APPENDIX D
Watermain Background

Figure 3.A.1 Existing Water System
Water Demand Calculations
Water Servicing Master Plan, C-130

Niagara Region

2021 Water and Wastewater Master Servicing Plan Update

Existing Water Infrastructure

- Chlorine Facility
- Elevated Tank
- Fluoride Station
- Pumping Station
- Reservoir
- Standpipe
- Water Treatment Plant
- Region Mains
- Local Mains
- Private

Water Pressure Zones (HGL)

148	163	216
149	193	225
154	210	239

Other Features

- Township of Wainfleet
- Waterbodies
- Urban Area Boundary



Figure 3.A.1
Grimsby System
Existing Water Infrastructure

BluePlan

December 2022
621016-W-001
WKID: 26917

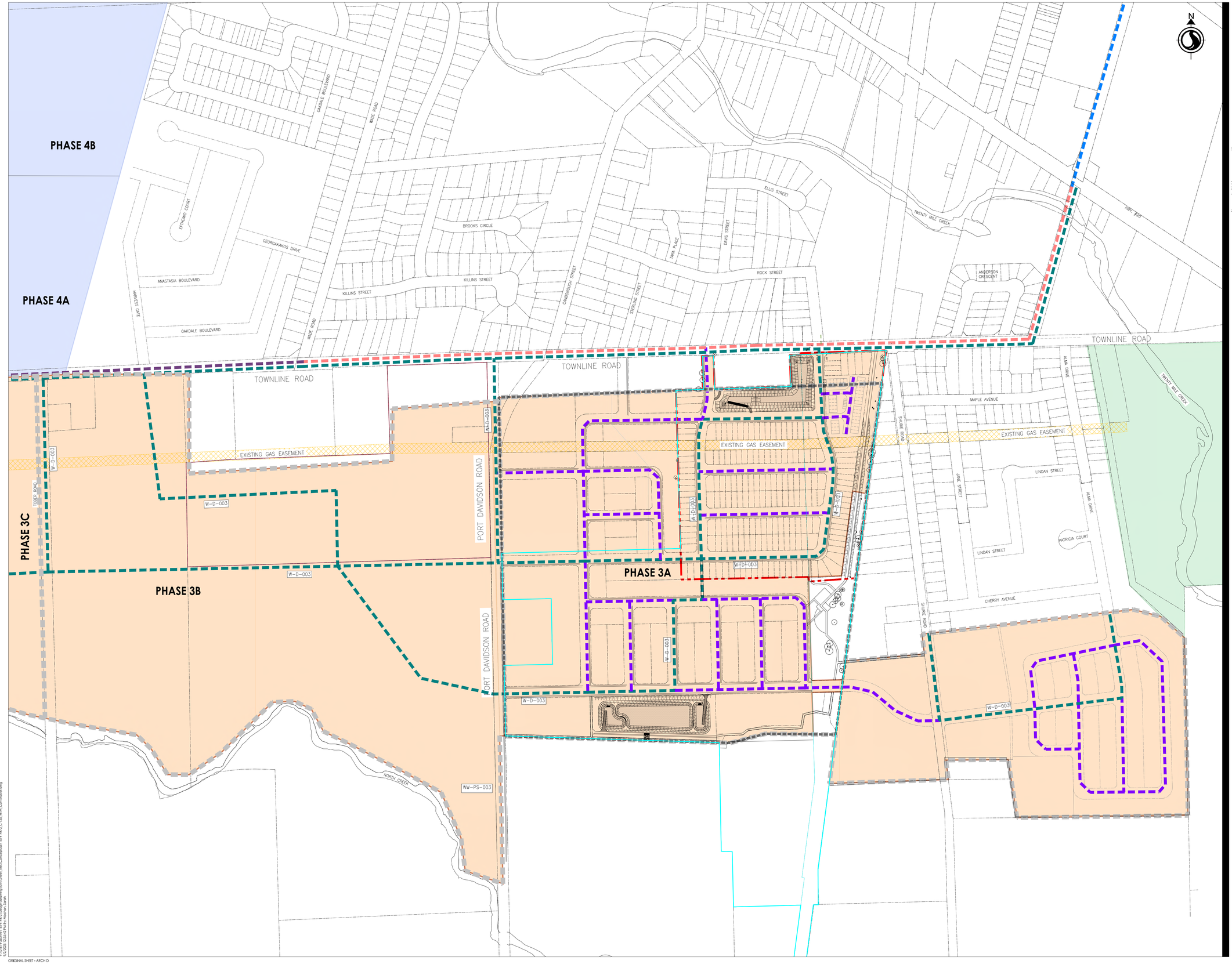
Smithville 3A Block 9, Phase 1

161414473
22-Sep-25

Water Demand Calculation Based on Conceptual Draft Plan dated July 2025

Development Phase	Unit Type	# of Units	Population Density	Estimated Population	Usage rate	Average Day Demand	Max Day Demand (PF=2.0)	Peak Hour Demand (PF=4.0)
			ppu	people	L/c/d	L/s	L/s	L/s
Phase 1	Single-Detached	177	3.07	544	300	1.89	3.78	7.56
	Semi-Detached	14	3.07	43	300	0.15	0.30	0.60
	Townhouse	31	2.16	67	300	0.23	0.46	0.92
Total		**222**		**654**		**2.27**	**4.54**	**9.08**

Notes:
Population Density based on 2024 Development Charges Background Study for Township of West Lincoln.
Per capita water usage rate based on 2016 Master Servicing Plan Update for Region of Niagara.
Peaking factors for based on 2016 Master Servicing Plan Update for Region of Niagara.



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100-300 Hagey Boulevard
Waterloo ON N2L 0A4
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Notes

1. ELEV'S ARE REFERRED TO THE CANADIAN GEODETIC VERTICAL DATUM (CGVD-1928:1978)
   BM1: CONCRETE CULVERT ALONG REGIONAL ROAD 65, 3.1 km WEST OF BISMARK, 80m EAST OF DWELLING AT 6250 REG. ROAD 65, TABLET ON TOP OF CULVERT 7.3m SW OF ROAD CENTRELINE. ELEV: 182.679
   BM2: TOP OF HEADWALL AT NE OF INTERSECTION OF TOWNLINE ROAD AND ROCK STREET ELEV: 185.740
2. BLOCK PLAN PREPARED BY ARCADIS, DATED AUGUST 2024.
3. DRAFT PLAN PREPARED BY ARCADIS, DATED AUGUST 2024.
4. TOPOGRAPHICAL SURVEY PREPARED BY METROPOLITAN CONSULTING INC., DATED MAY 2022. CONTOURS OUTSIDE OF THE PROPERTY LINE, HAVE BEEN OBTAINED FROM S.W.O.O.P. TOPOGRAPHIC INFORMATION (2010).
5. TREES SURVEYED BY STANTEC CONSULTING LTD. DATED APRIL 2025.

Legend

- PROPERTY LINE
- PHASE LIMITS
- BLOCK PLAN AREA 9 LIMIT
- STAGE 1 DRAFT PLAN LIMIT
- 30m SETBACK LIMIT
- EXISTING ENBRIDGE GAS EASEMENT (APPROXIMATE LOCATION)
- STAGE 2 400mmø DISTRIBUTION MAINS (REGION CAPITAL PROJECT #W-TM-002)
- STAGE 3 400mmø DISTRIBUTION MAINS (REGION CAPITAL PROJECT #W-TM-003)
- STAGE 3 300mmø DISTRIBUTION MAINS (TOWNSHIP CAPTIAL PROJECT #W-D-003)
- STAGE 3 400mmø DISTRIBUTION MAINS (REGION CAPTIAL PROJECT #W-TM-004)
- STAGE 3 200mmø DISTRIBUTION MAINS
- STAGE 2 WATER SERVICING
- STAGE 3 WATER SERVICING
- STAGE 4 WATER SERVICING

1.	REVISED BLOCK PLAN	SJM	SAK	2025.08.22
0.	STAGE 1 DRAFT PLAN SUBMISSION	JH	KBL	2024.08.15
Revision		By	Appd	YYYY.MM.DD
File Name:	161414473_C-130_WTM_Con-Master	WJE	SAK	2025.08.25
		Dwn.	Dsgn.	Chkd. YYYY.MM.DD

Permit-Seal

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Client/Project
LOCKBRIDGE DEVELOPMENT INC.

SMITHVILLE PHASE 3A

Smithville, ON

Title
WATER SERVICING MASTER PLAN

Project No.
161414473

Scale
1:4000 0 40 120 200m

Revision
1

Drawing No.
C-130

V:\161414\active\161414473\design\drawings\published_files\Concepts\161414473_C-130_WTM_Con-Master.dwg
9/2/2025 12:53:42 PM By: Mochan, Sajesh

ORIGINAL SHEET - ARCH D

APPENDIX E
SANITARY ANALYSIS

APPENDIX E-1
Figure 4.A.1 Existing Wastewater System

APPENDIX E-2
Sanitary Sewer Design Sheet
Block Plan Sanitary Drainage Area Plan, C-110

APPENDIX E-3
Township of West Lincoln Interim Wastewater Capacity Management Strategy, Smithville Capacity Management Strategy Report, Dated June 8, 2025 by Agile Infrastructure.

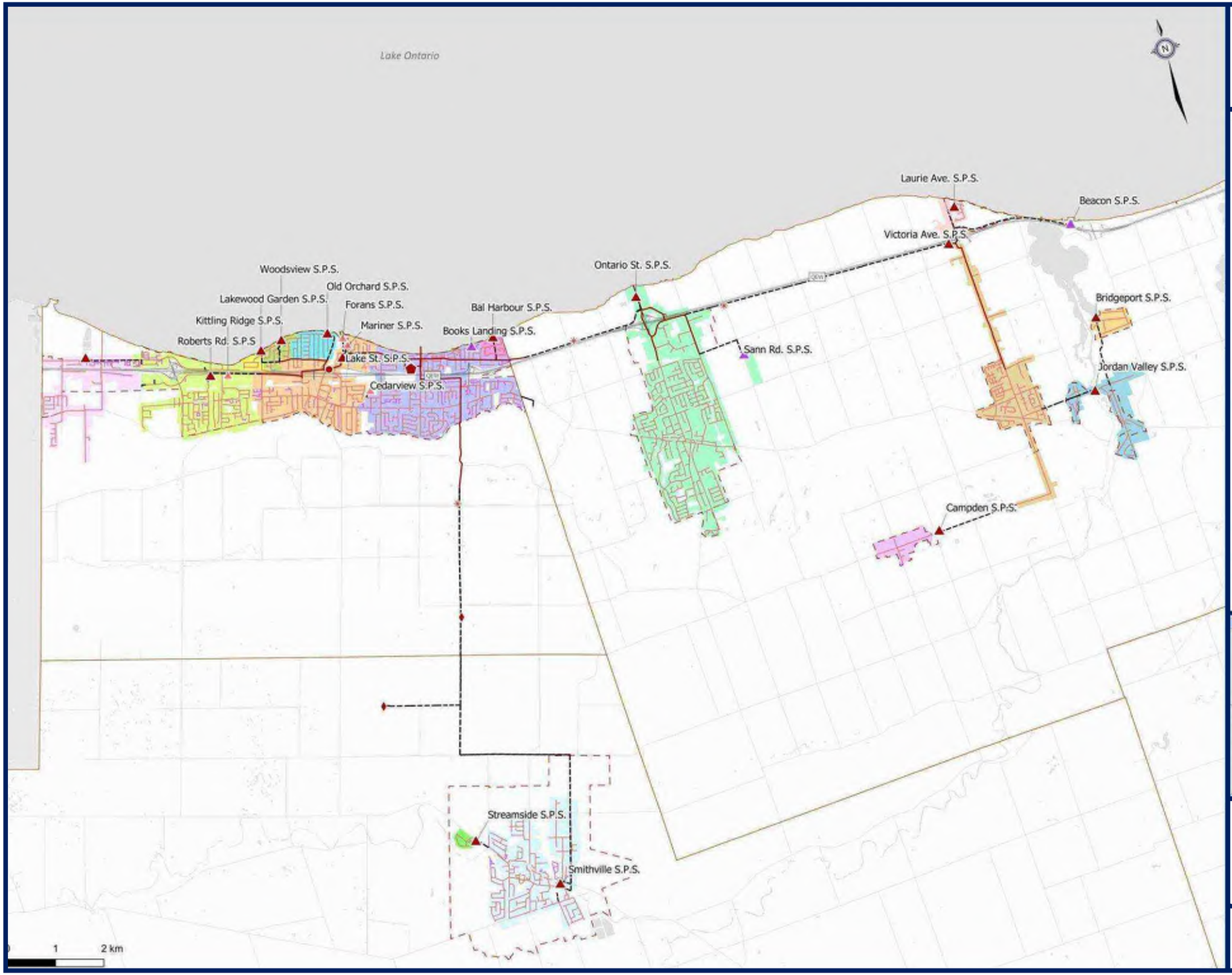
APPENDIX E-4
Port Davidson Sanitary Pumping Station Drainage Area Plan, C-115

APPENDIX E-1

FIGURE 4.A.1 EXISTING WASTEWATER SYSTEM

Niagara Region

2021 Water and Wastewater Master Servicing Plan Update



Existing Wastewater Infrastructure

- Wastewater Treatment Plant (WWTP)
- Biosolids Storage Facility
- Odour Control Facility
- Leachate Pumping Station

Sanitary Pumping Stations (SPS)

- Regional
- Municipal
- Private

Wastewater Network

- Force Mains
- Regional Mains
- Local Sewers
- Private Sewers

Wastewater Catchments

- Bal Harbour
- Biggar Lagoon
- Bridgeport
- Campden
- Jordan Valley
- Lake Street
- Lakewood Gardens
- Laurie Avenue
- Old Orchard
- Ontario Street
- Roberts Road
- Smithville
- Streamside
- Victoria Avenue
- Woodsview
- Baker Road WWTP

Other Features

- Municipal Boundary
- Waterbodies
- Urban Area Boundary



Figure 4.A.1
Baker Road WWTP System
Existing Wastewater Infrastructure

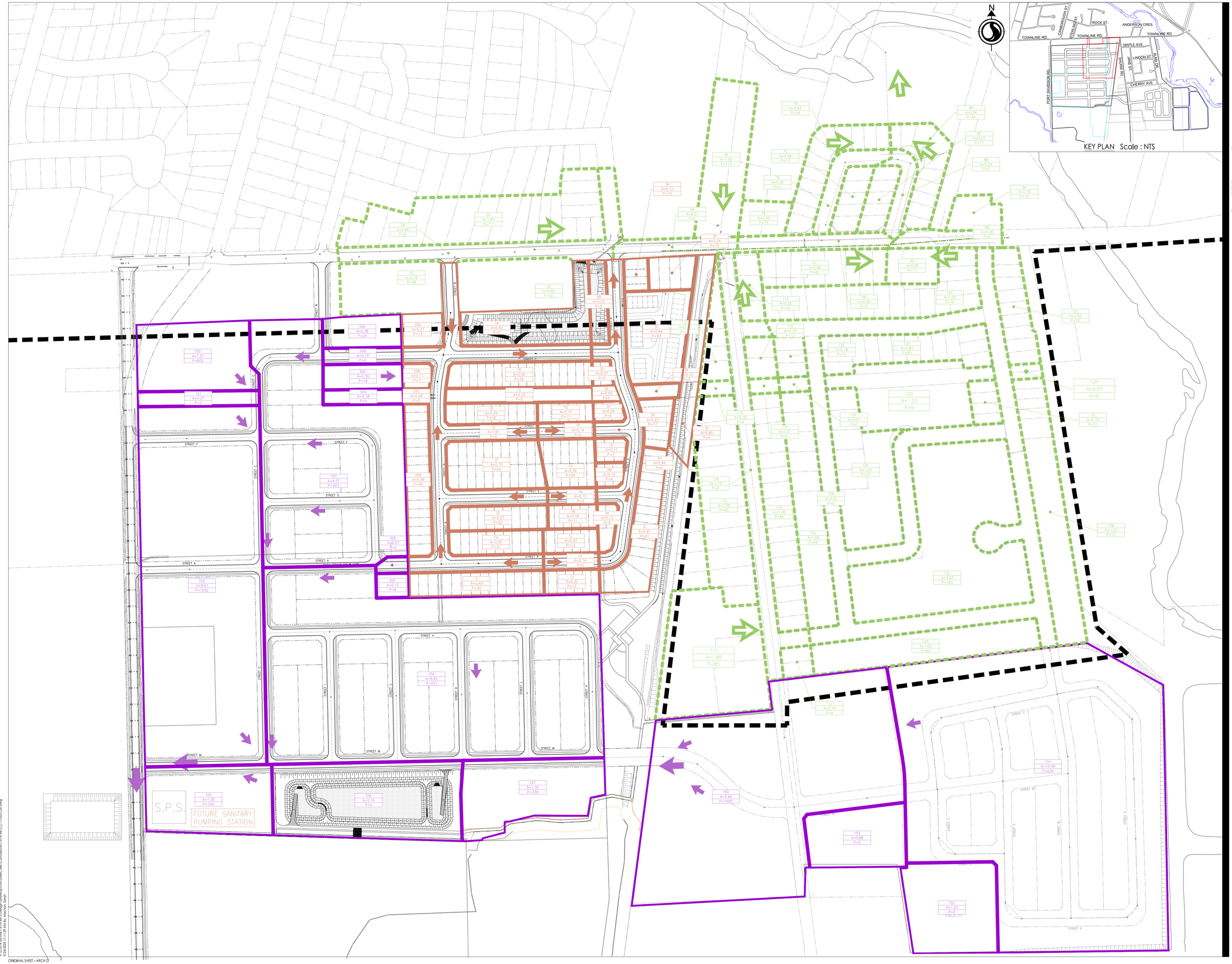
BluePlan

March 2023
620126-WW-001
WKID: 26917

APPENDIX E-2

SANITARY SEWER DESIGN SHEET

BLOCK PLAN SANITARY DRAINAGE PLAN C-110



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   BM2: TOP OF HEADWALL AT NE OF INTERSECTION OF TOWNLINE ROAD AND ROCK STREET ELEV: 185.740
2. BLOCK PLAN PREPARED BY ARCADIS, DATED AUGUST 2024.
3. DRAFT PLAN PREPARED BY ARCADIS, DATED AUGUST 2024.
4. TOPOGRAPHICAL SURVEY PREPARED BY METROPOLITAN CONSULTING INC., DATED MAY 2022. CONTOURS OUTSIDE OF THE PROPERTY LINE, HAVE BEEN OBTAINED FROM S.W.O.O.P. TOPOGRAPHIC INFORMATION (2010).
5. TREES SURVEYED BY STANTEC CONSULTING LTD. DATED APRIL 2025.

Legend

- PROPERTY LINE
- EXISTING URBAN BOUNDARY
- BLOCK 3A LIMIT
- BLOCK PLAN AREA 9 LIMIT
- STAGE 1 DRAFT PLAN LIMIT
- EXISTING ENBRIDGE GAS EASEMENT (APPROXIMATE LOCATION)

EXISTING

- 2A / A=1.85 / P=111 — EXISTING CATCHMENT NUMBER; EXISTING AREA (Ha); EX. POPULATION (FROM WEST LINCOLN MANUAL)
  SINGLE HOUSES = 60 p/ha
  SEMI-DETACHED HOUSES = 75 p/ha
  LOW DENSITY (TOWNHOUSES) = 110 p/ha
- EXISTING AREA BOUNDARY
- EXISTING FLOW DIRECTION

PROPOSED

- 2E / A=0.13 / P=3 — PROPOSED CATCHMENT NUMBER; PROPOSED AREA (Ha); PROP. POPULATION (FROM WEST LINCOLN MANUAL)
  SINGLE HOUSES = 60 p/ha
  LOW DENSITY (TOWNHOUSES) = 110 p/ha
  MEDIUM DENSITY = 250 p/ha
  COMMERCIAL = 120-750 p/ha (ASSUMING 500)
- PROPOSED AREA BOUNDARY
- PROPOSED FLOW DIRECTION

FUTURE

- 27 / A=6.31 / P=537 — FUTURE CATCHMENT NUMBER; FUTURE AREA (Ha); FUT. POPULATION (FROM WEST LINCOLN MANUAL)
  SINGLE HOUSES = 60 p/ha
  LOW DENSITY (TOWNHOUSES) = 110 p/ha
  MEDIUM DENSITY = 250 p/ha
- FUTURE AREA BOUNDARY
- FUTURE FLOW DIRECTION

		By	Appd	YYYY.MM.DD
1.	REVISED BLOCK PLAN	SJM	SAK	2025.08.22
0.	STAGE 1 DRAFT PLAN SUBMISSION	JH	KBL	2024.08.15

Revision

File Name: 161414473_C-110SS-Con	WJE	WJE	SAK	2025.09.16
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit-Seal

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Client/Project
LOCKBRIDGE DEVELOPMENT INC.

SMITHVILLE PHASE 3A

Smithville, ON

Title
BLOCK PLAN SANITARY DRAINAGE AREA PLAN

Project No. 161414473

Scale 1:2000 (0, 20, 60, 100m)

Revision 1

Drawing No. **C-110**

V:\161414\active\161414473\design\drawing\draft sheet_files\Concept\sh161414473_C-110SS-Con.dwg
9/24/2025 11:11:38 AM By: Machan, Sarah
ORIGINAL SHEET - ARCH D

Stantec

Lockbridge Development Inc
Smithville 3A

DATE: September 2, 2025
DESIGNED BY: SJM
CHECKED BY: SAK

SANITARY SEWER DESIGN SHEET

FILE NUMBER: N/A
Project Number 161414473

Design Parameters

Mininum Velocity=	0.600 m/s	Residential:	255 L/day/Person
			0.0030 L/s/Person
n=	0.013	Comercial:	1.500 L/s/Ha
Max Peak Factor=	5.000	Industrial:	1.000 L/s/Ha
Min Peak Factor=	2.000	Institutional:	0.375 L/s/Ha
Ex. Infiltration:	0.400 L/s/Ha	Infiltration:	0.286 L/s/Ha

LOCATION			RESIDENTIAL AREA AND POPULATION								COMMERCIAL			INDUSTRIAL			INSTITUTIONAL				INFILTRATION				PIPE SELECTION						
Street	U/S	D/S	Area ID	Residential Area (ha)	Population Density (P/ha)	Population (P)	Cummulative Area (ha)	Cumulative Population (min)	Peak Factor	Peak Flow L/s	Area ID	Area (ha)	Accumulated Area (ha)	Area ID	Area (ha)	Accumulated Area (ha)	Area ID	Area (ha)	Accumulated Area (ha)	Total C+I+I Flow (L/s)	Total Area (ha)	Accumulated Area (ha)	Flow (L/s)	Total Flow (L/s)	Length Design (m)	Design Size (mm)	Slope Design (%)	Full Capacity (L/s)	Full Velocity (m/s)	Actual Velocity (m/s)	Q_A/Q_C (%)
Townline Road			2A	1.85	60	111																									
			2B	0.88	0	0																									
			2C	0.78	60	48																									
			2D	0.86	60	52																									
	72	71		4.37		211	4.37	211	4.14	2.58			0.00			0.00			0.00	0.00	4.37	4.37	1.748	4.33	95.7	200	0.60	25.41	0.81	0.92	17.0%
	71						4.37	211					0.00			0.00			0.00	0.00											
Phase 1 Draft Plan			1A	0.82	0	0																									
			1B	0.56	60	34																									
			1C	0.33	0	0																									
			1D	0.29	60	18																									
			1E	1.97	0	0																									
			1F	0.70	60	43																									
			1G	0.37	60	22																									
			1H	0.35	60	21																									
			1I	0.49	60	30																									
			20A	0.21	60	13																									
			20B	0.11	60	7																									
			20C	0.06	0	0																									
			20D	0.56	60	34																									
			50A	0.38	60	24																									
External			50B	0.19	0	0																									
			50C	0.30	60	19																									
			50D	0.18	0	0																									
			50E	0.07	0	0																									
			50F	0.12	60	8																									
	284	142		8.06		273	8.06	273	4.10	3.30			0.00			0.00			0.00	0.00	8.06	8.06	2.305	5.61	43.7	200	0.50	23.19	0.74	0.84	24.2%
	142						8.06	273					0.00			0.00			0.00	0.00											
Phase 1 Draft Plan			1J	0.20	72	15																									
			1K	0.14	0	0																									
			1L	0.20	72	15																									
			1M	0.18	72	14																									
			1N	0.12	0	0																									
			1O	0.39	72	28																									
			1P	0.14	0	0																									
			1Q	0.17	72	13																									
			3A	0.12	75	10																									
			3B	0.23	0	0																									
			3C	0.84	110	93																									
			3D	0.07	60	5																									
			3F	0.10	0	0																									
			3G	0.09	60	6																									
			3H	0.99	0	0																									
			3I	0.11	60	7																									
			3J	0.60	0	0																									
			3K	0.13	60	8																									
			3L	0.67	60	41																									
			3M	0.10	60	6																									
			3N	0.22	75	17																									
			3P	0.24	60	15																									
	267	142		6.05		293	6.05	293	4.08	3.53			0.00			0.00			0.00	0.00	6.05	6.05	1.730	5.26	56.7	200	1.60	41.49	1.32	1.51	12.7%
	142						6.05	293					0.00			0.00			0.00	0.00											
Phase 1 Draft Plan	142	71					14.11	566	3.95	6.59			0.00			0.00			0.00	0.00	0.00	14.11	4.035	10.63	85.1	200	0.51	23.42	0.75	0.85	45.4%
	71						14.11	566					0.00			0.00			0.00	0.00											
Townline Road			4A	1.02	110	113																									
			4B	0.31	0	0																									
	71	70		1.33		113	19.81	890	3.83	10.07			0.00			0.00			0.00	0.00	1.33	19.81	6.315	16.38	68.9	200	0.60	25.41	0.81	0.92	64.5%
	70						19.81	890					0.00			0.00			0.00	0.00											

Stantec

Lockbridge Development Inc
Smithville 3A

DATE: September 2, 2025
DESIGNED BY: SJM
CHECKED BY: SAK

SANITARY SEWER DESIGN SHEET

FILE NUMBER: N/A
Project Number 161414473

Design Parameters

Mininum Velocity=	0.600 m/s	Residential:	255 L/day/Person
			0.0030 L/s/Person
n=	0.013	Comercial:	1.500 L/s/Ha
Max Peak Factor=	5.000	Industrial:	1.000 L/s/Ha
Min Peak Factor=	2.000	Institutional:	0.375 L/s/Ha
Ex. Infiltration:	0.400 L/s/Ha	Infiltration:	0.286 L/s/Ha

LOCATION			RESIDENTIAL AREA AND POPULATION								COMMERCIAL			INDUSTRIAL			INSTITUTIONAL				INFILTRATION				PIPE SELECTION						
Street	U/S	D/S	Area ID	Residential Area (ha)	Population Density (P/ha)	Population (P)	Cummulative Area (ha)	Cumulative Population (min)	Peak Factor	Peak Flow L/s	Area ID	Area (ha)	Accumulated Area (ha)	Area ID	Area (ha)	Accumulated Area (ha)	Area ID	Area (ha)	Accumulated Area (ha)	Total C+I+I Flow (L/s)	Total Area (ha)	Accumulated Area (ha)	Flow (L/s)	Total Flow (L/s)	Length Design (m)	Design Size (mm)	Slope Design (%)	Full Capacity (L/s)	Full Velocity (m/s)	Actual Velocity (m/s)	Q_A/Q_C (%)
	70	69					19.81	890	3.83	10.07			0.00			0.00			0.00	0.00	0.00	19.81	6.315	16.38	67.5	200	1.70	42.76	1.36	1.55	38.3%
	69						19.81	890					0.00			0.00			0.00	0.00											
Shurie Road (W)			11A	0.25	60	16																									
			11B	1.19	0	0																									
			11C	0.32	60	19																									
			11D	0.19	60	12																									
			11E	0.08	0	0																									
			11F	0.07	0	0																									
			11G	1.38	60	83																									
			11H	1.08	60	65																									
			11I	1.80	75	135																									
			11J	0.14	60	9																									
	93	69		6.50		339	6.50	339	4.06	4.06			0.00			0.00			0.00	0.00	6.50	6.50	2.600	6.66	85.5	200	0.55	24.32	0.77	0.88	27.4%
	69						6.50	339					0.00			0.00			0.00	0.00											
Townline Road			5A	0.25	60	15																									
			5B	0.36	0	0																									
			5C	0.69	60	42																									
	69	77		1.30		57	27.61	1286	3.73	14.15			0.00			0.00			0.00	0.00	1.30	27.61	9.435	23.58	119.5	250	0.49	41.63	0.85	0.97	56.6%
	77	76					27.61	1286	3.73	14.15			0.00			0.00			0.00	0.00	0.00	27.61	9.435	23.58	84.4	250	1.09	62.09	1.26	1.44	38.0%
	76						27.61	1286					0.00			0.00			0.00	0.00											
Townline Road			9A	0.25	60	16																									
			9B	0.28	0	0																									
			9C	0.28	60	17																									
Shurie Road (E)			12A	1.26	60	76																									
			12B	3.62	0	0																									
			12C	0.52	60	32																									
			12D	0.83	60	50																									
			12E	0.18	60	12																									
			12F	0.07	0	0																									
			12G	1.23	0	0																									
			12H	0.07	0	0																									
			12I	0.19	60	12																									
			12J	1.06	60	64																									
			12K	1.24	60	75																									
			12L	3.03	60	183																									
			12M	1.22	60	73																									
			12N	1.03	60	63																									
Townline Road	78	76		16.36		673	16.36	673	3.90	7.76			0.00			0.00			0.00	0.00	16.36	16.36	6.544	14.30	111.6	250	0.46	40.33	0.82	0.94	35.5%
	76						16.36	673					0.00			0.00			0.00	0.00											
Anderson Crescent			8A	0.56	60	34																									
			8B	0.24	0	0																									
			8C	0.27	60	17																									
	76	85		1.07		51	45.04	2010	3.58	21.26			0.00			0.00			0.00	0.00	1.07	45.04	16.407	37.67	95.3	300	0.37	58.82	0.83	0.95	64.0%
	85	84					45.04	2010	3.58	21.26			0.00			0.00			0.00	0.00	0.00	45.04	16.407	37.67	16.5	300	0.63	76.75	1.09	1.24	49.1%
	84	83					45.04	2010	3.58	21.26			0.00			0.00			0.00	0.00	0.00	45.04	16.407	37.67	10.3	300	0.87	90.20	1.28	1.45	41.8%
	83						45.04	2010					0.00			0.00			0.00	0.00											
Anderson Crescent			7A	0.64	60	39																									
			7B	0.30	0	0																									
			7C	0.28	60	17																									
	87	86		1.22		56	1.22	56	4.30	0.71			0.00			0.00			0.00	0.00	1.22	1.22	0.488	1.20	80.2	200	1.18	35.63	1.13	1.29	3.4%
	86	83					1.22	56	4.30	0.71			0.00			0.00			0.00	0.00	0.00	1.22	0.488	1.20	54.0	200	0.73	28.02	0.89	1.02	4.3%
	83						1.22	56					0.00			0.00			0.00	0.00											
North to SPS	83	82					46.26	2066	3.57	21.80			0.00			0.00			0.00	0.00	0.00	46.26	16.895	38.69	43.8	300	0.32	54.70	0.77	0.88	70.7%
	82	81					46.26	2066	3.57	21.80			0.00			0.00			0.00	0.00	0.00	46.26	16.895	38.69	87.5	300	0.35	57.21	0.81	0.92	67.6%
	81	80					46.26	2066	3.57	21.80			0.00			0.00			0.00	0.00	0.00	46.26	16.895	38.69	113.5	250	0.27	30.90	0.63	0.72	125.2%
	80	79					46.26	2066	3.57	21.80			0.00			0.00			0.00	0.00	0.00	46.26	16.895	38.69	13.1	250	1.38	69.86	1.42	1.62	55.4%
	79						46.26	2066					0.00			0.00			0.00	0.00											

APPENDIX E-3

TOWNSHIP OF WEST LINCOLN INTERIM WASTEWATER CAPACITY MANAGEMENT STRATEGY,
SMITHVILLE CAPACITY MANAGEMENT STRATEGY REPORT, DATED JUNE 8, 2025
BY AGILE INFRASTRUCTURE

Township of West Lincoln
Interim Wastewater Capacity Management Strategy

Smithville Capacity Management Strategy Report

June 08, 2025



Agile
INFRASTRUCTURE

Township of West Lincoln – Interim Wastewater Capacity Management Strategy

Smithville Capacity Management Strategy

June 8, 2025

PROJECT NO. W03-001-01

Prepared For:

Township of West Lincoln

By:

Julien Bell
Vice President

Checked By:

Nick Larson
President

Agile Infrastructure Limited.
16 Welsh Drive
Ayr Ontario, N0B 1E0

E-1. Executive Summary

E-1.1. Introduction

The Township of West Lincoln's Smithville community is anticipated to accommodate substantial growth over the next 20-30 years. The Township's Smithville Master Community Plan's growth projections anticipate the population of Smithville to grow from 7,100 people in 2021 to 29,000 people by 2051, with potential for an additional 5,000 to 10,000 people in the foreseeable future post 2051. The proposed growth represents a 300% increase in the population, requiring substantial expansion of new infrastructure and upgrades to the Township and Regional water and wastewater infrastructure.

While the Township and the Region have a clear plan to support long-term capacity needs, due to the current processes for approving and constructing this type of infrastructure, the timing for available capacity to discharge additional wastewater flows out of Smithville may be 10 years or more, as documented in the Water and Wastewater Master Servicing Plan Update.

Further, the prior studies have also identified existing capacity limitations to the current Smithville wastewater system, with the Smithville SPS reporting an average of five (5) overflow events per year since 2019. While there is potential to gain some limited capacity in the system through inflow and infiltration (I&I) reductions and minor upgrades to the Smithville SPS, to support growth within Smithville's these capacity gains are insufficient compared to the anticipated short to medium-term growth rates, and new infrastructure and upgrades to the existing system will be required to support all the proposed growth.

The Township and the Region require short to medium term growth capacity in the Smithville wastewater system to approve the planning developments and build homes. The Township and the Region developed this Interim Wastewater Capacity Management Strategy that provides clear guidance, a rational plan, and a monitoring plan that could potentially allow for the realization of growth capacity prior to the implementation of new wastewater infrastructure and the recommended Regional trunk wastewater system upgrades outlined in the Smithville Master Community Plan.

E-1.2. System Overview

Figure E-1 provides an overview of the Smithville wastewater system. The Smithville wastewater system mainly consists of a gravity sewer network that collects and conveys local flows to the Region's Smithville SPS, where all Smithville flows are collected and pumped to the Baker Road WWTP (located in the Town of Grimsby) via a >10km forcemain and >4 km trunk sewer. A small portion of northwest Smithville is also serviced by the Streamside SPS, where flows ultimately discharge to the Smithville SPS via local gravity sewers.

West Lincoln

Interim Wastewater Capacity Management Strategy

Wastewater System

- Sewers
- St Catharines Street Primary Sewer
- Twenty Mile Creek Primary Sewer
- Anderson Crescent Primary Sewer
- Forcemains
- Pump Stations

Streamside SPS

Smithville SPS

0 250 500 m

Figure E-1
Smithville Wastewater System

Agile INFRASTRUCTURE

June 2025
W03-001-01
EPSG:26917

Three (3) primary sewers collect and convey flows to the Smithville SPS, consisting of:

- The 375 mm to 450 mm Twenty Mile Creek sewer, which generally runs along Twenty Mile Creek from Wade Road to the Smithville SPS, collects the majority of the flows west of the Smithville SPS. The Region's Streamside SPS outlets to a tributary of the Twenty Mile Creek sewer.
- The 450 mm Catharine Street Sewer collects multiple sewers along St. Catharines Street and conveys them to the Smithville SPS. The sewer generally collects the flows north of Twenty Mile Creek and east of the Union Cemetery.
- The 250 mm Anderson Crescent sewer collects the flows south of Twenty Mile Creek and east of Rock Street Park, conveying flows under the creek and to the Smithville SPS.

E-1.2.1. SMITHVILLE SPS

The Smithville SPS collects and conveys all wastewater flows from the Smithville wastewater system to the Grimsby wastewater system and ultimately the Baker Road WWTP via a >10km Regional forcemain and >4 km Regional trunk sewer. The Smithville SPS overflows are managed via pumping because the overflow storage tank does not have a gravity overflow outlet. The overflow tank is equipped with a single electrical drive and a single diesel drive overflow pump. Additionally, the Township maintains two additional gas-operated portable pumps if needed. It is noted that basement elevations of existing homes upstream of the Smithville SPS restrict the operational levels of the overflow storage tank, reducing the available storage capacity.

The Smithville SPS and overflow tank are Region-owned, and the Region reports on overflow events. However, under a memorandum of understanding, Township Staff assist with pumping the overflow tank when required.

All prior studies (including the 2021 Baker Road WWTP Pollution Prevention Control Plan, 2023 Smithville Master Community Plan, Niagara Region 2021 Water and Wastewater Master Plan Update Study) identify capacity constraints within the existing Smithville SPS. **Table E-1** summarizes the Smithville SPS flows outlined in the Region's MSPU and the updated design peak wet weather flows from the updated model.

The Smithville SPS has a design firm capacity of 120 L/s and a noted operational firm capacity of 104 L/s. However, the peak design flows to the station exceed the design capacity of the SPS. The peak design flows are calculated using the Regional wet weather design allowance of 0.4 l/s/ha for the existing area and 0.286 L/s/ha for the new greenfield development, as well as the estimated peak flows under a 5-Year design storm. It should be noted that the Smithville SPS was designed using the design criteria at the time (2003), which did not account for peak

wet weather flows. Over the last 10 years, the Region has worked with local municipalities to review and update their design standards to better reflect the peak wet weather flows observed in the Region, with a focus on the joint management of peak flows through increased trunk conveyance capacity and increased focus on wet weather flow reductions.

Table E-1 Smithville SPS – Station Design Flows

Station Design Flows	Flow Rate (L/s)
Station ECA Firm Capacity(1)	120
Station Operation Firm Capacity(1)	104
Average Dry Weather Flow	32
Peak Dry Weather Flow	84
Peak Wet Weather Flow - Regional Design Allowance Flow(2)	231
Peak Wet Weather Flow 2-Year Design Storm	303
Peak Wet Weather Flow 5-Year Design Storm	331
Peak Wet Weather Flow 10-Year Design Storm	345

1 Firm Capacity based on the largest pump being out of service.

2 Wet weather flows were calculated using a 0.4 l/s/ha allowance for existing catchment areas and a 0.286 L/s/ha allowance for new development areas, as per the MSPU.

Table E-2 summarizes the prior reported overflows at the Smithville SPS from 2019 to 2024. On average, the system experiences five (5) overflows for an average of 14.6 ML a year.

Table E-2 Smithville SPS – Reported Overflows from 2019-2024

Year	# of Overflow Events	Total Overflow Volume (ML)
2019	8	9.3
2020	2	4.8
2021	5	15.6
2022	6	18.3
2023	9	17.5
2024	4	22.5

E-1.2.2. Short-Term Upgrade Strategy

The following short-term upgrades are planned to be implemented within the next 5 years:

- Upgrade the existing 200 mm and 250 mm sewers on West Street, between South Grimsby Road and Wade Road, to 300 mm (2025/2026);
- Upgrade the existing 300 mm sewer on Wade Road, between West Street and Twenty Mile Creek, to 375 mm (2025/2026);
- Complete minor pump and equipment upgrades at the Smithville SPS to increase the station's design capacity from 120 L/s to 150 L/s; and,
- Complete capacity upgrades to the Streamside SPS up to the capacity of the existing forcemain to support local growth needs.

Under the short-term upgrade strategy, the Streamside SPS flows will continue to be directed to the Twenty Mile Creek sewer. However, under the long-term strategy, the Streamside SPS flows will be redirected northwards via a new forcemain to a new Centralized SPS, bypassing the Twenty Mile Creek Sewer.

Additionally, the 2023 Smithville Master Community Plan and the Township's Development Charges identify the need to upgrade the existing 250 mm sewer from Anderson Crescent to Smithville SPS to 300 mm to support growth in Phase 3A Block Plan Area 9.

E-1.2.3. Long-Term Upgrade Strategy

Figure E-2 provides an overview of the long-term servicing strategy as identified in the Smithville Master Community Plan, consisting of the following major system upgrades:

- Construct a new Centralized SPS in the northwest quadrant to service the Smithville Community, including construction of a local sewer network to collect greenfield growth areas to the new Centralized SPS.
    - The new Centralized SPS will discharge to the existing/upgraded Smithville to Grimsby forcemain.
- Construct a new forcemain to redirect the Streamside SPS to the new Centralized SPS.
- Construct a new Southeast SPS and forcemain to service the new greenfield growth along Smithville's western and southern edges, including construction of a local sewer network to collect greenfield growth areas south of Twenty Mile Creek.
    - The new Southeast SPS will discharge to the Smithville SPS.
- Upgrade the capacity of the Smithville SPS and construct a new forcemain to redirect discharges to the new Centralized SPS.

E-1.3. Smithville Growth Context

The Township maintains a register of development applications and inquiries, which represent the potential short-to medium-term growth potential within the community. **Table E-3** summarizes the total development units and projected flows.

There are currently 833 draft plan-approved units, representing a total population of 2,582 people or 37.6 L/s of flow. While the total short-term and medium-term growth potential of 161.8 L/s exceeds the Smithville SPS's existing capacity, interim capacity solutions will seek to maximize the available development capacity within the existing system.

Implementing the long-term upgrade strategy is needed to support the full buildout of the current development registry and additional greenfield growth within the newly expanded urban boundary.



Figure E-2 Long-term Trunk Upgrade Strategy

Table E-3 Smithville Short-Term Development Potential

Development Status[1]		Units	Population	Design Flow (L/s)[2]
Draft Plan Approved – Existing Urban Boundary		833	2,582	37.6
Draft Plan Submitted	Existing Urban Boundary	1629	5,050	73.6
	Urban Boundary Expansion Lands	196	608	8.9
Pre-Consultation	Existing Urban Boundary	187	580	8.4
	Urban Boundary Expansion Lands	736	2281	33.3
Total		**3,581**	**11,101**	**161.8**

1 Development Status as of February 2025
2 Growth flows were estimated using the following criteria:
- Population density of 3.1 people per unit
- Region's residential per capita rate of 255 L/person/day
- Wet weather flow allowance of 0.286 L/s/ha
- Peak flows are estimated using Harmon's peaking factor for the total growth population

E-1.4. Risk Management Approach to Find Capacity

Existing wastewater system flows during major precipitation events exceed the wastewater system capacity. However, a combination of system storage and pumped overflows to the environment mitigates significant sewer surcharging and basement flooding risk.

The existing Smithville SPS can accommodate existing typical dry weather flows, with additional dry weather flow capacity to accommodate a substantial portion of the identified short-term growth potential. However, existing wet weather flows to the Smithville SPS exceed the station's capacity, resulting in sewer surcharging and system overflows. As such, when we apply the Township's and Region's currently defined wastewater system hydraulic performance criteria for peak wet weather flows, the existing Smithville system does not have the capacity to accommodate additional flows until the planned Township and Regional upgrades are implemented and new infrastructure is constructed.

However, there is an opportunity to utilize a risk-based approach to assess system capacity. This approach allows for additional system overflows and increased sewer surcharging, provided sewer surcharge freeboard levels remain below critical basement elevations. The following highlights key factors and opportunities of this approach:

- Under this approach, the system may have limited additional growth capacity to accommodate development without implementing interim measures;

- This approach will result in short-term increased sewer surcharging and system overflows, requiring a high degree of confidence in modeled system performance, critical system elevations, and operational response procedures;
- Capacity gained through inflow and infiltration reductions and minor upgrades to the Smithville SPS would be released as available growth capacity.
- Following the confirmation of the capacity gains achieved through various activities, there will be an opportunity for a phased release of growth allocation; and,
- There may be an opportunity, once an allocation policy is developed, to enter into a funding agreement with individual developers to fund localized inflow and infiltration reduction works and system post development flow monitoring in exchange for growth capacity.

The Risk Managed approach does rely on a short-term increase in system overflow volumes at an existing active overflow location to gain additional interim growth capacity. However, the strategy does not cause overflows at additional locations and is anticipated to provide sufficient system protection so as not to increase the risk of basement flooding within the existing network. Further, the combined remedial actions provide an opportunity, through the ongoing implementation of I&I reduction program, to reduce the short-term overflow volume back down to existing rates.

Ultimately, implementing the long-term term upgrade strategy will allow for a substantial reduction and potential elimination of overflow at the Smithville SPS; however, the funding of the required upgrades is partially dependent on the revenues gained through development, necessitating the need to accommodate the interim capacity management strategy.

E-1.5. Risk Assessment Strategy

E-1.5.1. Remedial Activities

Table E-4 summarizes remedial actions that will reduce overflow and basement flooding risk. Only actions that could be reasonably implemented within a 3-year timeframe were considered.

Table E-4 Potential Remedial Action

Remedial Activity		Description	Impact on System Performance	Implementation Timeline
Operational Change	Lower the Overflow Alarm and Pump Setpoints	• Update the Smithville SPS SOP by lowering the Smithville SPS overflow pumping triggers by 0.5 m.	• Increases the operational response time, reducing the likelihood of the SPS levels surcharging beyond the system's basement flooding levels. • Increase the available storage volume at the SPS to help buffer high system flows and reduce the surcharging of SPS levels. • Will result in increased alarm calls and may result in increased overflow pumping frequency.	Less than 1 month
	Acquire Additional Overflow Pumps	• Purchase additional portable gas pumps and required hoses to provide additional overflow pumping capacity. • Update the Smithville SPS standard operating procedure to incorporate the additional portable gas pumps.	• Increase the overflow capacity of the Smithville SPS, helping to manage SPS levels under major flow events. • May result in increased overflow volumes.	Less than 2 months
Facility Upgrades	Minor Pumping and Equipment Upgrades	• Updated the existing pumps and equipment to increase the design firm capacity of the Smithville SPS from 120 L/s to 150 L/s.	• Increases the capacity of the SPS, allowing the stations to accommodate additional flows. • May result in decreased overflow pumping frequency and volumes.	Less than 6 months
System Upgrades	Smithville Inflow and Infiltration Reduction Program	• Complete the Smithville I&I reduction program.	• Reduce existing wet weather flow contributions from the existing system, resulting in reduced peak flows to the SPS. • May result in decreased overflow pumping frequency and volumes.	2 to 5 years.
Property Protection	Investigation and Implementation of Mitigation Measures at Higher Risk Properties	• Undertake additional investigation to confirm the basement type, floor elevations, and sewer connection configuration of properties with an identified higher risk of flooding. • Improved basement protection through rehabilitation/replacement/installation of sewer backflow preventor, and/or sump pump discharge.	• Reduces the potential for sewer backup into private properties when the fronting sewer experiences sewer surcharging. • This may allow for a change in the operational level of the overflow storage tank, potentially increasing available storage volumes, resulting in decreased overflow pumping frequency and volumes.	Less than 2 years

E-1.5.2. System Performance Findings

- Based on maintenance of the design peak dry weather flows below the Smithville SPS capacity, notwithstanding wet weather flow conditions and performance objectives, interim growth capacity at the SPS will be capped at the following:
    - 700 units at the Smithville SPS, existing operational firm capacity of 104 L/s
    - 1,300 units at the Smithville SPS, existing ECA design firm capacity of 120 L/s
    - 2,500 units at the Smithville SPS interim design capacity of 150 L/s
- The system's basement flooding risk is determined by a small subset of properties (approximately 26) where the existing 5-Year and 10-Year design storm sewer surcharge level is at or within 0.2 meters of the estimated basement flood elevation.
    - There is limited surplus capacity within the system to increase sewer surcharge levels without negatively affecting these existing properties. As such, the risk management approach will need to maintain the existing system's Hydraulic Grade Line.
    - Additional property-specific site inspection and flooding mitigation measures are recommended to further manage flooding risk under the proposed capacity allocation approach.
    - Following the property-specific site investigation and implementation of flood investigation measures, there may be an opportunity to increase the operational level of the overflow storage tank to allow additional system surcharging, thereby potentially reducing system overflow volumes and frequency.
- System surcharge levels and basement flooding risk are primarily the result of limited capacity at the Smithville SPS relative to the flows generated in the Smithville system during wet weather flow events. As such, the location of growth does not substantially change the overall system surcharge levels and basement flooding risk.
    - The existing system's wet weather flows are higher than the Region's design allowance of 0.4 L/s/ha for existing systems, contributing to the Smithville SPS's capacity limitations.
        - The system's existing peak wet weather flows are approximately 0.67 L/s/ha under the 5-year design storm.
        - Planned I&I reduction activities will help to reduce peak flow and total flow volumes to the SPS.

- However, even if the Township were able to reduce peak wet weather flow volumes down to the Region's 0.4 L/s/ha design allowance, peak flows to the station (approximately 230 L/s) would exceed the station's existing and planned short-term capacity of 104 L/s and 150 L/s, and system surcharging and need for overflow pumping would remain.

E-1.5.3. Remedial Action Recommendations

- Operational Changes
  - The lowering of the alarm level and overflow pumping trigger by 0.5 m provides capacity to accommodate approximately 100 units while maintaining the existing peak system HGL under the 5-Year design storm.
  - Acquiring additional gas overflow pumps can allow the Township to generally maintain the existing peak system HGL under the 5-Year design storm by offsetting the additional growth flows through additional overflow pumping during significant wet weather flow events.
- Pump Capacity Upgrades
  - The proposed station capacity upgrade from 104 L/s to 150 L/s does not provide sufficient additional capacity to eliminate system surcharging and/or the need to pump overflows.
  - The pumping upgrades will provide additional peak dry weather flow capacity, and when combined with the overflow pumping upgrades, can provide up to 1,500 units of growth capacity.
- Inflow and Infiltration Reduction
  - The growth capacity gained through I&I reduction will be subject to the extent and success of the Township's I&I reduction program. The Township can reasonably expect the I&I reduction program to provide 500 to 1,000 additional units of growth capacity, based on a minimum target reduction of 45 L/s of peak wet weather flow reduction.
  - The release of growth capacity gained through I&I reduction activities should be subject to post-remediation flow monitoring to confirm the magnitude of flow reductions.
  - Successful I&I activities within the Twenty Mile Creek sewer would allow for additional growth capacity beyond the currently identified 1,020 unit limit.

- The I&I reduction program should seek to achieve a net reduction equivalent to the full short-term growth potential of 2,500 units (113 L/s) to offset overflow volumes and frequency increases at the Smithville SPS.

E-1.6. Capacity Allocation Strategy

Based on the system risk assessment, it is recommended that the Township utilize the risk management approach to manage and allocate interim growth capacity for the Smithville system while mitigating the potential increased risk of basement flooding. **Table E-5** outlines the proposed capacity allocation strategy within each primary sewer upstream catchment and the total net available growth capacity at the Smithville SPS.

Table E-5 Capacity Allocation Strategy

Remedial Action	Timeline	Capacity Gained (units)(2)	Total Capacity Gained (units)(3)	Net Available Growth Capacity - By Primary Sewer (units)		
				Twenty Mile Creek Sewer(4)	Anderson Crescent Sewer(4)	St. Catharine Street Sewer(4)
Lower the Overflow Alarm and Pump Setpoints	2025	100	100	100	100	100
Acquire Additional Overflow Pumps	2025	700	800	800	196[1]	800
Minor Pumping and Equipment Upgrades	2025	700	1,500	1,020	196[1]	1,500
Smithville I&I Reduction Program Implementation	2026-2027	500	2,000	1,500[1]	196[1]	2,000
Smithville I&I Reduction Program Monitoring	2027-2028	Up to 500	2,500	2,000[1]	196[1]	2,500

1 Based on the current net development potential of 196 units.
2 Additional system capacity gained through the implementation of remedial actions.
3 Cumulative available system capacity gained through the implementation of remedial actions.
4 Total available capacity within the primary sewer catchment. Sewer catchment capacities are not cumulative, and total available system capacity governs.

Further, to track and manage interim system capacity, it is recommended that the Township, in consultation with the Region and the Development community, develop an appropriate capacity allocation policy that identifies a process for:

- When capacity is allocated to a specific development and/or phase of development.
- Tracking and monitoring of capacity allocation.
- When and how additional capacity will be released based on the completion of system upgrades and/or the construction of new infrastructure.
- When and how will the additional capacity resulting from I&I reduction be validated and released.
- For developers to fund I&I works and/or system upgrades in exchange for additional/reserved capacity allocation.

E-1.6.1. Capacity Monitoring

To support the capacity allocation and monitoring, the following monitoring program should be developed:

- Allocation of Capacity:
    - The Township should track allocated units on a system-wide and primary sewer basis against the allowable capacity identified in **Table E-5** of **Section E-1.6**
    - The Township should adjust available capacity based on the status of the identified Remedial Actions.
    - The Township's capacity allocation policy will identify the appropriate stage of development when available capacity can be allocated.
- Monitoring of Utilized Capacity:
    - The allocation capacity is based on the conversion of:
        - 10 Units = 0.275 L/s of peak dry weather flow capacity
        - 10 units = 0.452 L/s of peak wet weather flow capacity
    - The Township should complete ongoing flow monitoring to measure actual utilized capacity and adjust remaining available capacity accordingly.
        - Adjustments to the remaining available capacity should only be made based on no less than three months of continuous flow monitoring data, and the monitoring period should include at least one measured overflow event at the Smithville SPS.

        - Due to delays between the issuance of building permits and full occupancy, only units with building permits two years or older should be included in the utilized allocation calculation.
    - The Township should undertake post-remediation flow monitoring of any I&I works to confirm the volume of wet weather flow removed based on existing flow monitoring data.
        - The monitoring should be based on no less than three months of continuous flow monitoring data, and the monitoring period should include at least one measured overflow event at the Smithville SPS.
        - Estimation of flow reduction should be normalized to a L/s rate under the 5-Year design storm defined in the PPCP.
        - Reduction in I&I flow should not be applied against the maximum available dry weather flow capacity allocation.

E-1.7. Interim Capacity Management Implementation

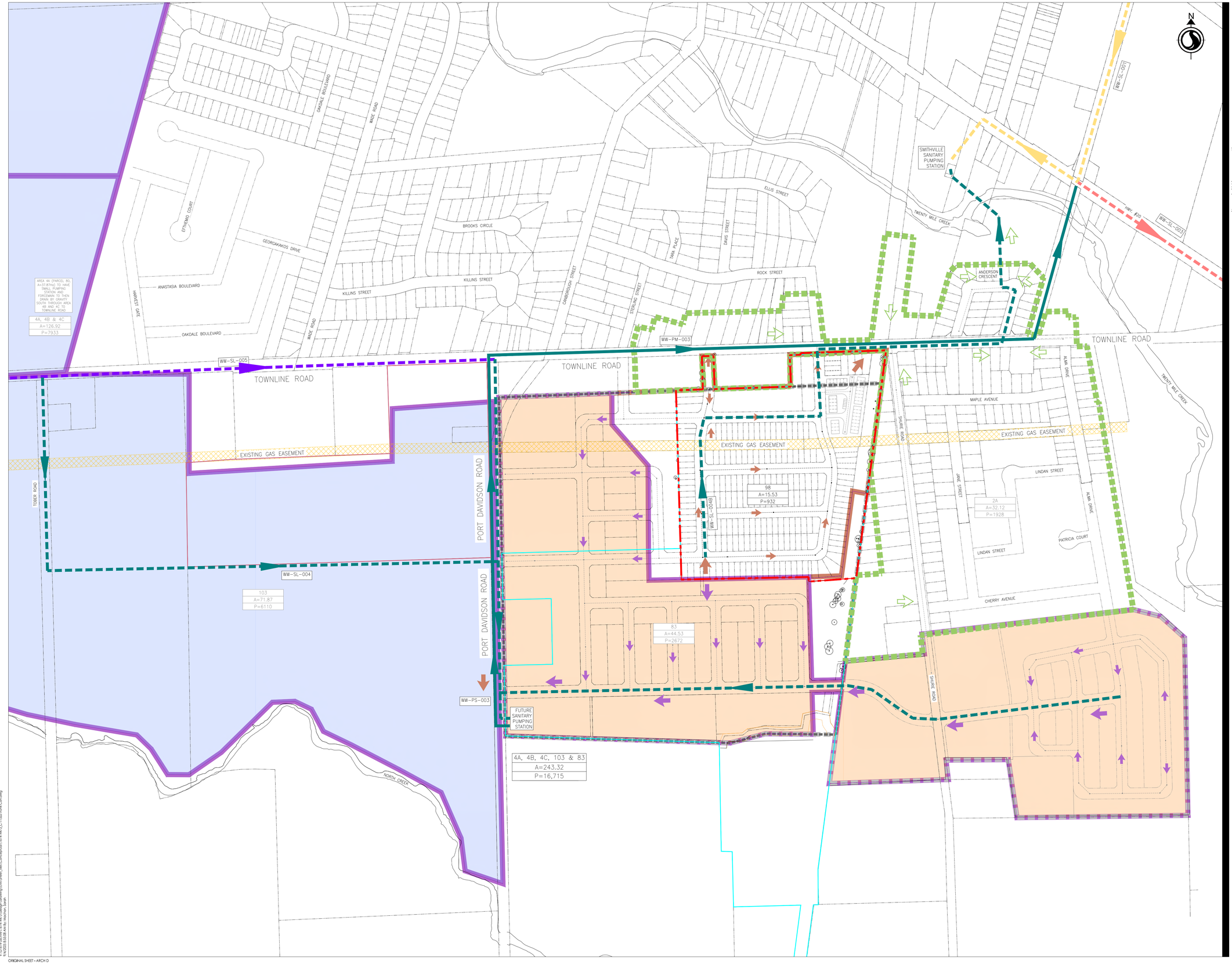
To support the implementation of the Interim Capacity Management Strategy, the following actions as activities are required:

- Township to develop a Capacity Allocation Policy.
- Township to develop an enhanced I&I reduction implementation plan to support the expanded I&I reduction program.
- Township and Region to complete the appropriate investigations, designs, and or feasibility studies to allow for the construction/implementation of the recommended system and SPS improvements.

It should be noted that additional funding beyond the current levels is required to support the enhanced I&I program.

APPENDIX E-4

PORT DAVIDSON SANITARY PUMPING STATION DRAINAGE AREA PLAN C-115



Stantec

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100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Tel: (519) 579-4410
www.stantec.com

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Notes

1. ELEVS ARE REFERRED TO THE CANADIAN GEODETIC VERTICAL DATUM (CGVD-1928:1978)
   BM1: CONCRETE CULVERT ALONG REGIONAL ROAD 65, 3.1 km WEST OF BISMARK, 80m EAST OF DWELLING AT 6250 REG. ROAD 65, TABLET ON TOP OF CULVERT 7.3m SW OF ROAD CENTRELINE. ELEV: 182.679
   BM2: TOP OF HEADWALL AT NE OF INTERSECTION OF TOWNLINE ROAD AND ROCK STREET ELEV: 185.740
2. BLOCK PLAN PREPARED BY ARCADIS, DATED AUGUST 2024.
3. DRAFT PLAN PREPARED BY ARCADIS, DATED AUGUST 2024.
4. TOPOGRAPHICAL SURVEY PREPARED BY METROPOLITAN CONSULTING INC., DATED MAY 2022. CONTOURS OUTSIDE OF THE PROPERTY LINE, HAVE BEEN OBTAINED FROM S.W.O.O.P. TOPOGRAPHIC INFORMATION (2010).
5. TREES SURVEYED BY STANTEC CONSULTING LTD. DATED APRIL 2025.

Legend

- PROPERTY LINE
- BLOCK 3A LIMIT
- BLOCK PLAN AREA 9 LIMIT
- STAGE 1 DRAFT PLAN LIMIT
- 30m SETBACK LIMIT
- EXISTING ENBRIDGE GAS EASEMENT (APPROXIMATE LOCATION)
- STAGE 1 SMITHVILLE GRAVITY SEWER
- STAGE 2 SMITHVILLE GRAVITY SEWER
- STAGE 2 SMITHVILLE FORCEMAN
- STAGE 3 SMITHVILLE GRAVITY SEWER
- STAGE 3 SMITHVILLE FORCEMAIN
- STAGE 4 SMITHVILLE GRAVITY SEWER
- WW-SL-004 — SMITHVILLE MCP CAPITAL PROJECT #
- PROPOSED AREAS TO DRAIN TO THE FUTURE SANITARY PUMPING STATION ON PORT DAVIDSON ROAD
- EXTERNAL AREAS TO DRAIN TO THE FUTURE SANITARY PUMPING STATION ON PORT DAVIDSON ROAD
- 2A / A=1.85 / P=111 — EXISTING CATCHMENT NUMBER / EXISTING AREA (Ha) / EX. POPULATION (FROM WEST LINCOLN MANUAL)
  SINGLE HOUSES = 60 p/ha
  SEMI-DETACHED HOUSES = 75 p/ha
  LOW DENSITY (TOWNHOUSES) = 110 p/ha
- EXISTING AREA BOUNDARY
- EXISTING FLOW DIRECTION
- 2E / A=0.13 / P=3 — PROPOSED CATCHMENT NUMBER / PROPOSED AREA (Ha) / PROP. POPULATION (FROM WEST LINCOLN MANUAL)
  SINGLE HOUSES = 60 p/ha
  LOW DENSITY (TOWNHOUSES) = 110 p/ha
  MEDIUM DENSITY = 250 p/ha
  COMMERCIAL = 120-750 p/ha (ASSUMING 500)
- PROPOSED AREA BOUNDARY
- PROPOSED FLOW DIRECTION
- 27 / A=6.31 / P=537 — FUTURE CATCHMENT NUMBER / FUTURE AREA (Ha) / FUT. POPULATION (FROM WEST LINCOLN MANUAL)
  SINGLE HOUSES = 60 p/ha
  LOW DENSITY (TOWNHOUSES) = 110 p/ha
  MEDIUM DENSITY = 250 p/ha
- FUTURE AREA BOUNDARY
- FUTURE FLOW DIRECTION

• FOR AREAS 4A, 4B, 4C AND 103 ASSUME 50% SINGLES AND 50% TOWNHOUSES = 85 p/ha

Revision		By	Appd	YYYY.MM.DD
1.	REVISED BLOCK PLAN	SJM	SAK	2025.08.22
0.	STAGE 1 DRAFT PLAN SUBMISSION	JH	KBL	2024.08.15

File Name: 161414473_C-115S-Trunk-Con	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
	WJE	WJE	SAK	2025.09.02

Permit-Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project
LOCKBRIDGE DEVELOPMENT INC.

SMITHVILLE PHASE 3A

Smithville, ON

Title
PORT DAVIDSON SANITARY PUMPING STATION DRAINAGE AREA PLAN

Project No.
161414473

Scale
1:4000 (0, 40, 120, 200m)

Revision
1

Drawing No.
C-115

V:\01414\active\161414473\design\drawings\published_files\Concepts\161414473_C-115S_trunk-Con.dwg
9/4/2025 8:53:08 AM By: Mochon, Steph

ORIGINAL SHEET - ARCH D

APPENDIX F
Stormwater Management Report

SMITHVILLE PHASE 3A
BLOCK PLAN AREA 9
PHASE 1 DRAFT PLAN
SMITHVILLE, ONTARIO
PRELIMINARY STORMWATER MANAGEMENT REPORT

September 30, 2025

Prepared for:

Lockbridge Development Inc.
25 Sable Street
North York ON M6M 3K8

Prepared by:

Stantec Consulting Ltd
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

Sign-off Sheet

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1.0 INTRODUCTION

Stantec Consulting Ltd. (Stantec) has been retained by Lockbridge Development (the "Client") to complete a Stormwater Management (SWM) strategy and design in conjunction with the Functional Servicing Report (FSR) in support of the Phase 1 Draft Plan and Block Plan Area 9 Approvals located in Smithville (Town), Township of West Lincoln (Township), Region of Niagara (Region). This Report provides the SWM Plan for the proposed development.

The purposes of this Report are to:

- Examine the existing drainage conditions and determine the applicable SWM criteria for the proposed site conditions to mitigate impacts of the proposed development.
- Provide a functional level SWM Plan to manage the runoff from the developed site.

1.1 BACKGROUND INFORMATION

The following data sources, background reports and technical guidelines were referenced while preparing this Report, the following should be read in conjunction with this report.

- Geotechnical Investigation, Smithville 3A/Block Plan Area 9 – Smithville, ON, prepared by Stantec Consulting Ltd., July 2, 2024.
- Smithville Phase 3A, Block Plan Area 9 Phase 1 Draft Plan Hydrogeological Assessment, Smithville, Ontario, prepared by Stantec Consulting Ltd., September 2025.
- Smithville Subwatershed Study Phase 3: Management, Implementation, and Monitoring Plan, Wood Environment and Infrastructure Solutions, April 2023.
- Erosion and Sedimentation Control Guide for Urban Construction, Toronto and Region Conservation Authority, 2019
- Stormwater Management Planning and Design (SWMPD) Manual, Ministry of the Environment, Conservation and Parks (MECP), March 2003.
- MTO Drainage Management Manual, Ministry of Transportation Ontario, 1997

1.2 SITE DESCRIPTION

The entire total area of Block Plan 9, which is part of Phase 3A area, is 63.5 hectares (ha) and consists of multiple Owners/Developers. The land is primarily undeveloped in existing conditions and the primary land use is agricultural. The site is approximately split two portions, with the north portion generally sloping and draining northeast to an existing culvert beneath Townline Road, while the southern portion drains southeast towards a trail bordering the east portion of the site. The site is bounded by Townline

Road to the north, Port Davidson Road to the West, Shurie Road to the east, and a woodlot with several residential properties to the south. A Site Location Plan can be found on Figure 1 in Appendix A.

1.3 GEOTECHNICAL CONDITIONS

The Site is located in the approximately 3,500 km^2 physiographic region of the Haldimand Clay Plain, which occupies the Niagara Peninsula between the Niagara Escarpment and Lake Erie. It is bounded by the Niagara River in the east and extends past Highway 6 connecting Hamilton on the Niagara Escarpment to Port Dover on Lake Erie. The Quaternary geology map shows that the general Site area is covered with glaciolacustrine silt and clay deposits, which have been described as poorly draining with low infiltration rates, resulting in surface ponding in poor drainage areas.

A Geotechnical Investigation was carried out onsite between February 27, 2024, to March 5, 2024. During this investigation, it was found that the subsurface stratigraphy could be summarized as an approximately 460 mm thick layer of topsoil which contained rootlets and comprised of silty sand, underlain by layer of silty clay, underlain by Dolostone bedrock. Within the bedrock, there were weathered rock cores, which are indicative of the karstic process. Karst formations were not confirmed but are known to be present in the general Site area and are potentially located onsite.

Monitoring wells were also installed onsite to aid in the measurement of groundwater level. Groundwater levels were varied and ranged from 181.7 mASL (metres above sea level) to 186.9 mASL. Existing grade elevations on site range from approximately 186.0 mASL to 191.0 mASL.

2.0 STORMWATER MANAGEMENT CRITERIA

The proposed SWM facilities shall be designed to provide the following levels of control as per the requirements of the Ministry of the Environment, Conservation, and Parks (MECP), the Niagara Peninsula Conservation Authority (NPCA), and the Township of West Lincoln. Additionally, criteria as outlined in the *Smithville Subwatershed Study Phase 3: Management, Implementation, and Monitoring Plan*, Wood Environment and Infrastructure Solutions, April 2023 were incorporated.

- **Quantity Control:** Quantity control shall be provided to maintain peak outflows at or below pre-development levels for the 2-year through 100-year design storm events. The *Smithville Subwatershed Study Phase 3: Management, Implementation, and Monitoring Plan*, Wood Environment and Infrastructure Solutions, April 2023 also provides unitary flow rates and storage volumes to be met at each specified outlet.

- **Quality Control:** The SWM facilities shall provide a sufficient permanent pool and extended detention volume to meet the MECP Enhanced (80% TSS removal) criteria to treat stormwater runoff and promote the at-source removal of contaminants. The 2023 Subwatershed Study (SWS) also provides guidance on the level of treatment to be provided by stormwater facilities (Wood, 2023), which also states 80% TSS removal for this site.

- **Erosion Control:** Stormwater runoff from the 25 mm storm event shall be stored and released over a minimum 24-hour period (48 hours preferred). Unitary discharge rates outlined in Table 2.2.3 of the SWS (Wood, 2023) shall be followed to mitigate erosion impacts at key locations throughout the watershed.

- **Infiltration and Water Balance**: Promote infiltration measures where possible and provide best efforts to match pre-development infiltration rates.

3.0 STORMWATER MANAGEMENT STRATEGY

Stormwater runoff from the site will be provided with onsite water quality and water quantity controls. The Stormwater management modelling software Visual OTTHYMO (VO) was used to simulate drainage conditions of the site under existing and proposed conditions.

Design storms were developed for the 2- ,5- ,10- ,25- ,50- , and 100-year events with IDF parameters from the Vineland Station, shown in Table 1 below. The 3-, 6-, and 12-hour Chicago storm distributions were developed and run to be consistent with the SWS (Wood, 2023). The 12-hour storm produced the highest peak flows and was used to determine the most conservative design. The Regional Storm (Hurricane Hazel) was also used to access the long-duration, high volume impacts on the end-of-pipe facilities. Each design storm up to the 100-year event will be controlled to equal or less than existing levels.

Table 1: IDF Parameters (Vineland Station)

Return Period	IDF Parameter		
	A	B	C
2-year	603.25	6.00	0.79
5-year	785.59	6.00	0.79
10-year	953.64	7.00	0.79
25-year	1119.02	7.00	0.79
50-year	1301.80	8.00	0.80
100-year	1426.00	8.00	0.80

IDF values were obtained from the vineland station historical data and interpolated using the GEV Method to obtain A, B, and C values for each design storm. All Chicago design storms use a time to peak ratio of 0.38 as per guidance from MTO Drainage Management Manual (MTO, 1997).

4.0 DRAINAGE CONDITIONS

4.1 EXISTING DRAINAGE CONDITIONS

Under existing conditions, the majority of runoff is split between flowing north and south via uncontrolled overland flow. Some flow from the east portion of the site drains east but is ultimately conveyed northwards via a ditch located on the border of the site to an existing headwall that leads to a 600 mm storm sewer on Townline Road. Some flow from the west end of the site is conveyed off-site through an existing 600 mm culvert located at Port Davidson Road. Flow from the north portion of the site is conveyed through an existing 900 mm culvert under Townline Road, and ultimately to Twenty Mile Creek, located north of the site. Flow from the south portion of the site is directed offsite, and flows into North Creek, which eventually contributes flow to Twenty Mile Creek. The dominant land use is agricultural with the site containing some landscaped and forested portions. Several external areas that are predominantly landscaped areas east of the site contribute drainage towards the drainage ditch that conveys flow northwards in existing conditions. Figure 2, provided in Appendix A, illustrates the existing conditions drainage areas. The following catchments were delineated for the existing site:

- **Catchment 100** – 10.57 ha of mostly agricultural land with some trees, draining north to the existing 900 mm culvert on Townline Road.
- **Catchment 101** – 0.04 ha of mostly landscaped area, located directly adjacent to Townline Road, draining north to the existing 900 mm culvert on Townline Road.
- **Catchment 102** – 7.24 ha of mostly agricultural land with some forested areas, draining eastward toward a ditch and conveyed north to the northeast outlet (existing 600 mm storm sewer).
- **Catchment 103** – 1.41 ha of mostly agricultural land with some driveway and rooftop area, draining westward towards the existing 600 mm culvert on Port Davidson Road.
- **Catchment 104** – 3.63 ha of mostly agricultural land with some rooftop, drive, and landscaped area, draining southwest off-site.
- **Catchment 105** – 9.75 ha of agricultural land, draining south off-site.
- **Catchment 106** – 1.27 ha of agricultural land and forested area, draining south off-site.
- **Catchment 120** – 4.33 ha of agricultural, rooftops, driveways, and landscaped area, draining towards catchment 100.
- **Catchment 121** – 2.12 ha of mostly agricultural land, draining south towards catchment 105.
- **Catchment 122** – 3.16 ha of mostly agricultural land, with some landscaped, rooftop, and driveway areas, draining southwest towards the existing 600 mm culvert on Port Davidson Road.
- **Catchment 123** – 1.39 ha of landscaped, agricultural, rooftop, and driveway area, draining northwest off-site.
- **Catchment 124** – 0.71 ha of external rooftop and landscaped area, draining west towards the drainage ditch and conveyed northwards to the northeast outlet (existing 600 mm storm sewer).
- **Catchment 125** – 0.18 ha of external landscaped and paved area, draining to the northeast outlet (existing 600 mm storm sewer).
- **Catchment 126** – 1.06 ha of external landscaped area, draining west towards the drainage ditch and conveyed northwards to the northeast outlet (existing 600 mm storm sewer).

Peak flows for both existing and proposed conditions were generated using the hydrological modelling software, VO. Hydrologic modelling files and results can be found in Appendix C.

4.2 PROPOSED DRAINAGE CONDITIONS

Under proposed conditions, the Site is to be developed as a mix of single-family, semi-detached, and townhomes. Catchments in the proposed model have been graded to generally flow in the same directions as in existing, to aid in matching or reducing peak flows and runoff volumes. The existing outlets that were described in Section 4.1 will remain as-is with quality, quality, and erosion control provided through the use of the two proposed SWM ponds. Figure 3, provided in Appendix A, shows the proposed conditions drainage areas. The following catchments were delineated for the proposed site:

- **Catchment 200** – 9.15 ha of residential area consisting of mostly single-family homes, landscaped area, and roadway, draining northwards towards the proposed north SWM pond.
- **Catchment 201** – 0.68 ha of residential area, draining to the proposed north SWM pond.
- **Catchment 202** – 0.31 of residential development fronting Townline Road, draining north off-site.
- **Catchment 203** – 0.20 ha of future roadway draining north to the 900 mm culvert on Townline Road.
- **Catchment 204** – 0.23 ha of future multiblock, draining to the proposed north SWM pond.
- **Catchment 205** – 0.52 ha of mostly landscaped rear-lots, draining east to the existing ditch and subsequently the northeastern outlet.
- **Catchment 206** – 2.60 ha of mostly forested area, draining north to the northeast outlet.
- **Catchment 207** – 11.60 ha of residential development, landscaped area, and roadway, draining southwards towards the proposed south SWM pond.
- **Catchment 208** – 0.95 ha of future medium density residential block, draining south towards catchment 207 and ultimately the proposed south SWM pond.
- **Catchment 209** – 1.76 ha area containing the proposed south SWM pond.
- **Catchment 210** – 0.62 ha of mostly forested area, draining south off-site.
- **Catchment 211** –1.00 ha area containing the proposed north SWM pond, maintenance path, and landscaped area.
- **Catchment 212** – 5.50 ha of future medium density residential block, landscaped area, and roadway, draining west towards the existing 600 mm culvert located on Port Davidson Road.
- **Catchment 213** – 0.12 ha of future roadway, draining north off-site.
- **Catchment 215 –** 0.63 ha of future medium density residential block, draining east towards the proposed south SWM pond.
- **Catchment 220 –** 1.71 ha of residential development, landscaped area, and roadway, draining east towards catchment 200 and ultimately the proposed north SWM pond.
- **Catchment 221** – 4.62 ha of residential development, landscaped area, and roadway, draining south towards catchment 207, and ultimately the proposed south SWM pond.
- **Catchment 222** – 1.17 ha of future medium density residential block, draining northwest off-site.
- **Catchment 223** – 0.70 ha of landscaped, agricultural, rooftop, and driveway area, draining south towards catchment 200 and ultimately the proposed north SWM pond.
- **Catchment 224** – 0.64 ha of rooftop and mostly landscaped rear-lots, draining south towards catchment 200 and ultimately the proposed north SWM pond.

- **Catchment 226** – 0.05 ha of paved sidewalk and landscaped area, draining northeast to the existing 600 mm storm sewer.
- **Catchment 227** – 0.13 ha of landscaped and paved area, draining northeast to the existing 600 mm storm sewer.
- **Catchment 228** – 0.71 ha of rooftop and landscaped area, draining west to the existing ditch and ultimately conveyed to the northeast existing 600 mm storm sewer.
- **Catchment 229** – 1.07 ha of landscaped area, draining northwest to the existing ditch and ultimately conveyed to the northeast existing 600 mm storm sewer.

5.0 STORMWATER MANAGEMENT CONTROLS

Stormwater Management controls are to be primarily provided by two proposed 'wet' SWM Facilities, with one located at the north end of the site and one at the south. Facilities were designed based on the MECP design manual (2003, MECP), with additional criteria guidance from the Smithville SWS (Wood, 2023). Details regarding their specifications can be found in the following sections.

5.1 NORTH SWM FACILITY

As mentioned, a wet pond is proposed to be installed in the north portion of the development to provide water quantity, quality, and erosion control prior to discharge to the 900 mm culvert under Townline Road. The proposed pond design has a bottom elevation of 184.00 mASL and a top of bank elevation at 187.00 mASL. The maximum 100-year ponding elevation is 186.62 mASL. One orifice plate and a 600 mm outlet pipe are included in the outlet design to attenuate peak flow rates to the required quantity and erosion control targets. A dual orifice configuration was selected for the outlet of the SWM pond such that the SWS unitary discharge requirements could be met for erosion control purposes, while keeping flows lower than existing conditions and without overtopping the berm. The pond is designed to retain and discharge the runoff volume resulting from up to and including 100-year rainfall event; however, in the event of an overflow due to clogging or a rainfall event in excess of the 100-year event, an emergency spillway is proposed to convey flow downstream, which will be directed towards Townline Road. To prevent untreated runoff from infiltrating out of the SWM pond, it is recommended at this stage to provide a liner within the facility; however, further details related to the design of the liner are recommended to be re-visited and explored at the detailed design stage by a Geotechnical Engineer. In Tables 2 and 3, the design and operating characteristics of the proposed wet pond can be found alongside a preliminary SWM Facility Drawing (C-800) located in Appendix A.

Table 2: North SWM Facility Design Characteristics

Parameter	Characteristics
Total Contributing Area	14.1 ha
Total Percent Impervious	65%
Bottom Elevation of Forebay	184.00 m
Permanent Pool Elevation (Forebay)	185.50 m
Pond Top Elevation	187.00 m
100-year Water Level (based on the 100-year Chicago Storm)	186.62 m
Quality Control (Enhanced)	
Required Permanent Pool Volume (per hectare)	173 m^3/ha
Required Permanent Pool Volume (+10%)	2,690 m^3
Provided Permanent Pool Volume	5,076 m^3
Erosion Control	
SWS Erosion Control Unitary Volume[1]	400 m^3/imp.ha
Required Erosion Control Volume	3,669 m^3
Provided Erosion Control Volume	3,787 m^3
SWS Unitary Discharge [1]	0.001 m^3/s/ha
Required Maximum Erosion Control Discharge Rate	0.014 m^3/s
Provided Maximum Erosion Control Discharge Rate	0.014 m^3/s
Outlet Structure Details	
Orifice #1 Invert	185.50 m
Orifice #1 Diameter	90 mm
DICB invert	186.20 m
DICB Pipe Outlet Invert	185.40 m
DICB Pipe Outlet Diameter	600 mm
Emergency Overflow Spillway invert	186.70 m
Emergency Overflow Spillway width	18 m
Emergency Overflow Spillway side slopes (H:V)	5:1

1. Based on the Twenty Mile Creek SWS Table 2.2.3 Stormwater Facility Sizing Criteria

Table 3: North SWM Facility Operating Characteristics

Design Storm	Max. Storage Volume (m^3)	Max. Level (m)	Freeboard (m)	Drawdown time (Hours)	Peak Outflow (m^3/s)
25 mm Event	1,950	185.88	1.12	92.9	0.010
2-year	3,610	186.17	0.83	132.8	0.013
5-year	4,130	186.26	0.74	137.6	0.10
10-year	4,540	186.32	0.68	138.5	0.25
25-year	5,100	186.41	0.59	138.9	0.51
50-year	5,670	186.50	0.50	139.2	0.69
100-year	6,450	186.62	0.38	139.5	0.74
Hurricane Hazel	7,770	186.81	0.19	139.8	1.98

In Table 4 below, the peak flow to the northern outlet is compared to the 25- and 100-year targets from the SWS (Wood, 2023), showing that the proposed flow rates from the SWM Facility are below target levels. Additionally, existing flow rate targets are maintained, which is discussed in subsequent sections.

Table 4: Comparison of Peak Flow Targets in SWS study

Design Storm	Drainage Area (ha)	Unitary Flow Rate ($m^3/s/ha$)	SWS Study Target Flow (m^3/s)	Proposed Peak Flow Rate at the Townline Culvert (m^3/s)
25-year	14.07	0.053	0.75	0.52
100-year		0.095	1.34	0.75

5.2 SOUTH SWM FACILITY

As mentioned, an additional wet pond is proposed at the south end of the block to provide the necessary water quantity, quality, and erosion controls for flows discharged to the south. The proposed pond design has a bottom elevation of 185.70 mASL and a top of bank elevation at 188.70 mASL. The maximum 100-year ponding elevation is 188.20 mASL. One orifice plate and a 600 mm outlet pipe are included in the outlet design to attenuate peak flow rates to the required quantity and erosion control targets. The pond is designed to retain and discharge the runoff volume resulting from up to and including 100-year rainfall event; however, in the event of an overflow due to clogging or a rainfall event in excess of the 100-year event, an emergency spillway is proposed to convey flow downstream. In Tables 5 and 6, the design and operating characteristics of the proposed wet pond can be found alongside a preliminary SWM Facility Drawing (C-801) located in Appendix A.

Table 5: South SWM Facility Design Characteristics

Parameter	Characteristics
Total Contributing Area	19.6 ha
Total Percent Impervious	65%
Bottom Elevation of Forebay	185.70 m
Permanent Pool Elevation (Forebay)	187.20 m
Pond Top Elevation	188.70 m
100-year Water Level (based on the 100-year Chicago Storm)	188.20 m
Quality Control (Enhanced)	
Required Permanent Pool Volume (per hectare)	213 m^3/ha
Required Permanent Pool Volume (+10%)	3,729 m^3
Provided Permanent Pool Volume	7,457 m^3
Erosion Control	
SWS Erosion Control Unitary Volume[1]	400 m^3/imp.ha
Required Erosion Control Volume	5,086 m^3
Provided Erosion Control Volume	6,980 m^3
SWS Unitary Discharge [1]	0.001 m^3/s/ha
Required Maximum Erosion Control Discharge Rate	0.020 m^3/s
Provided Maximum Erosion Control Discharge Rate	0.017 m^3/s
Outlet Structure Details	
Orifice #1 Invert	187.20 m
Orifice #1 Diameter	100 mm
DICB invert	187.90 m
DICB Pipe Outlet Invert	187.10 m
DICB Pipe Outlet Diameter	600 mm
Emergency Overflow Spillway invert	188.40 m
Emergency Overflow Spillway width	26 m
Emergency Overflow Spillway side slopes (H:V)	10:1

1. Based on the Twenty Mile Creek SWS Table 2.2.3 Stormwater Facility Sizing Criteria

Table 6: South SWM Facility Operating Characteristics

Design Storm	Max. Storage Volume (m^3)	Max. Level (m)	Freeboard (m)	Drawdown time (Hours)	Peak Outflow (m^3/s)
25 mm Event	2,810	187.50	1.20	124.1	0.01
2-year	5,260	187.74	0.96	178.3	0.01
5-year	7,180	187.92	0.78	209.5	0.05
10-year	7,650	187.96	0.74	210.9	0.12
25-year	8,510	188.04	0.66	212.4	0.30
50-year	9,280	188.11	0.59	213.0	0.51
100-year	10,280	188.20	0.50	213.5	0.69
Hurricane Hazel	13,990	188.52	0.18	214.6	2.81

5.3 PEAK FLOWS

The total peak flow rates to the site outlets have been used to compare to target rates for each rainfall event and are presented below in Table 7.

Table 7: Existing and Proposed Peak Flow Rates

Storm event	Peak Flow Rates (m^3/s)							
	North Outlet (Existing 900 mm Culvert)		Northeast Outlet (600 mm Storm Sewer)		West Outlet (Existing 600 mm culvert)		South Outlet	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
25 mm Event	0.08	0.03	0.08	0.06	0.03	0.44	0.10	0.01
2-year	0.19	0.05	0.22	0.14	0.08	0.77	0.24	0.03
5-year	0.34	0.11	0.41	0.23	0.14	1.05	0.43	0.12
10-year	0.46	0.25	0.56	0.31	0.19	1.39	0.58	0.31
25-year	0.64	0.52	0.78	0.43	0.26	1.71	0.81	0.31
50-year	0.78	0.70	0.96	0.53	0.32	1.97	1.00	0.53
100-year	0.95	0.75	1.16	0.64	0.39	2.24	1.20	0.72
Hurricane Hazel	1.57	2.00	1.23	0.72	0.53	0.79	1.85	2.89



As shown in Table 7 above, the existing flow rates are met through the proposed SWM controls for all storm events up to and including the 100-year event for the north, northeast, and south outlets.

The west outlet currently shows increases in flow but as per the SWS (Wood, 2023), a future SWM pond is proposed to be constructed west of Port Davidson Road to aid in attenuating this flow, which has not been included in the model at this time. Details on the sizing and design of this future pond will be conducted at a future design stage. Furthermore, infrastructure crossing Port Davidson Road will need to be increased to accommodate this development.

Stormwater management design calculations are provided in Appendix B. Output for both the existing and proposed hydrological models are provided in Appendix C.

5.4 UNITARY STORAGE VOLUME

SWS (Wood, 2023) identified unitary storage requirements through continuous simulation using the 1998–2019 rainfall record. The proposed conditions were simulated in PCSWMM using the same rain gauge and climate period applied in the SWS (wood, 2023). The results demonstrate that the proposed facilities operate without overflow throughout the period of record, which confirms that the available storage is sufficient. On this basis, no additional storage volume is required beyond what is already provided in the pond designs. Full model results are included in Appendix D for reference.

5.5 WATER QUALITY

Due to the size of the site and type of development proposed, an enhanced level of water quality control (minimum of 80% Total Suspended Solids removal) is required. Wet ponds are able to provide an enhanced level water quality control if sized appropriately and are the Township's preferred end-of-pipe facility, as per the SWS (Wood, 2023). Areas draining from rooftops and landscaped areas are considered 'clean' and do not require treatment before being conveyed off site. Paved areas such as parking lots are exposed to salt and other potential contaminants from the road and require treatment before being conveyed off site.

The North SWM pond provides sufficient permanent pool to achieve 80% TSS removal, as outlined in Table 2. Additionally, a forebay has been designed to provide isolated removal of sediment, with calculations presented in Appendix B.

The South SWM pond provides sufficient permanent pool to achieve 80% TSS removal, as outlined in Table 5. Additionally, two forebays have been designed to provide isolated removal of sediment, with calculations presented in Appendix B.

5.6 LOW IMPACT DEVELOPMENT

The Hydrogeological Assessment (Stantec, 2025) identified an annual infiltration deficit of approximately 13,944 m^3 under post-development conditions. The site is underlain primarily by silty clay to clay soils with relatively low permeability, and groundwater levels fluctuate seasonally. These conditions suggest that

large-scale infiltration features may have limited effectiveness. While there is open space available within the development that could accommodate smaller-scale measures such as swales, soakaway pits, or enhanced landscaping, their suitability would need to be further assessed at the detailed design stage to ensure consistency with soil and groundwater constraints and to support groundwater function.

6.0 EROSION AND SEDIMENT CONROL

The erosion and sediment control strategy has been developed and is discussed in the FSR (2025, Stantec). Note that this plan will be refined at the detailed design stage.

7.0 MONITORING AND MAINTENANCE PROGRAM

Monitoring and maintenance activities are an important part of a SWM Strategy to ensure the designed features continue to operate as intended. As such, inspections should take place at a regular frequency to observe any deficiencies within the system. This program will be refined during the detailed design phase of the project and will be done so in accordance with the criteria and recommendations outlined in the SWS (Wood, 2023).

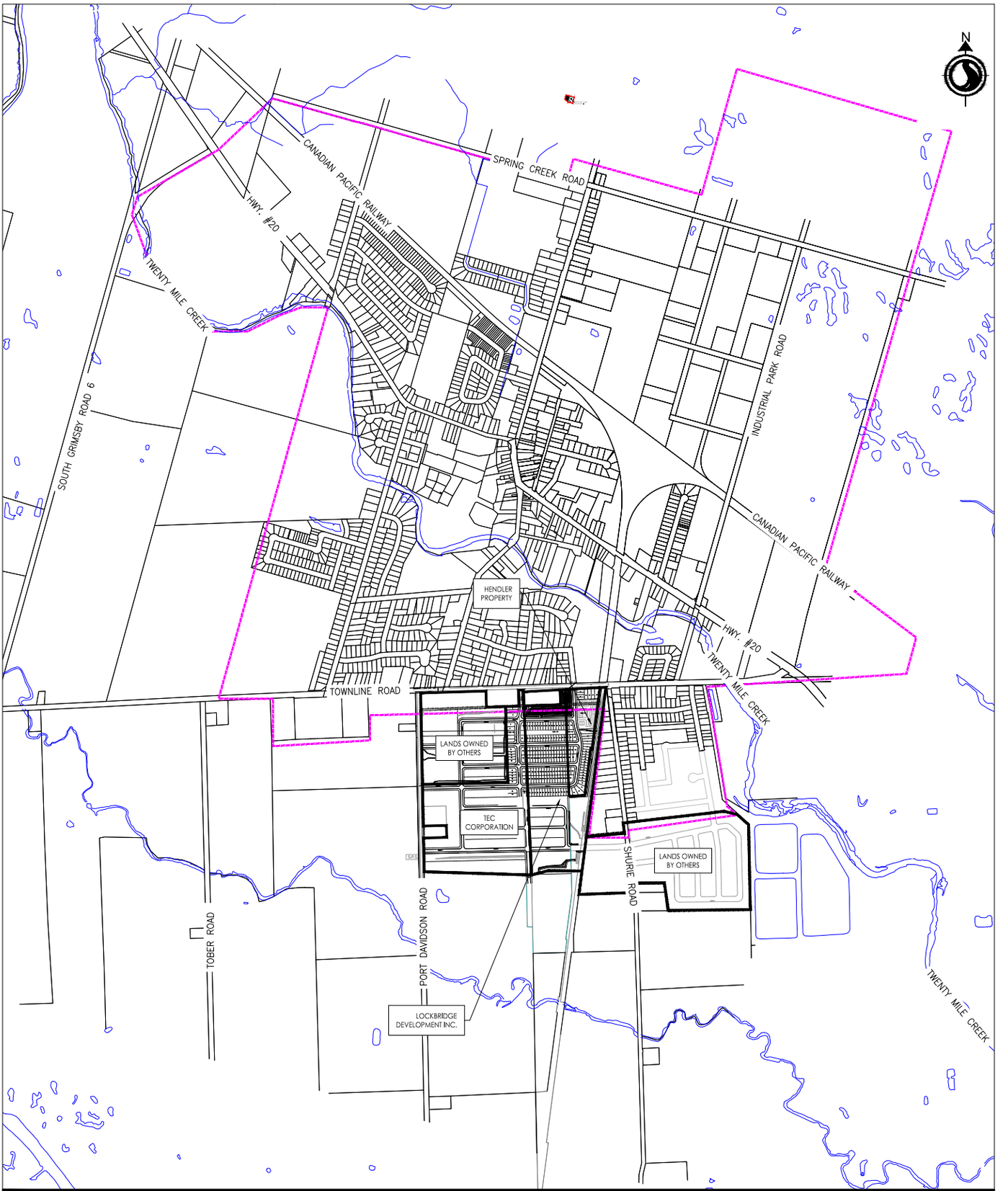
8.0 CONCLUSIONS

Based on the preceding documentation, the following conclusions are drawn:

- **Water Quantity –** Two 'wet' SWM ponds have been proposed to be used to maintain the existing peak flow rates to the site's outlets and is shown to adequately meet the water quantity criteria of matching or improving peak flows when compared to existing conditions. Additionally, they meet the flow criteria outlined in the SWS (Wood, 2023).
- **Water Quality –** Both SWM ponds have been proposed to provide an enhanced level of quality control for the site to meet the water quality criteria of 80% TSS removal.
- **Erosion Control –** Both SWM ponds have been sized in accordance with the SWS (Wood, 2023) to adequately meet the outlined erosion control criteria for the site.

APPENDIX A
FIGURES AND SWM FACILITY DRAWING

Site Location Plan, Figure 1.0
Existing Conditions Drainage Areas, Figure 2.0
Proposed Conditions Drainage Areas, Figure 3.0
Preliminary SWM Facility Plan - North, Drawing No. C-800
Preliminary SWM Facility Plan - South, Drawing No. C-801



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9/23/2025 10:38:18 AM By: Machan, Sarah

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BLOCK PLAN AREA 9
SMITHVILLE 3A

Project No.
161414473

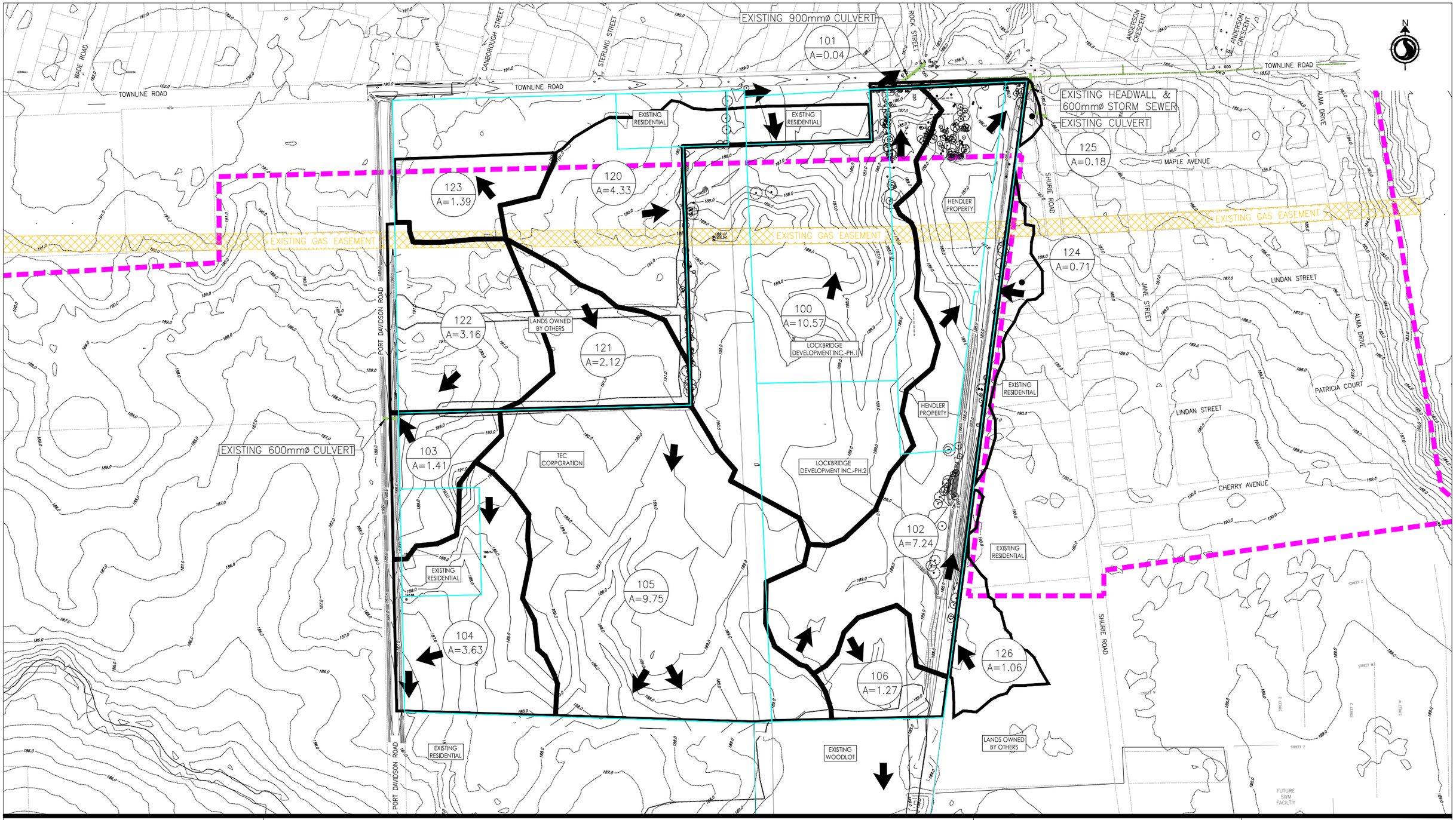
Title
SITE LOCATION

Revision

Date
2025.07.17

Reference Sheet

Figure No.
1.0



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Legend

- 100 / A=10.57 — CATCHMENT I.D. / CONTRIBUTING AREA (ha)
- MAJOR OVERLAND FLOW ROUTE
- DRAINAGE AREA
- PROPERTY LINE
- EXISTING URBAN BOUNDARY
- EXISTING GAS EASEMENT
- EXISTING CONTOUR
- EXISTING CONTOUR (FROM M.N.R 2010)

Notes

Scale

1:5000 — 0 50 150 250m

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BLOCK AREA 9
SMITHVILLE 3A

Project No.
161414473

Title

EXISTING CONDITIONS DRAINAGE AREAS

Revision

Date
2025/09/24

Reference Sheet

Figure No.
2.0

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9/24/2025 11:21:10 AM By: Machan, Sarah

EXISTING 600mmø CULVERT IS TO BE REMOVED WITH ULTIMATE URBANIZATION OF PORT DAVIDSON ROAD. ULTIMATELY THE WESTERN PORTION OF SITE (ie. AREA 212) AND THE PORT DAVIDSON ROAD RIGHT-OF-WAY DRAINAGE IS TO BE DIRECTED SOUTHWARD AND TO AN APPOROXIMATE OFF-SITE POND LOCATED ON THE WEST SIDE OF PORT DAVIDSON ROAD.

Legend

- 200 / A=12.74 — CATCHMENT I.D. / CONTRIBUTING AREA (ha)
- MAJOR OVERLAND FLOW ROUTE
- DRAINAGE AREA
- PROPERTY LINE
- EXISTING URBAN BOUNDARY
- EXISTING GAS EASEMENT
- EXISTING CONTOUR (FROM M.N.R 2010) 185.0

Notes

Scale 1:5000 — 0 50 150 250m

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BLOCK AREA 9
SMITHVILLE 3A

Project No.
161414473

Title
PROPOSED CONDITIONS DRAINAGE AREAS

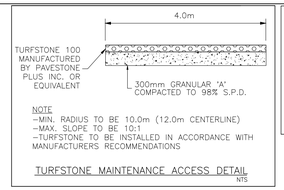
Revision

Date
2025/09/24

Reference Sheet

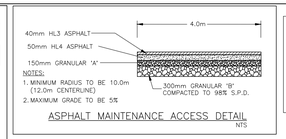
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3.0

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9/24/2025 11:31:45 AM By: Machan, Sarah



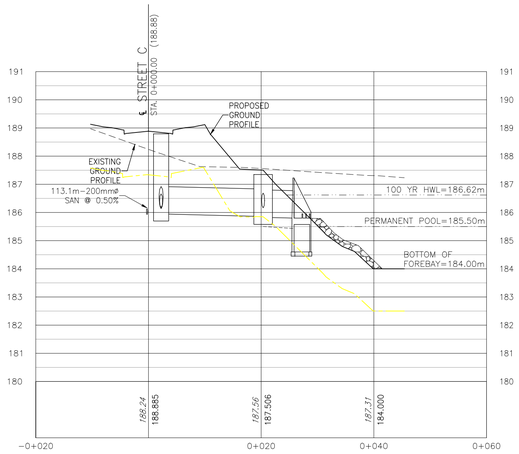
NOTE
–MIN. RADIUS TO BE 10.0m (12.0m CENTERLINE)
–MAX. SLOPE TO BE 10:1
–TURFSTONE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS

TURFSTONE MAINTENANCE ACCESS DETAIL
NTS



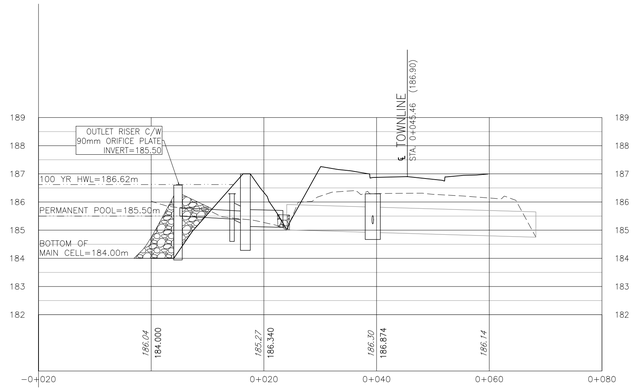
ASPHALT MAINTENANCE ACCESS DETAIL
NTS

NOTE: POND TO BE LINED UP TO PERMANENT POOL ELEVATION. A GEOTECHNICAL CONSULTANT IS TO DETERMINE THE THICKNESS OF THE POND LINER (T.B.D AT TIME OF POND GRADING)



SWM INLET
[CROSS–SECTION A–A]

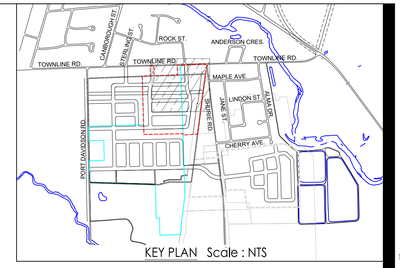
1:500H 0 5 15 25m
1:150V 0 1.5 4.5 7.5m



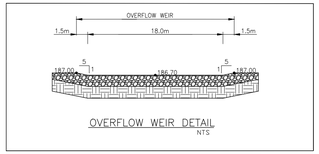
SWM OUTLET
[CROSS–SECTION B–B]

1:500H 0 5 15 25m
1:150V 0 1.5 4.5 7.5m

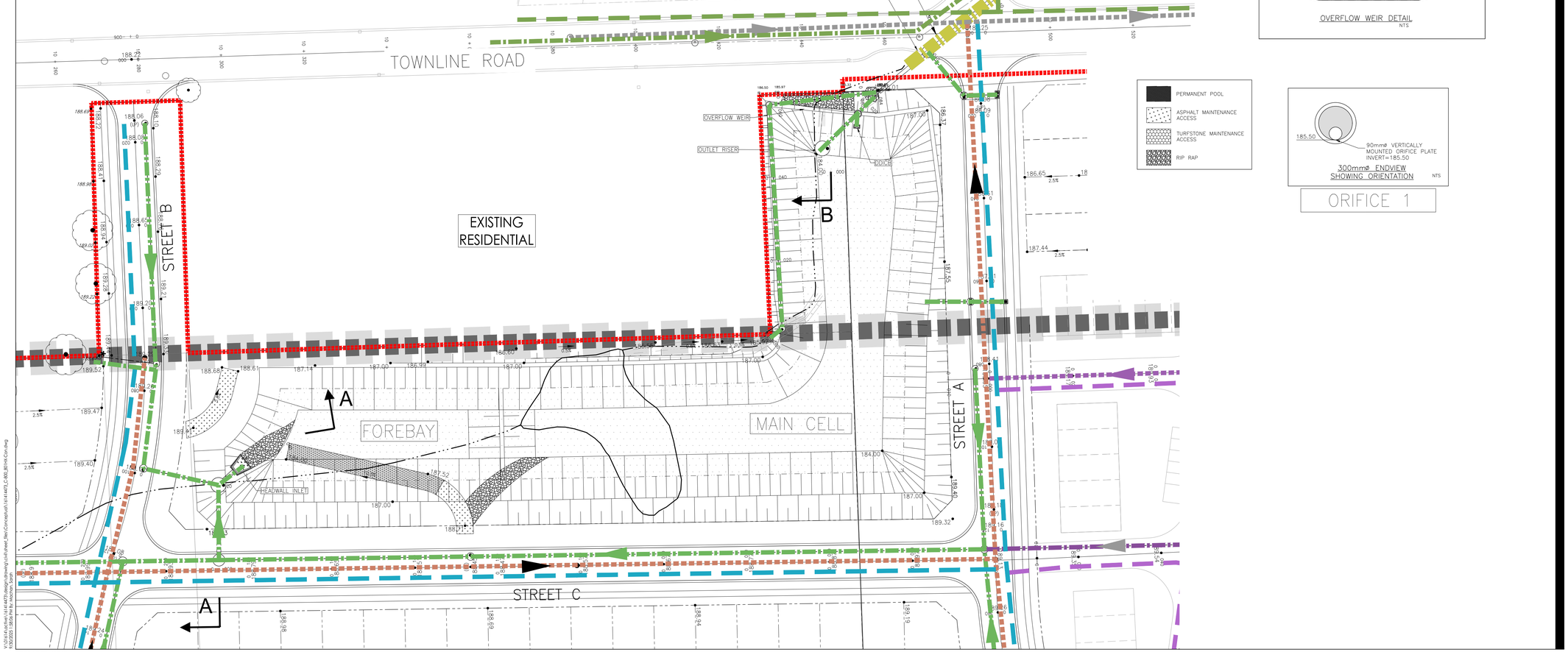
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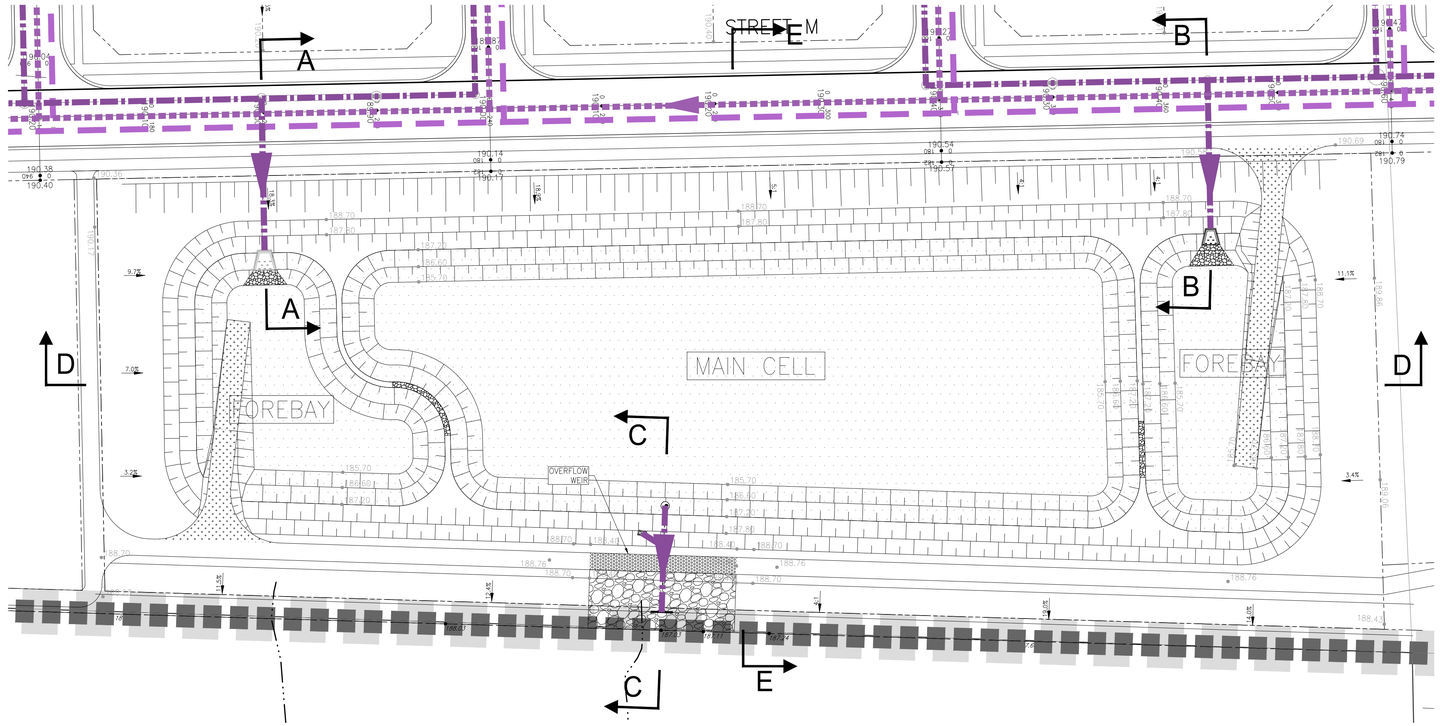


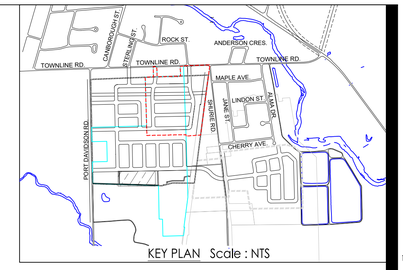
KEY PLAN Scale : NTS

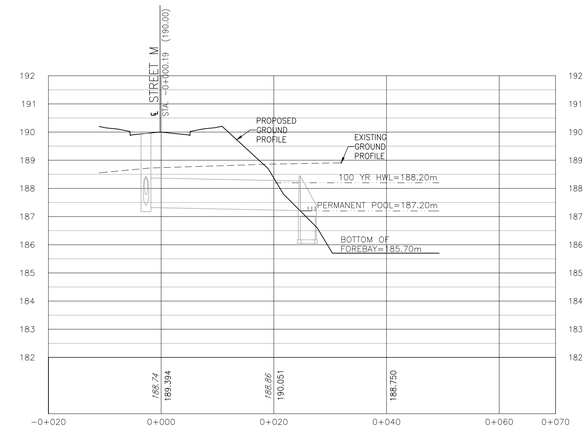


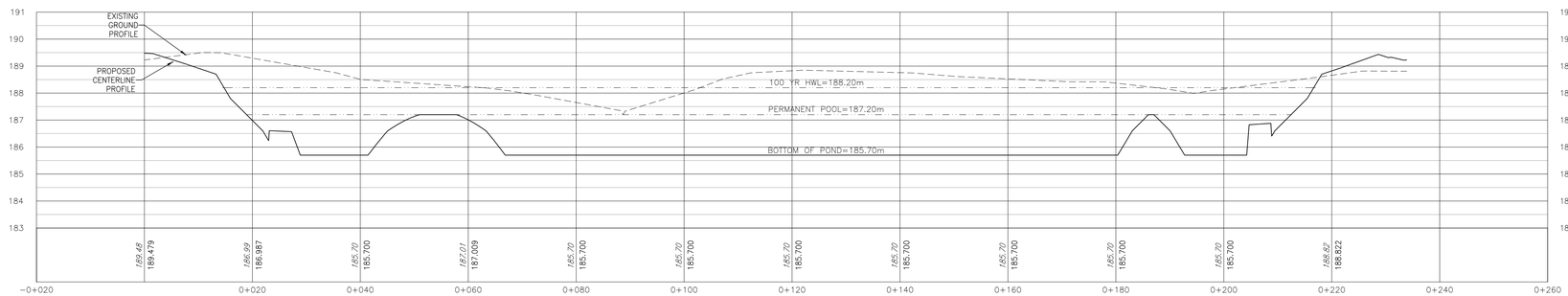
OVERFLOW WEIR DETAIL
NTS

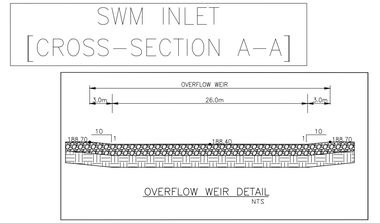


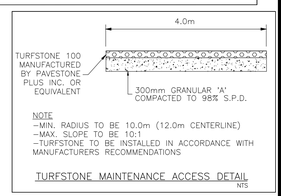


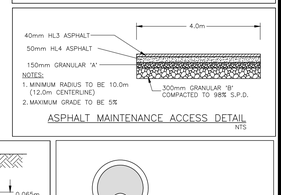


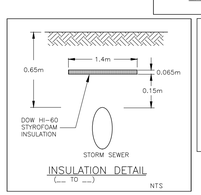


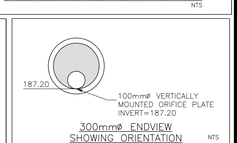




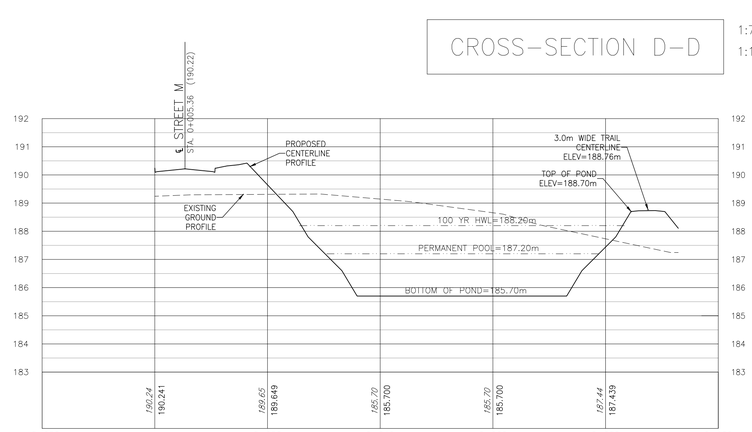








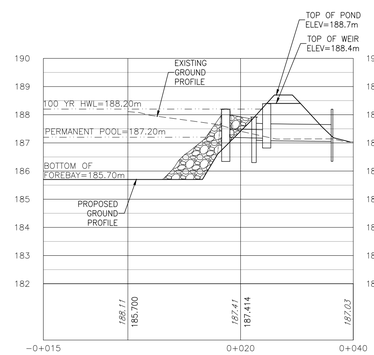
ORIFICE 1





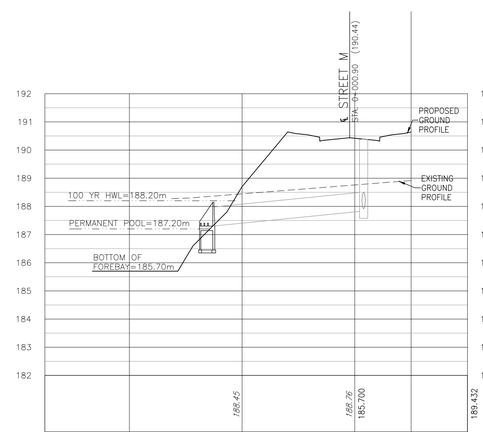
CROSS-SECTION E-E

CROSS-SECTION D-D





SWM OUTLET
[CROSS-SECTION C-C]





SWM INLET
[CROSS-SECTION B-B]

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Notes

1. ELEV'S ARE REFERRED TO THE CANADIAN GEODETIC VERTICAL DATUM (CGVD-1928:1978)
   BM1: CONCRETE CULVERT ALONG REGIONAL ROAD 65, 3.1 km WEST OF BISMARK, 80m EAST OF DWELLING AT 6250 REG. ROAD 65, TABLET ON TOP OF CULVERT 7.3m SW OF ROAD CENTRELINE. ELEV: 182.679
   BM2: TOP OF HEADWALL AT NE OF INTERSECTION OF TOWNLINE ROAD AND ROCK STREET ELEV: 185.740
2. BLOCK PLAN PREPARED BY ARCADIS, DATED AUGUST 2024.
3. DRAFT PLAN PREPARED BY ARCADIS, DATED AUGUST 2024.
4. TOPOGRAPHICAL SURVEY PREPARED BY METROPOLITAN CONSULTING INC., DATED MAY 2022. CONTOURS OUTSIDE OF THE PROPERTY LINE, HAVE BEEN OBTAINED FROM S.W.O.O.P. TOPOGRAPHIC INFORMATION (2010).
5. TREES SURVEYED BY STANTEC CONSULTING LTD. DATED APRIL 2025.

Legend

- PROPERTY LINE
- BLOCK 3A LIMIT
- BLOCK PLAN AREA 9 LIMIT
- STAGE 1 DRAFT PLAN LIMITS
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- FUTURE STORM SEWER
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- FUTURE SANITARY SEWER
- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- FUTURE WATERMAIN

1.	REVISED BLOCK PLAN	SJM	SAK	2025.08.22
0.	STAGE 1 DRAFT PLAN SUBMISSION	JH	KBL	2024.08.15
Revision		By	Appd	YYYY.MM.DD
File Name:	161414473_C-800_801HX-Con	WJE	WJE	SAK	2025.09.30
		Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit-Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project
LOCKBRIDGE DEVELOPMENT INC.

SMITHVILLE PHASE 3A

Smithville, ON

Title
PRELIMINARY SWM FACILITY PLAN - SOUTH

Project No. 161414473

Scale 1:500 (0 5 15 25m)

Revision 1

Drawing No. **C-801**

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ORIGINAL SHEET - ARCH D

APPENDIX B
STORMWATER MANAGEMENT DESIGN CALCULATIONS

161414473 - Smithville

Rainfall Data

Design Storm	IDF Storm Parameters			Time of Peak Ratio	Storm Duration	Total Depth
	A	B	C	r	D (h)	(mm)
GEV Distribution						
2-year	655.4	5.52	0.792	0.4	3	31.4
5-year	991.5	6.84	0.816	0.4	3	41.7
10-year	1288.5	8.04	0.835	0.4	3	48.8
25-year	1785.8	9.90	0.860	0.4	3	58.8
50-year	2279.6	11.58	0.880	0.4	3	67.1
100-year	2928.4	13.62	0.901	0.4	3	76.4
25-mm	425	5	0.792	0.4	4	21.8

*Information from the Unguaged Historical IDF from the project location (gridded dataset)
*Obtained from: https://idf-cc-uwo.ca/idfgrid
*Converted time period form hours to minutes

$$i = \frac{A}{(t + B)^C}$$

SCS Curve Number, Initial Abstraction, and Time of Concentration Reference Sheet

NRCS (SCS) Curve Number Data

CN (I)= 4.2CN(II)/(10-0.058CN(II)) CN (III)= 23CN(II)/(10+0.13CN(II))

TABLE OF CURVE NUMBERS (CN's)									Source
Land Use		Hydrologic Soil Type (AMC II Assumed)							
		A	AB	B	BC	C	CD	D	
Meadow	"Good"	30	44	58	65	71	75	78	MTO
Woodlot	"Fair"	36	48	60	67	73	76	79	MTO
Lawns	"Good"	39	50	61	68	74	77	80	USDA
Pasture/Range		58	62	65	71	76	79	81	MTO
Crop		66	70	74	78	82	84	86	MTO
Bare Soil (Fallow)		77	82	86	89	91	93	94	MTO
Impervious		98	98	98	98	8	8	98	MTO
Water		100	100	100	100	100	100	100	MTO

NOTE: Standhyd commands - CN value is based solely on the pervious surfaces only.
Nashyd commands - CN value is based on a composite of both the pervious and impervious surfaces
MTO - Ministry of Transportation Ontario Drainage Manual (1997), Design Chart 1.09-Soil/Land Use Curve Numbers
USDA - United States Department of Agriculture (2004), National Engineering Handbook, Part 630 Hydrology, Chapter 9 Hydrologic Soil Cover Complexes

Initial Rainfall Abstraction Data

Initial Rainfall Abstraction, Ia (mm)						
Land Use	Forest/Woodlot	Meadow/Field	Crop	Lawn/Grass	Pavement	Water
Ia	10	8	7	5	2	0

Runoff Coefficient Data

Hydrologic Soil Group	Land Use, Crop, and Management									
	Forest/ Woodlot	Meadow/ Field	CULTIVATED (RC, PM)	CULTIVATED (RC, CM)	CULTIVATED (SG, PM)	CULTIVATED (SG, CM)	CULTIVATED (M)	URBAN RES. (30% Imp)	URBAN RES. (55% Imp)	URBAN RES. (70% Imp)
A	0.060	0.100	0.550	0.500	0.350	0.200	0.300	0.300	0.425	0.500
AB	0.095	0.150	0.600	0.525	0.375	0.210	0.325	0.350	0.475	0.550
B	0.130	0.200	0.650	0.550	0.400	0.220	0.350	0.400	0.525	0.600
BC	0.145	0.225	0.675	0.600	0.425	0.235	0.375	0.425	0.566	0.650
C	0.160	0.250	0.700	0.650	0.450	0.250	0.400	0.450	0.606	0.700
CD	0.180	0.275	0.725	0.675	0.475	0.275	0.425	0.475	0.647	0.750
D	0.200	0.300	0.750	0.700	0.500	0.300	0.450	0.500	0.688	0.800

Legend	RC	SG	PM	M	CM
	Row Crop	Small Grains	Poor Management	Meadow	Conservative Management

Estimating Travel Velocity Using Bransby Williams and Aiport Method

Bransby Williams Formula - For 'C' greater than or equal to 0.40

$$t_c = \frac{0.057 * L}{S^{0.2} * A^{0.1}}$$

t_c = Time of Concentration
L = Length of Longest Flow Path
S = Slope
A = Catchment Area

Airport Formula - For 'C' less than 0.40

$$t_c = \frac{3.26 * (1.1 - C) * L^{0.5}}{S^{0.33}}$$

t_c = Time of Concentration
L = Length of Longest Flow Path
S = Slope
C = Runoff Coefficient

Estimating Travel Velocity Using Uplands Method

$V = (x)(S)^{0.5}$ (Refer to Fig 3.12 Velocities for Upland method for estimating travel time for overland flow)

V= Velocity
S= Slope
x = Land Cover Coefficient **(see below)**

x =	0.6	Forest with Heavy Ground Litter, hay meadow (overland flow)
	1.5	Trash Fallow or Minimum Tillage cultivation, strip cropped woodland(overland flow)
	2.3	Short grass pasture (overland flow)
	2.7	Cultivated Straight row (overland flow)
	3.0	Nearly bare untilled (overland flow) or alluvial fans located in the Western mountain Regions
	4.6	Grassed Waterway
	6.1	Paved Areas (sheet flow); small upland gullies

Time of Concentration for One Land Use on Flow Path

$Tc_1 = L_1 / V_1$ **$Tp_1 = 0.67 \times Tc_1$**

Total Time of Concentration for Multiple Land Uses on Flow Path

$Tc_{total} = Tc_1 + Tc_2 + Tc_3 + Tc_4 + Tc_5$ **$Tp_{total} = Tp_1 + Tp_2 + Tp_3 + Tp_4 + Tp_5$**

161414473 - Smithville
NRCS (SCS) Curve Number Determination

Soil Type	Hydrologic Soil Group
Gravel	A
Sand and Gravel	AB
Silty Sand, Loamy Sand, Sand Loam	B
Silt, Silt Loam	BC
Clay, Clay Loam, Silty Clay Loam	C
Bedrock, shallow soil over bedrock, organic	CD
Muck	D

TABLE OF CURVE NUMBERS (CN's)

Land Use		Hydrologic Soil Type							Source
		A	AB	B	BC	C	CD	D	
Meadow	"Good"	30	44	58	65	71	75	78	MTO
Woodlot	"Fair"	36	48	60	67	73	76	79	MTO
Lawns	"Good"	39	50	61	68	74	77	80	USDA
Pasture/Range		58	62	65	71	76	79	81	MTO
Crop		66	70	74	78	82	84	86	MTO
Bare Soil (Fallow)		77	82	86	89	91	93	94	MTO
Impervious		98	98	98	98	98	98	98	MTO

MTO - Ministry of Transportation Ontario Drainage Manual (1997), Design Chart 1.09-Soil/Land Use Curve Numbers
USDA - United States Department of Agriculture (2004), National Engineering Handbook, Part 630 Hydrology, Chapter 9 Hydrologic Soil Cover Complexes

HYDROLOGIC SOIL TYPE (%) - Existing Conditions

Catchment	Hydrologic Soil Type							TOTAL
	A	AB	B	BC	C	CD	D	
100						100		100
101						100		100
102						100		100
103						100		100
104						100		100
105						100		100
106						100		100
120						100		100
121						100		100
122						100		100
123						100		100
124						100		100
125						100		100
126						100		100

LAND USE (%) - Existing Conditions

Catchment	Meadow	Woodlot	Lawns	Pasture Range	Crop	Bare Soil	Impervious	Total
100	0	0	0	0	100	0	0	100
101	0	0	50	0	0	0	50	100
102	0	25	0	0	75	0	0	100
103	0	0	25	0	65	0	10	100
104	0	0	25	0	65	0	10	100
105	0	2	0	0	98	0	0	100
106	0	25	0	0	75	0	0	100
120	0	0	35	0	50	0	15	100
121	0	10	0	0	90	0	0	100
122	0	5	30	0	50	0	15	100
123	0	0	40	0	20	0	40	100
124	0	0	60	0	0	0	40	100
125	0	0	75	0	0	0	25	100
126	0	0	0	0	90	0	10	100

Note: Where STANDHYD command used (shaded), impervious fraction is not considered in CN determination, since %Imp directly input in STANDHYD command

CURVE NUMBER (CN) - Existing Conditions

Catchment	Meadow	Woodlot	Lawns	Pasture Range	Crop	Bare Soil	Impervious	Weighted CN w/ imp area	Weighted CN w/o imp area
100					84			84.0	84.0
101			39				49	87.5	77.0
102		19			63			82.0	82.0
103			19		55		10	83.7	82.1
104			19		55		10	83.7	82.1
105		2			82			83.8	83.8
106		19			63			82.0	82.0
120			27		42		15	83.7	81.1
121		8			76			83.2	83.2
122		4	23		42		15	83.6	81.1
123			31		17		39	86.8	79.3
124			46				39	85.4	77.0
125			58				25	82.3	77.0
126					75.6		9.8	85	84.0

Notes:
AMC II assumed
Hydrological Soil Groups taken from MTO Drainage Manual

161414473 - Smithville
NRCS (SCS) Curve Number Determination

Soil Type	Hydrologic Soil Group
Gravel	A
Sand and Gravel	AB
Silty Sand, Loamy Sand, Sand Loam	B
Silt, Silt Loam	BC
Clay, Clay Loam, Silty Clay Loam	C
Bedrock, shallow soil over bedrock, organic	CD
Muck	D

TABLE OF CURVE NUMBERS (CN's)

Land Use		Hydrologic Soil Type							Source
		A	AB	B	BC	C	CD	D	
Meadow	"Good"	30	44	58	65	71	75	78	MTO
Woodlot	"Fair"	36	48	60	67	73	76	79	MTO
Lawns	"Good"	39	50	61	68	74	77	80	USDA
Pasture/Range		58	62	65	71	76	79	81	MTO
Crop		66	70	74	78	82	84	86	MTO
Bare Soil (Fallow)		77	82	86	89	91	93	94	MTO
Impervious		98	98	98	98	98	98	98	MTO

MTO - Ministry of Transportation Ontario Drainage Manual (1997), Design Chart 1.09-Soil/Land Use Curve Numbers
USDA - United States Department of Agriculture (2004), National Engineering Handbook, Part 630 Hydrology, Chapter 9 Hydrologic Soil Cover Complexes

HYDROLOGIC SOIL TYPE (%) - Existing Conditions

Catchment	Hydrologic Soil Type							TOTAL
	A	AB	B	BC	C	CD	D	
200						100		100
201						100		100
202						100		100
203						100		100
204						100		100
205						100		100
206						100		100
207						100		100
208						100		100
209						100		100
210						100		100
211						100		100
212						100		100
213						100		100
215						100		100
220						100		100
221						100		100
222						100		100
223						100		100
224						100		100
226						100		100
227						100		100
228						100		100
229						100		100

LAND USE (%) - Existing Conditions

Catchment	Meadow	Woodlot	Lawns	Pasture Range	Crop	Bare Soil	Impervious	Total
200			35				65	100
201			25				75	100
202			35				65	100
203			25				75	100
204			25				75	100
205			35				65	100
206		45	45				10	100
207			35				65	100
208			35				65	100
209			35				65	100
210		60			40		0	100
211			35				65	100
212			35				65	100
213			25				75	100
215			25				75	100
220			35				65	100
221			35				65	100
222			35				65	100
223			60				40	100
224			60				40	100
226			35				65	100
227			75				25	100
228			60				40	100
229					90		10	100

Note: Where STANDHYD command used (shaded), impervious fraction is not considered in CN determination, since %Imp directly input in STANDHYD command

CURVE NUMBER (CN) - Existing Conditions

Catchment	Meadow	Woodlot	Lawns	Pasture Range	Crop	Bare Soil	Impervious	Weighted CN w/ imp area	Weighted CN w/o imp area
200			27				64	90.7	77.0
201			19				74	92.8	77.0
202			27				64	90.7	77.0
203			19				74	92.8	77.0
204			19				74	92.8	77.0
205			27				64	90.7	77.0
206		34	35				10	78.7	76.5
207			27				64	90.7	77.0
208			27				64	90.7	77.0
209			27				64	90.7	77.0
210		46			34			79.2	79.2
211			27				64	90.7	77.0
212			27				64	90.7	77.0
213			19				74	92.8	77.0
215			19				74	92.8	77.0
220			27				64	90.7	77.0
221			27				64	90.7	77.0
222			27				64	90.7	77.0
223			46				39	85.4	77.0
224			46				39	85.4	77.0
226			27				64	90.7	77.0
227			58				25	82.3	77.0
228			46				39	85.4	77.0
229					75.6		9.8	85	84.0

Notes:
AMC II assumed
Hydrological Soil Groups taken from MTO Drainage Manual

161414473 - Smithville

Visual OTTHYMO Parameters

Pre-Development Conditions

NasHyd

Catchment ID	Area (ha)	CN	Slope (%)	Length (m)	Tc (hrs)	TP (hrs)	IA (mm)
100	10.57	84.0	0.54%	651.0	1.531	1.021	7.00
101	0.04	87.5	1.25%	8.0	0.128	0.086	7.00
102	7.24	82.0	2.33%	150.0	0.453	0.302	7.00
103	1.41	83.7	2.82%	124.0	0.387	0.258	7.00
104	3.63	83.7	1.20%	374.6	0.891	0.594	7.00
105	9.75	83.8	0.57%	437.0	1.229	0.819	7.00
106	1.27	82.0	0.28%	181.1	1.006	0.671	7.00
120	4.33	83.7	0.81%	246.0	0.821	0.547	7.00
121	2.12	83.2	0.19%	268.1	1.393	0.929	7.00
122	3.16	83.6	0.42%	235.8	0.997	0.664	7.00
123	1.39	86.8	0.63%	160.0	0.722	0.482	7.00
124	0.71	85.4	0.91%	55.0	0.374	0.249	7.00
125	0.18	82.3	0.91%	30.0	0.276	0.184	7.00
126	1.06	85.4	0.30%	164.0	0.927	0.618	7.00
Total	**46.86**	ha					

Notes:

TIMP → *Total percent impervious*

XIMP → *Percent impervious directly connected*

Time of Concentration calculated using the Airport Method
(For areas less than 100 ha, and RC less than 0.4) → $Tc = [\ 3.26\ (1.1-C)\ L^{0.5}\ ] / S^{0.33}$

Where: *C = Runoff Coefficient according to MTO Design chart 1.07 for 'cultivated' on silt loam/loam soil*
L = Length of Overland Flow (m)
S = Slope (%)

Time of Concentration calculated using the Bransby Williams Method
(For areas less than 100 ha, and RC greater than 0.4) → *Tc = 0.057*L/[(Sw^0.2)*(A^0.1)]*

Where: *tc = time of concentration, minutes*
L = catchment or watershed length, m
Sw = catchment or watershed slope, %
A = catchment or watershed area, ha

Time to Peak (hr) → *Tp = 0.6Tc (StandHyd), Tp = Flow Length/0.3 (NasHyd)*

161414473 - Smithville

Visual OTTHYMO Parameters

Post-Development Conditions

NasHyd

Catchment ID	Area (ha)	CN	Slope (%)	Length (m)	Tc (hrs)	TP (hrs)	IA (mm)
206	2.60	78.7	2.30%	103.0	0.38	0.251	7.00
210	0.62	79.2	2.14%	70.0	0.32	0.212	7.00
213	0.12	92.8	0.50%	70.0	0.51	0.343	7.00
223	0.70	85.4	0.94%	53.0	0.36	0.242	7.00
224	0.64	85.4	0.50%	56.0	0.46	0.307	7.00
227	0.13	82.3	0.50%	30.0	0.34	0.224	7.00
228	0.71	85.4	0.50%	57.0	0.46	0.309	7.00
229	1.07	85.4	0.50%	153.0	0.76	0.507	7.00

StandHyd

Catchment ID	Area (ha)	CN	TIMP	XIMP	Perv. Ia (mm)	Perv. Slope (%)	Perv. Length (m)	Imp. Slope (%)	Imp. Length (m)
200	9.15	77.0	0.65	0.55	5.00	2.0	10.0	2.0	247.0
201	0.68	77.0	0.85	0.75	5.00	2.0	10.0	2.0	67.3
202	0.31	77.0	0.65	0.55	5.00	2.0	10.0	2.0	45.5
203	0.20	77.0	0.80	0.80	5.00	2.0	10.0	2.0	36.5
204	0.23	77.0	0.75	0.55	5.00	2.0	10.0	2.0	39.2
205	0.52	77.0	0.50	0.01	5.00	2.0	10.0	2.0	58.9
207	11.60	77.0	0.65	0.55	5.00	2.0	10.0	2.0	278.1
208	0.95	77.0	0.65	0.55	5.00	2.0	10.0	2.0	79.6
209	1.76	77.0	0.65	0.55	5.00	2.0	10.0	2.0	108.3
211	1.00	77.0	0.65	0.55	5.00	2.0	10.0	2.0	81.7
212	5.50	77.0	0.65	0.55	5.00	2.0	10.0	2.0	191.5
215	0.63	77.0	0.65	0.55	5.00	2.0	10.0	2.0	64.8
220	1.71	77.0	0.65	0.55	5.00	2.0	10.0	2.0	106.8
221	4.62	77.0	0.65	0.55	5.00	2.0	10.0	2.0	175.5
222	1.17	77.0	0.65	0.55	5.00	2.0	10.0	2.0	88.3
226	0.05	77.0	0.65	0.55	5.00	2.0	10.0	2.0	18.3

Total	**46.67**	**ha**
Total to North SWM	**14.11**	**ha**
Total to South SWM	**19.56**	**ha**

Notes:

TIMP → *Total percent impervious*

XIMP → *Percent impervious directly connected*

Time of Concentration calculated using the Airport Method → $Tc = [\ 3.26\ (1.1-C)\ L^{0.5}\ ] / S^{0.33}$

(For areas less than 100 ha, and RC less than 0.4)

Where: *C = Runoff Coefficient according to MTO Design chart 1.07 for 'cultivated' on silt loam/loam soil*

L = Length of Overland Flow (m)

S = Slope (%)

Time of Concentration calculated using the Bransby Williams Method → *Tc = 0.057*L/[(Sw^0.2)*(A^0.1)]*

(For areas less than 100 ha, and RC greater than 0.4)

Where: *tc = time of concentration, minutes*

L = catchment or watershed length, m

Sw = catchment or watershed slope, %

A = catchment or watershed area, ha

Time to Peak (hr) → *Tp = 0.6Tc (StandHyd), Tp = Flow Length/0.3 (NasHyd)*

161414473 - Smithville
Water Quality Parameters

North SWMF		
Required protection level:	Enhanced	
Contributing drainage area[1]:	14.1	ha
Impervious level:	65	%
Total required water quality storage volume per hectare:	213	m^3/ha
Required permanent pool volume per hectare:	173	m^3/ha
Required extended detention storage volume per hectare:	40	m^3/ha
SWS Extended Detention[1]	400	m^3/ imp. ha
SWS Unitary Discharge[1]	0.001	m^3/s/ha
Required permanent pool volume (+10%):	2,690	m^3
Provided permanent pool volume:	5,076	m^3
Required extended detention storage volume:	3,669	m^3
Required maximum extended detention discharge rate:	0.014	m^3/s
Provided extended detention volume during water quality event:	3,787	m^3
Provided maximum extended detention discharge rate:	0.014	m^3/s
Total pond storage volume:	8,863	m^3

South SWMF		
Required protection level:	Enhanced	
Contributing drainage area[1]:	19.6	ha
Impervious level:	65	%
Total required water quality storage volume per hectare:	213	m^3/ha
Required permanent pool volume per hectare:	173	m^3/ha
Required extended detention storage volume per hectare:	40	m^3/ha
SWS Extended Detention[1]	400	m^3/ imp. ha
SWS Unitary Discharge[1]	0.001	m^3/s/ha
Required permanent pool volume (+10%):	3,729	m^3
Provided permanent pool volume:	7,457	m^3
Required extended detention storage volume:	5,086	m^3
Required maximum extended detention discharge rate:	0.020	m^3/s
Provided extended detention volume during water quality event:	6,980	m^3
Provided maximum extended detention discharge rate:	0.017	m^3/s
Total pond storage volume:	14,437	m^3

MOE SWM Design Manual Table 3.2

Protection Level	SWMP Type	Storage Volume (m^3/ha) for Impervious Level			
		35%	*55%*	*70%*	*85%*
Enhanced (80% long-term S.S. removal)	Infiltration	25	30	35	40
	Wetlands	80	105	120	140
	Hybrid Wet Pond/Wetland	110	150	175	195
	Wet Pond	140	190	225	250
Normal (70% long-term S.S. removal)	Infiltration	20	20	25	30
	Wetlands	60	70	80	90
	Hybrid Wet Pond/Wetland	75	90	105	120
	Wet Pond	90	110	130	150
Basic (60% long-term S.S. removal)	Infiltration	20	20	20	20
	Wetlands	60	60	60	60
	Hybrid Wet Pond/Wetland	60	70	75	80
	Wet Pond	60	75	85	95
	Dry Pond (Continuous Flow)	90	150	200	240

Notes
1. Based on the Twenty Mile Creek SWS Table 2.2.3 Stormwater Facility Sizing Criteria
2. Based on the Twenty Mile Creek SWS Table 2.2.4 Unitary Storage and Discharge Criteria for Flood Control

North SWMF - Smithville
Stormwater Management Facility Design Calculations

	Rating Curve				Estimated	Volume Estimation							Active Storage		Outlet Structure Controls							
	Depth/Disch.		Storage		Detention		Forebay	Forebay	Total Pond		Active Storage	Total	Depth		Ext. Detention	DICB			Emergency		Outlet	Parameters
	Elevation	Discharge	Active	Total	Time	Elevation	Area	Volume	Area	Volume	Volume	Volume (excl. sediment)		Elevation	Orifice #1	Inlet	Outlet Pipe	Control	Spillway	Total Flow	Parameter	
	(m)	(m^3/s)	(m^3)	(m^3)	(hrs)	(m)	(m^2)	(m^3)	(m^2)	(m^3)	(m^3)	(m^3)	(m)	(m)	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)	
	184.00					184.0			1,981					184.00								Water Quality Extended Detention Orifice #1
	184.10			207		184.1		37	2,509	244		207		184.10								Orifice #1 Elev (m) / Orifice Coeff.
	184.20			423		184.2		78	2,658	502		423		184.20								185.50 / 0.600
	184.30			650		184.3		126	2,809	775		650		184.30								Orifice #1-Midpoint (m) / Perimeter (m)
	184.40			885		184.4		178	2,962	1,064		885		184.40								185.55 / 0.283
Max. Sed. Storage	184.50			1,131		184.5		237	3,118	1,368		1,131		184.50								Orifice Diameter (mm) / Area (m^2)
	184.60			1,450		184.6		302	3,277	1,687		1,450		184.60								90.00 / 0.006
	184.70			1,786		184.7		374	3,437	2,023		1,786		184.70								Weir Coeff. (Sharp) / Orientation
	184.80			2,138		184.8		452	3,601	2,375		2,138		184.80								1.80 / Vertical
	184.90			2,506		184.9		537	3,767	2,743		2,506		184.90								DICB Outlet Pipe
	185.00			2,891		185.0		630	3,935	3,128		2,891		185.00								Pipe Elev (m) / Orifice Coeff.
	185.10			3,293		185.1		731	4,106	3,530		3,293		185.10								185.40 / 0.600
	185.20			3,713		185.2		839	4,279	3,950		3,713		185.20								Pipe (m) / Perimeter (m)
	185.30			4,149		185.3		955	4,455	4,386		4,149		185.30								185.70 / 1.885
	185.40			4,604		185.4		1081	4,633	4,841		4,604		185.40								Pipe Diameter (mm) / Area (m^2)
Permanent Pool	185.50			5,076		185.5		1214	4,815	5,313		5,076		185.50								600.00 / 0.283
	185.60	0.004	492	5,568	34.4	185.6			4,998	5,805	492	5,568	0.1	185.60	0.004					0.004		Weir Coeff. (Sharp) / Orientation
	185.70	0.007	1,000	6,076	61.0	185.7			5,161	6,313	1000	6,076	0.2	185.70	0.007					0.007		1.80 / Vertical
	185.80	0.009	1,524	6,600	80.2	185.8			5,326	6,837	1524	6,600	0.3	185.80	0.009					0.009		Emergency Overflow Weir
	185.90	0.010	2,065	7,141	96.3	185.9			5,492	7,378	2065	7,141	0.4	185.90	0.010					0.010		Spillway Invert (m) / Top of Berm (m)
	186.00	0.011	2,622	7,698	110.8	186.0			5,659	7,935	2622	7,698	0.5	186.00	0.011					0.011		186.70 / 186.90
	186.10	0.013	3,197	8,273	124.0	186.1			5,827	8,510	3197	8,273	0.6	186.10	0.013					0.013		Spillway Length @ Invert (m) / Max. Flow Depth (m)
	186.20	0.014	3,788	8,864	136.5	186.2			5,998	9,101	3788	8,864	0.7	186.20	0.014		0.531			0.014	0.014	18 / 0.20
	186.30	0.174	4,396	9,472	138.3	186.3			6,169	9,709	4396	9,472	0.8	186.30	0.015	0.160	0.582	0.160		0.174		Side Slopes (ratio of H:V) / Topwidth
	186.40	0.484	5,022	10,098	138.9	186.4			6,343	10,335	5022	10,098	0.9	186.40	0.016	0.468	0.629	0.468		0.484		5.00 / 20.00
	186.50	0.689	5,665	10,741	139.2	186.5			6,518	10,978	5665	10,741	1.0	186.50	0.017	0.983	0.672	0.672		0.689		Weir Coefficient (Rectangle) / Weir Coeff. (Triangle)
	186.60	0.730	6,325	11,401	139.4	186.6			6,695	11,639	6325	11,401	1.1	186.60	0.017	1.710	0.713	0.713		0.730		1.70 / 1.30
	186.70	0.770	7,004	12,080	139.7	186.7			6,874	12,317	**7004**	12,080	1.2	186.70	0.018	2.402	0.751	0.751		0.770		
	186.80	1.795	7,700	12,776	139.8	186.8			7,057	13,014	**7700**	12,776	1.3	186.80	0.019	2.962	0.788	0.788	0.988	1.795		DICB invert (m) / 186.20
	186.90	3.696	8,415	13,491	139.9	186.9			7,243	13,729	**8415**	13,491	1.4	186.90	0.020	3.583	0.823	0.823	2.853	3.696		
Top of Active Storage	187.00	6.226	9,149	14,225	139.9	187.0			7,430	14,462	**9149**	14,225	1.5	187.00	0.020	4.229	0.857	0.857	5.349	6.226		

Ext. Det storage 8976.00

Drawdown Time Calculations Greater than 0.1 m above the permanent pool

$T=[v_2-v_1]/[(Q_2+Q_1)/2]/3600$

where

T=drawdown time in hours

v_2=starting pond volume

v_2=ending pond volume

Q_2=starting flow

Q_1=ending flow

From 0.0 to 0.1 m above the permanent pool

$T=[v_2-v_1]/[(Q_2)]/3600$

where

T=drawdown time in hours

v_2=starting pond volume

v_2=ending pond volume

Q_2=starting flow

Weir Equation Used: $Q = C_{wb}*L*H^{1.5} + C_{wt}*S*H^{2.5}$

where

L = bottom width of spillway

H = head above weir invert

S = side slopes (ratio of H:V)

C_{wt} = weir coefficient (triangular)

C_{wb} = weir coefficient (broad-crested)

Sharp crested semi-circular weir equation

Sharp crested semi-circular weir equation

$Q=C*D^{2.5}*(H/D)^{1.88}$

where

C = sharp crested semi-circular weir coefficient

D = diameter of orifice

H = head above orifice invert

Note: used when water elevation is below 3/4 of the orifice diameter

Orifice Flow Calculations: Orifice flow equation

$Q = C\text{-}A\text{-}(2\text{-}g\text{-}H)^{0.5}$

where

C = orifice coefficient

A = area of orifice

g = acceleration due to gravity

H = head above centre line of orifice

Note: used when water elevation is above 3/4 of the orifice diameter

Drawdown Time Calculations Greater than 0.1 m above the permanent pool

$T=[v_2-v_1]/[(Q_2+Q_1)/2]/3600$

where

T=drawdown time in hours

v_2=starting pond volume

v_2=ending pond volume

Q_2=starting flow

Q_1=ending flow

From 0.0 to 0.1 m above the permanent pool

$T=[v_2-v_1]/[(Q_2)]/3600$

where

T=drawdown time in hours

v_2=starting pond volume

v_2=ending pond volume

Q_2=starting flow

Weir Equation Used: $Q = C_{wb}*L*H^{1.5} + C_{wt}*S*H^{2.5}$

where

L = bottom width of spillway

H = head above weir invert

S = side slopes (ratio of H:V)

C_{wt} = weir coefficient (triangular)

C_{wb} = weir coefficient (broad-crested)

Sharp crested semi-circular weir equation

Sharp crested semi-circular weir equation

$Q=C*D^{2.5}*(H/D)^{1.88}$

where

C = sharp crested semi-circular weir coefficient

D = diameter of orifice

H = head above orifice invert

Note: used when water elevation is below 3/4 of the orifice diameter

Orifice Flow Calculations: Orifice flow equation

$Q = C\text{-}A\text{-}(2\text{-}g\text{-}H)^{0.5}$

where

C = orifice coefficient

A = area of orifice

g = acceleration due to gravity

H = head above centre line of orifice

Note: used when water elevation is above 3/4 of the orifice diameter

South SWMF - Smithville
Stormwater Management Facility Design Calculations

	Rating Curve				Estimated	Volume Estimation							Active Storage		Outlet Structure Controls						
	Depth/Disch.		Storage		Detention		Forebay	Forebay	Total Pond		Active Storage	Total			Ext. Detention	DICB			Emergency		Outlet
	Elevation	Discharge	Active	Total	Time	Elevation	Area	Volume	Area	Volume	Volume	Volume (excl. sediment)	Depth	Elevation	Orifice #1	Inlet	Outlet Pipe	Control	Spillway	Total Flow	Parameter
	(m)	(m^3/s)	(m^3)	(m^3)	(hrs)	(m)	(m^2)	(m^3)	(m^2)	(m^3)	(m^3)	(m^3)	(m)	(m)	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)
	185.70					185.7	1,053		7,345					185.70							
	185.80			448		185.8	1,122	109	5,656	557		448		185.80							
	185.90			907		185.9	1,190	224	5,821	1,131		907		185.90							
	186.00			1,375		186.0	1,259	347	5,988	1,722		1,375		186.00							
	186.10			1,853		186.1	1,331	476	6,158	2,329		1,853		186.10							
Max. Sed. Storage	186.20			2,340		186.2	1,404	613	6,331	2,953		2,340		186.20							
	186.30			2,982		186.3	1,480	758	6,506	3,595		2,982		186.30							
	186.40			3,642		186.4	1,557	909	6,683	4,255		3,642		186.40							
	186.50			4,319		186.5	1,637	1069	6,863	4,932		4,319		186.50							
	186.60			5,014		186.6	1,718	1237	7,046	5,627		5,014		186.60							
	186.70			5,734		186.7	1,847	1415	7,345	6,347		5,734		186.70							
	186.80			6,483		186.8	1,981	1606	7,650	7,096		6,483		186.80							
	186.90			7,264		186.9	2,119	1811	7,961	7,877		7,264		186.90							
	187.00			8,076		187.0	2,262	2030	8,279	8,689		8,076		187.00							
	187.10			8,920		187.1	2,410	2264	8,603	9,533		8,920		187.10							
Permanent Pool	187.20			9,797		187.2	2,564	2512	8,935	10,410		9,797		187.20							
	187.30	0.005	913	10,710	54.3	187.3			9,327	11,323	913	10,710	0.1	187.30	0.005					0.005	
	187.40	0.008	1,859	11,656	95.6	187.4			9,592	12,269	1859	11,656	0.2	187.40	0.008					0.008	
	187.50	0.010	2,831	12,628	124.7	187.5			9,857	13,241	2831	12,628	0.3	187.50	0.010					0.010	
	187.60	0.012	3,830	13,627	149.1	187.6			10,121	14,240	3830	13,627	0.4	187.60	0.012					0.012	
	187.70	0.014	4,855	14,652	170.7	187.7			10,386	15,265	4855	14,652	0.5	187.70	0.014					0.014	
	187.80	0.015	5,907	15,704	190.5	187.8			10,650	16,317	5907	15,704	0.6	187.80	0.015					0.015	
	187.90	0.017	6,980	16,777	208.9	187.9			10,809	17,390	6980	16,777	0.7	187.90	0.017					0.017	0.020
	188.00	0.178	8,069	17,866	212.1	188.0			10,968	18,479	8069	17,866	0.8	188.00	0.018	0.160	0.582	0.160		0.178	
	188.10	0.488	9,174	18,971	213.0	188.1			11,128	19,584	9174	18,971	0.9	188.10	0.019	0.468	0.629	0.468		0.488	
	188.20	0.692	10,295	20,092	213.5	188.2			11,288	20,705	**10295**	20,092	1.0	188.20	0.020	0.983	0.672	0.672		0.692	
	188.30	0.734	11,431	21,228	214.0	188.3			11,448	21,841	**11431**	21,228	1.1	188.30	0.021	1.710	0.713	0.713		0.734	
	188.40	0.774	12,584	22,381	214.4	188.4			11,610	22,994	**12584**	22,381	1.2	188.40	0.022	2.402	0.751	0.751		0.774	
	188.50	2.250	13,753	23,550	214.6	188.5			11,772	24,163	**13753**	23,550	1.3	188.50	0.023	2.962	0.788	0.788	1.439	2.250	
	188.60	5.033	14,940	24,737	214.7	188.6			11,951	25,350	**14940**	24,737	1.4	188.60	0.024	3.583	0.823	0.823	4.186	5.033	
Top of Active Storage	188.70	8.786	16,144	25,941	214.7	188.7			12,141	26,554	**16144**	25,941	1.5	188.70	0.025	4.229	0.857	0.857	7.904	8.786	

Parameters	
Water Quality Extended Detention Orifice #1	
Orifice #1 Elev (m)	Orifice Coeff.
187.20	0.600
Orifice #1-Midpoint (m)	Perimeter (m)
187.25	0.314
Orifice Diameter (mm)	Area (m^2)
100.00	0.008
Weir Coeff. (Sharp)	Orientation
1.80	Vertical
DICB Outlet Pipe	
Orifice #2 Elev (m)	Orifice Coeff.
187.10	0.600
Orifice #2-Midpoint (m)	Perimeter (m)
187.40	0.314
Orifice Diameter (mm)	Area (m^2)
600.00	0.283
Weir Coeff. (Sharp)	Orientation
1.80	Vertical
Emergency Overflow Weir	
Spillway Invert (m)	Top of Berm (m)
188.40	188.70
Spillway Length @ Invert (m)	Max. Flow Depth (m)
26	0.30
Side Slopes (ratio of H:V)	Topwidth
10.00	32.00
Weir Coefficient (Rectangle)	Weir Coeff. (Triangle)
1.70	1.30
DICB invert (m)	187.90

Drawdown Time Calculations Greater than 0.1 m above the permanent pool

$T=[v_2-v_1]/[(Q_2+Q_1)/2]/3600$

where

T=drawdown time in hours

v_2=starting pond volume

v_2=ending pond volume

Q_2=starting flow

Q_1=ending flow

From 0.0 to 0.1 m above the permanent pool

$T=[v_2-v_1]/[(Q_2)]/3600$

where

T=drawdown time in hours

v_2=starting pond volume

v_2=ending pond volume

Q_2=starting flow

Weir Equation Used: $Q = C_{wb}*L*H^{1.5} + C_{wt}*S*H^{2.5}$

where

L = bottom width of spillway

H = head above weir invert

S = side slopes (ratio of H:V)

C_{wt} = weir coefficient (triangular)

C_{wb} = weir coefficient (broad-crested)

Sharp crested semi-circular weir equation

Sharp crested semi-circular weir equation

$Q=C*D^{2.5}*(H/D)^{1.88}$

where

C = sharp crested semi-circular weir coefficient

D = diameter of orifice

H = head above orifice invert

Note: used when water elevation is below 3/4 of the orifice diameter

Orifice Flow Calculations: Orifice flow equation

$Q = C\text{-}A\text{-}(2\text{-}g\text{-}H)^{0.5}$

where

C = orifice coefficient

A = area of orifice

g = acceleration due to gravity

H = head above centre line of orifice

Note: used when water elevation is above 3/4 of the orifice diameter

Drawdown Time Calculations Greater than 0.1 m above the permanent pool

$T=[v_2-v_1]/[(Q_2+Q_1)/2]/3600$

where

T=drawdown time in hours

v_2=starting pond volume

v_2=ending pond volume

Q_2=starting flow

Q_1=ending flow

From 0.0 to 0.1 m above the permanent pool

$T=[v_2-v_1]/[(Q_2)]/3600$

where

T=drawdown time in hours

v_2=starting pond volume

v_2=ending pond volume

Q_2=starting flow

Weir Equation Used: $Q = C_{wb}*L*H^{1.5} + C_{wt}*S*H^{2.5}$

where

L = bottom width of spillway

H = head above weir invert

S = side slopes (ratio of H:V)

C_{wt} = weir coefficient (triangular)

C_{wb} = weir coefficient (broad-crested)

Sharp crested semi-circular weir equation

Sharp crested semi-circular weir equation

$Q=C*D^{2.5}*(H/D)^{1.88}$

where

C = sharp crested semi-circular weir coefficient

D = diameter of orifice

H = head above orifice invert

Note: used when water elevation is below 3/4 of the orifice diameter

Orifice Flow Calculations: Orifice flow equation

$Q = C\text{-}A\text{-}(2\text{-}g\text{-}H)^{0.5}$

where

C = orifice coefficient

A = area of orifice

g = acceleration due to gravity

H = head above centre line of orifice

Note: used when water elevation is above 3/4 of the orifice diameter

161414473 - Smithville
Outlet Flow Comparison

Outlet Culvert (from pond)

Return Period	Pre-development Flows (m^3/s)	Post-devlopment Flows (m^3/s)	Percent of change
25 mm event	0.08	0.03	-61%
2 -Year, 12hr	0.19	0.05	-72%
5-Year, 12hr	0.34	0.11	-69%
10-Year, 12hr	0.46	0.25	-47%
25-Year, 12hr	0.64	0.52	-19%
50-Year, 12hr	0.78	0.70	-11%
100-Year, 12hr	0.95	0.75	-21%
Hurricane Hazel	1.57	2.00	27%

NE Outlet

Return Period	Pre-development Flows (m^3/s)	Post-devlopment Flows (m^3/s)	Percent of change
25 mm event	0.08	0.06	-27%
2 -Year, 12hr	0.22	0.14	-39%
5-Year, 12hr	0.41	0.23	-44%
10-Year, 12hr	0.56	0.31	-44%
25-Year, 12hr	0.78	0.43	-45%
50-Year, 12hr	0.96	0.53	-45%
100-Year, 12hr	1.16	0.64	-45%
Hurricane Hazel	1.23	0.72	-41%

South Outlet

Return Period	Pre-development Flows (m^3/s)	Post-devlopment Flows (m^3/s)	Percent of change
25 mm event	0.10	0.01	-85%
2 -Year, 12hr	0.24	0.03	-88%
5-Year, 12hr	0.43	0.05	-89%
10-Year, 12hr	0.58	0.12	-80%
25-Year, 12hr	0.81	0.31	-62%
50-Year, 12hr	1.00	0.53	-47%
100-Year, 12hr	1.20	0.72	-40%
Hurricane Hazel	1.85	2.89	56%

West Outlet

Return Period	Pre-development Flows (m^3/s)	Post-devlopment Flows (m^3/s)	Percent of change
25 mm event	0.03	0.44	1417%
2 -Year, 12hr	0.08	0.77	916%
5-Year, 12hr	0.14	1.05	667%
10-Year, 12hr	0.19	1.39	639%
25-Year, 12hr	0.26	1.71	557%
50-Year, 12hr	0.32	1.97	512%
100-Year, 12hr	0.39	2.24	477%
Hurricane Hazel	0.53	0.79	50%

Ditch Inlet Capacity Calculation (OPSD Type 705.030, Grate Type 403.010)
MTO Design Chart 4.20

Ditch Inlet Width: 1.2 m 5 :1 grate slope

	Capacity (m^3/s) per meter width						Actual Inlet Flow m^3/s				
Flow Depth	**2:1**	**3:1**	**4:1**	**5:1**	**6:1**	**Head**	**2:1**	**3:1**	**4:1**	**5:1**	**6:1**
0	0.000	0.000	0.000	0.000	0.000	0	0.000	0.000	0.000	0.000	0.000
0.05	0.024	0.023	0.022	0.021	0.021	0.05	0.029	0.028	0.027	0.026	0.025
0.1	0.065	0.084	0.112	0.133	0.140	0.1	0.078	0.101	0.134	0.160	0.168
0.15	0.110	0.148	0.204	0.246	0.260	0.15	0.132	0.177	0.245	0.295	0.312
0.2	0.200	0.253	0.331	0.390	0.410	0.2	0.240	0.303	0.398	0.468	0.492
0.25	0.300	0.375	0.488	0.572	0.600	0.25	0.360	0.450	0.585	0.686	0.720
0.3	0.420	0.530	0.695	0.819	0.860	0.3	0.504	0.636	0.834	0.983	1.032
0.35	0.550	0.675	0.863	1.003	1.050	0.35	0.660	0.810	1.035	1.204	1.260
0.4	0.700	0.900	1.200	1.425	1.500	0.4	0.840	1.080	1.440	1.710	1.800
0.45	0.900	1.150	1.525	1.806	1.900	0.45	1.080	1.380	1.830	2.168	2.280
0.5	1.050	1.313	1.706	2.002	2.100	0.5	1.260	1.575	2.048	2.402	2.520
0.55	1.100	1.450	1.975	2.369	2.500	0.55	1.320	1.740	2.370	2.843	3.000
0.6	1.296	1.620	2.105	2.469	2.590	0.6	1.556	1.944	2.526	2.962	3.108
0.65	1.419	1.780	2.321	2.727	2.863	0.65	1.703	2.136	2.786	3.273	3.435
0.7	1.543	1.941	2.538	2.986	3.135	0.7	1.851	2.329	3.045	3.583	3.762
0.75	1.666	2.104	2.762	3.255	3.419	0.75	1.999	2.525	3.314	3.906	4.103
0.8	1.789	2.268	2.986	3.524	3.704	0.8	2.147	2.721	3.583	4.229	4.445
0.85	1.912	2.429	3.204	3.785	3.979	0.85	2.294	2.914	3.845	4.542	4.775
0.9	2.035	2.590	3.422	4.047	4.255	0.9	2.442	3.108	4.107	4.856	5.106
0.95	2.158	2.750	3.637	4.302	4.524	0.95	2.590	3.300	4.364	5.163	5.429
1	2.281	2.909	3.851	4.558	4.793	1	2.738	3.491	4.622	5.469	5.752
1.05	2.404	3.061	4.045	4.784	5.030	1.05	2.885	3.673	4.854	5.741	6.036
1.1	2.512	3.192	4.212	4.977	5.231	1.1	3.015	3.831	5.054	5.972	6.278
1.15	2.636	3.350	4.420	5.223	5.490	1.15	3.164	4.020	5.304	6.267	6.588
1.2	2.760	3.507	4.628	5.469	5.749	1.2	3.312	4.209	5.554	6.562	6.899
1.25	2.884	3.665	4.836	5.715	6.008	1.25	3.461	4.398	5.804	6.858	7.209
1.3	3.008	3.823	5.045	5.961	6.266	1.3	3.610	4.587	6.053	7.153	7.520
1.35	3.132	3.980	5.253	6.207	6.525	1.35	3.758	4.776	6.303	7.448	7.830
1.4	3.256	4.138	5.461	6.453	6.784	1.4	3.907	4.966	6.553	7.744	8.141

SMITHVILLE

Sediment Forebay Sizing Calculations (North Pond)

Using MOE - Stormwater Management Planning and Design Manual (2003)

STORMWATER MANAGEMENT FACILITY

Settling

Dist = sqrt(r*Q_p/v_s)

= **11.3** **m**

r : 1 = l to w ratio — r = 2.85

Q_p = peak SWM outflow during quality storm — Q_p = 0.013 — Note 1.

v_s = settling velocity for 0.15 mm particles (m/s) — v_s = 0.0003

Dispersion Length

Dist = 8Q/dv

= **49.2** **m**

y_d = total depth of sediment in forebay (m) — y_d = 0.5

Q = 10 yr inlet flow (m^3/s) — Q = 3.08 — Note 2.

d = depth of perm pool in forebay (m) — d = 1

v_f = desired vel in forebay (m/s) — v_f = 0.5

Velocity

v = Q/A

= **0.093** **m/s**

y = total depth of forebay from perm. pool (m) — y = 1.5

b = bottom width (avg) of forebay (m) — b = 19.00

Q = 10 yr inlet flow (m^3/s) — Q = 3.08 — Note 2.

A = cross-sectional area (m^2) — A = 33.00

Target velocity = 0.15 — V_{targ} = 0.15

Therefore, **Velocity Target Satisfied**

Cleanout Frequency

Table 6.3 MOE SWMPD Manual

cleanout = Vol/(load*A_{sew}*effic)

= **8.4** **years**

Water Quality Level — Enhanced

A_{sew} = Contributing Sewer Area (ha) — A_{sew} = 14.11

Imp = Percent Impervious (%) — Imp = 75%

load = Sediment Loading (m^3/ha) — load = 3.1 — Note 3.

effic = Removal Efficiency (%) - Enhanced Level — effic = 80%

Targ = Cleanout Frequency Target (years) — Targ = 7

Vol = Sediment volume (m^3) — Vol = 293 — Note 4.

Therefore, **Cleanout Frequency Satisfied**

Surface Area Check

SA_f/SA_{pp} = **33.0%**

SA_f = Forebay Surface Area (m^2) — SA_f = 1,225

SA_{pp} = Total Permanent Pool Surface Area (m^2) — SA_{pp} = 3,717

Targ = Forebay size (as % of Permanent Pool Area) — Targ = 33%

Therefore, **The forebay size is OK!**

Notes:

1. Based on max outflow from pond for extended detention volume
2. 10 year peak inlet flow to SWM facility based on Visual OTTHYMO Modelling
3. Interpolated from sediment loading table
4. Volume of bottom 0.5 m depth, the maximum sediment accumulation depth

SMITHVILLE

West Sediment Forebay Sizing Calculations (South Pond)

Using MOE - Stormwater Management Planning and Design Manual (2003)

STORMWATER MANAGEMENT FACILITY

Settling

Dist = sqrt(r*Q_p/v_s)

= **9.8** **m**

r : 1 = l to w ratio — r = 2.00

Q_p = peak SWM outflow during quality storm — Q_p = 0.014 — Note 1.

v_s = settling velocity for 0.15 mm particles (m/s) — v_s = 0.0003

Dispersion Length

Dist = 8Q/dv

= 48.7 m

y_d = total depth of sediment in forebay (m) — y_d = 0.5

Q = 10 yr inlet flow (m^3/s) — Q = 3.043 — Note 2.

d = depth of perm pool in forebay (m) — d = 1

v_f = desired vel in forebay (m/s) — v_f = 0.5

Velocity

v = Q/A

= **0.080** **m/s**

y = total depth of forebay from perm. pool (m) — y = 1.5

b = bottom width (avg) of forebay (m) — b = 22.50

Q = 10 yr inlet flow (m^3/s) — Q = 3.043 — Note 2.

A = cross-sectional area (m^2) — A = 38.25

Target velocity = 0.15 — V_{targ} = 0.15

Therefore, **Velocity Target Satisfied**

Cleanout Frequency

Table 6.3 MOE SWMPD Manual

cleanout = Vol/(load*A_{sew}*effic)

= **12.7** **years**

Water Quality Level — Enhanced

A_{sew} = Contributing Sewer Area (ha) — A_{sew} = 12.91

Imp = Percent Impervious (%) — Imp = 65%

load = Sediment Loading (m^3/ha) — load = 2.5 — Note 3.

effic = Removal Efficiency (%) - Enhanced Level — effic = 80%

Targ = Cleanout Frequency Target (years) — Targ = 7

Vol = Sediment volume (m^3) — Vol = 328 — Note 4.

Therefore, **Cleanout Frequency Satisfied**

Surface Area Check

SA_f/SA_{pp} = **15.5%**

SA_f = Forebay Surface Area (m^2) — SA_f = 1,389

SA_{pp} = Total Permanent Pool Surface Area (m^2) — SA_{pp} = 8,935

Targ = Forebay size (as % of Permanent Pool Area) — Targ = 33% — Note 5.

Therefore, **The forebay size is OK!**

Notes:

1. Based on max outflow from pond for extended detention volume
2. 10 year peak inlet flow to SWM facility based on Visual OTTHYMO Modelling, is such that 66% of the flow contributes to the West Forebay.
3. Interpolated from sediment loading table
4. Volume of bottom 0.5 m depth, the maximum sediment accumulation depth
5. The forebay surface areas in the east and west together make up 28.7% of the total pond surface area.

SMITHVILLE

East Sediment Forebay Sizing Calculations (South Pond)

Using MOE - Stormwater Management Planning and Design Manual (2003)

STORMWATER MANAGEMENT FACILITY

Settling

Dist = sqrt(r*Q_p/v_s)

= **12.1** **m**

r : 1 = l to w ratio	r =	3.08	
Q_p = peak SWM outflow during quality storm	Q_p =	0.014	Note 1.
v_s = settling velocity for 0.15 mm particles (m/s)	v_s =	0.0003	

Dispersion Length

Dist = 8Q/dv

= **24.3** **m**

y_d = total depth of sediment in forebay (m)	y_d =	0.5	
Q = 10 yr inlet flow (m^3/s)	Q =	1.517	Note 2.
d = depth of perm pool in forebay (m)	d =	1	
v_f = desired vel in forebay (m/s)	v_f =	0.5	

Velocity

v = Q/A

= **0.046** **m/s**

y = total depth of forebay from perm. pool (m)	y =	1.5	
b = bottom width (avg) of forebay (m)	b =	19.00	
Q = 10 yr inlet flow (m^3/s)	Q =	1.517	Note 2.
A = cross-sectional area (m^2)	A =	33.00	
Target velocity = 0.15	V_{targ} =	0.15	

Therefore, **Velocity Target Satisfied**

Cleanout Frequency

Table 6.3 MOE SWMPD Manual

cleanout = Vol/(load*A_{sew}*effic)

= **21.4** **years**

Water Quality Level		Enhanced	
A_{sew} = Contributing Sewer Area (ha)	A_{sew} =	6.65	
Imp = Percent Impervious (%)	Imp =	65%	
load = Sediment Loading (m^3/ha)	load =	2.5	Note 3.
effic = Removal Efficiency (%) - Enhanced Level	effic =	80%	
Targ = Cleanout Frequency Target (years)	Targ =	7	
Vol = Sediment volume (m^3)	Vol =	285	Note 4.

Therefore, **Cleanout Frequency Satisfied**

Surface Area Check

SA_f/SA_{pp} = **13.2%**

SA_f = Forebay Surface Area (m^2)	SA_f =	1,175	
SA_{pp} = Total Permanent Pool Surface Area (m^2)	SA_{pp} =	8,935	
Targ = Forebay size (as % of Permanent Pool Area)	Targ =	33%	Note 5.

Therefore, **The forebay size is OK!**

Notes:

1. Based on max outflow from pond for extended detention volume
2. 10 year peak inlet flow to SWM facility based on Visual OTTHYMO Modelling, is such that 34% of the flow contributes to the West Forebay.
3. Interpolated from sediment loading table
4. Volume of bottom 0.5 m depth, the maximum sediment accumulation depth
5. The forebay surface areas in the east and west together make up 28.7% of the total pond surface area.

APPENDIX C
VISUAL OTTHYMO MODELING OUTPUTS

APPENDIX C1	Pre-Schematic
APPENDIX C2	Existing Output
APPENDIX C3	Post Schematic
APPENDIX C4	Proposed Output

APPENDIX C-1

EXISTING CONDITIONS SCHEMATIC

VO Schematic - Existing Conditions



APPENDIX C-2

EXISTING OUTPUT

```
================================================================================
======================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\8a40a
cb8-7777-4f80-bed7-083b9e542c74\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\8a40a
cb8-7777-4f80-bed7-083b9e542c74\scen


DATE: 08/20/2025                          TIME: 02:40:24

USER:



COMMENTS: _____

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  ************************************************
  ** SIMULATION : 100yr 12hr 5min Chicago       **
  ************************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=2987.057
| Ptotal= 96.22 mm |                          B=  15.200
--------------------                          C=   0.897
```

```
                          used in:   INTENSITY =  A / (t + B)^C

                          Duration of storm  = 12.00 hrs
                          Storm time step    =  5.00 min
                          Time to peak ratio =  0.38

|  TIME    RAIN  |  TIME    RAIN  |'  TIME    RAIN  |  TIME    RAIN
|   hrs   mm/hr  |   hrs   mm/hr  |'   hrs   mm/hr  |   hrs   mm/hr
|  0.00    0.99  |  3.00    3.32  |'  6.00    5.86  |  9.00    1.65
|  0.08    1.01  |  3.08    3.55  |'  6.08    5.49  |  9.08    1.62
|  0.17    1.03  |  3.17    3.81  |'  6.17    5.16  |  9.17    1.59
|  0.25    1.05  |  3.25    4.12  |'  6.25    4.87  |  9.25    1.56
|  0.33    1.07  |  3.33    4.48  |'  6.33    4.60  |  9.33    1.53
|  0.42    1.10  |  3.42    4.90  |'  6.42    4.37  |  9.42    1.50
|  0.50    1.12  |  3.50    5.40  |'  6.50    4.15  |  9.50    1.48
|  0.58    1.14  |  3.58    6.02  |'  6.58    3.96  |  9.58    1.45
|  0.67    1.17  |  3.67    6.77  |'  6.67    3.78  |  9.67    1.43
|  0.75    1.20  |  3.75    7.73  |'  6.75    3.61  |  9.75    1.40
|  0.83    1.23  |  3.83    8.96  |'  6.83    3.46  |  9.83    1.38
|  0.92    1.26  |  3.92   10.62  |'  6.92    3.32  |  9.92    1.36
|  1.00    1.29  |  4.00   12.92  |'  7.00    3.20  | 10.00    1.33
|  1.08    1.32  |  4.08   16.29  |'  7.08    3.08  | 10.08    1.31
|  1.17    1.36  |  4.17   21.59  |'  7.17    2.97  | 10.17    1.29
|  1.25    1.39  |  4.25   30.82  |'  7.25    2.86  | 10.25    1.27
|  1.33    1.43  |  4.33   49.63  |'  7.33    2.77  | 10.33    1.25
|  1.42    1.47  |  4.42  100.76  |'  7.42    2.68  | 10.42    1.23
|  1.50    1.52  |  4.50  201.53  |'  7.50    2.59  | 10.50    1.22
|  1.58    1.57  |  4.58  116.59  |'  7.58    2.51  | 10.58    1.20
|  1.67    1.62  |  4.67   70.34  |'  7.67    2.44  | 10.67    1.18
|  1.75    1.67  |  4.75   48.12  |'  7.75    2.37  | 10.75    1.17
|  1.83    1.73  |  4.83   35.56  |'  7.83    2.30  | 10.83    1.15
|  1.92    1.79  |  4.92   27.69  |'  7.92    2.24  | 10.92    1.13
|  2.00    1.85  |  5.00   22.40  |'  8.00    2.18  | 11.00    1.12
|  2.08    1.92  |  5.08   18.63  |'  8.08    2.12  | 11.08    1.10
|  2.17    2.00  |  5.17   15.85  |'  8.17    2.07  | 11.17    1.09
|  2.25    2.08  |  5.25   13.73  |'  8.25    2.02  | 11.25    1.08
|  2.33    2.17  |  5.33   12.06  |'  8.33    1.97  | 11.33    1.06
|  2.42    2.27  |  5.42   10.73  |'  8.42    1.92  | 11.42    1.05
|  2.50    2.38  |  5.50    9.64  |'  8.50    1.88  | 11.50    1.04
|  2.58    2.50  |  5.58    8.73  |'  8.58    1.84  | 11.58    1.02
|  2.67    2.63  |  5.67    7.97  |'  8.67    1.80  | 11.67    1.01
|  2.75    2.77  |  5.75    7.32  |'  8.75    1.76  | 11.75    1.00
|  2.83    2.93  |  5.83    6.77  |'  8.83    1.72  | 11.83    0.99
|  2.92    3.11  |  5.92    6.28  |'  8.92    1.69  | 11.92    0.98
```

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0122)|   Area    (ha)=   3.16   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.66

     Unit Hyd Qpeak  (cms)=   0.182

     PEAK FLOW       (cms)=   0.251 (i)
     TIME TO PEAK    (hrs)=   5.333
     RUNOFF VOLUME    (mm)=  55.770
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.580

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.41   Curve Number   (CN)= 83.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.26

     Unit Hyd Qpeak  (cms)=   0.209

     PEAK FLOW       (cms)=   0.216 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  57.356
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.596

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):     1.41   0.216     4.83    57.36
     + ID2= 2 (  0122):     3.16   0.251     5.33    55.77
       ================================================
       ID = 3 (  0020):     4.57   0.389     5.00    56.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0120)|   Area    (ha)=   4.33   Curve Number   (CN)= 83.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.55

     Unit Hyd Qpeak  (cms)=   0.302

     PEAK FLOW       (cms)=   0.409 (i)
     TIME TO PEAK    (hrs)=   5.250
     RUNOFF VOLUME    (mm)=  57.394
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.596

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0100)|   Area    (ha)=  10.57   Curve Number   (CN)= 83.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.02

     Unit Hyd Qpeak  (cms)=   0.395

     PEAK FLOW       (cms)=   0.618 (i)
     TIME TO PEAK    (hrs)=   5.750
     RUNOFF VOLUME    (mm)=  56.799
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.590

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   0.04   Curve Number   (CN)= 87.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.09

     Unit Hyd Qpeak  (cms)=   0.018

     PEAK FLOW       (cms)=   0.011 (i)
     TIME TO PEAK    (hrs)=   4.667
     RUNOFF VOLUME    (mm)=  60.615
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.630

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0100):    10.57   0.618     5.75    56.80
```

```
      + ID2= 2 (  0101):     0.04   0.011     4.67    60.62
        ==================================================
        ID = 3 (  0022):    10.61   0.619     5.75    56.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0022):    10.61   0.619     5.75    56.81
      + ID2= 2 (  0120):     4.33   0.409     5.25    57.39
        ==================================================
        ID = 1 (  0022):    14.94   0.945     5.50    56.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   7.24   Curve Number   (CN)= 82.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.30

     Unit Hyd Qpeak  (cms)=   0.916

     PEAK FLOW       (cms)=   0.962 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  54.885
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.570

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0126)|   Area    (ha)=   1.06   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.066

     PEAK FLOW       (cms)=   0.080 (i)
     TIME TO PEAK    (hrs)=   5.333
     RUNOFF VOLUME    (mm)=  50.915
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.529

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

```
     PEAK FLOW       (cms)=   0.034 (i)
     TIME TO PEAK    (hrs)=   4.750
     RUNOFF VOLUME    (mm)=  58.149
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.604

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0023)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0125):     0.18   0.034     4.75    58.15
      + ID2= 2 (  0027):     9.01   1.131     4.92    54.82
        ==================================================
        ID = 3 (  0023):     9.19   1.159     4.92    54.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0121)|   Area    (ha)=   2.12   Curve Number   (CN)= 83.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.93

     Unit Hyd Qpeak  (cms)=   0.087

     PEAK FLOW       (cms)=   0.134 (i)
     TIME TO PEAK    (hrs)=   5.667
     RUNOFF VOLUME    (mm)=  56.798
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.590

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0105)|   Area    (ha)=   9.75   Curve Number   (CN)= 83.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.455

     PEAK FLOW       (cms)=   0.686 (i)
     TIME TO PEAK    (hrs)=   5.583
     RUNOFF VOLUME    (mm)=  57.546
```

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0124)|   Area    (ha)=   0.71   Curve Number   (CN)= 85.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

     Unit Hyd Qpeak  (cms)=   0.109

     PEAK FLOW       (cms)=   0.118 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  59.961
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.623

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0102):     7.24   0.962     4.92    54.88
      + ID2= 2 (  0124):     0.71   0.118     4.83    59.96
        ==================================================
        ID = 3 (  0027):     7.95   1.076     4.92    55.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0027):     7.95   1.076     4.92    55.34
      + ID2= 2 (  0126):     1.06   0.080     5.33    50.91
        ==================================================
        ID = 1 (  0027):     9.01   1.131     4.92    54.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0125)|   Area    (ha)=   0.18   Curve Number   (CN)= 84.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

     Unit Hyd Qpeak  (cms)=   0.037
```

```
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.598

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0019)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0105):     9.75   0.686     5.58    57.55
      + ID2= 2 (  0121):     2.12   0.134     5.67    56.80
        ==================================================
        ID = 3 (  0019):    11.87   0.818     5.58    57.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0104)|   Area    (ha)=   3.63   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

     Unit Hyd Qpeak  (cms)=   0.233

     PEAK FLOW       (cms)=   0.312 (i)
     TIME TO PEAK    (hrs)=   5.250
     RUNOFF VOLUME    (mm)=  55.769
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.580

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0106)|   Area    (ha)=   1.27   Curve Number   (CN)= 80.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.67

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.095 (i)
     TIME TO PEAK    (hrs)=   5.417
     RUNOFF VOLUME    (mm)=  53.215
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.553

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

```
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     3.63   0.312     5.25    55.77
     + ID2= 2 (  0106):     1.27   0.095     5.42    53.21
       ================================================
       ID = 3 (  0029):     4.90   0.406     5.33    55.11

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0029)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0029):     4.90   0.406     5.33    55.11
     + ID2= 2 (  0019):    11.87   0.818     5.58    57.41
       ================================================
       ID = 1 (  0029):    16.77   1.201     5.50    56.74

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0123)|   Area    (ha)=   1.39   Curve Number   (CN)= 86.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.48

    Unit Hyd Qpeak  (cms)=   0.110

    PEAK FLOW       (cms)=   0.157 (i)
    TIME TO PEAK    (hrs)=   5.167
    RUNOFF VOLUME    (mm)=  62.258
    TOTAL RAINFALL   (mm)=  96.218
    RUNOFF COEFFICIENT   =   0.647

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

--------------------------------------------------------------------------------

  -------------------------
  | Junction Command(0030) |
  -------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0123)    1.39     0.16    5.17    62.26
  OUTFLOW: ID= 2(  0030)    1.39     0.16    5.17    62.26

  --------------------------------------------------------------------------------
================================================================================
======================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\6dccd
a19-53da-426f-b92a-44333e42c11c\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\6dccd
a19-53da-426f-b92a-44333e42c11c\scen

DATE: 08/20/2025                          TIME: 02:40:24

USER:

COMMENTS: _____

--------------------------------------------------------------------------------
----------------------
  ***********************************************
  ** SIMULATION : 10yr 12hr 5min Chicago        **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1303.567
| Ptotal= 65.32 mm |                          B=   9.700
--------------------                          C=   0.831
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  = 12.00 hrs
                         Storm time step    =  5.00 min
                         Time to peak ratio =  0.38

                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.00    0.99 |  3.00    2.72 |  6.00    4.34 |  9.00    1.53
                  0.08    1.01 |  3.08    2.88 |  6.08    4.11 |  9.08    1.51
                  0.17    1.03 |  3.17    3.05 |  6.17    3.91 |  9.17    1.48
                  0.25    1.05 |  3.25    3.25 |  6.25    3.72 |  9.25    1.46
                  0.33    1.06 |  3.33    3.48 |  6.33    3.56 |  9.33    1.44
                  0.42    1.08 |  3.42    3.74 |  6.42    3.41 |  9.42    1.41
                  0.50    1.10 |  3.50    4.06 |  6.50    3.27 |  9.50    1.39
                  0.58    1.12 |  3.58    4.43 |  6.58    3.14 |  9.58    1.37
                  0.67    1.15 |  3.67    4.88 |  6.67    3.03 |  9.67    1.35
                  0.75    1.17 |  3.75    5.44 |  6.75    2.92 |  9.75    1.33
                  0.83    1.19 |  3.83    6.15 |  6.83    2.82 |  9.83    1.32
                  0.92    1.22 |  3.92    7.08 |  6.92    2.73 |  9.92    1.30
                  1.00    1.24 |  4.00    8.35 |  7.00    2.64 | 10.00    1.28
                  1.08    1.27 |  4.08   10.19 |  7.08    2.56 | 10.08    1.26
                  1.17    1.30 |  4.17   13.04 |  7.17    2.48 | 10.17    1.25
                  1.25    1.33 |  4.25   18.00 |  7.25    2.41 | 10.25    1.23
                  1.33    1.36 |  4.33   28.38 |  7.33    2.35 | 10.33    1.21
                  1.42    1.39 |  4.42   60.23 |  7.42    2.28 | 10.42    1.20
                  1.50    1.43 |  4.50  139.67 |  7.50    2.22 | 10.50    1.18
                  1.58    1.46 |  4.58   70.72 |  7.58    2.17 | 10.58    1.17
                  1.67    1.50 |  4.67   40.43 |  7.67    2.12 | 10.67    1.16
                  1.75    1.54 |  4.75   27.50 |  7.75    2.06 | 10.75    1.14
                  1.83    1.59 |  4.83   20.56 |  7.83    2.02 | 10.83    1.13
                  1.92    1.64 |  4.92   16.31 |  7.92    1.97 | 10.92    1.12
                  2.00    1.69 |  5.00   13.47 |  8.00    1.93 | 11.00    1.10
                  2.08    1.74 |  5.08   11.45 |  8.08    1.89 | 11.08    1.09
                  2.17    1.80 |  5.17    9.95 |  8.17    1.85 | 11.17    1.08
                  2.25    1.86 |  5.25    8.80 |  8.25    1.81 | 11.25    1.07
                  2.33    1.92 |  5.33    7.88 |  8.33    1.77 | 11.33    1.06
                  2.42    2.00 |  5.42    7.14 |  8.42    1.74 | 11.42    1.04
                  2.50    2.07 |  5.50    6.53 |  8.50    1.71 | 11.50    1.03
                  2.58    2.16 |  5.58    6.02 |  8.58    1.67 | 11.58    1.02
                  2.67    2.25 |  5.67    5.58 |  8.67    1.64 | 11.67    1.01
                  2.75    2.35 |  5.75    5.20 |  8.75    1.61 | 11.75    1.00
                  2.83    2.46 |  5.83    4.88 |  8.83    1.59 | 11.83    0.99
                  2.92    2.59 |  5.92    4.59 |  8.92    1.56 | 11.92    0.98

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0122)|   Area    (ha)=   3.16   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.66

     Unit Hyd Qpeak  (cms)=   0.182

     PEAK FLOW       (cms)=   0.121 (i)
     TIME TO PEAK    (hrs)=   5.417
     RUNOFF VOLUME    (mm)=  30.414
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.466

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.41   Curve Number   (CN)= 83.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.26

     Unit Hyd Qpeak  (cms)=   0.209

     PEAK FLOW       (cms)=   0.105 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  31.532
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.483

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):     1.41   0.105     4.83    31.53
     + ID2= 2 (  0122):     3.16   0.121     5.42    30.41
       ================================================
       ID = 3 (  0020):     4.57   0.188     5.08    30.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0120)|   Area    (ha)=   4.33   Curve Number   (CN)= 83.7
```

```
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.55

     Unit Hyd Qpeak  (cms)=   0.302

     PEAK FLOW       (cms)=   0.199 (i)
     TIME TO PEAK    (hrs)=   5.250
     RUNOFF VOLUME    (mm)=  31.554
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.483

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0100)|   Area    (ha)=  10.57   Curve Number   (CN)= 83.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.02

     Unit Hyd Qpeak  (cms)=   0.395

     PEAK FLOW       (cms)=   0.302 (i)
     TIME TO PEAK    (hrs)=   5.833
     RUNOFF VOLUME    (mm)=  31.134
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.477

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   0.04   Curve Number   (CN)= 87.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.09

     Unit Hyd Qpeak  (cms)=   0.018

     PEAK FLOW       (cms)=   0.006 (i)
     TIME TO PEAK    (hrs)=   4.667
     RUNOFF VOLUME    (mm)=  34.358
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.526

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

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| ADD HYD  (  0022)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0100):    10.57   0.302     5.83    31.13
     + ID2= 2 (  0101):     0.04   0.006     4.67    34.36
       ================================================
       ID = 3 (  0022):    10.61   0.303     5.83    31.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):    10.61   0.303     5.83    31.15
     + ID2= 2 (  0120):     4.33   0.199     5.25    31.55
       ================================================
       ID = 1 (  0022):    14.94   0.460     5.50    31.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   7.24   Curve Number   (CN)= 82.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.30

     Unit Hyd Qpeak  (cms)=   0.916

     PEAK FLOW       (cms)=   0.462 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  29.803
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.456

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0126)|   Area    (ha)=   1.06   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.066

     PEAK FLOW       (cms)=   0.037 (i)
     TIME TO PEAK    (hrs)=   5.333
     RUNOFF VOLUME    (mm)=  27.114
```

```
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.415

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0124)|   Area    (ha)=   0.71   Curve Number   (CN)= 85.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

     Unit Hyd Qpeak  (cms)=   0.109

     PEAK FLOW       (cms)=   0.058 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  33.401
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.511

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0102):     7.24   0.462     4.92    29.80
     + ID2= 2 (  0124):     0.71   0.058     4.83    33.40
       ================================================
       ID = 3 (  0027):     7.95   0.518     4.92    30.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   3 +  2 =  1    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0027):     7.95   0.518     4.92    30.12
     + ID2= 2 (  0126):     1.06   0.037     5.33    27.11
       ================================================
       ID = 1 (  0027):     9.01   0.544     4.92    29.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0125)|   Area    (ha)=   0.18   Curve Number   (CN)= 84.3
```

```
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

     Unit Hyd Qpeak  (cms)=   0.037

     PEAK FLOW       (cms)=   0.017 (i)
     TIME TO PEAK    (hrs)=   4.750
     RUNOFF VOLUME    (mm)=  32.113
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.492

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0023)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0125):     0.18   0.017     4.75    32.11
     + ID2= 2 (  0027):     9.01   0.544     4.92    29.77
       ================================================
       ID = 3 (  0023):     9.19   0.557     4.92    29.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0121)|   Area    (ha)=   2.12   Curve Number   (CN)= 83.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.93

     Unit Hyd Qpeak  (cms)=   0.087

     PEAK FLOW       (cms)=   0.065 (i)
     TIME TO PEAK    (hrs)=   5.750
     RUNOFF VOLUME    (mm)=  31.133
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.477

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0105)|   Area    (ha)=   9.75   Curve Number   (CN)= 83.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.455
```

```
     PEAK FLOW      (cms)=   0.335 (i)
     TIME TO PEAK   (hrs)=   5.583
     RUNOFF VOLUME   (mm)=  31.661
     TOTAL RAINFALL  (mm)=  65.319
     RUNOFF COEFFICIENT  =   0.485

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

--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0019)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0105):     9.75   0.335     5.58    31.66
     + ID2= 2 (  0121):     2.12   0.065     5.75    31.13
       ================================================
       ID = 3 (  0019):    11.87   0.400     5.58    31.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0104)|   Area    (ha)=   3.63   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.59

     Unit Hyd Qpeak  (cms)=   0.233

     PEAK FLOW      (cms)=   0.150 (i)
     TIME TO PEAK   (hrs)=   5.333
     RUNOFF VOLUME   (mm)=  30.414
     TOTAL RAINFALL  (mm)=  65.319
     RUNOFF COEFFICIENT  =   0.466

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

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0106)|   Area    (ha)=   1.27   Curve Number   (CN)= 80.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.67

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW      (cms)=   0.045 (i)
     TIME TO PEAK   (hrs)=   5.417
     RUNOFF VOLUME   (mm)=  28.657
     TOTAL RAINFALL  (mm)=  65.319
     RUNOFF COEFFICIENT  =   0.439

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

--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     3.63   0.150     5.33    30.41
     + ID2= 2 (  0106):     1.27   0.045     5.42    28.66
       ================================================
       ID = 3 (  0029):     4.90   0.195     5.33    29.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0029)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0029):     4.90   0.195     5.33    29.96
     + ID2= 2 (  0019):    11.87   0.400     5.58    31.57
       ================================================
       ID = 1 (  0029):    16.77   0.583     5.50    31.10

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0123)|   Area    (ha)=   1.39   Curve Number   (CN)= 86.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.48

     Unit Hyd Qpeak  (cms)=   0.110

     PEAK FLOW      (cms)=   0.079 (i)
     TIME TO PEAK   (hrs)=   5.167
     RUNOFF VOLUME   (mm)=  35.080
     TOTAL RAINFALL  (mm)=  65.319
     RUNOFF COEFFICIENT  =   0.537

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

--------------------------------------------------------------------------------

  --------------------------
  | Junction Command(0030) |
  --------------------------

  --------------------------

                        AREA     QPEAK   TPEAK     R.V.
                        (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0123)    1.39     0.08    5.17    35.08
  OUTFLOW: ID= 2(  0030)    1.39     0.08    5.17    35.08

  --------------------------------------------------------------------------------
================================================================================
======================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\157bc
479-9c80-4749-8af1-6f650518548a\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\157bc
479-9c80-4749-8af1-6f650518548a\scen


DATE: 08/20/2025                          TIME: 02:40:24

USER:



COMMENTS: _____


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  ********************************************
  ** SIMULATION : 25-mm Quality Storm         **
  ********************************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 425.000
| Ptotal= 25.00 mm |                          B=   5.000
-------------------                          C=   0.767
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.40

     TIME    RAIN  |  TIME    RAIN  |'  TIME    RAIN  |  TIME    RAIN
      hrs   mm/hr  |   hrs   mm/hr  |'   hrs   mm/hr  |   hrs   mm/hr
     0.00    1.65  |  1.00    4.31  |'  2.00    5.82  |  3.00    2.27
     0.17    1.82  |  1.17    6.37  |'  2.17    4.52  |  3.17    2.08
     0.33    2.04  |  1.33   13.83  |'  2.33    3.72  |  3.33    1.92
     0.50    2.33  |  1.50   53.25  |'  2.50    3.19  |  3.50    1.79
     0.67    2.72  |  1.67   16.08  |'  2.67    2.80  |  3.67    1.68
     0.83    3.31  |  1.83    8.40  |'  2.83    2.50  |  3.83    1.58


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0122)|   Area    (ha)=   3.16   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.66

        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    1.65  | 1.083    4.31  | 2.083    5.82  |  3.08    2.27
    0.167    1.65  | 1.167    4.31  | 2.167    5.82  |  3.17    2.27
    0.250    1.82  | 1.250    6.37  | 2.250    4.52  |  3.25    2.08
    0.333    1.82  | 1.333    6.37  | 2.333    4.52  |  3.33    2.08
    0.417    2.04  | 1.417   13.83  | 2.417    3.72  |  3.42    1.92
    0.500    2.04  | 1.500   13.83  | 2.500    3.72  |  3.50    1.92
    0.583    2.33  | 1.583   53.25  | 2.583    3.19  |  3.58    1.79
    0.667    2.33  | 1.667   53.25  | 2.667    3.19  |  3.67    1.79
    0.750    2.72  | 1.750   16.08  | 2.750    2.80  |  3.75    1.68
    0.833    2.72  | 1.833   16.08  | 2.833    2.80  |  3.83    1.68
    0.917    3.31  | 1.917    8.40  | 2.917    2.50  |  3.92    1.58
    1.000    3.31  | 2.000    8.40  | 3.000    2.50  |  4.00    1.58
```

Unit Hyd Qpeak (cms)= 0.182

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 4.531
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.181

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

CALIB							
NASHYD (0103)	Area (ha)=	1.41	Curve Number (CN)=	83.7			
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.26					

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.209

PEAK FLOW (cms)= 0.016 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 4.799
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.192

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

ADD HYD (0020)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0103):	1.41	0.016	2.00	4.80	
+ ID2= 2 (0122):	3.16	0.019	2.58	4.53	
ID = 3 (0020):	4.57	0.029	2.25	4.61	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB							
NASHYD (0120)	Area (ha)=	4.33	Curve Number (CN)=	83.7			
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# 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 hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.302

PEAK FLOW (cms)= 0.031 (i)
TIME TO PEAK (hrs)= 2.417
RUNOFF VOLUME (mm)= 4.802
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.192

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

CALIB							
NASHYD (0100)	Area (ha)=	10.57	Curve Number (CN)=	83.3			
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# 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 hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.395

PEAK FLOW (cms)= 0.051 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 4.701
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.188

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

CALIB							
NASHYD (0101)	Area (ha)=	0.04	Curve Number (CN)=	87.5			
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.09					

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.018

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 5.700
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.228

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

ADD HYD (0022)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0100):	10.57	0.051	3.08	4.70	
+ ID2= 2 (0101):	0.04	0.001	1.67	5.70	
ID = 3 (0022):	10.61	0.051	3.08	4.70	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 3 (0022):	10.61	0.051	3.08	4.70	
+ ID2= 2 (0120):	4.33	0.031	2.42	4.80	
ID = 1 (0022):	14.94	0.076	2.83	4.73	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB							
NASHYD (0102)	Area (ha)=	7.24	Curve Number (CN)=	82.0			
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# 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 hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.916

PEAK FLOW (cms)= 0.067 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 4.391
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.176

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

CALIB					
NASHYD (0126)	Area (ha)= 1.06	Curve Number (CN)= 79.1
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# 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 hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.066

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 2.500
RUNOFF VOLUME (mm)= 3.805
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.152

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

CALIB					
NASHYD (0124)	Area (ha)= 0.71	Curve Number (CN)= 85.4
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.25	

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.109

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 5.270
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.211

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

ADD HYD (0027)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0102):	7.24	0.067	2.08	4.39
+ ID2= 2 (0124):	0.71	0.009	2.00	5.27
ID = 3 (0027):	7.95	0.076	2.00	4.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0027)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0027):	7.95	0.076	2.00	4.47
+ ID2= 2 (0126):	1.06	0.006	2.50	3.81
ID = 1 (0027):	9.01	0.080	2.08	4.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0125)	Area (ha)= 0.18	Curve Number (CN)= 84.3
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.18	

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.037

PEAK FLOW (cms)= 0.002 (i)
TIME TO PEAK (hrs)= 1.833
RUNOFF VOLUME (mm)= 4.946
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.198

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

ADD HYD (0023)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0125):	0.18	0.002	1.83	4.95
+ ID2= 2 (0027):	9.01	0.080	2.08	4.39
ID = 3 (0023):	9.19	0.082	2.08	4.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0121)	Area (ha)= 2.12	Curve Number (CN)= 83.3
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# 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 hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.087

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 3.000

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     RUNOFF VOLUME    (mm)=   4.700
     TOTAL RAINFALL   (mm)=  25.000
     RUNOFF COEFFICIENT   =   0.188

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| CALIB            |
| NASHYD   (  0105)|   Area    (ha)=   9.75   Curve Number   (CN)= 83.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # 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 hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

```
     Unit Hyd Qpeak  (cms)=   0.455

     PEAK FLOW       (cms)=   0.055 (i)
     TIME TO PEAK    (hrs)=   2.833
     RUNOFF VOLUME    (mm)=   4.828
     TOTAL RAINFALL   (mm)=  25.000
     RUNOFF COEFFICIENT   =   0.193

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

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--------------------
| ADD HYD  (  0019)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0105):     9.75   0.055     2.83     4.83
     + ID2= 2 (  0121):     2.12   0.011     3.00     4.70
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

```
     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.007 (i)
     TIME TO PEAK    (hrs)=   2.583
     RUNOFF VOLUME    (mm)=   4.134
     TOTAL RAINFALL   (mm)=  25.000
     RUNOFF COEFFICIENT   =   0.165

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     3.63   0.024     2.50     4.53
     + ID2= 2 (  0106):     1.27   0.007     2.58     4.13
       ====================================================
       ID = 3 (  0029):     4.90   0.030     2.50     4.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
--------------------
| ADD HYD  (  0029)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0029):     4.90   0.030     2.50     4.43
     + ID2= 2 (  0019):    11.87   0.066     2.83     4.81
       ====================================================
       ID = 1 (  0029):    16.77   0.095     2.75     4.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

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       ================================================
       ID = 3 (  0019):    11.87   0.066     2.83     4.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

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| CALIB            |
| NASHYD   (  0104)|   Area    (ha)=   3.63   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # 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 hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

```
     Unit Hyd Qpeak  (cms)=   0.233

     PEAK FLOW       (cms)=   0.024 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=   4.531
     TOTAL RAINFALL   (mm)=  25.000
     RUNOFF COEFFICIENT   =   0.181

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

```
--------------------
| CALIB            |
| NASHYD   (  0106)|   Area    (ha)=   1.27   Curve Number   (CN)= 80.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.67
```

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

```
--------------------
| CALIB            |
| NASHYD   (  0123)|   Area    (ha)=   1.39   Curve Number   (CN)= 86.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # 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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

```
     Unit Hyd Qpeak  (cms)=   0.110

     PEAK FLOW       (cms)=   0.013 (i)
     TIME TO PEAK    (hrs)=   2.333
     RUNOFF VOLUME    (mm)=   5.721
     TOTAL RAINFALL   (mm)=  25.000
     RUNOFF COEFFICIENT   =   0.229

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

```
  -------------------------
  | Junction Command(0030) |
  -------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0123)    1.39     0.01    2.33     5.72
  OUTFLOW: ID= 2(  0030)    1.39     0.01    2.33     5.72

  ---------------------------------------------------------------------------
================================================================================
======================
```

```
       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\2475c
e4b-1336-47fe-9e5f-e12c8bc7f29f\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\2475c
e4b-1336-47fe-9e5f-e12c8bc7f29f\scen


DATE: 08/20/2025                          TIME: 02:40:24

USER:



COMMENTS: _____

--------------------------------------------------------------------------------
------------------------
  ************************************************
  ** SIMULATION : 25yr 12hr 5min Chicago        **
  ************************************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1837.546
| Ptotal= 77.38 mm |                          B=  11.800
-------------------                          C=   0.857
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  = 12.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =  0.38

 TIME    RAIN  |  TIME    RAIN  |'  TIME    RAIN  |  TIME    RAIN
  hrs   mm/hr  |   hrs   mm/hr  |'   hrs   mm/hr  |   hrs   mm/hr
 0.00    1.03  |  3.00    3.01  |  6.00    4.97  |  9.00    1.62
 0.08    1.04  |  3.08    3.19  |  6.08    4.69  |  9.08    1.60
 0.17    1.06  |  3.17    3.40  |  6.17    4.44  |  9.17    1.57
 0.25    1.08  |  3.25    3.64  |  6.25    4.22  |  9.25    1.54
 0.33    1.10  |  3.33    3.92  |  6.33    4.02  |  9.33    1.52
 0.42    1.12  |  3.42    4.24  |  6.42    3.83  |  9.42    1.49
 0.50    1.15  |  3.50    4.62  |  6.50    3.67  |  9.50    1.47
 0.58    1.17  |  3.58    5.08  |  6.58    3.51  |  9.58    1.45
 0.67    1.19  |  3.67    5.65  |  6.67    3.37  |  9.67    1.42
 0.75    1.22  |  3.75    6.35  |  6.75    3.24  |  9.75    1.40
 0.83    1.24  |  3.83    7.25  |  6.83    3.12  |  9.83    1.38
 0.92    1.27  |  3.92    8.44  |  6.92    3.01  |  9.92    1.36
 1.00    1.30  |  4.00   10.07  |  7.00    2.91  | 10.00    1.34
 1.08    1.33  |  4.08   12.45  |  7.08    2.82  | 10.08    1.32
 1.17    1.36  |  4.17   16.17  |  7.17    2.73  | 10.17    1.30
 1.25    1.40  |  4.25   22.65  |  7.25    2.64  | 10.25    1.29
 1.33    1.43  |  4.33   36.11  |  7.33    2.56  | 10.33    1.27
 1.42    1.47  |  4.42   75.42  |  7.42    2.49  | 10.42    1.25
 1.50    1.51  |  4.50  163.74  |  7.50    2.42  | 10.50    1.24
 1.58    1.55  |  4.58   88.04  |  7.58    2.36  | 10.58    1.22
 1.67    1.59  |  4.67   51.42  |  7.67    2.29  | 10.67    1.20
 1.75    1.64  |  4.75   34.99  |  7.75    2.23  | 10.75    1.19
 1.83    1.69  |  4.83   25.99  |  7.83    2.18  | 10.83    1.17
 1.92    1.74  |  4.92   20.44  |  7.92    2.13  | 10.92    1.16
 2.00    1.80  |  5.00   16.73  |  8.00    2.08  | 11.00    1.15
 2.08    1.86  |  5.08   14.09  |  8.08    2.03  | 11.08    1.13
 2.17    1.93  |  5.17   12.14  |  8.17    1.98  | 11.17    1.12
 2.25    2.00  |  5.25   10.65  |  8.25    1.94  | 11.25    1.11
 2.33    2.07  |  5.33    9.47  |  8.33    1.90  | 11.33    1.09
 2.42    2.15  |  5.42    8.51  |  8.42    1.86  | 11.42    1.08
 2.50    2.24  |  5.50    7.73  |  8.50    1.82  | 11.50    1.07
 2.58    2.34  |  5.58    7.08  |  8.58    1.79  | 11.58    1.06
 2.67    2.45  |  5.67    6.53  |  8.67    1.75  | 11.67    1.05
 2.75    2.57  |  5.75    6.05  |  8.75    1.72  | 11.75    1.03
 2.83    2.70  |  5.83    5.64  |  8.83    1.69  | 11.83    1.02
 2.92    2.85  |  5.92    5.28  |  8.92    1.65  | 11.92    1.01

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0122)|   Area    (ha)=   3.16   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.66

     Unit Hyd Qpeak  (cms)=   0.182

     PEAK FLOW       (cms)=   0.168 (i)
     TIME TO PEAK    (hrs)=   5.333
     RUNOFF VOLUME    (mm)=  39.983
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.517

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

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.41   Curve Number   (CN)= 83.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.26

     Unit Hyd Qpeak  (cms)=   0.209

     PEAK FLOW       (cms)=   0.146 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  41.303
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.534

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

--------------------------------------------------------------------------------


-------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):     1.41   0.146     4.83    41.30
     + ID2= 2 (  0122):     3.16   0.168     5.33    39.98
       ================================================
       ID = 3 (  0020):     4.57   0.261     5.08    40.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0120)|   Area    (ha)=   4.33   Curve Number   (CN)= 83.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.55

     Unit Hyd Qpeak  (cms)=   0.302

     PEAK FLOW       (cms)=   0.275 (i)
     TIME TO PEAK    (hrs)=   5.250
     RUNOFF VOLUME    (mm)=  41.330
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.534

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

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0100)|   Area    (ha)=  10.57   Curve Number   (CN)= 83.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.02

     Unit Hyd Qpeak  (cms)=   0.395

     PEAK FLOW       (cms)=   0.417 (i)
     TIME TO PEAK    (hrs)=   5.833
     RUNOFF VOLUME    (mm)=  40.835
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.528

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

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   0.04   Curve Number   (CN)= 87.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.09

     Unit Hyd Qpeak  (cms)=   0.018

     PEAK FLOW       (cms)=   0.008 (i)
     TIME TO PEAK    (hrs)=   4.667
     RUNOFF VOLUME    (mm)=  44.382
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.574

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

--------------------------------------------------------------------------------


-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0100):    10.57   0.417     5.83    40.84
     + ID2= 2 (  0101):     0.04   0.008     4.67    44.38
       ================================================
```

```
       ID = 3 (  0022):    10.61   0.417     5.83    40.85

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):    10.61   0.417     5.83    40.85
     + ID2= 2 (  0120):     4.33   0.275     5.25    41.33
       ====================================================
       ID = 1 (  0022):    14.94   0.636     5.50    40.99

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   7.24   Curve Number   (CN)= 82.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.30

     Unit Hyd Qpeak  (cms)=   0.916

     PEAK FLOW       (cms)=   0.643 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  39.256
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.507

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0126)|   Area    (ha)=   1.06   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.066

     PEAK FLOW       (cms)=   0.053 (i)
     TIME TO PEAK    (hrs)=   5.333
     RUNOFF VOLUME    (mm)=  36.025
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.466

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

--------------------------------------------------------------------------------
```

```
--------------------
| CALIB            |
| NASHYD   (  0124)|   Area    (ha)=   0.71   Curve Number   (CN)= 85.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

     Unit Hyd Qpeak  (cms)=   0.109

     PEAK FLOW       (cms)=   0.080 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  43.490
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.562

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0102):     7.24   0.643     4.92    39.26
     + ID2= 2 (  0124):     0.71   0.080     4.83    43.49
       ====================================================
       ID = 3 (  0027):     7.95   0.721     4.92    39.63

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0027):     7.95   0.721     4.92    39.63
     + ID2= 2 (  0126):     1.06   0.053     5.33    36.02
       ====================================================
       ID = 1 (  0027):     9.01   0.756     4.92    39.21

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0125)|   Area    (ha)=   0.18   Curve Number   (CN)= 84.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

     Unit Hyd Qpeak  (cms)=   0.037

     PEAK FLOW       (cms)=   0.023 (i)
```

```
     TIME TO PEAK    (hrs)=   4.750
     RUNOFF VOLUME    (mm)=  41.978
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.542

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0023)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0125):     0.18   0.023     4.75    41.98
     + ID2= 2 (  0027):     9.01   0.756     4.92    39.21
       ====================================================
       ID = 3 (  0023):     9.19   0.775     4.92    39.26

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0121)|   Area    (ha)=   2.12   Curve Number   (CN)= 83.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.93

     Unit Hyd Qpeak  (cms)=   0.087

     PEAK FLOW       (cms)=   0.090 (i)
     TIME TO PEAK    (hrs)=   5.667
     RUNOFF VOLUME    (mm)=  40.835
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.528

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0105)|   Area    (ha)=   9.75   Curve Number   (CN)= 83.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.455

     PEAK FLOW       (cms)=   0.463 (i)
     TIME TO PEAK    (hrs)=   5.583
     RUNOFF VOLUME    (mm)=  41.457
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.536
```

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0019)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0105):     9.75   0.463     5.58    41.46
     + ID2= 2 (  0121):     2.12   0.090     5.67    40.83
       ====================================================
       ID = 3 (  0019):    11.87   0.552     5.58    41.35

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0104)|   Area    (ha)=   3.63   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

     Unit Hyd Qpeak  (cms)=   0.233

     PEAK FLOW       (cms)=   0.209 (i)
     TIME TO PEAK    (hrs)=   5.250
     RUNOFF VOLUME    (mm)=  39.982
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.517

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0106)|   Area    (ha)=   1.27   Curve Number   (CN)= 80.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.67

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.063 (i)
     TIME TO PEAK    (hrs)=   5.417
     RUNOFF VOLUME    (mm)=  37.887
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.490

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

--------------------------------------------------------------------------------
```

```
--------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     3.63   0.209     5.25    39.98
     + ID2= 2 (  0106):     1.27   0.063     5.42    37.89
       ================================================
       ID = 3 (  0029):     4.90   0.271     5.33    39.44

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0029)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0029):     4.90   0.271     5.33    39.44
     + ID2= 2 (  0019):    11.87   0.552     5.58    41.35
       ================================================
       ID = 1 (  0029):    16.77   0.807     5.50    40.79

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0123)|   Area    (ha)=   1.39   Curve Number   (CN)= 86.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.48

    Unit Hyd Qpeak  (cms)=   0.110

    PEAK FLOW       (cms)=   0.108 (i)
    TIME TO PEAK    (hrs)=   5.167
    RUNOFF VOLUME    (mm)=  45.438
    TOTAL RAINFALL   (mm)=  77.381
    RUNOFF COEFFICIENT   =   0.587

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

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  --------------------------
  | Junction Command(0030) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0123)    1.39     0.11    5.17    45.44
  OUTFLOW: ID= 2(  0030)    1.39     0.11    5.17    45.44
```

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  ------------------------------------------------------------------------------
================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\102a9
324-992d-48ea-80e2-e5381487ff71\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\102a9
324-992d-48ea-80e2-e5381487ff71\scen


DATE: 08/20/2025                          TIME: 02:40:23

USER:


COMMENTS: _____________________________________________

--------------------------------------------------------------------------------
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  **********************************************
  ** SIMULATION : 2yr 12hr 5min Chicago         **
  **********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 632.129
```

```
| Ptotal= 42.50 mm |                          B=   6.000
--------------------                          C=   0.787
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  = 12.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =  0.38

     TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
      hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.00    0.79 |  3.00    1.96 |  6.00    2.96 |  9.00    1.17
     0.08    0.80 |  3.08    2.06 |  6.08    2.82 |  9.08    1.15
     0.17    0.81 |  3.17    2.17 |  6.17    2.70 |  9.17    1.14
     0.25    0.82 |  3.25    2.29 |  6.25    2.59 |  9.25    1.12
     0.33    0.84 |  3.33    2.44 |  6.33    2.49 |  9.33    1.10
     0.42    0.85 |  3.42    2.60 |  6.42    2.39 |  9.42    1.09
     0.50    0.87 |  3.50    2.79 |  6.50    2.31 |  9.50    1.07
     0.58    0.88 |  3.58    3.01 |  6.58    2.23 |  9.58    1.06
     0.67    0.90 |  3.67    3.28 |  6.67    2.15 |  9.67    1.04
     0.75    0.91 |  3.75    3.61 |  6.75    2.09 |  9.75    1.03
     0.83    0.93 |  3.83    4.02 |  6.83    2.02 |  9.83    1.02
     0.92    0.95 |  3.92    4.55 |  6.92    1.96 |  9.92    1.01
     1.00    0.97 |  4.00    5.26 |  7.00    1.91 | 10.00    0.99
     1.08    0.99 |  4.08    6.26 |  7.08    1.86 | 10.08    0.98
     1.17    1.01 |  4.17    7.80 |  7.17    1.81 | 10.17    0.97
     1.25    1.03 |  4.25   10.43 |  7.25    1.76 | 10.25    0.96
     1.33    1.05 |  4.33   16.00 |  7.33    1.72 | 10.33    0.95
     1.42    1.07 |  4.42   34.76 |  7.42    1.68 | 10.42    0.94
     1.50    1.10 |  4.50   95.77 |  7.50    1.64 | 10.50    0.92
     1.58    1.12 |  4.58   41.27 |  7.58    1.60 | 10.58    0.91
     1.67    1.15 |  4.67   22.67 |  7.67    1.56 | 10.67    0.90
     1.75    1.18 |  4.75   15.51 |  7.75    1.53 | 10.75    0.89
     1.83    1.21 |  4.83   11.79 |  7.83    1.50 | 10.83    0.88
     1.92    1.24 |  4.92    9.54 |  7.92    1.47 | 10.92    0.88
     2.00    1.28 |  5.00    8.03 |  8.00    1.44 | 11.00    0.87
     2.08    1.31 |  5.08    6.95 |  8.08    1.41 | 11.08    0.86
     2.17    1.35 |  5.17    6.13 |  8.17    1.39 | 11.17    0.85
     2.25    1.39 |  5.25    5.50 |  8.25    1.36 | 11.25    0.84
     2.33    1.44 |  5.33    5.00 |  8.33    1.34 | 11.33    0.83
     2.42    1.48 |  5.42    4.58 |  8.42    1.31 | 11.42    0.82
     2.50    1.54 |  5.50    4.24 |  8.50    1.29 | 11.50    0.82
     2.58    1.59 |  5.58    3.94 |  8.58    1.27 | 11.58    0.81
     2.67    1.65 |  5.67    3.69 |  8.67    1.25 | 11.67    0.80
     2.75    1.72 |  5.75    3.47 |  8.75    1.23 | 11.75    0.79
     2.83    1.79 |  5.83    3.28 |  8.83    1.21 | 11.83    0.79
     2.92    1.87 |  5.92    3.11 |  8.92    1.19 | 11.92    0.78


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--------------------
```

```
| CALIB            |
| NASHYD   (  0122)|   Area    (ha)=   3.16   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.66

     Unit Hyd Qpeak  (cms)=   0.182

     PEAK FLOW       (cms)=   0.049 (i)
     TIME TO PEAK    (hrs)=   5.417
     RUNOFF VOLUME    (mm)=  14.161
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.333

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.41   Curve Number   (CN)= 83.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.26

     Unit Hyd Qpeak  (cms)=   0.209

     PEAK FLOW       (cms)=   0.043 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  14.824
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.349

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):     1.41   0.043     4.83    14.82
     + ID2= 2 (  0122):     3.16   0.049     5.42    14.16
       ================================================
       ID = 3 (  0020):     4.57   0.076     5.08    14.37

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0120)|   Area    (ha)=   4.33   Curve Number   (CN)= 83.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.55
```

```
     Unit Hyd Qpeak  (cms)=   0.302

     PEAK FLOW       (cms)=   0.081 (i)
     TIME TO PEAK    (hrs)=   5.250
     RUNOFF VOLUME    (mm)=  14.834
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.349

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

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0100)|   Area    (ha)=  10.57   Curve Number   (CN)= 83.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   1.02

     Unit Hyd Qpeak  (cms)=   0.395

     PEAK FLOW       (cms)=   0.125 (i)
     TIME TO PEAK    (hrs)=   5.917
     RUNOFF VOLUME    (mm)=  14.585
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.343

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

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0101)|   Area    (ha)=   0.04   Curve Number   (CN)= 87.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.09

     Unit Hyd Qpeak  (cms)=   0.018

     PEAK FLOW       (cms)=   0.003 (i)
     TIME TO PEAK    (hrs)=   4.667
     RUNOFF VOLUME    (mm)=  16.774
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.395

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

--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0100):    10.57   0.125     5.92    14.58
     + ID2= 2 (  0101):     0.04   0.003     4.67    16.77
       ================================================
       ID = 3 (  0022):    10.61   0.125     5.92    14.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):    10.61   0.125     5.92    14.59
     + ID2= 2 (  0120):     4.33   0.081     5.25    14.83
       ================================================
       ID = 1 (  0022):    14.94   0.189     5.58    14.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0102)|   Area    (ha)=   7.24   Curve Number   (CN)= 82.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.30

     Unit Hyd Qpeak  (cms)=   0.916

     PEAK FLOW       (cms)=   0.185 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  13.807
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.325

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

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0126)|   Area    (ha)=   1.06   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.066

     PEAK FLOW       (cms)=   0.015 (i)
     TIME TO PEAK    (hrs)=   5.333
     RUNOFF VOLUME    (mm)=  12.282
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.289

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

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0124)|   Area    (ha)=   0.71   Curve Number   (CN)= 85.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.25

     Unit Hyd Qpeak  (cms)=   0.109

     PEAK FLOW       (cms)=   0.024 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  15.957
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.375

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

--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0027)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0102):     7.24   0.185     4.92    13.81
     + ID2= 2 (  0124):     0.71   0.024     4.83    15.96
       ================================================
       ID = 3 (  0027):     7.95   0.208     4.92    14.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0027)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0027):     7.95   0.208     4.92    14.00
     + ID2= 2 (  0126):     1.06   0.015     5.33    12.28
       ================================================
       ID = 1 (  0027):     9.01   0.218     4.92    13.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0125)|   Area    (ha)=   0.18   Curve Number   (CN)= 84.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.18

     Unit Hyd Qpeak  (cms)=   0.037

     PEAK FLOW       (cms)=   0.007 (i)
     TIME TO PEAK    (hrs)=   4.750
     RUNOFF VOLUME    (mm)=  15.179
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.357

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

--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0023)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0125):     0.18   0.007     4.75    15.18
     + ID2= 2 (  0027):     9.01   0.218     4.92    13.80
       ================================================
       ID = 3 (  0023):     9.19   0.224     4.92    13.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0121)|   Area    (ha)=   2.12   Curve Number   (CN)= 83.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.93

     Unit Hyd Qpeak  (cms)=   0.087

     PEAK FLOW       (cms)=   0.027 (i)
     TIME TO PEAK    (hrs)=   5.750
     RUNOFF VOLUME    (mm)=  14.584
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.343

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

--------------------------------------------------------------------------------
-------------------
| CALIB             |
| NASHYD   (  0105)|   Area    (ha)=   9.75   Curve Number   (CN)= 83.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.455

     PEAK FLOW       (cms)=   0.138 (i)
```

```
     TIME TO PEAK    (hrs)=   5.667
     RUNOFF VOLUME    (mm)=  14.898
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.351

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

-------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0019)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0105):     9.75   0.138     5.67    14.90
     + ID2= 2 (  0121):     2.12   0.027     5.75    14.58
       ================================================
       ID = 3 (  0019):    11.87   0.165     5.67    14.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0104)|   Area    (ha)=   3.63   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.59

     Unit Hyd Qpeak  (cms)=   0.233

     PEAK FLOW       (cms)=   0.061 (i)
     TIME TO PEAK    (hrs)=   5.333
     RUNOFF VOLUME    (mm)=  14.161
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.333

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

-------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0106)|   Area    (ha)=   1.27   Curve Number   (CN)= 80.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.67

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.018 (i)
     TIME TO PEAK    (hrs)=   5.417
     RUNOFF VOLUME    (mm)=  13.148
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.309

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

-------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     3.63   0.061     5.33    14.16
     + ID2= 2 (  0106):     1.27   0.018     5.42    13.15
       ================================================
       ID = 3 (  0029):     4.90   0.079     5.33    13.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0029)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0029):     4.90   0.079     5.33    13.90
     + ID2= 2 (  0019):    11.87   0.165     5.67    14.84
       ================================================
       ID = 1 (  0029):    16.77   0.238     5.50    14.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0123)|   Area    (ha)=   1.39   Curve Number   (CN)= 86.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.48

     Unit Hyd Qpeak  (cms)=   0.110

     PEAK FLOW       (cms)=   0.033 (i)
     TIME TO PEAK    (hrs)=   5.167
     RUNOFF VOLUME    (mm)=  17.002
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.400

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

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  --------------------------
  | Junction Command(0030) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0123)    1.39     0.03    5.17    17.00
  OUTFLOW: ID= 2(  0030)    1.39     0.03    5.17    17.00

  ------------------------------------------------------------------------------
==============================================================================
======================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\c9e5f
5ab-2126-4329-9a34-062992913feb\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\c9e5f
5ab-2126-4329-9a34-062992913feb\scen


DATE: 08/20/2025                          TIME: 02:40:24

USER:



COMMENTS: _____


-------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : 50yr 12hr 5min Chicago        **

  ***********************************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A=2353.333
| Ptotal= 86.68 mm |                          B=  13.500
-------------------                          C=   0.877
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  = 12.00 hrs
                         Storm time step    =  5.00 min
                         Time to peak ratio =  0.38

      TIME    RAIN  |  TIME    RAIN  |'  TIME    RAIN  |  TIME    RAIN
       hrs   mm/hr  |   hrs   mm/hr  |'   hrs   mm/hr  |   hrs   mm/hr
      0.00    1.02  |  3.00    3.18  |   6.00    5.43  |  9.00    1.66
      0.08    1.04  |  3.08    3.39  |   6.08    5.10  |  9.08    1.62
      0.17    1.06  |  3.17    3.63  |   6.17    4.81  |  9.17    1.60
      0.25    1.08  |  3.25    3.90  |   6.25    4.56  |  9.25    1.57
      0.33    1.10  |  3.33    4.21  |   6.33    4.33  |  9.33    1.54
      0.42    1.12  |  3.42    4.58  |   6.42    4.12  |  9.42    1.51
      0.50    1.15  |  3.50    5.03  |   6.50    3.93  |  9.50    1.49
      0.58    1.17  |  3.58    5.56  |   6.58    3.75  |  9.58    1.46
      0.67    1.19  |  3.67    6.21  |   6.67    3.59  |  9.67    1.44
      0.75    1.22  |  3.75    7.04  |   6.75    3.45  |  9.75    1.42
      0.83    1.25  |  3.83    8.10  |   6.83    3.31  |  9.83    1.39
      0.92    1.28  |  3.92    9.51  |   6.92    3.19  |  9.92    1.37
      1.00    1.31  |  4.00   11.46  |   7.00    3.07  | 10.00    1.35
      1.08    1.34  |  4.08   14.31  |   7.08    2.96  | 10.08    1.33
      1.17    1.37  |  4.17   18.78  |   7.17    2.87  | 10.17    1.31
      1.25    1.41  |  4.25   26.57  |   7.25    2.77  | 10.25    1.29
      1.33    1.45  |  4.33   42.60  |   7.33    2.68  | 10.33    1.28
      1.42    1.49  |  4.42   87.70  |   7.42    2.60  | 10.42    1.26
      1.50    1.53  |  4.50  182.13  |   7.50    2.53  | 10.50    1.24
      1.58    1.57  |  4.58  101.91  |   7.58    2.45  | 10.58    1.22
      1.67    1.62  |  4.67   60.53  |   7.67    2.38  | 10.67    1.21
      1.75    1.67  |  4.75   41.28  |   7.75    2.32  | 10.75    1.19
      1.83    1.72  |  4.83   30.58  |   7.83    2.26  | 10.83    1.18
      1.92    1.78  |  4.92   23.92  |   7.92    2.20  | 10.92    1.16
      2.00    1.84  |  5.00   19.45  |   8.00    2.15  | 11.00    1.15
      2.08    1.91  |  5.08   16.28  |   8.08    2.09  | 11.08    1.13
      2.17    1.98  |  5.17   13.94  |   8.17    2.04  | 11.17    1.12
      2.25    2.06  |  5.25   12.14  |   8.25    2.00  | 11.25    1.10
      2.33    2.14  |  5.33   10.73  |   8.33    1.95  | 11.33    1.09
      2.42    2.23  |  5.42    9.60  |   8.42    1.91  | 11.42    1.08
      2.50    2.33  |  5.50    8.67  |   8.50    1.87  | 11.50    1.07
      2.58    2.44  |  5.58    7.90  |   8.58    1.83  | 11.58    1.05
      2.67    2.56  |  5.67    7.25  |   8.67    1.79  | 11.67    1.04
      2.75    2.69  |  5.75    6.69  |   8.75    1.76  | 11.75    1.03
      2.83    2.84  |  5.83    6.21  |   8.83    1.72  | 11.83    1.02
      2.92    3.00  |  5.92    5.79  |   8.92    1.69  | 11.92    1.01
```

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0122)|   Area    (ha)=   3.16   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.66

     Unit Hyd Qpeak  (cms)=   0.182

     PEAK FLOW       (cms)=   0.207 (i)
     TIME TO PEAK    (hrs)=   5.333
     RUNOFF VOLUME    (mm)=  47.666
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.550

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.41   Curve Number   (CN)= 83.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.26

     Unit Hyd Qpeak  (cms)=   0.209

     PEAK FLOW       (cms)=   0.179 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  49.124
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.567

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0020)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):     1.41   0.179     4.83    49.12
     + ID2= 2 (  0122):     3.16   0.207     5.33    47.67
       ====================================================
       ID = 3 (  0020):     4.57   0.322     5.00    48.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
```

```
--------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0100):    10.57   0.513     5.83    48.61
     + ID2= 2 (  0101):     0.04   0.009     4.67    52.32
       ====================================================
       ID = 3 (  0022):    10.61   0.514     5.83    48.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0022)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0022):    10.61   0.514     5.83    48.62
     + ID2= 2 (  0120):     4.33   0.339     5.25    49.16
       ====================================================
       ID = 1 (  0022):    14.94   0.784     5.50    48.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   7.24   Curve Number   (CN)= 82.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.30

     Unit Hyd Qpeak  (cms)=   0.916

     PEAK FLOW       (cms)=   0.795 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  46.858
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.541

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0126)|   Area    (ha)=   1.06   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.066

     PEAK FLOW       (cms)=   0.066 (i)
```

```
--------------------
| CALIB            |
| NASHYD   (  0120)|   Area    (ha)=   4.33   Curve Number   (CN)= 83.7
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.55

     Unit Hyd Qpeak  (cms)=   0.302

     PEAK FLOW       (cms)=   0.339 (i)
     TIME TO PEAK    (hrs)=   5.250
     RUNOFF VOLUME    (mm)=  49.157
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.567

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0100)|   Area    (ha)=  10.57   Curve Number   (CN)= 83.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.02

     Unit Hyd Qpeak  (cms)=   0.395

     PEAK FLOW       (cms)=   0.513 (i)
     TIME TO PEAK    (hrs)=   5.833
     RUNOFF VOLUME    (mm)=  48.610
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.561

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   0.04   Curve Number   (CN)= 87.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.09

     Unit Hyd Qpeak  (cms)=   0.018

     PEAK FLOW       (cms)=   0.009 (i)
     TIME TO PEAK    (hrs)=   4.667
     RUNOFF VOLUME    (mm)=  52.322
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.604

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

--------------------------------------------------------------------------------
```

```
     TIME TO PEAK    (hrs)=   5.333
     RUNOFF VOLUME    (mm)=  43.247
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.499

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0124)|   Area    (ha)=   0.71   Curve Number   (CN)= 85.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

     Unit Hyd Qpeak  (cms)=   0.109

     PEAK FLOW       (cms)=   0.098 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  51.529
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.594

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0102):     7.24   0.795     4.92    46.86
     + ID2= 2 (  0124):     0.71   0.098     4.83    51.53
       ====================================================
       ID = 3 (  0027):     7.95   0.890     4.92    47.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0027):     7.95   0.890     4.92    47.28
     + ID2= 2 (  0126):     1.06   0.066     5.33    43.25
       ====================================================
       ID = 1 (  0027):     9.01   0.935     4.92    46.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
```

```
| CALIB             |
| NASHYD   (  0125)|   Area    (ha)=   0.18   Curve Number   (CN)= 84.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

     Unit Hyd Qpeak  (cms)=   0.037

     PEAK FLOW       (cms)=   0.028 (i)
     TIME TO PEAK    (hrs)=   4.750
     RUNOFF VOLUME    (mm)=  49.861
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.575

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0023)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0125):     0.18   0.028     4.75    49.86
     + ID2= 2 (  0027):     9.01   0.935     4.92    46.80
       ================================================
       ID = 3 (  0023):     9.19   0.958     4.92    46.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB             |
| NASHYD   (  0121)|   Area    (ha)=   2.12   Curve Number   (CN)= 83.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.93

     Unit Hyd Qpeak  (cms)=   0.087

     PEAK FLOW       (cms)=   0.111 (i)
     TIME TO PEAK    (hrs)=   5.667
     RUNOFF VOLUME    (mm)=  48.610
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.561

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

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| NASHYD   (  0105)|   Area    (ha)=   9.75   Curve Number   (CN)= 83.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.82

     TIME TO PEAK    (hrs)=   5.417
     RUNOFF VOLUME    (mm)=  45.334
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.523

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     3.63   0.258     5.25    47.67
     + ID2= 2 (  0106):     1.27   0.078     5.42    45.33
       ================================================
       ID = 3 (  0029):     4.90   0.336     5.33    47.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0029)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0029):     4.90   0.336     5.33    47.06
     + ID2= 2 (  0019):    11.87   0.679     5.58    49.17
       ================================================
       ID = 1 (  0029):    16.77   0.995     5.50    48.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB             |
| NASHYD   (  0123)|   Area    (ha)=   1.39   Curve Number   (CN)= 86.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.48

     Unit Hyd Qpeak  (cms)=   0.110

     PEAK FLOW       (cms)=   0.132 (i)
     TIME TO PEAK    (hrs)=   5.167
     RUNOFF VOLUME    (mm)=  53.659
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.619

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

--------------------------------------------------------------------------------
```

```
     Unit Hyd Qpeak  (cms)=   0.455

     PEAK FLOW       (cms)=   0.569 (i)
     TIME TO PEAK    (hrs)=   5.583
     RUNOFF VOLUME    (mm)=  49.297
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.569

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0019)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0105):     9.75   0.569     5.58    49.30
     + ID2= 2 (  0121):     2.12   0.111     5.67    48.61
       ================================================
       ID = 3 (  0019):    11.87   0.679     5.58    49.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB             |
| NASHYD   (  0104)|   Area    (ha)=   3.63   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

     Unit Hyd Qpeak  (cms)=   0.233

     PEAK FLOW       (cms)=   0.258 (i)
     TIME TO PEAK    (hrs)=   5.250
     RUNOFF VOLUME    (mm)=  47.666
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.550

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

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| NASHYD   (  0106)|   Area    (ha)=   1.27   Curve Number   (CN)= 80.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.67

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.078 (i)

  --------------------------
  | Junction Command(0030) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0123)    1.39     0.13     5.17    53.66
  OUTFLOW: ID= 2(  0030)    1.39     0.13     5.17    53.66

  --------------------------------------------------------------------------------

 FINISH
================================================================================
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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\6e387
a51-8324-4cf7-8c75-29970a772c4a\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\6e387
a51-8324-4cf7-8c75-29970a772c4a\scen


DATE: 08/20/2025                          TIME: 02:40:24

USER:
```

COMMENTS: _____

```
  **********************************************
  ** SIMULATION : 5yr 12hr 5min Chicago         **
  **********************************************
```

CHICAGO STORM	Ptotal= 55.97 mm

IDF curve parameters: A= 983.699
B= 8.100
C= 0.812
used in: INTENSITY = A / (t + B)^C

Duration of storm = 12.00 hrs
Storm time step = 5.00 min
Time to peak ratio = 0.38

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.93	3.00	2.44	6.00	3.79	9.00	1.41
0.08	0.95	3.08	2.57	6.08	3.61	9.08	1.39
0.17	0.96	3.17	2.72	6.17	3.44	9.17	1.37
0.25	0.98	3.25	2.89	6.25	3.29	9.25	1.35
0.33	0.99	3.33	3.08	6.33	3.15	9.33	1.33
0.42	1.01	3.42	3.30	6.42	3.02	9.42	1.31
0.50	1.03	3.50	3.56	6.50	2.91	9.50	1.29
0.58	1.05	3.58	3.87	6.58	2.80	9.58	1.27
0.67	1.07	3.67	4.24	6.67	2.70	9.67	1.25
0.75	1.09	3.75	4.70	6.75	2.61	9.75	1.24
0.83	1.11	3.83	5.28	6.83	2.52	9.83	1.22
0.92	1.13	3.92	6.03	6.92	2.45	9.92	1.20
1.00	1.15	4.00	7.05	7.00	2.37	10.00	1.19
1.08	1.18	4.08	8.52	7.08	2.30	10.08	1.17
1.17	1.20	4.17	10.78	7.17	2.24	10.17	1.16
1.25	1.23	4.25	14.69	7.25	2.18	10.25	1.14
1.33	1.26	4.33	22.94	7.33	2.12	10.33	1.13
1.42	1.29	4.42	49.28	7.42	2.07	10.42	1.12
1.50	1.32	4.50	121.80	7.50	2.02	10.50	1.10
1.58	1.35	4.58	58.14	7.58	1.97	10.58	1.09
1.67	1.39	4.67	32.66	7.67	1.92	10.67	1.08
1.75	1.42	4.75	22.23	7.75	1.88	10.75	1.06
1.83	1.46	4.83	16.72	7.83	1.84	10.83	1.05
1.92	1.50	4.92	13.36	7.92	1.80	10.92	1.04
2.00	1.55	5.00	11.12	8.00	1.76	11.00	1.03
2.08	1.59	5.08	9.52	8.08	1.72	11.08	1.02
2.17	1.64	5.17	8.33	8.17	1.69	11.17	1.01
2.25	1.70	5.25	7.41	8.25	1.66	11.25	1.00
2.33	1.75	5.33	6.68	8.33	1.62	11.33	0.99
2.42	1.82	5.42	6.08	8.42	1.59	11.42	0.98
2.50	1.88	5.50	5.59	8.50	1.56	11.50	0.97
2.58	1.96	5.58	5.17	8.58	1.54	11.58	0.96
2.67	2.04	5.67	4.82	8.67	1.51	11.67	0.95
2.75	2.12	5.75	4.51	8.75	1.48	11.75	0.94
2.83	2.22	5.83	4.24	8.83	1.46	11.83	0.93
2.92	2.33	5.92	4.00	8.92	1.44	11.92	0.92

CALIB	NASHYD (0122)	ID= 1 DT= 5.0 min

Area (ha)= 3.16 Curve Number (CN)= 82.6
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.66

Unit Hyd Qpeak (cms)= 0.182

PEAK FLOW (cms)= 0.089 (i)
TIME TO PEAK (hrs)= 5.417
RUNOFF VOLUME (mm)= 23.399
TOTAL RAINFALL (mm)= 55.968
RUNOFF COEFFICIENT = 0.418

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

CALIB	NASHYD (0103)	ID= 1 DT= 5.0 min

Area (ha)= 1.41 Curve Number (CN)= 83.7
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.26

Unit Hyd Qpeak (cms)= 0.209

PEAK FLOW (cms)= 0.078 (i)
TIME TO PEAK (hrs)= 4.833
RUNOFF VOLUME (mm)= 24.343
TOTAL RAINFALL (mm)= 55.968
RUNOFF COEFFICIENT = 0.435

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

ADD HYD (0020)	1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0103):	1.41	0.078	4.83	24.34
+ ID2= 2 (0122):	3.16	0.089	5.42	23.40
ID = 3 (0020):	4.57	0.137	5.08	23.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD (0120)	ID= 1 DT= 5.0 min

Area (ha)= 4.33 Curve Number (CN)= 83.7
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.55

Unit Hyd Qpeak (cms)= 0.302

PEAK FLOW (cms)= 0.146 (i)
TIME TO PEAK (hrs)= 5.250
RUNOFF VOLUME (mm)= 24.360
TOTAL RAINFALL (mm)= 55.968
RUNOFF COEFFICIENT = 0.435

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

CALIB	NASHYD (0100)	ID= 1 DT= 5.0 min

Area (ha)= 10.57 Curve Number (CN)= 83.3
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 1.02

Unit Hyd Qpeak (cms)= 0.395

PEAK FLOW (cms)= 0.223 (i)
TIME TO PEAK (hrs)= 5.833
RUNOFF VOLUME (mm)= 24.005
TOTAL RAINFALL (mm)= 55.968
RUNOFF COEFFICIENT = 0.429

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

CALIB	NASHYD (0101)	ID= 1 DT= 5.0 min

Area (ha)= 0.04 Curve Number (CN)= 87.5
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.09

Unit Hyd Qpeak (cms)= 0.018

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 4.667
RUNOFF VOLUME (mm)= 26.880
TOTAL RAINFALL (mm)= 55.968
RUNOFF COEFFICIENT = 0.480

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

ADD HYD (0022)	1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0100):	10.57	0.223	5.83	24.01
+ ID2= 2 (0101):	0.04	0.004	4.67	26.88
ID = 3 (0022):	10.61	0.223	5.83	24.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022)	3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0022):	10.61	0.223	5.83	24.02
+ ID2= 2 (0120):	4.33	0.146	5.25	24.36
ID = 1 (0022):	14.94	0.338	5.58	24.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD (0102)	ID= 1 DT= 5.0 min

Area (ha)= 7.24 Curve Number (CN)= 82.0
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 0.916

PEAK FLOW (cms)= 0.337 (i)
TIME TO PEAK (hrs)= 4.917
RUNOFF VOLUME (mm)= 22.889
TOTAL RAINFALL (mm)= 55.968
RUNOFF COEFFICIENT = 0.409

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

```
--------------------
| CALIB            |
| NASHYD   (  0126)|   Area    (ha)=   1.06   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62

     Unit Hyd Qpeak  (cms)=   0.066

     PEAK FLOW       (cms)=   0.027 (i)
     TIME TO PEAK    (hrs)=   5.333
     RUNOFF VOLUME    (mm)=  20.655
     TOTAL RAINFALL   (mm)=  55.968
     RUNOFF COEFFICIENT   =   0.369

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0124)|   Area    (ha)=   0.71   Curve Number   (CN)= 85.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

     Unit Hyd Qpeak  (cms)=   0.109

     PEAK FLOW       (cms)=   0.043 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  25.932
     TOTAL RAINFALL   (mm)=  55.968
     RUNOFF COEFFICIENT   =   0.463

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0102):     7.24   0.337     4.92    22.89
     + ID2= 2 (  0124):     0.71   0.043     4.83    25.93
       ================================================
       ID = 3 (  0027):     7.95   0.380     4.92    23.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0027)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0027):     7.95   0.380     4.92    23.16
     + ID2= 2 (  0126):     1.06   0.027     5.33    20.66
       ================================================
       ID = 1 (  0027):     9.01   0.398     4.92    22.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0125)|   Area    (ha)=   0.18   Curve Number   (CN)= 84.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

     Unit Hyd Qpeak  (cms)=   0.037

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   4.750
     RUNOFF VOLUME    (mm)=  24.840
     TOTAL RAINFALL   (mm)=  55.968
     RUNOFF COEFFICIENT   =   0.444

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0023)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0125):     0.18   0.012     4.75    24.84
     + ID2= 2 (  0027):     9.01   0.398     4.92    22.87
       ================================================
       ID = 3 (  0023):     9.19   0.408     4.92    22.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0121)|   Area    (ha)=   2.12   Curve Number   (CN)= 83.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.93

     Unit Hyd Qpeak  (cms)=   0.087

     PEAK FLOW       (cms)=   0.048 (i)
     TIME TO PEAK    (hrs)=   5.750
     RUNOFF VOLUME    (mm)=  24.004
     TOTAL RAINFALL   (mm)=  55.968
     RUNOFF COEFFICIENT   =   0.429

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0105)|   Area    (ha)=   9.75   Curve Number   (CN)= 83.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.82

     Unit Hyd Qpeak  (cms)=   0.455

     PEAK FLOW       (cms)=   0.247 (i)
     TIME TO PEAK    (hrs)=   5.583
     RUNOFF VOLUME    (mm)=  24.450
     TOTAL RAINFALL   (mm)=  55.968
     RUNOFF COEFFICIENT   =   0.437

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0019)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0105):     9.75   0.247     5.58    24.45
     + ID2= 2 (  0121):     2.12   0.048     5.75    24.00
       ================================================
       ID = 3 (  0019):    11.87   0.294     5.58    24.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0104)|   Area    (ha)=   3.63   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

     Unit Hyd Qpeak  (cms)=   0.233

     PEAK FLOW       (cms)=   0.110 (i)
     TIME TO PEAK    (hrs)=   5.333
     RUNOFF VOLUME    (mm)=  23.399
     TOTAL RAINFALL   (mm)=  55.968
     RUNOFF COEFFICIENT   =   0.418

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

--------------------------------------------------------------------------------

--------------------
| CALIB            |
| NASHYD   (  0106)|   Area    (ha)=   1.27   Curve Number   (CN)= 80.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.67

     Unit Hyd Qpeak  (cms)=   0.072

     PEAK FLOW       (cms)=   0.033 (i)
     TIME TO PEAK    (hrs)=   5.417
     RUNOFF VOLUME    (mm)=  21.932
     TOTAL RAINFALL   (mm)=  55.968
     RUNOFF COEFFICIENT   =   0.392

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     3.63   0.110     5.33    23.40
     + ID2= 2 (  0106):     1.27   0.033     5.42    21.93
       ================================================
       ID = 3 (  0029):     4.90   0.143     5.33    23.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0029)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0029):     4.90   0.143     5.33    23.02
     + ID2= 2 (  0019):    11.87   0.294     5.58    24.37
       ================================================
       ID = 1 (  0029):    16.77   0.429     5.50    23.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0123)|   Area    (ha)=   1.39   Curve Number   (CN)= 86.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.48

     Unit Hyd Qpeak  (cms)=   0.110

     PEAK FLOW       (cms)=   0.059 (i)
```

```
    TIME TO PEAK    (hrs)=   5.167
    RUNOFF VOLUME    (mm)=  27.373
    TOTAL RAINFALL   (mm)=  55.968
    RUNOFF COEFFICIENT   =   0.489

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

```
  --------------------------
  | Junction Command(0030) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0123)    1.39     0.06    5.17    27.37
  OUTFLOW: ID= 2(  0030)    1.39     0.06    5.17    27.37
```

```
==============================================================================
======================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\974b1
075-440f-41a6-b927-769d3356253d\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\974b1
075-440f-41a6-b927-769d3356253d\scen
```

DATE: 08/20/2025 TIME: 02:40:24

USER:

COMMENTS: _____

```
  ************************************************
  ** SIMULATION : Huricane Hazel- 48hr          **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\alazizi\AppD
|                  |              ata\Local\Temp\
|                  |              550f560e-763b-46be-ad87-5146e545de06\17cacc8e
| Ptotal=285.00 mm |    Comments: Huricane Hazel- 48hr
--------------------
```

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   (  0122)|   Area    (ha)=   3.16   Curve Number   (CN)= 82.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.66

        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

Unit Hyd Qpeak (cms)= 0.182

PEAK FLOW (cms)= 0.364 (i)
TIME TO PEAK (hrs)= 46.583
RUNOFF VOLUME (mm)= 233.126
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.818

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

CALIB			
NASHYD (0103)	Area (ha)= 1.41	Curve Number (CN)= 83.7	
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.26		

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

Unit Hyd Qpeak (cms)= 0.209

PEAK FLOW (cms)= 0.198 (i)
TIME TO PEAK (hrs)= 46.000
RUNOFF VOLUME (mm)= 235.841
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.828

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

ADD HYD (0020)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0103):	1.41	0.198	46.00	235.84
	+ ID2= 2 (0122):	3.16	0.364	46.58	233.13
	ID = 3 (0020):	4.57	0.529	46.25	233.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0120)	Area (ha)= 4.33	Curve Number (CN)= 83.7
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# 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 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

Unit Hyd Qpeak (cms)= 0.302

PEAK FLOW (cms)= 0.529 (i)
TIME TO PEAK (hrs)= 46.333
RUNOFF VOLUME (mm)= 235.999
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.828

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

CALIB			
NASHYD (0100)	Area (ha)= 10.57	Curve Number (CN)= 83.3	
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# 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 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

Unit Hyd Qpeak (cms)= 0.395

PEAK FLOW (cms)= 1.097 (i)
TIME TO PEAK (hrs)= 47.167
RUNOFF VOLUME (mm)= 234.961
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.824

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

CALIB NASHYD (0101) ID= 1 DT= 5.0 min	Area (ha)= 0.04 Curve Number (CN)= 87.5 Ia (mm)= 7.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.09

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

Unit Hyd Qpeak (cms)= 0.018

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 46.000
RUNOFF VOLUME (mm)= 235.028
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.825

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

ADD HYD (0022) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0100):	10.57	1.097	47.17	234.96
+ ID2= 2 (0101):	0.04	0.006	46.00	235.03
ID = 3 (0022):	10.61	1.098	47.17	234.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0022) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0022):	10.61	1.098	47.17	234.96
+ ID2= 2 (0120):	4.33	0.529	46.33	236.00
ID = 1 (0022):	14.94	1.573	47.00	235.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD   (  0102)|   Area    (ha)=   7.24   Curve Number   (CN)= 82.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.30

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- 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

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    Unit Hyd Qpeak  (cms)=   0.916

    PEAK FLOW       (cms)=   0.993 (i)
    TIME TO PEAK    (hrs)=  46.000
    RUNOFF VOLUME    (mm)= 231.471
    TOTAL RAINFALL   (mm)= 285.000
    RUNOFF COEFFICIENT   =   0.812

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

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| CALIB            |
| NASHYD   (  0126)|   Area    (ha)=   1.06   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.62

        NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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---- 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

Unit Hyd Qpeak (cms)= 0.066

PEAK FLOW (cms)= 0.122 (i)
TIME TO PEAK (hrs)= 46.417
RUNOFF VOLUME (mm)= 223.933
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.786

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

CALIB					
NASHYD (0124)	Area (ha)=	0.71	Curve Number (CN)=	85.4	
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.25			

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

Unit Hyd Qpeak (cms)= 0.109

PEAK FLOW (cms)= 0.101 (i)
TIME TO PEAK (hrs)= 46.000
RUNOFF VOLUME (mm)= 240.248
TOTAL RAINFALL (mm)= 285.000

RUNOFF COEFFICIENT = 0.843

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

ADD HYD (0027)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0102):	7.24	0.993	46.00	231.47
	+ ID2= 2 (0124):	0.71	0.101	46.00	240.25
	ID = 3 (0027):	7.95	1.093	46.00	232.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0027)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0027):	7.95	1.093	46.00	232.25
	+ ID2= 2 (0126):	1.06	0.122	46.42	223.93
	ID = 1 (0027):	9.01	1.201	46.00	231.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0125)	Area (ha)=	0.18	Curve Number (CN)=	84.3	
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.18			

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

Unit Hyd Qpeak (cms)= 0.037

PEAK FLOW (cms)= 0.026 (i)
TIME TO PEAK (hrs)= 46.000
RUNOFF VOLUME (mm)= 236.948
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.831

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

ADD HYD (0023)

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0125):	0.18	0.026	46.00	236.95
+ ID2= 2 (0027):	9.01	1.201	46.00	231.28
ID = 3 (0023):	9.19	1.226	46.00	231.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0121) | Area (ha)= 2.12 Curve Number (CN)= 83.3
ID= 1 DT= 5.0 min | Ia (mm)= 7.00 # 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 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

Unit Hyd Qpeak (cms)= 0.087

PEAK FLOW (cms)= 0.226 (i)
TIME TO PEAK (hrs)= 47.083
RUNOFF VOLUME (mm)= 234.960
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.824

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

CALIB			
NASHYD (0105)	Area (ha)=	9.75	Curve Number (CN)= 83.8
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# 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 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

Unit Hyd Qpeak (cms)= 0.455

PEAK FLOW (cms)= 1.073 (i)
TIME TO PEAK (hrs)= 46.917
RUNOFF VOLUME (mm)= 236.266
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.829

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

ADD HYD (0019)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0105):	9.75	1.073	46.92	236.27
+ ID2= 2 (0121):	2.12	0.226	47.08	234.96
ID = 3 (0019):	11.87	1.297	47.00	236.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0104)	Area (ha)= 3.63 Curve Number (CN)= 82.6
ID= 1 DT= 5.0 min	Ia (mm)= 7.00 # 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 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

Unit Hyd Qpeak (cms)= 0.233

PEAK FLOW (cms)= 0.432 (i)
TIME TO PEAK (hrs)= 46.417
RUNOFF VOLUME (mm)= 233.124
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.818

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

CALIB							
NASHYD (0106)	Area (ha)=	1.27	Curve Number (CN)=	80.8			
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.67					

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

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.145 (i)
TIME TO PEAK (hrs)= 46.583
RUNOFF VOLUME (mm)= 228.405
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.801

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

ADD HYD (0029)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0104):		3.63	0.432	46.42	233.12
+ ID2= 2 (0106):		1.27	0.145	46.58	228.41

```
       ================================================
       ID = 3 (  0029):     4.90   0.575    46.42   231.90

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0029)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0029):     4.90   0.575    46.42   231.90
     + ID2= 2 (  0019):    11.87   1.297    47.00   236.03
       ================================================
       ID = 1 (  0029):    16.77   1.851    46.75   234.83

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0123)|   Area    (ha)=   1.39   Curve Number   (CN)= 86.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # 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    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

    Unit Hyd Qpeak  (cms)=   0.110

    PEAK FLOW       (cms)=   0.178 (i)
    TIME TO PEAK    (hrs)=  46.250
    RUNOFF VOLUME    (mm)= 244.071
    TOTAL RAINFALL   (mm)= 285.000
    RUNOFF COEFFICIENT   =   0.856

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

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  -------------------------
  | Junction Command(0030) |
  -------------------------

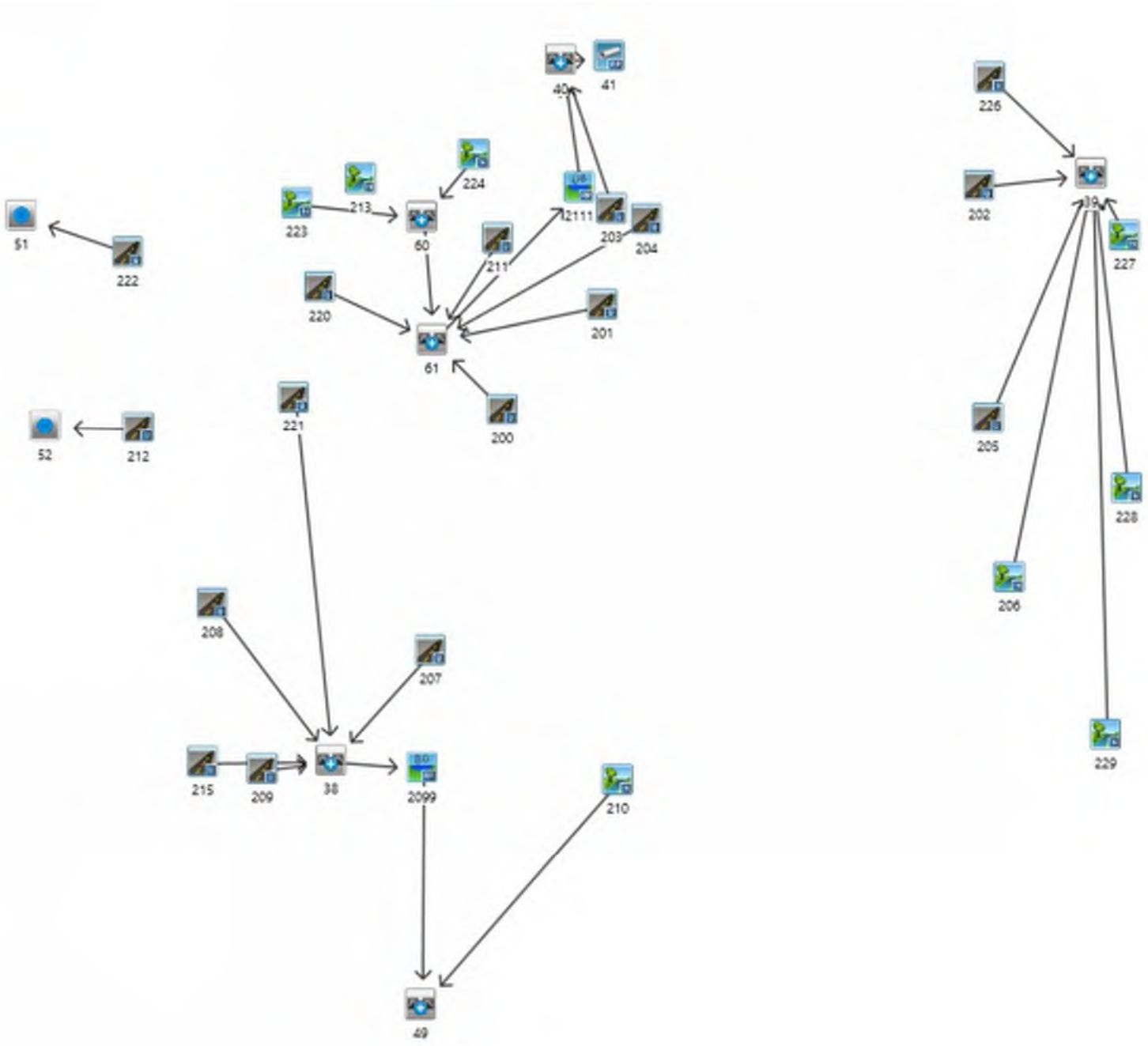
                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0123)    1.39     0.18    46.25   244.07
  OUTFLOW: ID= 2(  0030)    1.39     0.18    46.25   244.07

  --------------------------------------------------------------------------------
```

APPENDIX C-3

PROPOSED CONDITIONS SCHEMATIC

VO Schematic – Proposed Conditions



APPENDIX C-4

PROPOSED OUTPUT

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================================================================================
======================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       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:
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992-ac90-4848-a995-f8d8bbe38e1d\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\3971d
992-ac90-4848-a995-f8d8bbe38e1d\scen


DATE: 09/29/2025                          TIME: 03:59:46

USER:



COMMENTS: _____

--------------------------------------------------------------------------------
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  ************************************************
  ** SIMULATION : 100yr 12hr 5min Chicago       **
  ************************************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A=2987.057
| Ptotal= 96.22 mm |                          B=  15.200
-------------------                          C=   0.897
```

used in: INTENSITY = A / (t + B)^C

Duration of storm = 12.00 hrs
Storm time step   = 5.00 min
Time to peak ratio = 0.38

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.99	3.00	3.32	6.00	5.86	9.00	1.65
0.08	1.01	3.08	3.55	6.08	5.49	9.08	1.62
0.17	1.03	3.17	3.81	6.17	5.16	9.17	1.59
0.25	1.05	3.25	4.12	6.25	4.87	9.25	1.56
0.33	1.07	3.33	4.48	6.33	4.60	9.33	1.53
0.42	1.10	3.42	4.90	6.42	4.37	9.42	1.50
0.50	1.12	3.50	5.40	6.50	4.15	9.50	1.48
0.58	1.14	3.58	6.02	6.58	3.96	9.58	1.45
0.67	1.17	3.67	6.77	6.67	3.78	9.67	1.43
0.75	1.20	3.75	7.73	6.75	3.61	9.75	1.40
0.83	1.23	3.83	8.96	6.83	3.46	9.83	1.38
0.92	1.26	3.92	10.62	6.92	3.32	9.92	1.36
1.00	1.29	4.00	12.92	7.00	3.20	10.00	1.33
1.08	1.32	4.08	16.29	7.08	3.08	10.08	1.31
1.17	1.36	4.17	21.59	7.17	2.97	10.17	1.29
1.25	1.39	4.25	30.82	7.25	2.86	10.25	1.27
1.33	1.43	4.33	49.63	7.33	2.77	10.33	1.25
1.42	1.47	4.42	100.76	7.42	2.68	10.42	1.23
1.50	1.52	4.50	201.53	7.50	2.59	10.50	1.22
1.58	1.57	4.58	116.59	7.58	2.51	10.58	1.20
1.67	1.62	4.67	70.34	7.67	2.44	10.67	1.18
1.75	1.67	4.75	48.12	7.75	2.37	10.75	1.17
1.83	1.73	4.83	35.56	7.83	2.30	10.83	1.15
1.92	1.79	4.92	27.69	7.92	2.24	10.92	1.13
2.00	1.85	5.00	22.40	8.00	2.18	11.00	1.12
2.08	1.92	5.08	18.63	8.08	2.12	11.08	1.10
2.17	2.00	5.17	15.85	8.17	2.07	11.17	1.09
2.25	2.08	5.25	13.73	8.25	2.02	11.25	1.08
2.33	2.17	5.33	12.06	8.33	1.97	11.33	1.06
2.42	2.27	5.42	10.73	8.42	1.92	11.42	1.05
2.50	2.38	5.50	9.64	8.50	1.88	11.50	1.04
2.58	2.50	5.58	8.73	8.58	1.84	11.58	1.02
2.67	2.63	5.67	7.97	8.67	1.80	11.67	1.01
2.75	2.77	5.75	7.32	8.75	1.76	11.75	1.00
2.83	2.93	5.83	6.77	8.83	1.72	11.83	0.99
2.92	3.11	5.92	6.28	8.92	1.69	11.92	0.98

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--------------------------------------------------------------------------------
----------------------
| CALIB             |
| NASHYD   (  0213)|   Area    (ha)=   0.12   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.34

     Unit Hyd Qpeak  (cms)=   0.013

     PEAK FLOW       (cms)=   0.013 (i)
     TIME TO PEAK    (hrs)=   5.000
     RUNOFF VOLUME    (mm)=  50.899
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.529

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

--------------------------------------------------------------------------------
----------------------
| CALIB             |
| NASHYD   (  0227)|   Area    (ha)=   0.13   Curve Number   (CN)= 82.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.22

     Unit Hyd Qpeak  (cms)=   0.022

     PEAK FLOW       (cms)=   0.021 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  55.264
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.574

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

--------------------------------------------------------------------------------
----------------------
| CALIB             |
| NASHYD   (  0228)|   Area    (ha)=   0.71   Curve Number   (CN)= 84.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.31

     Unit Hyd Qpeak  (cms)=   0.088

     PEAK FLOW       (cms)=   0.100 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  58.436
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.607

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

--------------------------------------------------------------------------------
----------------------
| CALIB             |
| NASHYD   (  0229)|   Area    (ha)=   1.07   Curve Number   (CN)= 85.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.51

     Unit Hyd Qpeak  (cms)=   0.081

     PEAK FLOW       (cms)=   0.112 (i)
     TIME TO PEAK    (hrs)=   5.167
     RUNOFF VOLUME    (mm)=  60.006
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.624

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

--------------------------------------------------------------------------------
----------------------
| CALIB             |
| NASHYD   (  0206)|   Area    (ha)=   2.60   Curve Number   (CN)= 77.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.25

     Unit Hyd Qpeak  (cms)=   0.396

     PEAK FLOW       (cms)=   0.334 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  48.807
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.507

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

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----------------------
| CALIB             |
| STANDHYD (  0205)|   Area    (ha)=   0.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   1.00
-------------------

                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.26         0.26
     Dep. Storage     (mm)=      1.00         5.00
     Average Slope     (%)=      2.00         2.00
     Length            (m)=     58.88        10.00
     Mannings n           =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=    201.53       239.10
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      1.14 (ii)    3.31 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.34         0.26
                                                    *TOTALS*
```

```
     PEAK FLOW       (cms)=       0.00         0.18          0.184 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      95.22        66.50          66.78
     TOTAL RAINFALL   (mm)=      96.22        96.22          96.22
     RUNOFF COEFFICIENT   =       0.99         0.69           0.69

***** 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*  =  77.0    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 (  0226)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.03         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      18.26        10.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       129.80
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.57 (ii)    2.50 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.29
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.01          0.022 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      95.22        56.33          77.71
     TOTAL RAINFALL   (mm)=      96.22        96.22          96.22
     RUNOFF COEFFICIENT   =       0.99         0.59           0.81

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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-------------------
| CALIB           |
| STANDHYD (  0202)|   Area    (ha)=   0.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.11
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      45.46        10.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       129.80
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.98 (ii)    2.91 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.28
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.10         0.04          0.137 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      95.22        56.33          77.71
     TOTAL RAINFALL   (mm)=      96.22        96.22          96.22
     RUNOFF COEFFICIENT   =       0.99         0.59           0.81

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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-------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     0.31   0.137     4.58    77.71
     + ID2= 2 (  0205):     0.52   0.184     4.58    66.78
       ==========================================================
       ID = 3 (  0039):     0.83   0.320     4.58    70.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
```

```
       ID1= 3 (  0039):     0.83   0.320     4.58    70.86
     + ID2= 2 (  0206):     2.60   0.334     4.83    48.81
       ==========================================================
       ID = 1 (  0039):     3.43   0.463     4.67    54.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0039):     3.43   0.463     4.67    54.14
     + ID2= 2 (  0226):     0.05   0.022     4.58    77.71
       ==========================================================
       ID = 3 (  0039):     3.48   0.477     4.67    54.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     3.48   0.477     4.67    54.48
     + ID2= 2 (  0227):     0.13   0.021     4.83    55.26
       ==========================================================
       ID = 1 (  0039):     3.61   0.493     4.67    54.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0039):     3.61   0.493     4.67    54.51
     + ID2= 2 (  0228):     0.71   0.100     4.92    58.44
       ==========================================================
       ID = 3 (  0039):     4.32   0.567     4.75    55.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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-------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     4.32   0.567     4.75    55.16
     + ID2= 2 (  0229):     1.07   0.112     5.17    60.01
```

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       ==========================================================
       ID = 1 (  0039):     5.39   0.640     4.83    56.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0223)|   Area    (ha)=   0.70   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.24

     Unit Hyd Qpeak  (cms)=   0.110

     PEAK FLOW       (cms)=   0.113 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  57.796
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.601

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

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-------------------
| CALIB           |
| NASHYD   (  0224)|   Area    (ha)=   0.64   Curve Number   (CN)= 82.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.31

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.085 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  55.316
     TOTAL RAINFALL   (mm)=  96.218
     RUNOFF COEFFICIENT   =   0.575

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

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-------------------
| ADD HYD  (  0060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0223):     0.70   0.113     4.83    57.80
     + ID2= 2 (  0224):     0.64   0.085     4.92    55.32
       ==========================================================
       ID = 3 (  0060):     1.34   0.194     4.83    56.61

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   9.15
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.95         3.20
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     246.98        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       129.80
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.70 (ii)    4.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.29         0.22
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.58         1.05          3.632 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      95.22        56.33         77.72
     TOTAL RAINFALL   (mm)=      96.22        96.22         96.22
     RUNOFF COEFFICIENT   =       0.99         0.59          0.81

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0201)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  75.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.58         0.10
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      67.33        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       188.89
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.24 (ii)    2.46 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.30
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.28         0.06          0.343 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      95.22        62.63         87.07
     TOTAL RAINFALL   (mm)=      96.22        96.22         96.22
     RUNOFF COEFFICIENT   =       0.99         0.65          0.90

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0211)|   Area    (ha)=   1.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.65         0.35
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      81.65        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       129.80
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.39 (ii)    3.33 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.30         0.13          0.432 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      95.22        56.33         77.72
     TOTAL RAINFALL   (mm)=      96.22        96.22         96.22
     RUNOFF COEFFICIENT   =       0.99         0.59          0.81

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0220)|   Area    (ha)=   1.71
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.11         0.60
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     106.77        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       129.80
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.63 (ii)    3.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.26
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.51         0.22          0.730 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      89.22        56.33         74.42
     TOTAL RAINFALL   (mm)=      96.22        96.22         96.22
     RUNOFF COEFFICIENT   =       0.93         0.59          0.77

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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--------------------
| CALIB            |
| STANDHYD (  0204)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  55.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17         0.06
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      39.16        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       210.13
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.89 (ii)    2.59 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.29
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.07         0.04          0.108 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      95.22        64.39         81.34
     TOTAL RAINFALL   (mm)=      96.22        96.22         96.22
     RUNOFF COEFFICIENT   =       0.99         0.67          0.85

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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-------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0200):     9.15   3.632     4.58    77.72
     + ID2= 2 (  0201):     0.68   0.343     4.58    87.07
       ================================================
       ID = 3 (  0061):     9.83   3.975     4.58    78.36

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):     9.83   3.975     4.58    78.36
     + ID2= 2 (  0204):     0.23   0.108     4.58    81.34
       ================================================
       ID = 1 (  0061):    10.06   4.082     4.58    78.43

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    10.06   4.082     4.58    78.43
     + ID2= 2 (  0211):     1.00   0.432     4.58    77.72
       ================================================
       ID = 3 (  0061):    11.06   4.515     4.58    78.37
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0061)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0061):	11.06	4.515	4.58	78.37
	+ ID2= 2 (0220):	1.71	0.730	4.58	74.42
	ID = 1 (0061):	12.77	5.244	4.58	77.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0061)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0061):	12.77	5.244	4.58	77.84
	+ ID2= 2 (0060):	1.34	0.194	4.83	56.61
	ID = 3 (0061):	14.11	5.319	4.58	75.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(2111)	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	0.1740	0.4400
	0.0040	0.0490	0.4840	0.5020
	0.0070	0.1000	0.6890	0.5660
	0.0090	0.1520	0.7300	0.6330
	0.0100	0.2060	0.7700	0.7000
	0.0110	0.2620	1.7950	0.7700
	0.0130	0.3200	3.6960	0.8420
	0.0140	0.3790	6.2260	0.9150

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0061)	14.110	5.319	4.58	75.82
OUTFLOW: ID= 1 (2111)	14.110	0.737	5.17	75.08

PEAK FLOW REDUCTION [Qout/Qin](%)= 13.85
TIME SHIFT OF PEAK FLOW (min)= 35.00
MAXIMUM STORAGE USED (ha.m.)= 0.6447

Manning n = 0.013

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

DEPTH (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME min
0.05	.642E+00	0.0	0.53	1.56
0.09	.178E+01	0.0	0.83	1.00
0.14	.322E+01	0.1	1.07	0.78
0.19	.487E+01	0.1	1.28	0.65
0.24	.668E+01	0.2	1.45	0.57
0.28	.862E+01	0.3	1.61	0.52
0.33	.106E+02	0.4	1.74	0.48
0.38	.127E+02	0.5	1.86	0.45
0.43	.148E+02	0.6	1.97	0.42
0.47	.170E+02	0.7	2.06	0.41
0.52	.191E+02	0.8	2.13	0.39
0.57	.212E+02	0.9	2.20	0.38
0.62	.232E+02	1.0	2.24	0.37
0.66	.251E+02	1.1	2.28	0.37
0.71	.269E+02	1.2	2.29	0.36
0.76	.286E+02	1.3	2.29	0.36
0.81	.300E+02	1.4	2.27	0.37
0.85	.312E+02	1.4	2.21	0.38
0.90	.318E+02	1.3	2.01	0.41

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	<---- hydrograph ----> MAX DEPTH (m)	<-pipe / channel-> MAX VEL (m/s)
INFLOW : ID= 2 (0040)	14.31	0.75	5.17	75.19	0.49	2.09
OUTFLOW: ID= 1 (0041)	14.31	0.75	5.00	75.19	0.50	2.09

CALIB			
NASHYD (0210)	Area (ha)= 0.62	Curve Number (CN)= 79.2	
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.21		

Unit Hyd Qpeak (cms)= 0.112

PEAK FLOW (cms)= 0.092 (i)
TIME TO PEAK (hrs)= 4.833
RUNOFF VOLUME (mm)= 50.971
TOTAL RAINFALL (mm)= 96.218
RUNOFF COEFFICIENT = 0.530

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

CALIB			
STANDHYD (0203)	Area (ha)= 0.20		
ID= 1 DT= 5.0 min	Total Imp(%)= 80.00	Dir. Conn.(%)= 80.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.16	0.04
Dep. Storage (mm)=	5.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	36.51	10.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	201.53	88.00
over (min)	5.00	5.00
Storage Coeff. (min)=	0.86 (ii)	2.19 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.34	0.31

			TOTALS
PEAK FLOW (cms)=	0.09	0.01	0.100 (iii)
TIME TO PEAK (hrs)=	4.58	4.58	4.58
RUNOFF VOLUME (mm)=	91.22	49.80	82.93
TOTAL RAINFALL (mm)=	96.22	96.22	96.22
RUNOFF COEFFICIENT =	0.95	0.52	0.86

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0040)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0203):	0.20	0.100	4.58	82.93
	+ ID2= 2 (2111):	14.11	0.737	5.17	75.08
	ID = 3 (0040):	14.31	0.746	5.17	75.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTEPIPE(0041)		
IN= 2---> OUT= 1	Pipe Number =	1.00
DT= 5.0 min	Diameter (mm)=	900.00
	Length (m)=	50.00
	Slope (m/m)=	0.005

CALIB			
STANDHYD (0207)	Area (ha)= 11.60		
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00	Dir. Conn.(%)= 55.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	7.54	4.06
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	278.09	10.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	201.53	129.80
over (min)	5.00	5.00
Storage Coeff. (min)=	2.90 (ii)	4.83 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.28	0.22

			TOTALS
PEAK FLOW (cms)=	3.22	1.31	4.538 (iii)
TIME TO PEAK (hrs)=	4.58	4.58	4.58
RUNOFF VOLUME (mm)=	95.22	56.33	77.72
TOTAL RAINFALL (mm)=	96.22	96.22	96.22
RUNOFF COEFFICIENT =	0.99	0.59	0.81

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0209)	Area (ha)= 1.76		
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00	Dir. Conn.(%)= 55.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.14	0.62
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	108.32	10.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	201.53	129.80
over (min)	5.00	5.00
Storage Coeff. (min)=	1.64 (ii)	3.58 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.32	0.26

```
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.53         0.22          0.750 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      95.22        56.33          77.72
     TOTAL RAINFALL   (mm)=      96.22        96.22          96.22
     RUNOFF COEFFICIENT   =       0.99         0.59           0.81

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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--------------------
| CALIB            |
| STANDHYD (  0221)|   Area    (ha)=   4.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.00         1.62
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     175.50        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       129.80
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.20 (ii)    4.13 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.30         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.35         0.56          1.901 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      89.22        56.33          74.42
     TOTAL RAINFALL   (mm)=      96.22        96.22          96.22
     RUNOFF COEFFICIENT   =       0.93         0.59           0.77

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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| CALIB            |
| STANDHYD (  0208)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.62         0.33
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      79.58        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       129.80
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.37 (ii)    3.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.29         0.12          0.411 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      89.22        56.33          74.42
     TOTAL RAINFALL   (mm)=      96.22        96.22          96.22
     RUNOFF COEFFICIENT   =       0.93         0.59           0.77

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0215)|   Area    (ha)=   0.63
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.41         0.22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      64.81        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       161.43
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.49 (ii)    3.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                        *TOTALS*
```

```
     PEAK FLOW       (cms)=       0.19         0.10          0.294 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      95.22        69.54          83.66
     TOTAL RAINFALL   (mm)=      96.22        96.22          96.22
     RUNOFF COEFFICIENT   =       0.99         0.72           0.87

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    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.

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--------------------
| ADD HYD  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):    11.60   4.538     4.58    77.72
     + ID2= 2 (  0208):     0.95   0.411     4.58    74.42
       ================================================
       ID = 3 (  0038):    12.55   4.949     4.58    77.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    12.55   4.949     4.58    77.47
     + ID2= 2 (  0209):     1.76   0.750     4.58    77.72
       ================================================
       ID = 1 (  0038):    14.31   5.699     4.58    77.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):    14.31   5.699     4.58    77.50
     + ID2= 2 (  0215):     0.63   0.294     4.58    83.66
       ================================================
       ID = 3 (  0038):    14.94   5.993     4.58    77.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    14.94   5.993     4.58    77.76
     + ID2= 2 (  0221):     4.62   1.901     4.58    74.42
       ================================================
       ID = 1 (  0038):    19.56   7.894     4.58    76.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| RESERVOIR(  2099)|     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   |    0.1776      0.8069
                          0.0047      0.0913   |    0.4876      0.9174
                          0.0081      0.1859   |    0.6925      1.0295
                          0.0104      0.2831   |    0.7343      1.1431
                          0.0123      0.3830   |    0.7738      1.2584
                          0.0140      0.4855   |    2.2503      1.3753
                          0.0155      0.5907   |    5.0333      1.4940
                          0.0168      0.6980   |    8.7855      1.6144

                             AREA     QPEAK     TPEAK       R.V.
                             (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0038)     19.560      7.894      4.58      76.97
   OUTFLOW: ID= 1 (  2099)     19.560      0.688      5.33      71.92

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.72
                  TIME SHIFT OF PEAK FLOW          (min)= 45.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.0277

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--------------------
| ADD HYD  (  0049)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2099):    19.56   0.688     5.33    71.92
     + ID2= 2 (  0210):     0.62   0.092     4.83    50.97
       ================================================
       ID = 3 (  0049):    20.18   0.724     5.25    71.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB            |
| STANDHYD (  0222)|   Area    (ha)=   1.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.76         0.41
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      88.32        10.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       129.80
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.46 (ii)    3.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.35         0.15          0.504 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      89.22        56.33          74.42
     TOTAL RAINFALL   (mm)=      96.22        96.22          96.22
     RUNOFF COEFFICIENT   =       0.93         0.59           0.77

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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  -------------------------
  | Junction Command(0051) |
  -------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0222)    1.17     0.50    4.58    74.42
  OUTFLOW: ID= 2(  0051)    1.17     0.50    4.58    74.42

  --------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0212)|   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.57         1.93
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     191.49        10.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     201.53       129.80
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.32 (ii)    4.25 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.30         0.23
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.59         0.65          2.244 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      89.22        56.33          74.42
     TOTAL RAINFALL   (mm)=      96.22        96.22          96.22
     RUNOFF COEFFICIENT   =       0.93         0.59           0.77

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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  -------------------------
  | Junction Command(0052) |
  -------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0212)    5.50     2.24    4.58    74.42
  OUTFLOW: ID= 2(  0052)    5.50     2.24    4.58    74.42

  --------------------------------------------------------------------------------
================================================================================
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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
      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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\52bc2
1e5-d135-407e-a6a7-8c215a5fb66e\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\52bc2
1e5-d135-407e-a6a7-8c215a5fb66e\scen


DATE: 09/29/2025                          TIME: 03:59:46

USER:



COMMENTS: _____

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  ************************************************
  ** SIMULATION : 10yr 12hr 5min Chicago        **
  ************************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1303.567
| Ptotal= 65.32 mm |                          B=   9.700
--------------------                          C=   0.831
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  = 12.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =  0.38

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.99 |  3.00    2.72 |  6.00    4.34 |  9.00    1.53
                0.08    1.01 |  3.08    2.88 |  6.08    4.11 |  9.08    1.51
                0.17    1.03 |  3.17    3.05 |  6.17    3.91 |  9.17    1.48
                0.25    1.05 |  3.25    3.25 |  6.25    3.72 |  9.25    1.46
                0.33    1.06 |  3.33    3.48 |  6.33    3.56 |  9.33    1.44
                0.42    1.08 |  3.42    3.74 |  6.42    3.41 |  9.42    1.41
                0.50    1.10 |  3.50    4.06 |  6.50    3.27 |  9.50    1.39
                0.58    1.12 |  3.58    4.43 |  6.58    3.14 |  9.58    1.37
                0.67    1.15 |  3.67    4.88 |  6.67    3.03 |  9.67    1.35
                0.75    1.17 |  3.75    5.44 |  6.75    2.92 |  9.75    1.33
                0.83    1.19 |  3.83    6.15 |  6.83    2.82 |  9.83    1.32
                0.92    1.22 |  3.92    7.08 |  6.92    2.73 |  9.92    1.30
                1.00    1.24 |  4.00    8.35 |  7.00    2.64 | 10.00    1.28
                1.08    1.27 |  4.08   10.19 |  7.08    2.56 | 10.08    1.26
                1.17    1.30 |  4.17   13.04 |  7.17    2.48 | 10.17    1.25
                1.25    1.33 |  4.25   18.00 |  7.25    2.41 | 10.25    1.23
                1.33    1.36 |  4.33   28.38 |  7.33    2.35 | 10.33    1.21
                1.42    1.39 |  4.42   60.23 |  7.42    2.28 | 10.42    1.20
                1.50    1.43 |  4.50  139.67 |  7.50    2.22 | 10.50    1.18
                1.58    1.46 |  4.58   70.72 |  7.58    2.17 | 10.58    1.17
                1.67    1.50 |  4.67   40.43 |  7.67    2.12 | 10.67    1.16
                1.75    1.54 |  4.75   27.50 |  7.75    2.06 | 10.75    1.14
                1.83    1.59 |  4.83   20.56 |  7.83    2.02 | 10.83    1.13
                1.92    1.64 |  4.92   16.31 |  7.92    1.97 | 10.92    1.12
                2.00    1.69 |  5.00   13.47 |  8.00    1.93 | 11.00    1.10
                2.08    1.74 |  5.08   11.45 |  8.08    1.89 | 11.08    1.09
                2.17    1.80 |  5.17    9.95 |  8.17    1.85 | 11.17    1.08
                2.25    1.86 |  5.25    8.80 |  8.25    1.81 | 11.25    1.07
                2.33    1.92 |  5.33    7.88 |  8.33    1.77 | 11.33    1.06
                2.42    2.00 |  5.42    7.14 |  8.42    1.74 | 11.42    1.04
                2.50    2.07 |  5.50    6.53 |  8.50    1.71 | 11.50    1.03
                2.58    2.16 |  5.58    6.02 |  8.58    1.67 | 11.58    1.02
                2.67    2.25 |  5.67    5.58 |  8.67    1.64 | 11.67    1.01
                2.75    2.35 |  5.75    5.20 |  8.75    1.61 | 11.75    1.00
                2.83    2.46 |  5.83    4.88 |  8.83    1.59 | 11.83    0.99
                2.92    2.59 |  5.92    4.59 |  8.92    1.56 | 11.92    0.98

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--------------------
| CALIB            |
| NASHYD   (  0213)|   Area    (ha)=   0.12   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.34

     Unit Hyd Qpeak  (cms)=   0.013

     PEAK FLOW       (cms)=   0.006 (i)
     TIME TO PEAK    (hrs)=   5.000
     RUNOFF VOLUME    (mm)=  27.101
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.415

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| CALIB            |
| NASHYD   (  0227)|   Area    (ha)=   0.13   Curve Number   (CN)= 82.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.22

     Unit Hyd Qpeak  (cms)=   0.022

     PEAK FLOW       (cms)=   0.010 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  30.072
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.460

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

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--------------------
| CALIB            |
| NASHYD   (  0228)|   Area    (ha)=   0.71   Curve Number   (CN)= 84.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.31

     Unit Hyd Qpeak  (cms)=   0.088

     PEAK FLOW       (cms)=   0.049 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  32.298
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.494

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

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--------------------
| CALIB            |
| NASHYD   (  0229)|   Area    (ha)=   1.07   Curve Number   (CN)= 85.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.51

     Unit Hyd Qpeak  (cms)=   0.081

     PEAK FLOW       (cms)=   0.055 (i)
     TIME TO PEAK    (hrs)=   5.167
     RUNOFF VOLUME    (mm)=  33.426
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.512

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| CALIB            |
| NASHYD   (  0206)|   Area    (ha)=   2.60   Curve Number   (CN)= 77.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

     Unit Hyd Qpeak  (cms)=   0.396

     PEAK FLOW       (cms)=   0.155 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  25.734
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.394

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   1.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.26         0.26
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      58.88        10.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67       134.40
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.32 (ii)    4.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.24
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.10          0.099 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      64.32        39.00          39.25
     TOTAL RAINFALL   (mm)=      65.32        65.32          65.32
     RUNOFF COEFFICIENT   =       0.98         0.60           0.60

***** 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*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
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          THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0226)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.03         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      18.26        10.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67       68.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.65 (ii)    2.90 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.28
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.014 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      64.32        31.33          49.47
     TOTAL RAINFALL   (mm)=      65.32        65.32          65.32
     RUNOFF COEFFICIENT   =       0.98         0.48           0.76

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  77.0    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.

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--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   0.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.11
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      45.46        10.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67       68.18
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```
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.13 (ii)    3.37 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.26
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.07         0.02          0.087 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      64.32        31.33          49.47
     TOTAL RAINFALL   (mm)=      65.32        65.32          65.32
     RUNOFF COEFFICIENT   =       0.98         0.48           0.76

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  77.0    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.

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--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     0.31   0.087     4.58    49.47
     + ID2= 2 (  0205):     0.52   0.099     4.58    39.25
       ================================================
       ID = 3 (  0039):     0.83   0.186     4.58    43.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     0.83   0.186     4.58    43.06
     + ID2= 2 (  0206):     2.60   0.155     4.83    25.73
       ================================================
       ID = 1 (  0039):     3.43   0.241     4.58    29.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0039):     3.43   0.241     4.58    29.93
```

```
      + ID2= 2 (  0226):     0.05   0.014     4.58    49.47
        ==================================================
        ID = 3 (  0039):     3.48   0.255     4.58    30.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0039):     3.48   0.255     4.58    30.21
      + ID2= 2 (  0227):     0.13   0.010     4.83    30.07
        ==================================================
        ID = 1 (  0039):     3.61   0.260     4.58    30.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0039):     3.61   0.260     4.58    30.20
      + ID2= 2 (  0228):     0.71   0.049     4.92    32.30
        ==================================================
        ID = 3 (  0039):     4.32   0.278     4.75    30.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0039):     4.32   0.278     4.75    30.55
      + ID2= 2 (  0229):     1.07   0.055     5.17    33.43
        ==================================================
        ID = 1 (  0039):     5.39   0.311     4.83    31.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| CALIB            |
| NASHYD   (  0223)|   Area    (ha)=   0.70   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.24

     Unit Hyd Qpeak  (cms)=   0.110

     PEAK FLOW       (cms)=   0.055 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  31.846
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.488

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

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--------------------
| CALIB            |
| NASHYD   (  0224)|   Area    (ha)=   0.64   Curve Number   (CN)= 82.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.31

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.041 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  30.101
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.461

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

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--------------------
| ADD HYD  (  0060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0223):     0.70   0.055     4.83    31.85
      + ID2= 2 (  0224):     0.64   0.041     4.92    30.10
        ==================================================
        ID = 3 (  0060):     1.34   0.094     4.92    31.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   9.15
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.95         3.20
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     246.98        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67        68.18
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.12 (ii)    5.37 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.27         0.16
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.71         0.51          2.016 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.67           4.58
     RUNOFF VOLUME    (mm)=      64.32        31.33          49.47
     TOTAL RAINFALL   (mm)=      65.32        65.32          65.32
     RUNOFF COEFFICIENT   =       0.98         0.48           0.76

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  75.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.58         0.10
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      67.33        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67       103.50
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.43 (ii)    2.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.28
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.19         0.03          0.227 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      64.32        36.01          57.24
     TOTAL RAINFALL   (mm)=      65.32        65.32          65.32
     RUNOFF COEFFICIENT   =       0.98         0.55           0.88

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0211)|   Area    (ha)=   1.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.65         0.35
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      81.65        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67        68.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.61 (ii)    3.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.25
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.21         0.07          0.273 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      64.32        31.33          49.47
     TOTAL RAINFALL   (mm)=      65.32        65.32          65.32
     RUNOFF COEFFICIENT   =       0.98         0.48           0.76

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0220)|   Area    (ha)=   1.71
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.11         0.60
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     106.77        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67        68.18
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```
              over (min)        5.00          5.00
     Storage Coeff.  (min)=       1.89 (ii)     4.13 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.32          0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.35          0.11          0.459 (iii)
     TIME TO PEAK    (hrs)=       4.58          4.58           4.58
     RUNOFF VOLUME    (mm)=      58.32         31.33          46.17
     TOTAL RAINFALL   (mm)=      65.32         65.32          65.32
     RUNOFF COEFFICIENT   =       0.89          0.48           0.71

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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--------------------
| CALIB            |
| STANDHYD (  0204)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  55.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17          0.06
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       2.00          2.00
     Length            (m)=      39.16         10.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     139.67        116.48
              over (min)        5.00          5.00
     Storage Coeff.  (min)=       1.03 (ii)     3.00 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.28
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.05          0.02          0.069 (iii)
     TIME TO PEAK    (hrs)=       4.58          4.58           4.58
     RUNOFF VOLUME    (mm)=      64.32         37.36          52.18
     TOTAL RAINFALL   (mm)=      65.32         65.32          65.32
     RUNOFF COEFFICIENT   =       0.98          0.57           0.80

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
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     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0200):     9.15   2.016     4.58    49.47
     + ID2= 2 (  0201):     0.68   0.227     4.58    57.24
       ================================================
       ID = 3 (  0061):     9.83   2.242     4.58    50.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):     9.83   2.242     4.58    50.01
     + ID2= 2 (  0204):     0.23   0.069     4.58    52.18
       ================================================
       ID = 1 (  0061):    10.06   2.311     4.58    50.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    10.06   2.311     4.58    50.06
     + ID2= 2 (  0211):     1.00   0.273     4.58    49.47
       ================================================
       ID = 3 (  0061):    11.06   2.585     4.58    50.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):    11.06   2.585     4.58    50.01
     + ID2= 2 (  0220):     1.71   0.459     4.58    46.17
       ================================================
       ID = 1 (  0061):    12.77   3.044     4.58    49.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    12.77   3.044     4.58    49.49
     + ID2= 2 (  0060):     1.34   0.094     4.92    31.01
       ================================================
       ID = 3 (  0061):    14.11   3.077     4.58    47.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2111)|     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   |    0.1740      0.4400
                          0.0040      0.0490   |    0.4840      0.5020
                          0.0070      0.1000   |    0.6890      0.5660
                          0.0090      0.1520   |    0.7300      0.6330
                          0.0100      0.2060   |    0.7700      0.7000
                          0.0110      0.2620   |    1.7950      0.7700
                          0.0130      0.3200   |    3.6960      0.8420
                          0.0140      0.3790   |    6.2260      0.9150

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0061)     14.110      3.077      4.58      47.74
   OUTFLOW: ID= 1 (  2111)     14.110      0.242      5.58      47.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.85
                  TIME SHIFT OF PEAK FLOW         (min)= 60.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4535

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.16          0.04
     Dep. Storage     (mm)=       5.00          5.00
     Average Slope     (%)=       2.00          2.00
     Length            (m)=      36.51         10.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     139.67        44.18
```

```
              over (min)        5.00          5.00
     Storage Coeff.  (min)=       0.99 (ii)     2.54 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.29
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.06          0.01          0.067 (iii)
     TIME TO PEAK    (hrs)=       4.58          4.58           4.58
     RUNOFF VOLUME    (mm)=      60.32         26.72          53.60
     TOTAL RAINFALL   (mm)=      65.32         65.32          65.32
     RUNOFF COEFFICIENT   =       0.92          0.41           0.82

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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  (  0040)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     0.20   0.067     4.58    53.60
     + ID2= 2 (  2111):    14.11   0.242     5.58    47.00
       ================================================
       ID = 3 (  0040):    14.31   0.245     5.58    47.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ROUTEPIPE(  0041)|     PIPE Number     =   1.00
| IN= 2---> OUT= 1 |     Diameter    (mm)= 900.00
| DT=  5.0 min     |     Length       (m)=  50.00
--------------------     Slope      (m/m)=  0.005
                         Manning n       =  0.013

     <----------------- TRAVEL TIME TABLE ------------------->
       DEPTH      VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
        (m)      (cu.m.)      (cms)        (m/s)        min
       0.05     .642E+00       0.0          0.53         1.56
       0.09     .178E+01       0.0          0.83         1.00
       0.14     .322E+01       0.1          1.07         0.78
       0.19     .487E+01       0.1          1.28         0.65
       0.24     .668E+01       0.2          1.45         0.57
       0.28     .862E+01       0.3          1.61         0.52
       0.33     .106E+02       0.4          1.74         0.48
       0.38     .127E+02       0.5          1.86         0.45
```

```
       0.43     .148E+02       0.6          1.97         0.42
       0.47     .170E+02       0.7          2.06         0.41
       0.52     .191E+02       0.8          2.13         0.39
       0.57     .212E+02       0.9          2.20         0.38
       0.62     .232E+02       1.0          2.24         0.37
       0.66     .251E+02       1.1          2.28         0.37
       0.71     .269E+02       1.2          2.29         0.36
       0.76     .286E+02       1.3          2.29         0.36
       0.81     .300E+02       1.4          2.27         0.37
       0.85     .312E+02       1.4          2.21         0.38
       0.90     .318E+02       1.3          2.01         0.41
                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
  INFLOW : ID= 2 (  0040)   14.31     0.24    5.58  47.09      0.27      1.54
  OUTFLOW: ID= 1 (  0041)   14.31     0.25    5.58  47.09      0.26      1.54



--------------------------------------------------------------------------------
--------------------
| CALIB              |
| NASHYD   (  0210)|   Area    (ha)=   0.62   Curve Number   (CN)= 79.2
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.21

     Unit Hyd Qpeak  (cms)=   0.112

     PEAK FLOW       (cms)=   0.043 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  27.161
     TOTAL RAINFALL   (mm)=  65.319
     RUNOFF COEFFICIENT   =   0.416

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

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0207)|   Area    (ha)=  11.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.54         4.06
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     278.09        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67        68.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.54 (ii)    4.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.29         0.22
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.90         0.28          1.181 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      58.32        31.33         46.17
     TOTAL RAINFALL   (mm)=      65.32        65.32         65.32
     RUNOFF COEFFICIENT   =       0.89         0.48          0.71

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0208)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.62         0.33
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      79.58        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67        68.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.90 (ii)    4.15 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.36         0.11          0.472 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      64.32        31.33         49.47
     TOTAL RAINFALL   (mm)=      65.32        65.32         65.32
     RUNOFF COEFFICIENT   =       0.98         0.48          0.76

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0209)|   Area    (ha)=   1.76
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.14         0.62
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     108.32        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67        68.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.90 (ii)    4.15 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.36         0.11          0.472 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      64.32        31.33         49.47
     TOTAL RAINFALL   (mm)=      65.32        65.32         65.32
     RUNOFF COEFFICIENT   =       0.98         0.48          0.76

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0221)|   Area    (ha)=   4.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.00         1.62
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     175.50        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67        68.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.54 (ii)    4.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.29         0.22
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.90         0.28          1.181 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      58.32        31.33         46.17
     TOTAL RAINFALL   (mm)=      65.32        65.32         65.32
     RUNOFF COEFFICIENT   =       0.89         0.48          0.71

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0215)|   Area    (ha)=   0.63
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.41         0.22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      64.81        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67        92.79
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.72 (ii)    3.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.13         0.06          0.188 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      64.32        41.56         54.08
     TOTAL RAINFALL   (mm)=      65.32        65.32         65.32
     RUNOFF COEFFICIENT   =       0.98         0.64          0.83

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    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  (  0038)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):    11.60   2.510     4.58    49.47
     + ID2= 2 (  0208):     0.95   0.260     4.58    46.17
       ====================================================
       ID = 3 (  0038):    12.55   2.770     4.58    49.22

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    12.55   2.770     4.58    49.22
     + ID2= 2 (  0209):     1.76   0.472     4.58    49.47
       ====================================================
       ID = 1 (  0038):    14.31   3.242     4.58    49.26

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):    14.31   3.242     4.58    49.26
     + ID2= 2 (  0215):     0.63   0.188     4.58    54.08
       ====================================================
       ID = 3 (  0038):    14.94   3.429     4.58    49.46

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    14.94   3.429     4.58    49.46
     + ID2= 2 (  0221):     4.62   1.181     4.58    46.17
       ====================================================
       ID = 1 (  0038):    19.56   4.610     4.58    48.68

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

```
--------------------
| RESERVOIR(  2099)|     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  |    0.1776      0.8069
                           0.0047      0.0913  |    0.4876      0.9174
                           0.0081      0.1859  |    0.6925      1.0295
                           0.0104      0.2831  |    0.7343      1.1431
                           0.0123      0.3830  |    0.7738      1.2584
                           0.0140      0.4855  |    2.2503      1.3753
                           0.0155      0.5907  |    5.0333      1.4940
                           0.0168      0.6980  |    8.7855      1.6144

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0038)     19.560      4.610      4.58      48.68
  OUTFLOW: ID= 1 (  2099)     19.560      0.115      7.42      43.67

               PEAK   FLOW   REDUCTION [Qout/Qin](%)=  2.50
               TIME SHIFT OF PEAK FLOW         (min)=170.00
               MAXIMUM  STORAGE   USED       (ha.m.)=  0.7646

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0049)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2099):    19.56   0.115     7.42    43.67
     + ID2= 2 (  0210):     0.62   0.043     4.83    27.16
       ====================================================
       ID = 3 (  0049):    20.18   0.118     7.33    43.16

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0222)|   Area    (ha)=   1.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.76         0.41
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      88.32        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67        68.18
               over (min)        5.00         5.00
```

```
     Storage Coeff.  (min)=       1.69 (ii)    3.93 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.24         0.08          0.318 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      58.32        31.33          46.17
     TOTAL RAINFALL   (mm)=      65.32        65.32          65.32
     RUNOFF COEFFICIENT   =       0.89         0.48           0.71

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

--------------------------------------------------------------------------------

  --------------------------
  | Junction Command(0051) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0222)    1.17     0.32    4.58    46.17
  OUTFLOW: ID= 2(  0051)    1.17     0.32    4.58    46.17

  --------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0212)|   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.57         1.93
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     191.49        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     139.67        68.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.68 (ii)    4.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.29         0.22
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.06         0.33          1.390 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
```

```
     RUNOFF VOLUME    (mm)=      58.32        31.33          46.17
     TOTAL RAINFALL   (mm)=      65.32        65.32          65.32
     RUNOFF COEFFICIENT   =       0.89         0.48           0.71

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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  --------------------------
  | Junction Command(0052) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0212)    5.50     1.39    4.58    46.17
  OUTFLOW: ID= 2(  0052)    5.50     1.39    4.58    46.17

  --------------------------------------------------------------------------------
================================================================================
======================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      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:
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044-33d5-428f-afbf-d947e6e52f7f\scen
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Summary filename:
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DATE: 09/29/2025 TIME: 03:59:47

USER:

COMMENTS: _____

****
** SIMULATION : 25-mm Quality Storm **
****

CHICAGO STORM
Ptotal= 25.00 mm

IDF curve parameters: A= 425.000
B= 5.000
C= 0.767
used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.40

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	1.65	1.00	4.31	2.00	5.82	3.00	2.27
0.17	1.82	1.17	6.37	2.17	4.52	3.17	2.08
0.33	2.04	1.33	13.83	2.33	3.72	3.33	1.92
0.50	2.33	1.50	53.25	2.50	3.19	3.50	1.79
0.67	2.72	1.67	16.08	2.67	2.80	3.67	1.68
0.83	3.31	1.83	8.40	2.83	2.50	3.83	1.58

CALIB			
NASHYD (0213)	Area (ha)=	0.12	Curve Number (CN)= 79.1
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.34	

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.013

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 3.798
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.152

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

CALIB			
NASHYD (0227)	Area (ha)=	0.13	Curve Number (CN)= 82.3
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.22	

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.022

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 1.917
RUNOFF VOLUME (mm)= 4.452
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.178

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

CALIB			
NASHYD (0228)	Area (ha)=	0.71	Curve Number (CN)= 84.4
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.31	

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.088

PEAK FLOW (cms)= 0.007 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 4.986
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.199

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

CALIB			
NASHYD (0229)	Area (ha)=	1.07	Curve Number (CN)= 85.4
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# 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 hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.081

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 2.333
RUNOFF VOLUME (mm)= 5.274
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.211

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

CALIB			
NASHYD (0206)	Area (ha)=	2.60	Curve Number (CN)= 77.5
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.25	

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08

0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.396

PEAK FLOW (cms)= 0.021 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 3.529
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.141

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

CALIB	
STANDHYD (0205)	Area (ha)= 0.52
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00 Dir. Conn.(%)= 1.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.26	0.26
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	58.88	10.00
Mannings n =	0.013	0.250

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

			TOTALS
Max.Eff.Inten.(mm/hr)=	53.25	33.58	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.94 (ii)	6.70 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.31	0.14	
PEAK FLOW (cms)=	0.00	0.02	0.019 (iii)
TIME TO PEAK (hrs)=	1.67	1.75	1.75
RUNOFF VOLUME (mm)=	24.00	8.31	8.46
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.33	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* = 77.0 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 (0226)	Area (ha)= 0.05
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.03	0.02
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	18.26	10.00
Mannings n =	0.013	0.250

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

			TOTALS
Max.Eff.Inten.(mm/hr)=	53.25	13.41	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.96 (ii)	4.26 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.23	
PEAK FLOW (cms)=	0.00	0.00	0.005 (iii)
TIME TO PEAK (hrs)=	1.67	1.67	1.67
RUNOFF VOLUME (mm)=	24.00	5.56	15.69
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.22	0.63

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0202)	Area (ha)= 0.31
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.20	0.11
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	45.46	10.00
Mannings n =	0.013	0.250

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

			TOTALS
Max.Eff.Inten.(mm/hr)=	53.25	13.41	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.66 (ii)	4.96 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.22	
PEAK FLOW (cms)=	0.03	0.00	0.029 (iii)
TIME TO PEAK (hrs)=	1.67	1.67	1.67
RUNOFF VOLUME (mm)=	24.00	5.56	15.70
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.22	0.63

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0039)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	0.31	0.029	1.67	15.70
+ ID2= 2 (0205):	0.52	0.019	1.75	8.46
ID = 3 (0039):	0.83	0.045	1.67	11.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0039)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0039):	0.83	0.045	1.67	11.16
+ ID2= 2 (0206):	2.60	0.021	2.00	3.53
ID = 1 (0039):	3.43	0.052	1.67	5.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0039)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0039):	3.43	0.052	1.67	5.38
	+ ID2= 2 (0226):	0.05	0.005	1.67	15.69
	ID = 3 (0039):	3.48	0.056	1.67	5.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0039)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0039):	3.48	0.056	1.67	5.52
	+ ID2= 2 (0227):	0.13	0.001	1.92	4.45
	ID = 1 (0039):	3.61	0.057	1.67	5.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0039)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0039):	3.61	0.057	1.67	5.49
	+ ID2= 2 (0228):	0.71	0.007	2.08	4.99
	ID = 3 (0039):	4.32	0.059	1.67	5.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0039)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0039):	4.32	0.059	1.67	5.40
	+ ID2= 2 (0229):	1.07	0.009	2.33	5.27
	ID = 1 (0039):	5.39	0.060	1.67	5.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.080

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 4.459
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.178

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

ADD HYD (0060)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0223):	0.70	0.008	1.92	4.88
	+ ID2= 2 (0224):	0.64	0.006	2.08	4.46
	ID = 3 (0060):	1.34	0.014	2.00	4.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0200)	Area (ha)= 9.15		
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00	Dir. Conn.(%)= 55.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.95	3.20
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	246.98	10.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

CALIB			
NASHYD (0223)	Area (ha)= 0.70	Curve Number (CN)= 84.0	
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# 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 hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.110

PEAK FLOW (cms)= 0.008 (i)
TIME TO PEAK (hrs)= 1.917
RUNOFF VOLUME (mm)= 4.876
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.195

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

CALIB			
NASHYD (0224)	Area (ha)= 0.64	Curve Number (CN)= 82.3	
ID= 1 DT= 5.0 min	Ia (mm)= 7.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.31		

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Max.Eff.Inten.(mm/hr)=	53.25	13.41		
over (min)	5.00	10.00		
Storage Coeff. (min)=	4.59 (ii)	7.89 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.23	0.13		
			TOTALS	
PEAK FLOW (cms)=	0.68	0.09	0.745 (iii)	
TIME TO PEAK (hrs)=	1.67	1.75	1.67	
RUNOFF VOLUME (mm)=	24.00	5.56	15.70	
TOTAL RAINFALL (mm)=	25.00	25.00	25.00	
RUNOFF COEFFICIENT =	0.96	0.22	0.63	

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0201)	Area (ha)= 0.68		
ID= 1 DT= 5.0 min	Total Imp(%)= 85.00	Dir. Conn.(%)= 75.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.58	0.10
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	67.33	10.00
Mannings n	=	0.013	0.250

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Max.Eff.Inten.(mm/hr)=	53.25	23.70	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.11 (ii)	4.18 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.31	0.24	
			TOTALS
PEAK FLOW (cms)=	0.07	0.01	0.082 (iii)
TIME TO PEAK (hrs)=	1.67	1.67	1.67
RUNOFF VOLUME (mm)=	24.00	7.17	19.79
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.29	0.79

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0211)	Area (ha)= 1.00
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.65	0.35
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	81.65	10.00
Mannings n =	0.013	0.250

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Max.Eff.Inten.(mm/hr)=	53.25	13.41	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.36 (ii)	5.66 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.30	0.15	
			TOTALS
PEAK FLOW (cms)=	0.08	0.01	0.089 (iii)
TIME TO PEAK (hrs)=	1.67	1.75	1.67
RUNOFF VOLUME (mm)=	24.00	5.56	15.70
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.22	0.63

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0220)	Area (ha)= 1.71
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.11	0.60
Dep. Storage (mm)=	7.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	106.77	10.00
Mannings n =	0.013	0.250

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Max.Eff.Inten.(mm/hr)=	53.25	13.41	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.78 (ii)	6.08 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.28	0.15	
			TOTALS
PEAK FLOW (cms)=	0.13	0.02	0.146 (iii)
TIME TO PEAK (hrs)=	1.67	1.75	1.67
RUNOFF VOLUME (mm)=	18.00	5.56	12.40
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.72	0.22	0.50

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0204)	Area (ha)= 0.23
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 55.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.17	0.06
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	39.16	10.00
Mannings n =	0.013	0.250

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Max.Eff.Inten.(mm/hr)=	53.25	27.77	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.52 (ii)	4.40 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.23	
			TOTALS
PEAK FLOW (cms)=	0.02	0.00	0.023 (iii)
TIME TO PEAK (hrs)=	1.67	1.67	1.67
RUNOFF VOLUME (mm)=	24.00	7.67	16.65
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.31	0.67

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0061)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

```
       ID1= 1 (  0200):     9.15   0.745     1.67    15.70
     + ID2= 2 (  0201):     0.68   0.082     1.67    19.79
       ==================================================
       ID = 3 (  0061):     9.83   0.827     1.67    15.99

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):     9.83   0.827     1.67    15.99
     + ID2= 2 (  0204):     0.23   0.023     1.67    16.65
       ==================================================
       ID = 1 (  0061):    10.06   0.850     1.67    16.00

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    10.06   0.850     1.67    16.00
     + ID2= 2 (  0211):     1.00   0.089     1.67    15.70
       ==================================================
       ID = 3 (  0061):    11.06   0.939     1.67    15.97

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):    11.06   0.939     1.67    15.97
     + ID2= 2 (  0220):     1.71   0.146     1.67    12.40
       ==================================================
       ID = 1 (  0061):    12.77   1.085     1.67    15.50

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    12.77   1.085     1.67    15.50
     + ID2= 2 (  0060):     1.34   0.014     2.00     4.68
```

```
       ==================================================
       ID = 3 (  0061):    14.11   1.089     1.67    14.47

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  2111)|     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   |    0.1740      0.4400
                          0.0040      0.0490   |    0.4840      0.5020
                          0.0070      0.1000   |    0.6890      0.5660
                          0.0090      0.1520   |    0.7300      0.6330
                          0.0100      0.2060   |    0.7700      0.7000
                          0.0110      0.2620   |    1.7950      0.7700
                          0.0130      0.3200   |    3.6960      0.8420
                          0.0140      0.3790   |    6.2260      0.9150

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0061)    14.110     1.089      1.67      14.47
   OUTFLOW: ID= 1 (  2111)    14.110     0.010      4.17      14.25

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.90
                TIME SHIFT OF PEAK FLOW         (min)=150.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.1950
--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.16         0.04
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        10.00
     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    1.65 | 1.083    4.31 | 2.083    5.82 | 3.08    2.27
     0.167    1.65 | 1.167    4.31 | 2.167    5.82 | 3.17    2.27
     0.250    1.82 | 1.250    6.37 | 2.250    4.52 | 3.25    2.08
     0.333    1.82 | 1.333    6.37 | 2.333    4.52 | 3.33    2.08
     0.417    2.04 | 1.417   13.83 | 2.417    3.72 | 3.42    1.92
     0.500    2.04 | 1.500   13.83 | 2.500    3.72 | 3.50    1.92
     0.583    2.33 | 1.583   53.25 | 2.583    3.19 | 3.58    1.79
     0.667    2.33 | 1.667   53.25 | 2.667    3.19 | 3.67    1.79
     0.750    2.72 | 1.750   16.08 | 2.750    2.80 | 3.75    1.68
     0.833    2.72 | 1.833   16.08 | 2.833    2.80 | 3.83    1.68
     0.917    3.31 | 1.917    8.40 | 2.917    2.50 | 3.92    1.58
     1.000    3.31 | 2.000    8.40 | 3.000    2.50 | 4.00    1.58

     Max.Eff.Inten.(mm/hr)=      53.25         7.20
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      1.46 (ii)    3.73 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.33         0.25
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.02         0.00        0.025 (iii)
     TIME TO PEAK    (hrs)=      1.67         1.67         1.67
     RUNOFF VOLUME    (mm)=     20.00         4.17        16.83
     TOTAL RAINFALL   (mm)=     25.00        25.00        25.00
     RUNOFF COEFFICIENT   =      0.80         0.17         0.67

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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-------------------
| ADD HYD  (  0040)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     0.20   0.025     1.67    16.83
     + ID2= 2 (  2111):    14.11   0.010     4.17    14.25
       ==================================================
       ID = 3 (  0040):    14.31   0.030     1.67    14.28

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| ROUTEPIPE(  0041)|     PIPE Number     =   1.00
| IN= 2---> OUT= 1 |     Diameter    (mm)= 900.00
| DT=  5.0 min     |     Length       (m)=  50.00
-------------------      Slope      (m/m)=  0.005
                         Manning n       =  0.013

     <----------------- TRAVEL TIME TABLE ------------------->
       DEPTH      VOLUME     FLOW RATE     VELOCITY     TRAV.TIME
        (m)      (cu.m.)       (cms)        (m/s)         min
       0.05     .642E+00        0.0          0.53         1.56
       0.09     .178E+01        0.0          0.83         1.00
       0.14     .322E+01        0.1          1.07         0.78
       0.19     .487E+01        0.1          1.28         0.65
       0.24     .668E+01        0.2          1.45         0.57
       0.28     .862E+01        0.3          1.61         0.52
       0.33     .106E+02        0.4          1.74         0.48
       0.38     .127E+02        0.5          1.86         0.45
       0.43     .148E+02        0.6          1.97         0.42
       0.47     .170E+02        0.7          2.06         0.41
       0.52     .191E+02        0.8          2.13         0.39
       0.57     .212E+02        0.9          2.20         0.38
       0.62     .232E+02        1.0          2.24         0.37
       0.66     .251E+02        1.1          2.28         0.37
       0.71     .269E+02        1.2          2.29         0.36
       0.76     .286E+02        1.3          2.29         0.36
       0.81     .300E+02        1.4          2.27         0.37
       0.85     .312E+02        1.4          2.21         0.38
       0.90     .318E+02        1.3          2.01         0.41
                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)       (m)      (m/s)
   INFLOW : ID= 2 (  0040)   14.31     0.03    1.67   14.28      0.09      0.84
   OUTFLOW: ID= 1 (  0041)   14.31     0.03    1.67   14.28      0.10      0.85

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-------------------
| CALIB            |
| NASHYD   (  0210)|   Area    (ha)=   0.62   Curve Number   (CN)= 79.2
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.21

        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    1.65 | 1.083    4.31 | 2.083    5.82 | 3.08    2.27
     0.167    1.65 | 1.167    4.31 | 2.167    5.82 | 3.17    2.27
     0.250    1.82 | 1.250    6.37 | 2.250    4.52 | 3.25    2.08
     0.333    1.82 | 1.333    6.37 | 2.333    4.52 | 3.33    2.08
     0.417    2.04 | 1.417   13.83 | 2.417    3.72 | 3.42    1.92
     0.500    2.04 | 1.500   13.83 | 2.500    3.72 | 3.50    1.92
     0.583    2.33 | 1.583   53.25 | 2.583    3.19 | 3.58    1.79
```

0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Unit Hyd Qpeak (cms)= 0.112

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 1.917
RUNOFF VOLUME (mm)= 3.819
TOTAL RAINFALL (mm)= 25.000
RUNOFF COEFFICIENT = 0.153

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

CALIB	
STANDHYD (0207)	Area (ha)= 11.60
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.54	4.06
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	278.09	10.00
Mannings n	=	0.013	0.250

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Max.Eff.Inten.(mm/hr)=	53.25	13.41	
over (min)	5.00	10.00	
Storage Coeff. (min)=	4.93 (ii)	8.23 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.22	0.13	
			TOTALS
PEAK FLOW (cms)=	0.85	0.11	0.929 (iii)
TIME TO PEAK (hrs)=	1.67	1.75	1.67
RUNOFF VOLUME (mm)=	24.00	5.56	15.70
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.22	0.63

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0209)	Area (ha)= 1.76
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.14	0.62
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	108.32	10.00
Mannings n	=	0.013	0.250

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Max.Eff.Inten.(mm/hr)=	53.25	13.41	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.80 (ii)	6.10 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.28	0.15	
			TOTALS
PEAK FLOW (cms)=	0.14	0.02	0.154 (iii)
TIME TO PEAK (hrs)=	1.67	1.75	1.67
RUNOFF VOLUME (mm)=	24.00	5.56	15.70
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.96	0.22	0.63

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0221)	Area (ha)= 4.62
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.00	1.62
Dep. Storage	(mm)=	7.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	175.50	10.00
Mannings n	=	0.013	0.250

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

Max.Eff.Inten.(mm/hr)=	53.25	13.41	
over (min)	5.00	10.00	
Storage Coeff. (min)=	3.74 (ii)	7.04 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.25	0.14	
			TOTALS
PEAK FLOW (cms)=	0.34	0.05	0.374 (iii)
TIME TO PEAK (hrs)=	1.67	1.75	1.67
RUNOFF VOLUME (mm)=	18.00	5.56	12.40
TOTAL RAINFALL (mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT =	0.72	0.22	0.50

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0208)	Area (ha)= 0.95
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.62	0.33
Dep. Storage	(mm)=	7.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	79.58	10.00
Mannings n	=	0.013	0.250

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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68

0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

```
     Max.Eff.Inten.(mm/hr)=      53.25        13.41
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.33 (ii)    5.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.30         0.15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.08         0.01         0.083 (iii)
     TIME TO PEAK    (hrs)=       1.67         1.75          1.67
     RUNOFF VOLUME    (mm)=      18.00         5.56         12.40
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       0.72         0.22          0.50

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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 (  0215)|   Area    (ha)=   0.63
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.41         0.22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      64.81        10.00
     Mannings n             =     0.013        0.250

        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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

```
     Max.Eff.Inten.(mm/hr)=      53.25        26.08
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.53 (ii)    5.83 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.29         0.15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.01         0.061 (iii)
     TIME TO PEAK    (hrs)=       1.67         1.75          1.67
     RUNOFF VOLUME    (mm)=      24.00         9.68         17.55
     TOTAL RAINFALL   (mm)=      25.00        25.00         25.00
     RUNOFF COEFFICIENT   =       0.96         0.39          0.70

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    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  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):    14.31   1.166     1.67    15.48
     + ID2= 2 (  0215):     0.63   0.061     1.67    17.55
       ================================================
       ID = 3 (  0038):    14.94   1.228     1.67    15.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    14.94   1.228     1.67    15.57
     + ID2= 2 (  0221):     4.62   0.374     1.67    12.40
       ================================================
       ID = 1 (  0038):    19.56   1.602     1.67    14.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2099)|     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    |    0.1776      0.8069
                          0.0047      0.0913    |    0.4876      0.9174
                          0.0081      0.1859    |    0.6925      1.0295
                          0.0104      0.2831    |    0.7343      1.1431
                          0.0123      0.3830    |    0.7738      1.2584
                          0.0140      0.4855    |    2.2503      1.3753
                          0.0155      0.5907    |    5.0333      1.4940
                          0.0168      0.6980    |    8.7855      1.6144

                             AREA     QPEAK     TPEAK       R.V.
                             (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0038)     19.560      1.602      1.67      14.82
   OUTFLOW: ID= 1 (  2099)     19.560      0.010      4.17      13.97

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.65
                  TIME SHIFT OF PEAK FLOW         (min)=150.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2807

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0049)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2099):    19.56   0.010     4.17    13.97
     + ID2= 2 (  0210):     0.62   0.006     1.92     3.82
       ================================================
       ID = 3 (  0049):    20.18   0.014     2.00    13.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0222)|   Area    (ha)=   1.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.76         0.41
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      88.32        10.00
     Mannings n             =     0.013        0.250

        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	1.65	1.083	4.31	2.083	5.82	3.08	2.27
0.167	1.65	1.167	4.31	2.167	5.82	3.17	2.27
0.250	1.82	1.250	6.37	2.250	4.52	3.25	2.08
0.333	1.82	1.333	6.37	2.333	4.52	3.33	2.08
0.417	2.04	1.417	13.83	2.417	3.72	3.42	1.92
0.500	2.04	1.500	13.83	2.500	3.72	3.50	1.92
0.583	2.33	1.583	53.25	2.583	3.19	3.58	1.79
0.667	2.33	1.667	53.25	2.667	3.19	3.67	1.79
0.750	2.72	1.750	16.08	2.750	2.80	3.75	1.68
0.833	2.72	1.833	16.08	2.833	2.80	3.83	1.68
0.917	3.31	1.917	8.40	2.917	2.50	3.92	1.58
1.000	3.31	2.000	8.40	3.000	2.50	4.00	1.58

```
     Max.Eff.Inten.(mm/hr)=      53.25        13.41
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.48 (ii)    5.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.29         0.15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.09         0.01          0.102 (iii)
     TIME TO PEAK    (hrs)=       1.67         1.75          1.67
```

```
     RUNOFF VOLUME    (mm)=      18.00         5.56          12.40
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.72         0.22           0.50

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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.

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  --------------------------
  | Junction Command(0051) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0222)    1.17     0.10    1.67    12.40
  OUTFLOW: ID= 2(  0051)    1.17     0.10    1.67    12.40

  --------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0212)|   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.57         1.93
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     191.49        10.00
     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    1.65 | 1.083    4.31 | 2.083    5.82 |  3.08    2.27
               0.167    1.65 | 1.167    4.31 | 2.167    5.82 |  3.17    2.27
               0.250    1.82 | 1.250    6.37 | 2.250    4.52 |  3.25    2.08
               0.333    1.82 | 1.333    6.37 | 2.333    4.52 |  3.33    2.08
               0.417    2.04 | 1.417   13.83 | 2.417    3.72 |  3.42    1.92
               0.500    2.04 | 1.500   13.83 | 2.500    3.72 |  3.50    1.92
               0.583    2.33 | 1.583   53.25 | 2.583    3.19 |  3.58    1.79
               0.667    2.33 | 1.667   53.25 | 2.667    3.19 |  3.67    1.79
               0.750    2.72 | 1.750   16.08 | 2.750    2.80 |  3.75    1.68
               0.833    2.72 | 1.833   16.08 | 2.833    2.80 |  3.83    1.68
               0.917    3.31 | 1.917    8.40 | 2.917    2.50 |  3.92    1.58
               1.000    3.31 | 2.000    8.40 | 3.000    2.50 |  4.00    1.58

     Max.Eff.Inten.(mm/hr)=      53.25        13.41
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.94 (ii)    7.24 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.24         0.14
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.40         0.05          0.440 (iii)
     TIME TO PEAK    (hrs)=       1.67         1.75           1.67
     RUNOFF VOLUME    (mm)=      18.00         5.56          12.40
     TOTAL RAINFALL   (mm)=      25.00        25.00          25.00
     RUNOFF COEFFICIENT   =       0.72         0.22           0.50

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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.

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  --------------------------
  | Junction Command(0052) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0212)    5.50     0.44    1.67    12.40
  OUTFLOW: ID= 2(  0052)    5.50     0.44    1.67    12.40

  --------------------------------------------------------------------------------
================================================================================
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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
      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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\2fc2c
505-47c6-4df2-b34b-ee7e2da1ba7b\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\2fc2c
505-47c6-4df2-b34b-ee7e2da1ba7b\scen

DATE: 09/29/2025                          TIME: 03:59:47

USER:

COMMENTS: _____

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  ***********************************************
  ** SIMULATION : 25yr 12hr 5min Chicago        **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1837.546
| Ptotal= 77.38 mm |                          B=  11.800
--------------------                          C=   0.857
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  = 12.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =  0.38

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    1.03 |  3.00    3.01 |  6.00    4.97 |  9.00    1.62
               0.08    1.04 |  3.08    3.19 |  6.08    4.69 |  9.08    1.60
               0.17    1.06 |  3.17    3.40 |  6.17    4.44 |  9.17    1.57
               0.25    1.08 |  3.25    3.64 |  6.25    4.22 |  9.25    1.54
               0.33    1.10 |  3.33    3.92 |  6.33    4.02 |  9.33    1.52
               0.42    1.12 |  3.42    4.24 |  6.42    3.83 |  9.42    1.49
               0.50    1.15 |  3.50    4.62 |  6.50    3.67 |  9.50    1.47
               0.58    1.17 |  3.58    5.08 |  6.58    3.51 |  9.58    1.45
               0.67    1.19 |  3.67    5.65 |  6.67    3.37 |  9.67    1.42
               0.75    1.22 |  3.75    6.35 |  6.75    3.24 |  9.75    1.40
               0.83    1.24 |  3.83    7.25 |  6.83    3.12 |  9.83    1.38
               0.92    1.27 |  3.92    8.44 |  6.92    3.01 |  9.92    1.36
               1.00    1.30 |  4.00   10.07 |  7.00    2.91 | 10.00    1.34
               1.08    1.33 |  4.08   12.45 |  7.08    2.82 | 10.08    1.32
               1.17    1.36 |  4.17   16.17 |  7.17    2.73 | 10.17    1.30
               1.25    1.40 |  4.25   22.65 |  7.25    2.64 | 10.25    1.29
               1.33    1.43 |  4.33   36.11 |  7.33    2.56 | 10.33    1.27
               1.42    1.47 |  4.42   75.42 |  7.42    2.49 | 10.42    1.25
               1.50    1.51 |  4.50  163.74 |  7.50    2.42 | 10.50    1.24
               1.58    1.55 |  4.58   88.04 |  7.58    2.36 | 10.58    1.22
               1.67    1.59 |  4.67   51.42 |  7.67    2.29 | 10.67    1.20
               1.75    1.64 |  4.75   34.99 |  7.75    2.23 | 10.75    1.19
               1.83    1.69 |  4.83   25.99 |  7.83    2.18 | 10.83    1.17
               1.92    1.74 |  4.92   20.44 |  7.92    2.13 | 10.92    1.16
               2.00    1.80 |  5.00   16.73 |  8.00    2.08 | 11.00    1.15
               2.08    1.86 |  5.08   14.09 |  8.08    2.03 | 11.08    1.13
               2.17    1.93 |  5.17   12.14 |  8.17    1.98 | 11.17    1.12
               2.25    2.00 |  5.25   10.65 |  8.25    1.94 | 11.25    1.11
               2.33    2.07 |  5.33    9.47 |  8.33    1.90 | 11.33    1.09
               2.42    2.15 |  5.42    8.51 |  8.42    1.86 | 11.42    1.08
               2.50    2.24 |  5.50    7.73 |  8.50    1.82 | 11.50    1.07
               2.58    2.34 |  5.58    7.08 |  8.58    1.79 | 11.58    1.06
               2.67    2.45 |  5.67    6.53 |  8.67    1.75 | 11.67    1.05
               2.75    2.57 |  5.75    6.05 |  8.75    1.72 | 11.75    1.03
               2.83    2.70 |  5.83    5.64 |  8.83    1.69 | 11.83    1.02
               2.92    2.85 |  5.92    5.28 |  8.92    1.65 | 11.92    1.01

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0213)|   Area    (ha)=   0.12   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.34

     Unit Hyd Qpeak  (cms)=   0.013

     PEAK FLOW       (cms)=   0.009 (i)
     TIME TO PEAK    (hrs)=   5.000
     RUNOFF VOLUME    (mm)=  36.013
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.465

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0227)|   Area    (ha)=   0.13   Curve Number   (CN)= 82.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.22

     Unit Hyd Qpeak  (cms)=   0.022

     PEAK FLOW       (cms)=   0.014 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  39.572
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.511

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0228)|   Area    (ha)=   0.71   Curve Number   (CN)= 84.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.31

     Unit Hyd Qpeak  (cms)=   0.088

     PEAK FLOW       (cms)=   0.068 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  42.203
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.545

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0229)|   Area    (ha)=   1.07   Curve Number   (CN)= 85.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.51

     Unit Hyd Qpeak  (cms)=   0.081

     PEAK FLOW       (cms)=   0.076 (i)
     TIME TO PEAK    (hrs)=   5.167
     RUNOFF VOLUME    (mm)=  43.523
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.562

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

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--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0206)|   Area    (ha)=   2.60   Curve Number   (CN)= 77.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

     Unit Hyd Qpeak  (cms)=   0.396

     PEAK FLOW       (cms)=   0.219 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  34.343
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.444

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   1.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.26         0.26
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      58.88        10.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74       173.90
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.24 (ii)    3.70 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.25
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.13          0.131 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      76.38        49.51          49.77
     TOTAL RAINFALL   (mm)=      77.38        77.38          77.38
     RUNOFF COEFFICIENT   =       0.99         0.64           0.64

***** 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*  =  77.0    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 (  0226)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.03         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      18.26        10.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74        91.00
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.61 (ii)    2.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.29
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.017 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      76.38        40.76          60.35
     TOTAL RAINFALL   (mm)=      77.38        77.38          77.38
     RUNOFF COEFFICIENT   =       0.99         0.53           0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  77.0    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 (  0202)|   Area    (ha)=   0.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.11
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      45.46        10.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74        91.00
```

```
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.06 (ii)    3.17 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.27
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.08         0.03          0.106 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      76.38        40.76          60.34
     TOTAL RAINFALL   (mm)=      77.38        77.38          77.38
     RUNOFF COEFFICIENT   =       0.99         0.53           0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  77.0    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.

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--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     0.31   0.106     4.58    60.34
     + ID2= 2 (  0205):     0.52   0.131     4.58    49.77
       ================================================
       ID = 3 (  0039):     0.83   0.237     4.58    53.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     0.83   0.237     4.58    53.72
     + ID2= 2 (  0206):     2.60   0.219     4.83    34.34
       ================================================
       ID = 1 (  0039):     3.43   0.318     4.67    39.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0039):     3.43   0.318     4.67    39.03
```

```
      + ID2= 2 (  0226):     0.05   0.017     4.58    60.35
        ==================================================
        ID = 3 (  0039):     3.48   0.335     4.58    39.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0039):     3.48   0.335     4.58    39.34
      + ID2= 2 (  0227):     0.13   0.014     4.83    39.57
        ==================================================
        ID = 1 (  0039):     3.61   0.341     4.58    39.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0039):     3.61   0.341     4.58    39.35
      + ID2= 2 (  0228):     0.71   0.068     4.92    42.20
        ==================================================
        ID = 3 (  0039):     4.32   0.383     4.75    39.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0039):     4.32   0.383     4.75    39.82
      + ID2= 2 (  0229):     1.07   0.076     5.17    43.52
        ==================================================
        ID = 1 (  0039):     5.39   0.430     4.83    40.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0223)|   Area    (ha)=   0.70   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.24

     Unit Hyd Qpeak  (cms)=   0.110

     PEAK FLOW       (cms)=   0.076 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  41.671
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.539

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0224)|   Area    (ha)=   0.64   Curve Number   (CN)= 82.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.31

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.057 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  39.610
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.512

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

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--------------------
| ADD HYD  (  0060)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0223):     0.70   0.076     4.83    41.67
      + ID2= 2 (  0224):     0.64   0.057     4.92    39.61
        ==================================================
        ID = 3 (  0060):     1.34   0.130     4.83    40.69

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   9.15
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.95         3.20
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     246.98        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74        91.00
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.93 (ii)    5.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.28         0.16
                                                    *TOTALS*
     PEAK FLOW       (cms)=       2.05         0.70         2.476 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.67          4.58
     RUNOFF VOLUME    (mm)=      76.38        40.76         60.35
     TOTAL RAINFALL   (mm)=      77.38        77.38         77.38
     RUNOFF COEFFICIENT   =       0.99         0.53          0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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 (  0201)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  75.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.58         0.10
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      67.33        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74       135.50
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.34 (ii)    2.67 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.29
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.23         0.04         0.271 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      76.38        46.14         68.82
     TOTAL RAINFALL   (mm)=      77.38        77.38         77.38
     RUNOFF COEFFICIENT   =       0.99         0.60          0.89

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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 (  0211)|   Area    (ha)=   1.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.65         0.35
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      81.65        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74        91.00
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.51 (ii)    3.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.25
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.25         0.09          0.334 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      76.38        40.76         60.35
     TOTAL RAINFALL   (mm)=      77.38        77.38         77.38
     RUNOFF COEFFICIENT   =       0.99         0.53          0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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 (  0220)|   Area    (ha)=   1.71
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.11         0.60
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     106.77        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74        91.00
```

```
              over (min)        5.00          5.00
     Storage Coeff.  (min)=       1.77 (ii)     3.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.32          0.25
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.41          0.15          0.562 (iii)
     TIME TO PEAK    (hrs)=       4.58          4.58           4.58
     RUNOFF VOLUME    (mm)=      70.38         40.76          57.05
     TOTAL RAINFALL   (mm)=      77.38         77.38          77.38
     RUNOFF COEFFICIENT   =       0.91          0.53           0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0204)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  55.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17          0.06
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       2.00          2.00
     Length            (m)=      39.16         10.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     163.74        151.69
              over (min)        5.00          5.00
     Storage Coeff.  (min)=       0.97 (ii)     2.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.28
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.06          0.03          0.084 (iii)
     TIME TO PEAK    (hrs)=       4.58          4.58           4.58
     RUNOFF VOLUME    (mm)=      76.38         47.67          63.45
     TOTAL RAINFALL   (mm)=      77.38         77.38          77.38
     RUNOFF COEFFICIENT   =       0.99          0.62           0.82

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    12.77   3.727    4.58    60.42
     + ID2= 2 (  0060):     1.34   0.130    4.83    40.69
       ====================================================
       ID = 3 (  0061):    14.11   3.776    4.58    58.54

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2111)|     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   |    0.1740      0.4400
                          0.0040      0.0490   |    0.4840      0.5020
                          0.0070      0.1000   |    0.6890      0.5660
                          0.0090      0.1520   |    0.7300      0.6330
                          0.0100      0.2060   |    0.7700      0.7000
                          0.0110      0.2620   |    1.7950      0.7700
                          0.0130      0.3200   |    3.6960      0.8420
                          0.0140      0.3790   |    6.2260      0.9150

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0061)     14.110      3.776      4.58      58.54
   OUTFLOW: ID= 1 (  2111)     14.110      0.510      5.25      57.80

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 13.51
                  TIME SHIFT OF PEAK FLOW         (min)= 40.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5104

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.16          0.04
     Dep. Storage     (mm)=       5.00          5.00
     Average Slope     (%)=       2.00          2.00
     Length            (m)=      36.51         10.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     163.74        60.20
```

```
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0200):     9.15   2.476     4.58    60.35
     + ID2= 2 (  0201):     0.68   0.271     4.58    68.82
       ====================================================
       ID = 3 (  0061):     9.83   2.748     4.58    60.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):     9.83   2.748     4.58    60.94
     + ID2= 2 (  0204):     0.23   0.084     4.58    63.45
       ====================================================
       ID = 1 (  0061):    10.06   2.832     4.58    61.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    10.06   2.832     4.58    61.00
     + ID2= 2 (  0211):     1.00   0.334     4.58    60.35
       ====================================================
       ID = 3 (  0061):    11.06   3.165     4.58    60.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):    11.06   3.165     4.58    60.94
     + ID2= 2 (  0220):     1.71   0.562     4.58    57.05
       ====================================================
       ID = 1 (  0061):    12.77   3.727     4.58    60.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

```
              over (min)        5.00          5.00
     Storage Coeff.  (min)=       0.93 (ii)     2.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.30
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.07          0.01          0.080 (iii)
     TIME TO PEAK    (hrs)=       4.58          4.58           4.58
     RUNOFF VOLUME    (mm)=      72.38         35.34          64.97
     TOTAL RAINFALL   (mm)=      77.38         77.38          77.38
     RUNOFF COEFFICIENT   =       0.94          0.46           0.84

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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  (  0040)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     0.20   0.080     4.58    64.97
     + ID2= 2 (  2111):    14.11   0.510     5.25    57.80
       ====================================================
       ID = 3 (  0040):    14.31   0.516     5.25    57.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ROUTEPIPE(  0041)|     PIPE Number     =   1.00
| IN= 2---> OUT= 1 |     Diameter    (mm)= 900.00
| DT=  5.0 min     |     Length       (m)=  50.00
--------------------     Slope      (m/m)=  0.005
                         Manning n       =  0.013

     <----------------- TRAVEL TIME TABLE ------------------->
       DEPTH      VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
        (m)      (cu.m.)      (cms)        (m/s)        min
       0.05     .642E+00       0.0          0.53         1.56
       0.09     .178E+01       0.0          0.83         1.00
       0.14     .322E+01       0.1          1.07         0.78
       0.19     .487E+01       0.1          1.28         0.65
       0.24     .668E+01       0.2          1.45         0.57
       0.28     .862E+01       0.3          1.61         0.52
       0.33     .106E+02       0.4          1.74         0.48
       0.38     .127E+02       0.5          1.86         0.45
```

```
       0.43     .148E+02       0.6          1.97         0.42
       0.47     .170E+02       0.7          2.06         0.41
       0.52     .191E+02       0.8          2.13         0.39
       0.57     .212E+02       0.9          2.20         0.38
       0.62     .232E+02       1.0          2.24         0.37
       0.66     .251E+02       1.1          2.28         0.37
       0.71     .269E+02       1.2          2.29         0.36
       0.76     .286E+02       1.3          2.29         0.36
       0.81     .300E+02       1.4          2.27         0.37
       0.85     .312E+02       1.4          2.21         0.38
       0.90     .318E+02       1.3          2.01         0.41
                                  <---- hydrograph ---->   <-pipe / channel->
                               AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                               (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
  INFLOW : ID= 2 (  0040)   14.31     0.52    5.25  57.90      0.40      1.90
  OUTFLOW: ID= 1 (  0041)   14.31     0.52    5.25  57.90      0.40      1.90



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--------------------
| CALIB              |
| NASHYD   (  0210)|   Area    (ha)=   0.62   Curve Number   (CN)= 79.2
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.21

     Unit Hyd Qpeak  (cms)=   0.112

     PEAK FLOW       (cms)=   0.061 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  36.078
     TOTAL RAINFALL   (mm)=  77.381
     RUNOFF COEFFICIENT   =   0.466

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

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0207)|   Area    (ha)=  11.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.54         4.06
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     278.09        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74        91.00
```

```
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0221)|   Area    (ha)=   4.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.00         1.62
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     175.50        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74        91.00
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.39 (ii)    4.49 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.30         0.23
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.07         0.38         1.454 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      70.38        40.76         57.05
     TOTAL RAINFALL   (mm)=      77.38        77.38         77.38
     RUNOFF COEFFICIENT   =       0.91         0.53          0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0208)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.62         0.33
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      79.58        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74        91.00
               over (min)        5.00         5.00
```

```
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.15 (ii)    5.25 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.27         0.16
                                                        *TOTALS*
     PEAK FLOW       (cms)=       2.55         0.87         3.089 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.67          4.58
     RUNOFF VOLUME    (mm)=      76.38        40.76         60.35
     TOTAL RAINFALL   (mm)=      77.38        77.38         77.38
     RUNOFF COEFFICIENT   =       0.99         0.53          0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0209)|   Area    (ha)=   1.76
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.14         0.62
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     108.32        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74        91.00
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.79 (ii)    3.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.25
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.43         0.15         0.578 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      76.38        40.76         60.35
     TOTAL RAINFALL   (mm)=      77.38        77.38         77.38
     RUNOFF COEFFICIENT   =       0.99         0.53          0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
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```
     Storage Coeff.  (min)=       1.49 (ii)    3.59 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.23         0.08         0.318 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      70.38        40.76         57.05
     TOTAL RAINFALL   (mm)=      77.38        77.38         77.38
     RUNOFF COEFFICIENT   =       0.91         0.53          0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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--------------------
| CALIB              |
| STANDHYD (  0215)|   Area    (ha)=   0.63
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.41         0.22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      64.81        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74       118.77
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.62 (ii)    3.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.25
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.15         0.07         0.229 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      76.38        52.29         65.54
     TOTAL RAINFALL   (mm)=      77.38        77.38         77.38
     RUNOFF COEFFICIENT   =       0.99         0.68          0.85

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    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  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):    11.60   3.089     4.58    60.35
     + ID2= 2 (  0208):     0.95   0.318     4.58    57.05
       ====================================================
       ID = 3 (  0038):    12.55   3.406     4.58    60.10

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    12.55   3.406     4.58    60.10
     + ID2= 2 (  0209):     1.76   0.578     4.58    60.35
       ====================================================
       ID = 1 (  0038):    14.31   3.984     4.58    60.13

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):    14.31   3.984     4.58    60.13
     + ID2= 2 (  0215):     0.63   0.229     4.58    65.54
       ====================================================
       ID = 3 (  0038):    14.94   4.213     4.58    60.36

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    14.94   4.213     4.58    60.36
     + ID2= 2 (  0221):     4.62   1.454     4.58    57.05
       ====================================================
       ID = 1 (  0038):    19.56   5.667     4.58    59.58

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

```
-------------------
| RESERVOIR(  2099)|     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  |    0.1776      0.8069
                          0.0047      0.0913  |    0.4876      0.9174
                          0.0081      0.1859  |    0.6925      1.0295
                          0.0104      0.2831  |    0.7343      1.1431
                          0.0123      0.3830  |    0.7738      1.2584
                          0.0140      0.4855  |    2.2503      1.3753
                          0.0155      0.5907  |    5.0333      1.4940
                          0.0168      0.6980  |    8.7855      1.6144

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0038)     19.560      5.667      4.58      59.58
   OUTFLOW: ID= 1 (  2099)     19.560      0.300      5.83      54.54

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.30
                TIME SHIFT OF PEAK FLOW         (min)= 75.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.8507

--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0049)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2099):    19.56   0.300     5.83    54.54
     + ID2= 2 (  0210):     0.62   0.061     4.83    36.08
       ====================================================
       ID = 3 (  0049):    20.18   0.310     5.83    53.98

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0222)|   Area    (ha)=   1.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.76         0.41
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      88.32        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74        91.00
               over (min)        5.00         5.00
```

```
     Storage Coeff.  (min)=       1.58 (ii)    3.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.25
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.29         0.10          0.389 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      70.38        40.76          57.05
     TOTAL RAINFALL   (mm)=      77.38        77.38          77.38
     RUNOFF COEFFICIENT   =       0.91         0.53           0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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  --------------------------
  | Junction Command(0051) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0222)    1.17     0.39    4.58    57.05
  OUTFLOW: ID= 2(  0051)    1.17     0.39    4.58    57.05

  --------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0212)|   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.57         1.93
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     191.49        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     163.74        91.00
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.52 (ii)    4.62 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.29         0.22
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.27         0.45          1.714 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
```

```
     RUNOFF VOLUME    (mm)=      70.38        40.76          57.05
     TOTAL RAINFALL   (mm)=      77.38        77.38          77.38
     RUNOFF COEFFICIENT   =       0.91         0.53           0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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  --------------------------
  | Junction Command(0052) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0212)    5.50     1.71    4.58    57.05
  OUTFLOW: ID= 2(  0052)    5.50     1.71    4.58    57.05

  --------------------------------------------------------------------------------
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\d2c3d
409-c081-418d-9f73-412897c41257\scen
```

Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\d2c3d409-c081-418d-9f73-412897c41257\scen

DATE: 09/29/2025 TIME: 03:59:46

USER:

COMMENTS: _____

** SIMULATION : 2yr 12hr 5min Chicago **

| CHICAGO STORM | Ptotal= 42.50 mm |

IDF curve parameters: A= 632.129
B= 6.000
C= 0.787
used in: INTENSITY = A / (t + B)^C

Duration of storm = 12.00 hrs
Storm time step = 5.00 min
Time to peak ratio = 0.38

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.79	3.00	1.96	6.00	2.96	9.00	1.17
0.08	0.80	3.08	2.06	6.08	2.82	9.08	1.15
0.17	0.81	3.17	2.17	6.17	2.70	9.17	1.14
0.25	0.82	3.25	2.29	6.25	2.59	9.25	1.12
0.33	0.84	3.33	2.44	6.33	2.49	9.33	1.10
0.42	0.85	3.42	2.60	6.42	2.39	9.42	1.09
0.50	0.87	3.50	2.79	6.50	2.31	9.50	1.07
0.58	0.88	3.58	3.01	6.58	2.23	9.58	1.06
0.67	0.90	3.67	3.28	6.67	2.15	9.67	1.04
0.75	0.91	3.75	3.61	6.75	2.09	9.75	1.03
0.83	0.93	3.83	4.02	6.83	2.02	9.83	1.02
0.92	0.95	3.92	4.55	6.92	1.96	9.92	1.01
1.00	0.97	4.00	5.26	7.00	1.91	10.00	0.99
1.08	0.99	4.08	6.26	7.08	1.86	10.08	0.98
1.17	1.01	4.17	7.80	7.17	1.81	10.17	0.97
1.25	1.03	4.25	10.43	7.25	1.76	10.25	0.96
1.33	1.05	4.33	16.00	7.33	1.72	10.33	0.95
1.42	1.07	4.42	34.76	7.42	1.68	10.42	0.94
1.50	1.10	4.50	95.77	7.50	1.64	10.50	0.92
1.58	1.12	4.58	41.27	7.58	1.60	10.58	0.91
1.67	1.15	4.67	22.67	7.67	1.56	10.67	0.90
1.75	1.18	4.75	15.51	7.75	1.53	10.75	0.89
1.83	1.21	4.83	11.79	7.83	1.50	10.83	0.88
1.92	1.24	4.92	9.54	7.92	1.47	10.92	0.88
2.00	1.28	5.00	8.03	8.00	1.44	11.00	0.87
2.08	1.31	5.08	6.95	8.08	1.41	11.08	0.86
2.17	1.35	5.17	6.13	8.17	1.39	11.17	0.85
2.25	1.39	5.25	5.50	8.25	1.36	11.25	0.84
2.33	1.44	5.33	5.00	8.33	1.34	11.33	0.83
2.42	1.48	5.42	4.58	8.42	1.31	11.42	0.82
2.50	1.54	5.50	4.24	8.50	1.29	11.50	0.82
2.58	1.59	5.58	3.94	8.58	1.27	11.58	0.81
2.67	1.65	5.67	3.69	8.67	1.25	11.67	0.80
2.75	1.72	5.75	3.47	8.75	1.23	11.75	0.79
2.83	1.79	5.83	3.28	8.83	1.21	11.83	0.79
2.92	1.87	5.92	3.11	8.92	1.19	11.92	0.78

| CALIB | NASHYD (0213) \| ID= 1 DT= 5.0 min |

Area (ha)= 0.12 Curve Number (CN)= 79.1
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.34

Unit Hyd Qpeak (cms)= 0.013

PEAK FLOW (cms)= 0.002 (i)
TIME TO PEAK (hrs)= 5.000
RUNOFF VOLUME (mm)= 12.273
TOTAL RAINFALL (mm)= 42.504
RUNOFF COEFFICIENT = 0.289

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

| CALIB | NASHYD (0227) \| ID= 1 DT= 5.0 min |

Area (ha)= 0.13 Curve Number (CN)= 82.3
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.22

Unit Hyd Qpeak (cms)= 0.022

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 4.833
RUNOFF VOLUME (mm)= 13.964
TOTAL RAINFALL (mm)= 42.504

RUNOFF COEFFICIENT = 0.329

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

| CALIB | NASHYD (0228) \| ID= 1 DT= 5.0 min |

Area (ha)= 0.71 Curve Number (CN)= 84.4
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.31

Unit Hyd Qpeak (cms)= 0.088

PEAK FLOW (cms)= 0.020 (i)
TIME TO PEAK (hrs)= 4.917
RUNOFF VOLUME (mm)= 15.282
TOTAL RAINFALL (mm)= 42.504
RUNOFF COEFFICIENT = 0.360

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

| CALIB | NASHYD (0229) \| ID= 1 DT= 5.0 min |

Area (ha)= 1.07 Curve Number (CN)= 85.4
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.51

Unit Hyd Qpeak (cms)= 0.081

PEAK FLOW (cms)= 0.023 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 15.969
TOTAL RAINFALL (mm)= 42.504
RUNOFF COEFFICIENT = 0.376

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

| CALIB | NASHYD (0206) \| ID= 1 DT= 5.0 min |

Area (ha)= 2.60 Curve Number (CN)= 77.5
Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.25

Unit Hyd Qpeak (cms)= 0.396

PEAK FLOW (cms)= 0.060 (i)
TIME TO PEAK (hrs)= 4.833
RUNOFF VOLUME (mm)= 11.529

TOTAL RAINFALL (mm)= 42.504
RUNOFF COEFFICIENT = 0.271

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

| CALIB | STANDHYD (0205) \| ID= 1 DT= 5.0 min |

Area (ha)= 0.52
Total Imp(%)= 50.00 Dir. Conn.(%)= 1.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.26	0.26
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	58.88	10.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		95.77	68.11
over (min)		5.00	10.00
Storage Coeff. (min)=		1.54 (ii)	5.12 (ii)
Unit Hyd. Tpeak (min)=		5.00	10.00
Unit Hyd. peak (cms)=		0.33	0.16

		TOTALS
PEAK FLOW	(cms)=	0.043 (iii)
TIME TO PEAK	(hrs)=	4.67
RUNOFF VOLUME	(mm)=	20.62
TOTAL RAINFALL	(mm)=	42.50
RUNOFF COEFFICIENT	=	0.49

***** 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* = 77.0 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 (0226) \| ID= 1 DT= 5.0 min |

Area (ha)= 0.05
Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.03	0.02
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	2.00	2.00

```
     Length            (m)=      18.26        10.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        31.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.76 (ii)    3.37 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.26
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00         0.009 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      41.50        15.27         29.07
     TOTAL RAINFALL   (mm)=      42.50        42.50         42.50
     RUNOFF COEFFICIENT   =       0.98         0.36          0.68

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0202)|   Area    (ha)=   0.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.11
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      45.46        10.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        31.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.32 (ii)    3.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.01         0.054 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      41.50        15.27         29.69
     TOTAL RAINFALL   (mm)=      42.50        42.50         42.50
     RUNOFF COEFFICIENT   =       0.98         0.36          0.70

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

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     0.31   0.054     4.58    29.69
     + ID2= 2 (  0205):     0.52   0.043     4.67    20.62
       ================================================
       ID = 3 (  0039):     0.83   0.081     4.58    24.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     0.83   0.081     4.58    24.01
     + ID2= 2 (  0206):     2.60   0.060     4.83    11.53
       ================================================
       ID = 1 (  0039):     3.43   0.109     4.67    14.55

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0039):     3.43   0.109     4.67    14.55
     + ID2= 2 (  0226):     0.05   0.009     4.58    29.07
       ================================================
       ID = 3 (  0039):     3.48   0.113     4.67    14.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     3.48   0.113     4.67    14.76
     + ID2= 2 (  0227):     0.13   0.004     4.83    13.96
```

```
       ================================================
       ID = 1 (  0039):     3.61   0.116     4.67    14.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0039):     3.61   0.116     4.67    14.73
     + ID2= 2 (  0228):     0.71   0.020     4.92    15.28
       ================================================
       ID = 3 (  0039):     4.32   0.127     4.67    14.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     4.32   0.127     4.67    14.82
     + ID2= 2 (  0229):     1.07   0.023     5.17    15.97
       ================================================
       ID = 1 (  0039):     5.39   0.136     4.75    15.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0223)|   Area    (ha)=   0.70   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.24

     Unit Hyd Qpeak  (cms)=   0.110

     PEAK FLOW       (cms)=   0.023 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  15.012
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.353

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0224)|   Area    (ha)=   0.64   Curve Number   (CN)= 82.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
```

```
--------------------   U.H. Tp(hrs)=   0.31

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.016 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  13.979
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.329

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

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0223):     0.70   0.023     4.83    15.01
     + ID2= 2 (  0224):     0.64   0.016     4.92    13.98
       ================================================
       ID = 3 (  0060):     1.34   0.038     4.92    14.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   9.15
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.95         3.20
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     246.98        10.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        31.63
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.63 (ii)    6.24 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.25         0.15
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.11         0.22          1.229 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.67          4.58
     RUNOFF VOLUME    (mm)=      41.50        15.27         29.70
     TOTAL RAINFALL   (mm)=      42.50        42.50         42.50
     RUNOFF COEFFICIENT   =       0.98         0.36          0.70

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

```
      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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 (  0201) |   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min  |   Total Imp(%)=  85.00   Dir. Conn.(%)=  75.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.58         0.10
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      67.33        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        50.73
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.67 (ii)    3.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.26
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.13         0.02          0.147 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      41.50        18.35          35.72
     TOTAL RAINFALL   (mm)=      42.50        42.50          42.50
     RUNOFF COEFFICIENT   =       0.98         0.43           0.84

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

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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 (  0211) |   Area    (ha)=   1.00
|ID= 1 DT= 5.0 min  |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.65         0.35
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00

     Length            (m)=      81.65        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        31.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.87 (ii)    4.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.23
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.14         0.03          0.169 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      41.50        15.27          29.70
     TOTAL RAINFALL   (mm)=      42.50        42.50          42.50
     RUNOFF COEFFICIENT   =       0.98         0.36           0.70

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

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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.

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-------------------
| CALIB             |
| STANDHYD (  0220) |   Area    (ha)=   1.71
|ID= 1 DT= 5.0 min  |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.11         0.60
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     106.77        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        31.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.20 (ii)    4.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.30         0.22
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.23         0.05          0.281 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      35.50        15.27          26.40
     TOTAL RAINFALL   (mm)=      42.50        42.50          42.50
     RUNOFF COEFFICIENT   =       0.84         0.36           0.62

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

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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 (  0204) |   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min  |   Total Imp(%)=  75.00   Dir. Conn.(%)=  55.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17         0.06
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      39.16        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        57.97
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.20 (ii)    3.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.01          0.043 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      41.50        19.28          31.49
     TOTAL RAINFALL   (mm)=      42.50        42.50          42.50
     RUNOFF COEFFICIENT   =       0.98         0.45           0.74

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

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0200):     9.15   1.229     4.58    29.70
     + ID2= 2 (  0201):     0.68   0.147     4.58    35.72
       ====================================================
       ID = 3 (  0061):     9.83   1.376     4.58    30.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):     9.83   1.376     4.58    30.12
     + ID2= 2 (  0204):     0.23   0.043     4.58    31.49
       ====================================================
       ID = 1 (  0061):    10.06   1.419     4.58    30.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    10.06   1.419     4.58    30.15
     + ID2= 2 (  0211):     1.00   0.169     4.58    29.70
       ====================================================
       ID = 3 (  0061):    11.06   1.588     4.58    30.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):    11.06   1.588     4.58    30.11
     + ID2= 2 (  0220):     1.71   0.281     4.58    26.40
       ====================================================
       ID = 1 (  0061):    12.77   1.869     4.58    29.61

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    12.77   1.869     4.58    29.61
     + ID2= 2 (  0060):     1.34   0.038     4.92    14.52
       ====================================================
       ID = 3 (  0061):    14.11   1.880     4.58    28.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

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--------------------
| RESERVOIR(  2111)|     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  |    0.1740      0.4400
                           0.0040      0.0490  |    0.4840      0.5020
                           0.0070      0.1000  |    0.6890      0.5660
                           0.0090      0.1520  |    0.7300      0.6330
                           0.0100      0.2060  |    0.7700      0.7000
                           0.0110      0.2620  |    1.7950      0.7700
                           0.0130      0.3200  |    3.6960      0.8420
                           0.0140      0.3790  |    6.2260      0.9150

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0061)     14.110      1.880      4.58      28.18
   OUTFLOW: ID= 1 (  2111)     14.110      0.014     12.08      27.53

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.73
                  TIME SHIFT OF PEAK FLOW         (min)=450.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.3608

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.16         0.04
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        19.27
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.15 (ii)    2.95 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.28
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.00          0.045 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      37.50        12.41         32.48
     TOTAL RAINFALL   (mm)=      42.50        42.50         42.50
     RUNOFF COEFFICIENT   =       0.88         0.29          0.76

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

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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  (  0040)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.20   0.045     4.58    32.48
      + ID2= 2 (  2111):    14.11   0.014    12.08    27.53
        ================================================
        ID = 3 (  0040):    14.31   0.052     4.58    27.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ROUTEPIPE(  0041)|     PIPE Number     =   1.00
| IN= 2---> OUT= 1 |     Diameter    (mm)= 900.00
| DT=  5.0 min     |     Length       (m)=  50.00
--------------------     Slope      (m/m)=  0.005
                         Manning n       =  0.013

     <----------------- TRAVEL TIME TABLE ------------------->
       DEPTH      VOLUME    FLOW RATE    VELOCITY     TRAV.TIME
        (m)      (cu.m.)      (cms)        (m/s)         min
       0.05     .642E+00       0.0         0.53          1.56
       0.09     .178E+01       0.0         0.83          1.00
       0.14     .322E+01       0.1         1.07          0.78
       0.19     .487E+01       0.1         1.28          0.65
       0.24     .668E+01       0.2         1.45          0.57
       0.28     .862E+01       0.3         1.61          0.52
       0.33     .106E+02       0.4         1.74          0.48
       0.38     .127E+02       0.5         1.86          0.45
       0.43     .148E+02       0.6         1.97          0.42
       0.47     .170E+02       0.7         2.06          0.41
       0.52     .191E+02       0.8         2.13          0.39
       0.57     .212E+02       0.9         2.20          0.38
       0.62     .232E+02       1.0         2.24          0.37
       0.66     .251E+02       1.1         2.28          0.37
       0.71     .269E+02       1.2         2.29          0.36
       0.76     .286E+02       1.3         2.29          0.36
       0.81     .300E+02       1.4         2.27          0.37
       0.85     .312E+02       1.4         2.21          0.38
       0.90     .318E+02       1.3         2.01          0.41
                                     <---- hydrograph ---->   <-pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
```

```
                              (ha)    (cms)   (hrs)   (mm)      (m)      (m/s)
   INFLOW : ID= 2 (  0040)   14.31     0.05    4.58  27.60      0.12      0.95
   OUTFLOW: ID= 1 (  0041)   14.31     0.05    4.58  27.60      0.11      0.91

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0210)|   Area    (ha)=   0.62   Curve Number   (CN)= 79.2
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.21

     Unit Hyd Qpeak  (cms)=   0.112

     PEAK FLOW       (cms)=   0.017 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  12.313
     TOTAL RAINFALL   (mm)=  42.504
     RUNOFF COEFFICIENT   =   0.290

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0207)|   Area    (ha)=  11.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.54         4.06
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     278.09        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        31.63
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.90 (ii)    6.51 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.25         0.14
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.37         0.27          1.523 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.67          4.58
     RUNOFF VOLUME    (mm)=      41.50        15.27         29.70
     TOTAL RAINFALL   (mm)=      42.50        42.50         42.50
     RUNOFF COEFFICIENT   =       0.98         0.36          0.70

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

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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 (  0209)|   Area    (ha)=   1.76
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.14         0.62
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     108.32        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        31.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.21 (ii)    4.82 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.30         0.22
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.24         0.05          0.289 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      41.50        15.27         29.70
     TOTAL RAINFALL   (mm)=      42.50        42.50         42.50
     RUNOFF COEFFICIENT   =       0.98         0.36          0.70

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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 (  0221)|   Area    (ha)=   4.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.00         1.62
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     175.50        10.00
```

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     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        31.63
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.96 (ii)    5.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.28         0.16
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.59         0.12          0.657 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.67           4.58
     RUNOFF VOLUME    (mm)=      35.50        15.27          26.40
     TOTAL RAINFALL   (mm)=      42.50        42.50          42.50
     RUNOFF COEFFICIENT   =       0.84         0.36           0.62

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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--------------------
| CALIB            |
| STANDHYD (  0208)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.62         0.33
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      79.58        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        31.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.84 (ii)    4.45 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.23
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.13         0.03          0.161 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      35.50        15.27          26.40
     TOTAL RAINFALL   (mm)=      42.50        42.50          42.50
     RUNOFF COEFFICIENT   =       0.84         0.36           0.62

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0215)|   Area    (ha)=   0.63
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.41         0.22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      64.81        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        48.79
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.00 (ii)    4.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.31         0.22
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.09         0.03          0.116 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      41.50        22.42          32.91
     TOTAL RAINFALL   (mm)=      42.50        42.50          42.50
     RUNOFF COEFFICIENT   =       0.98         0.53           0.77

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    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  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):    11.60   1.523     4.58    29.70
     + ID2= 2 (  0208):     0.95   0.161     4.58    26.40
       ================================================
       ID = 3 (  0038):    12.55   1.684     4.58    29.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):    12.55   1.684     4.58    29.45
     + ID2= 2 (  0209):     1.76   0.289     4.58    29.70
       ================================================
       ID = 1 (  0038):    14.31   1.973     4.58    29.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):    14.31   1.973     4.58    29.48
     + ID2= 2 (  0215):     0.63   0.116     4.58    32.91
       ================================================
       ID = 3 (  0038):    14.94   2.089     4.58    29.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    14.94   2.089     4.58    29.63
     + ID2= 2 (  0221):     4.62   0.657     4.58    26.40
       ================================================
       ID = 1 (  0038):    19.56   2.746     4.58    28.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2099)|     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   |    0.1776      0.8069
                          0.0047      0.0913   |    0.4876      0.9174
                          0.0081      0.1859   |    0.6925      1.0295
                          0.0104      0.2831   |    0.7343      1.1431
                          0.0123      0.3830   |    0.7738      1.2584
                          0.0140      0.4855   |    2.2503      1.3753
                          0.0155      0.5907   |    5.0333      1.4940
                          0.0168      0.6980   |    8.7855      1.6144

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0038)     19.560      2.746      4.58      28.86
   OUTFLOW: ID= 1 (  2099)     19.560      0.015     12.08      26.14

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.53
                  TIME SHIFT OF PEAK FLOW         (min)=450.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5260

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0049)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2099):    19.56   0.015    12.08    26.14
     + ID2= 2 (  0210):     0.62   0.017     4.83    12.31
       ================================================
       ID = 3 (  0049):    20.18   0.028     4.83    25.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0222)|   Area    (ha)=   1.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.76         0.41
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      88.32        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        31.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.96 (ii)    4.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.31         0.23
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.16         0.03          0.196 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      35.50        15.27          26.40
     TOTAL RAINFALL   (mm)=      42.50        42.50          42.50
     RUNOFF COEFFICIENT   =       0.84         0.36           0.62

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
```

```
           CN*  =  77.0    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.

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  -------------------------
  | Junction Command(0051) |
  -------------------------

                         AREA     QPEAK   TPEAK     R.V.
                         (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0222)    1.17     0.20    4.58    26.40
  OUTFLOW: ID= 2(  0051)    1.17     0.20    4.58    26.40

  --------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD (  0212)|   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.57         1.93
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     191.49        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      95.77        31.63
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.12 (ii)    5.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.27         0.15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.69         0.14         0.772 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.67          4.58
     RUNOFF VOLUME    (mm)=      35.50        15.27         26.40
     TOTAL RAINFALL   (mm)=      42.50        42.50         42.50
     RUNOFF COEFFICIENT   =       0.84         0.36          0.62

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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.

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  -------------------------
  | Junction Command(0052) |
  -------------------------

                         AREA     QPEAK   TPEAK     R.V.
                         (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0212)    5.50     0.77    4.58    26.40
  OUTFLOW: ID= 2(  0052)    5.50     0.77    4.58    26.40

  --------------------------------------------------------------------------------
================================================================================
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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
      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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\fa18c
0dc-9848-4ac2-a0d1-24af616d6222\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\fa18c
0dc-9848-4ac2-a0d1-24af616d6222\scen


DATE: 09/29/2025                          TIME: 03:59:47

USER:


COMMENTS: _____
```

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--------------------------------------------------------------------------------
-----------------------
  ***********************************************
  ** SIMULATION : 50yr 12hr 5min Chicago        **
  ***********************************************

-------------------
| CHICAGO STORM    |
| Ptotal= 86.68 mm |
-------------------
                        IDF curve parameters: A=2353.333
                                              B=  13.500
                                              C=   0.877
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  = 12.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =  0.38

      TIME    RAIN  |  TIME    RAIN  |'  TIME    RAIN  |  TIME    RAIN
       hrs   mm/hr  |   hrs   mm/hr  |'   hrs   mm/hr  |   hrs   mm/hr
      0.00    1.02  |  3.00    3.18  |  6.00    5.43  |  9.00    1.66
      0.08    1.04  |  3.08    3.39  |  6.08    5.10  |  9.08    1.62
      0.17    1.06  |  3.17    3.63  |  6.17    4.81  |  9.17    1.60
      0.25    1.08  |  3.25    3.90  |  6.25    4.56  |  9.25    1.57
      0.33    1.10  |  3.33    4.21  |  6.33    4.33  |  9.33    1.54
      0.42    1.12  |  3.42    4.58  |  6.42    4.12  |  9.42    1.51
      0.50    1.15  |  3.50    5.03  |  6.50    3.93  |  9.50    1.49
      0.58    1.17  |  3.58    5.56  |  6.58    3.75  |  9.58    1.46
      0.67    1.19  |  3.67    6.21  |  6.67    3.59  |  9.67    1.44
      0.75    1.22  |  3.75    7.04  |  6.75    3.45  |  9.75    1.42
      0.83    1.25  |  3.83    8.10  |  6.83    3.31  |  9.83    1.39
      0.92    1.28  |  3.92    9.51  |  6.92    3.19  |  9.92    1.37
      1.00    1.31  |  4.00   11.46  |  7.00    3.07  | 10.00    1.35
      1.08    1.34  |  4.08   14.31  |  7.08    2.96  | 10.08    1.33
      1.17    1.37  |  4.17   18.78  |  7.17    2.87  | 10.17    1.31
      1.25    1.41  |  4.25   26.57  |  7.25    2.77  | 10.25    1.29
      1.33    1.45  |  4.33   42.60  |  7.33    2.68  | 10.33    1.28
      1.42    1.49  |  4.42   87.70  |  7.42    2.60  | 10.42    1.26
      1.50    1.53  |  4.50  182.13  |  7.50    2.53  | 10.50    1.24
      1.58    1.57  |  4.58  101.91  |  7.58    2.45  | 10.58    1.22
      1.67    1.62  |  4.67   60.53  |  7.67    2.38  | 10.67    1.21
      1.75    1.67  |  4.75   41.28  |  7.75    2.32  | 10.75    1.19
      1.83    1.72  |  4.83   30.58  |  7.83    2.26  | 10.83    1.18
      1.92    1.78  |  4.92   23.92  |  7.92    2.20  | 10.92    1.16
      2.00    1.84  |  5.00   19.45  |  8.00    2.15  | 11.00    1.15
      2.08    1.91  |  5.08   16.28  |  8.08    2.09  | 11.08    1.13
      2.17    1.98  |  5.17   13.94  |  8.17    2.04  | 11.17    1.12
      2.25    2.06  |  5.25   12.14  |  8.25    2.00  | 11.25    1.10
      2.33    2.14  |  5.33   10.73  |  8.33    1.95  | 11.33    1.09
      2.42    2.23  |  5.42    9.60  |  8.42    1.91  | 11.42    1.08
      2.50    2.33  |  5.50    8.67  |  8.50    1.87  | 11.50    1.07
      2.58    2.44  |  5.58    7.90  |  8.58    1.83  | 11.58    1.05
      2.67    2.56  |  5.67    7.25  |  8.67    1.79  | 11.67    1.04
      2.75    2.69  |  5.75    6.69  |  8.75    1.76  | 11.75    1.03
      2.83    2.84  |  5.83    6.21  |  8.83    1.72  | 11.83    1.02
      2.92    3.00  |  5.92    5.79  |  8.92    1.69  | 11.92    1.01

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0213)|   Area    (ha)=   0.12   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.34

     Unit Hyd Qpeak  (cms)=   0.013

     PEAK FLOW       (cms)=   0.011 (i)
     TIME TO PEAK    (hrs)=   5.000
     RUNOFF VOLUME    (mm)=  43.233
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.499

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

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0227)|   Area    (ha)=   0.13   Curve Number   (CN)= 82.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.22

     Unit Hyd Qpeak  (cms)=   0.022

     PEAK FLOW       (cms)=   0.017 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  47.207
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.545

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

--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0228)|   Area    (ha)=   0.71   Curve Number   (CN)= 84.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.31

     Unit Hyd Qpeak  (cms)=   0.088
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```
     PEAK FLOW      (cms)=   0.083 (i)
     TIME TO PEAK   (hrs)=   4.917
     RUNOFF VOLUME   (mm)=  50.118
     TOTAL RAINFALL  (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.578

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0229)|   Area    (ha)=   1.07   Curve Number   (CN)= 85.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.51

     Unit Hyd Qpeak  (cms)=   0.081

     PEAK FLOW      (cms)=   0.094 (i)
     TIME TO PEAK   (hrs)=   5.167
     RUNOFF VOLUME   (mm)=  51.568
     TOTAL RAINFALL  (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.595

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0206)|   Area    (ha)=   2.60   Curve Number   (CN)= 77.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.25

     Unit Hyd Qpeak  (cms)=   0.396

     PEAK FLOW      (cms)=   0.274 (i)
     TIME TO PEAK   (hrs)=   4.833
     RUNOFF VOLUME   (mm)=  41.348
     TOTAL RAINFALL  (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.477

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  50.00   Dir. Conn.(%)=   1.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area    (ha)=       0.26         0.26
     Dep. Storage    (mm)=       1.00         5.00
     Average Slope    (%)=       2.00         2.00
     Length           (m)=      58.88        10.00
     Mannings n            =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=    182.13       205.44
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.19 (ii)    3.49 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                          *TOTALS*
     PEAK FLOW      (cms)=       0.00         0.15          0.156 (iii)
     TIME TO PEAK   (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME   (mm)=      85.68        57.82          58.10
     TOTAL RAINFALL  (mm)=      86.68        86.68          86.68
     RUNOFF COEFFICIENT   =      0.99         0.67           0.67

***** 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*  =  77.0    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 (  0226)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area    (ha)=       0.03         0.02
     Dep. Storage    (mm)=       1.00         5.00
     Average Slope    (%)=       2.00         2.00
     Length           (m)=      18.26        10.00
     Mannings n            =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=    182.13       109.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.59 (ii)    2.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.29
                                                          *TOTALS*
     PEAK FLOW      (cms)=       0.01         0.01          0.020 (iii)
     TIME TO PEAK   (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME   (mm)=      85.68        48.34          68.87
     TOTAL RAINFALL  (mm)=      86.68        86.68          86.68
     RUNOFF COEFFICIENT   =       0.99         0.56           0.79

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0202)|   Area    (ha)=   0.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area    (ha)=       0.20         0.11
     Dep. Storage    (mm)=       1.00         5.00
     Average Slope    (%)=       2.00         2.00
     Length           (m)=      45.46        10.00
     Mannings n            =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=    182.13       109.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.02 (ii)    3.03 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.27
                                                          *TOTALS*
     PEAK FLOW      (cms)=       0.09         0.03          0.121 (iii)
     TIME TO PEAK   (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME   (mm)=      85.68        48.34          68.87
     TOTAL RAINFALL  (mm)=      86.68        86.68          86.68
     RUNOFF COEFFICIENT   =       0.99         0.56           0.79

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     0.31   0.121     4.58    68.87
     + ID2= 2 (  0205):     0.52   0.156     4.58    58.10
       ==========================================================
       ID = 3 (  0039):     0.83   0.277     4.58    62.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     0.83   0.277     4.58    62.12
     + ID2= 2 (  0206):     2.60   0.274     4.83    41.35
       ==========================================================
       ID = 1 (  0039):     3.43   0.387     4.67    46.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0039):     3.43   0.387     4.67    46.37
     + ID2= 2 (  0226):     0.05   0.020     4.58    68.87
       ==========================================================
       ID = 3 (  0039):     3.48   0.400     4.58    46.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     3.48   0.400     4.58    46.70
     + ID2= 2 (  0227):     0.13   0.017     4.83    47.21
       ==========================================================
       ID = 1 (  0039):     3.61   0.413     4.67    46.72

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0039):     3.61   0.413     4.67    46.72
     + ID2= 2 (  0228):     0.71   0.083     4.92    50.12
       ==========================================================
```

```
       ID = 3 (  0039):     4.32   0.471     4.75    47.27

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     4.32   0.471     4.75    47.27
     + ID2= 2 (  0229):     1.07   0.094     5.17    51.57
       ====================================================
       ID = 1 (  0039):     5.39   0.530     4.83    48.13

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0223)|   Area    (ha)=   0.70   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.24

     Unit Hyd Qpeak  (cms)=   0.110

     PEAK FLOW       (cms)=   0.094 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  49.530
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.571

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0224)|   Area    (ha)=   0.64   Curve Number   (CN)= 82.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.31

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.070 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  47.252
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.545

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

--------------------------------------------------------------------------------
```

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--------------------
| ADD HYD  (  0060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0223):     0.70   0.094     4.83    49.53
     + ID2= 2 (  0224):     0.64   0.070     4.92    47.25
       ====================================================
       ID = 3 (  0060):     1.34   0.161     4.83    48.44

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   9.15
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.95         3.20
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     246.98        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       109.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.81 (ii)    4.83 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.28         0.22
                                                      *TOTALS*
     PEAK FLOW       (cms)=       2.30         0.88          3.182 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      85.68        48.34          68.87
     TOTAL RAINFALL   (mm)=      86.68        86.68          86.68
     RUNOFF COEFFICIENT   =       0.99         0.56           0.79

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0201)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  75.00
--------------------
```

```
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.58         0.10
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      67.33        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       161.26
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.29 (ii)    2.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.29
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.26         0.05          0.306 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      85.68        54.19          77.80
     TOTAL RAINFALL   (mm)=      86.68        86.68          86.68
     RUNOFF COEFFICIENT   =       0.99         0.63           0.90

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0211)|   Area    (ha)=   1.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.65         0.35
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      81.65        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       109.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.45 (ii)    3.46 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.27         0.11          0.382 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      85.68        48.34          68.87
     TOTAL RAINFALL   (mm)=      86.68        86.68          86.68
     RUNOFF COEFFICIENT   =       0.99         0.56           0.79

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0220)|   Area    (ha)=   1.71
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.11         0.60
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     106.77        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       109.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.70 (ii)    3.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.25
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.46         0.18          0.643 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      79.68        48.34          65.57
     TOTAL RAINFALL   (mm)=      86.68        86.68          86.68
     RUNOFF COEFFICIENT   =       0.92         0.56           0.76

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0204)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  55.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
```

```
     Surface Area     (ha)=       0.17         0.06
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      39.16        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       179.92
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.93 (ii)    2.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.29
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.06         0.03          0.096 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      85.68        55.84          72.25
     TOTAL RAINFALL   (mm)=      86.68        86.68          86.68
     RUNOFF COEFFICIENT   =       0.99         0.64           0.83

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0200):     9.15   3.182     4.58    68.87
     + ID2= 2 (  0201):     0.68   0.306     4.58    77.80
       ====================================================
       ID = 3 (  0061):     9.83   3.488     4.58    69.49

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):     9.83   3.488     4.58    69.49
     + ID2= 2 (  0204):     0.23   0.096     4.58    72.25
       ====================================================
       ID = 1 (  0061):    10.06   3.583     4.58    69.55

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
```

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--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    10.06   3.583     4.58    69.55
     + ID2= 2 (  0211):     1.00   0.382     4.58    68.87
       ====================================================
       ID = 3 (  0061):    11.06   3.965     4.58    69.49

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):    11.06   3.965     4.58    69.49
     + ID2= 2 (  0220):     1.71   0.643     4.58    65.57
       ====================================================
       ID = 1 (  0061):    12.77   4.608     4.58    68.97

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    12.77   4.608     4.58    68.97
     + ID2= 2 (  0060):     1.34   0.161     4.83    48.44
       ====================================================
       ID = 3 (  0061):    14.11   4.668     4.58    67.02

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| RESERVOIR(  2111)|     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   |    0.1740      0.4400
                         0.0040      0.0490   |    0.4840      0.5020
                         0.0070      0.1000   |    0.6890      0.5660
                         0.0090      0.1520   |    0.7300      0.6330
                         0.0100      0.2060   |    0.7700      0.7000
                         0.0110      0.2620   |    1.7950      0.7700
                         0.0130      0.3200   |    3.6960      0.8420
                         0.0140      0.3790   |    6.2260      0.9150
```

```
                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0061)    14.110     4.668      4.58      67.02
   OUTFLOW: ID= 1 (  2111)    14.110     0.689      5.17      66.28

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 14.76
                  TIME SHIFT OF PEAK FLOW         (min)= 35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5666

--------------------------------------------------------------------------------

-------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.16         0.04
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13        73.47
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.89 (ii)    2.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.30
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.08         0.01          0.090 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      81.68        42.34          73.81
     TOTAL RAINFALL   (mm)=      86.68        86.68          86.68
     RUNOFF COEFFICIENT   =       0.94         0.49           0.85

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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  (  0040)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     0.20   0.090     4.58    73.81
```

```
     + ID2= 2 (  2111):    14.11   0.689     5.17    66.28
       ====================================================
       ID = 3 (  0040):    14.31   0.698     5.17    66.38

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ROUTEPIPE(  0041)|     PIPE Number     =   1.00
| IN= 2---> OUT= 1 |     Diameter    (mm)= 900.00
| DT=  5.0 min     |     Length       (m)=  50.00
-------------------      Slope      (m/m)=  0.005
                         Manning n       =  0.013

    <----------------- TRAVEL TIME TABLE ------------------->
      DEPTH      VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
       (m)      (cu.m.)      (cms)        (m/s)        min
      0.05     .642E+00       0.0          0.53         1.56
      0.09     .178E+01       0.0          0.83         1.00
      0.14     .322E+01       0.1          1.07         0.78
      0.19     .487E+01       0.1          1.28         0.65
      0.24     .668E+01       0.2          1.45         0.57
      0.28     .862E+01       0.3          1.61         0.52
      0.33     .106E+02       0.4          1.74         0.48
      0.38     .127E+02       0.5          1.86         0.45
      0.43     .148E+02       0.6          1.97         0.42
      0.47     .170E+02       0.7          2.06         0.41
      0.52     .191E+02       0.8          2.13         0.39
      0.57     .212E+02       0.9          2.20         0.38
      0.62     .232E+02       1.0          2.24         0.37
      0.66     .251E+02       1.1          2.28         0.37
      0.71     .269E+02       1.2          2.29         0.36
      0.76     .286E+02       1.3          2.29         0.36
      0.81     .300E+02       1.4          2.27         0.37
      0.85     .312E+02       1.4          2.21         0.38
      0.90     .318E+02       1.3          2.01         0.41
                                   <---- hydrograph ---->   <-pipe / channel->
                              AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                              (ha)    (cms)   (hrs)   (mm)       (m)       (m/s)
   INFLOW : ID= 2 (  0040)   14.31     0.70    5.17  66.38      0.47      2.06
   OUTFLOW: ID= 1 (  0041)   14.31     0.71    5.17  66.38      0.48      2.06
```

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--------------------------------------------------------------------------------

-------------------
| CALIB            |
| NASHYD   (  0210)|   Area    (ha)=   0.62   Curve Number   (CN)= 79.2
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.21
```

```
     Unit Hyd Qpeak  (cms)=   0.112

     PEAK FLOW       (cms)=   0.076 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  43.302
     TOTAL RAINFALL   (mm)=  86.678
     RUNOFF COEFFICIENT   =   0.500

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0207)|   Area    (ha)=  11.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.54         4.06
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     278.09        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       109.63
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.02 (ii)    5.03 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.28         0.16
                                                      *TOTALS*
     PEAK FLOW       (cms)=       2.88         1.07         3.548 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.67          4.58
     RUNOFF VOLUME    (mm)=      85.68        48.34         68.87
     TOTAL RAINFALL   (mm)=      86.68        86.68         86.68
     RUNOFF COEFFICIENT   =       0.99         0.56          0.79

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0209)|   Area    (ha)=   1.76
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
```

```
     Surface Area     (ha)=       1.14         0.62
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     108.32        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       109.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.71 (ii)    3.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.25
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.48         0.19         0.661 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      85.68        48.34         68.87
     TOTAL RAINFALL   (mm)=      86.68        86.68         86.68
     RUNOFF COEFFICIENT   =       0.99         0.56          0.79

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0221)|   Area    (ha)=   4.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.00         1.62
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     175.50        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       109.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.29 (ii)    4.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.30         0.23
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.21         0.46         1.669 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      79.68        48.34         65.57
     TOTAL RAINFALL   (mm)=      86.68        86.68         86.68
     RUNOFF COEFFICIENT   =       0.92         0.56          0.76
```

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0208)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.62         0.33
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      79.58        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       109.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.42 (ii)    3.44 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.26         0.10         0.363 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      79.68        48.34         65.57
     TOTAL RAINFALL   (mm)=      86.68        86.68         86.68
     RUNOFF COEFFICIENT   =       0.92         0.56          0.76

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0215)|   Area    (ha)=   0.63
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.41         0.22
```

```
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      64.81        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       139.43
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.55 (ii)    3.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.17         0.09         0.260 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58          4.58
     RUNOFF VOLUME    (mm)=      85.68        60.75         74.46
     TOTAL RAINFALL   (mm)=      86.68        86.68         86.68
     RUNOFF COEFFICIENT   =       0.99         0.70          0.86

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    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  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):    11.60   3.548     4.58    68.87
     + ID2= 2 (  0208):     0.95   0.363     4.58    65.57
       ================================================
       ID = 3 (  0038):    12.55   3.911     4.58    68.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    12.55   3.911     4.58    68.62
     + ID2= 2 (  0209):     1.76   0.661     4.58    68.87
       ================================================
       ID = 1 (  0038):    14.31   4.572     4.58    68.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
```

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--------------------
| ADD HYD  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):    14.31   4.572     4.58    68.65
     + ID2= 2 (  0215):     0.63   0.260     4.58    74.46
       ================================================
       ID = 3 (  0038):    14.94   4.833     4.58    68.90

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    14.94   4.833     4.58    68.90
     + ID2= 2 (  0221):     4.62   1.669     4.58    65.57
       ================================================
       ID = 1 (  0038):    19.56   6.502     4.58    68.11

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2099)|     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   |    0.1776      0.8069
                          0.0047      0.0913   |    0.4876      0.9174
                          0.0081      0.1859   |    0.6925      1.0295
                          0.0104      0.2831   |    0.7343      1.1431
                          0.0123      0.3830   |    0.7738      1.2584
                          0.0140      0.4855   |    2.2503      1.3753
                          0.0155      0.5907   |    5.0333      1.4940
                          0.0168      0.6980   |    8.7855      1.6144

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0038)     19.560      6.502      4.58      68.11
   OUTFLOW: ID= 1 (  2099)     19.560      0.507      5.50      63.07

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.79
                  TIME SHIFT OF PEAK FLOW         (min)= 55.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.9280

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```
| ADD HYD  (  0049)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2099):    19.56   0.507     5.50    63.07
     + ID2= 2 (  0210):     0.62   0.076     4.83    43.30
       ================================================
       ID = 3 (  0049):    20.18   0.528     5.42    62.46

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0222)|   Area    (ha)=   1.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.76         0.41
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      88.32        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       109.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.52 (ii)    3.53 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.32         0.13          0.445 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      79.68        48.34          65.57
     TOTAL RAINFALL   (mm)=      86.68        86.68          86.68
     RUNOFF COEFFICIENT   =       0.92         0.56           0.76

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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  --------------------------
  | Junction Command(0051) |
  --------------------------

                              AREA     QPEAK   TPEAK     R.V.
                              (ha)     (cms)    (hrs)    (mm)
```

```
  INFLOW : ID= 2(  0222)    1.17     0.44    4.58    65.57
  OUTFLOW: ID= 2(  0051)    1.17     0.44    4.58    65.57

  --------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0212)|   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.57         1.93
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     191.49        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     182.13       109.63
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.41 (ii)    4.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.30         0.23
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.42         0.55          1.970 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      79.68        48.34          65.57
     TOTAL RAINFALL   (mm)=      86.68        86.68          86.68
     RUNOFF COEFFICIENT   =       0.92         0.56           0.76

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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  --------------------------
  | Junction Command(0052) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 2(  0212)    5.50     1.97    4.58    65.57
  OUTFLOW: ID= 2(  0052)    5.50     1.97    4.58    65.57

  --------------------------------------------------------------------------------

 FINISH
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\80a51
bb9-4f1a-4ff1-ae5d-deaa08836af6\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\80a51
bb9-4f1a-4ff1-ae5d-deaa08836af6\scen


DATE: 09/29/2025                          TIME: 03:59:47

USER:


COMMENTS: _____

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  ***********************************************
  ** SIMULATION : 5yr 12hr 5min Chicago         **
  ***********************************************

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```

| CHICAGO STORM | IDF curve parameters: A= 983.699
| Ptotal= 55.97 mm | B= 8.100
C= 0.812
used in: INTENSITY = A / (t + B)^C

Duration of storm = 12.00 hrs
Storm time step = 5.00 min
Time to peak ratio = 0.38

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.93	3.00	2.44	6.00	3.79	9.00	1.41
0.08	0.95	3.08	2.57	6.08	3.61	9.08	1.39
0.17	0.96	3.17	2.72	6.17	3.44	9.17	1.37
0.25	0.98	3.25	2.89	6.25	3.29	9.25	1.35
0.33	0.99	3.33	3.08	6.33	3.15	9.33	1.33
0.42	1.01	3.42	3.30	6.42	3.02	9.42	1.31
0.50	1.03	3.50	3.56	6.50	2.91	9.50	1.29
0.58	1.05	3.58	3.87	6.58	2.80	9.58	1.27
0.67	1.07	3.67	4.24	6.67	2.70	9.67	1.25
0.75	1.09	3.75	4.70	6.75	2.61	9.75	1.24
0.83	1.11	3.83	5.28	6.83	2.52	9.83	1.22
0.92	1.13	3.92	6.03	6.92	2.45	9.92	1.20
1.00	1.15	4.00	7.05	7.00	2.37	10.00	1.19
1.08	1.18	4.08	8.52	7.08	2.30	10.08	1.17
1.17	1.20	4.17	10.78	7.17	2.24	10.17	1.16
1.25	1.23	4.25	14.69	7.25	2.18	10.25	1.14
1.33	1.26	4.33	22.94	7.33	2.12	10.33	1.13
1.42	1.29	4.42	49.28	7.42	2.07	10.42	1.12
1.50	1.32	4.50	121.80	7.50	2.02	10.50	1.10
1.58	1.35	4.58	58.14	7.58	1.97	10.58	1.09
1.67	1.39	4.67	32.66	7.67	1.92	10.67	1.08
1.75	1.42	4.75	22.23	7.75	1.88	10.75	1.06
1.83	1.46	4.83	16.72	7.83	1.84	10.83	1.05
1.92	1.50	4.92	13.36	7.92	1.80	10.92	1.04
2.00	1.55	5.00	11.12	8.00	1.76	11.00	1.03
2.08	1.59	5.08	9.52	8.08	1.72	11.08	1.02
2.17	1.64	5.17	8.33	8.17	1.69	11.17	1.01
2.25	1.70	5.25	7.41	8.25	1.66	11.25	1.00
2.33	1.75	5.33	6.68	8.33	1.62	11.33	0.99
2.42	1.82	5.42	6.08	8.42	1.59	11.42	0.98
2.50	1.88	5.50	5.59	8.50	1.56	11.50	0.97
2.58	1.96	5.58	5.17	8.58	1.54	11.58	0.96
2.67	2.04	5.67	4.82	8.67	1.51	11.67	0.95
2.75	2.12	5.75	4.51	8.75	1.48	11.75	0.94
2.83	2.22	5.83	4.24	8.83	1.46	11.83	0.93
2.92	2.33	5.92	4.00	8.92	1.44	11.92	0.92

CALIB	
NASHYD (0213)	Area (ha)= 0.12 Curve Number (CN)= 79.1
ID= 1 DT= 5.0 min	Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.34

Unit Hyd Qpeak (cms)= 0.013

PEAK FLOW (cms)= 0.005 (i)
TIME TO PEAK (hrs)= 5.000
RUNOFF VOLUME (mm)= 20.645
TOTAL RAINFALL (mm)= 55.968
RUNOFF COEFFICIENT = 0.369

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

CALIB	
NASHYD (0227)	Area (ha)= 0.13 Curve Number (CN)= 82.3
ID= 1 DT= 5.0 min	Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.22

Unit Hyd Qpeak (cms)= 0.022

PEAK FLOW (cms)= 0.007 (i)
TIME TO PEAK (hrs)= 4.833
RUNOFF VOLUME (mm)= 23.115
TOTAL RAINFALL (mm)= 55.968
RUNOFF COEFFICIENT = 0.413

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

CALIB	
NASHYD (0228)	Area (ha)= 0.71 Curve Number (CN)= 84.4
ID= 1 DT= 5.0 min	Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.31

Unit Hyd Qpeak (cms)= 0.088

PEAK FLOW (cms)= 0.036 (i)
TIME TO PEAK (hrs)= 4.917
RUNOFF VOLUME (mm)= 24.990
TOTAL RAINFALL (mm)= 55.968
RUNOFF COEFFICIENT = 0.447

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

CALIB	
NASHYD (0229)	Area (ha)= 1.07 Curve Number (CN)= 85.4
ID= 1 DT= 5.0 min	Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.51

Unit Hyd Qpeak (cms)= 0.081

PEAK FLOW (cms)= 0.041 (i)
TIME TO PEAK (hrs)= 5.167
RUNOFF VOLUME (mm)= 25.951
TOTAL RAINFALL (mm)= 55.968
RUNOFF COEFFICIENT = 0.464

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

CALIB	
NASHYD (0206)	Area (ha)= 2.60 Curve Number (CN)= 77.5
ID= 1 DT= 5.0 min	Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.25

Unit Hyd Qpeak (cms)= 0.396

PEAK FLOW (cms)= 0.112 (i)
TIME TO PEAK (hrs)= 4.833
RUNOFF VOLUME (mm)= 19.526
TOTAL RAINFALL (mm)= 55.968
RUNOFF COEFFICIENT = 0.349

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

CALIB	
STANDHYD (0205)	Area (ha)= 0.52
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00 Dir. Conn.(%)= 1.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.26	0.26
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	58.88	10.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	121.80	105.99
over (min)	5.00	5.00
Storage Coeff. (min)=	1.40 (ii)	4.40 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.33	0.23
		TOTALS
PEAK FLOW (cms)=	0.00	0.07 0.076 (iii)
TIME TO PEAK (hrs)=	4.58	4.58 4.58
RUNOFF VOLUME (mm)=	54.97	31.13 31.36
TOTAL RAINFALL (mm)=	55.97	55.97 55.97
RUNOFF COEFFICIENT =	0.98	0.56 0.56

***** 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* = 77.0 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 (0226)	Area (ha)= 0.05
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.03	0.02
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	18.26	10.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	121.80	52.18
over (min)	5.00	5.00
Storage Coeff. (min)=	0.69 (ii)	3.06 (ii)
Unit Hyd. Tpeak (min)=	5.00	5.00
Unit Hyd. peak (cms)=	0.34	0.27
		TOTALS
PEAK FLOW (cms)=	0.01	0.00 0.012 (iii)
TIME TO PEAK (hrs)=	4.58	4.58 4.58
RUNOFF VOLUME (mm)=	54.97	24.42 41.21
TOTAL RAINFALL (mm)=	55.97	55.97 55.97
RUNOFF COEFFICIENT =	0.98	0.44 0.74

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (  0202)|   Area    (ha)=   0.31
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.11
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      45.46        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     121.80        52.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.19 (ii)    3.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.26
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.06         0.02          0.073 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      54.97        24.42          41.21
     TOTAL RAINFALL   (mm)=      55.97        55.97          55.97
     RUNOFF COEFFICIENT   =       0.98         0.44           0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     0.31   0.073     4.58    41.21
     + ID2= 2 (  0205):     0.52   0.076     4.58    31.36
       ================================================
       ID = 3 (  0039):     0.83   0.149     4.58    35.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     0.83   0.149     4.58    35.04
     + ID2= 2 (  0206):     2.60   0.112     4.83    19.53
       ================================================
       ID = 1 (  0039):     3.43   0.188     4.58    23.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0039):     3.43   0.188     4.58    23.28
     + ID2= 2 (  0226):     0.05   0.012     4.58    41.21
       ================================================
       ID = 3 (  0039):     3.48   0.200     4.58    23.54

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     3.48   0.200     4.58    23.54
     + ID2= 2 (  0227):     0.13   0.007     4.83    23.11
       ================================================
       ID = 1 (  0039):     3.61   0.203     4.58    23.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0039):     3.61   0.203     4.58    23.52
     + ID2= 2 (  0228):     0.71   0.036     4.92    24.99
       ================================================
       ID = 3 (  0039):     4.32   0.213     4.58    23.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0039):     4.32   0.213     4.58    23.76
     + ID2= 2 (  0229):     1.07   0.041     5.17    25.95
       ================================================
       ID = 1 (  0039):     5.39   0.229     4.83    24.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0223)|   Area    (ha)=   0.70   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.24

     Unit Hyd Qpeak  (cms)=   0.110

     PEAK FLOW       (cms)=   0.041 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  24.609
     TOTAL RAINFALL   (mm)=  55.968
     RUNOFF COEFFICIENT   =   0.440

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0224)|   Area    (ha)=   0.64   Curve Number   (CN)= 82.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.31

     Unit Hyd Qpeak  (cms)=   0.080

     PEAK FLOW       (cms)=   0.030 (i)
     TIME TO PEAK    (hrs)=   4.917
     RUNOFF VOLUME    (mm)=  23.138
     TOTAL RAINFALL   (mm)=  55.968
     RUNOFF COEFFICIENT   =   0.413

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

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--------------------
| ADD HYD  (  0060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0223):     0.70   0.041     4.83    24.61
     + ID2= 2 (  0224):     0.64   0.030     4.92    23.14
       ================================================
       ID = 3 (  0060):     1.34   0.069     4.92    23.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   9.15
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.95         3.20
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     246.98        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     121.80        52.18
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.30 (ii)    5.67 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.27         0.15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.46         0.38          1.684 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.67           4.58
     RUNOFF VOLUME    (mm)=      54.97        24.42          41.22
     TOTAL RAINFALL   (mm)=      55.97        55.97          55.97
     RUNOFF COEFFICIENT   =       0.98         0.44           0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  77.0    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 (  0201)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  75.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.58         0.10
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      67.33        10.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     121.80        80.70

--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
```

```
               over (min)        5.00          5.00
     Storage Coeff.  (min)=       1.51 (ii)     3.00 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.33          0.28
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.17          0.03          0.194 (iii)
     TIME TO PEAK    (hrs)=       4.58          4.58           4.58
     RUNOFF VOLUME    (mm)=      54.97         28.49          48.35
     TOTAL RAINFALL   (mm)=      55.97         55.97          55.97
     RUNOFF COEFFICIENT   =       0.98          0.51           0.86

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0211)|   Area    (ha)=   1.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.65          0.35
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       2.00          2.00
     Length            (m)=      81.65         10.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     121.80         52.18
               over (min)        5.00          5.00
     Storage Coeff.  (min)=       1.70 (ii)     4.07 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.32          0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.18          0.05          0.230 (iii)
     TIME TO PEAK    (hrs)=       4.58          4.58           4.58
     RUNOFF VOLUME    (mm)=      54.97         24.42          41.22
     TOTAL RAINFALL   (mm)=      55.97         55.97          55.97
     RUNOFF COEFFICIENT   =       0.98          0.44           0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
```

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

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0220)|   Area    (ha)=   1.71
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.11          0.60
     Dep. Storage     (mm)=       7.00          5.00
     Average Slope     (%)=       2.00          2.00
     Length            (m)=     106.77         10.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     121.80         52.18
               over (min)        5.00          5.00
     Storage Coeff.  (min)=       1.99 (ii)     4.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.31          0.23
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.30          0.08          0.384 (iii)
     TIME TO PEAK    (hrs)=       4.58          4.58           4.58
     RUNOFF VOLUME    (mm)=      48.97         24.42          37.92
     TOTAL RAINFALL   (mm)=      55.97         55.97          55.97
     RUNOFF COEFFICIENT   =       0.87          0.44           0.68

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0204)|   Area    (ha)=   0.23
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  55.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.17          0.06
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       2.00          2.00
     Length            (m)=      39.16         10.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     121.80         91.30
               over (min)        5.00          5.00
```

```
     Storage Coeff.  (min)=       1.09 (ii)     3.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.27
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.04          0.02          0.058 (iii)
     TIME TO PEAK    (hrs)=       4.58          4.58           4.58
     RUNOFF VOLUME    (mm)=      54.97         29.68          43.58
     TOTAL RAINFALL   (mm)=      55.97         55.97          55.97
     RUNOFF COEFFICIENT   =       0.98          0.53           0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0200):     9.15   1.684     4.58    41.22
     + ID2= 2 (  0201):     0.68   0.194     4.58    48.35
       ================================================
       ID = 3 (  0061):     9.83   1.878     4.58    41.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):     9.83   1.878     4.58    41.71
     + ID2= 2 (  0204):     0.23   0.058     4.58    43.58
       ================================================
       ID = 1 (  0061):    10.06   1.936     4.58    41.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    10.06   1.936     4.58    41.75
     + ID2= 2 (  0211):     1.00   0.230     4.58    41.22
       ================================================
       ID = 3 (  0061):    11.06   2.166     4.58    41.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0061)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0061):    11.06   2.166     4.58    41.71
     + ID2= 2 (  0220):     1.71   0.384     4.58    37.92
       ================================================
       ID = 1 (  0061):    12.77   2.550     4.58    41.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0061):    12.77   2.550     4.58    41.20
     + ID2= 2 (  0060):     1.34   0.069     4.92    23.91
       ================================================
       ID = 3 (  0061):    14.11   2.574     4.58    39.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| RESERVOIR(  2111)|     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   |    0.1740      0.4400
                          0.0040      0.0490   |    0.4840      0.5020
                          0.0070      0.1000   |    0.6890      0.5660
                          0.0090      0.1520   |    0.7300      0.6330
                          0.0100      0.2060   |    0.7700      0.7000
                          0.0110      0.2620   |    1.7950      0.7700
                          0.0130      0.3200   |    3.6960      0.8420
                          0.0140      0.3790   |    6.2260      0.9150

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0061)     14.110      2.574      4.58      39.56
   OUTFLOW: ID= 1 (  2111)     14.110      0.104      6.50      38.82

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.04
                  TIME SHIFT OF PEAK FLOW         (min)=115.00
```

```
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4133

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.16         0.04
     Dep. Storage     (mm)=       5.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      36.51        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     121.80        33.14
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.05 (ii)    2.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.29
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.00          0.058 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      50.97        20.48          44.87
     TOTAL RAINFALL   (mm)=      55.97        55.97          55.97
     RUNOFF COEFFICIENT   =       0.91         0.37           0.80

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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  (  0040)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     0.20   0.058     4.58    44.87
     + ID2= 2 (  2111):    14.11   0.104     6.50    38.82
       ================================================
       ID = 3 (  0040):    14.31   0.105     6.50    38.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| ROUTEPIPE(  0041)|     PIPE Number     =   1.00
| IN= 2---> OUT= 1 |     Diameter    (mm)= 900.00
| DT=  5.0 min     |     Length       (m)=  50.00
-------------------      Slope      (m/m)=  0.005
                         Manning n       =  0.013

     <----------------- TRAVEL TIME TABLE ------------------->
       DEPTH      VOLUME    FLOW RATE    VELOCITY    TRAV.TIME
        (m)      (cu.m.)      (cms)        (m/s)        min
       0.05     .642E+00       0.0         0.53         1.56
       0.09     .178E+01       0.0         0.83         1.00
       0.14     .322E+01       0.1         1.07         0.78
       0.19     .487E+01       0.1         1.28         0.65
       0.24     .668E+01       0.2         1.45         0.57
       0.28     .862E+01       0.3         1.61         0.52
       0.33     .106E+02       0.4         1.74         0.48
       0.38     .127E+02       0.5         1.86         0.45
       0.43     .148E+02       0.6         1.97         0.42
       0.47     .170E+02       0.7         2.06         0.41
       0.52     .191E+02       0.8         2.13         0.39
       0.57     .212E+02       0.9         2.20         0.38
       0.62     .232E+02       1.0         2.24         0.37
       0.66     .251E+02       1.1         2.28         0.37
       0.71     .269E+02       1.2         2.29         0.36
       0.76     .286E+02       1.3         2.29         0.36
       0.81     .300E+02       1.4         2.27         0.37
       0.85     .312E+02       1.4         2.21         0.38
       0.90     .318E+02       1.3         2.01         0.41
                                    <---- hydrograph ---->   <-pipe / channel->
                                AREA    QPEAK   TPEAK   R.V.   MAX DEPTH  MAX VEL
                                (ha)    (cms)   (hrs)   (mm)      (m)       (m/s)
   INFLOW : ID= 2 (  0040)   14.31     0.11    6.50  38.90      0.17      1.20
   OUTFLOW: ID= 1 (  0041)   14.31     0.11    6.50  38.90      0.17      1.20

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-------------------
| CALIB            |
| NASHYD   (  0210)|   Area    (ha)=   0.62   Curve Number    (CN)= 79.2
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.21

     Unit Hyd Qpeak  (cms)=   0.112

     PEAK FLOW       (cms)=   0.032 (i)
     TIME TO PEAK    (hrs)=   4.833
     RUNOFF VOLUME    (mm)=  20.698
     TOTAL RAINFALL   (mm)=  55.968
     RUNOFF COEFFICIENT   =   0.370

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

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-------------------
| CALIB            |
| STANDHYD (  0207)|   Area    (ha)=  11.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.54         4.06
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     278.09        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     121.80        52.18
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.54 (ii)    5.91 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.26         0.15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.82         0.47          2.094 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.67           4.58
     RUNOFF VOLUME    (mm)=      54.97        24.42          41.22
     TOTAL RAINFALL   (mm)=      55.97        55.97          55.97
     RUNOFF COEFFICIENT   =       0.98         0.44           0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0209)|   Area    (ha)=   1.76
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.14         0.62
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     108.32        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     121.80        52.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.01 (ii)    4.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.31         0.23
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.31         0.08          0.395 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      54.97        24.42          41.22
     TOTAL RAINFALL   (mm)=      55.97        55.97          55.97
     RUNOFF COEFFICIENT   =       0.98         0.44           0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

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-------------------
| CALIB            |
| STANDHYD (  0221)|   Area    (ha)=   4.62
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.00         1.62
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     175.50        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     121.80        52.18
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.69 (ii)    5.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.29         0.16
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.78         0.20          0.893 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.67           4.58
     RUNOFF VOLUME    (mm)=      48.97        24.42          37.92
     TOTAL RAINFALL   (mm)=      55.97        55.97          55.97
     RUNOFF COEFFICIENT   =       0.87         0.44           0.68

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.
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--------------------
| CALIB            |
| STANDHYD (  0208)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.62         0.33
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      79.58        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     121.80        52.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.67 (ii)    4.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.24
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.17         0.05          0.218 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      48.97        24.42          37.92
     TOTAL RAINFALL   (mm)=      55.97        55.97          55.97
     RUNOFF COEFFICIENT   =       0.87         0.44           0.68

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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 (  0215)|   Area    (ha)=   0.63
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.41         0.22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      64.81        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     121.80        74.02
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.82 (ii)    4.19 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.24
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.11         0.05          0.158 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      54.97        33.49          45.30
     TOTAL RAINFALL   (mm)=      55.97        55.97          55.97
     RUNOFF COEFFICIENT   =       0.98         0.60           0.81

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    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  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):    11.60   2.094     4.58    41.22
     + ID2= 2 (  0208):     0.95   0.218     4.58    37.92
       ==================================================
       ID = 3 (  0038):    12.55   2.312     4.58    40.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    12.55   2.312     4.58    40.97
     + ID2= 2 (  0209):     1.76   0.395     4.58    41.22
       ==================================================
       ID = 1 (  0038):    14.31   2.707     4.58    41.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):    14.31   2.707     4.58    41.00
     + ID2= 2 (  0215):     0.63   0.158     4.58    45.30
       ==================================================
```

```
       ID = 3 (  0038):    14.94   2.865     4.58    41.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    14.94   2.865     4.58    41.18
     + ID2= 2 (  0221):     4.62   0.893     4.58    37.92
       ==================================================
       ID = 1 (  0038):    19.56   3.759     4.58    40.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| RESERVOIR(  2099)|     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    |    0.1776      0.8069
                          0.0047      0.0913    |    0.4876      0.9174
                          0.0081      0.1859    |    0.6925      1.0295
                          0.0104      0.2831    |    0.7343      1.1431
                          0.0123      0.3830    |    0.7738      1.2584
                          0.0140      0.4855    |    2.2503      1.3753
                          0.0155      0.5907    |    5.0333      1.4940
                          0.0168      0.6980    |    8.7855      1.6144

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0038)     19.560      3.759      4.58      40.41
   OUTFLOW: ID= 1 (  2099)     19.560      0.046     11.58      35.46

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  1.22
                  TIME SHIFT OF PEAK FLOW         (min)=420.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7177

--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  0049)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2099):    19.56   0.046    11.58    35.46
     + ID2= 2 (  0210):     0.62   0.032     4.83    20.70
       ==================================================
       ID = 3 (  0049):    20.18   0.047    11.58    35.00
```

```
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0222)|   Area    (ha)=   1.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.76         0.41
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      88.32        10.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     121.80        52.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.78 (ii)    4.15 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.24
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.21         0.06          0.267 (iii)
     TIME TO PEAK    (hrs)=       4.58         4.58           4.58
     RUNOFF VOLUME    (mm)=      48.97        24.42          37.92
     TOTAL RAINFALL   (mm)=      55.97        55.97          55.97
     RUNOFF COEFFICIENT   =       0.87         0.44           0.68

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

--------------------------------------------------------------------------------

  -------------------------
  | Junction Command(0051) |
  -------------------------

                              AREA     QPEAK   TPEAK     R.V.
                              (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 2(  0222)     1.17     0.27    4.58     37.92
  OUTFLOW: ID= 2(  0051)     1.17     0.27    4.58     37.92

  --------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0212)|   Area    (ha)=   5.50
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
```

```
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       3.57          1.93
     Dep. Storage     (mm)=       7.00          5.00
     Average Slope     (%)=       2.00          2.00
     Length            (m)=     191.49         10.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     121.80         52.18
               over (min)        5.00         10.00
     Storage Coeff.  (min)=       2.83 (ii)     5.20 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.28          0.16
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.91          0.24          1.051 (iii)
     TIME TO PEAK    (hrs)=       4.58          4.67           4.58
     RUNOFF VOLUME    (mm)=      48.97         24.42          37.92
     TOTAL RAINFALL   (mm)=      55.97         55.97          55.97
     RUNOFF COEFFICIENT   =       0.87          0.44           0.68

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  77.0    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.

--------------------------------------------------------------------------------

  -------------------------
  | Junction Command(0052) |
  -------------------------

                         AREA     QPEAK    TPEAK     R.V.
                         (ha)     (cms)    (hrs)     (mm)
  INFLOW : ID= 2(  0212)    5.50     1.05     4.58    37.92
  OUTFLOW: ID= 2(  0052)    5.50     1.05     4.58    37.92

  --------------------------------------------------------------------------------
================================================================================
========================

       V    V   I    SSSSS  U   U    A     L              (v 6.2.2019)
       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   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
```

```
       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\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\7c91f
705-0219-4523-8738-c97090e68a7b\scen
  Summary filename:
C:\Users\alazizi\AppData\Local\Civica\VH5\4c7d3ae7-f914-4c04-9b62-f883467b2a44\7c91f
705-0219-4523-8738-c97090e68a7b\scen


DATE: 09/29/2025                          TIME: 03:59:47

USER:


COMMENTS: _____

--------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : Huricane Hazel- 48hr          **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\alazizi\AppD
|                  |              ata\Local\Temp\
|                  |              2493308c-3c38-48cd-8f71-0121564e8ed4\17cacc8e
| Ptotal=285.00 mm |    Comments: Huricane Hazel- 48hr
--------------------
```

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

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--------------------
| CALIB            |
| NASHYD   (  0213)|   Area    (ha)=   0.12   Curve Number   (CN)= 79.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00

--------------------   U.H. Tp(hrs)=   0.34

        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

Unit Hyd Qpeak (cms)= 0.013

PEAK FLOW (cms)= 0.016 (i)
TIME TO PEAK (hrs)= 46.083
RUNOFF VOLUME (mm)= 223.881
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.786

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

CALIB					
NASHYD (0227)	Area (ha)=	0.13	Curve Number (CN)=	82.3	
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.22			

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

Unit Hyd Qpeak (cms)= 0.022

PEAK FLOW (cms)= 0.018 (i)
TIME TO PEAK (hrs)= 46.000
RUNOFF VOLUME (mm)= 232.057
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.814

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

CALIB	
NASHYD (0228)	Area (ha)= 0.71 Curve Number (CN)= 84.4
ID= 1 DT= 5.0 min	Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.31

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

Unit Hyd Qpeak (cms)= 0.088

PEAK FLOW (cms)= 0.098 (i)
TIME TO PEAK (hrs)= 46.000
RUNOFF VOLUME (mm)= 237.752
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.834

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

CALIB			
NASHYD (0229)	Area (ha)=	1.07	Curve Number (CN)= 85.4
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# 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 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

Unit Hyd Qpeak (cms)= 0.081

PEAK FLOW (cms)= 0.135 (i)
TIME TO PEAK (hrs)= 46.250
RUNOFF VOLUME (mm)= 240.430
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.844

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

CALIB					
NASHYD (0206)	Area	(ha)=	2.60	Curve Number (CN)=	77.5
ID= 1 DT= 5.0 min	Ia	(mm)=	7.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.25		

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

Unit Hyd Qpeak (cms)= 0.396

PEAK FLOW (cms)= 0.354 (i)
TIME TO PEAK (hrs)= 46.000
RUNOFF VOLUME (mm)= 219.546
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.770

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

CALIB					
STANDHYD (0205)	Area	(ha)=	0.52		
ID= 1 DT= 5.0 min	Total Imp(%)=		50.00	Dir. Conn.(%)=	1.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.26	0.26
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	58.88	10.00
Mannings n =	0.013	0.250

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
Max.Eff.Inten.(mm/hr)=		53.00		102.75			

over (min)		5.00	5.00
Storage Coeff. (min)=		1.95 (ii)	4.99 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		0.31	0.22
			TOTALS
PEAK FLOW (cms)=		0.00	0.07 0.075 (iii)
TIME TO PEAK (hrs)=		45.50	46.00 46.00
RUNOFF VOLUME (mm)=		284.00	248.73 249.08
TOTAL RAINFALL (mm)=		285.00	285.00 285.00
RUNOFF COEFFICIENT =		1.00	0.87 0.87

***** 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* = 77.0 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 (0226) | Area (ha)= 0.05
ID= 1 DT= 5.0 min | Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.03	0.02
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	18.26	10.00
Mannings n	=	0.013	0.250

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

Max.Eff.Inten.(mm/hr)=	53.00	65.21	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.96 (ii)	4.27 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.23	
			TOTALS
PEAK FLOW (cms)=	0.00	0.00	0.007 (iii)
TIME TO PEAK (hrs)=	45.25	46.00	46.00
RUNOFF VOLUME (mm)=	284.00	232.34	260.69
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	1.00	0.82	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0202)	Area (ha)= 0.31
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.11
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	45.46	10.00
Mannings n	=	0.013	0.250

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

Max.Eff.Inten.(mm/hr)=	53.00	65.21	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.67 (ii)	4.97 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.32	0.22	
			TOTALS
PEAK FLOW (cms)=	0.03	0.02	0.045 (iii)
TIME TO PEAK (hrs)=	45.50	46.00	46.00
RUNOFF VOLUME (mm)=	284.00	232.34	260.74
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	1.00	0.82	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0039)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	0.31	0.045	46.00	260.74
+ ID2= 2 (0205):	0.52	0.075	46.00	249.08
ID = 3 (0039):	0.83	0.120	46.00	253.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0039)				
1 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0039):	0.83	0.120	46.00	253.44
+ ID2= 2 (0206):	2.60	0.354	46.00	219.55
ID = 1 (0039):	3.43	0.473	46.00	227.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0039)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0039):	3.43	0.473	46.00	227.75
+ ID2= 2 (0226):	0.05	0.007	46.00	260.69
ID = 3 (0039):	3.48	0.481	46.00	228.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0039)				
3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0039):	3.48	0.481	46.00	228.22
+ ID2= 2 (0227):	0.13	0.018	46.00	232.06
ID = 1 (0039):	3.61	0.499	46.00	228.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0039)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0039):	3.61	0.499	46.00	228.36
+ ID2= 2 (0228):	0.71	0.098	46.00	237.75
ID = 3 (0039):	4.32	0.597	46.00	229.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0039)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0039):      4.32    0.597     46.00    229.90
     + ID2= 2 (  0229):      1.07    0.135     46.25    240.43
       ==========================================================
       ID = 1 (  0039):      5.39    0.724     46.00    231.99

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB            |
| NASHYD   (  0223)|   Area    (ha)=   0.70   Curve Number   (CN)= 84.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # 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
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)=   0.110

     PEAK FLOW       (cms)=   0.099 (i)
     TIME TO PEAK    (hrs)=  46.000
     RUNOFF VOLUME    (mm)= 236.577
     TOTAL RAINFALL   (mm)= 285.000
     RUNOFF COEFFICIENT   =   0.830

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

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| CALIB            |
| NASHYD   (  0224)|   Area    (ha)=   0.64   Curve Number   (CN)= 82.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.31

        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
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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)= 0.080

PEAK FLOW (cms)= 0.088 (i)
TIME TO PEAK (hrs)= 46.000
RUNOFF VOLUME (mm)= 232.261
TOTAL RAINFALL (mm)= 285.000
RUNOFF COEFFICIENT = 0.815

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

ADD HYD (0060)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0223):	0.70	0.099	46.00	236.58
+ ID2= 2 (0224):	0.64	0.088	46.00	232.26
ID = 3 (0060):	1.34	0.186	46.00	234.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

STANDHYD (0200) | Area (ha)= 9.15			
ID= 1 DT= 5.0 min | Total Imp(%)= 65.00		Dir. Conn.(%)= 55.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	5.95	3.20	
Dep. Storage (mm)=	1.00	5.00	
Average Slope (%)=	2.00	2.00	
Length (m)=	246.98	10.00	
Mannings n =	0.013	0.250	

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

Max.Eff.Inten.(mm/hr)=	53.00	65.21	
over (min)	5.00	10.00	
Storage Coeff. (min)=	4.60 (ii)	7.91 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.23	0.13	
			TOTALS
PEAK FLOW (cms)=	0.74	0.58	1.320 (iii)
TIME TO PEAK (hrs)=	46.00	46.00	46.00
RUNOFF VOLUME (mm)=	284.00	232.34	260.75
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	1.00	0.82	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0201)	Area (ha)=	0.68	
ID= 1 DT= 5.0 min	Total Imp(%)=	85.00	Dir. Conn.(%)= 75.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.58	0.10
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	2.00	2.00
Length (m)=	67.33	10.00
Mannings n =	0.013	0.250

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

Max.Eff.Inten.(mm/hr)=	53.00	85.86	
over (min)	5.00	5.00	
Storage Coeff. (min)=	2.11 (ii)	4.19 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.31	0.24	
			TOTALS
PEAK FLOW (cms)=	0.08	0.02	0.099 (iii)
TIME TO PEAK (hrs)=	45.75	46.00	46.00
RUNOFF VOLUME (mm)=	284.00	242.80	273.70
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	1.00	0.85	0.96

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0211) Area (ha)= 1.00
ID= 1 DT= 5.0 min Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.65	0.35
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	81.65	10.00
Mannings n	=	0.013	0.250

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

Max.Eff.Inten.(mm/hr)=	53.00	65.21	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.37 (ii)	5.67 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.30	0.15	
			TOTALS
PEAK FLOW (cms)=	0.08	0.06	0.144 (iii)
TIME TO PEAK (hrs)=	45.75	46.00	46.00
RUNOFF VOLUME (mm)=	284.00	232.34	260.75

TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	1.00	0.82	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0220) | Area (ha)= 1.71
ID= 1 DT= 5.0 min | Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.11	0.60
Dep. Storage	(mm)=	7.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	106.77	10.00
Mannings n	=	0.013	0.250

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

Max.Eff.Inten.(mm/hr)=		53.00	65.21	
over (min)		5.00	10.00	
Storage Coeff. (min)=		2.78 (ii)	6.09 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.28	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.14	0.11	0.247 (iii)
TIME TO PEAK	(hrs)=	45.75	46.00	46.00
RUNOFF VOLUME	(mm)=	278.00	232.34	257.45
TOTAL RAINFALL	(mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT	=	0.98	0.82	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0204)	Area	(ha)= 0.23	
ID= 1 DT= 5.0 min	Total Imp(%)=	75.00	Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.17	0.06
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	39.16	10.00
Mannings n	=	0.013	0.250

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

Max.Eff.Inten.(mm/hr)=	53.00	93.06	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.52 (ii)	4.41 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.23	
			TOTALS
PEAK FLOW (cms)=	0.02	0.01	0.033 (iii)
TIME TO PEAK (hrs)=	45.50	46.00	46.00
RUNOFF VOLUME (mm)=	284.00	245.55	266.69
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	1.00	0.86	0.94

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0061)

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0200):	9.15	1.320	46.00	260.75
+ ID2= 2 (0201):	0.68	0.099	46.00	273.70
ID = 3 (0061):	9.83	1.419	46.00	261.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0061)

3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0061):	9.83	1.419	46.00	261.65
+ ID2= 2 (0204):	0.23	0.033	46.00	266.69
ID = 1 (0061):	10.06	1.453	46.00	261.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0061)

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0061):	10.06	1.453	46.00	261.76
+ ID2= 2 (0211):	1.00	0.144	46.00	260.75
ID = 3 (0061):	11.06	1.597	46.00	261.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0061)

3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0061):	11.06	1.597	46.00	261.67
+ ID2= 2 (0220):	1.71	0.247	46.00	257.45
ID = 1 (0061):	12.77	1.844	46.00	261.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0061)

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0061):	12.77	1.844	46.00	261.11
+ ID2= 2 (0060):	1.34	0.186	46.00	234.52
ID = 3 (0061):	14.11	2.030	46.00	258.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(2111) 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	0.1740	0.4400
0.0040	0.0490	0.4840	0.5020
0.0070	0.1000	0.6890	0.5660
0.0090	0.1520	0.7300	0.6330
0.0100	0.2060	0.7700	0.7000
0.0110	0.2620	1.7950	0.7700
0.0130	0.3200	3.6960	0.8420
0.0140	0.3790	6.2260	0.9150

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0061)	14.110	2.030	46.00	258.58
OUTFLOW: ID= 1 (2111)	14.110	1.967	46.00	256.27

PEAK FLOW REDUCTION [Qout/Qin](%)= 96.89
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.7775

CALIB
STANDHYD (0203) Area (ha)= 0.20
ID= 1 DT= 5.0 min Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.16	0.04
Dep. Storage	(mm)=	5.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	36.51	10.00
Mannings n	=	0.013	0.250

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

Max.Eff.Inten.(mm/hr)=	53.00	49.62	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.46 (ii)	3.74 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.25	
			TOTALS
PEAK FLOW (cms)=	0.02	0.01	0.029 (iii)
TIME TO PEAK (hrs)=	45.50	46.00	46.00
RUNOFF VOLUME (mm)=	280.00	220.30	268.06
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	0.98	0.77	0.94

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0040)					
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.	
	(ha)	(cms)	(hrs)	(mm)	
ID1= 1 (0203):	0.20	0.029	46.00	268.06	
+ ID2= 2 (2111):	14.11	1.967	46.00	256.27	
ID = 3 (0040):	14.31	1.996	46.00	256.43	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ROUTEPIPE(0041)			
IN= 2---> OUT= 1	PIPE Number	=	1.00
DT= 5.0 min	Diameter	(mm)=	900.00
	Length	(m)=	50.00
	Slope	(m/m)=	0.005
	Manning n	=	0.013

**** WARNING: MINIMUM PIPE SIZE REQUIRED = 1063.06 (mm)FOR FREE FLOW.
THIS SIZE WAS USED IN THE ROUTING.
THE CAPACITY OF THIS PIPE = 2.00 (cms)

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

DEPTH (m)	VOLUME (cu.m.)	FLOW RATE (cms)	VELOCITY (m/s)	TRAV.TIME min
0.06	.895E+00	0.0	0.60	1.39
0.11	.249E+01	0.0	0.93	0.89
0.17	.450E+01	0.1	1.20	0.69
0.22	.680E+01	0.2	1.43	0.58
0.28	.933E+01	0.3	1.62	0.51
0.34	.120E+02	0.4	1.80	0.46
0.39	.148E+02	0.6	1.95	0.43
0.45	.177E+02	0.7	2.08	0.40
0.50	.207E+02	0.9	2.20	0.38
0.56	.237E+02	1.1	2.30	0.36
0.62	.266E+02	1.3	2.38	0.35
0.67	.295E+02	1.4	2.45	0.34
0.73	.324E+02	1.6	2.51	0.33
0.78	.351E+02	1.8	2.54	0.33
0.84	.376E+02	1.9	2.56	0.33
0.90	.399E+02	2.0	2.56	0.33
0.95	.419E+02	2.1	2.53	0.33
1.01	.435E+02	2.1	2.47	0.34
1.06	.444E+02	2.0	2.25	0.37

	<---- hydrograph ---->				<-pipe / channel->	
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	MAX DEPTH (m)	MAX VEL (m/s)
INFLOW : ID= 2 (0040)	14.31	2.00	46.00	256.43	0.87	2.56
OUTFLOW: ID= 1 (0041)	14.31	1.99	46.00	256.43	0.88	2.56

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| CALIB            |
| NASHYD   (  0210)|   Area    (ha)=   0.62   Curve Number   (CN)= 79.2
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.21

        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
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)=   0.112

     PEAK FLOW       (cms)=   0.086 (i)
     TIME TO PEAK    (hrs)=  46.000
     RUNOFF VOLUME    (mm)= 223.861
     TOTAL RAINFALL   (mm)= 285.000
     RUNOFF COEFFICIENT   =   0.785

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

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| CALIB            |
| STANDHYD (  0207)|   Area    (ha)=  11.60
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       7.54         4.06
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     278.09        10.00
     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
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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	65.21	
over (min)	5.00	10.00	
Storage Coeff. (min)=	4.94 (ii)	8.25 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.22	0.13	
			TOTALS
PEAK FLOW (cms)=	0.94	0.73	1.673 (iii)
TIME TO PEAK (hrs)=	46.00	46.00	46.00
RUNOFF VOLUME (mm)=	284.00	232.34	260.75
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	1.00	0.82	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0209)	Area (ha)= 1.76						
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00		Dir. Conn.(%)= 55.00				

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.14	0.62
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	108.32	10.00
Mannings n	=	0.013	0.250

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

Max.Eff.Inten.(mm/hr)=	53.00	65.21	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.81 (ii)	6.11 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.28	0.15	
			TOTALS
PEAK FLOW (cms)=	0.14	0.11	0.254 (iii)
TIME TO PEAK (hrs)=	45.75	46.00	46.00
RUNOFF VOLUME (mm)=	284.00	232.34	260.75
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	1.00	0.82	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0221)	Area (ha)=	4.62	
ID= 1 DT= 5.0 min	Total Imp(%)=	65.00	Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.00	1.62
Dep. Storage	(mm)=	7.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	175.50	10.00
Mannings n	=	0.013	0.250

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

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

Max.Eff.Inten.(mm/hr)=	53.00	65.21	
over (min)	5.00	10.00	
Storage Coeff. (min)=	3.75 (ii)	7.05 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.25	0.14	
			TOTALS
PEAK FLOW (cms)=	0.37	0.29	0.666 (iii)
TIME TO PEAK (hrs)=	46.00	46.00	46.00
RUNOFF VOLUME (mm)=	278.00	232.34	257.45
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	0.98	0.82	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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 (0208)	Area (ha)= 0.95
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.62	0.33
Dep. Storage	(mm)=	7.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	79.58	10.00
Mannings n	=	0.013	0.250

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

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	65.21	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.33 (ii)	5.64 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.30	0.15	
			TOTALS
PEAK FLOW (cms)=	0.08	0.06	0.137 (iii)
TIME TO PEAK (hrs)=	45.75	46.00	46.00
RUNOFF VOLUME (mm)=	278.00	232.34	257.45
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	0.98	0.82	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

CN* = 77.0 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 (0215)
ID= 1 DT= 5.0 min

Area (ha)= 0.63
Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.41	0.22
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	64.81	10.00
Mannings n	=	0.013	0.250

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

```
     Max.Eff.Inten.(mm/hr)=      53.00        66.95
                over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.54 (ii)    5.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.29         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.04          0.092 (iii)
     TIME TO PEAK    (hrs)=      45.75        46.00          46.00
     RUNOFF VOLUME    (mm)=     284.00       252.78         269.95
     TOTAL RAINFALL   (mm)=     285.00       285.00         285.00
     RUNOFF COEFFICIENT   =       1.00         0.89           0.95

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    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  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):    11.60   1.673    46.00   260.75
     + ID2= 2 (  0208):     0.95   0.137    46.00   257.45
       ================================================
       ID = 3 (  0038):    12.55   1.810    46.00   260.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0038)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0038):    14.31   2.064    46.00   260.53
     + ID2= 2 (  0215):     0.63   0.092    46.00   269.95
       ================================================
       ID = 3 (  0038):    14.94   2.156    46.00   260.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| ADD HYD  (  0038)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0038):    14.94   2.156    46.00   260.93
     + ID2= 2 (  0221):     4.62   0.666    46.00   257.45
       ================================================
       ID = 1 (  0038):    19.56   2.822    46.00   260.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| RESERVOIR(  2099)|     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    |    0.1776      0.8069
                          0.0047      0.0913    |    0.4876      0.9174
                          0.0081      0.1859    |    0.6925      1.0295
                          0.0104      0.2831    |    0.7343      1.1431
                          0.0123      0.3830    |    0.7738      1.2584
                          0.0140      0.4855    |    2.2503      1.3753
                          0.0155      0.5907    |    5.0333      1.4940
                          0.0168      0.6980    |    8.7855      1.6144

                             AREA     QPEAK     TPEAK       R.V.
                             (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0038)     19.560      2.822     46.00     260.11
   OUTFLOW: ID= 1 (  2099)     19.560      2.806     46.00     250.28

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 99.44
                  TIME SHIFT OF PEAK FLOW         (min)=  0.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.3993

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-------------------
| ADD HYD  (  0049)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2099):    19.56   2.806    46.00   250.28
     + ID2= 2 (  0210):     0.62   0.086    46.00   223.86
       ================================================
       ID = 3 (  0049):    20.18   2.892    46.00   249.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

-------------------
| CALIB            |
| STANDHYD (  0222)|   Area    (ha)=   1.17
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  55.00
-------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.76         0.41
     Dep. Storage     (mm)=       7.00         5.00
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      88.32        10.00
     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
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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	65.21	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.48 (ii)	5.79 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.29	0.15	
			TOTALS
PEAK FLOW (cms)=	0.09	0.07	0.169 (iii)
TIME TO PEAK (hrs)=	45.75	46.00	46.00
RUNOFF VOLUME (mm)=	278.00	232.34	257.45
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	0.98	0.82	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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.

Junction Command(0051)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2(0222)	1.17	0.17	46.00	257.45
OUTFLOW: ID= 2(0051)	1.17	0.17	46.00	257.45

CALIB
STANDHYD (0212)
ID= 1 DT= 5.0 min

Area (ha)= 5.50
Total Imp(%)= 65.00 Dir. Conn.(%)= 55.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.57	1.93
Dep. Storage	(mm)=	7.00	5.00
Average Slope	(%)=	2.00	2.00
Length	(m)=	191.49	10.00
Mannings n	=	0.013	0.250

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

Max.Eff.Inten.(mm/hr)=	53.00	65.21	
over (min)	5.00	10.00	
Storage Coeff. (min)=	3.95 (ii)	7.26 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.24	0.14	
			TOTALS
PEAK FLOW (cms)=	0.45	0.35	0.793 (iii)
TIME TO PEAK (hrs)=	46.00	46.00	46.00
RUNOFF VOLUME (mm)=	278.00	232.34	257.45
TOTAL RAINFALL (mm)=	285.00	285.00	285.00
RUNOFF COEFFICIENT =	0.98	0.82	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 77.0 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.

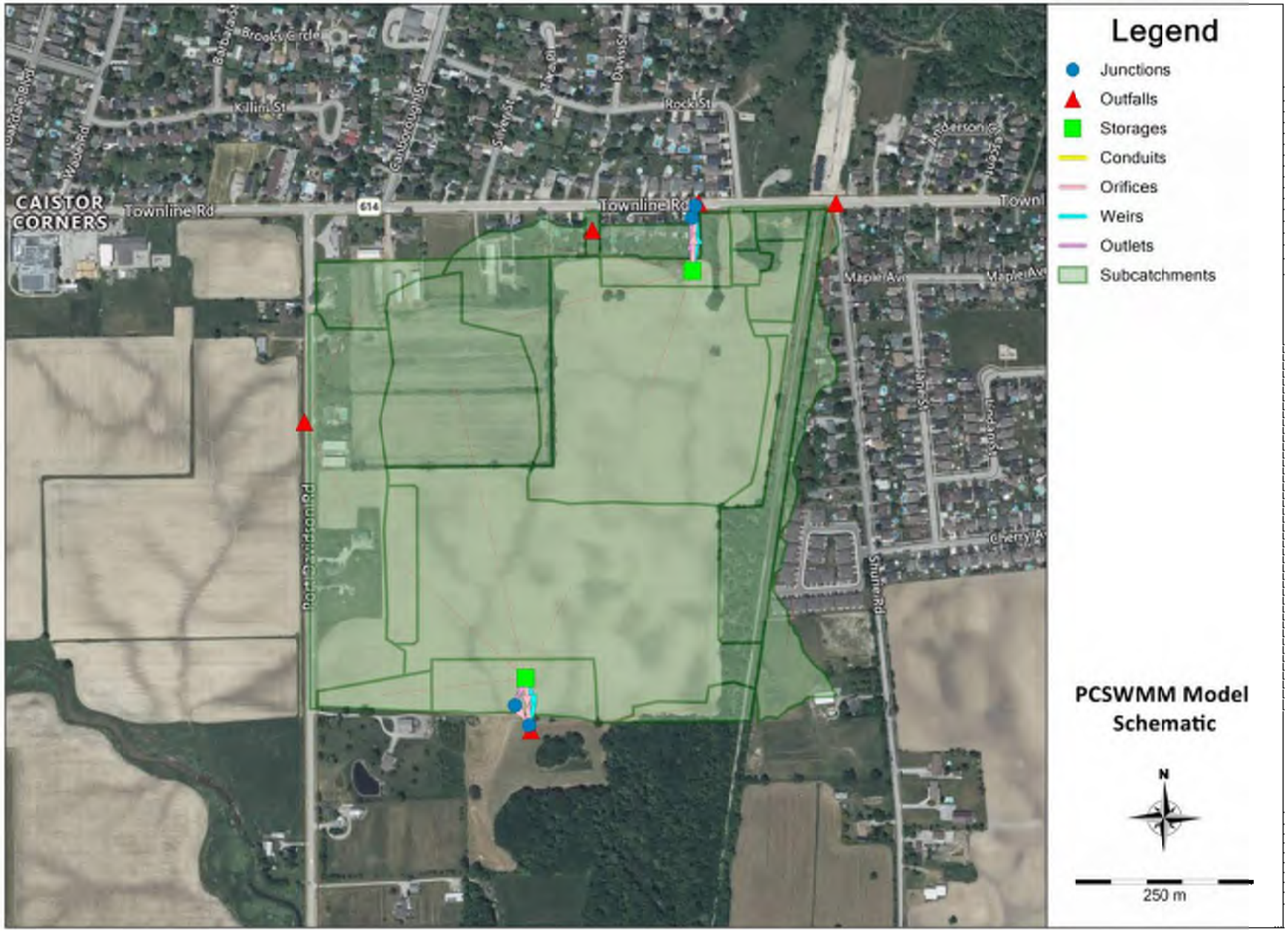
Junction Command(0052)				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2(0212)	5.50	0.79	46.00	257.45
OUTFLOW: ID= 2(0052)	5.50	0.79	46.00	257.45

APPENDIX D
PCSWMM MODELING OUTPUTS

APPENDIX D1 PCSWMM Schematic
APPENDIX D2 PCSWMM Output

APPENDIX D-1

PCSWMM SCHEMATIC


Legend
Junctions
Outfalls
Storages
Conduits
Orifices
Weirs
Outlets
Subcatchments
CAISTOR CORNERS
Townline Rd
614
Killim St
Rock St
Maple Ave
Shurie Rd
PCSWMM Model Schematic
N
250 m

APPENDIX D-2

PCSWMM OUTPUT

```
  EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)
  ------------------------------------------------------------


  *************
  Element Count
  *************
  Number of rain gages ...... 1
  Number of subcatchments ... 24
  Number of nodes ........... 11
  Number of links ........... 10
  Number of pollutants ...... 0
  Number of land uses ....... 0


  ****************
  Raingage Summary
  ****************
                                                   Data       Recording
  Name                 Data Source                 Type       Interval
  ---------------------------------------------------------------------
  1998-2019            SmithvilleSPS_1998to2019    VOLUME       5 min.


  ********************
  Subcatchment Summary
  ********************
  Name                        Area     Width   %Imperv    %Slope Rain Gage
Outlet

-------------------------------------------------------------------------------
-----------------------
  200                         9.15    370.44     65.00    2.0000 1998-2019
North_Pond
  201                         0.68    101.04     85.00    2.0000 1998-2019
North_Pond
  202                         0.31     68.13     65.00    2.0000 1998-2019
NE_Outlet
  203                         0.20     55.25     80.00    2.0000 1998-2019
N_Pond_Outlet
  204                         0.23     58.67     75.00    2.0000 1998-2019
North_Pond
  205                         0.52     88.28     50.00    2.0000 1998-2019
NE_Outlet
  206                         2.60    252.43      0.00    2.3000 1998-2019
NE_Outlet
  207                        11.60    417.12     25.00    2.0000 1998-2019
South_Pond
  208                         0.95    119.35     65.00    2.0000 1998-2019
```

South_Pond						
209		1.76	162.51	65.00	2.0000	1998-2019
South_Pond						
210		0.62	88.57	0.00	2.1400	1998-2019
S_Pond_Outlet						
211		1.00	122.40	65.00	2.0000	1998-2019
North_Pond						
212		5.50	287.21	65.00	2.0000	1998-2019
W_Outlet						
213		0.12	17.14	0.00	0.5000	1998-2019
N_Outlet						
215		0.63	97.22	65.00	2.0000	1998-2019
South_Pond						
220		1.71	160.11	65.00	2.0000	1998-2019
North_Pond						
221		4.62	263.25	65.00	2.0000	1998-2019
South_Pond						
222		1.17	132.50	65.00	2.0000	1998-2019
W_Outlet						
223		0.70	132.07	0.00	0.9400	1998-2019
North_Pond						
224		0.64	114.29	0.00	0.5000	1998-2019
North_Pond						
226		0.05	27.32	65.00	2.0000	1998-2019
NE_Outlet						
227		0.13	43.33	65.00	0.5000	1998-2019
NE_Outlet						
228		0.71	124.56	65.00	0.5000	1998-2019
NE_Outlet						
229		1.07	69.94	65.00	0.5000	1998-2019
NE_Outlet						

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	185.40	1.60	0.0	
J2	JUNCTION	184.00	2.00	0.0	
J3	JUNCTION	185.70	2.00	0.0	
J4	JUNCTION	187.10	1.60	0.0	
N_Outlet	OUTFALL	0.00	0.00	0.0	
N_Pond_Outlet	OUTFALL	183.50	1.05	0.0	
NE_Outlet	OUTFALL	0.00	0.00	0.0	
S_Pond_Outlet	OUTFALL	185.00	1.05	0.0	
W_Outlet	OUTFALL	0.00	0.00	0.0	
North_Pond	STORAGE	184.00	3.00	0.0	
South_Pond	STORAGE	185.70	3.00	0.0	

```
  ************
  Link Summary
  ************
  Name             From Node        To Node          Type            Length
%Slope Roughness

-------------------------------------------------------------------------------
---------
  C1               J3               S_Pond_Outlet    CONDUIT            5.0
14.1393    0.0130
  C2               J2               N_Pond_Outlet    CONDUIT            5.0
10.0504    0.0130
  OL_N3            J1               J2               ORIFICE
  OR_N1            North_Pond       J2               ORIFICE
  OR_S2            J4               J3               ORIFICE
  OR_S3            South_Pond       J3               ORIFICE
  W_N1             North_Pond       J2               WEIR
  W_S1             South_Pond       J3               WEIR
  OL_N1            North_Pond       J1               OUTLET
  OL_S1            South_Pond       J4               OUTLET


  **********************
  Cross Section Summary
  **********************
                                       Full     Full     Hyd.     Max.   No. of
Full
  Conduit          Shape               Depth     Area     Rad.    Width  Barrels
Flow

-------------------------------------------------------------------------------
---
  C1               CIRCULAR             1.05     0.87     0.26     1.05        1
10.27
  C2               CIRCULAR             1.05     0.87     0.26     1.05        1
8.66


  ****************
  Analysis Options
  ****************
  Flow Units ..............  CMS
  Process Models:
    Rainfall/Runoff ........ YES
    RDII ................... NO
    Snowmelt ............... NO
    Groundwater ............ NO
    Flow Routing ........... YES
```

```
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 01/03/1998 16:15:00
Ending Date .............. 06/30/2019 23:55:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:05:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 1
Head Tolerance ........... 0.001500 m


**************************        Volume         Depth
Runoff Quantity Continuity     hectare-m            mm
**************************     ---------       -------
Total Precipitation ......       739.148     15837.750
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........       265.000      5678.176
Surface Runoff ...........       478.760     10258.417
Final Storage ............         0.046         0.976
Continuity Error (%) .....        -0.630


**************************        Volume        Volume
Flow Routing Continuity        hectare-m      10^6 ltr
**************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......       478.680      4786.845
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........       478.678      4786.826
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         1.570        15.703
Final Stored Volume ......         1.575        15.752
Continuity Error (%) .....        -0.001


***************************
Time-Step Critical Elements
***************************
Link C1 (93.60%)
```

Link C2 (5.98%)

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec
Average Time Step : 2.77 sec
Maximum Time Step : 5.00 sec
% of Time in Steady State : 0.00
Average Iterations per Step : 2.00
% of Steps Not Converging : 0.00
Time Step Frequencies :
5.000 - 3.155 sec : 37.97 %
3.155 - 1.991 sec : 38.93 %
1.991 - 1.256 sec : 17.93 %
1.256 - 0.792 sec : 5.05 %
0.792 - 0.500 sec : 0.11 %

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff 10^6 ltr	Total Peak Runoff CMS	Runoff Coeff
200	15837.75	0.00	0.00	3860.40	10363.57	1695.77	12059.34	1103.44	3.01	0.761

```
  201                  15837.75       0.00       0.00    1614.12   13652.79
788.19   14440.98       98.20     0.25   0.912
  202                  15837.75       0.00       0.00    3777.90   10510.62
1812.19   12322.81       38.20     0.12   0.778
  203                  15837.75       0.00       0.00    2148.32   12938.77
1061.97   14000.74       28.00     0.08   0.884
  204                  15837.75       0.00       0.00    2689.73   12128.03
1314.95   13442.98       30.92     0.09   0.849
  205                  15837.75       0.00       0.00    5427.65    8085.20
2534.85   10620.05       55.22     0.18   0.671
  206                  15837.75       0.00       0.00   11052.67       0.00
4818.94    4818.94      125.29     0.77   0.304
  207                  15837.75       0.00       0.00    8447.82    4008.73
3443.36    7452.09      864.45     2.90   0.471
  208                  15837.75       0.00       0.00    3797.09   10450.02
1777.93   12227.95      116.17     0.33   0.772
  209                  15837.75       0.00       0.00    3810.62   10421.63
1757.84   12179.47      214.36     0.61   0.769
  210                  15837.75       0.00       0.00   10980.83       0.00
4902.35    4902.35       30.39     0.20   0.310
  211                  15837.75       0.00       0.00    3798.14   10447.74
1776.27   12224.01      122.24     0.35   0.772
  212                  15837.75       0.00       0.00    3842.66   10378.75
1716.58   12095.32      665.25     1.85   0.764
  213                  15837.75       0.00       0.00   11145.59       0.00
4716.60    4716.60        5.66     0.03   0.298
  215                  15837.75       0.00       0.00    3789.30   10471.19
1790.78   12261.97       77.25     0.23   0.774
  220                  15837.75       0.00       0.00    3809.80   10422.84
1758.94   12181.77      208.31     0.59   0.769
  221                  15837.75       0.00       0.00    3837.10   10384.50
1723.32   12107.83      559.38     1.57   0.764
  222                  15837.75       0.00       0.00    3801.39   10440.06
1771.29   12211.35      142.87     0.41   0.771
  223                  15837.75       0.00       0.00   11006.64       0.00
4871.78    4871.78       34.10     0.22   0.308
  224                  15837.75       0.00       0.00   11088.47       0.00
4778.96    4778.96       30.59     0.18   0.302
  226                  15837.75       0.00       0.00    3757.36   10618.51
1865.68   12484.19        6.24     0.02   0.788
  227                  15837.75       0.00       0.00    3786.61   10479.32
1795.50   12274.83       15.96     0.05   0.775
  228                  15837.75       0.00       0.00    3813.11   10417.25
1754.36   12171.61       86.42     0.25   0.769
  229                  15837.75       0.00       0.00    3877.21   10352.56
1676.80   12029.36      128.71     0.34   0.760


  ******************
  Node Depth Summary
```

****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.00	0.52	185.92	2400 11:59	0.52
J2	JUNCTION	0.01	0.25	184.25	2400 11:59	0.25
J3	JUNCTION	0.01	0.18	185.88	7218 15:28	0.18
J4	JUNCTION	0.00	0.36	187.46	7218 15:28	0.36
N_Outlet	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
N_Pond_Outlet	OUTFALL	0.01	0.25	183.75	2400 11:59	0.25
NE_Outlet	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
S_Pond_Outlet	OUTFALL	0.01	0.18	185.18	7218 15:28	0.18
W_Outlet	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
North_Pond	STORAGE	1.55	2.50	186.50	2400 11:59	2.50
South_Pond	STORAGE	1.55	2.42	188.12	7218 15:28	2.42

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
J1	JUNCTION	0.000	1.005	2400 11:59	0	47.9	0.000
J2	JUNCTION	0.000	1.054	2400 11:59	0	1.63e+03	-0.001
J3	JUNCTION	0.000	0.633	7218 15:28	0	1.83e+03	-0.000
J4	JUNCTION	0.000	0.574	7218 15:28	0	25.8	0.000
N_Outlet	OUTFALL	0.032	0.032	3853 20:40	5.66	5.66	0.000
N_Pond_Outlet	OUTFALL	0.076	1.063	2400 11:58	28	1.66e+03	0.000

```
  NE_Outlet             OUTFALL      1.707    1.707  3853  20:35         456
456       0.000
  S_Pond_Outlet         OUTFALL      0.198    0.653  7218  15:27        30.4
1.86e+03       0.000
  W_Outlet              OUTFALL      2.260    2.260  3853  20:35         808
808       0.000
  North_Pond            STORAGE      4.669    4.669  3853  20:35    1.63e+03
1.63e+03      -0.000
  South_Pond            STORAGE      5.621    5.621  3853  20:35    1.83e+03
1.84e+03       0.000


  **********************
  Node Surcharge Summary
  **********************

  No nodes were surcharged.


  **********************
  Node Flooding Summary
  **********************

  No nodes were flooded.


  **********************
  Storage Volume Summary
  **********************


-------------------------------------------------------------------------------
------------
                         Average    Avg   Evap  Exfil     Maximum    Max    Time of
Max    Maximum
                          Volume   Pcnt   Pcnt   Pcnt      Volume   Pcnt
Occurrence    Outflow
  Storage Unit           1000 m    Full   Loss   Loss     1000 m    Full    days
hr:min        CMS

-------------------------------------------------------------------------------
------------
  North_Pond               5.551   38.4    0.0    0.0      10.978   76.0    2400
11:59      1.054
  South_Pond              10.858   40.9    0.0    0.0      19.814   74.6    7218
15:28      0.633


  **********************
  Outfall Loading Summary
```

****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
N_Outlet	3.05	0.001	0.032	5.660
N_Pond_Outlet	88.28	0.005	1.063	1655.525
NE_Outlet	19.35	0.007	1.707	455.980
S_Pond_Outlet	95.66	0.005	0.653	1861.664
W_Outlet	23.69	0.009	2.260	807.976
System	46.01	0.027	4.341	4786.804

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.633	7218 15:28	6.57	0.06	0.17
C2	CONDUIT	1.054	2400 11:59	6.76	0.12	0.24
OL_N3	ORIFICE	1.005	2400 11:59			0.87
OR_N1	ORIFICE	0.050	2400 11:59			1.00
OR_S2	ORIFICE	0.574	7218 15:28			0.60
OR_S3	ORIFICE	0.058	7218 15:28			1.00
W_N1	WEIR	0.000	0 00:00			0.00
W_S1	WEIR	0.000	0 00:00			0.00
OL_N1	DUMMY	1.005	2400 11:59			
OL_S1	DUMMY	0.574	7218 15:28			

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl

```
-------------------------------------------------------------------------------
-
  C1                     1.00   0.00  0.00  0.00  0.01  0.99  0.00  0.00  0.18
0.00
  C2                     1.00   0.00  0.00  0.00  0.04  0.96  0.00  0.00  0.10
0.00


  ************************
  Conduit Surcharge Summary
  ************************

  No conduits were surcharged.


  Analysis begun on:  Mon Sep 29 16:36:29 2025
  Analysis ended on:  Mon Sep 29 16:56:25 2025
  Total elapsed time: 00:19:56
```

APPENDIX G
Utility Correspondence

From: Yang Xiao
To: Kapolnas, Stephen; Jim Sorley; Anthony Lastella
Cc: Mammel, Suzanne; Zach Lindley
Subject: RE: 161414394_Smithville Stage 3A Hydro Coordiantion
Date: Thursday, December 21, 2023 11:29:56 AM
Attachments: New Subdvision Development Information Fillable.pdf

---

You don't often get email from yang.xiao@npei.ca. Learn why this is important

Hi Steve,

There is no capacity issue. NPEI have 3 phase overhead 27.6kv & 8.3kv circuits in the vicinity.

For new subdivision development, please submit the attached form.

Otherwise, submit Service Request Application Form
https://www.npei.ca/forms/forms-and-information

Regards,
Yang

From: Kapolnas, Stephen <Steve.Kapolnas@stantec.com>
Sent: Thursday, December 21, 2023 9:56 AM
To: Yang Xiao <yang.xiao@npei.ca>; Jim Sorley <jim.sorley@npei.ca>; Anthony Lastella <Anthony.Lastella@npei.ca>
Cc: Mammel, Suzanne <Suzanne.Mammel@stantec.com>
Subject: 161414394_Smithville Stage 3A Hydro Coordiantion

Hi,

We are working on a proposed subdivision in Smithville, Ontario, West Lincoln. As you may be aware Smithville is expanding their urban boundaries and our projected site is within Stage 3A (see attachment 1). Attached shows an outlined area of the initial stage within Stage 3A, block plan 9.

We would like to confirm if NPEI has the appropriate infrastructure /capacity in place to service the initial stage (highlighted in blue).

Do you have any servicing concerns for the proposed development from a capacity/infrastructure standpoint and let us know if the initial stage can be accommodated?

If you have any questions, don't hesitate to ask.

Regards

Steve Kapolnas, P.Eng.
Project Engineer

Direct: 519 585-7365

Stephen.Kapolnas@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

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Yang Xiao
Engineering Technician
(905) 356-2681 ext 6239
yang.xiao@npei.ca





Register for our updated MyAccount before March 31, 2024 to be enrolled in eBiling and we'll donate $10 a local charitable organization! To sign up Click Here

For more information about NPEI and the Programs and Services that we offer, please click on our New Customer Info Guide Click Here

For Niagara Peninsula Energy Customers please Click Here to participate in our online customer service survey! (powered by SurveyMonkey)

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From: Sarah Smith
To: Kapolnas, Stephen
Cc: Mammel, Suzanne
Subject: FW: 161414394_Smithville Stage 3A Gas Coordiantion
Date: Monday, January 8, 2024 1:04:37 PM
Attachments: 144262DP-Stage 1.pdf

Hi Stephen,

Adam forwarded me your email. I will be your contact for anything in West Lincoln.

We have existing main on the north side of Townline Rd in front of the outlined area in blue. If you applied today for the outlined area only, we would likely be able to accommodate your gas requirements.

However,

1. We do not reserve gas. So just because today gas may be available doesn't mean it will be when you apply in the future.
2. Larger customers (including developers) who apply in the West Lincoln area often need some kind of reinforcement for their projects. I just wanted to make you aware for the remainder of your larger development could require some kind of reinforcement, but we won't know until you apply and provide further details.
3. I think it is worth mentioning that the Ontario Energy Board have made a decision as of Dec 21, 2023 regarding our proposed rate case. We are anticipating some changes as of January 2025 which will likely affect the costing feasibility parameters. We are encouraging developers to read the OEB decision if you haven't already.

If you have any further questions, please don't hesitate to reach out.

Thank you,

Sarah Smith
Sr Analyst New Business Projects
Southeast Region/Niagara Operations

ENBRIDGE
TEL 905-641-6716 | FAX: 905-984-4976 | sarah.smith@enbridge.com
3401 Schmon Parkway, Thorold, ON L2V 4Y6

enbridge.com
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From: Adam Chitussi <Adam.Chitussi@enbridge.com>
Sent: Tuesday, January 2, 2024 9:37 AM
To: Sarah Smith <Sarah.Smith@enbridge.com>
Subject: FW: 161414394_Smithville Stage 3A Gas Coordiantion

From: Kapolnas, Stephen <Steve.Kapolnas@stantec.com>
Sent: Thursday, December 21, 2023 4:17 PM
To: Adam Chitussi <Adam.Chitussi@enbridge.com>
Cc: Mammel, Suzanne <Suzanne.Mammel@stantec.com>
Subject: [External] 161414394_Smithville Stage 3A Gas Coordiantion

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Hi,

We are working on a proposed subdivision in Smithville, Ontario, West Lincoln. As you may be aware Smithville is expanding their urban boundaries and our projected site is within Stage 3A (see attachment 1). Attached shows an outlined area of the initial stage within Stage 3A, block plan 9.

We would like to confirm if Enbridge has the appropriate infrastructure /capacity in place to service the initial stage (highlighted in blue).

Do you have any servicing concerns for the proposed development from a capacity/infrastructure standpoint and let us know if the initial stage can be accommodated?

If you have any questions, don't hesitate to ask.

Regards

Steve Kapolnas, P.Eng.
Project Engineer

Direct: 519 585-7365
Stephen.Kapolnas@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

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From:	Stratychuk, Craig
To:	Telfer, Christine
Cc:	Kapolnas, Stephen; Thompson, Susan; Rioux, Karen
Subject:	RE: 161414394_Smithville Stage 3A Bell Coordination
Date:	Wednesday, August 9, 2023 8:36:37 AM
Attachments:	image001.png

Hey Christine.. long time no chat.
Yes, Smithville (West Lincoln) is handled by our office… and we will be more than happy to help
The regular IM for the area is away on vacation for a couple weeks, but I had a look on his behalf.

Good Morning Steve
We certainly have infrastructure in place in the area to service this location, but as any new build, we would have to go through our internal governance process for approvals before commitment to build.
Aside from what you have already provided, any information is greatly appreciated. (potential lots, timing etc)

Craig Stratychuk **Specialist, Network Provisioning 63 King St, Floor 3 St. Catharines**
Mobile# (289)219-3326 Office# (905)988-1239

From: Telfer, Christine <christine.telfer@bell.ca>
Sent: August-09-23 7:26 AM
To: Stratychuk, Craig <craig.stratychuk@bell.ca>
Cc: Steve.kapolnas@stantec.com; Thompson, Susan <s.thompson@bell.ca>; Rioux, Karen <karen.rioux@bell.ca>
Subject: FW: 161414394_Smithville Stage 3A Bell Coordination

Morning Craig,

Hope all is well with you.

Not sure if Smithville is part of your territory, but I think it is out of the St. Catherine's cell. Could you pass the below email on to whomever the IM is for Smithville?

Have a good day.

Chris

Christine Telfer
Bell Canada, Implementation Manager

86 Market St.,P.O. Box 938
Brantford, ON N3T 2Z8
(519)751-3055
christine.telfer@bell.ca
"Good judgement comes from experience; and
experience, well, that comes from bad judgment.
Anonymous

From: Kapolnas, Stephen <Steve.Kapolnas@stantec.com>
Sent: August-08-23 4:30 PM
To: Rioux, Karen <karen.rioux@bell.ca>; Thompson, Susan <s.thompson@bell.ca>; Telfer, Christine <christine.telfer@bell.ca>
Cc: Mammel, Suzanne <Suzanne.Mammel@stantec.com>
Subject: [EXT]FW: 161414394_Smithville Stage 3A Bell Coordination

Hi,

We are working on a proposed subdivision in Smithville, Ontario, West Lincoln. As you may be aware Smithville is expanding their urban boundaries and our projected site is within Stage 3A (see attachment 1). Attached shows an outlined area of stage 3A along with a redline highlight of the projected site. Within the month, we hope to have a block plan to circulate.

We would like to confirm if Bell has the appropriate infrastructure /capacity in place to service the projected site within stage 3A and Stage 3A entirely (highlighted in blue). Stage 3A is approximately 63.5ha and the project site (highlighted in red) is approximately 11ha.

Do you have any servicing concerns for the proposed development from a capacity/infrastructure standpoint?

If you have any questions, don't hesitate to ask.

Regards

Steve Kapolnas, P.Eng.
Project Engineer

Direct: 519 585-7365
Stephen.Kapolnas@stantec.com

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100-300 Hagey Boulevard
Waterloo ON N2L 0A4

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From: Rick Kabel
To: Kapolnas, Stephen; Ronald Gibson
Cc: Craig.Krueger@cogeco.com
Subject: Re: 161414473_Smithville Stage 3A Utility Coordination
Date: Tuesday, July 2, 2024 8:37:48 AM

Hi Stephen

Cogeco has infrastructure in the area and are able to service this proposed new subdivision.

Ron Gibson is our Network Delivery Coordinator for Smithville and will be able to answer any other
questions or concerns for this new build. He is presently on vacation but will be back on July 8th.

Thanks

On Fri, 28 Jun 2024 at 16:26, Kapolnas, Stephen <Steve.Kapolnas@stantec.com> wrote:

> Hi,
>
> We are working on a proposed subdivision in Smithville, Ontario, West Lincoln. As you may be aware Smithville is expanding their urban boundaries and our projected site is within Stage 3A (see attachment 1). Attached shows an outlined area of the initial stage within Stage 3A, block plan 9.
>
> We would like to confirm if Cogeco has the appropriate infrastructure /capacity in place to service the initial stage (highlighted in blue) and the entire Block Plan.
>
> Do you have any servicing concerns for the proposed development from a capacity/infrastructure standpoint and let us know if the initial stage can be accommodated?
>
> If you have any questions, don't hesitate to ask.
>
> Regards
>
> **Steve Kapolnas**, P.Eng.
>
> Project Engineer

Direct: 519 585-7365
Stephen.Kapolnas@stantec.com

Stantec
100-300 Hagey Boulevard
Waterloo ON N2L 0A4

--

RICK KABEL
Network Delivery Coordinator
Niagara

289 241-0223

7170 McLeod Road
Niagara Falls, Ontario L2G 3H2 Canada
cogeco.ca





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