50	100.65	0.0300 / 0.0500
6.00	101.45	0.0500

TRAVEL TIME TABLE

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.10	99.60	.152E+02	0.0	0.19	18.79
0.19	99.69	.482E+02	0.1	0.37	9.79
0.29	99.79	.840E+02	0.2	0.49	7.32
0.38	99.88	.123E+03	0.3	0.59	6.12
0.48	99.98	.164E+03	0.5	0.67	5.38
0.57	100.07	.208E+03	0.7	0.74	4.87
0.67	100.17	.255E+03	0.9	0.80	4.49
0.76	100.26	.305E+03	1.2	0.86	4.19
0.86	100.36	.358E+03	1.5	0.91	3.95
0.95	100.45	.413E+03	1.8	0.96	3.75
1.05	100.55	.471E+03	2.2	1.00	3.58
1.16	100.66	.547E+03	2.7	1.07	3.35
1.28	100.78	.635E+03	3.4	1.14	3.14
1.39	100.89	.732E+03	4.1	1.20	2.99
1.50	101.00	.838E+03	4.9	1.25	2.86
1.61	101.11	.952E+03	5.8	1.30	2.76
1.72	101.22	.107E+04	6.7	1.34	2.67
1.84	101.34	.120E+04	7.7	1.38	2.60
1.95	101.45	.134E+04	8.8	1.41	2.54

hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL

INFLOW : ID= 2 (0872) 20.50 2.10 47.00 272.68 1.02 0.99
OUTFLOW: ID= 1 (0898) 20.50 2.10 47.00 272.67 1.02 0.99

CALIB
STANDHYD(0044)
ID= 1 DT= 5.0 min

Area (ha)= 8.90
Total Imp(%)= 41.00 Dir. Conn.(%)= 20.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 3.65 5.25
Dep. Storage (mm)= 1.00 8.04
Average Slope (%)= 2.00 2.00
Length (m)= 243.58 40.00
Mannings n = 0.013 0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00

2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00

Model With SWM Infrastructure - Output

6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00

10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	68.72	
over (min)	5.00	15.00	
Storage Coeff. (min)=	4.56 (ii)	12.76 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.23	0.08	
PEAK FLOW (cms)=	0.26	0.99	1.249 (iii)
TIME TO PEAK (hrs)=	46.00	46.00	46.00
RUNOFF VOLUME (mm)=	284.00	230.26	241.01
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	1.00	0.81	0.85

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4244)				
1	+	2	=	3
AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0044):	8.90	1.249	46.00	241.01
+ ID2= 2 (0898):	20.50	2.098	47.00	272.67
ID = 3 (4244):	29.40	3.098	46.08	263.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0897)

IN= 2--> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.140E+02	0.0	0.17	55.64
0.24	212.03	.559E+02	0.0	0.27	35.05
0.36	212.15	.126E+03	0.1	0.35	26.75
0.48	212.27	.224E+03	0.2	0.43	22.08
0.61	212.40	.350E+03	0.3	0.49	19.03
0.73	212.52	.110E+04	0.6	0.32	29.36
0.85	212.64	.309E+04	1.7	0.31	29.92
0.97	212.76	.566E+04	3.7	0.37	25.67
1.09	212.88	.878E+04	6.7	0.43	21.92
1.21	213.00	.122E+05	10.8	0.50	18.80
1.33	213.12	.158E+05	15.8	0.57	16.63
1.45	213.24	.196E+05	21.8	0.63	15.03
1.57	213.36	.237E+05	28.7	0.68	13.79
1.70	213.49	.280E+05	36.4	0.73	12.81
1.82	213.61	.325E+05	45.2	0.78	12.00
1.94	213.73	.372E+05	54.9	0.83	11.31
2.06	213.85	.422E+05	66.2	0.89	10.62
2.18	213.97	.472E+05	79.0	0.94	9.97
2.37	214.16	.571E+05	102.0	1.01	9.34

<---- hydrograph ---->

<-pipe /

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (4244)	29.40	3.10	46.08	263.09
OUTFLOW: ID= 1 (0897)	29.40	2.96	47.00	263.08

0.93

0.92

ADD HYD (4301)

1 + 2 = 3

AREA

(ha)

QPEAK

(cms)

TPEAK

(hrs)

R.V.

(mm)

ID1= 1 (0888):

94.80

10.079

47.17

240.02

+ ID2= 2 (0897):

29.40

2.963

47.00

263.08

ID = 3 (4301):

124.20

13.013

47.08

245.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0887)

IN= 2--> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance

Elevation

Manning

0.00

209.52

0.0400

61.99

209.23

0.0400

76.86

209.20

0.0400

82.03

209.20

0.0400 / 0.0350

Main Channel

86.30

208.87

0.0350

Main Channel

89.86

209.20

0.0350 / 0.0300

Main Channel

96.27

209.24

0.0300

103.53

209.40

0.0300

127.96

209.50

0.0300

158.58

209.70

0.0300

<----- TRAVEL TIME TABLE ----->

DEPTH

ELEV

VOLUME

FLOW RATE

VELOCITY

TRAV.TIME

(m)

(m)

(cu.m.)

(cms)

(m/s)

(min)

0.03

208.90

.143E+01

0.0

0.09

20.80

0.07

208.94

.572E+01

0.0

0.14

13.11

0.10

208.97

.129E+02

0.0

0.18

10.00

0.13

209.00

.229E+02

0.0

0.22

8.26

0.17

209.04

.357E+02

0.1

0.26

7.11

0.20

209.07

.514E+02

0.1

0.29

6.30

0.23

209.10

.700E+02

0.2

0.32

5.69

0.26

209.13

.915E+02

0.3

0.35

5.20

0.30

209.17

.116E+03

0.4

0.38

4.81

0.33

209.20

.143E+03

0.5

0.41

4.48

0.37

209.24

.239E+03

0.8

0.37

5.02

0.40

209.27

.396E+03

1.3

0.35

5.26

0.44

209.31

.589E+03

1.9

0.36

5.13

0.47

209.34

.818E+03

2.8

0.38

4.89

0.51

209.38

.108E+04

3.9

0.40

4.63

0.54

209.41

.139E+04

5.2

0.41

4.46

0.58

209.45

.175E+04

6.7

0.43

4.33

0.61

209.48

.218E+04

8.7

0.44

4.17

0.65

209.52

.266E+04

11.2

0.46

3.98

Model With SWM Infrastructure - Output

**** WARNING: TRAVEL TIME TABLE EXCEEDED

----- hydrograph -----<-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (4301) 124.20 13.01 47.08 245.48 0.65 0.46
OUTFLOW: ID= 1 (0887) 124.20 12.99 47.17 245.48 0.65 0.46

CALIB
NASHYD (0430)
ID= 1 DT= 5.0 min

Area (ha)= 19.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.13

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----
TIME TIME TIME TIME TIME TIME TIME TIME
hrs mm/hr hrs mm/hr ' hrs mm/hr hrs mm/hr
0.083 2.00 12.083 2.00 24.083 2.00 36.08 6.00
0.167 2.00 12.167 2.00 24.167 2.00 36.17 6.00
0.250 2.00 12.250 2.00 24.250 2.00 36.25 6.00
0.333 2.00 12.333 2.00 24.333 2.00 36.33 6.00
0.417 2.00 12.417 2.00 24.417 2.00 36.42 6.00
0.500 2.00 12.500 2.00 24.500 2.00 36.50 6.00
0.583 2.00 12.583 2.00 24.583 2.00 36.58 6.00
0.667 2.00 12.667 2.00 24.667 2.00 36.67 6.00
0.750 2.00 12.750 2.00 24.750 2.00 36.75 6.00
0.833 2.00 12.833 2.00 24.833 2.00 36.83 6.00
0.917 2.00 12.917 2.00 24.917 2.00 36.92 6.00
1.000 2.00 13.000 2.00 25.000 2.00 37.00 6.00
1.083 2.00 13.083 2.00 25.083 2.00 37.08 4.00
1.167 2.00 13.167 2.00 25.167 2.00 37.17 4.00
1.250 2.00 13.250 2.00 25.250 2.00 37.25 4.00
1.333 2.00 13.333 2.00 25.333 2.00 37.33 4.00
1.417 2.00 13.417 2.00 25.417 2.00 37.42 4.00
1.500 2.00 13.500 2.00 25.500 2.00 37.50 4.00
1.583 2.00 13.583 2.00 25.583 2.00 37.58 4.00
1.667 2.00 13.667 2.00 25.667 2.00 37.67 4.00
1.750 2.00 13.750 2.00 25.750 2.00 37.75 4.00
1.833 2.00 13.833 2.00 25.833 2.00 37.83 4.00
1.917 2.00 13.917 2.00 25.917 2.00 37.92 4.00
2.000 2.00 14.000 2.00 26.000 2.00 38.00 4.00
2.083 2.00 14.083 2.00 26.083 2.00 38.08 6.00
2.167 2.00 14.167 2.00 26.167 2.00 38.17 6.00
2.250 2.00 14.250 2.00 26.250 2.00 38.25 6.00
2.333 2.00 14.333 2.00 26.333 2.00 38.33 6.00
2.417 2.00 14.417 2.00 26.417 2.00 38.42 6.00

2.500 2.00 14.500 2.00 26.500 2.00 38.50 6.00
2.583 2.00 14.583 2.00 26.583 2.00 38.58 6.00
2.667 2.00 14.667 2.00 26.667 2.00 38.67 6.00
2.750 2.00 14.750 2.00 26.750 2.00 38.75 6.00
2.833 2.00 14.833 2.00 26.833 2.00 38.83 6.00
2.917 2.00 14.917 2.00 26.917 2.00 38.92 6.00
3.000 2.00 15.000 2.00 27.000 2.00 39.00 6.00
3.083 2.00 15.083 2.00 27.083 2.00 39.08 13.00
3.167 2.00 15.167 2.00 27.167 2.00 39.17 13.00
3.250 2.00 15.250 2.00 27.250 2.00 39.25 13.00
3.333 2.00 15.333 2.00 27.333 2.00 39.33 13.00
3.417 2.00 15.417 2.00 27.417 2.00 39.42 13.00
3.500 2.00 15.500 2.00 27.500 2.00 39.50 13.00
3.583 2.00 15.583 2.00 27.583 2.00 39.58 13.00
3.667 2.00 15.667 2.00 27.667 2.00 39.67 13.00
3.750 2.00 15.750 2.00 27.750 2.00 39.75 13.00
3.833 2.00 15.833 2.00 27.833 2.00 39.83 13.00
3.917 2.00 15.917 2.00 27.917 2.00 39.92 13.00
4.000 2.00 16.000 2.00 28.000 2.00 40.00 13.00
4.083 2.00 16.083 2.00 28.083 2.00 40.08 17.00
4.167 2.00 16.167 2.00 28.167 2.00 40.17 17.00
4.250 2.00 16.250 2.00 28.250 2.00 40.25 17.00
4.333 2.00 16.333 2.00 28.333 2.00 40.33 17.00
4.417 2.00 16.417 2.00 28.417 2.00 40.42 17.00
4.500 2.00 16.500 2.00 28.500 2.00 40.50 17.00
4.583 2.00 16.583 2.00 28.583 2.00 40.58 17.00
4.667 2.00 16.667 2.00 28.667 2.00 40.67 17.00
4.750 2.00 16.750 2.00 28.750 2.00 40.75 17.00
4.833 2.00 16.833 2.00 28.833 2.00 40.83 17.00
4.917 2.00 16.917 2.00 28.917 2.00 40.92 17.00
5.000 2.00 17.000 2.00 29.000 2.00 41.00 17.00
5.083 2.00 17.083 2.00 29.083 2.00 41.08 13.00
5.167 2.00 17.167 2.00 29.167 2.00 41.17 13.00
5.250 2.00 17.250 2.00 29.250 2.00 41.25 13.00
5.333 2.00 17.333 2.00 29.333 2.00 41.33 13.00
5.417 2.00 17.417 2.00 29.417 2.00 41.42 13.00
5.500 2.00 17.500 2.00 29.500 2.00 41.50 13.00
5.583 2.00 17.583 2.00 29.583 2.00 41.58 13.00
5.667 2.00 17.667 2.00 29.667 2.00 41.67 13.00
5.750 2.00 17.750 2.00 29.750 2.00 41.75 13.00
5.833 2.00 17.833 2.00 29.833 2.00 41.83 13.00
5.917 2.00 17.917 2.00 29.917 2.00 41.92 13.00
6.000 2.00 18.000 2.00 30.000 2.00 42.00 13.00
6.083 2.00 18.083 2.00 30.083 2.00 42.08 22.99
6.167 2.00 18.167 2.00 30.167 2.00 42.17 23.00
6.250 2.00 18.250 2.00 30.250 2.00 42.25 23.00
6.333 2.00 18.333 2.00 30.333 2.00 42.33 23.00
6.417 2.00 18.417 2.00 30.417 2.00 42.42 23.00
6.500 2.00 18.500 2.00 30.500 2.00 42.50 23.00
6.583 2.00 18.583 2.00 30.583 2.00 42.58 23.00
6.667 2.00 18.667 2.00 30.667 2.00 42.67 23.00

6.750 2.00 18.750 2.00 30.750 2.00 42.75 23.00
6.833 2.00 18.833 2.00 30.833 2.00 42.83 23.00
6.917 2.00 18.917 2.00 30.917 2.00 42.92 23.00
7.000 2.00 19.000 2.00 31.000 2.00 43.00 23.00
7.083 2.00 19.083 2.00 31.083 2.00 43.08 13.01
7.167 2.00 19.167 2.00 31.167 2.00 43.17 13.00
7.250 2.00 19.250 2.00 31.250 2.00 43.25 13.00
7.333 2.00 19.333 2.00 31.333 2.00 43.33 13.00
7.417 2.00 19.417 2.00 31.417 2.00 43.42 13.00
7.500 2.00 19.500 2.00 31.500 2.00 43.50 13.00
7.583 2.00 19.583 2.00 31.583 2.00 43.58 13.00
7.667 2.00 19.667 2.00 31.667 2.00 43.67 13.00
7.750 2.00 19.750 2.00 31.750 2.00 43.75 13.00
7.833 2.00 19.833 2.00 31.833 2.00 43.83 13.00
7.917 2.00 19.917 2.00 31.917 2.00 43.92 13.00
8.000 2.00 20.000 2.00 32.000 2.00 44.00 13.00
8.083 2.00 20.083 2.00 32.083 2.00 44.08 13.00
8.167 2.00 20.167 2.00 32.167 2.00 44.17 13.00
8.250 2.00 20.250 2.00 32.250 2.00 44.25 13.00
8.333 2.00 20.333 2.00 32.333 2.00 44.33 13.00
8.417 2.00 20.417 2.00 32.417 2.00 44.42 13.00
8.500 2.00 20.500 2.00 32.500 2.00 44.50 13.00
8.583 2.00 20.583 2.00 32.583 2.00 44.58 13.00
8.667 2.00 20.667 2.00 32.667 2.00 44.67 13.00
8.750 2.00 20.750 2.00 32.750 2.00 44.75 13.00
8.833 2.00 20.833 2.00 32.833 2.00 44.83 13.00
8.917 2.00 20.917 2.00 32.917 2.00 44.92 13.00
9.000 2.00 21.000 2.00 33.000 2.00 45.00 13.00
9.083 2.00 21.083 2.00 33.083 2.00 45.08 52.95
9.167 2.00 21.167 2.00 33.167 2.00 45.17 53.00
9.250 2.00 21.250 2.00 33.250 2.00 45.25 53.00
9.333 2.00 21.333 2.00 33.333 2.00 45.33 53.00
9.417 2.00 21.417 2.00 33.417 2.00 45.42 53.00
9.500 2.00 21.500 2.00 33.500 2.00 45.50 53.00
9.583 2.00 21.583 2.00 33.583 2.00 45.58 53.00
9.667 2.00 21.667 2.00 33.667 2.00 45.67 53.00
9.750 2.00 21.750 2.00 33.750 2.00 45.75 53.00
9.833 2.00 21.833 2.00 33.833 2.00 45.83 53.00
9.917 2.00 21.917 2.00 33.917 2.00 45.92 53.00
10.000 2.00 22.000 2.00 34.000 2.00 46.00 53.00
10.083 2.00 22.083 2.00 34.083 2.00 46.08 38.02
10.167 2.00 22.167 2.00 34.167 2.00 46.17 38.00
10.250 2.00 22.250 2.00 34.250 2.00 46.25 38.00
10.333 2.00 22.333 2.00 34.333 2.00 46.33 38.00
10.417 2.00 22.417 2.00 34.417 2.00 46.42 38.00
10.500 2.00 22.500 2.00 34.500 2.00 46.50 38.00
10.583 2.00 22.583 2.00 34.583 2.00 46.58 38.00
10.667 2.00 22.667 2.00 34.667 2.00 46.67 38.00
10.750 2.00 22.750 2.00 34.750 2.00 46.75 38.00
10.833 2.00 22.833 2.00 34.833 2.00 46.83 38.00
10.917 2.00 22.917 2.00 34.917 2.00 46.92 38.00

11.000 2.00 23.000 2.00 35.000 2.00 47.00 38.00
11.083 2.00 23.083 2.00 35.083 3.00 47.08 13.04
11.167 2.00 23.167 2.00 35.167 3.00 47.17 13.00
11.250 2.00 23.250 2.00 35.250 3.00 47.25 13.00
11.333 2.00 23.333 2.00 35.333 3.00 47.33 13.00
11.417 2.00 23.417 2.00 35.417 3.00 47.42 13.00
11.500 2.00 23.500 2.00 35.500 3.00 47.50 13.00
11.583 2.00 23.583 2.00 35.583 3.00 47.58 13.00
11.667 2.00 23.667 2.00 35.667 3.00 47.67 13.00
11.750 2.00 23.750 2.00 35.750 3.00 47.75 13.00
11.833 2.00 23.833 2.00 35.833 3.00 47.83 13.00
11.917 2.00 23.917 2.00 35.917 3.00 47.92 13.00
12.000 2.00 24.000 2.00 36.000 3.00 48.00 13.00

Unit Hyd Qpeak (cms)= 0.669

PEAK FLOW (cms)= 1.990 (i)
TIME TO PEAK (hrs)= 47.250
RUNOFF VOLUME (mm)= 235.286
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.826

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (4300)|
1 + 2 = 3
ID1= 1 (0430): 19.80 1.990 47.25 235.29
+ ID2= 2 (0887): 124.20 12.988 47.17 245.48
=====

ID = 3 (4300): 144.00 14.975 47.17 244.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0886)|
| IN= 2----> OUT= 1 | Routing time step (min)"= 5.00

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 /0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 /0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400

Model With SWM Infrastructure - Output

124.41 207.31 0.0400
129.31 207.24 0.0400

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	205.46	.110E+02	0.0	0.11	51.32
0.19	205.56	.438E+02	0.0	0.17	32.33
0.28	205.65	.986E+02	0.1	0.23	24.67
0.38	205.75	.175E+03	0.1	0.27	20.37
0.47	205.84	.271E+03	0.3	0.33	16.94
0.57	205.94	.379E+03	0.4	0.38	14.73
0.66	206.03	.501E+03	0.6	0.42	13.19
0.76	206.13	.644E+03	0.9	0.48	11.58
0.86	206.23	.845E+03	1.3	0.51	10.89
0.96	206.33	.140E+04	1.9	0.46	12.13
1.06	206.43	.209E+04	2.9	0.46	12.20
1.16	206.53	.290E+04	4.1	0.47	11.82
1.26	206.63	.383E+04	5.6	0.49	11.31
1.37	206.74	.489E+04	7.6	0.52	10.78
1.47	206.84	.607E+04	9.8	0.54	10.28
1.57	206.94	.737E+04	12.5	0.57	9.81
1.67	207.04	.879E+04	15.6	0.60	9.38
1.77	207.14	.103E+05	19.2	0.62	8.99
1.87	207.24	.120E+05	23.2	0.65	8.63

<--- hydrograph --->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4300)	144.00	14.98	47.17	244.08	1.65
OUTFLOW: ID= 1 (8886)	144.00	14.78	47.25	244.07	1.64

CALIB	(0411)	Area (ha)=	4.50	Curve Number (CN)=	86.7
NASHYD	(0411)	Ia (mm)=	5.84	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min		U.H. Tp(hrs)=	1.11		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

TRANSFORMED HYETOGRAPH							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00

0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00

4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW (cms)= 0.461 (i)
TIME TO PEAK (hrs)= 47.250
RUNOFF VOLUME (mm)= 244.967
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.860

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

ADD HYD (4110)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0411):	4.50	0.461	47.25	244.97
+ ID2= 2 (0886):	144.00	14.783	47.25	244.07
=====				
ID = 3 (4110):	148.50	15.243	47.25	244.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0885)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	208.48	0.0500		
43.69	207.97	0.0500		
66.92	207.94	0.0500		
76.98	208.01	0.0500		
87.94	208.25	0.0500		
89.93	208.44	0.0500	0.0350	Main Channel
92.70	208.20	0.0350		Main Channel
95.51	207.28	0.0350		Main Channel
98.26	208.25	0.0350		Main Channel

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	207.33	.134E+01	0.0	0.06	52.81
0.10	207.38	.536E+01	0.0	0.10	33.27
0.15	207.43	.121E+02	0.0	0.13	25.39
0.19	207.47	.214E+02	0.0	0.15	20.96
0.24	207.52	.335E+02	0.0	0.18	18.06
0.29	207.57	.483E+02	0.1	0.20	15.99
0.34	207.62	.657E+02	0.1	0.22	14.43
0.39	207.67	.858E+02	0.1	0.24	13.20
0.44	207.72	.109E+03	0.1	0.26	12.21
0.48	207.76	.134E+03	0.2	0.28	11.38
0.53	207.81	.162E+03	0.3	0.30	10.68
0.58	207.86	.193E+03	0.3	0.32	10.08
0.63	207.91	.227E+03	0.4	0.34	9.55
0.68	207.96	.295E+03	0.5	0.32	10.12
0.73	208.01	.613E+03	0.7	0.22	14.89
0.78	208.06	.103E+04	1.0	0.20	16.42
0.82	208.10	.150E+04	1.5	0.20	16.27
0.87	208.15	.204E+04	2.2	0.21	15.61
0.92	208.20	.264E+04	3.0	0.22	14.84

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	<---- hydrograph ---->				<-pipe / channel-->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4110)	148.50	15.24	47.25	244.10	0.92	0.22
OUTFLOW: ID= 1 (0885)	148.50	14.98	47.50	244.10	0.92	0.22

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB	
NASHYD (0041)	Area (ha)= 25.40 Curve Number (CN)= 83.6
ID= 1 DT= 5.0 min	Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 1.21

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

<----- TRANSFORMED HYETOGRAPH ----->							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00

2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00

6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00

Model With SWM Infrastructure - Output

11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 2.490 (i)
TIME TO PEAK (hrs)= 47.333
RUNOFF VOLUME (mm)= 235.286
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.826

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0894)						
IN= 2--> OUT= 1						
Routing time step (min)'= 5.00						
<----- DATA FOR SECTION (1.1) ----->						
Distance	Elevation	Manning				
0.00	214.06	0.0500				
6.27	213.95	0.0500				
20.38	214.11	0.0500				
25.18	213.97	0.0500 / 0.0350	Main Channel			
28.59	211.79	0.0350	Main Channel			
32.89	214.16	0.0350 / 0.0500	Main Channel			
42.61	212.54	0.0500				
59.11	212.41	0.0500				
84.10	212.83	0.0500				
100.76	213.78	0.0500				
<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.12	211.91	.523E+01	0.0	0.10	36.03	
0.24	212.03	.209E+02	0.0	0.15	22.70	
0.36	212.15	.471E+02	0.0	0.20	17.32	
0.48	212.27	.837E+02	0.1	0.25	14.30	
0.61	212.40	.131E+03	0.2	0.29	12.32	
0.73	212.52	.412E+03	0.4	0.18	19.01	

0.85	212.64	.115E+04	1.0	0.18	19.37
0.97	212.76	.212E+04	2.1	0.21	16.62
1.09	212.88	.328E+04	3.9	0.25	14.19
1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (0041) 25.40 2.49 47.33 235.29 0.99 0.22
OUTFLOW: ID= 1 (0894) 25.40 2.42 47.42 235.29 0.99 0.22

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB
NASHYD (0040) Area (ha)= 37.50 Curve Number (CN)= 84.2
ID= 1 DT= 5.0 min Ia (mm)= 7.14 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.98

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	' TIME	RAIN	TIME	RAIN		
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr		
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		

1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00

5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00

Model With SWM Infrastructure - Output

9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 3.953 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 237.175
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.832

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0040):	37.50	3.953	47.08	237.18
+ ID2= 2 (0894):	25.40	2.420	47.42	235.29
ID = 3 (4140):	62.90	6.311	47.25	236.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4101)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (4140):	62.90	6.311	47.25	236.41
+ ID2= 2 (0885):	148.50	14.982	47.50	244.10
ID = 3 (4101):	211.40	21.172	47.42	241.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0884)		Routing time step (min)'= 5.00	
IN= 2----> OUT= 1			

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	204.63	0.0400	
45.24	204.34	0.0400	
94.52	203.98	0.0400	
140.93	203.58	0.0400	
148.77	203.72	0.0400 /0.0350	Main Channel
154.30	202.99	0.0350	Main Channel
158.02	203.77	0.0350 /0.0400	Main Channel
174.30	203.79	0.0400	
222.94	204.38	0.0400	
285.62	204.03	0.0400	

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	203.04	.620E+01	0.0	0.11	58.30
0.10	203.09	.248E+02	0.0	0.17	36.73
0.16	203.15	.558E+02	0.0	0.22	28.03
0.21	203.20	.992E+02	0.1	0.27	23.14
0.26	203.25	.155E+03	0.1	0.31	19.94
0.31	203.30	.223E+03	0.2	0.35	17.66
0.37	203.36	.304E+03	0.3	0.39	15.93
0.42	203.41	.397E+03	0.5	0.42	14.58
0.47	203.46	.502E+03	0.6	0.46	13.47
0.52	203.51	.620E+03	0.8	0.49	12.56
0.57	203.56	.750E+03	1.1	0.52	11.79
0.63	203.62	.934E+03	1.3	0.53	11.56
0.68	203.67	.129E+04	1.7	0.50	12.36
0.73	203.72	.184E+04	2.3	0.47	13.20
0.79	203.78	.270E+04	3.4	0.47	13.22
0.85	203.84	.412E+04	5.1	0.45	13.57
0.92	203.91	.583E+04	7.3	0.47	13.24
0.98	203.97	.783E+04	10.3	0.49	12.69
1.04	204.03	.101E+05	13.9	0.51	12.15

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph <---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4101)	211.40	21.17	47.42	241.81	1.04	0.51
OUTFLOW: ID= 1 (0884)	211.40	20.92	47.67	241.81	1.04	0.51

CALIB	Area	(ha)=	8.50	Curve Number (CN)=	85.5
NASHYD (0410)	Ia	(mm)=	6.46	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.94			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00

2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00

Model With SWM Infrastructure - Output

6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00

10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.912 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 241.232
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.846

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4100)					AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3					(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0410):					8.50	0.912	47.08	241.23
+ ID2= 2 (0884):					211.40	20.916	47.67	241.81
ID = 3 (4100):					219.90	21.738	47.58	241.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					Area	(ha)=	23.00	Curve Number (CN)=	83.1
NASHYD (0401)					Ia	(mm)=	7.74	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min					U.H. Tp(hrs)=	0.78			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	2.00		

0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00

4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00

Model With SWM Infrastructure - Output

8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 2.551 (i)
TIME TO PEAK (hrs)= 46.833
RUNOFF VOLUME (mm)= 233.715
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.820

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4001)|
| 1 + 2 = 3 |
-----
                AREA   QPEAK   TPEAK   R.V.
                (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0401):   23.00   2.551   46.83   233.71
+ ID2= 2 ( 4100):   219.90  21.738   47.58   241.79
=====
ID = 3 ( 4001):   242.90  23.895   47.50   241.03
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 4001)|
| 3 + 2 = 1 |
-----
                AREA   QPEAK   TPEAK   R.V.
                (ha)   (cms)   (hrs)   (mm)
ID1= 3 ( 4001):   242.90  23.895   47.50   241.03
+ ID2= 2 ( 4200):    67.00    7.125   47.08   235.37
=====
ID = 1 ( 4001):   309.90  30.716   47.42   239.80
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0880)|
| IN= 2---> OUT= 1 |
-----
                Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
              0.00          204.63      0.0400
              45.24          204.34      0.0400
              94.52          203.98      0.0400
             140.93          203.58      0.0400
             148.77          203.72      0.0400 / 0.0350 Main Channel
             154.30          202.99      0.0350 Main Channel
             158.02          203.77      0.0350 / 0.0400 Main Channel
             174.30          203.79      0.0400
             222.94          204.38      0.0400
             285.62          204.03      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)      (cu.m.)      (cms)      (m/s)      (min)
0.05  203.04      .647E+01      0.0      0.11      59.17
0.10  203.09      .259E+02      0.0      0.17      37.28
0.16  203.15      .582E+02      0.0      0.23      28.45
0.21  203.20      .103E+03      0.1      0.27      23.48
0.26  203.25      .162E+03      0.1      0.32      20.24
```

0.31	203.30	.233E+03	0.2	0.36	17.92
0.37	203.36	.317E+03	0.3	0.40	16.17
0.42	203.41	.414E+03	0.5	0.43	14.79
0.47	203.46	.524E+03	0.6	0.47	13.68
0.52	203.51	.647E+03	0.8	0.50	12.75
0.57	203.56	.782E+03	1.1	0.54	11.96
0.63	203.62	.974E+03	1.4	0.55	11.73
0.68	203.67	.135E+04	1.8	0.51	12.55
0.73	203.72	.192E+04	2.4	0.48	13.39
0.79	203.78	.282E+04	3.5	0.48	13.41
0.85	203.84	.430E+04	5.2	0.47	13.77
0.92	203.91	.608E+04	7.5	0.48	13.44
0.98	203.97	.816E+04	10.6	0.50	12.88
1.04	204.03	.105E+05	14.2	0.52	12.33

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<---- hydrograph ---->      <-pipe / channel->
                AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
                (ha)   (cms)   (hrs)   (mm)   (m)           (m/s)
INFLOW : ID= 2 ( 4001) 309.90  30.72  47.42  239.80   1.03    0.52
OUTFLOW: ID= 1 ( 0880) 309.90  30.34  47.58  239.80   1.04    0.52
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| CALIB
| NASHYD ( 0400)|
|ID= 1 DT= 5.0 min|
-----
                Area (ha)= 27.60   Curve Number (CN)= 83.8
                Ia (mm)= 7.36     # of Linear Res.(N)= 3.00
                U.H. Tp(hrs)= 0.88
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00

1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00

Model With SWM Infrastructure - Output

5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00

9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 2.987 (i)
TIME TO PEAK (hrs)= 47.000
RUNOFF VOLUME (mm)= 235.915
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.828

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4000)				
1	2	3		
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0400):	27.60	2.987	47.00	235.92
+ ID2= 2 (0800):	309.90	30.343	47.58	239.80
=====				
ID = 3 (4000):	337.50	32.982	47.50	239.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	25.60	Curve Number (CN)=	82.2
NASHYD (0200)	Ia (mm)=	8.25	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.79		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00

3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00

Model With SWM Infrastructure - Output

7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00

11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 2.818 (i)
TIME TO PEAK (hrs)= 46.833
RUNOFF VOLUME (mm)= 230.865
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.810

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0023)	Area (ha)= 7.00	Curve Number (CN)= 83.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.80	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.73		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00

1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99

6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00

Model With SWM Infrastructure - Output

10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.789 (i)
TIME TO PEAK (hrs)= 46.667
RUNOFF VOLUME (mm)= 233.394
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.819

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0022) | Area (ha)= 3.40 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.20

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00

0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00

4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.479 (i)
TIME TO PEAK (hrs)= 46.000
RUNOFF VOLUME (mm)= 234.000
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.821

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0211) | Area (ha)= 17.30 Curve Number (CN)= 81.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.76 # of Linear Res.(N)= 3.00

Model With SWM Infrastructure - Output

U.H. Tp(hrs)= 1.02

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00

3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00

7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model With SWM Infrastructure - Output

2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00

6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00

10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 5.101 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 238.425
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.837

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0871)		Routing time step (min)'= 5.00	
IN= 2--> OUT= 1			
<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42

<---- hydrograph ---->						<-pipe / channel-->	
		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW :	ID= 2 (0021)	47.60	5.10	47.08	238.42	0.51	0.75
OUTFLOW:	ID= 1 (0871)	47.60	5.03	47.25	238.42	0.50	0.75

ADD HYD (2110)				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0211):	17.30	1.777	47.17	228.02
+ ID2= 2 (0022):	3.40	0.479	46.00	234.00
=====				
ID = 3 (2110):	20.70	2.112	47.00	229.00

Model With SWM Infrastructure - Output

|ID= 1 DT= 5.0 min | Ia (mm)= 8.59 # of Linear Res.(N)= 3.00
----- U.H. Tp(hrs)= 0.85

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	' TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00

3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00

7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13

Model With SWM Infrastructure - Output

2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00

6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00

10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 1.420 (i)
TIME TO PEAK (hrs)= 46.667
RUNOFF VOLUME (mm)= 231.504
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.812

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0875)
IN= 2---> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.00	0.0400		
33.24	205.47	0.0400		
44.39	205.59	0.0400		
48.71	205.45	0.0400 / 0.0350	Main Channel	
51.02	204.50	0.0350	Main Channel	
54.33	205.44	0.0350 / 0.0400	Main Channel	
55.90	204.97	0.0400		
62.96	204.91	0.0400		
102.92	205.20	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.04	204.54	.311E+01	0.0	0.15	87.07
0.07	204.57	.124E+02	0.0	0.24	54.85
0.11	204.61	.280E+02	0.0	0.32	41.86
0.14	204.64	.497E+02	0.0	0.39	34.56
0.18	204.68	.777E+02	0.0	0.45	29.78

<---- hydrograph ---->					
<-pipe / channel->		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0020)	12.60	1.42	46.67	231.50	0.54
OUTFLOW: ID= 1 (0875)	12.60	1.35	47.17	231.47	0.53

ADD HYD (2200)				
1 + 2 = 3				
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0220):	20.30	2.192	47.00	228.96
+ ID2= 2 (0875):	12.60	1.355	47.17	231.47
=====				
ID = 3 (2200):	32.90	3.538	47.08	229.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2101)				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2110):	68.30	7.093	47.08	235.56
+ ID2= 2 (2200):	32.90	3.538	47.08	229.92
=====				
ID = 3 (2101):	101.20	10.631	47.08	233.73

Model With SWM Infrastructure - Output

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	209.52	0.0400	
61.99	209.23	0.0400	
76.86	209.20	0.0400	
82.03	209.20	0.0400 / 0.0350	Main Channel
86.30	208.87	0.0350	Main Channel
89.86	209.20	0.0350 / 0.0300	Main Channel
96.27	209.24	0.0300	
103.53	209.40	0.0300	
127.96	209.50	0.0300	
158.58	209.70	0.0300	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.03	208.90	.560E+01	0.0	0.10	69.11
0.07	208.94	.224E+02	0.0	0.17	43.54
0.10	208.97	.504E+02	0.0	0.22	33.23
0.13	209.00	.896E+02	0.1	0.26	27.43
0.17	209.04	.140E+03	0.1	0.31	23.64
0.20	209.07	.202E+03	0.2	0.35	20.93
0.23	209.10	.274E+03	0.2	0.38	18.89
0.26	209.13	.358E+03	0.3	0.42	17.28
0.30	209.17	.454E+03	0.5	0.45	15.97
0.33	209.20	.560E+03	0.6	0.49	14.89
0.37	209.24	.938E+03	0.9	0.43	16.68
0.40	209.27	.155E+04	1.5	0.41	17.48
0.44	209.31	.231E+04	2.3	0.42	17.04
0.47	209.34	.321E+04	3.3	0.44	16.25
0.51	209.38	.425E+04	4.6	0.47	15.39
0.54	209.41	.544E+04	6.1	0.49	14.80
0.58	209.45	.686E+04	7.9	0.50	14.38
0.61	209.48	.853E+04	10.3	0.52	13.85
0.65	209.52	.104E+05	13.2	0.55	13.23

<---- hydrograph ---->

<-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2101)	101.20	10.63	47.08	233.73	0.62	0.52
OUTFLOW: ID= 1 (0870)	101.20	10.46	47.25	233.73	0.62	0.52

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00

CALIB						
NASHYD (0210)	Area (ha)=	9.10	Curve Number (CN)=	82.3		
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	0.64				

3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00

Unit Hyd Qpeak (cms)= 0.543

Model With SWM Infrastructure - Output

PEAK FLOW (cms)= 1.058 (i)
TIME TO PEAK (hrs)= 46.500
RUNOFF VOLUME (mm)= 231.182
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.811

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2100)				
1	+	2	=	3
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0210):	9.10	1.058	46.50	231.18
+ ID2= 2 (0870):	101.20	10.464	47.25	233.73
=====				
ID = 3 (2100):	110.30	11.411	47.25	233.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0230)				
ID= 1 DT= 5.0 min	Area	(ha)= 24.70	Curve Number (CN)= 82.9	
	Ia	(mm)= 7.85	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	0.82		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00

1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00

5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 2.705 (i)
TIME TO PEAK (hrs)= 46.917
RUNOFF VOLUME (mm)= 233.085
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.818

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0231)				
ID= 1 DT= 5.0 min	Area	(ha)= 29.50	Curve Number (CN)= 81.9	
	Ia	(mm)= 8.42	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)=	0.89		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00

Model With SWM Infrastructure - Output

0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00

4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00

8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 3.155 (i)
TIME TO PEAK (hrs)= 47.000
RUNOFF VOLUME (mm)= 229.915
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.807

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHDY (0240) | Area (ha)= 10.10 Curve Number (CN)= 82.0
| ID= 1 DT= 5.0

Model With SWM Infrastructure - Output

3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00

7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00

11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 1.128 (i)
TIME TO PEAK (hrs)= 46.750
RUNOFF VOLUME (mm)= 230.234
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.808

(1) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0241)	
ID= 1 DT= 5.0 min	
Area (ha)= 26.70	Curve Number (CN)= 82.3
Ia (mm)= 8.19	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.75	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00

2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00

Model With SWM Infrastructure - Output

6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00

10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 2.978 (i)
TIME TO PEAK (hrs)= 46.750
RUNOFF VOLUME (mm)= 231.184
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.811

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0864)		Routing time step (min)'= 5.00	
IN= 2----> OUT= 1			
----- DATA FOR SECTION (1.1) -----			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 /0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 /0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)

0.12	211.91	.118E+02	0.0	0.27	29.62
0.24	212.03	.471E+02	0.0	0.42	18.66
0.36	212.15	.106E+03	0.1	0.56	14.24
0.48	212.27	.188E+03	0.3	0.67	11.76
0.61	212.40	.294E+03	0.5	0.78	10.13
0.73	212.52	.928E+03	1.0	0.51	15.63
0.85	212.64	.260E+04	2.7	0.50	15.93
0.97	212.76	.477E+04	5.8	0.58	13.67
1.09	212.88	.739E+04	10.6	0.68	11.67
1.21	213.00	.103E+05	17.1	0.79	10.01
1.33	213.12	.133E+05	25.0	0.89	8.85
1.45	213.24	.165E+05	34.4	0.99	8.00
1.57	213.36	.200E+05	45.3	1.08	7.34
1.70	213.49	.236E+05	57.6	1.16	6.82
1.82	213.61	.274E+05	71.4	1.24	6.39
1.94	213.73	.314E+05	86.8	1.31	6.02
2.06	213.85	.355E+05	104.6	1.40	5.66
2.18	213.97	.398E+05	124.9	1.49	5.31
2.37	214.16	.481E+05	161.2	1.59	4.97

	<---- hydrograph ---->				<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0241)	26.70	2.98	46.75	231.18	0.86	0.50
OUTFLOW: ID= 1 (0864)	26.70	2.93	47.08	231.18	0.86	0.50

ADD HYD (2301)					
1 + 2 = 3					
ID1= 1 (0231):	29.50	3.155	47.00	229.92	
+ ID2= 2 (0240):	10.10	1.128	46.75	230.23	
=====					
ID = 3 (2301):	39.60	4.271	47.00	230.00	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2301)					
3 + 2 = 1					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)		
ID1= 3 (2301):	39.60	4.271	47.00	230.00	
+ ID2= 2 (0864):	26.70	2.928	47.08	231.18	
=====					
ID = 1 (2301):	66.30	7.196	47.00	230.47	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0863)		Routing time step (min)'= 5.00	
IN= 2----> OUT= 1			
----- DATA FOR SECTION (1.1) -----			
Distance	Elevation	Manning	
0.00	206.70	0.0400	
2.35	206.02	0.0400 /0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 /0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 /0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.138E+01	0.0	0.11	58.11
0.09	205.28	.551E+01	0.0	0.18	36.61
0.13	205.32	.124E+02	0.0	0.23	27.94
0.17	205.36	.220E+02	0.0	0.28	23.06
0.22	205.41	.344E+02	0.0	0.33	19.87
0.26	205.45	.496E+02	0.0	0.37	17.60
0.31	205.50	.675E+02	0.1	0.41	15.88
0.35	205.54	.882E+02	0.1	0.45	14.53
0.39	205.58	.112E+03	0.1	0.48	13.43
0.44	205.63	.138E+03	0.2	0.52	12.52
0.48	205.67	.167E+03	0.2	0.55	11.81
0.52	205.71	.212E+03	0.2	0.44	14.65
0.57	205.76	.285E+03	0.3	0.43	15.23
0.61	205.80	.388E+03	0.4	0.44	14.79
0.66	205.85	.519E+03	0.6	0.47	13.99
0.70	205.89	.679E+03	0.9	0.50	13.12
0.74	205.93	.868E+03	1.2	0.53	12.29
0.79	205.98	.109E+04	1.6	0.56	11.53
0.83	206.02	.133E+04	2.0	0.60	10.85

**** WARNING: TRAVEL TIME TABLE EXCEEDED

<---- hydrograph ---->				<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (2301)	66.30	7.20	47.00	230.47	0.82 0.60
OUTFLOW: ID= 1 (0863)	66.30	7.14	47.17	230.47	0.83 0.60

Model With SWM Infrastructure - Output

ADD HYD (2300)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0230):	24.70	2.705	46.92	233.09
+ ID2= 2 (0863):	66.30	7.136	47.17	230.47
=====				
ID = 3 (2300):	91.00	9.810	47.08	231.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2011)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2100):	110.30	11.411	47.25	233.52
+ ID2= 2 (2300):	91.00	9.810	47.08	231.18
=====				
ID = 3 (2011):	201.30	21.210	47.17	232.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0862)
IN= 2---> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	204.63	0.0400	
45.24	204.34	0.0400	
94.52	203.98	0.0400	
140.93	203.58	0.0400	
148.77	203.72	0.0400 / 0.0350	Main Channel
154.30	202.99	0.0350	Main Channel
158.02	203.77	0.0350 / 0.0400	Main Channel
174.30	203.79	0.0400	
222.94	204.38	0.0400	
285.62	204.03	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.05	203.04	.465E+01	0.0	0.10	47.86
0.10	203.09	.186E+02	0.0	0.15	30.15
0.16	203.15	.418E+02	0.0	0.20	23.01
0.21	203.20	.744E+02	0.1	0.24	18.99
0.26	203.25	.116E+03	0.1	0.28	16.37
0.31	203.30	.167E+03	0.2	0.32	14.50

0.37	203.36	.228E+03	0.3	0.35	13.08
0.42	203.41	.297E+03	0.4	0.39	11.97
0.47	203.46	.376E+03	0.6	0.42	11.06
0.52	203.51	.465E+03	0.8	0.45	10.31
0.57	203.56	.562E+03	1.0	0.48	9.68
0.63	203.62	.700E+03	1.2	0.49	9.49
0.68	203.67	.969E+03	1.6	0.45	10.15
0.73	203.72	.138E+04	2.1	0.43	10.83
0.79	203.78	.203E+04	3.1	0.43	10.85
0.85	203.84	.309E+04	4.6	0.41	11.14
0.92	203.91	.437E+04	6.7	0.42	10.87
0.98	203.97	.586E+04	9.4	0.44	10.42
1.04	204.03	.757E+04	12.7	0.46	9.97

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2011)	201.30	21.21	47.17	232.46	1.04	0.46
OUTFLOW: ID= 1 (0862)	201.30	21.03	47.33	232.46	1.04	0.46

CALIB
NASHYD (0201)
ID= 1 DT= 5.0 min

Area (ha)= 8.20
Ia (mm)= 8.02
U.H. Tp(hrs)= 0.60
Curve Number (CN)= 82.6
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00

1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00

5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	2					

Model With SWM Infrastructure - Output

9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.972 (i)
TIME TO PEAK (hrs)= 46.417
RUNOFF VOLUME (mm)= 232.131
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.814

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2010)				
1 + 2 = 3				
ID1= 1 (0201):	8.20	0.972	46.42	232.13
+ ID2= 2 (0023):	7.00	0.789	46.67	233.39
ID = 3 (2010):	15.20	1.751	46.50	232.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2010)				
3 + 2 = 1				
ID1= 3 (2010):	15.20	1.751	46.50	232.71
+ ID2= 2 (0862):	201.30	21.028	47.33	232.46
ID = 1 (2010):	216.50	22.577	47.25	232.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0860)				
IN= 2---> OUT= 1				
Routing time step (min)'= 5.00				
Distance	Elevation	Manning		
0.00	208.48	0.0500		
43.69	207.97	0.0500		
66.92	207.94	0.0500		
76.98	208.01	0.0500		
87.94	208.25	0.0500		
89.93	208.44	0.0500 / 0.0350	Main	Channel
92.70	208.20	0.0350	Main	Channel
95.51	207.28	0.0350	Main	Channel
98.26	208.25	0.0350	Main	Channel

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.05	207.33	.155E+01	0.0	0.16	23.32
0.10	207.38	.620E+01	0.0	0.25	14.69
0.15	207.43	.140E+02	0.0	0.33	11.21
0.19	207.47	.248E+02	0.0	0.40	9.26
0.24	207.52	.388E+02	0.1	0.47	7.98
0.29	207.57	.558E+02	0.1	0.53	7.06
0.34	207.62	.760E+02	0.2	0.59	6.37
0.39	207.67	.992E+02	0.3	0.64	5.83
0.44	207.72	.126E+03	0.4	0.69	5.39
0.48	207.76	.155E+03	0.5	0.74	5.03
0.53	207.81	.188E+03	0.7	0.79	4.72
0.58	207.86	.223E+03	0.8	0.84	4.45
0.63	207.91	.262E+03	1.0	0.88	4.22
0.68	207.96	.341E+03	1.3	0.83	4.47
0.73	208.01	.708E+03	1.8	0.57	6.58
0.78	208.06	.119E+04	2.7	0.51	7.25
0.82	208.10	.174E+04	4.0	0.52	7.19
0.87	208.15	.236E+04	5.7	0.54	6.89
0.92	208.20	.305E+04	7.8	0.57	6.55

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA	QPEAK	TPEAK	R.V.		
	(ha)	(cms)	(hrs)	(mm)	MAX DEPTH	MAX VEL
INFLOW : ID= 2 (2010)	216.50	22.58	47.25	232.48	0.92	0.57
OUTFLOW: ID= 1 (0860)	216.50	22.48	47.42	232.48	0.92	0.57

ADD HYD (2000)				
1 + 2 = 3				
ID1= 1 (0200):	25.60	2.818	46.83	230.86
+ ID2= 2 (0860):	216.50	22.482	47.42	232.48
ID = 3 (2000):	242.10	25.119	47.33	232.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0300)				
ID= 1 DT= 5.0 min				
Area (ha)= 36.80				
Ia (mm)= 7.74				
U.H. Tp(hrs)= 0.90				
Curve Number (CN)= 83.1				
# of Linear Res.(N)= 3.00				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

TIME	RAIN	TIME	RAIN	TIME	RAIN	
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	
0.083	2.00	12.083	2.00	24.083	2.00	36.08
0.167	2.00	12.167	2.00	24.167	2.00	36.17
0.250	2.00	12.250	2.00	24.250	2.00	36.25
0.333	2.00	12.333	2.00	24.333	2.00	36.33
0.417	2.00	12.417	2.00	24.417	2.00	36.42
0.500	2.00	12.500	2.00	24.500	2.00	36.50
0.583	2.00	12.583	2.00	24.583	2.00	36.58
0.667	2.00	12.667	2.00	24.667	2.00	36.67
0.750	2.00	12.750	2.00	24.750	2.00	36.75
0.833	2.00	12.833	2.00	24.833	2.00	36.83
0.917	2.00	12.917	2.00	24.917	2.00	36.92
1.000	2.00	13.000	2.00	25.000	2.00	37.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08
1.167	2.00	13.167	2.00	25.167	2.00	37.17
1.250	2.00	13.250	2.00	25.250	2.00	37.25
1.333	2.00	13.333	2.00	25.333	2.00	37.33
1.417	2.00	13.417	2.00	25.417	2.00	37.42

1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00

Model With SWM Infrastructure - Output

5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00

10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 3.948 (i)

TIME TO PEAK (hrs)= 47.083

RUNOFF VOLUME (mm)= 233.715

TOTAL RAINFALL (mm)= 285.000

RUNOFF COEFFICIENT = 0.820

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0031) | Area (ha)= 3.00 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.62

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00

0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00

4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00

Model With SWM Infrastructure - Output

8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.352 (i)
TIME TO PEAK (hrs)= 46.417
RUNOFF VOLUME (mm)= 234.440
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.823

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| NASHYD (0350) | Area (ha)= 1.50 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.38

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00		
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00		
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00		
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00		
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00		
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00		
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00		
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00		
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00		
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00		
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00		
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00		
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00		
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00		
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00		

3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00

7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00

Model With SWM Infrastructure - Output

11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.200 (i)
TIME TO PEAK (hrs)= 46.083
RUNOFF VOLUME (mm)= 233.991
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.821

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0850) |
IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.300E+01	0.0	0.15	86.75
0.07	204.57	.120E+02	0.0	0.24	54.65
0.11	204.61	.270E+02	0.0	0.31	41.70
0.14	204.64	.480E+02	0.0	0.37	34.42
0.18	204.68	.750E+02	0.0	0.43	29.67
0.22	204.72	.108E+03	0.1	0.49	26.27
0.25	204.75	.147E+03	0.1	0.54	23.71
0.29	204.79	.192E+03	0.1	0.59	21.69
0.33	204.83	.243E+03	0.2	0.64	20.05
0.36	204.86	.300E+03	0.3	0.69	18.69
0.40	204.90	.363E+03	0.3	0.73	17.54
0.43	204.93	.488E+03	0.4	0.70	18.37
0.47	204.97	.860E+03	0.6	0.56	22.95
0.51	205.01	.144E+04	1.0	0.52	24.88
0.54	205.04	.217E+04	1.5	0.52	24.65
0.58	205.08	.304E+04	2.1	0.54	23.62

0.61	205.11	.407E+04	3.0	0.57	22.38
0.65	205.15	.524E+04	4.1	0.61	21.13
0.69	205.19	.656E+04	5.5	0.64	19.97

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0350)	1.50	0.20	46.08	233.99	0.32	0.64
OUTFLOW: ID= 1 (0850)	1.50	0.19	46.33	233.67	0.31	0.62

CALIB
NASHYD (0032) | Area (ha)= 28.00 Curve Number (CN)= 83.4
ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.95

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00

2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00

6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00				

Model With SWM Infrastructure - Output

10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 2.968 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 234.656
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.823

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3200)							
1 + 2 = 3				AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1	(	0032):		28.00	2.968	47.08	234.66
+ ID2= 2	(	0050):		1.50	0.186	46.33	233.67
=====							
ID = 3	(	3200):		29.50	3.132	47.08	234.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB							
NASHYD (0301)				Area (ha)=	59.40	Curve Number (CN)=	82.7
ID= 1 DT= 5.0 min				Ia (mm)=	7.97	# of Linear Res.(N)=	3.00
				U.H. Tp(hrs)=	1.23		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN

hrs	mm/hr	hrs	mm/hr	'	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00	
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00	
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00	
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00	
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00	
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00	
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00	
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00	
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00	
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00	
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00	
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00	
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00	
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00	
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00	
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00	
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00	
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00	
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00	
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00	
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00	
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00	
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00	
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00	
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00	
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00	
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00	
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00	
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00	
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00	
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00	
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00	
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00	
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00	
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00	
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00	
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00	
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00	
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00	
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00	
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00	
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00	
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00	
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00	
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00	
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00	
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00	
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00	
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00	
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00	

4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 5.764 (i)
TIME TO PEAK (hrs)= 47.333
RUNOFF VOLUME (mm)= 232.447
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.816

Model With SWM Infrastructure - Output

ADD HYD (3001)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (3010):	88.90	8.849	47.25	233.16
+ ID2= 2 (0031):	3.00	0.352	46.42	234.44
ID = 3 (3001):	91.90	9.168	47.17	233.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	205.46	.132E+02	0.0	0.21	32.83
0.19	205.56	.529E+02	0.0	0.33	20.68
0.28	205.65	.119E+03	0.1	0.43	15.78

0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00

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0.38 205.75 .212E+03 0.3 0.52 13.03
0.47 205.84 .327E+03 0.5 0.62 10.84
0.57 205.94 .458E+03 0.8 0.72 9.42
0.66 206.03 .604E+03 1.2 0.80 8.44
0.76 206.13 .777E+03 1.7 0.91 7.41
0.86 206.23 .102E+04 2.4 0.97 6.97
0.96 206.33 .168E+04 3.6 0.87 7.76
1.06 206.43 .252E+04 5.4 0.87 7.80
1.16 206.53 .350E+04 7.7 0.89 7.56
1.26 206.63 .463E+04 10.7 0.93 7.24
1.37 206.74 .590E+04 14.3 0.98 6.90
1.47 206.84 .732E+04 18.6 1.03 6.58
1.57 206.94 .889E+04 23.6 1.08 6.28
1.67 207.04 .106E+05 29.5 1.13 6.00
1.77 207.14 .125E+05 36.1 1.17 5.75
1.87 207.24 .145E+05 43.7 1.22 5.52

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<---- hydrograph ----> <-pipe / channel->
      AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
      (ha)      (cms)      (hrs)      (mm)      (m)      (m/s)
INFLOW : ID= 2 ( 3001) 91.90      9.17      47.17      233.20      1.21      0.91
OUTFLOW: ID= 1 ( 0852) 91.90      9.12      47.25      233.20      1.21      0.91

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| ADD HYD ( 3000) |
| 1 + 2 = 3 |
|-----|
      ID1= 1 ( 0300): 36.80      3.948      47.08      233.72
+ ID2= 2 ( 0852): 91.90      9.123      47.25      233.20
=====
      ID = 3 ( 3000): 128.70      13.011      47.17      233.35

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB |
| NASHYD ( 0030) | Area (ha)= 1.10      Curve Number (CN)= 81.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.76      # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.30

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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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      ---- TRANSFORMED HYETOGRAPH ----
      TIME      RAIN      TIME      RAIN      TIME      RAIN      TIME      RAIN
      hrs      mm/hr      hrs      mm/hr      hrs      mm/hr      hrs      mm/hr
0.083      2.00      12.083      2.00      24.083      2.00      36.08      6.00

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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VELOCITY (m/s)
INFLOW : ID= 2 (3001)	91.90	9.17	47.17	233.20	1.21	0.91
OUTFLOW: ID= 1 (0852)	91.90	9.12	47.25	233.20	1.21	0.91

CALIB	Area (ha)=	1.10	Curve Number (CN)=	81.5
NASHYD (0030)	Ia (mm)=	5.76	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.30		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00

Model With SWM Infrastructure - Output

8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.151 (i)
TIME TO PEAK (hrs)= 46.000
RUNOFF VOLUME (mm)= 231.361
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.812

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0854)		Routing time step (min)'= 5.00	
IN= 2----> OUT= 1			
----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	206.00	0.0400	
33.24	205.47	0.0400	
44.39	205.59	0.0400	
48.71	205.45	0.0400 /0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 /0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0030)	1.10	0.15	46.00	231.36	0.27	0.68
OUTFLOW: ID= 1 (0854)	1.10	0.15	46.00	231.34	0.27	0.68

CALIB	
NASHYD (0340)	
ID= 1 DT= 5.0 min	

Area (ha)= 21.00	Curve Number (CN)= 82.8
Ia (mm)= 7.91	# of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.69	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00

3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00

Model With SWM Infrastructure - Output

7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00

11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 2.398 (i)
TIME TO PEAK (hrs)= 46.583
RUNOFF VOLUME (mm)= 232.764
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.817

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3400)				
1 + 2 = 3				

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0340):	21.00	2.398	46.58	232.76
+ ID2= 2 (0854):	1.10	0.150	46.08	231.34
=====				
ID = 3 (3400):	22.10	2.522	46.58	232.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0123)				
ID= 1 DT= 5.0 min				

	Area	(ha)=	24.60	Curve Number (CN)= 82.9
	Ia	(mm)=	7.85	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.93		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	' TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00

1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00

5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00

Model With SWM Infrastructure - Output

9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 2.616 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 233.086
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.818

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0814)
IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 /0.0350	Main Channel

28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 /0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

TRAVEL TIME TABLE					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40
0.85	212.64	.204E+04	2.7	0.49	12.63
0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0123)	24.60	2.62	47.08 233.09	0.84	0.49
OUTFLOW: ID= 1 (0814)	24.60	2.58	47.25 233.09	0.84	0.49

CALIB
NASHYD (0124) | Area (ha)= 24.30 Curve Number (CN)= 85.8
ID= 1 DT= 5.0 min | Ia (mm)= 6.30 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.51

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----					
TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr

0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00

4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00

Model With SWM Infrastructure - Output

8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 3.056 (i)
TIME TO PEAK (hrs)= 46.250
RUNOFF VOLUME (mm)= 242.161
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.850

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0813)		Routing time step (min)'= 5.00			
IN= 2--> OUT= 1					
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 /0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		
32.89	214.16	0.0350 /0.0500	Main Channel		
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			
<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.78
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25
<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	<-pipe / channel->	
(ha)	(cms)	(hrs)	(mm)	MAX DEPTH	MAX VEL
				(m)	(m/s)
INFLOW : ID= 2 (0124)	24.30	3.06	46.25	242.16	0.86 0.50
OUTFLOW: ID= 1 (0813)	24.30	2.82	46.75	242.15	0.85 0.49

ADD HYD (1221)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0813):	24.30	2.820	46.75	242.15
+ ID2= 2 (0814):	24.60	2.581	47.25	233.09
=====				
ID = 3 (1221):	48.90	5.313	47.00	237.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0812)|

IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 /0.0350	Main Channel
70.77	208.05	0.0350	Main Channel
74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 /0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.07	208.09	.533E+02	0.1	0.24	12.01
0.14	208.16	.150E+03	0.3	0.37	7.63
0.22	208.24	.280E+03	0.8	0.47	5.98
0.29	208.31	.444E+03	1.5	0.56	5.04
0.36	208.38	.642E+03	2.4	0.64	4.42
0.44	208.46	.896E+03	4.0	0.75	3.76
0.52	208.54	.119E+04	6.0	0.86	3.29
0.60	208.62	.153E+04	8.6	0.96	2.96
0.68	208.70	.192E+04	11.7	1.04	2.73
0.76	208.78	.235E+04	15.4	1.11	2.55
0.84	208.86	.283E+04	19.6	1.18	2.41
0.92	208.94	.351E+04	24.2	1.17	2.41
0.99	209.01	.435E+04	30.6	1.19	2.37
1.07	209.09	.528E+04	38.0	1.22	2.31
1.15	209.17	.628E+04	46.4	1.26	2.26
1.23	209.25	.737E+04	55.9	1.29	2.20
1.31	209.33	.855E+04	66.6	1.33	2.14
1.39	209.41	.982E+04	78.7	1.36	2.08

1.47 209.49 .112E+05 92.1 1.40 2.03

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	<-pipe / channel->	
(ha)	(cms)	(hrs)	(mm)	MAX DEPTH	MAX VEL
				(m)	(m/s)
INFLOW : ID= 2 (1221)	48.90	5.31	47.00	237.59	0.49 0.82
OUTFLOW: ID= 1 (0812)	48.90	5.31	47.00	237.59	0.49 0.82

CALIB				
NASHYD (0122)	Area (ha)=	31.80	Curve Number (CN)=	85.1
ID= 1 DT= 5.0 min	Ia (mm)=	6.67	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.96		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	' TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00		
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00		
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00		
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00		
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00		

Model With SWM Infrastructure - Output

2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00

6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00

10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.265

PEAK FLOW (cms)= 3.386 (i)
 TIME TO PEAK (hrs)= 47.083
 RUNOFF VOLUME (mm)= 239.984
 TOTAL RAINFALL (mm)= 285.000
 RUNOFF COEFFICIENT = 0.842

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1220)				
1 + 2 = 3				

ID1= 1 (0122):	31.80	3.386	47.08	239.98
+ ID2= 2 (0812):	48.90	5.313	47.08	237.59
=====				
ID = 3 (1220):	80.70	8.699	47.08	238.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0811)	
IN= 2--> OUT= 1	

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.50	0.0400		
29.68	206.77	0.0400		
43.70	206.13	0.0400 / 0.0350	Main Channel	
44.99	205.95	0.0350	Main Channel	
47.70	206.24	0.0350 / 0.0450	Main Channel	
60.54	206.32	0.0450		
80.11	206.99	0.0450		

102.29	207.42	0.0450 / 0.0400
132.78	206.84	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	206.01	.147E+02	0.0	0.14	60.26
0.12	206.07	.590E+02	0.0	0.22	37.96
0.18	206.13	.133E+03	0.1	0.29	28.97
0.26	206.21	.302E+03	0.2	0.36	22.81
0.34	206.29	.671E+03	0.5	0.39	21.40
0.42	206.37	.151E+04	1.2	0.39	20.95
0.50	206.45	.254E+04	2.3	0.45	18.38
0.58	206.53	.376E+04	3.7	0.49	16.98
0.66	206.61	.544E+04	5.6	0.51	16.11
0.74	206.69	.764E+04	8.4	0.54	15.19
0.83	206.78	.104E+05	12.1	0.58	14.27
0.91	206.86	.134E+05	17.4	0.64	12.84
0.99	206.94	.166E+05	23.6	0.71	11.71
1.07	207.02	.201E+05	30.7	0.76	10.88
1.15	207.10	.239E+05	38.8	0.81	10.26
1.23	207.18	.280E+05	48.0	0.85	9.72
1.31	207.26	.325E+05	58.5	0.89	9.26
1.39	207.34	.373E+05	70.3	0.94	8.84
1.47	207.42	.424E+05	83.4	0.98	8.48

Model With SWM Infrastructure - Output

0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00

4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00

8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.691

PEAK FLOW (cms)= 1.757 (i)
TIME TO PEAK (hrs)= 47.000
RUNOFF VOLUME (mm)= 244.348
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.857

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1210)
1 + 2 = 3

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0121):	16.10	1.757	47.00	244.35
+ ID2= 2 (0811):	80.70	8.567	47.25	238.53
=====				
ID = 3 (1210):	96.80	10.292	47.25	239.50

Model With SWM Infrastructure - Output

2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00

6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00

10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.889

PEAK FLOW (cms)= 1.557 (i)
TIME TO PEAK (hrs)= 46.333
RUNOFF VOLUME (mm)= 233.389
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.819

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0844)
IN= 2--> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.107E+01	0.0	0.13	37.04
0.08	207.60	.430E+01	0.0	0.20	23.33
0.12	207.64	.966E+01	0.0	0.27	17.81
0.16	207.68	.172E+02	0.0	0.32	14.70
0.19	207.71	.268E+02	0.0	0.38	12.67
0.23	207.75	.387E+02	0.1	0.42	11.22
0.27	207.79	.526E+02	0.1	0.47	10.12
0.31	207.83	.687E+02	0.1	0.51	9.26

0.35	207.87	.870E+02	0.2	0.56	8.56
0.39	207.91	.107E+03	0.2	0.60	7.98
0.43	207.95	.130E+03	0.3	0.64	7.49
0.47	207.99	.155E+03	0.4	0.67	7.07
0.50	208.02	.181E+03	0.5	0.71	6.70
0.54	208.06	.210E+03	0.6	0.75	6.38
0.58	208.10	.242E+03	0.7	0.78	6.09
0.62	208.14	.275E+03	0.8	0.82	5.83
0.67	208.19	.329E+03	1.0	0.87	5.50
0.72	208.24	.413E+03	1.3	0.89	5.36
0.77	208.29	.540E+03	1.7	0.87	5.45

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0146)	12.80	1.56	46.33	233.39	0.76
OUTFLOW: ID= 1 (0844)	12.80	1.55	46.42	233.38	0.75

CALIB					
NASHYD (0145)	Area (ha)= 12.60	Curve Number (CN)= 83.3			
ID= 1 DT= 5.0 min	Ia (mm)= 7.63	# of Linear Res.(N)= 3.00			

Model With SWM Infrastructure - Output

1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00

5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00

10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 1.505 (i)
TIME TO PEAK (hrs)= 46.417
RUNOFF VOLUME (mm)= 234.340
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.822

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1450)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0145):	12.60	1.505	46.42	234.34
+ ID2= 2 (0844):	12.80	1.547	46.42	233.38
=====				
ID = 3 (1450):	25.40	3.052	46.42	233.86

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0843)	Routing time step (min)= 5.00
IN= 2--> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.144E+02	0.0	0.23	42.45
0.24	212.03	.578E+02	0.0	0.36	26.74
0.36	212.15	.130E+03	0.1	0.48	20.41
0.48	212.27	.231E+03	0.2	0.58	16.85
0.61	212.40	.361E+03	0.4	0.67	14.52
0.73	212.52	.114E+04	0.8	0.43	2

Model With SWM Infrastructure - Output

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00		
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00		
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00		
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00		
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00		
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00		
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00		
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00		
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00		
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00		
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00		
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00		
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00		
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00		
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00		
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00		
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00		
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00		
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00		
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00		
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00		

3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00

8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model With SWM Infrastructure - Output

0.48	205.67	.180E+03	0.2	0.42	16.60
0.52	205.71	.228E+03	0.2	0.34	20.59
0.57	205.76	.308E+03	0.2	0.33	21.41
0.61	205.80	.418E+03	0.3	0.34	20.79
0.66	205.85	.560E+03	0.5	0.36	19.66
0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1440)	54.00	5.87	47.00	233.45	0.83	0.46
OUTFLOW: ID= 1 (0842)	54.00	5.77	47.25	233.44	0.83	0.46

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB						
NASHYD (0143)	Area (ha)=	27.70	Curve Number (CN)=	82.9		
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.07				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00

1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00

5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00

10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	3

Model With SWM Infrastructure - Output

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.66	0.0400		
19.50	209.34	0.0400		
37.91	208.66	0.0400		
41.73	208.62	0.0400 / 0.0350	Main	Channel
43.44	208.24	0.0350	Main	Channel
45.75	208.62	0.0350 / 0.0450	Main	Channel
54.00	208.79	0.0450 / 0.0400		
77.43	209.05	0.0400		
128.85	209.70	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	TIME	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.216E+02	0.0	0.15	113.45
0.13	208.37	.864E+02	0.0	0.24	71.47
0.19	208.43	.194E+03	0.1	0.31	54.54
0.25	208.49	.345E+03	0.1	0.38	45.02
0.32	208.56	.540E+03	0.2	0.44	38.80
0.38	208.62	.777E+03	0.4	0.49	34.36
0.46	208.70	.152E+04	0.7	0.50	33.99
0.54	208.78	.281E+04	1.4	0.50	33.61
0.62	208.86	.469E+04	2.5	0.53	31.90
0.70	208.94	.734E+04	4.0	0.56	30.28
0.78	209.02	.107E+05	6.3	0.59	28.55
0.86	209.10	.149E+05	9.3	0.63	26.78
0.94	209.18	.198E+05	13.1	0.68	25.09
1.02	209.26	.253E+05	17.9	0.72	23.58
1.10	209.34	.315E+05	23.6	0.76	22.24
1.18	209.42	.386E+05	30.0	0.79	21.42
1.26	209.50	.465E+05	37.7	0.82	20.56
1.34	209.58	.554E+05	46.8	0.86	19.73
1.42	209.66	.652E+05	57.3	0.90	18.94

<---- hydrograph ---->				<-pipe / channel->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (1430)	81.70	8.59	47.25	233.32	0.84	0.62
OUTFLOW : ID= 1 (0841)	81.70	8.18	47.58	233.31	0.83	0.62

CALIB					
NASHYD (0142)	Area (ha)=	27.10	Curve Number (CN)=	82.9	
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	1.22			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00		
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00		
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00		
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00		
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00		
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00		
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00		
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00		
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00		
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00		
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00		
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00		
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00		
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00		
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00		
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00		
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00		
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00		
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00		
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00		
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00		
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00		

3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00

8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95</

Model With SWM Infrastructure - Output

PEAK FLOW (cms)= 2.640 (i)
TIME TO PEAK (hrs)= 47.333
RUNOFF VOLUME (mm)= 233.086
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.818

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1420)		AREA	QPEAK	TPEAK	R.V.
1	2	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0142):	27.10	2.640	47.33	233.09	
+ ID2= 2 (0841):	81.70	8.181	47.58	233.31	
=====					
ID = 3 (1420):	108.80	10.783	47.50	233.26	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0840)	Routing time step (min)'= 5.00
IN= 2--> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.52	0.0400		
61.99	209.23	0.0400		
76.86	209.20	0.0400		
82.03	209.20	0.0400 / 0.0350	Main Channel	
86.30	208.87	0.0350	Main Channel	
89.86	209.20	0.0350 / 0.0300	Main Channel	
96.27	209.24	0.0300		
103.53	209.40	0.0300		
127.96	209.50	0.0300		
158.58	209.70	0.0300		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.03	208.90	.706E+01	0.0	0.08	110.24
0.07	208.94	.282E+02	0.0	0.13	69.44
0.10	208.97	.636E+02	0.0	0.17	53.00
0.13	209.00	.113E+03	0.0	0.21	43.75
0.17	209.04	.177E+03	0.1	0.24	37.70
0.20	209.07	.254E+03	0.1	0.27	33.38
0.23	209.10	.346E+03	0.2	0.30	30.12
0.26	209.13	.452E+03	0.3	0.33	27.56
0.30	209.17	.572E+03	0.4	0.36	25.48
0.33	209.20	.706E+03	0.5	0.38	23.75

0.37	209.24	.118E+04	0.7	0.34	26.61
0.40	209.27	.196E+04	1.2	0.33	27.88
0.44	209.31	.291E+04	1.8	0.34	27.18
0.47	209.34	.404E+04	2.6	0.35	25.91
0.51	209.38	.536E+04	3.6	0.37	24.55
0.54	209.41	.686E+04	4.8	0.39	23.61
0.58	209.45	.865E+04	6.3	0.40	22.94
0.61	209.48	.108E+05	8.1	0.41	22.09
0.65	209.52	.132E+05	10.4	0.43	21.10

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<--- hydrograph --->				<-pipe / channel->	
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL		
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)		
INFLOW : ID= 2 (1420)	108.80	10.78	47.50	233.26	0.65	0.43	
OUTFLOW: ID= 1 (0840)	108.80	10.50	47.92	233.25	0.65	0.43	

CALIB	Area (ha)=	Curve Number (CN)=
NASHYD (0141)	8.10	83.6
ID= 1 DT= 5.0 min	Ia (mm)= 7.47	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.78	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00

1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00

5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.00

Model With SWM Infrastructure - Output

10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.397

PEAK FLOW (cms)= 0.900 (i)
TIME TO PEAK (hrs)= 46.833
RUNOFF VOLUME (mm)= 235.285
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.826

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1410)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0141):	8.10	0.900	46.83	235.28
+ ID2= 2 (0840):	108.80	10.496	47.92	233.25
=====				
ID = 3 (1410):	116.90	11.123	47.75	233.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0151)				
ID= 1 DT= 5.0 min				
Area	(ha)=	24.60	Curve Number	(CN)= 82.8
Ia	(mm)=	7.91	# of Linear Res.(N)=	3.00

----- U.H. Tp(hrs)= 1.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00

3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00

7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model With SWM Infrastructure - Output

Unit Hyd Qpeak (cms)= 0.940

PEAK FLOW (cms)= 2.561 (i)
TIME TO PEAK (hrs)= 47.167
RUNOFF VOLUME (mm)= 232.766
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.817

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)= 33.30	Curve Number (CN)= 82.6
NASHYD (0153)	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 1.08	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00

2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00

6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00

Unit Hyd Qpeak (cms)= 1.178

PEAK FLOW (cms)= 3.381 (i)
TIME TO PEAK (hrs)= 47.167
RUNOFF VOLUME (mm)= 232.136
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.815

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTING time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500/0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350/0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

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Model With SWM Infrastructure - Output

0.73	212.52	.987E+03	0.8	0.39	21.48
0.85	212.64	.277E+04	2.1	0.39	21.89
0.97	212.76	.507E+04	4.5	0.45	18.78
1.09	212.88	.786E+04	8.2	0.53	16.03
1.21	213.00	.109E+05	13.2	0.61	13.75
1.33	213.12	.142E+05	19.4	0.69	12.16
1.45	213.24	.176E+05	26.7	0.77	10.99
1.57	213.36	.212E+05	35.1	0.84	10.09
1.70	213.49	.251E+05	44.6	0.90	9.37
1.82	213.61	.291E+05	55.3	0.96	8.77
1.94	213.73	.334E+05	67.2	1.02	8.28
2.06	213.85	.378E+05	81.1	1.08	7.77
2.18	213.97	.423E+05	96.7	1.16	7.29
2.37	214.16	.512E+05	124.9	1.23	6.83

<---- hydrograph <---->				<-pipe / channel-->		
AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (0153)	33.30	3.38	47.17	232.14	0.91	0.42
OUTFLOW: ID= 1 (0834)	33.30	3.29	47.42	232.14	0.91	0.41

CALIB			
NASHYD (0152)	Area (ha)= 16.20	Curve Number (CN)= 82.6	
ID= 1 DT= 5.0 min	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.93		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00

1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00

5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 1.720 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 232.136
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.815

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1520)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0152):	16.20	1.720	47.08	232.14
+ ID2= 2 (0834):	33.30	3.290	47.42	232.14
ID = 3 (1520):	49.50	4.955	47.25	232.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model With SWM Infrastructure - Output

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-----  
| ROUTE CHN( 0833)|  
| IN= 2----> OUT= 1 |  
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Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	209.49	0.0400
35.71	208.88	0.0400
53.04	208.89	0.0400
64.12	208.50	0.0400 / 0.0350
70.77	208.05	0.0350
74.98	208.02	0.0350
83.40	208.38	0.0350 / 0.0400
88.06	208.63	0.0400
94.94	209.13	0.0400
105.88	209.54	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.232E+03	0.1	0.19	65.23
0.14	208.16	.652E+03	0.3	0.30	41.42
0.22	208.24	.122E+04	0.6	0.38	32.47
0.29	208.31	.193E+04	1.2	0.45	27.40
0.36	208.38	.279E+04	1.9	0.51	24.03
0.44	208.46	.389E+04	3.2	0.60	20.41
0.52	208.54	.516E+04	4.8	0.69	17.88
0.60	208.62	.664E+04	6.9	0.77	16.07
0.68	208.70	.833E+04	9.4	0.83	14.80
0.76	208.78	.102E+05	12.3	0.89	13.84
0.84	208.86	.123E+05	15.7	0.94	13.07
0.92	208.94	.153E+05	19.4	0.94	13.11
0.99	209.01	.189E+05	24.5	0.96	12.89
1.07	209.09	.229E+05	30.4	0.98	12.57
1.15	209.17	.273E+05	37.1	1.01	12.25
1.23	209.25	.320E+05	44.7	1.03	11.94
1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

<---- hydrograph ---->

<-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL	
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)	
INFLOW : ID= 2 (1520)	49.50	4.96	47.25	232.14	0.52	0.69
OUTFLOW : ID= 1 (0833)	49.50	4.87	47.50	232.13	0.52	0.69

```
-----  
| ADD HYD ( 1510)|  
| 1 + 2 = 3 |  
-----
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0151):	24.60	2.561	47.17	232.77
+ ID2= 2 (0833):	49.50	4.874	47.50	232.13
=====				
ID = 3 (1510):	74.10	7.367	47.33	232.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----  
| ROUTE CHN( 0832)|  
| IN= 2----> OUT= 1 |  
-----
```

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.50	0.0400
29.68	206.77	0.0400
43.70	206.13	0.0400 / 0.0350
44.99	205.95	0.0350
47.70	206.24	0.0350 / 0.0450
60.54	206.32	0.0450
80.11	206.99	0.0450
102.29	207.42	0.0450 / 0.0400
132.78	206.84	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.06	206.01	.158E+02	0.0	0.16	56.30
0.12	206.07	.633E+02	0.0	0.25	35.47
0.18	206.13	.142E+03	0.1	0.33	27.07
0.26	206.21	.324E+03	0.3	0.42	21.31
0.34	206.29	.720E+03	0.6	0.44	20.00
0.42	206.37	.162E+04	1.4	0.45	19.57
0.50	206.45	.272E+04	2.6	0.52	17.17
0.58	206.53	.404E+04	4.2	0.56	15.86
0.66	206.61	.584E+04	6.5	0.59	15.05
0.74	206.69	.820E+04	9.6	0.63	14.19
0.83	206.78	.111E+05	13.9	0.67	13.34
0.91	206.86	.143E+05	19.9	0.74	12.00
0.99	206.94	.178E+05	27.1	0.81	10.94
1.07	207.02	.215E+05	35.3	0.87	10.16
1.15	207.10	.256E+05	44.5	0.93	9.59
1.23	207.18	.301E+05	55.1	0.98	9.09
1.31	207.26	.349E+05	67.2	1.03	8.65
1.39	207.34	.400E+05	80.7	1.07	8.26
1.47	207.42	.455E+05	95.8	1.12	7.92

<---- hydrograph ---->

<-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL

	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1510)	74.10	7.37	47.33	232.34	0.69	0.60
OUTFLOW : ID= 1 (0832)	74.10	7.24	47.58	232.34	0.68	0.60

```
-----  
| CALIB  
| NASHYD ( 0150)|  
| ID= 1 DT= 5.0 min |  
-----
```

Area (ha)= 6.00
Ia (mm)= 7.41
U.H. Tp(hrs)= 0.96

Curve Number (CN)= 83.7
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00

2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00		

Model With SWM Infrastructure - Output

7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00

11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.698 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 235.606
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.827

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----  
| ADD HYD ( 1500) |  
| 1 + 2 = 3 |  
-----  
          AREA      QPEAK      TPEAK      R.V.  
          (ha)      (cms)      (hrs)      (mm)  
ID1= 1 ( 0150):      6.60      0.698      47.08      235.61  
+ ID2= 2 ( 0832):      74.10      7.245      47.58      232.34  
=====
```

ID = 3 (1500): 80.70 7.897 47.50 232.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----  
| ADD HYD ( 1401) |  
| 1 + 2 = 3 |  
-----  
          AREA      QPEAK      TPEAK      R.V.  
          (ha)      (cms)      (hrs)      (mm)  
ID1= 1 ( 1410):      116.90      11.123      47.75      233.39  
+ ID2= 2 ( 1500):      80.70      7.897      47.50      232.60  
=====
```

ID = 3 (1401): 197.60 18.940 47.67 233.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----  
| ROUTE CHN( 0830) |  
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00  
-----
```

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	207.71	0.0400
58.83	206.71	0.0400
66.88	206.59	0.0400 / 0.0350
72.32	206.34	0.0350
77.68	206.55	0.0350 / 0.0800
82.85	206.54	0.0800
90.20	206.02	0.0800
94.03	206.48	0.0800
99.83	206.40	0.0800 / 0.0400
114.32	206.50	0.0400
136.07	206.86	0.0400
174.41	207.56	0.0400

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV. TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.224E+03	0.0	0.08	174.00
0.23	206.25	.505E+03	0.1	0.11	132.79
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34
0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	4.7	0.29	50.17
0.78	206.80	.196E+05	7.6	0.34	42.88
0.87	206.89	.258E+05	11.4	0.38	37.80
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11
1.37	207.39	.776E+05	54.6	0.61	23.71
1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43

<---- hydrograph ---->					
AREA	QPEAK	TPEAK	R.V.	<-pipe / channel->	
(ha)	(cms)	(hrs)	(mm)	MAX DEPTH	MAX VEL
INFLOW : ID= 2 (1401)	197.60	18.94	47.67	233.07	0.99
OUTFLOW: ID= 1 (0830)	197.60	18.04	48.00	233.06	0.98

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00		
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00		
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00		
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00		
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00		
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00		
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00		
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00		
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00		
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00		
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00		
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00		
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00		
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00		
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00		
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00		
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00		
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00		
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00		
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00		
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00		

Model With SWM Infrastructure - Output

3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00

8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 1.726 (i)
TIME TO PEAK (hrs)= 47.417
RUNOFF VOLUME (mm)= 235.287
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.826

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0140):	18.30	1.726	47.42	235.29
+ ID2= 2 (0830):	197.60	18.039	48.00	233.06
ID = 3 (1400):	215.90	19.631	48.00	233.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area	(ha)=	28.70	Curve Number	(CN)=	82.1
NASHYD (0131)	Ia	(mm)=	8.30	# of Linear Res.(N)=	3.00	
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	1.11				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00

1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00

Model With SWM Infrastructure - Output

5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00

10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 2.880 (i)

TIME TO PEAK (hrs)= 47.250

RUNOFF VOLUME (mm)= 230.556

TOTAL RAINFALL (mm)= 285.000

RUNOFF COEFFICIENT = 0.809

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)= 132.00
STANDHYD (0011)	Total Imp(%)= 57.10 Dir. Conn.(%)= 45.00
ID= 1 DT= 5.0 min	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	75.37	56.63
Dep. Storage (mm)=	1.00	8.95
Average Slope (%)=	1.00	1.00
Length (m)=	938.08	40.00
Mannings n	= 0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00

4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00

Model With SWM Infrastructure - Output

8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00
Max.Eff.Inten.(mm/hr)= 53.00 64.00							
over (min) 15.00 25.00							
Storage Coeff. (min)= 12.62 (ii) 23.00 (ii)							
Unit Hyd. Tpeak (min)= 15.00 25.00							

Unit Hyd. peak (cms)= 0.08 0.05			
TOTALS			
PEAK FLOW (cms)= 8.65 9.15	17.673 (iii)		
TIME TO PEAK (hrs)= 46.00 46.17	46.00		
RUNOFF VOLUME (mm)= 284.00 222.11	249.96		
TOTAL RAINFALL (mm)= 285.00 285.00	285.00		
RUNOFF COEFFICIENT = 1.00 0.78	0.88		

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 73.9 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0874) OVERFLOW IS OFF			
IN= 2----> OUT= 1			
DT= 5.0 min			
OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	2.4200	5.4280
0.0950	1.5860	3.3930	6.6280
1.2530	3.8390	0.0000	0.0000
**** WARNING : STORAGE-DISCHARGE TABLE WAS EXCEEDED.			

AREA (ha)		QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0011)		132.000	17.673	249.96
OUTFLOW: ID= 1 (0874)		132.000	9.089	248.50

PEAK FLOW REDUCTION [Qout/Qin](%)= 51.43
TIME SHIFT OF PEAK FLOW (min)= 80.00
MAXIMUM STORAGE USED (ha.m.)= 13.6609

CALIB		Area (ha)= 17.50	
STANDHYD (0012)		Total Imp(%)= 80.00	Dir. Conn.(%)= 70.00
ID= 1 DT= 5.0 min			

IMPERVIOUS		PERVIOUS (i)
Surface Area (ha)= 14.00	3.50	
Dep. Storage (mm)= 1.00	8.94	
Average Slope (%)= 1.00	1.00	
Length (m)= 341.57	40.00	
Mannings n = 0.013	0.250	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00

4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.95
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00

Model With SWM Infrastructure - Output

8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00
Max.Eff.Inten.(mm/hr)= 53.00 75.99							
over (min)= 5.00 20.00							
Storage Coeff. (min)= 6.88 (ii) 16.58 (ii)							
Unit Hyd. Tpeak (min)= 5.00 20.00							
Unit Hyd. peak (cms)= 0.18 0.06							

TOTALS				2.511 (iii)
PEAK FLOW	(cms)=	1.80	0.71	
TIME TO PEAK	(hrs)=	46.00	46.00	46.00
RUNOFF VOLUME	(mm)=	284.00	230.00	267.80
TOTAL RAINFALL	(mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT	=	1.00	0.81	0.94

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112)				
1	2	3		

ID1= 1 (0012):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	17.50	2.511	46.00	267.80
+ ID2= 2 (0874):	132.00	9.089	47.33	248.50
=====				
ID = 3 (1112):	149.50	10.623	47.00	250.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0010)			
ID= 1 DT= 5.0 min			

Area (ha)= 12.90			
Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00			

IMPERVIOUS			
Surface Area	(ha)=	10.32	2.58
Dep. Storage	(mm)=	1.00	8.94
Average Slope	(%)=	1.00	1.00
Length	(m)=	293.26	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00

0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00

4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00

Model With SWM Infrastructure - Output

9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	75.99
over (min)	5.00	20.00
Storage Coeff. (min)=	6.28 (ii)	15.98 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.19	0.07
TOTALS		
PEAK FLOW (cms)=	1.33	0.52
TIME TO PEAK (hrs)=	46.00	46.00
RUNOFF VOLUME (mm)=	284.00	230.00
TOTAL RAINFALL (mm)=	285.00	285.00
RUNOFF COEFFICIENT =	1.00	0.81

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

- CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1311)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):	12.90	1.853	46.00	267.80
+ ID2= 2 (1112):	149.50	10.623	47.00	250.76
=====				
ID = 3 (1311):	162.40	11.976	47.00	252.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0822)	
IN= 2----> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	207.71	0.0400		
58.83	206.71	0.0400		
66.88	206.59	0.0400 / 0.0350	Main Channel	
72.32	206.34	0.0350	Main Channel	
77.68	206.55	0.0350 / 0.0800	Main Channel	
82.85	206.54	0.0800		
90.20	206.02	0.0800		
94.03	206.48	0.0800		
99.83	206.40	0.0800 / 0.0400		
114.32	206.50	0.0400		
136.07	206.86	0.0400		
174.41	207.56	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.337E+02	0.0	0.07	124.18
0.15	206.17	.135E+03	0.0	0.11	78.23
0.23	206.25	.303E+03	0.1	0.15	59.70
0.30	206.32	.539E+03	0.2	0.18	49.28
0.38	206.40	.885E+03	0.3	0.20	43.17
0.45	206.47	.175E+04	0.6	0.19	46.91
0.53	206.55	.333E+04	1.4	0.23	38.64
0.61	206.63	.569E+04	3.4	0.31	27.90
0.70	206.72	.851E+04	6.3	0.39	22.56
0.78	206.80	.118E+05	10.2	0.45	19.28
0.87	206.89	.155E+05	15.2	0.51	17.00

0.95	206.97	.196E+05	21.4	0.57	15.28
1.04	207.06	.242E+05	28.9	0.63	13.96
1.12	207.14	.292E+05	37.7	0.68	12.90
1.20	207.22	.346E+05	47.9	0.73	12.02
1.29	207.31	.404E+05	59.6	0.77	11.29
1.37	207.39	.466E+05	72.9	0.82	10.66
1.46	207.48	.533E+05	87.8	0.86	10.11
1.54	207.56	.604E+05	104.5	0.91	9.63
<----- hydrograph ----->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (1311)	162.40	11.98	47.00	252.11	0.81
OUTFLOW: ID= 1 (0822)	162.40	11.64	47.00	252.06	0.81

ADD HYD (1310)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0131):	28.70	2.880	47.25	230.56
+ ID2= 2 (0822):	162.40	11.635	47.00	252.06
=====				
ID = 3 (1310):	191.10	14.471	47.00	248.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0821)	
IN= 2----> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	207.71	0.0400		
58.83	206.71	0.0400		
66.88	206.59	0.0400 / 0.0350	Main Channel	
72.32	206.34	0.0350	Main Channel	
77.68	206.55	0.0350 / 0.0800	Main Channel	
82.85	206.54	0.0800		
90.20	206.02	0.0800		
94.03	206.48	0.0800		
99.83	206.40	0.0800 / 0.0400		
114.32	206.50	0.0400		
136.07	206.86	0.0400		
174.41	207.56	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME

(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.569E+02	0.0	0.06	234.14
0.15	206.17	.227E+03	0.0	0.10	147.50
0.23	206.25	.512E+03	0.1	0.13	112.56
0.30	206.32	.910E+03	0.2	0.16	92.92
0.38	206.40	.149E+04	0.3	0.18	81.40
0.45	206.47	.295E+04	0.6	0.17	88.45
0.53	206.55	.562E+04	1.3	0.20	72.86
0.61	206.63	.960E+04	3.0	0.28	52.60
0.70	206.72	.143E+05	5.6	0.35	42.53
0.78	206.80	.199E+05	9.1	0.40	36.35
0.87	206.89	.261E+05	13.6	0.46	32.05
0.95	206.97	.331E+05	19.1	0.51	28.81
1.04	207.06	.408E+05	25.8	0.56	26.32
1.12	207.14	.492E+05	33.7	0.61	24.32
1.20	207.22	.583E+05	42.9	0.65	22.67
1.29	207.31	.681E+05	53.3	0.69	21.28
1.37	207.39	.786E+05	65.2	0.73	20.10
1.46	207.48	.899E+05	78.6	0.77	19.07
1.54	207.56	.102E+06	93.4	0.81	18.16

<----- hydrograph ----->				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (1310)	191.10	14.47	47.00	248.83
OUTFLOW: ID= 1 (0821)	191.10	13.79	47.25	248.75

CALIB	
NASHYO (0130)	Area (ha)= 26.70
ID= 1 DT= 5.0 min	Ia (mm)= 8.53
	U.H. Tp(hrs)= 1.32
	Curve Number (CN)= 81.7
	# of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

<----- TRANSFORMED HYETOGRAPH ----->							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00

Model With SWM Infrastructure - Output

0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00

5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00

9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 2.508 (i)
TIME TO PEAK (hrs)= 47.417
RUNOFF VOLUME (mm)= 229.286
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.805

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

+ ID2= 2 (0821): 191.10 13.785 47.25 248.75
=====

ID = 3 (1300): 217.80 16.288 47.33 246.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1202)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1300):	217.80	16.288	47.33	246.37
+ ID2= 2 (1400):	215.90	19.631	48.00	233.25
ID = 3 (1202):	433.70	35.304	47.75	239.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0820)				
IN= 2---> OUT= 1				

		Routing time step (min)'= 5.00		
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.54	0.0450		
43.13	205.35	0.0450		
67.41	205.27	0.0450		
86.35	205.38	0.0450 / 0.0350		Main Channel
90.47	204.70	0.0350		Main Channel
93.03	205.16	0.0350 / 0.0400		Main Channel
101.99	205.21	0.0400		
151.82	204.97	0.0400		
252.14	206.45	0.0400		

Model With SWM Infrastructure - Output

1.38	206.08	.207E+05	65.6	0.44	5.25
1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1202)	433.70	35.30	47.75	239.84	1.11	0.37
OUTFLOW: ID= 1 (0820)	433.70	35.18	47.83	239.83	1.11	0.36

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (1201)					
1 + 2 = 3					
	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (1210):	96.80	10.292	47.25	239.50	
+ ID2= 2 (0820):	433.70	35.183	47.83	239.83	
=====					
ID = 3 (1201):	530.50	44.670	47.50	239.77	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0810)	
IN= 2--> OUT= 1	
Routing time step (min)'= 5.00	

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.54	0.0450			
43.13	205.35	0.0450			
67.41	205.27	0.0450			
86.35	205.38	0.0450 / 0.0350	Main Channel		
90.47	204.70	0.0350	Main Channel		
93.03	205.16	0.0350 / 0.0400	Main Channel		
101.99	205.21	0.0400			
151.82	204.97	0.0400			
252.14	206.45	0.0400			

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.229E+02	0.0	0.07	106.67
0.18	204.88	.915E+02	0.0	0.12	67.20
0.28	204.98	.208E+03	0.1	0.15	51.82
0.37	205.07	.981E+03	0.2	0.11	70.28

0.46	205.16	.288E+04	0.8	0.13	61.71
0.55	205.25	.610E+04	2.0	0.15	50.43
0.64	205.34	.105E+05	4.2	0.19	41.45
0.74	205.44	.163E+05	7.5	0.21	36.28
0.83	205.53	.227E+05	11.9	0.24	31.82
0.92	205.62	.294E+05	17.2	0.27	28.46
1.01	205.71	.366E+05	23.6	0.30	25.89
1.10	205.80	.442E+05	30.9	0.32	23.87
1.20	205.90	.522E+05	39.1	0.35	22.23
1.29	205.99	.606E+05	48.4	0.37	20.87
1.38	206.08	.694E+05	58.7	0.39	19.72
1.47	206.17	.786E+05	70.0	0.41	18.74
1.57	206.27	.883E+05	82.3	0.43	17.88
1.66	206.36	.983E+05	95.7	0.45	17.12
1.75	206.45	.109E+06	110.2	0.47	16.45

		<---- hydrograph ---->			<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1201)	530.50	44.67	47.50	239.77	1.25	0.36
OUTFLOW: ID= 1 (0810)	530.50	43.10	47.83	239.76	1.24	0.36

CALIB		Area	(ha)=	9.00	Curve Number	(CN)=	84.0
NASHYD (0120)		Ia	(mm)=	7.25	# of Linear Res.(N)=	3.00	
ID= 1 DT= 5.0 min		U.H. Tp(hrs)		1.16			

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00

1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00

5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00</

Model With SWM Infrastructure - Output

9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.898 (i)
TIME TO PEAK (hrs)= 47.250
RUNOFF VOLUME (mm)= 236.546
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.830

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1200)				
1 + 2 = 3				
ID1= 1 (0120):	9.00	0.898	47.25	236.55
+ ID2= 2 (0810):	530.50	43.101	47.83	239.76

ID = 3 (1200):	539.50	43.917	47.83	239.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB (NASHYD (0113))				Area (ha)= 13.50	Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min				Ia (mm)= 8.08	# of Linear Res.(N)= 3.00
				U.H. Tp(hrs)= 0.87	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----									
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00		
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00		
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00		
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00		
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00		
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00		
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00		
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00		
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00		
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00		
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00		
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00		
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00		
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00		
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00		
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00		
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00		
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00		
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00		
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00		
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00		
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00		
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00		
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00		
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00		
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00		
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00		
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00		
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00		
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00		
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00		
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00		
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00		
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00		
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00		
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00		
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00		
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00		

3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00

7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00

Model With SWM Infrastructure - Output

11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 1.456 (i)
TIME TO PEAK (hrs)= 47.000
RUNOFF VOLUME (mm)= 231.815
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.813

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0802) |
IN= 2----> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	208.29	0.0300	
3.73	208.14	0.0300 / 0.0350	Main Channel
5.30	207.52	0.0350	Main Channel
6.93	208.18	0.0350 / 0.0300	Main Channel
8.96	208.27	0.0300	
14.71	208.30	0.0300	
23.86	208.59	0.0300	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.448E+01	0.0	0.12	164.32
0.08	207.60	.179E+02	0.0	0.19	103.51
0.12	207.64	.403E+02	0.0	0.25	79.00
0.16	207.68	.716E+02	0.0	0.30	65.21
0.19	207.71	.112E+03	0.0	0.35	56.20
0.23	207.75	.161E+03	0.1	0.40	49.76
0.27	207.79	.219E+03	0.1	0.44	44.90
0.31	207.83	.287E+03	0.1	0.48	41.08
0.35	207.87	.363E+03	0.2	0.52	37.98
0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88
0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79

0.77	208.29	.225E+04	1.6	0.82	24.20

	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0113)	13.50	1.46	47.00	231.82	0.76	0.83
OUTFLOW: ID= 1 (0802)	13.50	1.40	47.33	231.75	0.75	0.83

CALIB						
NASHYD (0112)	Area (ha)=	30.50	Curve Number (CN)=	82.8		
ID= 1 DT= 5.0 min	Ia (mm)=	7.91	# of Linear Res.(N)=	3.00		
	U.H. Tp(hrs)=	1.60				

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00

2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00

6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95

Model With SWM Infrastructure - Output

10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.728

PEAK FLOW (cms)= 2.662 (i)
TIME TO PEAK (hrs)= 47.583
RUNOFF VOLUME (mm)= 232.767
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.817

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)= 45.50	Curve Number (CN)= 82.3
NASHYD (0111)	Ia (mm)= 8.19	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 1.33	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00

1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00

5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 4.275 (i)
TIME TO PEAK (hrs)= 47.417
RUNOFF VOLUME (mm)= 231.186
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.811

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0111):	45.50	4.275	47.42	231.19
+ ID2= 2 (0112):	30.50	2.662	47.58	232.77
ID = 3 (1101):	76.00	6.918	47.50	231.82

Model With SWM Infrastructure - Output

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)	AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (1101):	76.00	6.918	47.50	231.82
+ ID2= 2 (0802):	13.50	1.400	47.33	231.75
=====				
ID = 1 (1101):	89.50	8.312	47.42	231.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801)	Routing time step (min) '= 5.00
IN= 2--> OUT= 1	

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	209.66	0.0400		
19.50	209.34	0.0400		
37.91	208.66	0.0400		
41.73	208.62	0.0400 / 0.0350	Main	Channel
43.44	208.24	0.0350	Main	Channel
45.75	208.62	0.0350 / 0.0450	Main	Channel
54.00	208.79	0.0450 / 0.0400		
77.43	209.05	0.0400		
128.85	209.70	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.06	208.30	.104E+02	0.0	0.10	83.26
0.13	208.37	.415E+02	0.0	0.16	52.45
0.19	208.43	.934E+02	0.0	0.20	40.03
0.25	208.49	.166E+03	0.1	0.25	33.04
0.32	208.56	.259E+03	0.2	0.29	28.47
0.38	208.62	.373E+03	0.2	0.32	25.22
0.46	208.70	.729E+03	0.5	0.33	24.94
0.54	208.78	.135E+04	0.9	0.33	24.67
0.62	208.86	.225E+04	1.6	0.35	23.41
0.70	208.94	.352E+04	2.6	0.37	22.23
0.78	209.02	.516E+04	4.1	0.39	20.96
0.86	209.10	.716E+04	6.1	0.41	19.65
0.94	209.18	.949E+04	8.6	0.44	18.42
1.02	209.26	.122E+05	11.7	0.47	17.31
1.10	209.34	.152E+05	15.5	0.50	16.32
1.18	209.42	.185E+05	19.7	0.52	15.72
1.26	209.50	.224E+05	24.7	0.54	15.09
1.34	209.58	.266E+05	30.6	0.56	14.48

1.42 209.66 .313E+05 37.5 0.59 13.90

<---- hydrograph ----> <-pipe / channel->					
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH
	(ha)	(cms)	(hrs)	(mm)	(m)
INFLOW : ID= 2 (1101)	89.50	8.31	47.42	231.81	0.93
OUTFLOW: ID= 1 (0801)	89.50	8.12	47.67	231.81	0.92

CALIB	Area (ha)= 11.90	Curve Number (CN)= 83.4
NASHYD (0110)	Ia (mm)= 7.58	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 0.68	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00

2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	22.99
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00

6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00

Model With SWM Infrastructure - Output

10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 1.368 (i)
TIME TO PEAK (hrs)= 46.583
RUNOFF VOLUME (mm)= 234.653
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.823

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)				
1 + 2 = 3				
ID1= 1 (0110):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
+ ID2= 2 (0801):	11.90	1.368	46.58	234.65
	89.50	8.121	47.67	231.81
ID = 3 (1100):	101.40	9.167	47.50	232.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)				
1 + 2 = 3				
ID1= 1 (1100):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
+ ID2= 2 (1200):	101.40	9.167	47.50	232.14
	539.50	43.917	47.83	239.70
ID = 3 (1001):	640.90	52.885	47.75	238.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)		
IN= 2---> OUT= 1		
Routing time step (min)'= 5.00		
DATA FOR SECTION (1.1)		
Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 / 0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 / 0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.255E+02	0.0	0.16	54.50
0.18	204.88	.102E+03	0.0	0.25	34.33
0.28	204.98	.232E+03	0.1	0.33	26.47
0.37	205.07	.109E+04	0.5	0.24	35.91
0.46	205.16	.321E+04	1.7	0.27	31.53
0.55	205.25	.680E+04	4.4	0.33	25.77
0.64	205.34	.116E+05	9.2	0.41	21.18
0.74	205.44	.182E+05	16.4	0.47	18.54
0.83	205.53	.253E+05	25.9	0.53	16.26
0.92	205.62	.328E+05	37.6	0.59	14.54
1.01	205.71	.408E+05	51.4	0.65	13.23
1.10	205.80	.492E+05	67.3	0.71	12.19
1.20	205.90	.581E+05	85.3	0.76	11.36
1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75
1.75	206.45	.121E+06	240.2	1.03	8.41

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1001)	640.90	52.89	47.75	238.51	1.02
OUTFLOW: ID= 1 (0800)	640.90	52.51	47.92	238.50	1.02

CALIB				
NASHYD (0100)	Area	(ha)=	54.70	Curve Number (CN)= 83.2
ID= 1 DT= 5.0 min	Ia	(mm)=	7.69	# of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 1.23

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00

3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00

Model With SWM Infrastructure - Output

7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 5.321 (i)
TIME TO PEAK (hrs)= 47.333
RUNOFF VOLUME (mm)= 234.027
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.821

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1000)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0100):	54.70	5.321	47.33	234.03
+ ID2= 2 (0800):	640.90	52.511	47.92	238.50
=====				
ID = 3 (1000):	695.60	57.415	47.83	238.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYO (0190)
ID= 1 DT= 5.0 min

Area	(ha)	Curve Number (CN)=	83.9
Ia	(mm)= 7.31	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.83		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00

1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00

5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00

Model With SWM Infrastructure - Output

9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 1.350 (i)
TIME TO PEAK (hrs)= 46.917
RUNOFF VOLUME (mm)= 236.225
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.829

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)= 20.10	Curve Number (CN)= 82.0
NASHYD (0191)	Ia (mm)= 8.36	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 0.94	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00

0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00

4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00

8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model With SWM Infrastructure - Output

CALIB
NASHYD (0192)
ID= 1 DT= 5.0 min

Area (ha)= 28.30
Ia (mm)= 6.23
U.H. Tp(hrs)= 1.06

Curve Number (CN)= 80.3
of Linear Res.(N)= 3.00

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00

3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00

7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00

11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	1

Model With SWM Infrastructure - Output

0.22	208.24	.183E+03	0.6	0.36	5.21
0.29	208.31	.291E+03	1.1	0.42	4.40
0.36	208.38	.420E+03	1.8	0.48	3.85
0.44	208.46	.586E+03	3.0	0.57	3.27
0.52	208.54	.777E+03	4.5	0.65	2.87
0.60	208.62	.999E+03	6.5	0.72	2.58
0.68	208.70	.125E+04	8.8	0.78	2.37
0.76	208.78	.154E+04	11.5	0.84	2.22
0.84	208.86	.185E+04	14.7	0.89	2.10
0.92	208.94	.230E+04	18.2	0.88	2.10
0.99	209.01	.285E+04	23.0	0.90	2.07
1.07	209.09	.345E+04	28.5	0.92	2.02
1.15	209.17	.411E+04	34.8	0.94	1.96
1.23	209.25	.482E+04	42.0	0.97	1.91
1.31	209.33	.559E+04	50.0	1.00	1.86
1.39	209.41	.643E+04	59.1	1.02	1.81
1.47	209.49	.732E+04	69.1	1.05	1.76

<---- hydrograph ---->						<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.		MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)		(m)	(m/s)
INFLOW : ID= 2 (1901)	48.40	4.98	47.17	228.83		0.54	0.66
OUTFLOW: ID= 1 (0899)	48.40	4.97	47.17	228.83		0.54	0.66

ADD HYD (1900)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0190):	12.30	1.350	46.92	236.22
+ ID2= 2 (0899):	48.40	4.973	47.17	228.83
=====				
ID = 3 (1900):	60.70	6.307	47.08	230.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0500)			
ID= 1 DT= 5.0 min	Area	(ha)=	7.60
	Ia	(mm)=	7.91
	U.H. Tp(hrs)=	0.48	

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr

0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00

4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00

8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model With SWM Infrastructure - Output

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0510)	Area (ha)= 12.70	Curve Number (CN)= 81.7	
ID= 1 DT= 5.0 min	Ia (mm)= 8.53	# of Linear Res.(N)= 3.00	

	U.H. Tp(hrs)= 0.69		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00

3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00

7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00

11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Model With SWM Infrastructure - Output

1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00
2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00

6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00
7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00

10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00
11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 1.913 (i)
TIME TO PEAK (hrs)= 46.833
RUNOFF VOLUME (mm)= 231.815
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.813

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (5000)
1 + 2 = 3

ID1= 1 (0500):	7.60	0.957	46.25	232.75
+ ID2= 2 (0510):	12.70	1.442	46.58	229.28
ID = 3 (5000):	20.30	2.363	46.42	230.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (5000)
3 + 2 = 1

ID1= 3 (5000):	20.30	2.363	46.42	230.58

+ ID2= 2 (0520): 17.30 1.913 46.83 231.81
=====

ID = 1 (5000): 37.60 4.236 46.58 231.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	2.50	Curve Number (CN)=	82.5
NASHYD (0600)	Ia (mm)=	8.08	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.45		

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.00	12.083	2.00	24.083	2.00	36.08	6.00
0.167	2.00	12.167	2.00	24.167	2.00	36.17	6.00
0.250	2.00	12.250	2.00	24.250	2.00	36.25	6.00
0.333	2.00	12.333	2.00	24.333	2.00	36.33	6.00
0.417	2.00	12.417	2.00	24.417	2.00	36.42	6.00
0.500	2.00	12.500	2.00	24.500	2.00	36.50	6.00
0.583	2.00	12.583	2.00	24.583	2.00	36.58	6.00
0.667	2.00	12.667	2.00	24.667	2.00	36.67	6.00
0.750	2.00	12.750	2.00	24.750	2.00	36.75	6.00
0.833	2.00	12.833	2.00	24.833	2.00	36.83	6.00
0.917	2.00	12.917	2.00	24.917	2.00	36.92	6.00
1.000	2.00	13.000	2.00	25.000	2.00	37.00	6.00
1.083	2.00	13.083	2.00	25.083	2.00	37.08	4.00
1.167	2.00	13.167	2.00	25.167	2.00	37.17	4.00
1.250	2.00	13.250	2.00	25.250	2.00	37.25	4.00
1.333	2.00	13.333	2.00	25.333	2.00	37.33	4.00
1.417	2.00	13.417	2.00	25.417	2.00	37.42	4.00
1.500	2.00	13.500	2.00	25.500	2.00	37.50	4.00
1.583	2.00	13.583	2.00	25.583	2.00	37.58	4.00
1.667	2.00	13.667	2.00	25.667	2.00	37.67	4.00
1.750	2.00	13.750	2.00	25.750	2.00	37.75	4.00
1.833	2.00	13.833	2.00	25.833	2.00	37.83	4.00
1.917	2.00	13.917	2.00	25.917	2.00	37.92	4.00
2.000	2.00	14.000	2.00	26.000	2.00	38.00	4.00
2.083	2.00	14.083	2.00	26.083	2.00	38.08	6.00
2.167	2.00	14.167	2.00	26.167	2.00	38.17	6.00
2.250	2.00	14.250	2.00	26.250	2.00	38.25	6.00
2.333	2.00	14.333	2.00	26.333	2.00	38.33	6.00
2.417	2.00	14.417	2.00	26.417	2.00	38.42	6.00
2.500	2.00	14.500	2.00	26.500	2.00	38.50	6.00
2.583	2.00	14.583	2.00	26.583	2.00	38.58	6.00
2.667	2.00	14.667	2.00	26.667	2.00	38.67	6.00
2.750	2.00	14.750	2.00	26.750	2.00	38.75	6.00

Model With SWM Infrastructure - Output

2.833	2.00	14.833	2.00	26.833	2.00	38.83	6.00
2.917	2.00	14.917	2.00	26.917	2.00	38.92	6.00
3.000	2.00	15.000	2.00	27.000	2.00	39.00	6.00
3.083	2.00	15.083	2.00	27.083	2.00	39.08	13.00
3.167	2.00	15.167	2.00	27.167	2.00	39.17	13.00
3.250	2.00	15.250	2.00	27.250	2.00	39.25	13.00
3.333	2.00	15.333	2.00	27.333	2.00	39.33	13.00
3.417	2.00	15.417	2.00	27.417	2.00	39.42	13.00
3.500	2.00	15.500	2.00	27.500	2.00	39.50	13.00
3.583	2.00	15.583	2.00	27.583	2.00	39.58	13.00
3.667	2.00	15.667	2.00	27.667	2.00	39.67	13.00
3.750	2.00	15.750	2.00	27.750	2.00	39.75	13.00
3.833	2.00	15.833	2.00	27.833	2.00	39.83	13.00
3.917	2.00	15.917	2.00	27.917	2.00	39.92	13.00
4.000	2.00	16.000	2.00	28.000	2.00	40.00	13.00
4.083	2.00	16.083	2.00	28.083	2.00	40.08	17.00
4.167	2.00	16.167	2.00	28.167	2.00	40.17	17.00
4.250	2.00	16.250	2.00	28.250	2.00	40.25	17.00
4.333	2.00	16.333	2.00	28.333	2.00	40.33	17.00
4.417	2.00	16.417	2.00	28.417	2.00	40.42	17.00
4.500	2.00	16.500	2.00	28.500	2.00	40.50	17.00
4.583	2.00	16.583	2.00	28.583	2.00	40.58	17.00
4.667	2.00	16.667	2.00	28.667	2.00	40.67	17.00
4.750	2.00	16.750	2.00	28.750	2.00	40.75	17.00
4.833	2.00	16.833	2.00	28.833	2.00	40.83	17.00
4.917	2.00	16.917	2.00	28.917	2.00	40.92	17.00
5.000	2.00	17.000	2.00	29.000	2.00	41.00	17.00
5.083	2.00	17.083	2.00	29.083	2.00	41.08	13.00
5.167	2.00	17.167	2.00	29.167	2.00	41.17	13.00
5.250	2.00	17.250	2.00	29.250	2.00	41.25	13.00
5.333	2.00	17.333	2.00	29.333	2.00	41.33	13.00
5.417	2.00	17.417	2.00	29.417	2.00	41.42	13.00
5.500	2.00	17.500	2.00	29.500	2.00	41.50	13.00
5.583	2.00	17.583	2.00	29.583	2.00	41.58	13.00
5.667	2.00	17.667	2.00	29.667	2.00	41.67	13.00
5.750	2.00	17.750	2.00	29.750	2.00	41.75	13.00
5.833	2.00	17.833	2.00	29.833	2.00	41.83	13.00
5.917	2.00	17.917	2.00	29.917	2.00	41.92	13.00
6.000	2.00	18.000	2.00	30.000	2.00	42.00	13.00
6.083	2.00	18.083	2.00	30.083	2.00	42.08	22.99
6.167	2.00	18.167	2.00	30.167	2.00	42.17	23.00
6.250	2.00	18.250	2.00	30.250	2.00	42.25	23.00
6.333	2.00	18.333	2.00	30.333	2.00	42.33	23.00
6.417	2.00	18.417	2.00	30.417	2.00	42.42	23.00
6.500	2.00	18.500	2.00	30.500	2.00	42.50	23.00
6.583	2.00	18.583	2.00	30.583	2.00	42.58	23.00
6.667	2.00	18.667	2.00	30.667	2.00	42.67	23.00
6.750	2.00	18.750	2.00	30.750	2.00	42.75	23.00
6.833	2.00	18.833	2.00	30.833	2.00	42.83	23.00
6.917	2.00	18.917	2.00	30.917	2.00	42.92	23.00
7.000	2.00	19.000	2.00	31.000	2.00	43.00	23.00

7.083	2.00	19.083	2.00	31.083	2.00	43.08	13.01
7.167	2.00	19.167	2.00	31.167	2.00	43.17	13.00
7.250	2.00	19.250	2.00	31.250	2.00	43.25	13.00
7.333	2.00	19.333	2.00	31.333	2.00	43.33	13.00
7.417	2.00	19.417	2.00	31.417	2.00	43.42	13.00
7.500	2.00	19.500	2.00	31.500	2.00	43.50	13.00
7.583	2.00	19.583	2.00	31.583	2.00	43.58	13.00
7.667	2.00	19.667	2.00	31.667	2.00	43.67	13.00
7.750	2.00	19.750	2.00	31.750	2.00	43.75	13.00
7.833	2.00	19.833	2.00	31.833	2.00	43.83	13.00
7.917	2.00	19.917	2.00	31.917	2.00	43.92	13.00
8.000	2.00	20.000	2.00	32.000	2.00	44.00	13.00
8.083	2.00	20.083	2.00	32.083	2.00	44.08	13.00
8.167	2.00	20.167	2.00	32.167	2.00	44.17	13.00
8.250	2.00	20.250	2.00	32.250	2.00	44.25	13.00
8.333	2.00	20.333	2.00	32.333	2.00	44.33	13.00
8.417	2.00	20.417	2.00	32.417	2.00	44.42	13.00
8.500	2.00	20.500	2.00	32.500	2.00	44.50	13.00
8.583	2.00	20.583	2.00	32.583	2.00	44.58	13.00
8.667	2.00	20.667	2.00	32.667	2.00	44.67	13.00
8.750	2.00	20.750	2.00	32.750	2.00	44.75	13.00
8.833	2.00	20.833	2.00	32.833	2.00	44.83	13.00
8.917	2.00	20.917	2.00	32.917	2.00	44.92	13.00
9.000	2.00	21.000	2.00	33.000	2.00	45.00	13.00
9.083	2.00	21.083	2.00	33.083	2.00	45.08	52.95
9.167	2.00	21.167	2.00	33.167	2.00	45.17	53.00
9.250	2.00	21.250	2.00	33.250	2.00	45.25	53.00
9.333	2.00	21.333	2.00	33.333	2.00	45.33	53.00
9.417	2.00	21.417	2.00	33.417	2.00	45.42	53.00
9.500	2.00	21.500	2.00	33.500	2.00	45.50	53.00
9.583	2.00	21.583	2.00	33.583	2.00	45.58	53.00
9.667	2.00	21.667	2.00	33.667	2.00	45.67	53.00
9.750	2.00	21.750	2.00	33.750	2.00	45.75	53.00
9.833	2.00	21.833	2.00	33.833	2.00	45.83	53.00
9.917	2.00	21.917	2.00	33.917	2.00	45.92	53.00
10.000	2.00	22.000	2.00	34.000	2.00	46.00	53.00
10.083	2.00	22.083	2.00	34.083	2.00	46.08	38.02
10.167	2.00	22.167	2.00	34.167	2.00	46.17	38.00
10.250	2.00	22.250	2.00	34.250	2.00	46.25	38.00
10.333	2.00	22.333	2.00	34.333	2.00	46.33	38.00
10.417	2.00	22.417	2.00	34.417	2.00	46.42	38.00
10.500	2.00	22.500	2.00	34.500	2.00	46.50	38.00
10.583	2.00	22.583	2.00	34.583	2.00	46.58	38.00
10.667	2.00	22.667	2.00	34.667	2.00	46.67	38.00
10.750	2.00	22.750	2.00	34.750	2.00	46.75	38.00
10.833	2.00	22.833	2.00	34.833	2.00	46.83	38.00
10.917	2.00	22.917	2.00	34.917	2.00	46.92	38.00
11.000	2.00	23.000	2.00	35.000	2.00	47.00	38.00
11.083	2.00	23.083	2.00	35.083	3.00	47.08	13.04
11.167	2.00	23.167	2.00	35.167	3.00	47.17	13.00
11.250	2.00	23.250	2.00	35.250	3.00	47.25	13.00

11.333	2.00	23.333	2.00	35.333	3.00	47.33	13.00
11.417	2.00	23.417	2.00	35.417	3.00	47.42	13.00
11.500	2.00	23.500	2.00	35.500	3.00	47.50	13.00
11.583	2.00	23.583	2.00	35.583	3.00	47.58	13.00
11.667	2.00	23.667	2.00	35.667	3.00	47.67	13.00
11.750	2.00	23.750	2.00	35.750	3.00	47.75	13.00
11.833	2.00	23.833	2.00	35.833	3.00	47.83	13.00
11.917	2.00	23.917	2.00	35.917	3.00	47.92	13.00
12.000	2.00	24.000	2.00	36.000	3.00	48.00	13.00

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.320 (i)
TIME TO PEAK (hrs)= 46.167
RUNOFF VOLUME (mm)= 231.799
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.813

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

DATE: 10-17-2025

TIME: 02:54:22

USER:

COMMENTS: _____

** SIMULATION : 9

| READ STORM | File: C:\Users\wraymond\AppData
| | ata\Local\Temp\
| Ptotal=130.90 mm | f9e06f95-585c-465c-81d8-96408d74cab\94690f0c
| | Comments: 100yr12hrAES-CC1 SSP5.85

TIME	RAIN	TIME	RAIN	'	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr		hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.08	19.64	6.17	3.93	9.25	0.00	
0.08	17.02	3.17	19.64	6.25	3.93	9.33	0.00	
0.17	17.02	3.25	19.64	6.33	3.93	9.42	0.00	
0.25	17.02	3.33	19.64	6.42	3.93	9.50	0.00	
0.33	17.02	3.42	19.64	6.50	3.93	9.58	0.00	
0.42	17.02	3.50	19.64	6.58	3.93	9.67	0.00	
0.50	17.02	3.58	19.64	6.67	3.93	9.75	0.00	
0.58	17.02	3.67	19.64	6.75	3.93	9.83	0.00	
0.67	17.02	3.75	19.64	6.83	3.93	9.92	0.00	
0.75	17.02	3.83	19.64	6.92	3.93	10.00	0.00	
0.83	17.02	3.92	19.64	7.00	3.93	10.08	0.00	
0.92	17.02	4.00	19.64	7.08	1.31	10.17	0.00	
1.00	17.02	4.08	18.33	7.17	1.31	10.25	0.00	
1.08	34.03	4.17	18.33	7.25	1.31	10.33	0.00	
1.17	34.03	4.25	18.33	7.33	1.31	10.42	0.00	
1.25	34.03	4.33	18.33	7.42	1.31	10.50	0.00	
1.33	34.03	4.42	18.33	7.50	1.31	10.58	0.00	
1.42	34.03	4.50	18.33	7.58	1.31	10.67	0.00	
1.50	34.03	4.58	18.33	7.67	1.31	10.75	0.00	
1.58	34.03	4.67	18.33	7.75	1.31	10.83	0.00	
1.67	34.03	4.75	18.33	7.83	1.31	10.92	0.00	
1.75	34.03	4.83	18.33	7.92	1.31	11.00	0.00	
1.83	34.03	4.92	18.33	8.00	1.31	11.08	0.00	
1.92	34.03	5.00	18.33	8.08	0.00	11.17	0.00	
2.00	34.03	5.08	10.47	8.17	0.00	11.25	0.00	
2.08	26.18	5.17	10.47	8.25	0.00	11.33	0.00	

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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\

Model With SWM Infrastructure - Output

2.17	26.18	5.25	10.47	8.33	0.00	11.42	0.00
2.25	26.18	5.33	10.47	8.42	0.00	11.50	0.00
2.33	26.18	5.42	10.47	8.50	0.00	11.58	0.00
2.42	26.18	5.50	10.47	8.58	0.00	11.67	0.00
2.50	26.18	5.58	10.47	8.67	0.00	11.75	0.00
2.58	26.18	5.67	10.47	8.75	0.00	11.83	0.00
2.67	26.18	5.75	10.47	8.83	0.00	11.92	0.00
2.75	26.18	5.83	10.47	8.92	0.00	12.00	0.00
2.83	26.18	5.92	10.47	9.00	0.00		
2.92	26.18	6.00	10.47	9.08	0.00		
3.00	26.18	6.08	3.93	9.17	0.00		

CALIB							
NASHYD (0185)	Area (ha)=	2.00	Curve Number (CN)=	79.5			
ID= 1 DT= 5.0 min	Ia (mm)=	6.54	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.36					

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.105 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 81.442
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.622

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0180)	Area (ha)=	6.80	Curve Number (CN)=	82.4			
ID= 1 DT= 5.0 min	Ia (mm)=	8.13	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.85					

Unit Hyd Qpeak (cms)= 0.306

PEAK FLOW (cms)= 0.341 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 85.144
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.650

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0170)	Area (ha)=	5.80	Curve Number (CN)=	82.4			

ID= 1 DT= 5.0 min	Ia (mm)=	8.13	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.69		

Unit Hyd Qpeak (cms)= 0.321

PEAK FLOW (cms)= 0.304 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 85.143
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.650

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0160)	Area (ha)=	16.30	Curve Number (CN)=	83.2			
ID= 1 DT= 5.0 min	Ia (mm)=	7.69	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	1.15					

Unit Hyd Qpeak (cms)= 0.541

PEAK FLOW (cms)= 0.783 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 86.996
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.665

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0330)	Area (ha)=	22.30	Curve Number (CN)=	82.2			
ID= 1 DT= 5.0 min	Ia (mm)=	8.25	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.60					

Unit Hyd Qpeak (cms)= 1.420

PEAK FLOW (cms)= 1.188 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 84.674
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.647

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0270)	Area (ha)=	2.50	Curve Number (CN)=	81.0			

ID= 1 DT= 5.0 min	Ia (mm)=	5.95	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.24		

Unit Hyd Qpeak (cms)= 0.398

PEAK FLOW (cms)= 0.142 (i)
TIME TO PEAK (hrs)= 2.167
RUNOFF VOLUME (mm)= 84.528
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.646

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0260)	Area (ha)=	7.00	Curve Number (CN)=	83.7			
ID= 1 DT= 5.0 min	Ia (mm)=	7.41	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.43					

Unit Hyd Qpeak (cms)= 0.622

PEAK FLOW (cms)= 0.401 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 88.164
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.674

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0250)	Area (ha)=	10.70	Curve Number (CN)=	81.9			
ID= 1 DT= 5.0 min	Ia (mm)=	8.42	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.54					

Unit Hyd Qpeak (cms)= 0.757

PEAK FLOW (cms)= 0.573 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 83.984
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.642

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0320)	Area (ha)=	11.70	Curve Number (CN)=	83.0			

ID= 1 DT= 5.0 min	Ia (mm)=	7.80	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.45		

Unit Hyd Qpeak (cms)= 0.993

PEAK FLOW (cms)= 0.656 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 86.524
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.661

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0420)	Area (ha)=	25.80	Curve Number (CN)=	83.6			
ID= 1 DT= 5.0 min	Ia (mm)=	7.47	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	1.12					

Unit Hyd Qpeak (cms)= 0.880

PEAK FLOW (cms)= 1.259 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 87.932
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.672

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0423)	Area (ha)=	23.90	Curve Number (CN)=	84.1			
ID= 1 DT= 5.0 min	Ia (mm)=	7.20	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.80					

Unit Hyd Qpeak (cms)= 1.141

PEAK FLOW (cms)= 1.276 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 89.107
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.681

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB							
NASHYD (0422)	Area (ha)=	6.90	Curve Number (CN)=	83.4			

Model With SWM Infrastructure - Output

|ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.61

Unit Hyd Qpeak (cms)= 0.432

PEAK FLOW (cms)= 0.380 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 87.461
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.668

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0896) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400
62.96	204.91	0.0400
102.92	205.20	0.0400

Main Channel
Main Channel
Main Channel

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.808E+00	0.0	0.15	23.76
0.07	204.57	.323E+01	0.0	0.23	14.97
0.11	204.61	.727E+01	0.0	0.30	11.42
0.14	204.64	.129E+02	0.0	0.37	9.43
0.18	204.68	.202E+02	0.0	0.43	8.13
0.22	204.72	.291E+02	0.1	0.48	7.20
0.25	204.75	.396E+02	0.1	0.53	6.49
0.29	204.79	.517E+02	0.1	0.58	5.94
0.33	204.83	.654E+02	0.2	0.63	5.49
0.36	204.86	.808E+02	0.3	0.68	5.12
0.40	204.90	.977E+02	0.3	0.72	4.80
0.43	204.93	.131E+03	0.4	0.69	5.03
0.47	204.97	.232E+03	0.6	0.55	6.29
0.51	205.01	.388E+03	0.9	0.51	6.81
0.54	205.04	.584E+03	1.4	0.51	6.75
0.58	205.08	.819E+03	2.1	0.54	6.47
0.61	205.11	.110E+04	3.0	0.56	6.13
0.65	205.15	.141E+04	4.1	0.60	5.79

0.69 205.19 .177E+04 5.4 0.63 5.47

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0422)	6.90	0.38	3.25	87.46	0.41	0.71
OUTFLOW: ID= 1 (0896)	6.90	0.38	3.33	87.46	0.41	0.71

| ADD HYD (4202) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0423):	23.90	1.276	3.50	89.11
+ ID2= 2 (0896):	6.90	0.379	3.33	87.46

ID = 3 (4202): 30.80 1.653 3.50 88.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0895) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 / 0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

Main Channel
Main Channel
Main Channel

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.170E+01	0.0	0.28	4.09
0.24	212.03	.679E+01	0.0	0.44	2.58
0.36	212.15	.153E+02	0.1	0.58	1.97
0.48	212.27	.272E+02	0.3	0.70	1.62
0.61	212.40	.424E+02	0.5	0.82	1.40
0.73	212.52	.134E+03	1.0	0.53	2.16
0.85	212.64	.375E+03	2.8	0.52	2.20
0.97	212.76	.687E+03	6.1	0.60	1.89

1.09	212.88	.107E+04	11.0	0.71	1.61
1.21	213.00	.148E+04	17.8	0.83	1.38
1.33	213.12	.192E+04	26.1	0.93	1.22
1.45	213.24	.238E+04	35.9	1.03	1.11
1.57	213.36	.288E+04	47.3	1.13	1.01
1.70	213.49	.340E+04	60.1	1.21	0.94
1.82	213.61	.395E+04	74.5	1.29	0.88
1.94	213.73	.452E+04	90.5	1.37	0.83
2.06	213.85	.512E+04	109.2	1.46	0.78
2.18	213.97	.573E+04	130.3	1.56	0.73
2.37	214.16	.694E+04	168.2	1.66	0.69

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4202)	30.80	1.65	3.50	88.74	0.77	0.53
OUTFLOW: ID= 1 (0895)	30.80	1.65	3.50	88.74	0.77	0.53

| CALIB |
| NASHYD (0421) | Area (ha)= 10.40 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.37

Unit Hyd Qpeak (cms)= 1.074

PEAK FLOW (cms)= 0.584 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 86.052
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.657

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0883) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.00	0.0400
33.24	205.47	0.0400
44.39	205.59	0.0400
48.71	205.45	0.0400 / 0.0350
51.02	204.50	0.0350
54.33	205.44	0.0350 / 0.0400
55.90	204.97	0.0400

Main Channel
Main Channel
Main Channel

62.96 204.91 0.0400
102.92 205.20 0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	204.54	.344E+01	0.0	0.19	78.41
0.07	204.57	.137E+02	0.0	0.30	49.40
0.11	204.61	.309E+02	0.0	0.39	37.70
0.14	204.64	.550E+02	0.0	0.47	31.12
0.18	204.68	.859E+02	0.1	0.55	26.82
0.22	204.72	.124E+03	0.1	0.62	23.75
0.25	204.75	.168E+03	0.1	0.69	21.43
0.29	204.79	.220E+03	0.2	0.75	19.60
0.33	204.83	.278E+03	0.3	0.81	18.12
0.36	204.86	.344E+03	0.3	0.87	16.89
0.40	204.90	.416E+03	0.4	0.93	15.85
0.43	204.93	.559E+03	0.6	0.89	16.61
0.47	204.97	.986E+03	0.8	0.71	20.75
0.51	205.01	.165E+04	1.2	0.65	22.49
0.54	205.04	.248E+04	1.9	0.66	22.28
0.58	205.08	.349E+04	2.7	0.69	21.35
0.61	205.11	.466E+04	3.8	0.73	20.23
0.65	205.15	.600E+04	5.2	0.77	19.10
0.69	205.19	.751E+04	6.9	0.82	18.05

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0421)	10.40	0.58	3.17	86.05	0.44	0.86
OUTFLOW: ID= 1 (0883)	10.40	0.57	3.33	86.01	0.44	0.88

| ADD HYD (4201) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0883):	10.40	0.573	3.33	86.01
+ ID2= 2 (0895):	30.80	1.653	3.50	88.74

ID = 3 (4201): 41.20 2.221 3.42 88.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0882) |
| IN= 2--> OUT= 1 | Routing time step (min)'= 5.00

Model With SWM Infrastructure - Output

<----- DATA FOR SECTION (1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 / 0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 / 0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .971E+02 0.0 0.09 55.71
0.14 208.16 .273E+03 0.1 0.15 35.37
0.22 208.24 .510E+03 0.3 0.19 27.73
0.29 208.31 .808E+03 0.6 0.22 23.40
0.36 208.38 .117E+04 0.9 0.25 20.52
0.44 208.46 .163E+04 1.6 0.30 17.43
0.52 208.54 .216E+04 2.4 0.34 15.27
0.60 208.62 .278E+04 3.4 0.38 13.72
0.68 208.70 .348E+04 4.6 0.41 12.64
0.76 208.78 .427E+04 6.0 0.44 11.82
0.84 208.86 .514E+04 7.7 0.46 11.16
0.92 208.94 .638E+04 9.5 0.46 11.20
0.99 209.01 .792E+04 12.0 0.47 11.01
1.07 209.09 .960E+04 14.9 0.48 10.74
1.15 209.17 .114E+05 18.2 0.49 10.46
1.23 209.25 .134E+05 21.9 0.51 10.19
1.31 209.33 .156E+05 26.1 0.52 9.92
1.39 209.41 .179E+05 30.9 0.53 9.65
1.47 209.49 .204E+05 36.1 0.55 9.40

<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 (4201) 41.20 2.22 3.42 88.05 0.51 0.33
OUTFLOW: ID= 1 (0882) 41.20 2.17 3.58 88.04 0.50 0.33

ADD HYD (4200)
1 + 2 = 3
ID1= 1 (0420): AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
25.80 1.259 4.33 87.93

+ ID2= 2 (0882): 41.20 2.173 3.58 88.04
=====

ID = 3 (4200): 67.00 3.388 3.83 88.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0440) Area (ha)= 31.60 Curve Number (CN)= 84.4
ID= 1 DT= 5.0 min Ia (mm)= 7.04 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.16

Unit Hyd Qpeak (cms)= 1.040

PEAK FLOW (cms)= 1.562 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 89.816
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.686

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0442) Area (ha)= 2.40 Curve Number (CN)= 84.9
ID= 1 DT= 5.0 min Ia (mm)= 6.77 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.41

Unit Hyd Qpeak (cms)= 0.224

PEAK FLOW (cms)= 0.142 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 90.998
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.695

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0443) Area (ha)= 21.30 Curve Number (CN)= 83.9
ID= 1 DT= 5.0 min Ia (mm)= 7.31 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59

Unit Hyd Qpeak (cms)= 1.379

PEAK FLOW (cms)= 1.195 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 88.632

TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.677

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
NASHYD (0451) Area (ha)= 12.30 Curve Number (CN)= 84.3
ID= 1 DT= 5.0 min Ia (mm)= 7.09 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.57

Unit Hyd Qpeak (cms)= 0.824

PEAK FLOW (cms)= 0.701 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 89.580
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.684

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0043) Area (ha)= 22.90
ID= 1 DT= 5.0 min Total Imp(%)= 49.00 Dir. Conn.(%)= 40.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 11.22 11.68
Dep. Storage (mm)= 1.00 8.92
Average Slope (%)= 1.00 2.00
Length (m)= 390.73 40.00
Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 34.03 22.62
over (min) 10.00 25.00
Storage Coeff. (min)= 0.91 (ii) 21.70 (ii)
Unit Hyd. Tpeak (min)= 10.00 25.00
Unit Hyd. peak (cms)= 0.12 0.05
TOTALS
PEAK FLOW (cms)= 0.87 0.67 1.401 (iii)
TIME TO PEAK (hrs)= 2.08 3.17 2.08
RUNOFF VOLUME (mm)= 129.90 76.35 97.77
TOTAL RAINFALL (mm)= 130.90 130.90 130.90
RUNOFF COEFFICIENT = 0.99 0.58 0.75

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0873) OVERFLOW IS OFF
IN= 2----> OUT= 1
DT= 5.0 min
OUTFLOW STORAGE OUTFLOW STORAGE
(cms) (ha.m.) (cms) (ha.m.)
0.0000 0.0000 0.2250 0.3008
0.0240 0.0325 0.2650 0.3494
0.0370 0.0741 0.2990 0.3993
0.0460 0.1156 0.3290 0.4497
0.0530 0.1607 0.5720 0.5013
0.0600 0.2060 0.9900 0.5538
0.1750 0.2530 1.5230 0.6074

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 2 (0043) 22.900 1.401 2.08 97.77
OUTFLOW: ID= 1 (0873) 22.900 1.280 3.17 97.76

PEAK FLOW REDUCTION [Qout/Qin](%)= 91.38
TIME SHIFT OF PEAK FLOW (min)= 65.00
MAXIMUM STORAGE USED (ha.m.)= 0.5834

CALIB
STANDHYD (0045) Area (ha)= 1.30
ID= 1 DT= 5.0 min Total Imp(%)= 65.00 Dir. Conn.(%)= 35.00

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.84 0.46
Dep. Storage (mm)= 1.00 8.92
Average Slope (%)= 1.00 2.00
Length (m)= 93.09 40.00
Mannings n = 0.013 0.250

Max.Eff.Inten.(mm/hr)= 34.03 45.74
over (min) 5.00 15.00
Storage Coeff. (min)= 3.77 (ii) 13.42 (ii)
Unit Hyd. Tpeak (min)= 5.00 15.00
Unit Hyd. peak (cms)= 0.25 0.08

TOTALS
PEAK FLOW (cms)= 0.04 0.05 0.095 (iii)
TIME TO PEAK (hrs)= 1.92 2.17 2.08
RUNOFF VOLUME (mm)= 129.90 91.30 104.81
TOTAL RAINFALL (mm)= 130.90 130.90 130.90
RUNOFF COEFFICIENT = 0.99 0.70 0.80

Model With SWM Infrastructure - Output

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4345)				
1	2	3		
ID1= 1 (0045):	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
+ ID2= 2 (0073):	1.30	0.095	2.08	104.81
	22.90	1.280	3.17	97.76
ID = 3 (4345):	24.20	1.357	3.17	98.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0893)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	208.29	0.0300		
3.73	208.14	0.0300 / 0.0350	Main Channel	
5.30	207.52	0.0350	Main Channel	
6.93	208.18	0.0350 / 0.0300	Main Channel	
8.96	208.27	0.0300		
14.71	208.30	0.0300		
23.86	208.59	0.0300		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.596E+00	0.0	0.09	30.15
0.08	207.60	.238E+01	0.0	0.14	18.99
0.12	207.64	.536E+01	0.0	0.18	14.49
0.16	207.68	.954E+01	0.0	0.22	11.96
0.19	207.71	.149E+02	0.0	0.26	10.31
0.23	207.75	.215E+02	0.0	0.29	9.13
0.27	207.79	.292E+02	0.1	0.32	8.24
0.31	207.83	.381E+02	0.1	0.35	7.54
0.35	207.87	.483E+02	0.1	0.38	6.97
0.39	207.91	.596E+02	0.2	0.41	6.50
0.43	207.95	.721E+02	0.2	0.43	6.10
0.47	207.99	.858E+02	0.2	0.46	5.75
0.50	208.02	.101E+03	0.3	0.49	5.45

0.36	212.15	.251E+02	0.2	0.99	1.89
0.48	212.27	.446E+02	0.5	1.20	1.56
0.61	212.40	.697E+02	0.9	1.40	1.34
0.73	212.52	.220E+03	1.8	0.91	2.07
0.85	212.64	.616E+03	4.9	0.89	2.11
0.97	212.76	.113E+04	10.4	1.04	1.81
1.09	212.88	.175E+04	18.9	1.21	1.54
1.21	213.00	.243E+04	30.5	1.42	1.32
1.33	213.12	.315E+04	44.8	1.60	1.17
1.45	213.24	.392E+04	61.6	1.77	1.06
1.57	213.36	.473E+04	81.0	1.93	0.97
1.70	213.49	.558E+04	103.1	2.08	0.90
1.82	213.61	.648E+04	127.8	2.22	0.85
1.94	213.73	.742E+04	155.2	2.35	0.80
2.06	213.85	.841E+04	187.2	2.50	0.75
2.18	213.97	.941E+04	223.3	2.67	0.70
2.37	214.16	.114E+05	288.4	2.85	0.66

<---- hydrograph ---->					<-pipe / channel->	
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4510)	36.50	2.05	3.25	95.25	0.74	0.90
OUTFLOW: ID= 1 (0892)	36.50	2.05	3.25	95.25	0.74	0.90

ADD HYD (4411)				
1	2	3		
ID1= 1 (0443):	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
+ ID2= 2 (0892):	21.30	1.195	3.25	88.63
	36.50	2.051	3.25	95.25
ID = 3 (4411):	57.80	3.246	3.25	92.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0891)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	206.70	0.0400		
2.35	206.02	0.0400 / 0.0350	Main Channel	
5.23	205.19	0.0350	Main Channel	
5.34	205.67	0.0350	Main Channel	
19.05	206.06	0.0350 / 0.0400	Main Channel	
21.11	206.05	0.0400		

0.54	208.06	.117E+03	0.4	0.51	5.19
0.58	208.10	.134E+03	0.5	0.53	4.96
0.62	208.14	.153E+03	0.5	0.56	4.75
0.67	208.19	.183E+03	0.7	0.59	4.48
0.72	208.24	.229E+03	0.9	0.61	4.36
0.77	208.29	.300E+03	1.1	0.60	4.44

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph ---->				<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
		(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4345)	24.20	1.36	3.17	98.13	0.77	0.60	
OUTFLOW: ID= 1 (0893)	24.20	1.35	3.25	98.13	0.77	0.60	

ADD HYD (4510)				
1	2	3		
ID1= 1 (0451):	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
+ ID2= 2 (0893):	12.30	0.701	3.25	89.58
	24.20	1.353	3.25	98.13
ID = 3 (4510):	36.50	2.053	3.25	95.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0892)	
IN= 2--> OUT= 1	Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.279E+01	0.0	0.48	3.92
0.24	212.03	.112E+02	0.1	0.76	2.47

22.02	206.13	0.0400 / 0.0350
40.10	206.15	0.0350
56.50	206.04	0.0350

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	205.23	.621E+00	0.0	0.10	29.40
0.09	205.28	.248E+01	0.0	0.16	18.52
0.13	205.32	.559E+01	0.0	0.21	14.13
0.17	205.36	.994E+01	0.0	0.25	11.67
0.22	205.41	.155E+02	0.0	0.29	10.05
0.26	205.45	.224E+02	0.0	0.33	8.90
0.31	205.50	.304E+02	0.1	0.37	8.03
0.35	205.54	.398E+02	0.1	0.40	7.35
0.39	205.58	.503E+02	0.1	0.43	6.79
0.44	205.63	.621E+02	0.2	0.46	6.33
0.48	205.67	.752E+02	0.2	0.49	5.97
0.52	205.71	.954E+02	0.2	0.40	7.41
0.57	205.76	.129E+03	0.3	0.38	7.71
0.61	205.80	.175E+03	0.4	0.39	7.48
0.66	205.85	.234E+03	0.6	0.41	7.08
0.70	205.89	.306E+03	0.8	0.44	6.64
0.74	205.93	.391E+03	1.0	0.47	6.22
0.79	205.98	.490E+03	1.4	0.50	5.83
0.83	206.02	.601E+03	1.8	0.53	5.49

**** WARNING: TRAVEL TIME TABLE EXCEEDED

		<---- hydrograph ---->				<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
		(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (4411)	57.80	3.25	3.25	92.81	0.83	0.53	
OUTFLOW: ID= 1 (0891)	57.80	3.23	3.33	92.81	0.83	0.53	

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB		Area	(ha)=	3.00
STANDHYD (0441)		Total Imp(%)=	45.00	Dir. Conn.(%)= 35.00
ID= 1 DT= 5.0 min				

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.35	1.65
Dep. Storage	(mm)=	1.00	3.58
Average Slope	(%)=	2.00	2.00
Length	(m)=	141.42	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		34.03	32.26

Model With SWM Infrastructure - Output

```
over (min)          5.00      20.00
Storage Coeff. (min)= 3.93 (ii) 15.03 (ii)
Unit Hyd. Tpeak (min)= 5.00      20.00
Unit Hyd. peak (cms)= 0.24      0.07

PEAK FLOW (cms)=      0.10      0.14      0.233 (iii)
TIME TO PEAK (hrs)=      2.00      2.25      2.08
RUNOFF VOLUME (mm)=    129.90    100.40    110.72
TOTAL RAINFALL (mm)=    130.90    130.90    130.90
RUNOFF COEFFICIENT =      0.99      0.77      0.85
```

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 86.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4410) |
| 1 + 2 = 3 |
-----
          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0441):  3.00  0.233  2.08  110.72
+ ID2= 2 ( 0891): 57.80  3.233  3.33  92.81
=====
ID = 3 ( 4410):  60.80  3.407  3.33  93.69
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 4401) |
| 1 + 2 = 3 |
-----
          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 4410):  60.80  3.407  3.33  93.69
+ ID2= 2 ( 0442): 2.40  0.142  3.08  91.00
=====
ID = 3 ( 4401):  63.20  3.545  3.33  93.59
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0889) |
| IN= 2--> OUT= 1 |
-----
          Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00           206.70         0.0400
```

```
2.35      206.02      0.0400 /0.0350 Main Channel
5.23      205.19      0.0350 Main Channel
5.34      205.67      0.0350 Main Channel
19.05     206.06     0.0350 /0.0400 Main Channel
21.11     206.05     0.0400
22.02     206.13     0.0400 /0.0350
40.10     206.15     0.0350
56.50     206.04     0.0350
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)      (m)   (cu.m.)   (cms)       (m/s)      (min)
0.04  205.23   .272E+01   0.0         0.09      142.50
0.09  205.28   .109E+02   0.0         0.14      89.77
0.13  205.32   .245E+02   0.0         0.19      68.51
0.17  205.36   .435E+02   0.0         0.23      56.55
0.22  205.41   .679E+02   0.0         0.26      48.73
0.26  205.45   .978E+02   0.0         0.30      43.16
0.31  205.50   .133E+03   0.1         0.33      38.94
0.35  205.54   .174E+03   0.1         0.36      35.63
0.39  205.58   .220E+03   0.1         0.39      32.93
0.44  205.63   .272E+03   0.1         0.42      30.70
0.48  205.67   .329E+03   0.2         0.44      28.96
0.52  205.71   .418E+03   0.2         0.46      26.92
0.57  205.76   .563E+03   0.3         0.48      24.76
0.61  205.80   .765E+03   0.4         0.50      22.48
0.66  205.85   .102E+04   0.5         0.52      20.17
0.70  205.89   .134E+04   0.7         0.54      17.82
0.74  205.93   .171E+04   0.9         0.56      15.47
0.79  205.98   .214E+04   1.3         0.58      13.12
0.83  206.02   .263E+04   1.6         0.60      10.87
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<---- hydrograph ----> <-pipe / channel->
          AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
          (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 4401)  63.20  3.54  3.33  93.59   0.83   0.48
OUTFLOW: ID= 1 ( 0889)  63.20  3.30  3.83  93.58   0.83   0.48
```

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

```
-----
| ADD HYD ( 4400) |
| 1 + 2 = 3 |
-----
          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0440):  31.60  1.562  4.42  89.82
+ ID2= 2 ( 0889): 63.20  3.305  3.83  93.58
=====
```

ID = 3 (4400): 94.80 4.838 4.00 92.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0888) |
| IN= 2--> OUT= 1 |
-----
          Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00           209.66         0.0400
19.50          209.34         0.0400
37.91          208.66         0.0400
41.73          208.62      0.0400 /0.0350 Main Channel
43.44          208.24      0.0350 Main Channel
45.75          208.62      0.0350 /0.0450 Main Channel
54.00          208.79      0.0450 /0.0400
77.43          209.05         0.0400
128.85         209.70         0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH   ELEV   VOLUME   FLOW RATE   VELOCITY   TRAV.TIME
(m)      (m)   (cu.m.)   (cms)       (m/s)      (min)
0.06  208.30   .519E+01   0.0         0.09      43.50
0.13  208.37   .208E+02   0.0         0.15      27.40
0.19  208.43   .467E+02   0.0         0.19      20.91
0.25  208.49   .830E+02   0.1         0.24      17.26
0.32  208.56   .130E+03   0.1         0.27      14.88
0.38  208.62   .187E+03   0.2         0.31      13.17
0.46  208.70   .365E+03   0.5         0.31      13.03
0.54  208.78   .674E+03   0.9         0.32      12.89
0.62  208.86   .113E+04   1.5         0.33      12.23
0.70  208.94   .176E+04   2.5         0.35      11.61
0.78  209.02   .258E+04   3.9         0.37      10.95
0.86  209.10   .358E+04   5.8         0.40      10.27
0.94  209.18   .475E+04   8.2         0.42      9.62
1.02  209.26   .608E+04   11.2        0.45      9.04
1.10  209.34   .758E+04   14.8        0.48      8.53
1.18  209.42   .927E+04   18.8        0.50      8.21
1.26  209.50   .112E+05   23.6        0.52      7.88
1.34  209.58   .133E+05   29.3        0.54      7.57
1.42  209.66   .157E+05   35.9        0.56      7.26
```

```
<---- hydrograph ----> <-pipe / channel->
          AREA   QPEAK   TPEAK   R.V.   MAX DEPTH   MAX VEL
          (ha)   (cms)   (hrs)   (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 4400)  94.80  4.84  4.00  92.33   0.82   0.38
OUTFLOW: ID= 1 ( 0888)  94.80  4.80  4.17  92.33   0.82   0.38
```

```
-----
| CALIB
| STANDHYD ( 0042) |
| ID= 1 DT= 5.0 min |
-----
          Area (ha)= 20.50
          Total Imp(%)= 83.00 Dir. Conn.(%)= 70.00

IMPervious (i)
Surface Area (ha)= 17.01
Dep. Storage (mm)= 1.00
Average Slope (%)= 2.00
Length (m)= 369.68
Mannings n = 0.013
PERVIOUS (i)
3.49
6.98
2.00
40.00
0.250
```

```
Max.Eff.Inten.(mm/hr)= 34.03 46.72
over (min) 5.00 20.00
Storage Coeff. (min)= 7.00 (ii) 16.57 (ii)
Unit Hyd. Tpeak (min)= 5.00 20.00
Unit Hyd. peak (cms)= 0.17 0.06

PEAK FLOW (cms)= 1.36 0.41 1.750 (iii)
TIME TO PEAK (hrs)= 2.08 2.25 2.08
RUNOFF VOLUME (mm)= 129.90 96.86 119.99
TOTAL RAINFALL (mm)= 130.90 130.90 130.90
RUNOFF COEFFICIENT = 0.99 0.74 0.92
```

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 78.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| RESERVOIR( 0872) |
| IN= 2--> OUT= 1 |
| DT= 5.0 min |
-----
          OVERFLOW IS OFF

OUTFLOW   STORAGE   | OUTFLOW   STORAGE
(cms)      (ha.m.)   | (cms)      (ha.m.)
0.0000     0.0000   | 0.1660     0.5172
0.0250     0.1344   | 0.2260     0.5585
0.0390     0.2425   | 0.5260     0.7280
0.0530     0.3962   | 0.9350     0.9090
0.0540     0.4360   | 1.2810     1.0589
0.0760     0.4361   | 2.3680     1.5187

          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
INFLOW : ID= 2 ( 0042)  20.500  1.750  2.08  119.99
OUTFLOW: ID= 1 ( 0872)  20.500  1.080  4.08  119.92
```

PEAK FLOW REDUCTION [Qout/Qin](%)= 61.72

Model With SWM Infrastructure - Output

TIME SHIFT OF PEAK FLOW (min)=120.00
MAXIMUM STORAGE USED (ha.m.)= 0.9720

ROUTE CHN(0898)|
IN= 2---> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning	
0.00	101.50	0.0500	
1.00	100.70	0.0500	
1.50	100.55	0.0500 / 0.0300	Main Channel
2.00	99.50	0.0300	Main Channel
3.50	99.60	0.0300	Main Channel
4.50	100.65	0.0300 / 0.0500	Main Channel
6.00	101.45	0.0500	

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.10	99.60	.152E+02	0.0	0.19	18.79
0.19	99.69	.482E+02	0.1	0.37	9.79
0.29	99.79	.840E+02	0.2	0.49	7.32
0.38	99.88	.123E+03	0.3	0.59	6.12
0.48	99.98	.164E+03	0.5	0.67	5.38
0.57	100.07	.208E+03	0.7	0.74	4.87
0.67	100.17	.255E+03	0.9	0.80	4.49
0.76	100.26	.305E+03	1.2	0.86	4.19
0.86	100.36	.358E+03	1.5	0.91	3.95
0.95	100.45	.413E+03	1.8	0.96	3.75
1.05	100.55	.471E+03	2.2	1.00	3.58
1.16	100.66	.547E+03	2.7	1.07	3.35
1.28	100.78	.635E+03	3.4	1.14	3.14
1.39	100.89	.732E+03	4.1	1.20	2.99
1.50	101.00	.838E+03	4.9	1.25	2.86
1.61	101.11	.952E+03	5.8	1.30	2.76
1.72	101.22	.107E+04	6.7	1.34	2.67
1.84	101.34	.120E+04	7.7	1.38	2.60
1.95	101.45	.134E+04	8.8	1.41	2.54

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0872)	20.50	1.08	4.08	119.92	0.72	0.83
OUTFLOW: ID= 1 (0898)	20.50	1.08	4.17	119.92	0.72	0.83

CALIB
STANDHYD (0044)
ID= 1 DT= 5.0 min

Area (ha)= 8.90
Total Imp(%)= 41.00
Dir. Conn.(%)= 20.00

IMPERVIOUS PERVIOUS (i)

Surface Area (ha)=	3.65	5.25
Dep. Storage (mm)=	1.00	8.04
Average Slope (%)=	2.00	2.00
Length (m)=	243.58	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	34.03	29.98
over (min)	5.00	20.00
Storage Coeff. (min)=	5.45 (ii)	16.88 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.20	0.06

TOTALS

PEAK FLOW (cms)=	0.17	0.39	0.536 (iii)
TIME TO PEAK (hrs)=	2.08	3.08	2.08
RUNOFF VOLUME (mm)=	129.90	84.82	93.84
TOTAL RAINFALL (mm)=	130.90	130.90	130.90
RUNOFF COEFFICIENT =	0.99	0.65	0.72

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4244)|
1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0044):	8.90	0.536	2.08	93.84
+ ID2= 2 (0898):	20.50	1.080	4.17	119.92
=====				
ID = 3 (4244):	29.40	1.525	3.25	112.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0897)|
IN= 2---> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning

0.00	214.06	0.0500
6.27	213.95	0.0500
20.38	214.11	0.0500
25.18	213.97	0.0500 / 0.0350
28.59	211.79	0.0350
32.89	214.16	0.0350 / 0.0500
42.61	212.54	0.0500
59.11	212.41	0.0500
84.10	212.83	0.0500
100.76	213.78	0.0500

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.140E+02	0.0	0.17	55.64
0.24	212.03	.559E+02	0.0	0.27	35.05
0.36	212.15	.126E+03	0.1	0.35	26.75
0.48	212.27	.224E+03	0.2	0.43	22.08
0.61	212.40	.350E+03	0.3	0.49	19.03
0.73	212.52	.110E+04	0.6	0.32	29.36
0.85	212.64	.309E+04	1.7	0.31	29.92
0.97	212.76	.566E+04	3.7	0.37	25.67
1.09	212.88	.878E+04	6.7	0.43	21.92
1.21	213.00	.122E+05	10.8	0.50	18.80
1.33	213.12	.158E+05	15.8	0.57	16.63
1.45	213.24	.196E+05	21.8	0.63	15.03
1.57	213.36	.237E+05	28.7	0.68	13.79
1.70	213.49	.280E+05	36.4	0.73	12.81
1.82	213.61	.325E+05	45.2	0.78	12.00
1.94	213.73	.372E+05	54.9	0.83	11.31
2.06	213.85	.422E+05	66.2	0.89	10.62
2.18	213.97	.472E+05	79.0	0.94	9.97
2.37	214.16	.571E+05	102.0	1.01	9.34

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4244)	29.40	1.53	3.25	112.02	0.83	0.32
OUTFLOW: ID= 1 (0897)	29.40	1.48	4.50	112.02	0.82	0.32

ADD HYD (4301)|
1 + 2 = 3 |

ID1= 1 (0888):	94.80	4.804	4.17	92.33
+ ID2= 2 (0897):	29.40	1.476	4.50	112.02

=====

ID = 3 (4301): 124.20 6.273 4.25 96.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0887)|
IN= 2---> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	209.52	0.0400
61.99	209.23	0.0400
76.86	209.20	0.0400
82.03	209.20	0.0400 / 0.0350
86.30	208.87	0.0350
89.86	209.20	0.0350 / 0.0300
96.27	209.24	0.0300
103.53	209.40	0.0300
127.96	209.50	0.0300
158.58	209.70	0.0300

<----- TRAVEL TIME TABLE ----->

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.03	208.90	.143E+01	0.0	0.09	20.80
0.07	208.94	.572E+01	0.0	0.14	13.11
0.10	208.97	.129E+02	0.0	0.18	10.00
0.13	209.00	.229E+02	0.0	0.22	8.26
0.17	209.04	.357E+02	0.1	0.26	7.11
0.20	209.07	.514E+02	0.1	0.29	6.30
0.23	209.10	.700E+02	0.2	0.32	5.69
0.26	209.13	.915E+02	0.3	0.35	5.20
0.30	209.17	.116E+03	0.4	0.38	4.81
0.33	209.20	.143E+03	0.5	0.41	4.48
0.37	209.24	.239E+03	0.8	0.37	5.02
0.40	209.27	.396E+03	1.3	0.35	5.26
0.44	209.31	.589E+03	1.9	0.36	5.13
0.47	209.34	.818E+03	2.8	0.38	4.89
0.51	209.38	.108E+04	3.9	0.40	4.63
0.54	209.41	.139E+04	5.2	0.41	4.46
0.58	209.45	.175E+04	6.7	0.43	4.33
0.61	209.48	.218E+04	8.7	0.44	4.17
0.65	209.52	.266E+04	11.2	0.46	3.98

<---- hydrograph ----> <-pipe / channel->

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4301)	124.20	6.27	4.25	96.99	0.57	0.42
OUTFLOW: ID= 1 (0887)	124.20	6.27	4.25	96.99	0.57	0.42

Model With SWM Infrastructure - Output

```
-----
| CALIB
| NASHYD ( 0430)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 19.80 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.13
```

Unit Hyd Qpeak (cms)= 0.669

PEAK FLOW (cms)= 0.964 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 87.932
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.672

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4300)|
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0430): 19.80 0.964 4.33 87.93
+ ID2= 2 ( 0887): 124.20 6.272 4.25 96.99
=====
ID = 3 ( 4300): 144.00 7.235 4.25 95.74
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0886)|
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.20 0.0400
100.00 206.26 0.0400
111.30 206.19 0.0400 /0.0350 Main Channel
112.02 205.76 0.0350 Main Channel
113.82 205.37 0.0350 Main Channel
115.62 206.03 0.0350 /0.0400 Main Channel
117.77 207.30 0.0400
120.56 207.40 0.0400
124.41 207.31 0.0400
129.31 207.24 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
```

ID1= 1 (0411): 4.50 0.239 4.08 95.35
+ ID2= 2 (0886): 144.00 7.193 4.50 95.74
=====
ID = 3 (4110): 148.50 7.430 4.42 95.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0885)|
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.48 0.0500
43.69 207.97 0.0500
66.92 207.94 0.0500
76.98 208.01 0.0500
87.94 208.25 0.0500
89.93 208.44 0.0500 /0.0350 Main Channel
92.70 208.20 0.0350 Main Channel
95.51 207.28 0.0350 Main Channel
98.26 208.25 0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.05 207.33 .134E+01 0.0 0.06 52.81
0.10 207.38 .536E+01 0.0 0.10 33.27
0.15 207.43 .121E+02 0.0 0.13 25.39
0.19 207.47 .214E+02 0.0 0.15 20.96
0.24 207.52 .335E+02 0.0 0.18 18.06
0.29 207.57 .483E+02 0.1 0.20 15.99
0.34 207.62 .657E+02 0.1 0.22 14.43
0.39 207.67 .858E+02 0.1 0.24 13.20
0.44 207.72 .109E+03 0.1 0.26 12.21
0.48 207.76 .134E+03 0.2 0.28 11.38
0.53 207.81 .162E+03 0.3 0.30 10.68
0.58 207.86 .193E+03 0.3 0.32 10.08
0.63 207.91 .227E+03 0.4 0.34 9.55
0.68 207.96 .295E+03 0.5 0.32 10.12
0.73 208.01 .613E+03 0.7 0.22 14.89
0.78 208.06 .103E+04 1.0 0.20 16.42
0.82 208.10 .150E+04 1.5 0.20 16.27
0.87 208.15 .204E+04 2.2 0.21 15.61
0.92 208.20 .264E+04 3.0 0.22 14.84
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<----- hydrograph -----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4110) 148.50 7.43 4.42 95.73 0.91 0.22
```

0.09	205.46	.110E+02	0.0	0.11	51.32
0.19	205.56	.438E+02	0.0	0.17	32.33
0.28	205.65	.986E+02	0.1	0.23	24.67
0.38	205.75	.175E+03	0.1	0.27	20.37
0.47	205.84	.271E+03	0.3	0.33	16.94
0.57	205.94	.379E+03	0.4	0.38	14.73
0.66	206.03	.501E+03	0.6	0.42	13.19
0.76	206.13	.644E+03	0.9	0.48	11.58
0.86	206.23	.845E+03	1.3	0.51	10.89
0.96	206.33	.140E+04	1.9	0.46	12.13
1.06	206.43	.209E+04	2.9	0.46	12.20
1.16	206.53	.290E+04	4.1	0.47	11.82
1.26	206.63	.383E+04	5.6	0.49	11.31
1.37	206.74	.489E+04	7.6	0.52	10.78
1.47	206.84	.607E+04	9.8	0.54	10.28
1.57	206.94	.737E+04	12.5	0.57	9.81
1.67	207.04	.879E+04	15.6	0.60	9.38
1.77	207.14	.103E+05	19.2	0.62	8.99
1.87	207.24	.120E+05	23.2	0.65	8.63

```
<----- hydrograph -----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 4300) 144.00 7.24 4.25 95.74 1.35 0.51
OUTFLOW: ID= 1 ( 0886) 144.00 7.19 4.50 95.74 1.34 0.51
```

```
-----
| CALIB
| NASHYD ( 0411)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 4.50 Curve Number (CN)= 86.7
Ia (mm)= 5.84 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.11
```

Unit Hyd Qpeak (cms)= 0.155

PEAK FLOW (cms)= 0.239 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 95.351
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.728

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 4110)|
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
```

OUTFLOW: ID= 1 (0885) 148.50 7.39 4.75 95.73 0.92 0.22

```
-----
| CALIB
| NASHYD ( 0041)|
|ID= 1 DT= 5.0 min|
|-----|
Area (ha)= 25.40 Curve Number (CN)= 83.6
Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.21
```

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 1.219 (i)
TIME TO PEAK (hrs)= 4.583
RUNOFF VOLUME (mm)= 87.932
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.672

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0894)|
| IN= 2--> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 /0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
32.89 214.16 0.0350 /0.0500 Main Channel
42.61 212.54 0.0500
59.11 212.41 0.0500
84.10 212.83 0.0500
100.76 213.78 0.0500
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.12 211.91 .523E+01 0.0 0.10 36.03
0.24 212.03 .209E+02 0.0 0.15 22.70
0.36 212.15 .471E+02 0.0 0.20 17.32
0.48 212.27 .837E+02 0.1 0.25 14.30
0.61 212.40 .131E+03 0.2 0.29 12.32
0.73 212.52 .412E+03 0.4 0.18 19.01
0.85 212.64 .115E+04 1.0 0.18 19.37
0.97 212.76 .212E+04 2.1 0.21 16.62
1.09 212.88 .328E+04 3.9 0.25 14.19
```

Model With SWM Infrastructure - Output

1.21	213.00	.455E+04	6.2	0.29	12.17
1.33	213.12	.591E+04	9.1	0.33	10.77
1.45	213.24	.734E+04	12.6	0.36	9.73
1.57	213.36	.886E+04	16.5	0.39	8.93
1.70	213.49	.105E+05	21.0	0.42	8.29
1.82	213.61	.122E+05	26.1	0.45	7.77
1.94	213.73	.139E+05	31.7	0.48	7.33
2.06	213.85	.158E+05	38.2	0.51	6.88
2.18	213.97	.177E+05	45.6	0.54	6.45
2.37	214.16	.214E+05	58.9	0.58	6.05

		<---- hydrograph ---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (0041)	25.40	1.22	4.58	87.93	0.87	0.19
OUTFLOW: ID= 1 (0894)	25.40	1.21	5.08	87.93	0.87	0.19

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB					
NASHYD (0040)	Area (ha)=	37.50	Curve Number (CN)=	84.2	
ID= 1 DT= 5.0 min	Ia (mm)=	7.14	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.98			

Unit Hyd Qpeak (cms)= 1.462

PEAK FLOW (cms)= 1.915 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 89.349
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.683

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4140)					
1 + 2 = 3					
ID1= 1 (0040):	37.50	1.915	3.92	89.35	
+ ID2= 2 (0894):	25.40	1.205	5.08	87.93	
ID = 3 (4140):	62.90	3.063	4.33	88.78	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4101)					
1 + 2 = 3					
ID1= 1 (4140):	62.90	3.063	4.33	88.78	
+ ID2= 2 (0885):	148.50	7.387	4.75	95.73	
ID = 3 (4101):	211.40	10.434	4.67	93.66	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0884)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
DATA FOR SECTION (1.1)					
Distance	Elevation	Manning			
0.00	204.63	0.0400			
45.24	204.34	0.0400			
94.52	203.98	0.0400			
140.93	203.58	0.0400			
148.77	203.72	0.0400 / 0.0350	Main Channel		
154.30	202.99	0.0350	Main Channel		
158.02	203.77	0.0350 / 0.0400	Main Channel		
174.30	203.79	0.0400			
222.94	204.38	0.0400			
285.62	204.03	0.0400			

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.05	203.04	.620E+01	0.0	0.11	58.30	
0.10	203.09	.248E+02	0.0	0.17	36.73	
0.16	203.15	.558E+02	0.0	0.22	28.03	
0.21	203.20	.992E+02	0.1	0.27	23.14	
0.26	203.25	.155E+03	0.1	0.31	19.94	
0.31	203.30	.223E+03	0.2	0.35	17.66	
0.37	203.36	.304E+03	0.3	0.39	15.93	
0.42	203.41	.397E+03	0.5	0.42	14.58	
0.47	203.46	.502E+03	0.6	0.46	13.47	
0.52	203.51	.620E+03	0.8	0.49	12.56	
0.57	203.56	.750E+03	1.1	0.52	11.79	
0.63	203.62	.934E+03	1.3	0.53	11.56	
0.68	203.67	.129E+04	1.7	0.50	12.36	
0.73	203.72	.184E+04	2.3	0.47	13.20	
0.79	203.78	.270E+04	3.4	0.47	13.22	
0.85	203.84	.412E+04	5.1	0.45	13.57	
0.92	203.91	.583E+04	7.3	0.47	13.24	
0.98	203.97	.783E+04	10.3	0.49	12.69	
1.04	204.03	.101E+05	13.9	0.51	12.15	

		<---- hydrograph ---->			<-pipe / channel->	
		AREA	QPEAK	TPEAK	R.V.	
		(ha)	(cms)	(hrs)	(mm)	
INFLOW : ID= 2 (4101)	211.40	10.43	4.67	93.66	0.98	0.49
OUTFLOW: ID= 1 (0884)	211.40	10.39	4.92	93.66	0.98	0.49

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0410)	Area (ha)=	8.50	Curve Number (CN)=	85.5	
ID= 1 DT= 5.0 min	Ia (mm)=	6.46	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.94			

Unit Hyd Qpeak (cms)= 0.345

PEAK FLOW (cms)= 0.455 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 92.440
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.706

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4100)					
1 + 2 = 3					
ID1= 1 (0410):	8.50	0.455	3.75	92.44	
+ ID2= 2 (0884):	211.40	10.390	4.92	93.66	
ID = 3 (4100):	219.90	10.813	4.92	93.61	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0401)	Area (ha)=	23.00	Curve Number (CN)=	83.1	
ID= 1 DT= 5.0 min	Ia (mm)=	7.74	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.78			

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 1.200 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 86.767
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.663

ADD HYD (4001)					
1 + 2 = 3					
ID1= 1 (0401):	23.00	1.200	3.50	86.77	
+ ID2= 2 (4100):	219.90	10.813	4.92	93.61	
ID = 3 (4001):	242.90	11.894	4.83	92.96	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (4001)					
3 + 2 = 1					
ID1= 3 (4001):	242.90	11.894	4.83	92.96	
+ ID2= 2 (4200):	67.00	3.388	3.83	88.00	
ID = 1 (4001):	309.90	15.128	4.75	91.89	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0880)					
IN= 2----> OUT= 1					
Routing time step (min)'= 5.00					
DATA FOR SECTION (1.1)					
Distance	Elevation	Manning			
0.00	204.63	0.0400			
45.24	204.34	0.0400			
94.52	203.98	0.0400			
140.93	203.58	0.0400			
148.77	203.72	0.0400 / 0.0350	Main Channel		
154.30	202.99	0.0350	Main Channel		
158.02	203.77	0.0350 / 0.0400	Main Channel		
174.30	203.79	0.0400			
222.94	204.38	0.0400			
285.62	204.03	0.0400			

<----- TRAVEL TIME TABLE ----->						
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME	
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)	
0.05	203.04	.647E+01	0.0	0.11	59.17	
0.10	203.09	.259E+02	0.0	0.17	37.28	
0.16	203.15	.582E+02	0.0	0.23	28.45	

Model With SWM Infrastructure - Output

0.21	203.20	.103E+03	0.1	0.27	23.48
0.26	203.25	.162E+03	0.1	0.32	20.24
0.31	203.30	.233E+03	0.2	0.36	17.92
0.37	203.36	.317E+03	0.3	0.40	16.17
0.42	203.41	.414E+03	0.5	0.43	14.79
0.47	203.46	.524E+03	0.6	0.47	13.68
0.52	203.51	.647E+03	0.8	0.50	12.75
0.57	203.56	.782E+03	1.1	0.54	11.96
0.63	203.62	.974E+03	1.4	0.55	11.73
0.68	203.67	.135E+04	1.8	0.51	12.55
0.73	203.72	.192E+04	2.4	0.48	13.39
0.79	203.78	.282E+04	3.5	0.48	13.41
0.85	203.84	.430E+04	5.2	0.47	13.77
0.92	203.91	.608E+04	7.5	0.48	13.44
0.98	203.97	.816E+04	10.6	0.50	12.88
1.04	204.03	.105E+05	14.2	0.52	12.33

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (4001)	309.90	15.13	4.75	91.89	1.04	0.52
OUTFLOW: ID= 1 (0880)	309.90	15.08	5.00	91.89	1.04	0.52

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

CALIB	Area (ha)=	27.60	Curve Number (CN)=	83.8
NASHYD (0400)	Ia (mm)=	7.36	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.88		

Unit Hyd Qpeak (cms)= 1.198

PEAK FLOW (cms)= 1.429 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 88.402
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.675

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (4000)	Area (ha)=	27.60	QPEAK (cms)=	1.429	TPEAK (hrs)=	3.67	R.V. (mm)=	88.40
1 + 2 = 3								
ID1= 1 (0400):	27.60	1.429	3.67	88.40				

TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.670

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	17.30	Curve Number (CN)=	81.3
NASHYD (0211)	Ia (mm)=	8.76	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	1.02		

Unit Hyd Qpeak (cms)= 0.648

PEAK FLOW (cms)= 0.809 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 82.620
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.631

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	47.60	Curve Number (CN)=	84.6
NASHYD (0021)	Ia (mm)=	6.93	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.93		

Unit Hyd Qpeak (cms)= 1.955

PEAK FLOW (cms)= 2.489 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 90.293
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.690

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0871)	Routing time step (min)'=	5.00
IN= 2----> OUT= 1		

Distance	Elevation	Manning	
0.00	209.49	0.0400	
35.71	208.88	0.0400	
53.04	208.89	0.0400	
64.12	208.50	0.0400 / 0.0350	Main Channel
70.77	208.05	0.0350	Main Channel

+ ID2= 2 (0880): 309.90 15.082 5.00 91.89
=====

ID = 3 (4000): 337.50 16.403 4.92 91.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	25.60	Curve Number (CN)=	82.2
NASHYD (0200)	Ia (mm)=	8.25	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.79		

Unit Hyd Qpeak (cms)= 1.238

PEAK FLOW (cms)= 1.296 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 84.676
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.647

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	7.00	Curve Number (CN)=	83.0
NASHYD (0023)	Ia (mm)=	7.80	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.73		

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.369 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 86.529
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.661

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	Area (ha)=	3.40	Curve Number (CN)=	82.5
NASHYD (0022)	Ia (mm)=	5.38	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.20		

Unit Hyd Qpeak (cms)= 0.649

PEAK FLOW (cms)= 0.206 (i)
TIME TO PEAK (hrs)= 2.167
RUNOFF VOLUME (mm)= 87.655

74.98	208.02	0.0350	Main Channel
83.40	208.38	0.0350 / 0.0400	Main Channel
88.06	208.63	0.0400	
94.94	209.13	0.0400	
105.88	209.54	0.0400	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.07	208.09	.241E+03	0.1	0.21	60.89
0.14	208.16	.678E+03	0.3	0.33	38.66
0.22	208.24	.127E+04	0.7	0.42	30.30
0.29	208.31	.201E+04	1.3	0.50	25.57
0.36	208.38	.290E+04	2.2	0.57	22.42
0.44	208.46	.405E+04	3.5	0.67	19.05
0.52	208.54	.537E+04	5.4	0.77	16.69
0.60	208.62	.690E+04	7.7	0.85	15.00
0.68	208.70	.866E+04	10.4	0.93	13.82
0.76	208.78	.106E+05	13.7	0.99	12.91
0.84	208.86	.128E+05	17.5	1.05	12.19
0.92	208.94	.159E+05	21.6	1.05	12.24
0.99	209.01	.197E+05	27.2	1.06	12.03
1.07	209.09	.238E+05	33.9	1.09	11.74
1.15	209.17	.284E+05	41.4	1.12	11.43
1.23	209.25	.333E+05	49.8	1.15	11.14
1.31	209.33	.386E+05	59.4	1.18	10.84
1.39	209.41	.444E+05	70.1	1.21	10.55
1.47	209.49	.506E+05	82.1	1.25	10.27

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0021)	47.60	2.49	3.75	90.29	0.38	0.59
OUTFLOW: ID= 1 (0871)	47.60	2.45	4.17	90.29	0.38	0.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2110)	Area (ha)=	20.70	QPEAK (cms)=	0.966	TPEAK (hrs)=	4.17	R.V. (mm)=	83.45
1 + 2 = 3								
ID1= 1 (0211):	17.30	0.809	4.25	82.62				
+ ID2= 2 (0022):	3.40	0.206	2.17	87.66				
ID = 3 (2110):	20.70	0.966	4.17	83.45				

Model With SWM Infrastructure - Output

```
-----
| ADD HYD ( 2110) |
| 3 + 2 = 1 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 3 ( 2110): 20.70  0.966  4.17  83.45
+ ID2= 2 ( 0871): 47.60  2.450  4.17  90.29
=====
ID = 1 ( 2110): 68.30  3.416  4.17  88.21
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0220) | Area (ha)= 20.30 Curve Number (CN)= 81.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.59 # of Linear Res.(N)= 3.00
|-----
| U.H. Tp(hrs)= 0.85
```

Unit Hyd Qpeak (cms)= 0.912

```
PEAK FLOW (cms)= 0.993 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 83.301
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.636
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0020) | Area (ha)= 12.60 Curve Number (CN)= 82.4
| ID= 1 DT= 5.0 min | Ia (mm)= 8.13 # of Linear Res.(N)= 3.00
|-----
| U.H. Tp(hrs)= 0.72
```

Unit Hyd Qpeak (cms)= 0.668

```
PEAK FLOW (cms)= 0.655 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 85.143
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.650
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0875) |
| IN= 2----> OUT= 1 | Routing time step (min)'= 5.00
|-----
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
```

```
0.00      206.00      0.0400
33.24      205.47      0.0400
44.39      205.59      0.0400
48.71      205.45      0.0400 /0.0350 Main Channel
51.02      204.50      0.0350 Main Channel
54.33      205.44      0.0350 /0.0400 Main Channel
55.90      204.97      0.0400
62.96      204.91      0.0400
102.92      205.20      0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)         (m/s)         (min)
0.04 204.54 .311E+01 0.0 0.15 87.07
0.07 204.57 .124E+02 0.0 0.24 54.85
0.11 204.61 .280E+02 0.0 0.32 41.86
0.14 204.64 .497E+02 0.0 0.39 34.56
0.18 204.68 .777E+02 0.0 0.45 29.78
0.22 204.72 .112E+03 0.1 0.50 26.37
0.25 204.75 .152E+03 0.1 0.56 23.80
0.29 204.79 .199E+03 0.2 0.61 21.77
0.33 204.83 .252E+03 0.2 0.66 20.12
0.36 204.86 .311E+03 0.3 0.71 18.76
0.40 204.90 .376E+03 0.4 0.76 17.60
0.43 204.93 .505E+03 0.5 0.72 18.44
0.47 204.97 .892E+03 0.6 0.58 23.04
0.51 205.01 .149E+04 1.0 0.53 24.97
0.54 205.04 .225E+04 1.5 0.54 24.74
0.58 205.08 .315E+04 2.2 0.56 23.71
0.61 205.11 .421E+04 3.1 0.59 22.46
0.65 205.15 .543E+04 4.3 0.63 21.21
0.69 205.19 .679E+04 5.6 0.66 20.05
```

```
<---- hydrograph ----> <-pipe / channel->
          AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
          (ha)      (cms)      (hrs)      (mm)      (m)      (m/s)
INFLOW : ID= 2 ( 0020) 12.60 0.65 3.42 85.14 0.47 0.58
OUTFLOW: ID= 1 ( 0875) 12.60 0.63 4.08 85.11 0.47 0.59
```

```
-----
| ADD HYD ( 2200) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0220): 20.30 0.993 3.75 83.30
+ ID2= 2 ( 0875): 12.60 0.628 4.08 85.11
=====
ID = 3 ( 2200): 32.90 1.613 3.92 83.99
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2101) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 2110): 68.30  3.416  4.17  88.21
+ ID2= 2 ( 2200): 32.90  1.613  3.92  83.99
=====
ID = 3 ( 2101): 101.20  5.024  4.08  86.84
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0870) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
|-----
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00      209.52      0.0400
61.99      209.23      0.0400
76.86      209.20      0.0400
82.03      209.20      0.0400 /0.0350 Main Channel
86.30      208.87      0.0350 Main Channel
89.86      209.20      0.0350 /0.0300 Main Channel
96.27      209.24      0.0300
103.53      209.40      0.0300
127.96      209.50      0.0300
158.58      209.70      0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)         (m/s)         (min)
0.03 208.90 .560E+01 0.0 0.10 69.11
0.07 208.94 .224E+02 0.0 0.17 43.54
0.10 208.97 .504E+02 0.0 0.22 33.23
0.13 209.00 .896E+02 0.1 0.26 27.43
0.17 209.04 .140E+03 0.1 0.31 23.64
0.20 209.07 .202E+03 0.2 0.35 20.93
0.23 209.10 .274E+03 0.2 0.38 18.89
0.26 209.13 .358E+03 0.3 0.42 17.28
0.30 209.17 .454E+03 0.5 0.45 15.97
0.33 209.20 .560E+03 0.6 0.49 14.89
0.37 209.24 .938E+03 0.9 0.43 16.68
0.40 209.27 .155E+04 1.5 0.41 17.48
0.44 209.31 .231E+04 2.3 0.42 17.04
0.47 209.34 .321E+04 3.3 0.44 16.25
0.51 209.38 .425E+04 4.6 0.47 15.39
0.54 209.41 .544E+04 6.1 0.49 14.80
```

```
0.58 209.45 .686E+04 7.9 0.50 14.38
0.61 209.48 .853E+04 10.3 0.52 13.85
0.65 209.52 .104E+05 13.2 0.55 13.23
```

```
<---- hydrograph ----> <-pipe / channel->
          AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
          (ha)      (cms)      (hrs)      (mm)      (m)      (m/s)
INFLOW : ID= 2 ( 2101) 101.20 5.02 4.08 86.84 0.52 0.47
OUTFLOW: ID= 1 ( 0870) 101.20 4.99 4.33 86.84 0.52 0.47
```

```
-----
| CALIB
| NASHYD ( 0210) | Area (ha)= 9.10 Curve Number (CN)= 82.3
| ID= 1 DT= 5.0 min | Ia (mm)= 8.19 # of Linear Res.(N)= 3.00
|-----
| U.H. Tp(hrs)= 0.64
```

Unit Hyd Qpeak (cms)= 0.543

```
PEAK FLOW (cms)= 0.482 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 84.909
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.649
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 2100) |
| 1 + 2 = 3 |
-----
          AREA      QPEAK      TPEAK      R.V.
          (ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0210): 9.10 0.482 3.33 84.91
+ ID2= 2 ( 0870): 101.20 4.989 4.33 86.84
=====
ID = 3 ( 2100): 110.30 5.422 4.33 86.68
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0230) | Area (ha)= 24.70 Curve Number (CN)= 82.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
|-----
| U.H. Tp(hrs)= 0.82
```

Unit Hyd Qpeak (cms)= 1.151

PEAK FLOW (cms)= 1.267 (i)

Model With SWM Infrastructure - Output

TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 86.302
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.659

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0231)	Area (ha)=	29.50	Curve Number (CN)=	81.9	
ID= 1 DT= 5.0 min	Ia (mm)=	8.42	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.89			

Unit Hyd Qpeak (cms)= 1.266

PEAK FLOW (cms)= 1.442 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 83.987
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.642

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0240)	Area (ha)=	10.10	Curve Number (CN)=	82.0	
ID= 1 DT= 5.0 min	Ia (mm)=	8.36	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.74			

Unit Hyd Qpeak (cms)= 0.521

PEAK FLOW (cms)= 0.515 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 84.219
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.643

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0241)	Area (ha)=	26.70	Curve Number (CN)=	82.3	
ID= 1 DT= 5.0 min	Ia (mm)=	8.19	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.75			

Unit Hyd Qpeak (cms)= 1.360

PEAK FLOW (cms)= 1.371 (i)

TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 84.909
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.649

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0864)					
IN= 2----> OUT= 1					
	Routing time step (min)='	5.00			
<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	214.06	0.0500			
6.27	213.95	0.0500			
20.38	214.11	0.0500			
25.18	213.97	0.0500 / 0.0350	Main Channel		
28.59	211.79	0.0350	Main Channel		
32.89	214.16	0.0350 / 0.0500	Main Channel		
42.61	212.54	0.0500			
59.11	212.41	0.0500			
84.10	212.83	0.0500			
100.76	213.78	0.0500			

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.118E+02	0.0	0.27	29.62
0.24	212.03	.471E+02	0.0	0.42	18.66
0.36	212.15	.106E+03	0.1	0.56	14.24
0.48	212.27	.188E+03	0.3	0.67	11.76
0.61	212.40	.294E+03	0.5	0.78	10.13
0.73	212.52	.928E+03	1.0	0.51	15.63
0.85	212.64	.260E+04	2.7	0.50	15.93
0.97	212.76	.477E+04	5.8	0.58	13.67
1.09	212.88	.739E+04	10.6	0.68	11.67
1.21	213.00	.103E+05	17.1	0.79	10.01
1.33	213.12	.133E+05	25.0	0.89	8.85
1.45	213.24	.165E+05	34.4	0.99	8.00
1.57	213.36	.200E+05	45.3	1.08	7.34
1.70	213.49	.236E+05	57.6	1.16	6.82
1.82	213.61	.274E+05	71.4	1.24	6.39
1.94	213.73	.314E+05	86.8	1.31	6.02
2.06	213.85	.355E+05	104.6	1.40	5.66
2.18	213.97	.398E+05	124.9	1.49	5.31
2.37	214.16	.481E+05	161.2	1.59	4.97

<---- hydrograph ---->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<-pipe / channel->	
				MAX DEPTH (m)	MAX VEL (m/s)

INFLOW : ID= 2 (0241) 26.70 1.37 3.50 84.91 0.75 0.50
OUTFLOW: ID= 1 (0864) 26.70 1.35 3.83 84.91 0.75 0.50

ADD HYD (2301)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0231):	29.50	1.442	3.83	83.99	
+ ID2= 2 (0240):	10.10	0.515	3.50	84.22	
=====					
ID = 3 (2301):	39.60	1.951	3.67	84.05	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2301)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 3 (2301):	39.60	1.951	3.67	84.05	
+ ID2= 2 (0864):	26.70	1.347	3.83	84.91	
=====					
ID = 1 (2301):	66.30	3.297	3.75	84.39	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0863)					
IN= 2----> OUT= 1	Routing time step (min)='	5.00			

<----- DATA FOR SECTION (1.1) ----->					
Distance	Elevation	Manning			
0.00	206.70	0.0400			
2.35	206.02	0.0400 / 0.0350	Main Channel		
5.23	205.19	0.0350	Main Channel		
5.34	205.67	0.0350	Main Channel		
19.05	206.06	0.0350 / 0.0400	Main Channel		
21.11	206.05	0.0400			
22.02	206.13	0.0400 / 0.0350			
40.10	206.15	0.0350			
56.50	206.04	0.0350			

<----- TRAVEL TIME TABLE ----->					
DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.138E+01	0.0	0.11	58.11
0.09	205.28	.551E+01	0.0	0.18	36.61

**** WARNING: TRAVEL TIME TABLE EXCEEDED					
<---- hydrograph ---->					
AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<-pipe / channel->	
				MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (2301)	66.30	3.30	3.75	84.39	0.83 0.60
OUTFLOW: ID= 1 (0863)	66.30	3.28	4.00	84.39	0.83 0.60

**** WARNING: COMPUTATIONS FAILED TO CONVERGE.

ADD HYD (2300)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0230):	24.70	1.267	3.58	86.30	
+ ID2= 2 (0863):	66.30	3.278	4.00	84.39	
=====					
ID = 3 (2300):	91.00	4.526	3.92	84.91	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2011)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (2100):	110.30	5.422	4.33	86.68	
+ ID2= 2 (2300):	91.00	4.526	3.92	84.91	
=====					
ID = 3 (2011):	201.30	9.910	4.17	85.88	

Model With SWM Infrastructure - Output

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0862) |
| IN= 2----> OUT= 1 |
|-----|
      Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          204.63         0.0400
45.24         204.34         0.0400
94.52         203.98         0.0400
140.93        203.58         0.0400
148.77        203.72         0.0400 /0.0350 Main Channel
154.30        202.99         0.0350 Main Channel
158.02        203.77         0.0350 /0.0400 Main Channel
174.30        203.79         0.0400
222.94        204.38         0.0400
285.62        204.03         0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)      (cu.m.)      (cms)      (m/s)      (min)
0.05 203.04 .465E+01 0.0 0.10 47.86
0.10 203.09 .186E+02 0.0 0.15 30.15
0.16 203.15 .418E+02 0.0 0.20 23.01
0.21 203.20 .744E+02 0.1 0.24 18.99
0.26 203.25 .116E+03 0.1 0.28 16.37
0.31 203.30 .167E+03 0.2 0.32 14.50
0.37 203.36 .228E+03 0.3 0.35 13.08
0.42 203.41 .297E+03 0.4 0.39 11.97
0.47 203.46 .376E+03 0.6 0.42 11.06
0.52 203.51 .465E+03 0.8 0.45 10.31
0.57 203.56 .562E+03 1.0 0.48 9.68
0.63 203.62 .700E+03 1.2 0.49 9.49
0.68 203.67 .969E+03 1.6 0.45 10.15
0.73 203.72 .138E+04 2.1 0.43 10.83
0.79 203.78 .203E+04 3.1 0.43 10.85
0.85 203.84 .309E+04 4.6 0.41 11.14
0.92 203.91 .437E+04 6.7 0.42 10.87
0.98 203.97 .586E+04 9.4 0.44 10.42
1.04 204.03 .757E+04 12.7 0.46 9.97
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2011) 201.30 9.91 4.17 85.88 0.99 0.45
OUTFLOW: ID= 1 ( 0862) 201.30 9.87 4.33 85.88 0.99 0.45
```

```
-----
| CALIB
| NASHYD ( 0201) | Area (ha)= 8.20 Curve Number (CN)= 82.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.60
```

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.442 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 85.602
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.654

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 2010) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0201): 8.20 0.442 3.25 85.60
+ ID2= 2 ( 0023): 7.00 0.369 3.42 86.53
=====
ID = 3 ( 2010): 15.20 0.810 3.33 86.03
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 2010) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 2010): 15.20 0.810 3.33 86.03
+ ID2= 2 ( 0862): 201.30 9.865 4.33 85.88
=====
ID = 1 ( 2010): 216.50 10.603 4.25 85.89
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0860) |
| IN= 2----> OUT= 1 |
|-----|
      Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          208.48         0.0500
43.69         207.97         0.0500
66.92         207.94         0.0500
76.98         208.01         0.0500
```

```
87.94          208.25         0.0500
89.93          208.44         0.0500 /0.0350 Main Channel
92.70          208.20         0.0350 Main Channel
95.51          207.28         0.0350 Main Channel
98.26          208.25         0.0350 Main Channel
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)      (cu.m.)      (cms)      (m/s)      (min)
0.05 207.33 .155E+01 0.0 0.16 23.32
0.10 207.38 .620E+01 0.0 0.25 14.69
0.15 207.43 .140E+02 0.0 0.33 11.21
0.19 207.47 .248E+02 0.0 0.40 9.26
0.24 207.52 .388E+02 0.1 0.47 7.98
0.29 207.57 .558E+02 0.1 0.53 7.06
0.34 207.62 .760E+02 0.2 0.59 6.37
0.39 207.67 .992E+02 0.3 0.64 5.83
0.44 207.72 .126E+03 0.4 0.69 5.39
0.48 207.76 .155E+03 0.5 0.74 5.03
0.53 207.81 .188E+03 0.7 0.79 4.72
0.58 207.86 .223E+03 0.8 0.84 4.45
0.63 207.91 .262E+03 1.0 0.88 4.22
0.68 207.96 .341E+03 1.3 0.83 4.47
0.73 208.01 .708E+03 1.8 0.57 6.58
0.78 208.06 .119E+04 2.7 0.51 7.25
0.82 208.10 .174E+04 4.0 0.52 7.19
0.87 208.15 .236E+04 5.7 0.54 6.89
0.92 208.20 .305E+04 7.8 0.57 6.55
```

**** WARNING: TRAVEL TIME TABLE EXCEEDED

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 2010) 216.50 10.60 4.25 85.89 0.92 0.57
OUTFLOW: ID= 1 ( 0860) 216.50 10.59 4.42 85.89 0.92 0.57
```

```
-----
| ADD HYD ( 2000) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0200): 25.60 1.296 3.58 84.68
+ ID2= 2 ( 0860): 216.50 10.590 4.42 85.89
=====
ID = 3 ( 2000): 242.10 11.823 4.33 85.76
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0300) | Area (ha)= 36.80 Curve Number (CN)= 83.1
| ID= 1 DT= 5.0 min | Ia (mm)= 7.74 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.90
```

Unit Hyd Qpeak (cms)= 1.562

PEAK FLOW (cms)= 1.858 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 86.767
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.663

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0031) | Area (ha)= 3.00 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.38 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.62
```

Unit Hyd Qpeak (cms)= 0.185

PEAK FLOW (cms)= 0.164 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 87.820
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.671

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB
| NASHYD ( 0350) | Area (ha)= 1.50 Curve Number (CN)= 83.2
| ID= 1 DT= 5.0 min | Ia (mm)= 7.69 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.38
```

Unit Hyd Qpeak (cms)= 0.151

PEAK FLOW (cms)= 0.085 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 86.982
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.664

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
-----
| ROUTE CHN( 0850)|
| IN= 2----> OUT= 1 |
-----

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.00        0.0400
33.24         205.47        0.0400
44.39         205.59        0.0400
48.71         205.45        0.0400 / 0.0350 Main Channel
51.02         204.50        0.0350 Main Channel
54.33         205.44        0.0350 / 0.0400 Main Channel
55.90         204.97        0.0400
62.96         204.91        0.0400
102.92        205.20        0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.04        204.54      .300E+01      0.0             0.15          86.75
0.07        204.57      .120E+02      0.0             0.24          54.65
0.11        204.61      .270E+02      0.0             0.31          41.70
0.14        204.64      .480E+02      0.0             0.37          34.42
0.18        204.68      .750E+02      0.0             0.43          29.67
0.22        204.72      .108E+03      0.1             0.49          26.27
0.25        204.75      .147E+03      0.1             0.54          23.71
0.29        204.79      .192E+03      0.1             0.59          21.69
0.33        204.83      .243E+03      0.2             0.64          20.05
0.36        204.86      .300E+03      0.3             0.69          18.69
0.40        204.90      .363E+03      0.3             0.73          17.54
0.43        204.93      .488E+03      0.4             0.70          18.37
0.47        204.97      .860E+03      0.6             0.56          22.95
0.51        205.01      .144E+04      1.0             0.52          24.88
0.54        205.04      .217E+04      1.5             0.52          24.65
0.58        205.08      .304E+04      2.1             0.54          23.62
0.61        205.11      .407E+04      3.0             0.57          22.38
0.65        205.15      .524E+04      4.1             0.61          21.13
0.69        205.19      .656E+04      5.5             0.64          19.97

<---- hydrograph ----> <-pipe / channel->
                        AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
                        (ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 0350)  1.50      0.09      3.17      86.98      0.23           0.51
OUTFLOW: ID= 1 ( 0850)  1.50      0.08      3.33      86.67      0.23           0.51
```

```
-----
| CALIB
| NASHYD ( 0032)|
-----
Area (ha)= 28.00 Curve Number (CN)= 83.4
```

```
ID = 3 ( 3010): 88.90 4.220 4.42 86.36
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 3001)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 3010): 88.90 4.220 4.42 86.36
+ ID2= 2 ( 0031): 3.00 0.164 3.25 87.82
=====
ID = 3 ( 3001): 91.90 4.364 4.42 86.41
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0852)|
| IN= 2----> OUT= 1 |
-----

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.20        0.0400
100.00        206.26        0.0400
111.30        206.19        0.0400 / 0.0350 Main Channel
112.02        205.76        0.0350 Main Channel
113.82        205.37        0.0350 Main Channel
115.62        206.03        0.0350 / 0.0400 Main Channel
117.77        207.30        0.0400
120.56        207.40        0.0400
124.41        207.31        0.0400
129.31        207.24        0.0400

<----- TRAVEL TIME TABLE ----->
DEPTH      ELEV      VOLUME      FLOW RATE      VELOCITY      TRAV.TIME
(m)         (m)         (cu.m.)      (cms)           (m/s)         (min)
0.09        205.46      .132E+02      0.0             0.21          32.83
0.19        205.56      .529E+02      0.0             0.33          20.68
0.28        205.65      .119E+03      0.1             0.43          15.78
0.38        205.75      .212E+03      0.3             0.52          13.03
0.47        205.84      .327E+03      0.5             0.62          10.84
0.57        205.94      .458E+03      0.8             0.72          9.42
0.66        206.03      .604E+03      1.2             0.80          8.44
0.76        206.13      .777E+03      1.7             0.91          7.41
0.86        206.23      .102E+04      2.4             0.97          6.97
0.96        206.33      .168E+04      3.6             0.87          7.76
1.06        206.43      .252E+04      5.4             0.87          7.80
1.16        206.53      .350E+04      7.7             0.89          7.56
1.26        206.63      .463E+04      10.7            0.93          7.24
1.37        206.74      .590E+04      14.3            0.98          6.90
1.47        206.84      .732E+04      18.6            1.03          6.58
```

```
ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.95
```

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 1.408 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 87.463
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.668

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 3200)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 0032): 28.00 1.408 3.92 87.46
+ ID2= 2 ( 0850): 1.50 0.083 3.33 86.67
=====
ID = 3 ( 3200): 29.50 1.485 3.83 87.42
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0301)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 59.40 Curve Number (CN)= 82.7
Ia (mm)= 7.97 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.23
```

Unit Hyd Qpeak (cms)= 1.845

PEAK FLOW (cms)= 2.779 (i)
TIME TO PEAK (hrs)= 4.750
RUNOFF VOLUME (mm)= 85.831
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.656

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 3010)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 0301): 59.40 2.779 4.75 85.83
+ ID2= 2 ( 3200): 29.50 1.485 3.83 87.42
=====
```

```
1.57 206.94 .889E+04 23.6 1.08 6.28
1.67 207.04 .106E+05 29.5 1.13 6.00
1.77 207.14 .125E+05 36.1 1.17 5.75
1.87 207.24 .145E+05 43.7 1.22 5.52
```

```
<---- hydrograph ----> <-pipe / channel->
                        AREA      QPEAK      TPEAK      R.V.      MAX DEPTH      MAX VEL
                        (ha)      (cms)      (hrs)      (mm)      (m)            (m/s)
INFLOW : ID= 2 ( 3001)  91.90 4.36 4.42 86.41 1.01 0.87
OUTFLOW: ID= 1 ( 0852)  91.90 4.36 4.58 86.41 1.00 0.87
```

```
-----
| ADD HYD ( 3000)|
| 1 + 2 = 3 |
-----
ID1= 1 ( 0300): 36.80 1.858 3.75 86.77
+ ID2= 2 ( 0852): 91.90 4.358 4.58 86.41
=====
ID = 3 ( 3000): 128.70 6.163 4.33 86.51
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB
| NASHYD ( 0030)|
| ID= 1 DT= 5.0 min |
-----
Area (ha)= 1.10 Curve Number (CN)= 81.5
Ia (mm)= 5.76 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30
```

Unit Hyd Qpeak (cms)= 0.140

PEAK FLOW (cms)= 0.061 (i)
TIME TO PEAK (hrs)= 2.250
RUNOFF VOLUME (mm)= 85.635
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.654

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ROUTE CHN( 0854)|
| IN= 2----> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          206.00        0.0400
33.24         205.47        0.0400
```

Model With SWM Infrastructure - Output

44.39	205.59	0.0400	
48.71	205.45	0.0400 / 0.0350	Main Channel
51.02	204.50	0.0350	Main Channel
54.33	205.44	0.0350 / 0.0400	Main Channel
55.90	204.97	0.0400	
62.96	204.91	0.0400	
102.92	205.20	0.0400	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	204.54	.753E+00	0.0	0.18	18.23
0.07	204.57	.301E+01	0.0	0.28	11.48
0.11	204.61	.677E+01	0.0	0.37	8.76
0.14	204.64	.120E+02	0.0	0.45	7.23
0.18	204.68	.188E+02	0.1	0.52	6.23
0.22	204.72	.271E+02	0.1	0.58	5.52
0.25	204.75	.369E+02	0.1	0.65	4.98
0.29	204.79	.482E+02	0.2	0.71	4.56
0.33	204.83	.610E+02	0.2	0.77	4.21
0.36	204.86	.753E+02	0.3	0.82	3.93
0.40	204.90	.911E+02	0.4	0.88	3.69
0.43	204.93	.122E+03	0.5	0.84	3.86
0.47	204.97	.216E+03	0.7	0.67	4.82
0.51	205.01	.361E+03	1.2	0.62	5.23
0.54	205.04	.544E+03	1.7	0.62	5.18
0.58	205.08	.763E+03	2.6	0.65	4.96
0.61	205.11	.102E+04	3.6	0.69	4.70
0.65	205.15	.131E+04	4.9	0.73	4.44
0.69	205.19	.165E+04	6.5	0.77	4.20

<---- hydrograph ---->				<-pipe / channel-->		
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0030)	1.10	0.06	2.25	85.64	0.19	0.54
OUTFLOW: ID= 1 (0854)	1.10	0.06	3.17	85.62	0.19	0.54

CALIB	
NASHYD (0340)	
ID= 1 DT= 5.0 min	
Area (ha)=	21.00
Ia (mm)=	7.91
U.H. Tp(hrs)=	0.69

Unit Hyd Qpeak (cms)= 1.162

PEAK FLOW (cms)= 1.113 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 86.066

TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.657

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (3400)			
1 + 2 = 3			
AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0340):	21.00	1.113	3.42
+ ID2= 2 (0854):	1.10	0.061	3.17
=====			
ID = 3 (3400):	22.10	1.172	3.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0123)	
ID= 1 DT= 5.0 min	
Area (ha)=	24.60
Ia (mm)=	7.85
U.H. Tp(hrs)=	0.93

Unit Hyd Qpeak (cms)= 1.010

PEAK FLOW (cms)= 1.226 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 86.303
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.659

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0814)	
IN= 2----> OUT= 1	
Routing time step (min)'= 5.00	

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.923E+01	0.0	0.26	23.49
0.24	212.03	.369E+02	0.0	0.42	14.80
0.36	212.15	.831E+02	0.1	0.55	11.29
0.48	212.27	.148E+03	0.3	0.67	9.32
0.61	212.40	.231E+03	0.5	0.77	8.03
0.73	212.52	.727E+03	1.0	0.50	12.40
0.85	212.64	.204E+04	2.7	0.49	12.63
0.97	212.76	.374E+04	5.7	0.57	10.84
1.09	212.88	.580E+04	10.4	0.67	9.25
1.21	213.00	.804E+04	16.9	0.78	7.94
1.33	213.12	.104E+05	24.8	0.88	7.02
1.45	213.24	.130E+05	34.1	0.98	6.35
1.57	213.36	.157E+05	44.8	1.07	5.82
1.70	213.49	.185E+05	57.0	1.15	5.41
1.82	213.61	.215E+05	70.6	1.23	5.06
1.94	213.73	.246E+05	85.8	1.30	4.78
2.06	213.85	.278E+05	103.5	1.38	4.49
2.18	213.97	.312E+05	123.5	1.48	4.21
2.37	214.16	.377E+05	159.4	1.57	3.94

<---- hydrograph ---->				<-pipe / channel-->		
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0123)	24.60	1.23	3.83	86.30	0.74	0.50
OUTFLOW: ID= 1 (0814)	24.60	1.22	4.17	86.30	0.74	0.50

CALIB	
NASHYD (0124)	
ID= 1 DT= 5.0 min	
Area (ha)=	24.30
Ia (mm)=	6.30
U.H. Tp(hrs)=	0.51

Unit Hyd Qpeak (cms)= 1.820

PEAK FLOW (cms)= 1.456 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 93.163
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.712

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ROUTE CHN(0813)	
IN= 2----> OUT= 1	
Routing time step (min)'= 5.00	

<----- DATA FOR SECTION (1.1) ----->			
Distance	Elevation	Manning	
0.00	214.06	0.0500	
6.27	213.95	0.0500	
20.38	214.11	0.0500	
25.18	213.97	0.0500 / 0.0350	Main Channel
28.59	211.79	0.0350	Main Channel
32.89	214.16	0.0350 / 0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.12	211.91	.168E+02	0.0	0.26	43.17
0.24	212.03	.671E+02	0.0	0.41	27.20
0.36	212.15	.151E+03	0.1	0.54	20.76
0.48	212.27	.268E+03	0.3	0.66	17.13
0.61	212.40	.419E+03	0.5	0.76	14.77
0.73	212.52	.132E+04	1.0	0.50	22.79
0.85	212.64	.370E+04	2.7	0.49	23.22
0.97	212.76	.679E+04	5.7	0.57	19.92
1.09	212.88	.105E+05	10.3	0.66	17.01
1.21	213.00	.146E+05	16.7	0.77	14.59
1.33	213.12	.189E+05	24.5	0.87	12.90
1.45	213.24	.236E+05	33.7	0.97	11.66
1.57	213.36	.284E+05	44.3	1.05	10.70
1.70	213.49	.336E+05	56.3	1.14	9.94
1.82	213.61	.390E+05	69.8	1.21	9.31
1.94	213.73	.447E+05	84.8	1.28	8.78
2.06	213.85	.506E+05	102.3	1.37	8.24
2.18	213.97	.566E+05	122.0	1.46	7.73
2.37	214.16	.685E+05	157.6	1.56	7.25

<---- hydrograph ---->				<-pipe / channel-->		
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0124)	24.30	1.46	3.17	93.16	0.76	0.49
OUTFLOW: ID= 1 (0813)	24.30	1.40	3.42	93.15	0.76	0.49

Model With SWM Infrastructure - Output

```
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
-----
ID1= 1 ( 0813): 24.30 1.403 3.42 93.15
+ ID2= 2 ( 0814): 24.60 1.218 4.17 86.30
=====
ID = 3 ( 1221): 48.90 2.570 3.75 89.71
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0812) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.49 0.0400
35.71 208.88 0.0400
53.04 208.89 0.0400
64.12 208.50 0.0400 /0.0350 Main Channel
70.77 208.05 0.0350 Main Channel
74.98 208.02 0.0350 Main Channel
83.40 208.38 0.0350 /0.0400 Main Channel
88.06 208.63 0.0400
94.94 209.13 0.0400
105.88 209.54 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.07 208.09 .533E+02 0.1 0.24 12.01
0.14 208.16 .150E+03 0.3 0.37 7.63
0.22 208.24 .280E+03 0.8 0.47 5.98
0.29 208.31 .444E+03 1.5 0.56 5.04
0.36 208.38 .642E+03 2.4 0.64 4.42
0.44 208.46 .896E+03 4.0 0.75 3.76
0.52 208.54 .119E+04 6.0 0.86 3.29
0.60 208.62 .153E+04 8.6 0.96 2.96
0.68 208.70 .192E+04 11.7 1.04 2.73
0.76 208.78 .235E+04 15.4 1.11 2.55
0.84 208.86 .283E+04 19.6 1.18 2.41
0.92 208.94 .351E+04 24.2 1.17 2.41
0.99 209.01 .435E+04 30.6 1.19 2.37
1.07 209.09 .528E+04 38.0 1.22 2.31
1.15 209.17 .628E+04 46.4 1.26 2.26
1.23 209.25 .737E+04 55.9 1.29 2.20
1.31 209.33 .855E+04 66.6 1.33 2.14
1.39 209.41 .982E+04 78.7 1.36 2.08
1.47 209.49 .112E+05 92.1 1.40 2.03
```

```
<----- hydrograph -----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
```

```
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1221) 48.90 2.57 3.75 89.71 0.37 0.65
OUTFLOW: ID= 1 ( 0812) 48.90 2.57 3.75 89.71 0.37 0.65
```

```
| CALIB
| NASHYD ( 0122) | Area (ha)= 31.80 Curve Number (CN)= 85.1
| ID= 1 DT= 5.0 min | Ia (mm)= 6.67 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.96
```

Unit Hyd Qpeak (cms)= 1.265

```
PEAK FLOW (cms)= 1.673 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 91.481
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.699
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1220) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
-----
ID1= 1 ( 0122): 31.80 1.673 3.83 91.48
+ ID2= 2 ( 0812): 48.90 2.569 3.75 89.71
=====
ID = 3 ( 1220): 80.70 4.241 3.75 90.41
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0811) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 206.50 0.0400
29.68 206.77 0.0400
43.70 206.13 0.0400 /0.0350 Main Channel
44.99 205.95 0.0350 Main Channel
47.70 206.24 0.0350 /0.0450 Main Channel
60.54 206.32 0.0450
80.11 206.99 0.0450
102.29 207.42 0.0450 /0.0400
132.78 206.84 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 206.01 .147E+02 0.0 0.14 60.26
0.12 206.07 .590E+02 0.0 0.22 37.96
0.18 206.13 .133E+03 0.1 0.29 28.97
0.26 206.21 .302E+03 0.2 0.36 22.81
0.34 206.29 .671E+03 0.5 0.39 21.40
0.42 206.37 .151E+04 1.2 0.39 20.95
0.50 206.45 .254E+04 2.3 0.45 18.38
0.58 206.53 .376E+04 3.7 0.49 16.98
0.66 206.61 .544E+04 5.6 0.51 16.11
0.74 206.69 .764E+04 8.4 0.54 15.19
0.83 206.78 .104E+05 12.1 0.58 14.27
0.91 206.86 .134E+05 17.4 0.64 12.84
0.99 206.94 .166E+05 23.6 0.71 11.71
1.07 207.02 .201E+05 30.7 0.76 10.88
1.15 207.10 .239E+05 38.8 0.81 10.26
1.23 207.18 .280E+05 48.0 0.85 9.72
1.31 207.26 .325E+05 58.5 0.89 9.26
1.39 207.34 .373E+05 70.3 0.94 8.84
1.47 207.42 .424E+05 83.4 0.98 8.48
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1220) 80.70 4.24 3.75 90.41 0.61 0.49
OUTFLOW: ID= 1 ( 0811) 80.70 4.18 4.08 90.40 0.60 0.49
```

```
| CALIB
| NASHYD ( 0121) | Area (ha)= 16.10 Curve Number (CN)= 86.5
| ID= 1 DT= 5.0 min | Ia (mm)= 5.94 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.89
```

Unit Hyd Qpeak (cms)= 0.691

```
PEAK FLOW (cms)= 0.898 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 94.865
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.725
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1210) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
-----
ID1= 1 ( 0121): 16.10 0.898 3.58 94.86
+ ID2= 2 ( 0811): 80.70 4.185 4.08 90.40
=====
ID = 3 ( 1210): 96.80 5.060 4.08 91.14
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| NASHYD ( 0146) | Area (ha)= 12.80 Curve Number (CN)= 83.0
| ID= 1 DT= 5.0 min | Ia (mm)= 7.80 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.55
```

Unit Hyd Qpeak (cms)= 0.889

```
PEAK FLOW (cms)= 0.706 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 86.528
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.661
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ROUTE CHN( 0844) |
| IN= 2---> OUT= 1 | Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 208.29 0.0300
3.73 208.14 0.0300 /0.0350 Main Channel
5.30 207.52 0.0350 Main Channel
6.93 208.18 0.0350 /0.0300 Main Channel
8.96 208.27 0.0300
14.71 208.30 0.0300
23.86 208.59 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.04 207.56 .107E+01 0.0 0.13 37.04
0.08 207.60 .430E+01 0.0 0.20 23.33
0.12 207.64 .966E+01 0.0 0.27 17.81
0.16 207.68 .172E+02 0.0 0.32 14.70
0.19 207.71 .268E+02 0.0 0.38 12.67
0.23 207.75 .387E+02 0.1 0.42 11.22
```

Model With SWM Infrastructure - Output

0.27	207.79	.526E+02	0.1	0.47	10.12
0.31	207.83	.687E+02	0.1	0.51	9.26
0.35	207.87	.870E+02	0.2	0.56	8.56
0.39	207.91	.107E+03	0.2	0.60	7.98
0.43	207.95	.130E+03	0.3	0.64	7.49
0.47	207.99	.155E+03	0.4	0.67	7.07
0.50	208.02	.181E+03	0.5	0.71	6.70
0.54	208.06	.210E+03	0.6	0.75	6.38
0.58	208.10	.242E+03	0.7	0.78	6.09
0.62	208.14	.275E+03	0.8	0.82	5.83
0.67	208.19	.329E+03	1.0	0.87	5.50
0.72	208.24	.413E+03	1.3	0.89	5.36
0.77	208.29	.540E+03	1.7	0.87	5.45

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0146)	12.80	0.71	3.25	86.53	0.60	0.79
OUTFLOW: ID= 1 (0844)	12.80	0.70	3.33	86.52	0.59	0.79

CALIB				
NASHYD (0145)	Area (ha)=	12.60	Curve Number (CN)=	83.3
ID= 1 DT= 5.0 min	Ia (mm)=	7.63	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.59		

Unit Hyd Qpeak (cms)= 0.816

PEAK FLOW (cms)= 0.695 (i)
TIME TO PEAK (hrs)= 3.250
RUNOFF VOLUME (mm)= 87.232
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.666

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1450)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0145):	12.60	0.695	3.25	87.23
+ ID2= 2 (0844):	12.80	0.704	3.33	86.52
=====				
ID = 3 (1450):	25.40	1.399	3.25	86.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0843)				
IN= 2--> OUT= 1				
			Routing time step (min)'=	5.00
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	214.06	0.0500		
6.27	213.95	0.0500		
20.38	214.11	0.0500		
25.18	213.97	0.0500 / 0.0350	Main Channel	
28.59	211.79	0.0350	Main Channel	
32.89	214.16	0.0350 / 0.0500	Main Channel	
42.61	212.54	0.0500		
59.11	212.41	0.0500		
84.10	212.83	0.0500		
100.76	213.78	0.0500		

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.12	211.91	.144E+02	0.0	0.23	42.45
0.24	212.03	.578E+02	0.0	0.36	26.74
0.36	212.15	.130E+03	0.1	0.48	20.41
0.48	212.27	.231E+03	0.2	0.58	16.85
0.61	212.40	.361E+03	0.4	0.67	14.52
0.73	212.52	.114E+04	0.8	0.43	22.41
0.85	212.64	.319E+04	2.3	0.43	22.83
0.97	212.76	.585E+04	5.0	0.50	19.59
1.09	212.88	.907E+04	9.0	0.58	16.72
1.21	213.00	.126E+05	14.6	0.68	14.34
1.33	213.12	.163E+05	21.4	0.77	12.69
1.45	213.24	.203E+05	29.5	0.85	11.47
1.57	213.36	.245E+05	38.8	0.92	10.52
1.70	213.49	.289E+05	49.3	0.99	9.77
1.82	213.61	.336E+05	61.2	1.06	9.15
1.94	213.73	.385E+05	74.3	1.13	8.63
2.06	213.85	.436E+05	89.6	1.20	8.11
2.18	213.97	.488E+05	106.9	1.28	7.61
2.37	214.16	.590E+05	138.1	1.36	7.13

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1450)	25.40	1.40	3.25	86.87	0.77	0.43
OUTFLOW: ID= 1 (0843)	25.40	1.34	3.67	86.87	0.77	0.43

CALIB				
NASHYD (0144)	Area (ha)=	28.60	Curve Number (CN)=	82.9
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.97		

Unit Hyd Qpeak (cms)= 1.126

PEAK FLOW (cms)= 1.412 (i)
TIME TO PEAK (hrs)= 4.000
RUNOFF VOLUME (mm)= 86.303
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.659

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1440)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0144):	28.60	1.412	4.00	86.30
+ ID2= 2 (0843):	25.40	1.342	3.67	86.87
=====				
ID = 3 (1440):	54.00	2.745	3.75	86.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0842)				
IN= 2--> OUT= 1				
			Routing time step (min)'=	5.00

Distance	Elevation	Manning	
0.00	206.70	0.0400	
2.35	206.02	0.0400 / 0.0350	Main Channel
5.23	205.19	0.0350	Main Channel
5.34	205.67	0.0350	Main Channel
19.05	206.06	0.0350 / 0.0400	Main Channel
21.11	206.05	0.0400	
22.02	206.13	0.0400 / 0.0350	
40.10	206.15	0.0350	
56.50	206.04	0.0350	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME (min)
0.04	205.23	.149E+01	0.0	0.09	81.67
0.09	205.28	.594E+01	0.0	0.14	51.45
0.13	205.32	.134E+02	0.0	0.18	39.26
0.17	205.36	.238E+02	0.0	0.22	32.41

0.22	205.41	.371E+02	0.0	0.25	27.93
0.26	205.45	.535E+02	0.0	0.28	24.73
0.31	205.50	.728E+02	0.1	0.31	22.32
0.35	205.54	.950E+02	0.1	0.34	20.42
0.39	205.58	.120E+03	0.1	0.37	18.87
0.44	205.63	.149E+03	0.1	0.40	17.59
0.48	205.67	.180E+03	0.2	0.42	16.60
0.52	205.71	.228E+03	0.2	0.34	20.59
0.57	205.76	.308E+03	0.2	0.33	21.41
0.61	205.80	.418E+03	0.3	0.34	20.79
0.66	205.85	.560E+03	0.5	0.36	19.66
0.70	205.89	.732E+03	0.7	0.38	18.44
0.74	205.93	.936E+03	0.9	0.41	17.27
0.79	205.98	.117E+04	1.2	0.43	16.20
0.83	206.02	.144E+04	1.6	0.46	15.24

**** WARNING: TRAVEL TIME TABLE EXCEEDED

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1440)	54.00	2.75	3.75	86.57	0.82	0.46
OUTFLOW: ID= 1 (0842)	54.00	2.71	4.08	86.56	0.83	0.46

CALIB				
NASHYD (0143)	Area (ha)=	27.70	Curve Number (CN)=	82.9
ID= 1 DT= 5.0 min	Ia (mm)=	7.85	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.07		

Unit Hyd Qpeak (cms)= 0.989

PEAK FLOW (cms)= 1.340 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 86.303
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.659

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1430)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0143):	27.70	1.340	4.25	86.30
+ ID2= 2 (0842):	54.00	2.712	4.08	86.56
=====				

Model With SWM Infrastructure - Output

ID = 3 (1430): 81.70 4.050 4.17 86.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0841)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.66 0.0400
19.50 209.34 0.0400
37.91 208.66 0.0400
41.73 208.62 0.0400 / 0.0350 Main Channel
43.44 208.24 0.0350 Main Channel
45.75 208.62 0.0350 / 0.0450 Main Channel
54.00 208.79 0.0450 / 0.0400
77.43 209.05 0.0400
128.85 209.70 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.06 208.30 .216E+02 0.0 0.15 113.45
0.13 208.37 .864E+02 0.0 0.24 71.47
0.19 208.43 .194E+03 0.1 0.31 54.54
0.25 208.49 .345E+03 0.1 0.38 45.02
0.32 208.56 .540E+03 0.2 0.44 38.80
0.38 208.62 .777E+03 0.4 0.49 34.36
0.46 208.70 .152E+04 0.7 0.50 33.99
0.54 208.78 .281E+04 1.4 0.50 33.61
0.62 208.86 .469E+04 2.5 0.53 31.90
0.70 208.94 .734E+04 4.0 0.56 30.28
0.78 209.02 .107E+05 6.3 0.59 28.55
0.86 209.10 .149E+05 9.3 0.63 26.78
0.94 209.18 .198E+05 13.1 0.68 25.09
1.02 209.26 .253E+05 17.9 0.72 23.58
1.10 209.34 .315E+05 23.6 0.76 22.24
1.18 209.42 .386E+05 30.0 0.79 21.42
1.26 209.50 .465E+05 37.7 0.82 20.56
1.34 209.58 .554E+05 46.8 0.86 19.73
1.42 209.66 .652E+05 57.3 0.90 18.94
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1430) 81.70 4.05 4.17 86.48 0.70 0.56
OUTFLOW: ID= 1 ( 0841) 81.70 3.93 4.83 86.47 0.69 0.56
```

```
CALIB
NASHYD ( 0142) Area (ha)= 27.10 Curve Number (CN)= 82.9
ID= 1 DT= 5.0 min Ia (mm)= 7.85 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.22
```

Unit Hyd Qpeak (cms)= 0.848

```
PEAK FLOW (cms)= 1.276 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 86.303
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.659
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ADD HYD ( 1420)
1 + 2 = 3 AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0142): 27.10 1.276 4.67 86.30
+ ID2= 2 ( 0841): 81.70 3.930 4.83 86.47
=====
ID = 3 ( 1420): 108.80 5.206 4.83 86.43
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
ROUTE CHN( 0840)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 209.52 0.0400
61.99 209.23 0.0400
76.86 209.20 0.0400
82.03 209.20 0.0400 / 0.0350 Main Channel
86.30 208.87 0.0350 Main Channel
89.86 209.20 0.0350 / 0.0300 Main Channel
96.27 209.24 0.0300
103.53 209.40 0.0300
127.96 209.50 0.0300
158.58 209.70 0.0300
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.03 208.90 .706E+01 0.0 0.08 110.24
```

```
+ ID2= 2 ( 0840): 108.80 5.144 5.33 86.42
=====
ID = 3 ( 1410): 116.90 5.518 5.25 86.53
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
CALIB
NASHYD ( 0151) Area (ha)= 24.60 Curve Number (CN)= 82.8
ID= 1 DT= 5.0 min Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.00
```

Unit Hyd Qpeak (cms)= 0.940

```
PEAK FLOW (cms)= 1.203 (i)
TIME TO PEAK (hrs)= 4.083
RUNOFF VOLUME (mm)= 86.066
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.657
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
CALIB
NASHYD ( 0153) Area (ha)= 33.30 Curve Number (CN)= 82.6
ID= 1 DT= 5.0 min Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.08
```

Unit Hyd Qpeak (cms)= 1.178

```
PEAK FLOW (cms)= 1.594 (i)
TIME TO PEAK (hrs)= 4.333
RUNOFF VOLUME (mm)= 85.604
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.654
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ROUTE CHN( 0834)
IN= 2----> OUT= 1

Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 214.06 0.0500
6.27 213.95 0.0500
20.38 214.11 0.0500
25.18 213.97 0.0500 / 0.0350 Main Channel
28.59 211.79 0.0350 Main Channel
```

```
0.07 208.94 .282E+02 0.0 0.13 69.44
0.10 208.97 .636E+02 0.0 0.17 53.00
0.13 209.00 .113E+03 0.0 0.21 43.75
0.17 209.04 .177E+03 0.1 0.24 37.70
0.20 209.07 .254E+03 0.1 0.27 33.38
0.23 209.10 .346E+03 0.2 0.30 30.12
0.26 209.13 .452E+03 0.3 0.33 27.56
0.30 209.17 .572E+03 0.4 0.36 25.48
0.33 209.20 .706E+03 0.5 0.38 23.75
0.37 209.24 .118E+04 0.7 0.34 26.61
0.40 209.27 .196E+04 1.2 0.33 27.88
0.44 209.31 .291E+04 1.8 0.34 27.18
0.47 209.34 .404E+04 2.6 0.35 25.91
0.51 209.38 .536E+04 3.6 0.37 24.55
0.54 209.41 .686E+04 4.8 0.39 23.61
0.58 209.45 .865E+04 6.3 0.40 22.94
0.61 209.48 .108E+05 8.1 0.41 22.09
0.65 209.52 .132E+05 10.4 0.43 21.10
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1420) 108.80 5.21 4.83 86.43 0.55 0.39
OUTFLOW: ID= 1 ( 0840) 108.80 5.14 5.33 86.42 0.55 0.39
```

```
CALIB
NASHYD ( 0141) Area (ha)= 8.10 Curve Number (CN)= 83.6
ID= 1 DT= 5.0 min Ia (mm)= 7.47 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.397

```
PEAK FLOW (cms)= 0.429 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 87.931
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.672
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
ADD HYD ( 1410)
1 + 2 = 3 AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0141): 8.10 0.429 3.50 87.93
```

Model With SWM Infrastructure - Output

32.89	214.16	0.0350 /0.0500	Main Channel
42.61	212.54	0.0500	
59.11	212.41	0.0500	
84.10	212.83	0.0500	
100.76	213.78	0.0500	

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)         (m/s)        (min)
0.12  211.91  .125E+02    0.0           0.21         40.70
0.24  212.03  .501E+02    0.0           0.33         25.64
0.36  212.15  .113E+03    0.1           0.43         19.56
0.48  212.27  .200E+03    0.2           0.52         16.15
0.61  212.40  .313E+03    0.4           0.61         13.92
0.73  212.52  .987E+03    0.8           0.39         21.48
0.85  212.64  .277E+04    2.1           0.39         21.89
0.97  212.76  .507E+04    4.5           0.45         18.78
1.09  212.88  .786E+04    8.2           0.53         16.03
1.21  213.00  .109E+05    13.2          0.61         13.75
1.33  213.12  .142E+05    19.4          0.69         12.16
1.45  213.24  .176E+05    26.7          0.77         10.99
1.57  213.36  .212E+05    35.1          0.84         10.09
1.70  213.49  .251E+05    44.6          0.90         9.37
1.82  213.61  .291E+05    55.3          0.96         8.77
1.94  213.73  .334E+05    67.2          1.02         8.28
2.06  213.85  .378E+05    81.1          1.08         7.77
2.18  213.97  .423E+05    96.7          1.16         7.29
2.37  214.16  .512E+05    124.9         1.23         6.83
```

```
<---- hydrograph ----> <-pipe / channel->
                        AREA   QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                        (ha)    (cms)  (hrs)  (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 0153) 33.30   1.59   4.33   85.60   0.80        0.39
OUTFLOW: ID= 1 ( 0834) 33.30   1.57   4.83   85.60   0.80        0.39
```

```
-----
| CALIB |
| NASHYD ( 0152) | Area (ha)= 16.20 Curve Number (CN)= 82.6
| ID= 1 DT= 5.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
|-----|
U.H. Tp(hrs)= 0.93
```

Unit Hyd Qpeak (cms)= 0.665

PEAK FLOW (cms)= 0.800 (i)
TIME TO PEAK (hrs)= 3.833
RUNOFF VOLUME (mm)= 85.604
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.654

1.23	209.25	.320E+05	44.7	1.03	11.94
1.31	209.33	.372E+05	53.3	1.06	11.62
1.39	209.41	.427E+05	63.0	1.09	11.30
1.47	209.49	.487E+05	73.7	1.12	11.00

```
<---- hydrograph ----> <-pipe / channel->
                        AREA   QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                        (ha)    (cms)  (hrs)  (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1520) 49.50   2.35   4.58   85.60   0.39        0.54
OUTFLOW: ID= 1 ( 0833) 49.50   2.33   5.00   85.60   0.38        0.54
```

```
-----
| ADD HYD ( 1510) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0151): 24.60 1.203 4.08 86.07
+ ID2= 2 ( 0833): 49.50 2.328 5.00 85.60
=====
ID = 3 ( 1510): 74.10 3.497 4.75 85.75
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0832) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance    Elevation    Manning
0.00        206.50        0.0400
29.68       206.77        0.0400
43.70       206.13        0.0400 /0.0350 Main Channel
44.99       205.95        0.0350 Main Channel
47.70       206.24        0.0350 /0.0450 Main Channel
60.54       206.32        0.0450
80.11       206.99        0.0450
102.29      207.42        0.0450 /0.0400
132.78      206.84        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)         (m/s)        (min)
0.06  206.01  .158E+02    0.0           0.16         56.30
0.12  206.07  .633E+02    0.0           0.25         35.47
0.18  206.13  .142E+03    0.1           0.33         27.07
0.26  206.21  .324E+03    0.3           0.42         21.31
0.34  206.29  .720E+03    0.6           0.44         20.00
0.42  206.37  .162E+04    1.4           0.45         19.57
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1520) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0152): 16.20 0.800 3.83 85.60
+ ID2= 2 ( 0834): 33.30 1.574 4.83 85.60
=====
ID = 3 ( 1520): 49.50 2.347 4.58 85.60
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0833) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
Distance    Elevation    Manning
0.00        209.49        0.0400
35.71       208.88        0.0400
53.04       208.89        0.0400
64.12       208.50        0.0400 /0.0350 Main Channel
70.77       208.05        0.0350 Main Channel
74.98       208.02        0.0350 Main Channel
83.40       208.38        0.0350 /0.0400 Main Channel
88.06       208.63        0.0400
94.94       209.13        0.0400
105.88      209.54        0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)       (m)       (cu.m.)    (cms)         (m/s)        (min)
0.07  208.09  .232E+03    0.1           0.19         65.23
0.14  208.16  .652E+03    0.3           0.30         41.42
0.22  208.24  .122E+04    0.6           0.38         32.47
0.29  208.31  .193E+04    1.2           0.45         27.40
0.36  208.38  .279E+04    1.9           0.51         24.03
0.44  208.46  .389E+04    3.2           0.60         20.41
0.52  208.54  .516E+04    4.8           0.69         17.88
0.60  208.62  .664E+04    6.9           0.77         16.07
0.68  208.70  .833E+04    9.4           0.83         14.80
0.76  208.78  .102E+05    12.3          0.89         13.84
0.84  208.86  .123E+05    15.7          0.94         13.07
0.92  208.94  .153E+05    19.4          0.94         13.11
0.99  209.01  .189E+05    24.5          0.96         12.89
1.07  209.09  .229E+05    30.4          0.98         12.57
1.15  209.17  .273E+05    37.1          1.01         12.25
```

0.50	206.45	.272E+04	2.6	0.52	17.17
0.58	206.53	.404E+04	4.2	0.56	15.86
0.66	206.61	.584E+04	6.5	0.59	15.05
0.74	206.69	.820E+04	9.6	0.63	14.19
0.83	206.78	.111E+05	13.9	0.67	13.34
0.91	206.86	.143E+05	19.9	0.74	12.00
0.99	206.94	.178E+05	27.1	0.81	10.94
1.07	207.02	.215E+05	35.3	0.87	10.16
1.15	207.10	.256E+05	44.5	0.93	9.59
1.23	207.18	.301E+05	55.1	0.98	9.09
1.31	207.26	.349E+05	67.2	1.03	8.65
1.39	207.34	.400E+05	80.7	1.07	8.26
1.47	207.42	.455E+05	95.8	1.12	7.92

```
<---- hydrograph ----> <-pipe / channel->
                        AREA   QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                        (ha)    (cms)  (hrs)  (mm)   (m)         (m/s)
INFLOW : ID= 2 ( 1510) 74.10   3.50   4.75   85.75   0.55        0.54
OUTFLOW: ID= 1 ( 0832) 74.10   3.48   5.08   85.75   0.54        0.54
```

```
-----
| CALIB |
| NASHYD ( 0150) | Area (ha)= 6.60 Curve Number (CN)= 83.7
| ID= 1 DT= 5.0 min | Ia (mm)= 7.41 # of Linear Res.(N)= 3.00
|-----|
U.H. Tp(hrs)= 0.96
```

Unit Hyd Qpeak (cms)= 0.263

PEAK FLOW (cms)= 0.334 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 88.171
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.674

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1500) |
| 1 + 2 = 3 |
|-----|
ID1= 1 ( 0150): 6.60 0.334 3.92 88.17
+ ID2= 2 ( 0832): 74.10 3.482 5.08 85.75
=====
ID = 3 ( 1500): 80.70 3.797 5.00 85.95
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Model With SWM Infrastructure - Output

ADD HYD (1401)				
1 + 2 = 3				
=====				
ID1= 1 (1410):	116.90	5.518	5.25	86.53
+ ID2= 2 (1500):	80.70	3.797	5.00	85.95
=====				
ID = 3 (1401):	197.60	9.310	5.17	86.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0830)				
IN= 2---> OUT= 1				
Routing time step (min)'= 5.00				
<----- DATA FOR SECTION (1.1) ----->				
Distance	Elevation	Manning		
0.00	207.71	0.0400		
58.83	206.71	0.0400		
66.88	206.59	0.0400 / 0.0350	Main Channel	
72.32	206.34	0.0350	Main Channel	
77.68	206.55	0.0350 / 0.0800	Main Channel	
82.85	206.54	0.0800		
90.20	206.02	0.0800		
94.03	206.48	0.0800		
99.83	206.40	0.0800 / 0.0400		
114.32	206.50	0.0400		
136.07	206.86	0.0400		
174.41	207.56	0.0400		

<----- TRAVEL TIME TABLE ----->					
DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.08	206.10	.561E+02	0.0	0.05	276.21
0.15	206.17	.224E+03	0.0	0.08	174.00
0.23	206.25	.505E+03	0.1	0.11	132.79
0.30	206.32	.898E+03	0.1	0.13	109.61
0.38	206.40	.147E+04	0.3	0.15	96.03
0.45	206.47	.291E+04	0.5	0.14	104.34
0.53	206.55	.555E+04	1.1	0.17	85.95
0.61	206.63	.948E+04	2.5	0.23	62.05
0.70	206.72	.142E+05	4.7	0.29	50.17
0.78	206.80	.196E+05	7.6	0.34	42.88
0.87	206.89	.258E+05	11.4	0.38	37.80
0.95	206.97	.327E+05	16.0	0.43	33.99
1.04	207.06	.403E+05	21.6	0.47	31.05
1.12	207.14	.485E+05	28.2	0.51	28.69
1.20	207.22	.575E+05	35.9	0.54	26.74
1.29	207.31	.672E+05	44.6	0.58	25.11

TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 84.452
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.645

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
STANDHYD (0011)				
ID= 1 DT= 5.0 min				
Area (ha)= 132.00				
Total Imp(%)= 57.10				
Dir. Conn.(%)= 45.00				
=====				
IMPERVIOUS				
Surface Area (ha)=	75.37	56.63		
Dep. Storage (mm)=	1.00	8.95		
Average Slope (%)=	1.00	1.00		
Length (m)=	938.08	40.00		
Mannings n	=	0.013	0.250	
=====				
Max.Eff.Inten.(mm/hr)=				
over (min)				
Storage Coeff. (min)=				
Unit Hyd. Tpeak (min)=				
Unit Hyd. peak (cms)=				
=====				
TOTALS				
PEAK FLOW (cms)=	5.53	3.58	8.201 (iii)	
TIME TO PEAK (hrs)=	2.08	3.25	2.17	
RUNOFF VOLUME (mm)=	129.90	79.20	102.01	
TOTAL RAINFALL (mm)=	130.90	130.90	130.90	
RUNOFF COEFFICIENT	=	0.99	0.61	0.78

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 73.9 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0874)				
IN= 2---> OUT= 1				
DT= 5.0 min				
OVERFLOW IS OFF				
=====				
OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)	
0.0000	0.0000	2.4200	5.4280	
0.0950	1.5860	3.3930	6.6280	
1.2530	3.8390	0.0000	0.0000	
**** WARNING : STORAGE-DISCHARGE TABLE WAS EXCEEDED.				
=====				
AREA	QPEAK	TPEAK	R.V.	

1.37	207.39	.776E+05	54.6	0.61	23.71
1.46	207.48	.887E+05	65.7	0.65	22.49
1.54	207.56	.101E+06	78.2	0.68	21.43

<---- hydrograph ---->						
<-pipe / channel->						
=====						
	AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
	(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1401)	197.60	9.31	5.17	86.29	0.82	0.36
OUTFLOW: ID= 1 (0830)	197.60	8.98	5.67	86.28	0.81	0.35

CALIB				
NASHYD (0140)				
ID= 1 DT= 5.0 min				
Area (ha)= 18.30				
Ia (mm)= 7.47				
U.H. Tp(hrs)= 1.34				
Curve Number (CN)= 83.6				
# of Linear Res.(N)= 3.00				

Unit Hyd Qpeak (cms)= 0.522

PEAK FLOW (cms)= 0.861 (i)

TIME TO PEAK (hrs)= 5.000

RUNOFF VOLUME (mm)= 87.932

TOTAL RAINFALL (mm)= 130.900

RUNOFF COEFFICIENT = 0.672

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1400)				
1 + 2 = 3				
=====				
ID1= 1 (0140):	18.30	0.861	5.00	87.93
+ ID2= 2 (0830):	197.60	8.981	5.67	86.28
=====				
ID = 3 (1400):	215.90	9.813	5.67	86.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0131)				
ID= 1 DT= 5.0 min				
Area (ha)= 28.70				
Ia (mm)= 8.30				
U.H. Tp(hrs)= 1.11				
Curve Number (CN)= 82.1				
# of Linear Res.(N)= 3.00				

Unit Hyd Qpeak (cms)= 0.988

PEAK FLOW (cms)= 1.349 (i)

	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0011)	132.000	8.201	2.17	102.01
OUTFLOW: ID= 1 (0874)	132.000	4.252	5.75	101.44

PEAK FLOW REDUCTION [Qout/Qin](%)= 51.85

TIME SHIFT OF PEAK FLOW (min)=215.00

MAXIMUM STORAGE USED (ha.m.)= 7.6880

CALIB				
STANDHYD (0012)				
ID= 1 DT= 5.0 min				
Area (ha)= 17.50				
Total Imp(%)= 80.00				
Dir. Conn.(%)= 70.00				

IMPERVIOUS			PERVIOUS (i)	
Surface Area (ha)=	14.00	3.50		
Dep. Storage (mm)=	1.00	8.94		
Average Slope (%)=	1.00	1.00		
Length (m)=	341.57	40.00		
Mannings n	=	0.013	0.250	

Max.Eff.Inten.(mm/hr)=			33.07	
over (min)			25.00	
Storage Coeff. (min)=			21.74 (ii)	
Unit Hyd. Tpeak (min)=			25.00	
Unit Hyd. peak (cms)=			0.05	

TOTALS			
PEAK FLOW (cms)=	1.16	0.29	1.402 (iii)
TIME TO PEAK (hrs)=	2.08	3.17	2.08
RUNOFF VOLUME (mm)=	129.90	84.64	116.32
TOTAL RAINFALL (mm)=	130.90	130.90	130.90
RUNOFF COEFFICIENT	=	0.99	0.65

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 74.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1112)				
1 + 2 = 3				
=====				
ID1= 1 (0012):	17.50	1.402	2.08	116.32
+ ID2= 2 (0874):	132.00	4.252	5.75	101.44
=====				
ID = 3 (1112):	149.50	4.920	5.08	103.18

Model With SWM Infrastructure - Output

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB
| STANDHYD ( 0010) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 12.90
Total Imp(%)= 80.00 Dir. Conn.(%)= 70.00
```

```
IMPERVIOUS      PERVIOUS (i)
Surface Area (ha)= 10.32      2.58
Dep. Storage (mm)= 1.00      8.94
Average Slope (%)= 1.00      1.00
Length (m)= 293.26      40.00
Mannings n = 0.013      0.250

Max.Eff.Inten.(mm/hr)= 34.03      33.07
over (min)= 5.00      25.00
Storage Coeff. (min)= 7.50 (ii)      21.03 (ii)
Unit Hyd. Tpeak (min)= 5.00      25.00
Unit Hyd. peak (cms)= 0.17      0.05

PEAK FLOW (cms)= 0.85      0.21      *TOTALS*
TIME TO PEAK (hrs)= 2.08      3.17      1.035 (iii)
RUNOFF VOLUME (mm)= 129.90      84.64      116.32
TOTAL RAINFALL (mm)= 130.90      130.90      130.90
RUNOFF COEFFICIENT = 0.99      0.65      0.89
```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 74.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1311) |
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0010): 12.90 1.035 2.08 116.32
+ ID2= 2 ( 1112): 149.50 4.920 5.08 103.18
=====
ID = 3 ( 1311): 162.40 5.550 5.08 104.23
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0822) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00

<----- DATA FOR SECTION ( 1.1) ----->
```

Distance	Elevation	Manning
0.00	207.71	0.0400
58.83	206.71	0.0400
66.88	206.59	0.0400 / 0.0350 Main Channel
72.32	206.34	0.0350 Main Channel
77.68	206.55	0.0350 / 0.0800 Main Channel
82.85	206.54	0.0800
90.20	206.02	0.0800
94.03	206.48	0.0800
99.83	206.40	0.0800 / 0.0400
114.32	206.50	0.0400
136.07	206.86	0.0400
174.41	207.56	0.0400

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.08 206.10 .337E+02 0.0 0.07 124.18
0.15 206.17 .135E+03 0.0 0.11 78.23
0.23 206.25 .303E+03 0.1 0.15 59.70
0.30 206.32 .539E+03 0.2 0.18 49.28
0.38 206.40 .885E+03 0.3 0.20 43.17
0.45 206.47 .175E+04 0.6 0.19 46.91
0.53 206.55 .333E+04 1.4 0.23 38.64
0.61 206.63 .569E+04 3.4 0.31 27.90
0.70 206.72 .851E+04 6.3 0.39 22.56
0.78 206.80 .118E+05 10.2 0.45 19.28
0.87 206.89 .155E+05 15.2 0.51 17.00
0.95 206.97 .196E+05 21.4 0.57 15.28
1.04 207.06 .242E+05 28.9 0.63 13.96
1.12 207.14 .292E+05 37.7 0.68 12.90
1.20 207.22 .346E+05 47.9 0.73 12.02
1.29 207.31 .404E+05 59.6 0.77 11.29
1.37 207.39 .466E+05 72.9 0.82 10.66
1.46 207.48 .533E+05 87.8 0.86 10.11
1.54 207.56 .604E+05 104.5 0.91 9.63
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1311) 162.40 5.55 5.08 104.23 0.68 0.36
OUTFLOW: ID= 1 ( 0822) 162.40 5.40 5.17 104.21 0.67 0.36
```

```
| ADD HYD ( 1310) |
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
```

```
ID1= 1 ( 0131): 28.70 1.349 4.42 84.45
+ ID2= 2 ( 0822): 162.40 5.405 5.17 104.21
=====
ID = 3 ( 1310): 191.10 6.730 5.17 101.24
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0821) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance Elevation Manning
0.00 207.71 0.0400
58.83 206.71 0.0400
66.88 206.59 0.0400 / 0.0350 Main Channel
72.32 206.34 0.0350 Main Channel
77.68 206.55 0.0350 / 0.0800 Main Channel
82.85 206.54 0.0800
90.20 206.02 0.0800
94.03 206.48 0.0800
99.83 206.40 0.0800 / 0.0400
114.32 206.50 0.0400
136.07 206.86 0.0400
174.41 207.56 0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH ELEV VOLUME FLOW RATE VELOCITY TRAV.TIME
(m) (m) (cu.m.) (cms) (m/s) (min)
0.08 206.10 .569E+02 0.0 0.06 234.14
0.15 206.17 .227E+03 0.0 0.10 147.50
0.23 206.25 .512E+03 0.1 0.13 112.56
0.30 206.32 .910E+03 0.2 0.16 92.92
0.38 206.40 .149E+04 0.3 0.18 81.40
0.45 206.47 .295E+04 0.6 0.17 88.45
0.53 206.55 .562E+04 1.3 0.20 72.86
0.61 206.63 .960E+04 3.0 0.28 52.60
0.70 206.72 .143E+05 5.6 0.35 42.53
0.78 206.80 .199E+05 9.1 0.40 36.35
0.87 206.89 .261E+05 13.6 0.46 32.05
0.95 206.97 .331E+05 19.1 0.51 28.81
1.04 207.06 .408E+05 25.8 0.56 26.32
1.12 207.14 .492E+05 33.7 0.61 24.32
1.20 207.22 .583E+05 42.9 0.65 22.67
1.29 207.31 .681E+05 53.3 0.69 21.28
1.37 207.39 .786E+05 65.2 0.73 20.10
1.46 207.48 .899E+05 78.6 0.77 19.07
1.54 207.56 .102E+06 93.4 0.81 18.16
```

```
<---- hydrograph ----> <-pipe / channel->
AREA QPEAK TPEAK R.V. MAX DEPTH MAX VEL
```

```
(ha) (cms) (hrs) (mm) (m) (m/s)
INFLOW : ID= 2 ( 1310) 191.10 6.73 5.17 101.24 0.73 0.36
OUTFLOW: ID= 1 ( 0821) 191.10 6.46 5.58 101.20 0.72 0.36
```

```
| CALIB
| NASHYD ( 0130) |
| ID= 1 DT= 5.0 min |
|-----|
Area (ha)= 26.70 Curve Number (CN)= 81.7
Ia (mm)= 8.53 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.32
```

```
Unit Hyd Qpeak (cms)= 0.773

PEAK FLOW (cms)= 1.205 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 83.533
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.638
```

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD ( 1300) |
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 0130): 26.70 1.205 5.17 83.53
+ ID2= 2 ( 0821): 191.10 6.457 5.58 101.20
=====
ID = 3 ( 1300): 217.80 7.642 5.50 99.04
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD ( 1202) |
| 1 + 2 = 3 |
|-----|
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 1 ( 1300): 217.80 7.642 5.50 99.04
+ ID2= 2 ( 1400): 215.90 9.813 5.67 86.42
=====
ID = 3 ( 1202): 433.70 17.448 5.58 92.76
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ROUTE CHN( 0820) |
| IN= 2----> OUT= 1 |
|-----|
Routing time step (min)'= 5.00
```

Model With SWM Infrastructure - Output

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 / 0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 / 0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.681E+01	0.0	0.08	28.42
0.18	204.88	.272E+02	0.0	0.13	17.90
0.28	204.98	.620E+02	0.1	0.17	13.80
0.37	205.07	.292E+03	0.3	0.12	18.72
0.46	205.16	.859E+03	0.9	0.14	16.44
0.55	205.25	.182E+04	2.3	0.17	13.44
0.64	205.34	.311E+04	4.7	0.21	11.04
0.74	205.44	.487E+04	8.4	0.24	9.67
0.83	205.53	.676E+04	13.3	0.27	8.48
0.92	205.62	.877E+04	19.3	0.30	7.58
1.01	205.71	.109E+05	26.4	0.33	6.90
1.10	205.80	.132E+05	34.5	0.36	6.36
1.20	205.90	.155E+05	43.8	0.39	5.92
1.29	205.99	.181E+05	54.1	0.42	5.56
1.38	206.08	.207E+05	65.6	0.44	5.25
1.47	206.17	.234E+05	78.2	0.46	4.99
1.57	206.27	.263E+05	92.0	0.48	4.76
1.66	206.36	.293E+05	107.0	0.51	4.56
1.75	206.45	.324E+05	123.2	0.53	4.38

<---- hydrograph ---->

<-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1202)	433.70	17.45	5.58	92.76	0.89
OUTFLOW: ID= 1 (0820)	433.70	17.40	5.67	92.75	0.89

+ ID2= 2 (0820): 433.70 17.400 5.67 92.75

ID = 3 (1201): 530.50 21.901 5.58 92.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ROUTE CHN(0810)|
| IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	206.54	0.0450
43.13	205.35	0.0450
67.41	205.27	0.0450
86.35	205.38	0.0450 / 0.0350
90.47	204.70	0.0350
93.03	205.16	0.0350 / 0.0400
101.99	205.21	0.0400
151.82	204.97	0.0400
252.14	206.45	0.0400

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.09	204.79	.229E+02	0.0	0.07	106.67
0.18	204.88	.915E+02	0.0	0.12	67.20
0.28	204.98	.208E+03	0.1	0.15	51.82
0.37	205.07	.981E+03	0.2	0.11	70.28
0.46	205.16	.288E+04	0.8	0.13	61.71
0.55	205.25	.610E+04	2.0	0.15	50.43
0.64	205.34	.105E+05	4.2	0.19	41.45
0.74	205.44	.163E+05	7.5	0.21	36.28
0.83	205.53	.227E+05	11.9	0.24	31.82
0.92	205.62	.294E+05	17.2	0.27	28.46
1.01	205.71	.366E+05	23.6	0.30	25.89
1.10	205.80	.442E+05	30.9	0.32	23.87
1.20	205.90	.522E+05	39.1	0.35	22.23
1.29	205.99	.606E+05	48.4	0.37	20.87
1.38	206.08	.694E+05	58.7	0.39	19.72
1.47	206.17	.786E+05	70.0	0.41	18.74
1.57	206.27	.883E+05	82.3	0.43	17.88
1.66	206.36	.983E+05	95.7	0.45	17.12
1.75	206.45	.109E+06	110.2	0.47	16.45

<---- hydrograph ---->

<-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (1201)	530.50	21.90	5.58	92.46	0.99
OUTFLOW: ID= 1 (0810)	530.50	21.28	5.67	92.45	0.98

| CALIB
| NASHYD (0120)|
| ID= 1 DT= 5.0 min |

Area (ha)=	9.00	Curve Number (CN)=	84.0
Ia (mm)=	7.25	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.16		

Unit Hyd Qpeak (cms)= 0.296

PEAK FLOW (cms)= 0.440 (i)
TIME TO PEAK (hrs)= 4.417
RUNOFF VOLUME (mm)= 88.875
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.679

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ADD HYD (1200)|
| 1 + 2 = 3 |

AREA	QPEAK	TPEAK	R.V.
(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0120):	9.00	0.440	4.42
+ ID2= 2 (0810):	530.50	21.282	5.67
ID = 3 (1200):	539.50	21.690	5.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB
| NASHYD (0113)|
| ID= 1 DT= 5.0 min |

Area (ha)=	13.50	Curve Number (CN)=	82.5
Ia (mm)=	8.08	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.87		

Unit Hyd Qpeak (cms)= 0.593

PEAK FLOW (cms)= 0.675 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 85.369
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| ROUTE CHN(0802)|

| IN= 2----> OUT= 1 |

Routing time step (min)'= 5.00

<----- DATA FOR SECTION (1.1) ----->

Distance	Elevation	Manning
0.00	208.29	0.0300
3.73	208.14	0.0300 / 0.0350
5.30	207.52	0.0350
6.93	208.18	0.0350 / 0.0300
8.96	208.27	0.0300
14.71	208.30	0.0300
23.86	208.59	0.0300

<----- TRAVEL TIME TABLE ----->

DEPTH	ELEV	VOLUME	FLOW RATE	VELOCITY	TRAV.TIME
(m)	(m)	(cu.m.)	(cms)	(m/s)	(min)
0.04	207.56	.448E+01	0.0	0.12	164.32
0.08	207.60	.179E+02	0.0	0.19	103.51
0.12	207.64	.403E+02	0.0	0.25	79.00
0.16	207.68	.716E+02	0.0	0.30	65.21
0.19	207.71	.112E+03	0.0	0.35	56.20
0.23	207.75	.161E+03	0.1	0.40	49.76
0.27	207.79	.219E+03	0.1	0.44	44.90
0.31	207.83	.287E+03	0.1	0.48	41.08
0.35	207.87	.363E+03	0.2	0.52	37.98
0.39	207.91	.448E+03	0.2	0.56	35.40
0.43	207.95	.542E+03	0.3	0.60	33.22
0.47	207.99	.645E+03	0.3	0.63	31.35
0.50	208.02	.757E+03	0.4	0.67	29.72
0.54	208.06	.878E+03	0.5	0.70	28.29
0.58	208.10	.101E+04	0.6	0.74	27.02
0.62	208.14	.115E+04	0.7	0.77	25.88
0.67	208.19	.137E+04	0.9	0.81	24.42
0.72	208.24	.172E+04	1.2	0.84	23.79
0.77	208.29	.225E+04	1.6	0.82	24.20

<---- hydrograph ---->

<-pipe / channel->

AREA	QPEAK	TPEAK	R.V.	MAX DEPTH	MAX VEL
(ha)	(cms)	(hrs)	(mm)	(m)	(m/s)
INFLOW : ID= 2 (0113)	13.50	0.67	3.75	85.37	0.60
OUTFLOW: ID= 1 (0802)	13.50	0.66	4.25	85.30	0.59

| CALIB
| NASHYD (0112)|
| ID= 1 DT= 5.0 min |

Area (ha)=	30.50	Curve Number (CN)=	82.8
Ia (mm)=	7.91	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	1.60		

Unit Hyd Qpeak (cms)= 0.728

Model With SWM Infrastructure - Output

PEAK FLOW (cms)= 1.354 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 86.067
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.657

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB				
NASHYD (0111)	Area (ha)= 45.50	Curve Number (CN)= 82.3		
ID= 1 DT= 5.0 min	Ia (mm)= 8.19	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.33			

Unit Hyd Qpeak (cms)= 1.307

PEAK FLOW (cms)= 2.080 (i)
TIME TO PEAK (hrs)= 5.083
RUNOFF VOLUME (mm)= 84.910
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.649

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1101)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0111):	45.50	2.080	5.08	84.91
+ ID2= 2 (0112):	30.50	1.354	5.42	86.07
=====				
ID = 3 (1101):	76.00	3.428	5.25	85.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1101)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (1101):	76.00	3.428	5.25	85.37
+ ID2= 2 (0802):	13.50	0.658	4.25	85.30
=====				
ID = 1 (1101):	89.50	4.062	5.17	85.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0801)
IN= 2----> OUT= 1
Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	209.66	0.0400	
19.50	209.34	0.0400	
37.91	208.66	0.0400	
41.73	208.62	0.0400 / 0.0350	Main Channel
43.44	208.24	0.0350	Main Channel
45.75	208.62	0.0350 / 0.0450	Main Channel
54.00	208.79	0.0450 / 0.0400	
77.43	209.05	0.0400	
128.85	209.70	0.0400	

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.06	208.30	.104E+02	0.0	0.10	83.26
0.13	208.37	.415E+02	0.0	0.16	52.45
0.19	208.43	.934E+02	0.0	0.20	40.03
0.25	208.49	.166E+03	0.1	0.25	33.04
0.32	208.56	.259E+03	0.2	0.29	28.47
0.38	208.62	.373E+03	0.2	0.32	25.22
0.46	208.70	.729E+03	0.5	0.33	24.94
0.54	208.78	.135E+04	0.9	0.33	24.67
0.62	208.86	.225E+04	1.6	0.35	23.41
0.70	208.94	.352E+04	2.6	0.37	22.23
0.78	209.02	.516E+04	4.1	0.39	20.96
0.86	209.10	.716E+04	6.1	0.41	19.65
0.94	209.18	.949E+04	8.6	0.44	18.42
1.02	209.26	.122E+05	11.7	0.47	17.31
1.10	209.34	.152E+05	15.5	0.50	16.32
1.18	209.42	.185E+05	19.7	0.52	15.72
1.26	209.50	.224E+05	24.7	0.54	15.09
1.34	209.58	.266E+05	30.6	0.56	14.48
1.42	209.66	.313E+05	37.5	0.59	13.90

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1101)	89.50	4.06	5.17	85.36	0.78	0.39
OUTFLOW: ID= 1 (0801)	89.50	4.03	5.42	85.36	0.77	0.39

CALIB				
NASHYD (0110)	Area (ha)= 11.90	Curve Number (CN)= 83.4		

ID= 1 DT= 5.0 min | Ia (mm)= 7.58 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.68

Unit Hyd Qpeak (cms)= 0.668

PEAK FLOW (cms)= 0.644 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 87.462
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.668

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (1100)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0110):	11.90	0.644	3.33	87.46
+ ID2= 2 (0801):	89.50	4.027	5.42	85.36
=====				
ID = 3 (1100):	101.40	4.559	5.25	85.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1001)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1100):	101.40	4.559	5.25	85.61
+ ID2= 2 (1200):	539.50	21.690	5.67	92.39
=====				
ID = 3 (1001):	640.90	26.168	5.67	91.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTE CHN(0800)
IN= 2----> OUT= 1
Routing time step (min)'= 5.00

Distance	Elevation	Manning	
0.00	206.54	0.0450	
43.13	205.35	0.0450	
67.41	205.27	0.0450	
86.35	205.38	0.0450 / 0.0350	Main Channel
90.47	204.70	0.0350	Main Channel
93.03	205.16	0.0350 / 0.0400	Main Channel
101.99	205.21	0.0400	

151.82 204.97 0.0400
252.14 206.45 0.0400

DEPTH (m)	ELEV (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV. TIME (min)
0.09	204.79	.255E+02	0.0	0.16	54.50
0.18	204.88	.102E+03	0.0	0.25	34.33
0.28	204.98	.232E+03	0.1	0.33	26.47
0.37	205.07	.109E+04	0.5	0.24	35.91
0.46	205.16	.321E+04	1.7	0.27	31.53
0.55	205.25	.680E+04	4.4	0.33	25.77
0.64	205.34	.116E+05	9.2	0.41	21.18
0.74	205.44	.182E+05	16.4	0.47	18.54
0.83	205.53	.253E+05	25.9	0.53	16.26
0.92	205.62	.328E+05	37.6	0.59	14.54
1.01	205.71	.408E+05	51.4	0.65	13.23
1.10	205.80	.492E+05	67.3	0.71	12.19
1.20	205.90	.581E+05	85.3	0.76	11.36
1.29	205.99	.675E+05	105.5	0.81	10.66
1.38	206.08	.773E+05	127.9	0.86	10.08
1.47	206.17	.876E+05	152.5	0.90	9.57
1.57	206.27	.983E+05	179.4	0.94	9.13
1.66	206.36	.109E+06	208.6	0.99	8.75
1.75	206.45	.121E+06	240.2	1.03	8.41

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (1001)	640.90	26.17	5.67	91.32	0.83	0.53
OUTFLOW: ID= 1 (0800)	640.90	25.99	5.83	91.32	0.83	0.53

CALIB				
NASHYD (0100)	Area (ha)= 54.70	Curve Number (CN)= 83.2		
ID= 1 DT= 5.0 min	Ia (mm)= 7.69	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 1.23			

Unit Hyd Qpeak (cms)= 1.699

PEAK FLOW (cms)= 2.591 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 86.996
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.665

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Model With SWM Infrastructure - Output

```
-----
| ADD HYD ( 1000) |
| 1 + 2 = 3 |
-----
          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0100): 54.70  2.591  4.67  87.00
+ ID2= 2 ( 0800): 640.90 25.993  5.83  91.32
=====
ID = 3 ( 1000): 695.60 28.402  5.75  90.98
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0190) | Area (ha)= 12.30 Curve Number (CN)= 83.9
| ID= 1 DT= 5.0 min | Ia (mm)= 7.31 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.83
```

Unit Hyd Qpeak (cms)= 0.566

PEAK FLOW (cms)= 0.648 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 88.634
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.677

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0191) | Area (ha)= 20.10 Curve Number (CN)= 82.0
| ID= 1 DT= 5.0 min | Ia (mm)= 8.36 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.94
```

Unit Hyd Qpeak (cms)= 0.817

PEAK FLOW (cms)= 0.974 (i)
TIME TO PEAK (hrs)= 3.917
RUNOFF VOLUME (mm)= 84.219
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.643

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0192) | Area (ha)= 28.30 Curve Number (CN)= 80.3
| ID= 1 DT= 5.0 min | Ia (mm)= 6.23 # of Linear Res.(N)= 3.00
```

U.H. Tp(hrs)= 1.06

Unit Hyd Qpeak (cms)= 1.020

PEAK FLOW (cms)= 1.311 (i)
TIME TO PEAK (hrs)= 4.250
RUNOFF VOLUME (mm)= 83.122
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.635

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 1901) |
| 1 + 2 = 3 |
-----
          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0191): 20.10  0.974  3.92  84.22
+ ID2= 2 ( 0192): 28.30  1.311  4.25  83.12
=====
ID = 3 ( 1901): 48.40  2.280  4.17  83.58
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ROUTE CHN( 0899) |
| IN= 2---> OUT= 1 |
-----
Routing time step (min)'= 5.00
```

```
<----- DATA FOR SECTION ( 1.1) ----->
Distance      Elevation      Manning
0.00          209.49          0.0400
35.71         208.88          0.0400
53.04         208.89          0.0400
64.12         208.50          0.0400 /0.0350 Main Channel
70.77         208.05          0.0350 Main Channel
74.98         208.02          0.0350 Main Channel
83.40         208.38          0.0350 /0.0400 Main Channel
88.06         208.63          0.0400
94.94         209.13          0.0400
105.88        209.54          0.0400
```

```
<----- TRAVEL TIME TABLE ----->
DEPTH    ELEV    VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
(m)      (m)      (cu.m.)   (cms)        (m/s)      (min)
0.07 208.09 .349E+02 0.1          0.18       10.46
0.14 208.16 .981E+02 0.2          0.28       6.64
0.22 208.24 .183E+03 0.6          0.36       5.21
0.29 208.31 .291E+03 1.1          0.42       4.40
0.36 208.38 .420E+03 1.8          0.48       3.85
0.44 208.46 .586E+03 3.0          0.57       3.27
```

```
0.52 208.54 .777E+03 4.5          0.65       2.87
0.60 208.62 .999E+03 6.5          0.72       2.58
0.68 208.70 .125E+04 8.8          0.78       2.37
0.76 208.78 .154E+04 11.5         0.84       2.22
0.84 208.86 .185E+04 14.7          0.89       2.10
0.92 208.94 .230E+04 18.2          0.88       2.10
0.99 209.01 .285E+04 23.0          0.90       2.07
1.07 209.09 .345E+04 28.5          0.92       2.02
1.15 209.17 .411E+04 34.8          0.94       1.96
1.23 209.25 .482E+04 42.0          0.97       1.91
1.31 209.33 .559E+04 50.0          1.00       1.86
1.39 209.41 .643E+04 59.1          1.02       1.81
1.47 209.49 .732E+04 69.1          1.05       1.76
```

```
<---- hydrograph ----> <-pipe / channel->
          AREA   QPEAK   TPEAK   R.V.    MAX DEPTH  MAX VEL
          (ha)   (cms)   (hrs)   (mm)    (m)        (m/s)
INFLOW : ID= 2 ( 1901) 48.40  2.28  4.17  83.58  0.39       0.51
OUTFLOW: ID= 1 ( 0899) 48.40  2.28  4.17  83.58  0.39       0.51
```

```
-----
| ADD HYD ( 1900) |
| 1 + 2 = 3 |
-----
          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0190): 12.30  0.648  3.58  88.63
+ ID2= 2 ( 0899): 48.40  2.280  4.17  83.58
=====
ID = 3 ( 1900): 60.70  2.910  4.00  84.60
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| CALIB |
| NASHYD ( 0500) | Area (ha)= 7.60 Curve Number (CN)= 82.8
| ID= 1 DT= 5.0 min | Ia (mm)= 7.91 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.48
```

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.422 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 86.062
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.657

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

Unit Hyd Qpeak (cms)= 0.703

PEAK FLOW (cms)= 0.651 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 83.532
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.638

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| CALIB |
| NASHYD ( 0520) | Area (ha)= 17.30 Curve Number (CN)= 82.5
| ID= 1 DT= 5.0 min | Ia (mm)= 8.08 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.78
```

Unit Hyd Qpeak (cms)= 0.847

PEAK FLOW (cms)= 0.886 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 85.369
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
-----
| ADD HYD ( 5000) |
| 1 + 2 = 3 |
-----
          AREA   QPEAK   TPEAK   R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0500): 7.60  0.422  3.17  86.06
+ ID2= 2 ( 0510): 12.70 0.651  3.42  83.53
=====
ID = 3 ( 5000): 20.30  1.067  3.25  84.48
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 5000) |
| 3 + 2 = 1 |
-----
          AREA   QPEAK   TPEAK   R.V.
```

Model With SWM Infrastructure - Output

	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (5000):	20.30	1.067	3.25	84.48
+ ID2= 2 (0520):	17.30	0.886	3.50	85.37
=====				
ID = 1 (5000):	37.60	1.946	3.42	84.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0600)	Area (ha)=	2.50	Curve Number (CN)= 82.5
ID= 1 DT= 5.0 min	Ia (mm)=	8.08	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.45	

Unit Hyd Qpeak (cms)= 0.212

PEAK FLOW (cms)= 0.138 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 85.363
TOTAL RAINFALL (mm)= 130.900
RUNOFF COEFFICIENT = 0.652

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

Sinkhole Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Catchments										
Area Description	Subcatchment ID									
<u>Internal</u>										
100	100	0.216	0.515	0.910	1.190	1.563	1.822	2.101	5.321	2.591
110	110	0.069	0.122	0.209	0.279	0.375	0.443	0.516	1.368	0.644
From-111	111	0.154	0.399	0.716	0.943	1.247	1.459	1.686	4.275	2.080
112	112	0.098	0.260	0.465	0.613	0.811	0.949	1.097	2.662	1.354
From-113	113	0.061	0.130	0.227	0.295	0.393	0.463	0.540	1.456	0.675
120	120	0.040	0.090	0.156	0.203	0.266	0.309	0.357	0.898	0.440
121	121	0.114	0.189	0.318	0.413	0.542	0.632	0.729	1.757	0.898
122	122	0.182	0.346	0.588	0.762	1.002	1.170	1.354	3.386	1.673
From-123	123	0.111	0.240	0.419	0.544	0.721	0.846	0.984	2.616	1.226
From-124	124	0.226	0.282	0.505	0.665	0.878	1.025	1.184	3.056	1.456
130	130	0.085	0.226	0.410	0.542	0.719	0.842	0.975	2.508	1.205
131	131	0.106	0.260	0.464	0.609	0.803	0.938	1.087	2.880	1.349
140	140	0.072	0.172	0.304	0.397	0.522	0.608	0.701	1.726	0.861
141	141	0.044	0.083	0.143	0.187	0.251	0.295	0.344	0.900	0.429
142	142	0.104	0.251	0.446	0.584	0.768	0.896	1.034	2.640	1.276
143	143	0.115	0.264	0.465	0.607	0.797	0.932	1.080	2.826	1.340
144	144	0.126	0.277	0.485	0.632	0.833	0.977	1.135	3.006	1.412
145	145	0.079	0.129	0.225	0.301	0.405	0.479	0.557	1.505	0.695
From-146	146	0.080	0.130	0.227	0.305	0.411	0.486	0.566	1.557	0.706
150	150	0.032	0.067	0.116	0.150	0.198	0.232	0.269	0.698	0.334
151	151	0.105	0.236	0.415	0.540	0.711	0.834	0.968	2.561	1.203
152	152	0.071	0.155	0.273	0.355	0.470	0.552	0.642	1.720	0.800
From-153	153	0.133	0.312	0.552	0.722	0.948	1.109	1.285	3.381	1.594
From-160	160	0.067	0.156	0.274	0.358	0.470	0.548	0.633	1.625	0.783
From-170	170	0.030	0.057	0.098	0.130	0.175	0.207	0.242	0.661	0.304
From-180	180	0.031	0.065	0.114	0.149	0.198	0.234	0.272	0.737	0.341
From-185	185	0.016	0.019	0.034	0.045	0.061	0.072	0.084	0.264	0.105
190	190	0.067	0.128	0.219	0.286	0.380	0.448	0.520	1.350	0.648
191	191	0.081	0.186	0.330	0.431	0.570	0.670	0.780	2.122	0.974
192	192	0.123	0.255	0.450	0.589	0.775	0.908	1.054	2.861	1.311
<u>External</u>										
From-10	10	1.130	0.305	0.446	0.546	0.676	0.770	0.868	1.853	1.035
11	11	4.727	1.942	3.025	3.810	4.894	5.727	6.573	17.673	8.201
12	12	1.489	0.412	0.604	0.740	0.915	1.036	1.175	2.511	1.402

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

West Twenty Mile Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Catchments										
Area Description	Subcatchment ID									
<u>Internal</u>										
200	200	0.117	0.244	0.428	0.558	0.748	0.885	1.034	2.818	1.296
201	201	0.047	0.081	0.141	0.189	0.256	0.303	0.354	0.972	0.442
210	210	0.048	0.089	0.153	0.205	0.277	0.329	0.384	1.058	0.482
211	211	0.061	0.152	0.274	0.360	0.476	0.558	0.649	1.777	0.809
220	220	0.083	0.186	0.330	0.431	0.574	0.678	0.792	2.192	0.993
230	230	0.121	0.244	0.423	0.552	0.737	0.869	1.014	2.705	1.267
From-231	231	0.122	0.274	0.484	0.632	0.839	0.988	1.152	3.155	1.442
240	240	0.047	0.096	0.168	0.220	0.296	0.351	0.411	1.128	0.515
From-241	241	0.128	0.257	0.448	0.587	0.791	0.936	1.094	2.978	1.371
From-250	250	0.059	0.103	0.179	0.243	0.330	0.391	0.457	1.300	0.573
From-260	260	0.056	0.074	0.133	0.178	0.237	0.279	0.324	0.910	0.401
From-270	270	0.029	0.026	0.047	0.062	0.082	0.097	0.112	0.348	0.142
<u>External</u>										
From-20	20	0.063	0.122	0.212	0.280	0.378	0.447	0.522	1.420	0.655
From-21	21	0.263	0.507	0.865	1.123	1.481	1.734	2.008	5.101	2.489
From-22	22	0.051	0.039	0.069	0.090	0.119	0.139	0.163	0.479	0.206
From-23	23	0.037	0.070	0.121	0.159	0.214	0.253	0.295	0.789	0.369

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

East Twenty Mile Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Catchments										
Area Description	Subcatchment ID									
<u>Internal</u>										
300	300	0.174	0.364	0.633	0.822	1.091	1.282	1.491	3.948	1.858
301	301	0.221	0.543	0.967	1.269	1.671	1.951	2.252	5.764	2.779
From-320	320	0.082	0.120	0.214	0.287	0.385	0.454	0.528	1.500	0.656
From-330	330	0.120	0.217	0.374	0.505	0.685	0.811	0.949	2.637	1.188
340	340	0.113	0.209	0.360	0.478	0.644	0.762	0.890	2.398	1.113
From-350	350	0.012	0.016	0.028	0.038	0.050	0.059	0.069	0.200	0.085
<u>External</u>										
From-30	30	0.012	0.011	0.021	0.027	0.036	0.043	0.049	0.151	0.061
From-31	31	0.023	0.031	0.054	0.072	0.096	0.114	0.132	0.352	0.164
32	32	0.133	0.279	0.485	0.630	0.832	0.976	1.133	2.968	1.408

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

Stoney Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Catchments										
Area Description	Subcatchment ID									
<u>Internal</u>										
400	400	0.144	0.284	0.488	0.635	0.842	0.989	1.149	2.987	1.429
From-401	401	0.119	0.230	0.397	0.521	0.698	0.824	0.961	2.551	1.200
410	410	0.052	0.095	0.160	0.207	0.273	0.318	0.368	0.912	0.455
411	411	0.028	0.052	0.088	0.112	0.146	0.169	0.195	0.461	0.239
420	420	0.113	0.253	0.443	0.577	0.755	0.881	1.018	2.600	1.259
From-421	421	0.080	0.106	0.192	0.257	0.345	0.406	0.472	1.390	0.584
From-422	422	0.043	0.071	0.123	0.165	0.222	0.262	0.305	0.817	0.380
From-423	423	0.137	0.251	0.428	0.563	0.750	0.883	1.026	2.647	1.276
430	430	0.086	0.194	0.340	0.442	0.579	0.675	0.780	1.990	0.964
440	440	0.148	0.322	0.558	0.724	0.944	1.099	1.267	3.158	1.562
441	441	0.164	0.054	0.087	0.111	0.145	0.168	0.192	0.434	0.233
From-442	442	0.023	0.027	0.049	0.065	0.085	0.100	0.115	0.317	0.142
From-443	443	0.144	0.225	0.392	0.524	0.702	0.827	0.961	2.552	1.195
451	451	0.089	0.133	0.233	0.310	0.414	0.487	0.565	1.490	0.701
<u>External</u>										
40	40	0.191	0.389	0.669	0.866	1.141	1.335	1.546	3.953	1.915
From-41	41	0.106	0.245	0.431	0.562	0.737	0.858	0.989	2.490	1.219
From-42	42	1.861	0.514	0.762	0.930	1.158	1.310	1.472	2.985	1.750
From-43	43	1.084	0.316	0.501	0.641	0.829	0.981	1.132	3.161	1.401
44	44	0.252	0.105	0.185	0.242	0.317	0.371	0.427	1.249	0.536
From-45	45	0.069	0.021	0.034	0.044	0.057	0.067	0.078	0.187	0.095

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY

Hannon Creek

Model ID		Peak Flow Rate (m³/s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85¹
Catchments										
Area Description	Subcatchment ID									
Internal										
From-500	500	0.050	0.077	0.136	0.183	0.247	0.291	0.339	0.957	0.422
From-510	510	0.059	0.119	0.209	0.275	0.373	0.443	0.518	1.442	0.651
From-520	520	0.082	0.167	0.291	0.380	0.510	0.603	0.704	1.902	0.881

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY

Upper Davis Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Catchments										
Area Description	Subcatchment ID									
Internal From-600	600	0.017	0.025	0.044	0.060	0.081	0.095	0.111	0.320	0.138

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

Sinkhole Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Junctions										
Description	AddHyd ID									
To-190	1901	0.204	0.442	0.780	1.020	1.343	1.576	1.831	4.977	2.280
From-190	1900	0.268	0.568	0.997	1.301	1.713	2.011	2.336	6.307	2.910
From-152	1520	0.195	0.463	0.812	1.060	1.404	1.639	1.896	4.955	2.347
From-151	1510	0.247	0.674	1.200	1.575	2.088	2.443	2.827	7.367	3.497
From-150	1500	0.264	0.726	1.295	1.704	2.265	2.655	3.073	7.897	3.797
From-145	1450	0.156	0.259	0.451	0.605	0.815	0.963	1.122	3.052	1.399
From-144	1440	0.265	0.533	0.925	1.207	1.605	1.885	2.198	5.867	2.745
From-143	1430	0.353	0.791	1.387	1.810	2.392	2.801	3.255	8.592	4.050
From-142	1420	0.413	1.010	1.797	2.359	3.117	3.635	4.204	10.783	5.206
From-141	1410	0.419	1.049	1.883	2.486	3.297	3.855	4.461	11.123	5.518
To-140	1401	0.683	1.770	3.176	4.188	5.560	6.507	7.531	18.940	9.310
From-140	1400	0.501	1.687	3.219	4.296	5.769	6.786	7.909	19.631	9.813
W/in 131	1311	6.218	2.623	4.024	5.013	6.424	7.480	8.554	22.038	10.515
From-131	1310	3.914	2.596	4.153	5.258	6.779	7.849	8.988	23.051	10.980
From-130	1300	2.006	2.590	4.193	5.334	6.887	8.047	9.254	23.110	11.405
W/in-122	1221	0.292	0.518	0.878	1.152	1.525	1.781	2.051	5.313	2.570
From-122	1220	0.472	0.862	1.466	1.912	2.525	2.950	3.404	8.699	4.241
From-121	1210	0.534	1.038	1.775	2.306	3.034	3.538	4.081	10.292	5.060
To-120	1202	2.103	3.955	7.002	9.166	12.086	14.075	16.283	39.744	19.986
To-Mid-120	1201	2.551	4.941	8.691	11.387	14.927	17.464	20.133	49.520	24.733
From-120	1200	2.187	4.783	8.457	11.133	14.747	17.253	19.912	48.588	24.552
From-12	1112	5.507	2.334	3.589	4.481	5.766	6.730	7.710	20.185	9.566
To-110	1101	0.298	0.780	1.401	1.844	2.438	2.851	3.294	8.312	4.062
From-110	1100	0.319	0.860	1.554	2.052	2.723	3.188	3.691	9.167	4.559
To-100	1001	2.505	5.638	9.999	13.183	17.457	20.437	23.599	57.738	29.111
From-100	1000	2.567	6.018	10.744	14.161	18.802	22.025	25.466	62.321	31.434

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

West Twenty Mile Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Junctions										
Description	AddHyd ID									
To-230	2301	0.291	0.626	1.100	1.433	1.912	2.251	2.630	7.196	3.297
from-230	2300	0.385	0.863	1.519	1.981	2.640	3.103	3.618	9.810	4.526
From-220	2200	0.137	0.307	0.542	0.708	0.946	1.116	1.298	3.538	1.613
From-211	2110	0.282	0.672	1.186	1.549	2.032	2.377	2.754	7.093	3.416
To-210	2101	0.410	0.979	1.728	2.256	2.971	3.483	4.045	10.631	5.024
From-210	2100	0.431	1.048	1.865	2.444	3.217	3.767	4.370	11.411	5.422
To-201	2011	0.805	1.909	3.384	4.423	5.837	6.852	7.963	21.210	9.910
From-201	2010	0.852	2.035	3.621	4.746	6.260	7.339	8.530	22.577	10.603
From-200	2000	0.949	2.261	4.036	5.292	6.984	8.187	9.511	25.119	11.823

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PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY

East Twenty Mile Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Junctions										
Description	AddHyd ID									
From-340	3400	0.120	0.220	0.378	0.502	0.678	0.802	0.937	2.522	1.172
From-32	3200	0.140	0.294	0.511	0.663	0.877	1.028	1.194	3.132	1.485
From-301	3010	0.355	0.835	1.476	1.929	2.533	2.951	3.411	8.849	4.220
To-300	3001	0.370	0.865	1.528	1.995	2.619	3.051	3.526	9.168	4.364
From-300	3000	0.531	1.223	2.155	2.810	3.683	4.297	4.973	13.011	6.163

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

Stoney Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Junctions										
Description	AddHyd ID									
From-451	4510	1.001	0.443	0.754	0.980	1.280	1.491	1.718	4.679	2.108
W/in-441	4411	1.014	0.645	1.133	1.492	1.971	2.309	2.672	7.099	3.300
From-441	4410	0.951	0.688	1.203	1.581	2.080	2.434	2.811	7.395	3.466
To-440	4401	0.964	0.715	1.252	1.645	2.165	2.533	2.925	7.708	3.607
From-440	4400	0.644	1.026	1.721	2.227	2.939	3.440	3.980	10.115	4.919
43+45	4345	1.153	0.336	0.534	0.685	0.886	1.048	1.210	3.347	1.496
W/in-430	4301	1.248	1.454	2.386	3.077	4.006	4.661	5.352	13.177	6.562
From-430	4300	1.290	1.647	2.710	3.495	4.560	5.307	6.104	15.114	7.492
From-44	4244	1.899	0.593	0.910	1.138	1.444	1.661	1.887	4.232	2.277
W/in 420 (1)	4202	0.179	0.322	0.549	0.725	0.969	1.141	1.328	3.446	1.653
W/in 420 (2)	4201	0.237	0.427	0.727	0.965	1.295	1.529	1.782	4.657	2.221
From-420	4200	0.307	0.672	1.167	1.512	1.994	2.338	2.718	7.125	3.388
From-40	4140	0.286	0.623	1.085	1.413	1.845	2.148	2.477	6.311	3.063
From-411	4110	1.261	1.689	2.794	3.594	4.681	5.453	6.268	15.385	7.682
W/in 410	4101	1.438	2.298	3.871	4.984	6.496	7.564	8.706	21.413	10.694
From-410	4100	1.453	2.369	4.011	5.176	6.741	7.837	9.020	22.010	11.076
To-400	4001	1.867	3.258	5.563	7.198	9.387	10.928	12.598	31.242	15.509
From-400	4000	1.946	3.504	6.015	7.800	10.183	11.845	13.650	33.591	16.807

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PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE

ELFRIDA SUBWATERSHED STUDY

Hannon Creek										
Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Junctions										
Description	AddHyd ID									
Total Hannon	5000	0.185	0.363	0.630	0.826	1.117	1.324	1.548	4.225	1.941

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**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITH SWM INFRASTRUCTURE

ELFRIDA SUBWATERSHED STUDY**

Sinkhole Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Catchments										
Area Description	Subcatchment ID									
<u>Internal</u>										
100	100	0.216	0.515	0.910	1.190	1.563	1.822	2.101	5.321	2.591
110	110	0.069	0.122	0.209	0.279	0.375	0.443	0.516	1.368	0.644
From-111	111	0.154	0.399	0.716	0.943	1.247	1.459	1.686	4.275	2.080
112	112	0.098	0.260	0.465	0.613	0.811	0.949	1.097	2.662	1.354
From-113	113	0.061	0.130	0.227	0.295	0.393	0.463	0.540	1.456	0.675
120	120	0.040	0.090	0.156	0.203	0.266	0.309	0.357	0.898	0.440
121	121	0.114	0.189	0.318	0.413	0.542	0.632	0.729	1.757	0.898
122	122	0.182	0.346	0.588	0.762	1.002	1.170	1.354	3.386	1.673
From-123	123	0.111	0.240	0.419	0.544	0.721	0.846	0.984	2.616	1.226
From-124	124	0.226	0.282	0.505	0.665	0.878	1.025	1.184	3.056	1.456
130	130	0.085	0.226	0.410	0.542	0.719	0.842	0.975	2.508	1.205
131	131	0.106	0.260	0.464	0.609	0.803	0.938	1.087	2.880	1.349
140	140	0.072	0.172	0.304	0.397	0.522	0.608	0.701	1.726	0.861
141	141	0.044	0.083	0.143	0.187	0.251	0.295	0.344	0.900	0.429
142	142	0.104	0.251	0.446	0.584	0.768	0.896	1.034	2.640	1.276
143	143	0.115	0.264	0.465	0.607	0.797	0.932	1.080	2.826	1.340
144	144	0.126	0.277	0.485	0.632	0.833	0.977	1.135	3.006	1.412
145	145	0.079	0.129	0.225	0.301	0.405	0.479	0.557	1.505	0.695
From-146	146	0.080	0.130	0.227	0.305	0.411	0.486	0.566	1.557	0.706
150	150	0.032	0.067	0.116	0.150	0.198	0.232	0.269	0.698	0.334
151	151	0.105	0.236	0.415	0.540	0.711	0.834	0.968	2.561	1.203
152	152	0.071	0.155	0.273	0.355	0.470	0.552	0.642	1.720	0.800
From-153	153	0.133	0.312	0.552	0.722	0.948	1.109	1.285	3.381	1.594
From-160	160	0.067	0.156	0.274	0.358	0.470	0.548	0.633	1.625	0.783
From-170	170	0.030	0.057	0.098	0.130	0.175	0.207	0.242	0.661	0.304
From-180	180	0.031	0.065	0.114	0.149	0.198	0.234	0.272	0.737	0.341
From-185	185	0.016	0.019	0.034	0.045	0.061	0.072	0.084	0.264	0.105
190	190	0.067	0.128	0.219	0.286	0.380	0.448	0.520	1.350	0.648
191	191	0.081	0.186	0.330	0.431	0.570	0.670	0.780	2.122	0.974
192	192	0.123	0.255	0.450	0.589	0.775	0.908	1.054	2.861	1.311
<u>External</u>										
From-10	10	1.130	0.305	0.446	0.546	0.676	0.770	0.868	1.853	1.035
11	11	4.727	1.942	3.025	3.810	4.894	5.727	6.573	17.673	8.201
12	12	1.489	0.412	0.604	0.740	0.915	1.036	1.175	2.511	1.402

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**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITH SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

West Twenty Mile Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Catchments										
Area Description	Subcatchment ID									
<u>Internal</u>										
200	200	0.117	0.244	0.428	0.558	0.748	0.885	1.034	2.818	1.296
201	201	0.047	0.081	0.141	0.189	0.256	0.303	0.354	0.972	0.442
210	210	0.048	0.089	0.153	0.205	0.277	0.329	0.384	1.058	0.482
211	211	0.061	0.152	0.274	0.360	0.476	0.558	0.649	1.777	0.809
220	220	0.083	0.186	0.330	0.431	0.574	0.678	0.792	2.192	0.993
230	230	0.121	0.244	0.423	0.552	0.737	0.869	1.014	2.705	1.267
From-231	231	0.122	0.274	0.484	0.632	0.839	0.988	1.152	3.155	1.442
240	240	0.047	0.096	0.168	0.220	0.296	0.351	0.411	1.128	0.515
From-241	241	0.128	0.257	0.448	0.587	0.791	0.936	1.094	2.978	1.371
From-250	250	0.059	0.103	0.179	0.243	0.330	0.391	0.457	1.300	0.573
From-260	260	0.056	0.074	0.133	0.178	0.237	0.279	0.324	0.910	0.401
From-270	270	0.029	0.026	0.047	0.062	0.082	0.097	0.112	0.348	0.142
<u>External</u>										
From-20	20	0.063	0.122	0.212	0.280	0.378	0.447	0.522	1.420	0.655
From-21	21	0.263	0.507	0.865	1.123	1.481	1.734	2.008	5.101	2.489
From-22	22	0.051	0.039	0.069	0.090	0.119	0.139	0.163	0.479	0.206
From-23	23	0.037	0.070	0.121	0.159	0.214	0.253	0.295	0.789	0.369

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITH SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

East Twenty Mile Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Catchments										
Area Description	Subcatchment ID									
<u>Internal</u>										
300	300	0.174	0.364	0.633	0.822	1.091	1.282	1.491	3.948	1.858
301	301	0.221	0.543	0.967	1.269	1.671	1.951	2.252	5.764	2.779
From-320	320	0.082	0.120	0.214	0.287	0.385	0.454	0.528	1.500	0.656
From-330	330	0.120	0.217	0.374	0.505	0.685	0.811	0.949	2.637	1.188
340	340	0.113	0.209	0.360	0.478	0.644	0.762	0.890	2.398	1.113
From-350	350	0.012	0.016	0.028	0.038	0.050	0.059	0.069	0.200	0.085
<u>External</u>										
From-30	30	0.012	0.011	0.021	0.027	0.036	0.043	0.049	0.151	0.061
From-31	31	0.023	0.031	0.054	0.072	0.096	0.114	0.132	0.352	0.164
32	32	0.133	0.279	0.485	0.630	0.832	0.976	1.133	2.968	1.408

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITH SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

Stoney Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Catchments										
Area Description	Subcatchment ID									
<u>Internal</u>										
400	400	0.144	0.284	0.488	0.635	0.842	0.989	1.149	2.987	1.429
From-401	401	0.119	0.230	0.397	0.521	0.698	0.824	0.961	2.551	1.200
410	410	0.052	0.095	0.160	0.207	0.273	0.318	0.368	0.912	0.455
411	411	0.028	0.052	0.088	0.112	0.146	0.169	0.195	0.461	0.239
420	420	0.113	0.253	0.443	0.577	0.755	0.881	1.018	2.600	1.259
From-421	421	0.080	0.106	0.192	0.257	0.345	0.406	0.472	1.390	0.584
From-422	422	0.043	0.071	0.123	0.165	0.222	0.262	0.305	0.817	0.380
From-423	423	0.137	0.251	0.428	0.563	0.750	0.883	1.026	2.647	1.276
430	430	0.086	0.194	0.340	0.442	0.579	0.675	0.780	1.990	0.964
440	440	0.148	0.322	0.558	0.724	0.944	1.099	1.267	3.158	1.562
441	441	0.164	0.054	0.087	0.111	0.145	0.168	0.192	0.434	0.233
From-442	442	0.023	0.027	0.049	0.065	0.085	0.100	0.115	0.317	0.142
From-443	443	0.144	0.225	0.392	0.524	0.702	0.827	0.961	2.552	1.195
451	451	0.089	0.133	0.233	0.310	0.414	0.487	0.565	1.490	0.701
<u>External</u>										
40	40	0.191	0.389	0.669	0.866	1.141	1.335	1.546	3.953	1.915
From-41	41	0.106	0.245	0.431	0.562	0.737	0.858	0.989	2.490	1.219
From-42	42	1.861	0.514	0.762	0.930	1.158	1.310	1.472	2.985	1.750
From-43	43	1.084	0.316	0.501	0.641	0.829	0.981	1.132	3.161	1.401
44	44	0.252	0.105	0.184	0.242	0.317	0.371	0.426	1.249	0.536
From-45	45	0.069	0.021	0.034	0.044	0.057	0.067	0.078	0.187	0.095

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITH SWM INFRASTRUCTURE

ELFRIDA SUBWATERSHED STUDY

Hannon Creek

Model ID		Peak Flow Rate (m³/s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85¹
Catchments										
Area Description	Subcatchment ID									
Internal										
From-500	500	0.050	0.077	0.136	0.183	0.247	0.291	0.339	0.957	0.422
From-510	510	0.059	0.119	0.209	0.275	0.373	0.443	0.518	1.442	0.651
From-520	520	0.083	0.168	0.292	0.382	0.513	0.606	0.708	1.913	0.886

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITH SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY

Upper Davis Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Catchments										
Area Description	Subcatchment ID									
Internal From-600	600	0.017	0.025	0.044	0.060	0.081	0.095	0.111	0.320	0.138

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITH SWM INFRASTRUCTURE

ELFRIDA SUBWATERSHED STUDY**

Sinkhole Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Junctions										
Description	AddHyd ID									
To-190	1901	0.204	0.442	0.780	1.020	1.343	1.576	1.831	4.977	2.280
From-190	1900	0.268	0.568	0.997	1.301	1.713	2.011	2.336	6.307	2.910
From-152	1520	0.195	0.463	0.812	1.060	1.404	1.639	1.896	4.955	2.347
From-151	1510	0.247	0.674	1.200	1.575	2.088	2.443	2.827	7.367	3.497
From-150	1500	0.264	0.726	1.295	1.704	2.265	2.655	3.073	7.897	3.797
From-145	1450	0.156	0.259	0.451	0.605	0.815	0.963	1.122	3.052	1.399
From-144	1440	0.265	0.533	0.925	1.207	1.605	1.885	2.198	5.867	2.745
From-143	1430	0.353	0.791	1.387	1.810	2.392	2.801	3.255	8.592	4.050
From-142	1420	0.413	1.010	1.797	2.359	3.117	3.635	4.204	10.783	5.206
From-141	1410	0.419	1.049	1.883	2.486	3.297	3.855	4.461	11.123	5.518
To-140	1401	0.683	1.770	3.176	4.188	5.560	6.507	7.531	18.940	9.310
From-140	1400	0.501	1.687	3.219	4.296	5.769	6.786	7.909	19.631	9.813
W/in 131	1311	2.635	0.943	1.724	2.312	3.185	3.792	4.438	11.976	5.550
From-131	1310	0.889	1.132	2.074	2.787	3.888	4.587	5.358	14.471	6.730
From-130	1300	0.569	1.245	2.336	3.197	4.370	5.210	6.103	16.288	7.642
W/in-122	1221	0.292	0.518	0.878	1.152	1.525	1.781	2.051	5.313	2.570
From-122	1220	0.472	0.862	1.466	1.912	2.525	2.950	3.404	8.699	4.241
From-121	1210	0.534	1.038	1.775	2.306	3.034	3.538	4.081	10.292	5.060
To-120	1202	0.984	2.923	5.548	7.490	10.137	11.991	14.006	35.304	17.448
To-Mid-120	1201	1.345	3.741	7.035	9.481	12.798	15.131	17.672	44.670	21.901
From-120	1200	1.190	3.591	6.830	9.224	12.587	14.921	17.416	43.917	21.690
From-12	1112	1.505	0.802	1.465	2.036	2.765	3.320	3.906	10.623	4.920
To-110	1101	0.298	0.780	1.401	1.844	2.438	2.851	3.294	8.312	4.062
From-110	1100	0.319	0.860	1.554	2.052	2.723	3.188	3.691	9.167	4.559
To-100	1001	1.483	4.397	8.301	11.200	15.223	18.021	21.005	52.885	26.168
From-100	1000	1.542	4.731	8.983	12.094	16.458	19.479	22.763	57.415	28.402

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITH SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

West Twenty Mile Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Junctions										
Description	AddHyd ID									
To-230	2301	0.291	0.626	1.100	1.433	1.912	2.251	2.630	7.196	3.297
from-230	2300	0.385	0.863	1.519	1.981	2.640	3.103	3.618	9.810	4.526
From-220	2200	0.137	0.307	0.542	0.708	0.946	1.116	1.298	3.538	1.613
From-211	2110	0.282	0.672	1.186	1.549	2.032	2.377	2.754	7.093	3.416
To-210	2101	0.410	0.979	1.728	2.256	2.971	3.483	4.045	10.631	5.024
From-210	2100	0.431	1.048	1.865	2.444	3.217	3.767	4.370	11.411	5.422
To-201	2011	0.805	1.909	3.384	4.423	5.837	6.852	7.963	21.210	9.910
From-201	2010	0.852	2.035	3.621	4.746	6.260	7.339	8.530	22.577	10.603
From-200	2000	0.949	2.261	4.036	5.292	6.984	8.187	9.511	25.119	11.823

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITH SWM INFRASTRUCTURE

ELFRIDA SUBWATERSHED STUDY

East Twenty Mile Creek

Model ID		Peak Flow Rate (m³/s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85¹
Junctions										
Description	AddHyd ID									
From-340	3400	0.120	0.220	0.378	0.502	0.678	0.802	0.937	2.522	1.172
From-32	3200	0.140	0.294	0.511	0.663	0.877	1.028	1.194	3.132	1.485
From-301	3010	0.355	0.835	1.476	1.929	2.533	2.951	3.411	8.849	4.220
To-300	3001	0.370	0.865	1.528	1.995	2.619	3.051	3.526	9.168	4.364
From-300	3000	0.531	1.223	2.155	2.810	3.683	4.297	4.973	13.011	6.163

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITH SWM INFRASTRUCTURE
ELFRIDA SUBWATERSHED STUDY**

Stoney Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Junctions										
Description	AddHyd ID									
From-451	4510	0.158	0.354	0.555	0.816	1.098	1.339	1.602	4.553	2.053
W/in-441	4411	0.301	0.579	0.934	1.300	1.750	2.152	2.555	7.080	3.246
From-441	4410	0.321	0.616	0.996	1.374	1.853	2.264	2.684	7.373	3.407
To-440	4401	0.339	0.643	1.041	1.430	1.927	2.356	2.792	7.671	3.545
From-440	4400	0.425	0.946	1.587	2.126	2.831	3.338	3.883	10.177	4.838
To-451	4345	0.106	0.224	0.335	0.535	0.723	0.868	1.048	3.107	1.357
W/in-430	4301	0.504	1.211	2.103	2.801	3.739	4.372	5.066	13.013	6.273
From-430	4300	0.589	1.401	2.438	3.239	4.317	5.046	5.842	14.975	7.235
From-44	4244	0.263	0.279	0.556	0.719	0.937	1.075	1.231	3.098	1.525
W/in 420 (1)	4202	0.179	0.322	0.549	0.725	0.969	1.141	1.328	3.446	1.653
W/in 420 (2)	4201	0.237	0.427	0.727	0.965	1.295	1.529	1.782	4.657	2.221
From-420	4200	0.307	0.672	1.167	1.512	1.994	2.338	2.718	7.125	3.388
From-40	4140	0.286	0.623	1.085	1.413	1.845	2.148	2.477	6.311	3.063
From-411	4110	0.604	1.439	2.509	3.330	4.447	5.192	6.000	15.243	7.430
W/in 410	4101	0.843	2.010	3.541	4.681	6.253	7.312	8.443	21.172	10.434
From-410	4100	0.877	2.073	3.664	4.839	6.472	7.582	8.760	21.738	10.813
To-400	4001	1.254	2.909	5.165	6.788	9.066	10.607	12.251	30.716	15.128
From-400	4000	1.357	3.142	5.580	7.344	9.812	11.493	13.292	32.982	16.403

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

PEAK FLOW SUMMARY
CATCHMENTS
EXISTING CONDITIONS
WITH SWM INFRASTRUCTURE

ELFRIDA SUBWATERSHED STUDY

Hannon Creek

Model ID		Peak Flow Rate (m ³ /s)								
		25 mm	2-year	5-year	10-year	25-year	50-year	100-year	Regional	Climate Change SSP5.85 ¹
Junctions										
Description	AddHyd ID									
Total Hannon	5000	0.186	0.364	0.632	0.828	1.120	1.327	1.552	4.236	1.946

¹ Flows generated from the 100-year IDF curve with climate change under the SSP5.85 scenario for the HAMILTON A ID:6153194 rain gauge, taken from IDF_CC Tool 8.0, Western University. Generated for 2050 to 2100, using methodology "Equidistance Quantile Matching," "Gumbel" distribution, and the CanDCS-M6 climate model.

**FLOWES INCLUDED IN HEC-RAS MODEL
EXISTING CONDITIONS
WITHOUT SWM INFRASTRUCTURE**

ELFRIDA SUBWATERSHED STUDY

Stoney Creek

VO Junction	Description	HEC-RAS Reach	HEC-RAS Cross-section	Regulatory Flow - Regional Event (cms)
4510	Prorated flow from From-451	Reach 8	53	3.123
4510	Prorated flow from From-451	Reach 10	74	1.556
892	Flows from channel 892 + portion of catchment 443	Reach 7	135	4.782
443	Prorated flow from From-443	Reach 9	560	2.169
443	Prorated flow from From-443	Reach 11	168	0.281
4400	From-440	Reach 5	908	10.115
4300	Prorated flow from From-430	Reach 5	101	10.320
430	Prorated flow from Catchment 430	Reach 4	477	1.035
4300	Prorated flow from From-430	Reach 1	1992	11.328
4300	From-430	Reach 1	1854	15.114
4110	From-411	Reach 1	1744	15.385
4101	Prorated w/in 410	Reach 1	1391	15.412
4100	From-410	Reach 1	1192	22.01
4000	From-400	Reach 1	760	33.591

Sinkhole Creek Main

VO Junction	Description	HEC-RAS Reach	HEC-RAS Cross-section	Regulatory Flow - 100 yr (cms)
1440	From-144	Reach 5	2228	2.198
1430	From-143	Reach 5	2039	3.255
1420	From-142	Reach 5	1627	4.204
1410	From-141	Reach 5	545	4.461
1400	From-140	Reach 4	888	7.909
1510	From-151	Trib 2	636	2.827
1500	From-150	Trib 2	548	3.073
820	Flows from channel 820 + portion of catchment 120	Reach 3	115	16.365
1200	From-120	Reach 2	1387	19.912
1000	From-100	Reach 2	1021	25.466
1310	From 131	Reach 6	1535	8.988
1300	From-130	Reach 6	840	9.254
1220	From 122	Trib 1	544	3.404
1210	From 121	Trib 1	491	4.081

Sinkhole Creek Tributary

VO Junction	Description	HEC-RAS Reach	HEC-RAS Cross-section	Regulatory Flow - 100 yr (cms)
192	From-192	Sinkhole Creek Tributary	1237	1.054
1900	From-190	Sinkhole Creek Tributary	564	2.336

West Twenty Mile Creek

VO Junction	Description	HEC-RAS Reach	HEC-RAS Cross-section	Regulatory Flow - 100 yr (cms)
2110	From-211	Twenty Mile Ck 1 Reach 1	1125	2.754
2100	From-210	Twenty Mile Ck 1 Reach 1	404	4.37
2300	From-230	Twenty Mile Ck 2 Reach 2	264	3.618
2010	From-201	Twenty Mile Ck 3 Reach 3	967	8.53
2000	From-200	Twenty Mile Ck 3 Reach 3	779	9.511

East Twenty Mile Creek

VO Junction	Description	HEC-RAS Reach	HEC-RAS Cross-section	Regulatory Flow - 100 yr (cms)
3010	From-301	Twenty Mile Ck 4 Reach 4 (second model, smaller reach)	792	3.411
3001	To-300	Twenty Mile Ck 4 Reach 4 (second model, smaller reach)	750	3.526
3000	From-300	Twenty Mile Ck 4 Reach 4 (second model, smaller reach)	347	4.973

Existing Conditions 100-year Peak Flow Summary - Comparison (Study Area)
(Expanded Table 22 from text)

VO Node	VO Area (km2)	VO Flow without Pond (m3/s)	NPCA ID	NPCA Area (km2)	NPCA Floodplain Flows (m3/s)	NPCA Prorated (m3/s) ¹	Floodplain Mapping report
1300	2.17	9.25	SiCk-6	2.78	8.23	6.84	Sinkhole Creek Sinkhole Creek Twenty Mile Creek Twenty Mile Creek
1400	2.16	7.91	SiCk-7	2.63	6.79	5.86	
1201	5.31	20.13	J-Si-6/7	5.41	14.87	Not required	
1000	6.96	25.47	J-Si-4/5	9.58	24.66	19.40	
2000	2.42	9.51	TwCk 44	5.47	15.00	8.14	
3000	1.29	4.97	TwCk 38	3.56	10.70	5.00	
4000	3.38	13.65	NA	NA	NA	NA	

1 Proration used Equation 8.31 in MTO Drainage Manual (1997)

$$Q_2 = Q_1 \left(\frac{A_2}{A_1} \right)^{0.75}$$

where Q_2 = prorated area peak discharge [m³/s],
 Q_1 = total area peak discharge [m³/s],
 A_2 = prorated area [m²],
 A_1 = total area [m²]