HILLSIDE SUBDIVISION PRELIMINARY STORMWATER MANAGEMENT REPORT

318 Lake Street
Picton, ON
Prince Edward County

May 2025

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1.0 Introduction

1.1 Project Background

WSE Consulting Inc. has been retained as part of a consultant team to assist with Stormwater Management for the proposed development at 318 Lake Street.

1.2 Location and Site Description

The legal description of the property is located at 318 Lake St., Town of Picton, County of Prince Edward.

The property is bounded by County Road 10 to the west, County Road 22 to the south, and vacant land to the north and east.

There are existing homes and a business located adjacent to the site along County Rd 22 that are located at higher grade than the proposed developed portions of the site, as such there will be no impacts to these lands.

There is also an existing home located at 299 County Road 10 that will require the proposed development to develop a grading plan to ensure no adverse impacts either from draining to the existing property or receiving drainage from the property. This would be part of the grading design for final approval.

The site location is outlined on **Figure 1**. And the propose development outlined on **Figure 2**.

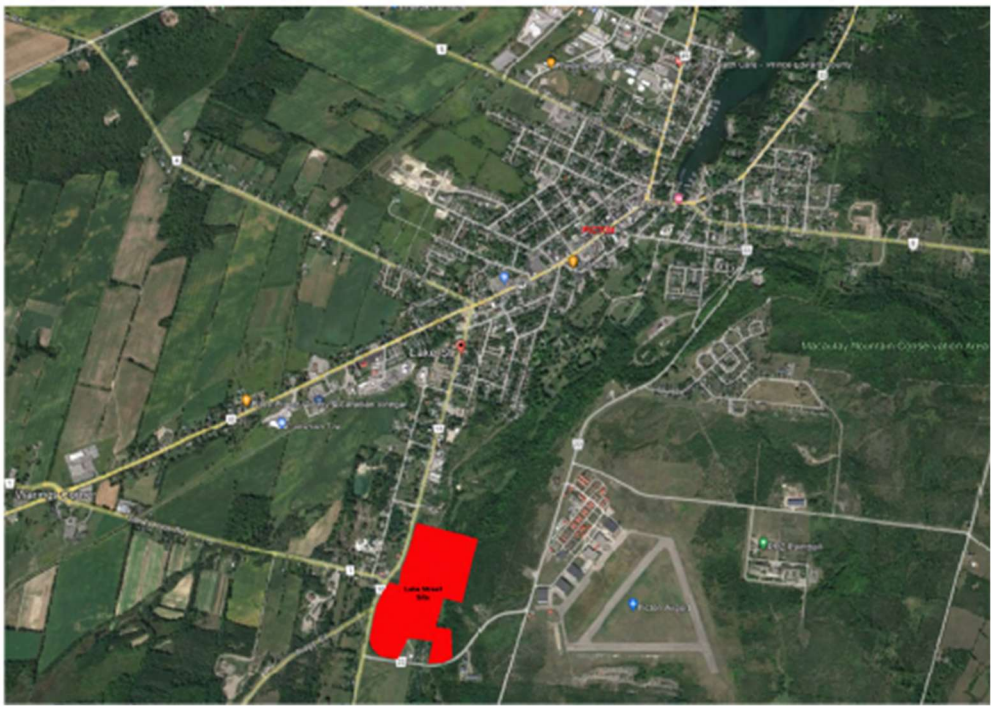


Figure 1 – Site Location

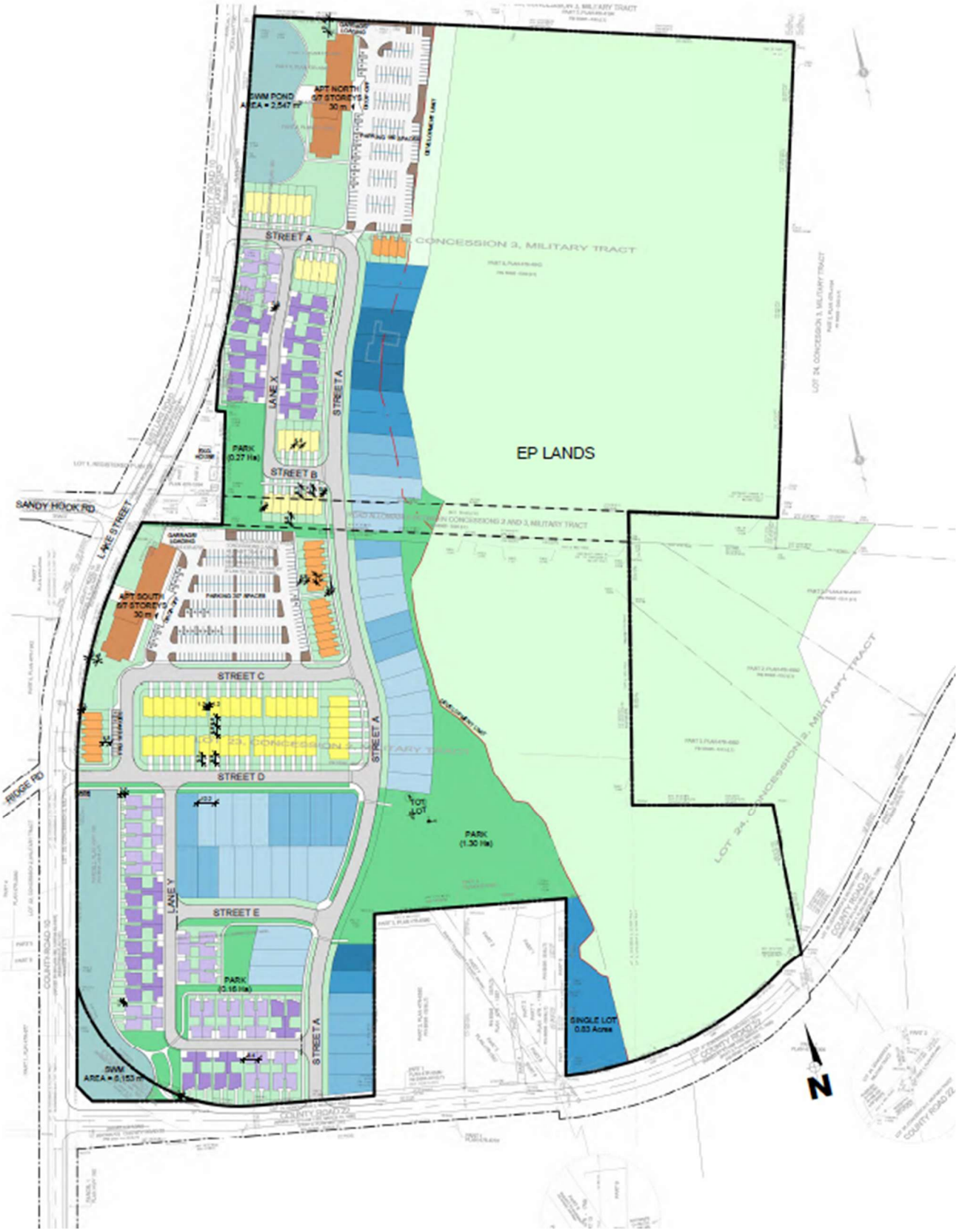


Figure 2 – Development Concept

1.3 Geotechnical Investigation

Geotechnical Investigation have been completed for the southern and northern portions of the project in 2 separate reports and have been referenced for soil conditions for the stormwater review. Excerpts from the reports are included in **Appendix A**.

The site soils generally consist of a surficial layer of topsoil, approximately 100 – 150 mm in depth. Underlying the topsoil ranges from a clay – silty clay – silt material.

The Ontario Ministry of Agriculture publishes a Soils Map for the County of Prince Edward. According to the Soils Map, there are three types of soils on the subject property. The site is predominantly covered by the 'Pontypool' series, described as a sand to sandy loam soil. There are small portions of 'Ameliasburgh' and 'Farmington' series as well. These are described as loam and sandy loam. This is generally consistent with the findings of the geotechnical report.

Soils have been assigned to Hydrologic Soils Group 'C', providing good drainage. Supporting information is included in **Appendix A**.

1.4 Design Criteria

Based on the size and function of the proposed development (Refer to Figure 2 for the Preliminary Site Plan), two (2) extended detention wet pond facilities have been selected as an appropriate best management practice for stormwater control. The Municipality will need to issue an Environmental Compliance Approval (CLI-ECA) for the facility. As such, design criteria have been considered based on the MECP Stormwater Management Planning and Design Manual (2003).

From these guidelines, the following design principles have been considered:

- Quantity control mitigation measures to ensure post development discharge rates do not exceed pre-development rates,
- Quality control mitigation measures to provide 'level 1', or enhanced, treatment of the 25mm quality rainfall event,

Water quantity and quality controls are thoroughly detailed in the MOE Design Manual for extended detention wet ponds.

2.0 STORM DRAINAGE

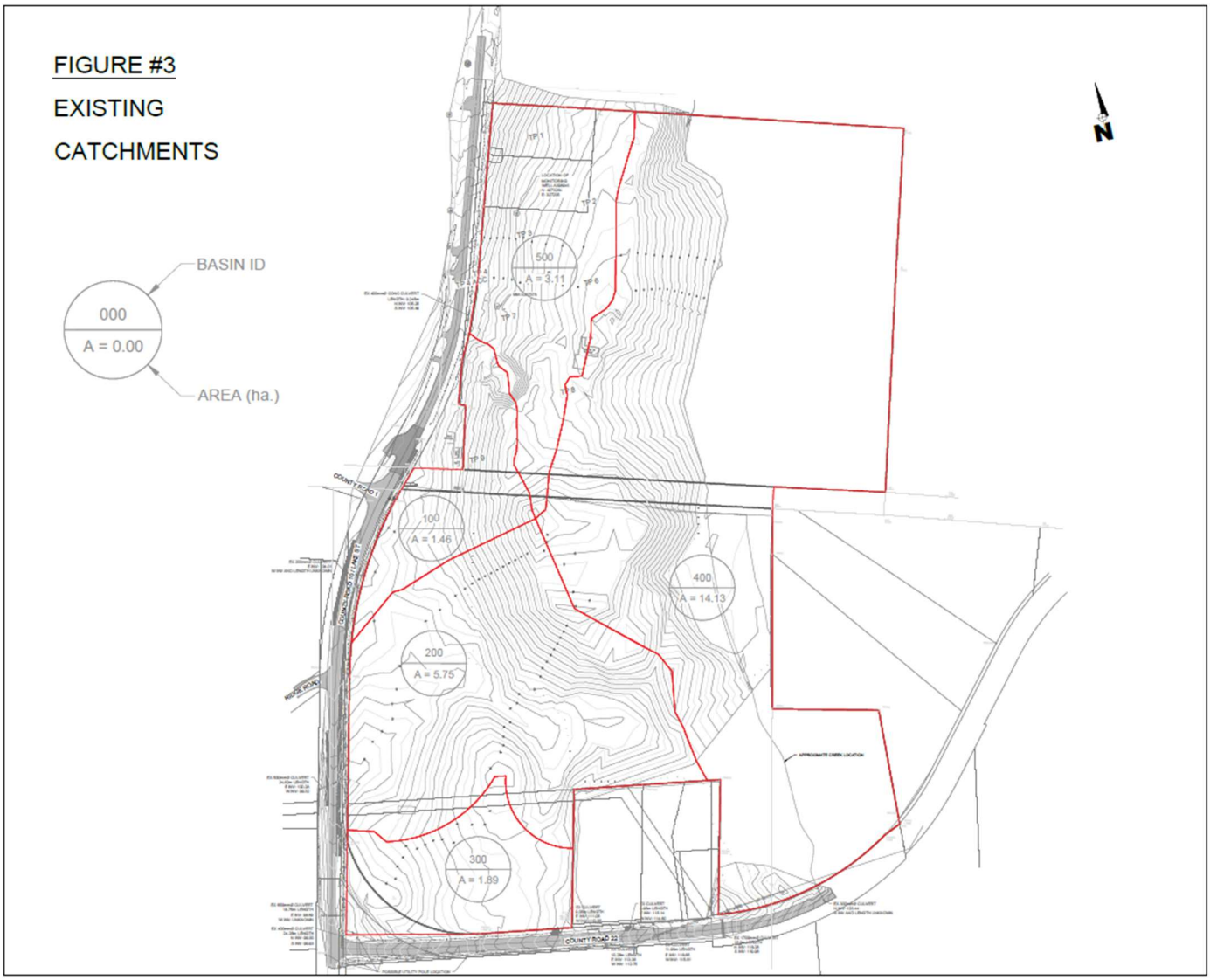
2.1 Existing Storm Drainage and Model Parameters

SWMHYMO Modeling software has been selected for modeling stormwater conditions. SWMHYMO generates rainfall hyetographs based on Intensity-Duration-Frequency (IDF) curve data that is inputted by the user. The Ministry of Transportation of Ontario (MTO) publishes IDF curve data for rainfall in the province. The MTO IDF curve data can be referred to in **Appendix 'A'** of this report.

2.2 Pre-development Conditions

The predevelopment site has been divided into five distinct sub-catchments; as outlined on the Predevelopment Storm Drainage Area Plan in **Figure 3**. For the purposes of this draft stormwater review only the internal catchments have been assessed to determine stormwater facility block sizing. The detailed report will evaluate external drainage for the purposes of conveyance and pond overflow requirements.

Under predevelopment conditions the area is undeveloped. The NASHYD watershed command is effective for modeling rural areas with high levels of infiltration. This command uses the Nash instantaneous unit hydrograph method to determine the outflow hydrograph and corresponding peak flow rates. The hydrograph is calculated based on a series of 'N' reservoirs. When T_p = 0.67 T_c, N = 3, and this is considered appropriate based on rainfall measurements in Ontario. Infiltration is calculated based on the SCS Curve Number (CN) method for loss. Selected composite CN values (MTO Drainage Management Manual), and time to peak calculations for each sub-catchment are included in Appendix A.



2.3 Proposed Conditions

The post development site has been divided into 5 sub-catchment areas, similar to the pre-development area.

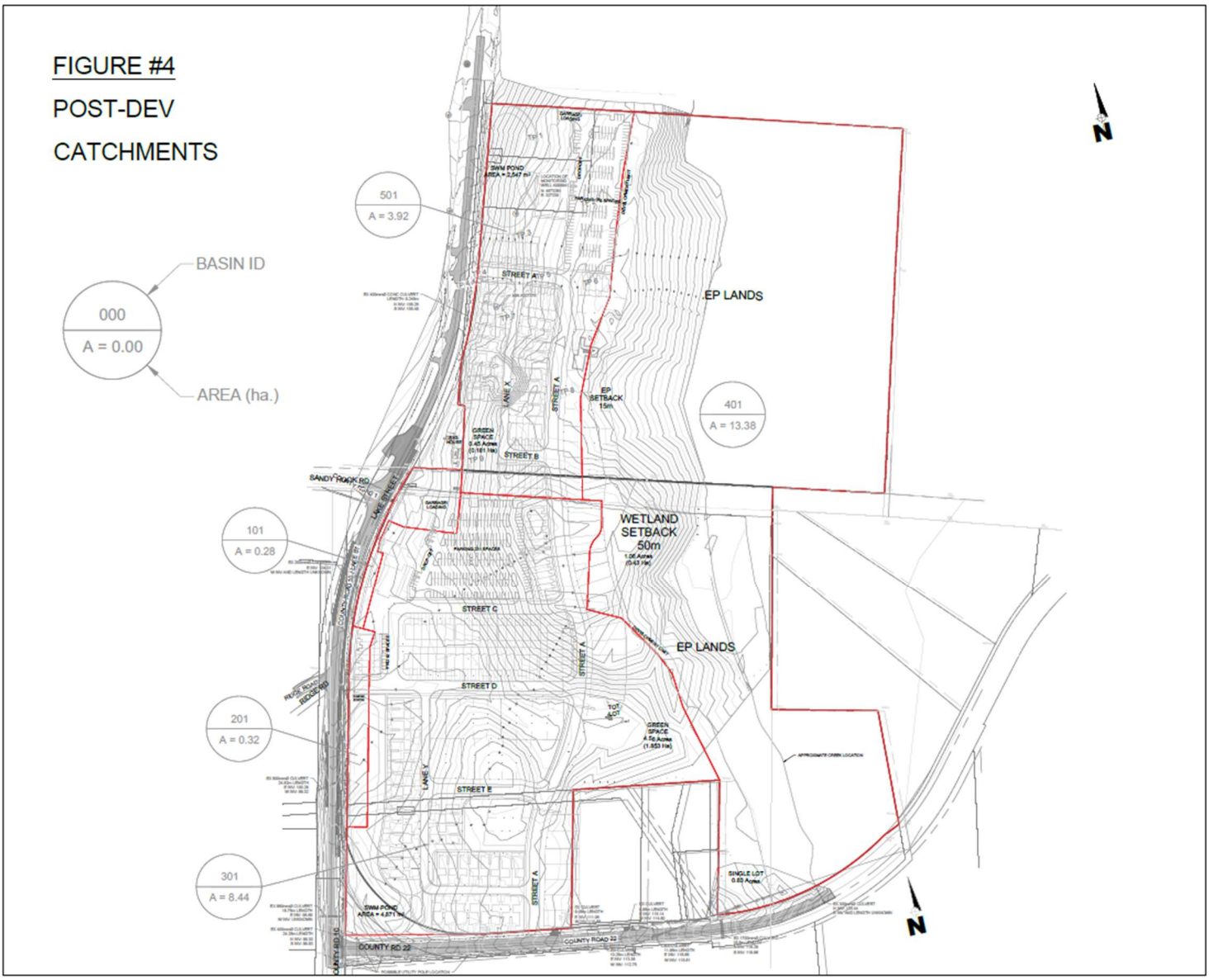
Areas that will undergo development have been assigned the STANDHYD command, which uses parallel instantaneous unit hydrographs for the impervious and pervious areas of the catchment to predict the resulting outflow hydrograph and peak flows. Infiltration is calculated based on the SCS Curve Number (CN) method for loss.

The basins have been assigned a conservative (higher than expected) % imperviousness for the preliminary pond sizing in support of draft plan approval. During detailed design the %imperviousness will be further refined. The following outines the imperviousness assigned to each catchment;

- 101 – 60%
- 201 – 60%
- 301 – 55%
- 401 – 5%*
- 501 – 65%

**The imperviousness is reflected in the modelling with an increased CN as the NASHYD command does not have an input for imperviousness, and the STANDHYD command is not appropriate for flows less than 20%.*

Further reference to these catchments can be made from the Post Development Storm Drainage Area Plan, shown in **Figure 4**.



2.4 Rainfall Distribution

Several rainfall distributions have been evaluated to determine the representative storm to be used for pond sizing. The following distributions were considered.

- 1 hr Chicago
- 4 hr Chicago
- 6 hr SCS Type II
- 12 hr SCS Type II
- 12 hr AES (30%)

100 year pre-development and post development estimates were generated using SWMHYMO for all areas, and pond volume estimates generated to determine the distribution that generate the largest storage requirement for the 5 catchment areas. The following Tables summarizes the findings.

Table 1 – 100 Year Storage Review – '100' areas

	Pre-Dev.	Post Dev.	Storage
Distribution	(cms)	(cms)	(ha.m)
1 hr Chicago	0.111	0.112	-
4 hr Chicago	0.149	0.122	-
6 hr SCS	0.123	0.034	-
12 hr SCS	0.139	0.036	-
12 hr AES	0.051	0.013	-

Table 2 – 100 Year Storage Review – '200' areas

	Pre-Dev.	Post Dev.	Storage
Distribution	(cms)	(cms)	(ha.m)
1 hr Chicago	0.360	0.134	-
4 hr Chicago	0.478	0.143	-
6 hr SCS	0.455	0.039	-
12 hr SCS	0.523	0.041	-
12 hr AES	0.196	0.015	-

Table 3 – 100 Year Storage Review – '300' areas

	Pre-Dev.	Post Dev.	Storage
Distribution	(cms)	(cms)	(ha.m)
1 hr Chicago	0.220	1.895	0.2619
4 hr Chicago	0.289	2.379	0.4374
6 hr SCS	0.191	0.977	0.5001
12 hr SCS	0.211	1.054	0.6467
12 hr AES	0.076	0.393	0.6467

Table 4 – 100 Year Storage Review – '400' areas

	Pre-Dev.	Post Dev.	Storage
Distribution	(cms)	(cms)	(ha.m)
1 hr Chicago	0.516	0.509	-
4 hr Chicago	0.678	0.667	-
6 hr SCS	0.776	0.761	-
12 hr SCS	0.929	0.908	-
12 hr AES	0.395	0.387	-

Table 5 – 100 Year Storage Review – '500' areas

	Pre-Dev.	Post Dev.	Storage
Distribution	(cms)	(cms)	(ha.m)
1 hr Chicago	0.162	1.141	0.1303
4 hr Chicago	0.217	1.265	0.2120
6 hr SCS	0.212	0.470	0.2428
12 hr SCS	0.248	0.504	0.3116
12 hr AES	0.092	0.187	0.3116

It can be seen in the above table that the 12 hr SCS and 12hr AES distributions generated the greatest storage requirement. However the AES generated lower pre-development rates, as such the 12 hr AES event has been selected as the representative distribution and the 2 year through 100 year rainfalls have been evaluated for the pre-development and post development conditions.

2.5 Existing Drainage Summary

The following table summarizes the SWMHYMO model peak flow rates for the 12hr AES distribution for each sub-catchment under each storm event. The model output can be referred to in Appendix 'B' of this report.

Table 6 - 12 hr AES Pre-Development Flows (m^3/s)

Event	100	200	300	400	500
2 year	0.013	0.051	0.022	0.102	0.023
5 year	0.022	0.085	0.035	0.166	0.038
10 year	0.029	0.110	0.045	0.214	0.050
25 year	0.037	0.143	0.057	0.282	0.066
50 year	0.044	0.169	0.066	0.337	0.78
100 year	0.051	0.196	0.076	0.395	0.092

2.6 Proposed Storm Drainage Summary

2.6.1 Uncontrolled Drainage

Areas 101, 201, and 401 represent the developed portion of the site that cannot be controlled at the ponds due to grading constraints. Flows from 101, and 201 will discharge to the municipal ditching on County Rd 10 prior to reaching the existing culverts, and flows from 401 will drain to the existing creek. As outlined in section 2.4 the post development flows are expected to be less than the pre-development rates for all distributions, as such no stormwater quantity mitigation is required for these portions of the development.

2.6.2 Pond Inflows and Allowable Release Rates

Area 301, and 501 represent the developed site areas that will ultimately outlet to the proposed stormwater management ponds. Stormwater quantity controls for design of the ponds are discussed in Section 3.2 below.

3.0 STORMWATER MANAGEMENT

3.1 Water Quality

Water Quality objectives have been taken from the Bay of Quinte RAP which indicates the required level of protection as 'Enhanced'. Enhanced protection corresponds to the end-of-pipe storage volumes required for the long-term average annual removal of 80% of suspended solids.

Table 3.2 of the Manual summarizes the volumetric water quality storage requirements, an excerpt of which has been provided below:

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

Area 301 will contribute to the stormwater pond to the south, while 501 will drain to the northern pond.

The total contributing area to the southern pond is 8.44 hectares, with an estimated imperviousness of 55%. Applying the storage volume requirement of 190 m^3/ha results in a total water quality storage volume of 1,613.6 m^3. Of this, 40 m^3/ha is extended detention. The water quality volume is therefore comprised of 337.6 m^3 for extended detention storage and 1,266 m^3 for permanent pool storage.

The total contributing area to the northern pond is 3.92 hectares, with an estimated imperviousness of 65%. Applying the storage volume requirement of 213.3 m^3/ha results in a total water quality storage volume of 836.1 m^3. Of this, 40 m^3/ha is extended detention. The water quality volume is therefore comprised of 156.8 m^3 for extended detention storage and 679.3 m^3 for permanent pool storage.

Area 101 will include some road areas and should be reviewed during detailed design to determine is an oil grit unit should be implemented.

Area 201 is expected to consist of only rootop and rear yard runoff and as such would be relatively clean and would not require any quality treatment.

Area 501 will consist of only residential rooftop and rear yard runoff and as such would be relatively clean and would not require any quality treatment.

3.1.1 Permanent Pool Sizing

In following the MOE Design Manual, equations 4.5, 4.6. and 4.7, the forbay sizing for each pond has been determined as follows;

- Pond 301 : minimum length of 9.04m, a bottom width of 1.13m, and a depth of 1.0m
- Pond 501 : minimum length of 6.53m, a bottom width of 0.82m, and a depth of 1.0m

Appendix ‘C’ provides the calculations.

To prevent seepage of stormwater from the permanent pools or groundwater interception, a liner will need to be installed along each pond bottom, extending to above the height of the extended detention quality depth.

3.1.2 Extended Detention Quality Storage Sizing

Utilizing a stage-storage-discharge (SSD) relationship and the Route Reservoir command in SWMHYMO a 24hr draw down volume of 939.1m^3 has been estimated for Pond 301, and 476.4 m^3 for Pond 501. These exceed the volume recommended by Table 3.2 of the MOE manual and therefore governs.

A depth of 0.3m, controlled with a 100mm orifice is required to achieve the target 0.012m^3/s 24hr draw down for Pond 301, and a depth of 0.3m, controlled with a 75 mm orifice is required to achieve the target 0.006 m^3/s 24hr draw down for Pond 501.

Refer to Appendix ‘B’ for the stage-storage-discharge relationships.

3.2 Water Quantity

The ROUTERESERVOIR command was used to model the proposed ponding scenario (SSD) for all storms ranging from the 2-year up to and including the 100-year AES event. Table 3 and 4 below summarizes the uncontrolled runoff from Area 301 and Area 501, pond release rates, and post development outflows for storm events ranging from the 2-year up to and including the 100-year storm from the 2 proposed ponds.

Table 7 – Post Development Flows (m^3/s) – Pond 301

	Pre-Dev	Post - uncontrolled	Post Controlled	Storage required
2 year	0.022	0.137	0.038	1762
5 year	0.035	0.203	0.050	2580
10 year	0.045	0.248	0.057	3159
25 year	0.057	0.304	0.065	3908
50 year	0.066	0.348	0.070	4496
100 year	0.076	0.393	0.075	5113

The outlet for the quantity events will be controlled by a combination of the quality orifice (100mm) and a quantity orifice (140mm). The total storage volume required is 5,113m^3 at a total active depth of 1.7m.

An overflow weir and 0.3m freeboard has been sized at a width of 8.5m.

Table 8 – Post Development Flows (m^3/s) – Pond 501

	Pre-Dev	Post - uncontrolled	Post Controlled	Storage required
2 year	0.023	0.068	0.041	666.5
5 year	0.038	0.099	0.057	867.1
10 year	0.050	0.120	0.067	1056
25 year	0.066	0.146	0.078	1285
50 year	0.078	0.167	0.085	1471
100 year	0.092	0.187	0.093	1669

The outlet for the quantity events will be controlled by a combination of the quality orifice (75mm) and a quantity orifice (207mm). The total storage volume required is 1669m^3 at a total active depth of 1.2m.

An overflow weir and 0.3m freeboard has been sized at a width of 4.2m.

The preliminary modelling for both facilities is showing the discharge in the 2 year to 50 year events will exceed predevelopment flows. Further assessment is required at detailed design to refine the modelling and final pond geometry and outlet control.

Refer to Appendix 'B' for the stage-storage-discharge relationship that was generated for the pond.

3.3 Groundwater Impacts

Per QC's SWM manual (section 1.1.8) a review of groundwater impacts is required to ensure a facility does not create adverse impacts. As outlined in Section 3.1.1 a clay liner is recommended in the permanent pool portion of the ponds to prevent both seepage from the pond into the groundwater and interception of the groundwater table.

Additionally, it is recommended that through detailed design and construction LID measures be implemented as best possible to provide opportunities for surface runoff to be infiltrated into the groundwater regime. The follow measures are to be implemented in the detailed grading plan;

- Roof top leaders to pervious surfaces
- Reduced lot grading, where feasible
- Vegetated side yard and rear yard swales
- Major conveyance swales to be enhanced – with flat bottoms and check dams

Some of the above mentioned measures may require additional design justification during detailed design of the development.

4.0 Maintenance

Based on the annual loading rates provided in the MOE manual it has been estimated that both ponds forebays will require cleanout on a minimum 10 year cycle and the main cells should have a clean out on a minimum 20 year cycle.

The permanent pool portions of the forebay and main pond were sized with consideration for the loss of storage volume based on accumulated sediment.

Supporting calculations are provided in Appendix D.

A O&M manual should be provided prior to request for Municipal assumption.

5.0 Temporary Erosion and Sedimentation Controls

An erosion and sediment control strategy will be implemented as per the plan included in the drawing package in order to minimize the transfer of silt off site during construction. The following measures should be incorporated into the strategy as required:

- Environmental fencing and straw bales
- Regular inspection of the erosion and sediment control devices
- Removal & disposal of the erosion and sediment control devices after the site has been stabilized
- Removal of sediment from pond prior to request for municipal assumption
- All exposed earth to be re-vegetated

6.0 Conclusions

- Quality control is provided in two (2) wet pond facilities that will achieve a level 1 (enhanced) treatment.
- Quantity control is required in the facilities to control discharge from the ponds to ensure the total discharge from the development limits is maintained to pre-development levels.
- Silt fencing and straw bale barriers will be in place during construction.
- The forebays will require removal of accumulated sediment on a 10 year cycle and the main cells should have a cleanout on a minimum 20 year cycle.

Respectfully Submitted,

Adam Wilson, P.Eng
WSE Consulting Inc.

Appendix A

Active coordinate

43° 59' 15" N, 77° 9' 15" W (43.987500,-77.154167)

Retrieved: Tue, 29 Aug 2023 12:30:28 GMT

Location summary

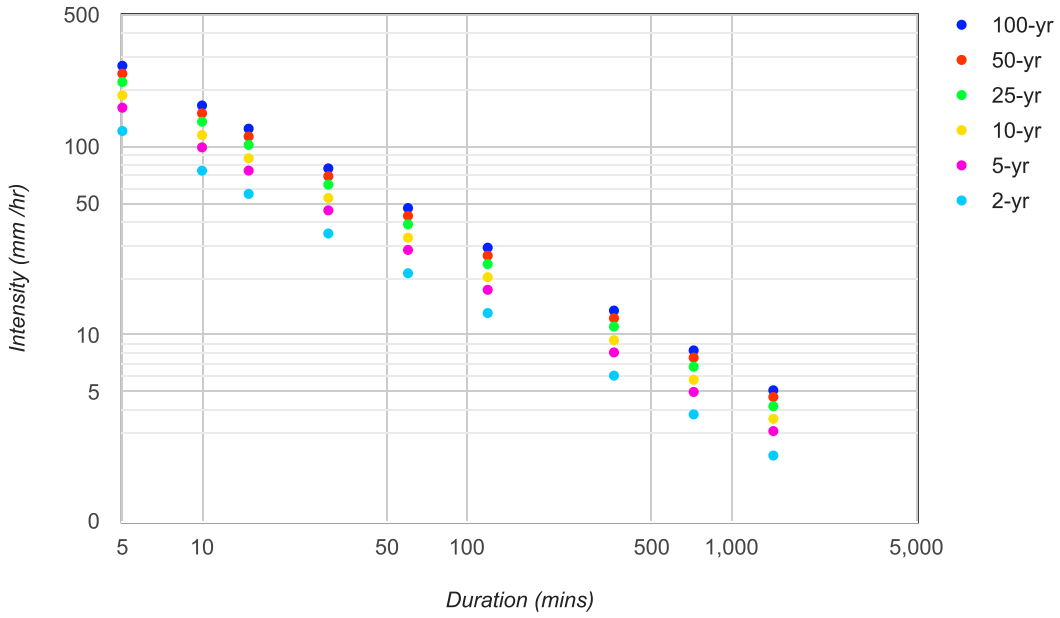
These are the locations in the selection.

IDF Curve: 43° 59' 15" N, 77° 9' 15" W (43.987500,-77.154167)

Results

An IDF curve was found.

Coordinate: 43.987500, -77.154167
IDF curve year: 2010



Coefficient summary

IDF Curve: 43° 59' 15" N, 77° 9' 15" W (43.987500,-77.154167)

Retrieved: Tue, 29 Aug 2023 12:30:28 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	21.3	28.3	32.9	38.7	42.9	47.2
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

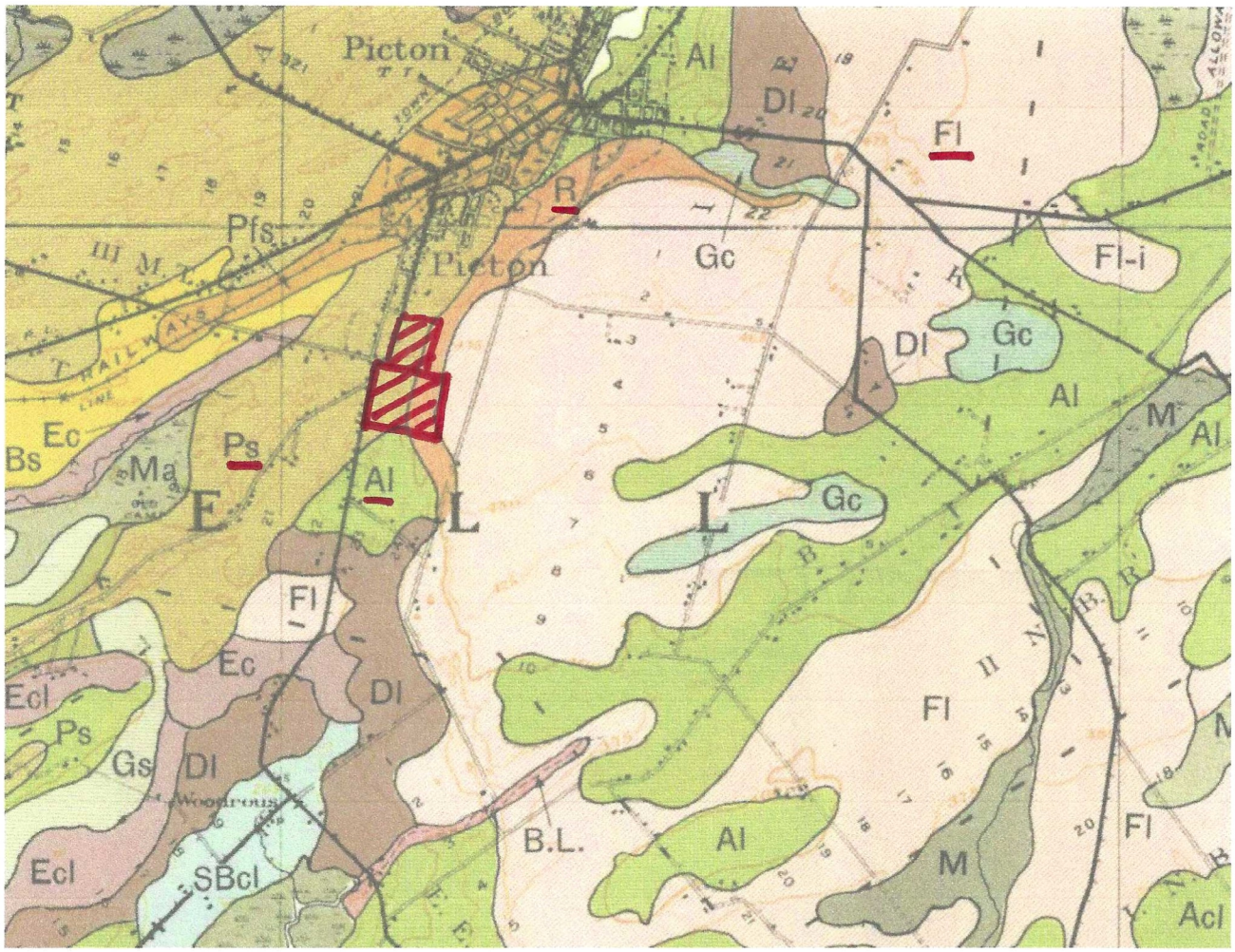
Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	121.0	74.5	56.1	34.6	21.3	13.1	6.1	3.8	2.3
5-yr	160.7	99.0	74.6	45.9	28.3	17.4	8.1	5.0	3.1
10-yr	186.9	115.1	86.7	53.4	32.9	20.3	9.4	5.8	3.6
25-yr	219.8	135.4	102.0	62.8	38.7	23.8	11.1	6.8	4.2
50-yr	243.7	150.1	113.1	69.6	42.9	26.4	12.3	7.6	4.7
100-yr	268.1	165.1	124.4	76.6	47.2	29.1	13.5	8.3	5.1

Rainfall depth (mm)

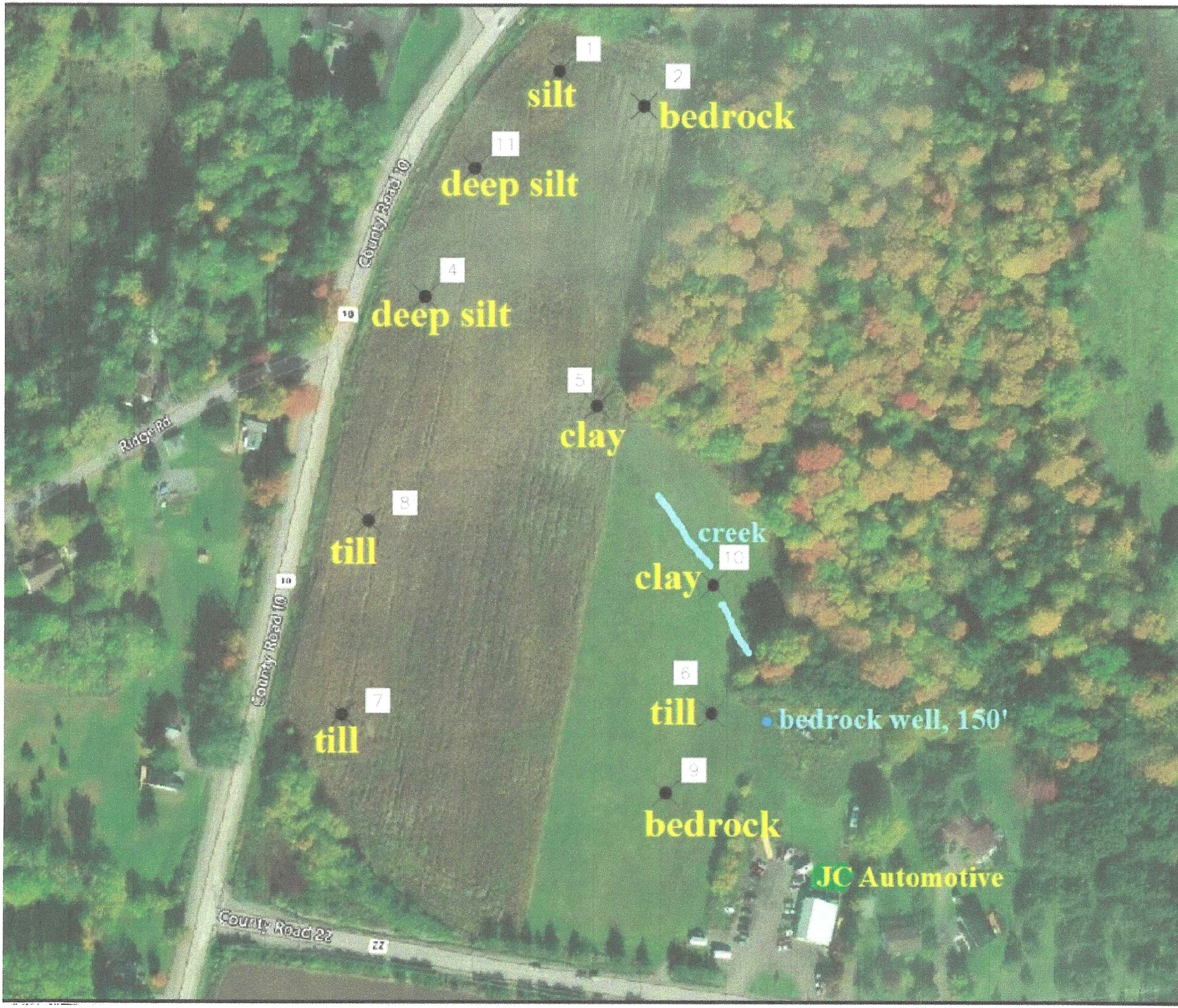
Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	10.1	12.4	14.0	17.3	21.3	26.2	36.5	45.0	55.4
5-yr	13.4	16.5	18.6	23.0	28.3	34.9	48.5	59.8	73.7
10-yr	15.6	19.2	21.7	26.7	32.9	40.5	56.4	69.5	85.6
25-yr	18.3	22.6	25.5	31.4	38.7	47.7	66.4	81.8	100.7
50-yr	20.3	25.0	28.3	34.8	42.9	52.9	73.6	90.6	111.7
100-yr	22.3	27.5	31.1	38.3	47.2	58.2	80.9	99.7	122.9

Terms of Use



SOIL MATERIAL	Shallow over bedrock	Moderately shallow over bedrock		
NATURAL DRAINAGE	Good	Good	Good	Poor
SERIES	FARMINGTON	AMELIASBURG	ATHOL	GEROW
COLOUR				
TYPE, SYMBOL AND ACREAGE	Loam Fl—48,600	Clay loam Acl—25,200 loam Al —25,600	Sandy loam Asl—2,700	Clay loam Gc—11,600
TOPOGRAPHY	Level to undulating	Undulating to rolling	Level to undulating	Level
SURFACE STONINESS	Stony	Stony	Stony	Stony
SURFACE REACTION	Alkaline	Alkaline	Neutral to alkaline	Alkaline
PROFILE DEVELOPMENT	Less than one foot of soil over bedrock. 6,500 acres of imperfectly drained phase (Fl-i) occur in depressional areas.	One to three feet of soil over bedrock. 5,900 acres imperfectly drained phase (Ac-i) occur in depressional areas.	One to three feet light textured soil underlain by bedrock. Profile weakly developed	Poorly developed. Surface soil high in organic matter. One to three feet of clay underlain by bedrock

Excessive	
ROCK	
R—2,500	
Little or no soil covering. Usually occur as steep, bold escarpments. Reaction alkaline.	



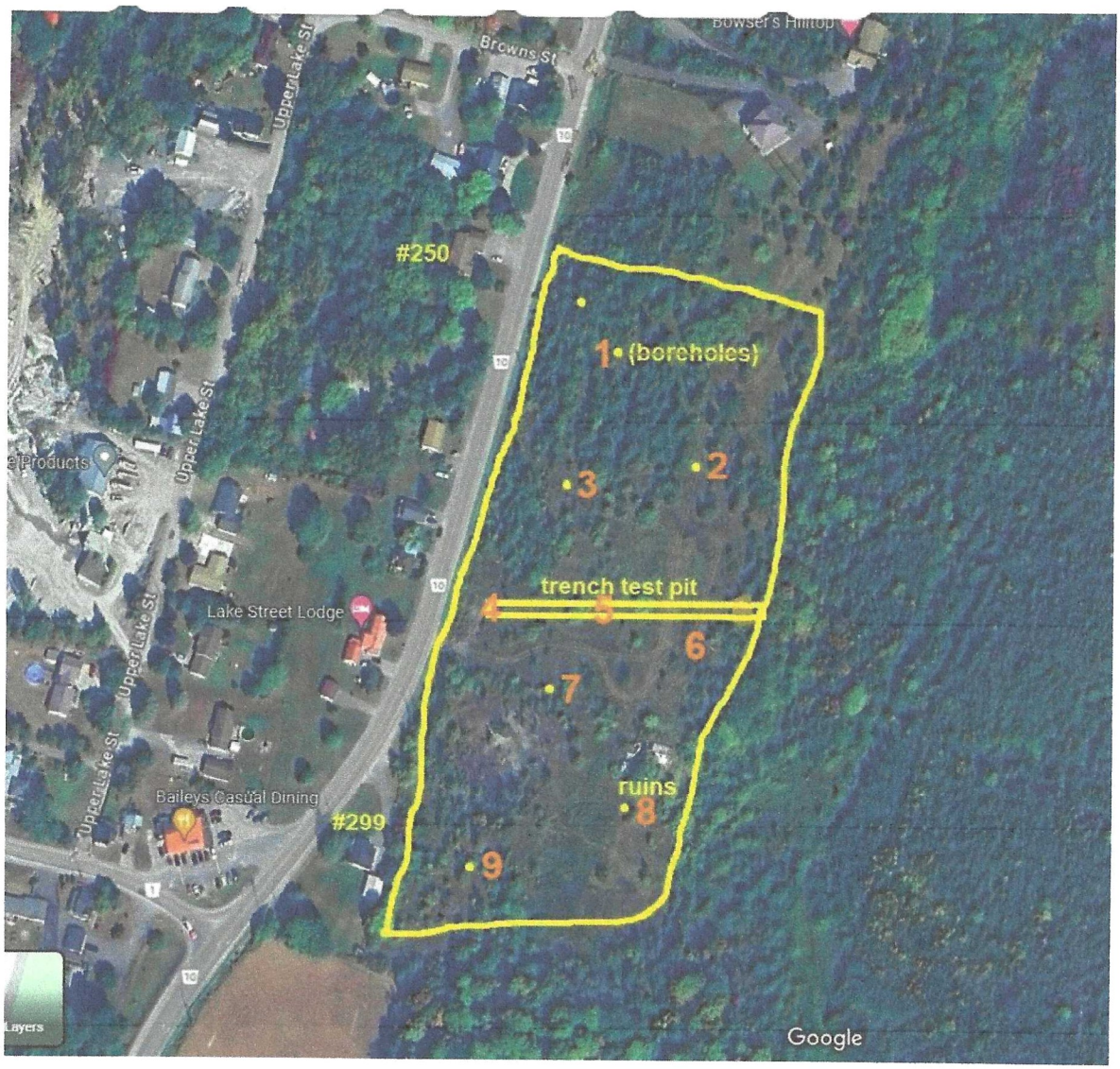
THE GREEN GALLOWAY
ENGINEERING
1120 MILLSHORE
BELLEVILLE, ONTARIO
PHONE
FAX

NOTES:
1. ALL WORK SHALL BE IN ACCORDANCE
CODES AND GUIDELINES.
2. ALL DRAWINGS AND ADDENDA ARE TO
AND IN CONJUNCTION WITH THE SPECIFICAT
3. ALL EQUIPMENT SHALL BE INSTALLED
APPROVED EQUIPMENT.
4. CONTRACTOR MUST CHECK AND VERIFY
BEFORE PROCEEDING WITH WORK AND BE
FOR SAME.
5. CONTRACTOR MUST REPORT ANY OBSCRE
ENGINEER FOR VERIFICATION BEFORE COMME
WORK.
6. ANY CHANGES MUST BE APPROVED BY T
A
B

PROJECT
LAKE STREET
DEVELOPMENT
PICTON, ONTARIO
DRAWING TITLE
BORE HOLE LOCT

05	
04	
03	
02	
01	FOR REVIEW
REVISION	

DESIGNED BY
DRAWN BY
TL
CHECKED BY
APPROVED BY
PROJECT DATE
23/03/2023
PROJECT #
22-3-6549
SCALE
HORIZ. N.T.S.
VERT. N/A
DRAWING #
BH-1

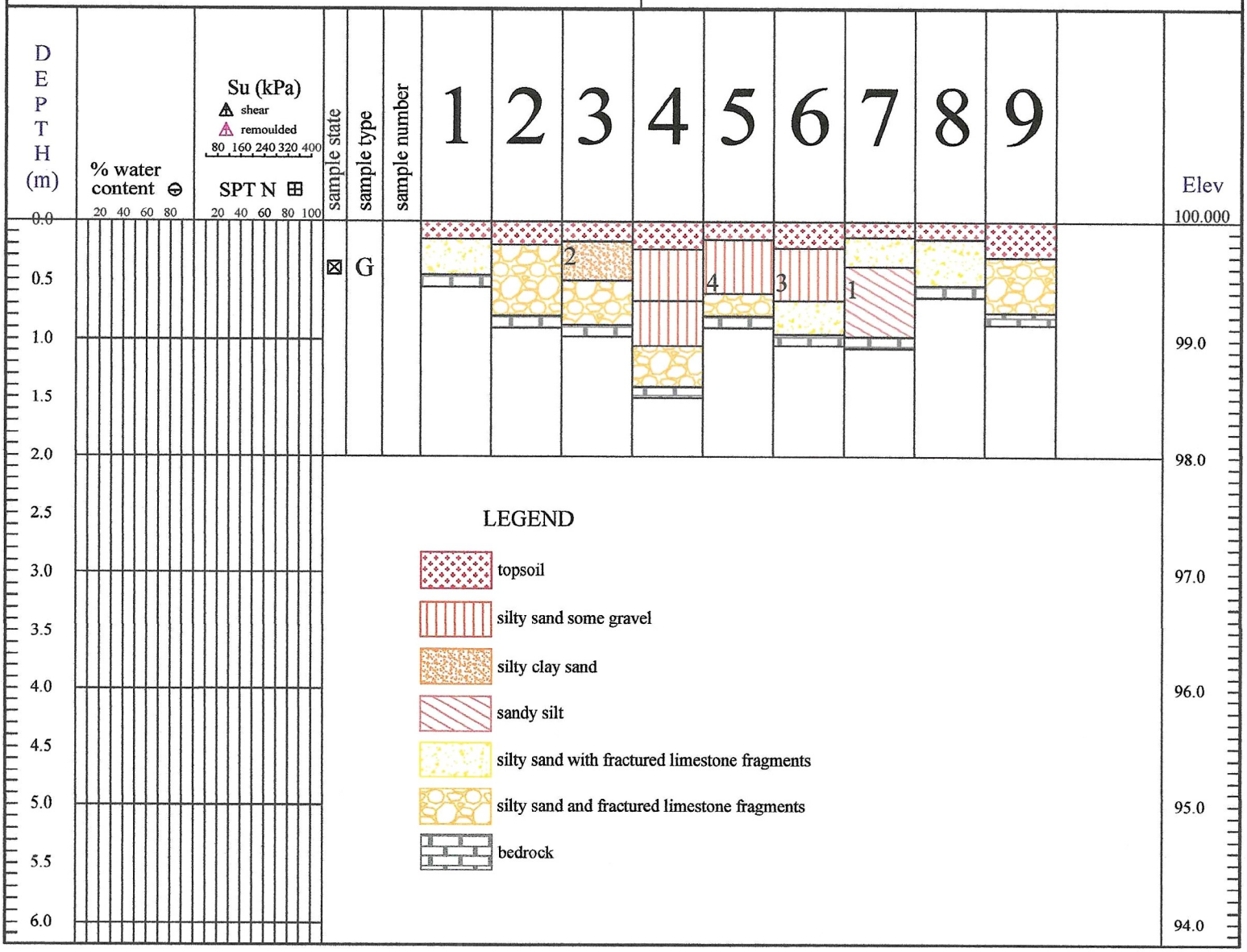


Google Overhead Photo of Site

Soil Log

PROJECT: 287 Lake Street, Picton
Project No. 23-3-6593
DATE: May 29, 2024
Sample Type A: auger S: spoon
Sample State ⊠ remoulded ■ intact

Test Hole Data
METHOD: Excavation
▼ encountered water elevation



Design Chart 1.08: Hydrologic Soil Groups (Continued)

- Based on Soil Texture

Sands, Sandy Loams and Gravels	
- overlying sand, gravel or limestone bedrock, very well drained	A
- ditto, imperfectly drained	AB
- shallow, overlying Precambrian bedrock or clay subsoil	B
Medium to Coarse Loams	
- overlying sand, gravel or limestone, well drained	AB
- shallow, overlying Precambrian bedrock or clay subsoil	B
Medium Textured Loams	
- shallow, overlying limestone bedrock	B
- overlying medium textured subsoil	BC
Silt Loams, Some Loams	
- with good internal drainage	BC
- with slow internal drainage and good external drainage	C
Clays, Clay Loams, Silty Clay Loams	
- with good internal drainage	C
- with imperfect or poor external drainage	C
- with slow internal drainage and good external drainage	D

Source: U.S. Department of Agriculture (1972)

Design Chart 1.09: Soil Conservation Service Curve Numbers (Continued)

Land Use or Surface	Hydrologic Soil Group						
	A	AB	B	BC	C	CD	D
Fallow (special cases only)	77	82	86	89	91	93	94
Crop and other improved land	66** (62)	70** (68)	74	78	82	84	86 AMC I
Pasture & other unimproved land	58* (38)	62* (51)	65	71	76	79	81
Woodlots and forest	50* (30)	54* (44)	58	65	71	74	77
Impervious areas (paved)							98
Bare bedrock draining directly to stream by surface flow							98
Bare bedrock draining indirectly to stream as groundwater (usual case)							70
Lakes and wetlands							50

Notes

(i) All values are based on AMC II except those marked by * (AMC III) or ** (mean of AMC II and AMC III).

(ii) Values in brackets are AMC II and are to be used only for special cases.

(iii) Table is not applicable to frozen soils or to periods in which snowmelt contributes to runoff.

Design Chart 1.07: Runoff Coefficients (Continued)

- Rural

Land Use & Topography[3]	Soil Texture		
	Open Sand Loam	Loam or Silt Loam	Clay Loam or Clay
CULTIVATED			
Flat 0 - 5% Slopes	0.22	0.35	0.55
Rolling 5 - 10% Slopes	0.30	0.45	0.60
Hilly 10- 30% Slopes	0.40	0.65	0.70
PASTURE			
Flat 0 - 5% Slopes	0.10	0.28	0.40
Rolling 5 - 10% Slopes	0.15	0.35	0.45
Hilly 10- 30% Slopes	0.22	0.40	0.55
WOODLAND OR CUTOVER			
Flat 0 - 5% Slopes	0.08	0.25	0.35
Rolling 5 - 10% Slopes	0.12	0.30	0.42
Hilly 10- 30% Slopes	0.18	0.35	0.52
BARE ROCK	COVERAGE[3]		
	30%	50%	70%
Flat 0 - 5% Slopes	0.40	0.55	0.75
Rolling 5 - 10% Slopes	0.50	0.65	0.80
Hilly 10- 30% Slopes	0.55	0.70	0.85
LAKES AND WETLANDS	0.05		

0.53

0.36.

[2] Terrain Slopes

[3] Interpolate for other values of % imperviousness

Sources: American Society of Civil Engineers - ASCE (1960)
U.S. Department of Agriculture (1972)

Time to Peak Calculation

100

RC		0.445	(50% @ 0.36, 50% @ 0.53)
CN		76.5	(50% @ 71, 50% @ 82)
length		260	m
		0.26	km
width	-		m
slope		5.7	%
area		1.46	ha
		0.0146	sq. km

Airport Method *tc=[3.26(1.1-RC)*L^0.5] / [s^0.333]*

tc=	19.2859	min	0.32143	hr
tp=	11.5715	min	0.19286	hr

200

RC		0.445	(50% @ 0.36, 50% @ 0.53)
CN		76.5	(50% @ 71, 50% @ 82)
length		320	m
		0.32	km
width	-		m
slope		3.1	%
area		5.74	ha
		0.0574	sq. km

Airport Method *tc=[3.26(1.1-RC)*L^0.5] / [s^0.333]*

tc=	26.2066	min	0.43678	hr
tp=	15.724	min	0.26207	hr

300

RC		0.53	
CN		82	
length		190	m
		0.19	km
width	-		m
slope		6.3	%
area		1.89	ha
		0.0189	sq. km

Airport Method *tc=[3.26(1.1-RC)*L^0.5] / [s^0.333]*

tc=	13.8768	min	0.23128	hr
tp=	8.32607	min	0.13877	hr

400

RC		0.36	
CN		71	
length		685	m
		0.685	km
width	-		m
slope		2.77	%
area		13.97	ha
		0.1397	sq. km

Airport Method *tc=[3.26(1.1-RC)*L^0.5] / [s^0.333]*

tc=	44.9727	min	0.74954	hr
tp=	26.9836	min	0.44973	hr

500

RC		0.36	
CN		71	
length		365	m
		0.365	km
width	-		m
slope		5.8	%
area		3.11	ha
		0.0311	sq. km

Airport Method *tc=[3.26(1.1-RC)*L^0.5] / [s^0.333]*

tc=	25.6669	min	0.42778	hr
tp=	15.4002	min	0.25667	hr

Appendix B

```
 SSSSS  W    W  M    M  H    H  Y    Y  M    M   OOO        999    999  =========
 S      W W W  MM MM  H    H   Y Y     MM MM  O   O      9   9  9   9
 SSSSS  W W W  M M M  HHHHH    Y      M M M  O   O  ##  9   9  9   9 Ver. 4.02
     S  W W W  M    M  H    H   Y      M    M  O   O       9999   9999 July 1999
 SSSSS   W W   M    M  H    H   Y      M    M   OOO           9      9 =========
                                                          9   9  9   9
      StormWater Management HYdrologic Model             999    999  =========

 ************************************************************************
 ************************** SWMHYMO-99 Ver/4.02 *************************
 *******  A single event and continuous hydrologic simulation model  *******
 *******     based on the principles of HYMO and its successors      *******
 *******                 OTTHYMO-83 and OTTHYMO-89.                  *******
 ************************************************************************
 ************************************************************************
 *******           ++++++ PROGRAM ARRAY DIMENSIONS ++++++             *******
 *******           Maximum value for ID numbers  :     10            *******
 *******           Max. number of rainfall points:  15000            *******
 *******           Max. number of flow points    :  15000            *******
 ************************************************************************


 ********************   D E T A I L E D   O U T P U T   *********************
 ************************************************************************
 ************************************************************************
 * Input   filename: C:\SWMHYM~1\LAKEST~1\100year.dat                    *
 * Output  filename: C:\SWMHYM~1\LAKEST~1\100year.out                    *
 * Summary filename: C:\SWMHYM~1\LAKEST~1\100year.sum                    *
 * User comments:                                                       *
 * 1:_____________________________________________________________________*
 * 2:_____________________________________________________________________*
 * 3:_____________________________________________________________________*
 ************************************************************************


------------------------------------------------------------------------------
001:0001------------------------------------------------------------------------
*#*************************************************************************
*#  Project Name: [Lake Street]    Project Number: 2022
*#  Date        : 10-08-2022
*#  Modeller    : []
*#  Company     :
*#  License #   :
*#*************************************************************************
-------------------
| START           |  Project  dir.: C:\SWMHYM~1\LAKEST~1\
-------------------  Rainfall dir.: C:\SWMHYM~1\LAKEST~1\
    TZERO =   .00 hrs on       0
    METOUT=   2 (output = METRIC)
    NRUN  = 001
    NSTORM=   0
------------------------------------------------------------------------------
001:0002------------------------------------------------------------------------
*
*****************************************************************************
*****************************************************************************
*****************************************************************************
*
*                            Existing Condition
*
*****************************************************************************
*
*
* 100 year event - 1 hr Chicago
*
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 971.139
| Ptotal= 48.81 mm |                          B=   1.500
--------------------                          C=    .726
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  1.00 hrs
                        Storm time step    =  2.00 min
                        Time to peak ratio =   .33

                    The CORRELATION coefficient is = .9996862

                     TIME        ENTERED             COMPUTED
                     (min)        (mm/hr)             (mm/hr)
                        5.         268.10              249.52
                       10.         165.10              164.90
                       15.         124.40              126.88
                       30.          76.60               79.34
                       60.          47.20               48.82
                      120.          29.10               29.78
                      360.          13.50               13.49
                      720.           8.30                8.17
                     1440.           5.10                4.94

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .03  15.562 |   .30 121.721 |   .57  32.195 |   .83  17.704
                 .07  17.083 |   .33 391.100 |   .60  28.944 |   .87  16.846
                 .10  19.009 |   .37 155.358 |   .63  26.366 |   .90  16.081
                 .13  21.539 |   .40  89.546 |   .67  24.267 |   .93  15.393
                 .17  25.035 |   .43  64.172 |   .70  22.521 |   .97  14.770
                 .20  30.231 |   .47  50.663 |   .73  21.043 |  1.00  14.204
                 .23  38.904 |   .50  42.230 |   .77  19.774 |
                 .27  56.826 |   .53  36.437 |   .80  18.672 |

------------------------------------------------------------------------------
001:0003------------------------------------------------------------------------
*
* Area 100
*
---------------------
| CALIB NASHYD      |   Area     (ha)=    1.46   Curve Number   (CN)=76.50
| 01:100    DT= 2.00 |   Ia       (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .192

     Unit Hyd Qpeak  (cms)=     .290

     PEAK FLOW       (cms)=     .111 (i)
     TIME TO PEAK    (hrs)=     .600
     RUNOFF VOLUME    (mm)=   16.344
     TOTAL RAINFALL   (mm)=   48.806
     RUNOFF COEFFICIENT   =     .335

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

------------------------------------------------------------------------------
001:0004------------------------------------------------------------------------
*
* Area 200
*
---------------------
| CALIB NASHYD      |   Area     (ha)=    5.75   Curve Number   (CN)=76.50
| 02:200    DT= 2.00 |   Ia       (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .262

     Unit Hyd Qpeak  (cms)=     .838

     PEAK FLOW       (cms)=     .360 (i)
     TIME TO PEAK    (hrs)=     .700
     RUNOFF VOLUME    (mm)=   16.344
     TOTAL RAINFALL   (mm)=   48.806
     RUNOFF COEFFICIENT   =     .335

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

------------------------------------------------------------------------------
001:0005------------------------------------------------------------------------
*
* Area 300
*
---------------------
| CALIB NASHYD      |   Area     (ha)=    1.89   Curve Number   (CN)=82.00
| 03:300    DT= 2.00 |   Ia       (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .139

     Unit Hyd Qpeak  (cms)=     .519

     PEAK FLOW       (cms)=     .220 (i)
     TIME TO PEAK    (hrs)=     .500
     RUNOFF VOLUME    (mm)=   19.964
     TOTAL RAINFALL   (mm)=   48.806
     RUNOFF COEFFICIENT   =     .409

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

------------------------------------------------------------------------------
001:0006------------------------------------------------------------------------
*
* Area 400
*
---------------------
| CALIB NASHYD      |   Area     (ha)=   14.13   Curve Number   (CN)=71.00
| 04:400    DT= 2.00 |   Ia       (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.199

     PEAK FLOW       (cms)=     .516 (i)
     TIME TO PEAK    (hrs)=     .967
     RUNOFF VOLUME    (mm)=   13.514
     TOTAL RAINFALL   (mm)=   48.806
     RUNOFF COEFFICIENT   =     .277

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

------------------------------------------------------------------------------
001:0007------------------------------------------------------------------------
*
* Area 500
*
---------------------
| CALIB NASHYD      |   Area     (ha)=    3.11   Curve Number   (CN)=71.00
| 05:500    DT= 2.00 |   Ia       (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .257
```

```
     Unit Hyd Qpeak  (cms)=     .462

     PEAK FLOW       (cms)=     .162 (i)
     TIME TO PEAK    (hrs)=     .700
     RUNOFF VOLUME    (mm)=   13.514
     TOTAL RAINFALL   (mm)=   48.806
     RUNOFF COEFFICIENT   =     .277

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

-------------------------------------------------------------------------------
001:0008---------------------------------------------------------------------
*
*
*********************************************************************************
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*********************************************************************************
*********************************************************************************
*
*
* 100 year event - 4 hr Chicago
*
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 971.139
| Ptotal= 72.33 mm |                          B=   1.500
--------------------                          C=    .726
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  4.00 hrs
                        Storm time step    =  2.00 min
                        Time to peak ratio =   .33

                    The CORRELATION coefficient is = .9996862

                     TIME        ENTERED              COMPUTED
                     (min)       (mm/hr)               (mm/hr)
                       5.         268.10                249.52
                      10.         165.10                164.90
                      15.         124.40                126.88
                      30.          76.60                 79.34
                      60.          47.20                 48.82
                     120.          29.10                 29.78
                     360.          13.50                 13.49
                     720.           8.30                  8.17
                    1440.           5.10                  4.94

              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .03   5.110 |   1.03  15.562 |  2.03  13.687 |   3.03   7.038
               .07   5.209 |   1.07  17.083 |  2.07  13.212 |   3.07   6.937
               .10   5.314 |   1.10  19.009 |  2.10  12.774 |   3.10   6.840
               .13   5.423 |   1.13  21.539 |  2.13  12.369 |   3.13   6.746
               .17   5.537 |   1.17  25.035 |  2.17  11.993 |   3.17   6.655
               .20   5.658 |   1.20  30.231 |  2.20  11.644 |   3.20   6.567
               .23   5.785 |   1.23  38.904 |  2.23  11.317 |   3.23   6.481
               .27   5.919 |   1.27  56.826 |  2.27  11.011 |   3.27   6.399
               .30   6.060 |   1.30 121.721 |  2.30  10.725 |   3.30   6.318
               .33   6.210 |   1.33 391.100 |  2.33  10.455 |   3.33   6.240
               .37   6.369 |   1.37 155.358 |  2.37  10.201 |   3.37   6.164
               .40   6.538 |   1.40  89.546 |  2.40   9.961 |   3.40   6.091
               .43   6.719 |   1.43  64.172 |  2.43   9.734 |   3.43   6.019
               .47   6.911 |   1.47  50.663 |  2.47   9.519 |   3.47   5.950
               .50   7.117 |   1.50  42.230 |  2.50   9.314 |   3.50   5.882
               .53   7.338 |   1.53  36.437 |  2.53   9.120 |   3.53   5.816
               .57   7.576 |   1.57  32.195 |  2.57   8.936 |   3.57   5.752
               .60   7.834 |   1.60  28.944 |  2.60   8.760 |   3.60   5.689
               .63   8.113 |   1.63  26.366 |  2.63   8.591 |   3.63   5.628
               .67   8.417 |   1.67  24.267 |  2.67   8.431 |   3.67   5.569
               .70   8.750 |   1.70  22.521 |  2.70   8.277 |   3.70   5.511
               .73   9.116 |   1.73  21.043 |  2.73   8.130 |   3.73   5.454
               .77   9.520 |   1.77  19.774 |  2.77   7.989 |   3.77   5.399
               .80   9.969 |   1.80  18.672 |  2.80   7.853 |   3.80   5.345
               .83  10.473 |   1.83  17.704 |  2.83   7.723 |   3.83   5.293
               .87  11.041 |   1.87  16.846 |  2.87   7.598 |   3.87   5.241
               .90  11.688 |   1.90  16.081 |  2.90   7.478 |   3.90   5.191
               .93  12.432 |   1.93  15.393 |  2.93   7.362 |   3.93   5.142
               .97  13.300 |   1.97  14.770 |  2.97   7.250 |   3.97   5.094
              1.00  14.326 |   2.00  14.204 |  3.00   7.142 |   4.00   5.047

-------------------------------------------------------------------------------
001:0009---------------------------------------------------------------------
*
* Area 100
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.46   Curve Number   (CN)=76.50
| 01:100    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .192

     Unit Hyd Qpeak  (cms)=     .290

     PEAK FLOW       (cms)=     .149 (i)
     TIME TO PEAK    (hrs)=    1.567
     RUNOFF VOLUME    (mm)=   31.904
     TOTAL RAINFALL   (mm)=   72.334
     RUNOFF COEFFICIENT   =     .441

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

-------------------------------------------------------------------------------
001:0010---------------------------------------------------------------------
*
* Area 200
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    5.75   Curve Number   (CN)=76.50
| 02:200    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .262

     Unit Hyd Qpeak  (cms)=     .838

     PEAK FLOW       (cms)=     .478 (i)
     TIME TO PEAK    (hrs)=    1.667
     RUNOFF VOLUME    (mm)=   31.904
     TOTAL RAINFALL   (mm)=   72.334
     RUNOFF COEFFICIENT   =     .441

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

-------------------------------------------------------------------------------
001:0011---------------------------------------------------------------------
*
* Area 300
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.89   Curve Number   (CN)=82.00
| 03:300    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .139

     Unit Hyd Qpeak  (cms)=     .519

     PEAK FLOW       (cms)=     .289 (i)
     TIME TO PEAK    (hrs)=    1.500
     RUNOFF VOLUME    (mm)=   37.630
     TOTAL RAINFALL   (mm)=   72.334
     RUNOFF COEFFICIENT   =     .520

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

-------------------------------------------------------------------------------
001:0012---------------------------------------------------------------------
*
* Area 400
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   14.13   Curve Number   (CN)=71.00
| 04:400    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.199

     PEAK FLOW       (cms)=     .678 (i)
     TIME TO PEAK    (hrs)=    1.933
     RUNOFF VOLUME    (mm)=   27.136
     TOTAL RAINFALL   (mm)=   72.334
     RUNOFF COEFFICIENT   =     .375

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

-------------------------------------------------------------------------------
001:0013---------------------------------------------------------------------
*
* Area 500
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.11   Curve Number   (CN)=71.00
| 05:500    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .257

     Unit Hyd Qpeak  (cms)=     .462

     PEAK FLOW       (cms)=     .217 (i)
     TIME TO PEAK    (hrs)=    1.667
     RUNOFF VOLUME    (mm)=   27.136
     TOTAL RAINFALL   (mm)=   72.334
     RUNOFF COEFFICIENT   =     .375

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

-------------------------------------------------------------------------------
001:0014---------------------------------------------------------------------
*
*
*********************************************************************************
*********************************************************************************
*********************************************************************************
*********************************************************************************
*
```

```
*
* 100 year - 6hr SCS Type II
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM-1\LAKEST~1\100SCS6
| Ptotal=  80.90 mm|    Comments: 100year SCS 6hr
--------------------
              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
              1.00   5.259 |   3.00  50.563 |   5.00   4.045 |
              2.00   7.686 |   4.00  10.113 |   6.00   3.236 |

------------------------------------------------------------------------------
001:0015----------------------------------------------------------------------
*
*
*
* Area 100
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.46   Curve Number   (CN)=76.50
| 01:100    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .192

     Unit Hyd Qpeak  (cms)=     .290

     PEAK FLOW       (cms)=     .123 (i)
     TIME TO PEAK    (hrs)=    3.033
     RUNOFF VOLUME    (mm)=   38.170
     TOTAL RAINFALL   (mm)=   80.900
     RUNOFF COEFFICIENT   =     .472

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

------------------------------------------------------------------------------
001:0016----------------------------------------------------------------------
*
* Area 200
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    5.75   Curve Number   (CN)=76.50
| 02:200    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .262

     Unit Hyd Qpeak  (cms)=     .838

     PEAK FLOW       (cms)=     .455 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=   38.171
     TOTAL RAINFALL   (mm)=   80.900
     RUNOFF COEFFICIENT   =     .472

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

------------------------------------------------------------------------------
001:0017----------------------------------------------------------------------
*
* Area 300
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.89   Curve Number   (CN)=82.00
| 03:300    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .139

     Unit Hyd Qpeak  (cms)=     .519

     PEAK FLOW       (cms)=     .191 (i)
     TIME TO PEAK    (hrs)=    3.000
     RUNOFF VOLUME    (mm)=   44.579
     TOTAL RAINFALL   (mm)=   80.900
     RUNOFF COEFFICIENT   =     .551

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

------------------------------------------------------------------------------
001:0018----------------------------------------------------------------------
*
* Area 400
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   14.13   Curve Number   (CN)=71.00
| 04:400    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.199

     PEAK FLOW       (cms)=     .776 (i)
     TIME TO PEAK    (hrs)=    3.200
     RUNOFF VOLUME    (mm)=   32.736
     TOTAL RAINFALL   (mm)=   80.900
     RUNOFF COEFFICIENT   =     .405

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

------------------------------------------------------------------------------
001:0019----------------------------------------------------------------------
*
* Area 500
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.11   Curve Number   (CN)=71.00
| 05:500    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .257

     Unit Hyd Qpeak  (cms)=     .462

     PEAK FLOW       (cms)=     .212 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=   32.736
     TOTAL RAINFALL   (mm)=   80.900
     RUNOFF COEFFICIENT   =     .405

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

------------------------------------------------------------------------------
001:0020----------------------------------------------------------------------
*
*
********************************************************************************
********************************************************************************
********************************************************************************
********************************************************************************
*
*
* 100 year - 12hr SCS Type II
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM-1\LAKEST~1\100SCS12
| Ptotal=  99.70 mm|    Comments: 100year SCS 12hr
--------------------
              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
              1.00   2.493 |   4.00   4.486 |   7.00   9.970 |  10.00   3.490
              2.00   2.493 |   5.00   8.474 |   8.00   2.243 |  11.00   3.490
              3.00   3.988 |   6.00  52.343 |   9.00   2.243 |  12.00   3.988

------------------------------------------------------------------------------
001:0021----------------------------------------------------------------------
*
*
*
* Area 100
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.46   Curve Number   (CN)=76.50
| 01:100    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .192

     Unit Hyd Qpeak  (cms)=     .290

     PEAK FLOW       (cms)=     .139 (i)
     TIME TO PEAK    (hrs)=    6.033
     RUNOFF VOLUME    (mm)=   52.718
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .529

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

------------------------------------------------------------------------------
001:0022----------------------------------------------------------------------
*
* Area 200
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    5.75   Curve Number   (CN)=76.50
| 02:200    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .262

     Unit Hyd Qpeak  (cms)=     .838

     PEAK FLOW       (cms)=     .523 (i)
     TIME TO PEAK    (hrs)=    6.033
     RUNOFF VOLUME    (mm)=   52.718
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .529

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

------------------------------------------------------------------------------
001:0023----------------------------------------------------------------------
*
* Area 300
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.89   Curve Number   (CN)=82.00
| 03:300    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .139

     Unit Hyd Qpeak  (cms)=     .519
```

```
     PEAK FLOW       (cms)=     .211 (i)
     TIME TO PEAK    (hrs)=    6.000
     RUNOFF VOLUME    (mm)=   60.470
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .607

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

--------------------------------------------------------------------------------
001:0024--------------------------------------------------------------------------
*
* Area 400
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   14.13   Curve Number   (CN)=71.00
| 04:400    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.199

     PEAK FLOW       (cms)=     .929 (i)
     TIME TO PEAK    (hrs)=    6.167
     RUNOFF VOLUME    (mm)=   45.920
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .461

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

--------------------------------------------------------------------------------
001:0025--------------------------------------------------------------------------
*
* Area 500
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.11   Curve Number   (CN)=71.00
| 05:500    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .257

     Unit Hyd Qpeak  (cms)=     .462

     PEAK FLOW       (cms)=     .248 (i)
     TIME TO PEAK    (hrs)=    6.033
     RUNOFF VOLUME    (mm)=   45.920
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .461

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

--------------------------------------------------------------------------------
001:0026--------------------------------------------------------------------------
*
*
********************************************************************************
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********************************************************************************
*
* 2 year - 12hr AES
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM~1\LAKEST~1\2AES12.stm
| Ptotal=  44.80 mm|    Comments: 2 year AES 12hr
--------------------
             TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
              hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             1.00   8.064 |   4.00   6.720 |   7.00   1.344 |  10.00    .000
             2.00   9.408 |   5.00   6.272 |   8.00    .448 |  11.00    .000
             3.00   8.960 |   6.00   3.584 |   9.00    .000 |  12.00    .000

--------------------------------------------------------------------------------
001:0027--------------------------------------------------------------------------
*
*
*
* Area 100
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.46   Curve Number   (CN)=76.50
| 01:100    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .192

     Unit Hyd Qpeak  (cms)=     .290

     PEAK FLOW       (cms)=     .013 (i)
     TIME TO PEAK    (hrs)=    3.033
     RUNOFF VOLUME    (mm)=   14.009
     TOTAL RAINFALL   (mm)=   44.800
     RUNOFF COEFFICIENT   =     .313

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

--------------------------------------------------------------------------------
001:0028--------------------------------------------------------------------------
*
* Area 200
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    5.75   Curve Number   (CN)=76.50
| 02:200    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .262

     Unit Hyd Qpeak  (cms)=     .838

     PEAK FLOW       (cms)=     .051 (i)
     TIME TO PEAK    (hrs)=    3.100
     RUNOFF VOLUME    (mm)=   14.009
     TOTAL RAINFALL   (mm)=   44.800
     RUNOFF COEFFICIENT   =     .313

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

--------------------------------------------------------------------------------
001:0029--------------------------------------------------------------------------
*
* Area 300
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.89   Curve Number   (CN)=82.00
| 03:300    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .139

     Unit Hyd Qpeak  (cms)=     .519

     PEAK FLOW       (cms)=     .022 (i)
     TIME TO PEAK    (hrs)=    3.000
     RUNOFF VOLUME    (mm)=   17.240
     TOTAL RAINFALL   (mm)=   44.800
     RUNOFF COEFFICIENT   =     .385

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

--------------------------------------------------------------------------------
001:0030--------------------------------------------------------------------------
*
* Area 400
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   14.13   Curve Number   (CN)=71.00
| 04:400    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.199

     PEAK FLOW       (cms)=     .102 (i)
     TIME TO PEAK    (hrs)=    5.067
     RUNOFF VOLUME    (mm)=   11.516
     TOTAL RAINFALL   (mm)=   44.800
     RUNOFF COEFFICIENT   =     .257

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

--------------------------------------------------------------------------------
001:0031--------------------------------------------------------------------------
*
* Area 500
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.11   Curve Number   (CN)=71.00
| 05:500    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .257

     Unit Hyd Qpeak  (cms)=     .462

     PEAK FLOW       (cms)=     .023 (i)
     TIME TO PEAK    (hrs)=    5.033
     RUNOFF VOLUME    (mm)=   11.516
     TOTAL RAINFALL   (mm)=   44.800
     RUNOFF COEFFICIENT   =     .257

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

--------------------------------------------------------------------------------
001:0032--------------------------------------------------------------------------
*
*
********************************************************************************
********************************************************************************
*
*
* 5year - 12hr AES
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM~1\LAKEST~1\5AES12.stm
| Ptotal=  59.60 mm|    Comments: 5 year AES 12hr
--------------------
             TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
              hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
             1.00  10.728 |   4.00   8.940 |   7.00   1.788 |  10.00    .000
             2.00  12.516 |   5.00   8.344 |   8.00    .596 |  11.00    .000
             3.00  11.920 |   6.00   4.768 |   9.00    .000 |  12.00    .000
```

```
--------------------------------------------------------------------------------
001:0033--------------------------------------------------------------------------
*
*
*
* Area 100
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.46   Curve Number   (CN)=76.50
| 01:100    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .192

     Unit Hyd Qpeak  (cms)=     .290

     PEAK FLOW       (cms)=     .022 (i)
     TIME TO PEAK    (hrs)=    3.033
     RUNOFF VOLUME    (mm)=  23.134
     TOTAL RAINFALL   (mm)=  59.600
     RUNOFF COEFFICIENT   =     .388

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

--------------------------------------------------------------------------------
001:0034--------------------------------------------------------------------------
*
* Area 200
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    5.75   Curve Number   (CN)=76.50
| 02:200    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .262

     Unit Hyd Qpeak  (cms)=     .838

     PEAK FLOW       (cms)=     .085 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=  23.134
     TOTAL RAINFALL   (mm)=  59.600
     RUNOFF COEFFICIENT   =     .388

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

--------------------------------------------------------------------------------
001:0035--------------------------------------------------------------------------
*
* Area 300
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.89   Curve Number   (CN)=82.00
| 03:300    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .139

     Unit Hyd Qpeak  (cms)=     .519

     PEAK FLOW       (cms)=     .035 (i)
     TIME TO PEAK    (hrs)=    3.000
     RUNOFF VOLUME    (mm)=  27.761
     TOTAL RAINFALL   (mm)=  59.600
     RUNOFF COEFFICIENT   =     .466

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

--------------------------------------------------------------------------------
001:0036--------------------------------------------------------------------------
*
* Area 400
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   14.13   Curve Number   (CN)=71.00
| 04:400    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.199

     PEAK FLOW       (cms)=     .166 (i)
     TIME TO PEAK    (hrs)=    5.067
     RUNOFF VOLUME    (mm)=  19.400
     TOTAL RAINFALL   (mm)=  59.600
     RUNOFF COEFFICIENT   =     .326

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

--------------------------------------------------------------------------------
001:0037--------------------------------------------------------------------------
*
* Area 500
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.11   Curve Number   (CN)=71.00
| 05:500    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .257

     Unit Hyd Qpeak  (cms)=     .462

     PEAK FLOW       (cms)=     .038 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=  19.400
     TOTAL RAINFALL   (mm)=  59.600
     RUNOFF COEFFICIENT   =     .326

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

--------------------------------------------------------------------------------
001:0038--------------------------------------------------------------------------
*
*
********************************************************************************
********************************************************************************
*
*
* 10 year - 12hr AES
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM~1\LAKEST~1\10AES12.stm
| Ptotal=  69.30 mm|    Comments: 10 year AES 12hr
--------------------
            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
            1.00  12.474 |   4.00  10.395 |   7.00   2.079 |  10.00    .000
            2.00  14.553 |   5.00   9.702 |   8.00    .693 |  11.00    .000
            3.00  13.860 |   6.00   5.544 |   9.00    .000 |  12.00    .000

--------------------------------------------------------------------------------
001:0039--------------------------------------------------------------------------
*
*
*
* Area 100
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.46   Curve Number   (CN)=76.50
| 01:100    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .192

     Unit Hyd Qpeak  (cms)=     .290

     PEAK FLOW       (cms)=     .029 (i)
     TIME TO PEAK    (hrs)=    3.033
     RUNOFF VOLUME    (mm)=  29.751
     TOTAL RAINFALL   (mm)=  69.300
     RUNOFF COEFFICIENT   =     .429

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

--------------------------------------------------------------------------------
001:0040--------------------------------------------------------------------------
*
* Area 200
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    5.75   Curve Number   (CN)=76.50
| 02:200    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .262

     Unit Hyd Qpeak  (cms)=     .838

     PEAK FLOW       (cms)=     .110 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=  29.751
     TOTAL RAINFALL   (mm)=  69.300
     RUNOFF COEFFICIENT   =     .429

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

--------------------------------------------------------------------------------
001:0041--------------------------------------------------------------------------
*
* Area 300
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.89   Curve Number   (CN)=82.00
| 03:300    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .139

     Unit Hyd Qpeak  (cms)=     .519

     PEAK FLOW       (cms)=     .045 (i)
     TIME TO PEAK    (hrs)=    3.000
     RUNOFF VOLUME    (mm)=  35.224
     TOTAL RAINFALL   (mm)=  69.300
     RUNOFF COEFFICIENT   =     .508

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

--------------------------------------------------------------------------------
001:0042--------------------------------------------------------------------------
*
* Area 400
*
```

```
----------------------
| CALIB NASHYD       |   Area    (ha)=   14.13   Curve Number   (CN)=71.00
| 04:400    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.199

     PEAK FLOW       (cms)=     .214 (i)
     TIME TO PEAK    (hrs)=    3.267
     RUNOFF VOLUME    (mm)=   25.224
     TOTAL RAINFALL   (mm)=   69.300
     RUNOFF COEFFICIENT   =     .364

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

--------------------------------------------------------------------------------
001:0043--------------------------------------------------------------------------
*
* Area 500
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.11   Curve Number   (CN)=71.00
| 05:500    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .257

     Unit Hyd Qpeak  (cms)=     .462

     PEAK FLOW       (cms)=     .050 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=   25.224
     TOTAL RAINFALL   (mm)=   69.300
     RUNOFF COEFFICIENT   =     .364

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

--------------------------------------------------------------------------------
001:0044--------------------------------------------------------------------------
*
*
********************************************************************************
********************************************************************************
*
*
* 25 year - 12hr AES
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM~1\LAKEST~1\25AES12.stm
| Ptotal=  81.30 mm|    Comments: 25 year AES 12hr
--------------------
              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
              1.00  14.634 |   4.00  12.195 |   7.00   2.439 |  10.00    .000
              2.00  17.073 |   5.00  11.382 |   8.00    .813 |  11.00    .000
              3.00  16.260 |   6.00   6.504 |   9.00    .000 |  12.00    .000

--------------------------------------------------------------------------------
001:0045--------------------------------------------------------------------------
*
*
*
* Area 100
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.46   Curve Number   (CN)=76.50
| 01:100    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .192

     Unit Hyd Qpeak  (cms)=     .290

     PEAK FLOW       (cms)=     .037 (i)
     TIME TO PEAK    (hrs)=    3.033
     RUNOFF VOLUME    (mm)=   38.469
     TOTAL RAINFALL   (mm)=   81.300
     RUNOFF COEFFICIENT   =     .473

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

--------------------------------------------------------------------------------
001:0046--------------------------------------------------------------------------
*
* Area 200
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    5.75   Curve Number   (CN)=76.50
| 02:200    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .262

     Unit Hyd Qpeak  (cms)=     .838

     PEAK FLOW       (cms)=     .143 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=   38.469
     TOTAL RAINFALL   (mm)=   81.300
     RUNOFF COEFFICIENT   =     .473

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

--------------------------------------------------------------------------------
001:0047--------------------------------------------------------------------------
*
* Area 300
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.89   Curve Number   (CN)=82.00
| 03:300    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .139

     Unit Hyd Qpeak  (cms)=     .519

     PEAK FLOW       (cms)=     .057 (i)
     TIME TO PEAK    (hrs)=    3.000
     RUNOFF VOLUME    (mm)=   44.908
     TOTAL RAINFALL   (mm)=   81.300
     RUNOFF COEFFICIENT   =     .552

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

--------------------------------------------------------------------------------
001:0048--------------------------------------------------------------------------
*
* Area 400
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   14.13   Curve Number   (CN)=71.00
| 04:400    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.199

     PEAK FLOW       (cms)=     .282 (i)
     TIME TO PEAK    (hrs)=    3.233
     RUNOFF VOLUME    (mm)=   33.004
     TOTAL RAINFALL   (mm)=   81.300
     RUNOFF COEFFICIENT   =     .406

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

--------------------------------------------------------------------------------
001:0049--------------------------------------------------------------------------
*
* Area 500
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.11   Curve Number   (CN)=71.00
| 05:500    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .257

     Unit Hyd Qpeak  (cms)=     .462

     PEAK FLOW       (cms)=     .066 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=   33.004
     TOTAL RAINFALL   (mm)=   81.300
     RUNOFF COEFFICIENT   =     .406

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

--------------------------------------------------------------------------------
001:0050--------------------------------------------------------------------------
*
*
********************************************************************************
********************************************************************************
*
*
* 50 year - 12hr AES
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM~1\LAKEST~1\50AES12.stm
| Ptotal=  90.40 mm|    Comments: 50 year AES 12hr
--------------------
              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
              1.00  16.272 |   4.00  13.560 |   7.00   2.712 |  10.00    .000
              2.00  18.984 |   5.00  12.656 |   8.00    .904 |  11.00    .000
              3.00  18.080 |   6.00   7.232 |   9.00    .000 |  12.00    .000

--------------------------------------------------------------------------------
001:0051--------------------------------------------------------------------------
*
*
*
* Area 100
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    1.46   Curve Number   (CN)=76.50
| 01:100    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .192

     Unit Hyd Qpeak  (cms)=     .290
```

```
     PEAK FLOW       (cms)=     .044 (i)
     TIME TO PEAK    (hrs)=    3.033
     RUNOFF VOLUME    (mm)=   45.400
     TOTAL RAINFALL   (mm)=   90.400
     RUNOFF COEFFICIENT   =     .502

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

-------------------------------------------------------------------------------
001:0052---------------------------------------------------------------------
*
* Area 200
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    5.75   Curve Number   (CN)=76.50
| 02:200    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .262

     Unit Hyd Qpeak  (cms)=     .838

     PEAK FLOW       (cms)=     .169 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=   45.400
     TOTAL RAINFALL   (mm)=   90.400
     RUNOFF COEFFICIENT   =     .502

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

-------------------------------------------------------------------------------
001:0053---------------------------------------------------------------------
*
* Area 300
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    1.89   Curve Number   (CN)=82.00
| 03:300    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .139

     Unit Hyd Qpeak  (cms)=     .519

     PEAK FLOW       (cms)=     .066 (i)
     TIME TO PEAK    (hrs)=    3.000
     RUNOFF VOLUME    (mm)=   52.512
     TOTAL RAINFALL   (mm)=   90.400
     RUNOFF COEFFICIENT   =     .581

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

-------------------------------------------------------------------------------
001:0054---------------------------------------------------------------------
*
* Area 400
*
---------------------
| CALIB NASHYD      |   Area    (ha)=   14.13   Curve Number   (CN)=71.00
| 04:400    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.199

     PEAK FLOW       (cms)=     .337 (i)
     TIME TO PEAK    (hrs)=    3.233
     RUNOFF VOLUME    (mm)=   39.259
     TOTAL RAINFALL   (mm)=   90.400
     RUNOFF COEFFICIENT   =     .434

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

-------------------------------------------------------------------------------
001:0055---------------------------------------------------------------------
*
* Area 500
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    3.11   Curve Number   (CN)=71.00
| 05:500    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .257

     Unit Hyd Qpeak  (cms)=     .462

     PEAK FLOW       (cms)=     .078 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=   39.259
     TOTAL RAINFALL   (mm)=   90.400
     RUNOFF COEFFICIENT   =     .434

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

-------------------------------------------------------------------------------
001:0056---------------------------------------------------------------------
*
*
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*
*
* 100 year - 12hr AES
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM~1\LAKEST~1\100AES12.stm
| Ptotal=  99.70 mm|    Comments: 100 year AES 12hr
--------------------
            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
            1.00  17.946 |   4.00  14.955 |   7.00   2.991 |  10.00    .000
            2.00  20.937 |   5.00  13.958 |   8.00    .997 |  11.00    .000
            3.00  19.940 |   6.00   7.976 |   9.00    .000 |  12.00    .000

-------------------------------------------------------------------------------
001:0057---------------------------------------------------------------------
*
*
*
* Area 100
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    1.46   Curve Number   (CN)=76.50
| 01:100    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .192

     Unit Hyd Qpeak  (cms)=     .290

     PEAK FLOW       (cms)=     .051 (i)
     TIME TO PEAK    (hrs)=    3.033
     RUNOFF VOLUME    (mm)=   52.718
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .529

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

-------------------------------------------------------------------------------
001:0058---------------------------------------------------------------------
*
* Area 200
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    5.75   Curve Number   (CN)=76.50
| 02:200    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .262

     Unit Hyd Qpeak  (cms)=     .838

     PEAK FLOW       (cms)=     .196 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=   52.718
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .529

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

-------------------------------------------------------------------------------
001:0059---------------------------------------------------------------------
*
* Area 300
*
---------------------
| CALIB NASHYD      |   Area    (ha)=    1.89   Curve Number   (CN)=82.00
| 03:300    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .139

     Unit Hyd Qpeak  (cms)=     .519

     PEAK FLOW       (cms)=     .076 (i)
     TIME TO PEAK    (hrs)=    3.000
     RUNOFF VOLUME    (mm)=   60.470
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .607

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

-------------------------------------------------------------------------------
001:0060---------------------------------------------------------------------
*
* Area 400
*
---------------------
| CALIB NASHYD      |   Area    (ha)=   14.13   Curve Number   (CN)=71.00
| 04:400    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.199

     PEAK FLOW       (cms)=     .395 (i)
     TIME TO PEAK    (hrs)=    3.233
     RUNOFF VOLUME    (mm)=   45.920
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .461

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

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--------------------------------------------------------------------------------
001:0061--------------------------------------------------------------------------
*
* Area 500
*
----------------------
| CALIB NASHYD       |   Area    (ha)=    3.11   Curve Number   (CN)=71.00
| 05:500    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .257

     Unit Hyd Qpeak  (cms)=     .462

     PEAK FLOW       (cms)=     .092 (i)
     TIME TO PEAK    (hrs)=    3.067
     RUNOFF VOLUME    (mm)=   45.919
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .461

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

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001:0062--------------------------------------------------------------------------
*
*
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*
*                              PROPOSED CONDITION
*
********************************************************************************
*
* 25mm Quality Event
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM~1\LAKEST~1\25MM.STM
| Ptotal=  25.00 mm|    Comments: 25 mm 4 hr
--------------------
              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
               .17   2.071 |   1.17   5.696 |   2.17   5.194 |   3.17   2.799
               .33   2.266 |   1.33  10.777 |   2.33   4.466 |   3.33   2.622
               .50   2.524 |   1.50  50.214 |   2.50   3.949 |   3.50   2.476
               .67   2.880 |   1.67  13.366 |   2.67   3.560 |   3.67   2.346
               .83   3.382 |   1.83   8.286 |   2.83   3.252 |   3.83   2.233
              1.00   4.175 |   2.00   6.295 |   3.00   3.010 |   4.00   2.136

--------------------------------------------------------------------------------
001:0063--------------------------------------------------------------------------
*
* Area 101
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .28
| 01:101    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .14          .14
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       2.90         2.90
     Length            (m)=      42.00        35.00
     Mannings n           =       .013         .250

     Max.eff.Inten.(mm/hr)=      50.21        15.13
               over (min)        1.00        14.00
     Storage Coeff.  (min)=       1.45 (ii)   13.86 (ii)
     Unit Hyd. Tpeak (min)=       1.00        14.00
     Unit Hyd. peak  (cms)=        .85          .08
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .01          .00          .015 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.70         1.500
     RUNOFF VOLUME    (mm)=      24.40         8.07        13.784
     TOTAL RAINFALL   (mm)=      25.00        25.00        24.996
     RUNOFF COEFFICIENT   =        .98          .32          .551

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0     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.

--------------------------------------------------------------------------------
001:0064--------------------------------------------------------------------------
*
* Area 201
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .33
| 02:201    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .17          .17
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       2.80         2.80
     Length            (m)=      20.00        35.00
     Mannings n           =       .013         .250

     Max.eff.Inten.(mm/hr)=      50.21        15.74
               over (min)        1.00        13.00
     Storage Coeff.  (min)=        .94 (ii)   13.28 (ii)
     Unit Hyd. Tpeak (min)=       1.00        13.00
     Unit Hyd. peak  (cms)=       1.11          .09
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .02          .00          .018 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.68         1.500
     RUNOFF VOLUME    (mm)=      24.40         8.07        13.784
     TOTAL RAINFALL   (mm)=      25.00        25.00        24.996
     RUNOFF COEFFICIENT   =        .98          .32          .551

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0     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.

--------------------------------------------------------------------------------
001:0065--------------------------------------------------------------------------
*
* Area 301
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.44
| 03:301    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   25.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.06         3.38
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       4.90         6.40
     Length            (m)=     700.00        35.00
     Mannings n           =       .013         .250

     Max.eff.Inten.(mm/hr)=      50.21        22.69
               over (min)        7.00        15.00
     Storage Coeff.  (min)=       6.71 (ii)   15.03 (ii)
     Unit Hyd. Tpeak (min)=       7.00        15.00
     Unit Hyd. peak  (cms)=        .17          .08
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .22          .13          .299 (iii)
     TIME TO PEAK    (hrs)=       1.55         1.72         1.583
     RUNOFF VOLUME    (mm)=      24.40         8.58        12.532
     TOTAL RAINFALL   (mm)=      25.00        25.00        24.996
     RUNOFF COEFFICIENT   =        .98          .34          .501

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0066--------------------------------------------------------------------------
*
* Total Flows to Pond
*
* 24 hour draw down of 25 mm runoff
*
* 1058 m3 / 24 hr / 60 min per hr / 60 s per min = 0.012 cms
*
--------------------
| COMPUTE VOLUME   |
| ID:03  (301   )  |              DISCHARGE      TIME
--------------------                (cms)       (hrs)
           START CONTROLLING AT      .000        .267
           INFLOW HYD. PEAKS AT      .299       1.583
           STOP  CONTROLLING AT      .012       4.331

           REQUIRED STORAGE VOLUME (ha.m.)=    .0960
           TOTAL HYDROGRAPH VOLUME (ha.m.)=    .1058
           % OF HYDROGRAPH TO STORE       =  90.7307

           NOTE:  Storage was computed to reduce the Inflow
                  peak to     .012  (cms).

      *** WARNING: Calculated volume may not be the maximum.

--------------------------------------------------------------------------------
001:0067--------------------------------------------------------------------------
*
--------------------
| ROUTE RESERVOIR  |    Requested routing time step =  1.0 min.
|  IN>03:(301   )  |
| OUT<04:(POND  )  |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |     .059  .3300E+00
```

```
                          .007  .3000E-01   |     .062  .3600E+00
                          .009  .6000E-01   |     .065  .3900E+00
                          .011  .9000E-01   |     .068  .4200E+00
                          .026  .1200E+00   |     .070  .4500E+00
                          .033  .1500E+00   |     .073  .4800E+00
                          .039  .1800E+00   |     .075  .5100E+00
                          .043  .2100E+00   |     .077  .5400E+00
                          .048  .2400E+00   |     .529  .5700E+00
                          .052  .2700E+00   |     .000  .0000E+00
                          .055  .3000E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >03: (301   )       8.44      .299     1.583     12.532
     OUTFLOW<04: (POND  )       8.44      .013     4.300     12.532
    OVERFLOW<**: (000001)        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=    4.452
                    TIME SHIFT OF PEAK FLOW          (min)=   163.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.9388E-01

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001:0068--------------------------------------------------------------------------
*
* Area 401
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   13.38   Curve Number    (CN)=72.20
| 05:401     DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.136

     PEAK FLOW       (cms)=     .072 (i)
     TIME TO PEAK    (hrs)=    2.133
     RUNOFF VOLUME    (mm)=    3.711
     TOTAL RAINFALL   (mm)=   24.996
     RUNOFF COEFFICIENT   =     .148

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

------------------------------------------------------------------------------
001:0069--------------------------------------------------------------------------
* Area 501
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.92
| 06:501     DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   35.00
----------------------

                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.55         1.37
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       4.90         6.40
     Length            (m)=     500.00        35.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      50.21        23.12
           over (min)             5.00        14.00
     Storage Coeff.  (min)=       5.49 (ii)   13.74 (ii)
     Unit Hyd. Tpeak (min)=       5.00        14.00
     Unit Hyd. peak  (cms)=        .21          .08
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .16          .06          .185 (iii)
     TIME TO PEAK    (hrs)=       1.52         1.70         1.533
     RUNOFF VOLUME    (mm)=      24.40         8.52        14.075
     TOTAL RAINFALL   (mm)=      25.00        25.00        24.996
     RUNOFF COEFFICIENT   =        .98          .34          .563

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
001:0070--------------------------------------------------------------------------
*
* Total Flows to Pond
*
* 24 hour draw down of 25 mm runoff
*
* 552 m3 / 24 hr / 60 min per hr / 60 s per min = 0.006 cms
*
--------------------
| COMPUTE VOLUME   |
| ID:06  (501   )  |             DISCHARGE      TIME
--------------------               (cms)       (hrs)
          START CONTROLLING AT      .000        .267
          INFLOW HYD. PEAKS AT      .185       1.533
          STOP  CONTROLLING AT      .012       4.122

          REQUIRED STORAGE VOLUME (ha.m.)=    .0462
          TOTAL HYDROGRAPH VOLUME (ha.m.)=    .0552
          % OF HYDROGRAPH TO STORE       =  83.6759

          NOTE:  Storage was computed to reduce the Inflow
                 peak to     .012  (cms).

      *** WARNING: Calculated volume may not be the maximum.

------------------------------------------------------------------------------
001:0071--------------------------------------------------------------------------
*
----------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>06:(501   )    |
| OUT<07:(POND  )    |    =========  OUTLFOW STORAGE TABLE  =========
----------------------    OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
                            (cms)     (ha.m.)    |    (cms)    (ha.m.)
                             .000  .0000E+00     |     .074  .1200E+00
                             .004  .1500E-01     |     .080  .1350E+00
                             .005  .3000E-01     |     .086  .1500E+00
                             .006  .4500E-01     |     .092  .1650E+00
                             .036  .6000E-01     |     .098  .1800E+00
                             .048  .7500E-01     |     .325  .1950E+00
                             .058  .9000E-01     |     .735  .2100E+00
                             .066  .1050E+00     |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >06: (501   )       3.92      .185     1.533     14.075
     OUTFLOW<07: (POND  )       3.92      .012     4.117     14.074
    OVERFLOW<**: (000001)        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=    6.251
                    TIME SHIFT OF PEAK FLOW          (min)=   155.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.4764E-01

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001:0072--------------------------------------------------------------------------
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++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*
*
* 100 year event - 1 hr Chicago
*
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 971.139
| Ptotal= 48.81 mm |                          B=   1.500
--------------------                          C=    .726
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  1.00 hrs
                         Storm time step    =  2.00 min
                         Time to peak ratio =   .33

                    The CORRELATION coefficient is = .9996862

                      TIME        ENTERED              COMPUTED
                     (min)        (mm/hr)               (mm/hr)
                       5.          268.10               249.52
                      10.          165.10               164.90
                      15.          124.40               126.88
                      30.           76.60                79.34
                      60.           47.20                48.82
                     120.           29.10                29.78
                     360.           13.50                13.49
                     720.            8.30                 8.17
                    1440.            5.10                 4.94

          TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
           .03  15.562 |   .30 121.721 |   .57  32.195 |   .83  17.704 |
           .07  17.083 |   .33 391.100 |   .60  28.944 |   .87  16.846 |
           .10  19.009 |   .37 155.358 |   .63  26.366 |   .90  16.081 |
           .13  21.539 |   .40  89.546 |   .67  24.267 |   .93  15.393 |
           .17  25.035 |   .43  64.172 |   .70  22.521 |   .97  14.770 |
           .20  30.231 |   .47  50.663 |   .73  21.043 |  1.00  14.204 |
           .23  38.904 |   .50  42.230 |   .77  19.774 |               |
           .27  56.826 |   .53  36.437 |   .80  18.672 |               |

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001:0073--------------------------------------------------------------------------
*
* Area 101
*
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| CALIB STANDHYD     |   Area    (ha)=     .28
| 01:101    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .14          .14
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      2.90         2.90
     Length            (m)=     42.00        35.00
     Mannings n            =      .013         .250

     Max.eff.Inten.(mm/hr)=    391.10       144.56
               over (min)        1.00         6.00
     Storage Coeff.  (min)=       .64 (ii)    5.67 (ii)
     Unit Hyd. Tpeak (min)=       1.00         6.00
     Unit Hyd. peak  (cms)=       1.34          .20
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .10          .03          .112 (iii)
     TIME TO PEAK    (hrs)=       .33          .43          .333
     RUNOFF VOLUME    (mm)=     48.21        24.48        32.787
     TOTAL RAINFALL   (mm)=     48.81        48.81        48.806
     RUNOFF COEFFICIENT   =       .99          .50          .672

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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.

--------------------------------------------------------------------------------
001:0074--------------------------------------------------------------------------
*
* Area 201
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .32
| 02:201    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .16          .16
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      2.80         2.80
     Length            (m)=     20.00        35.00
     Mannings n            =      .013         .250

     Max.eff.Inten.(mm/hr)=    391.10       158.24
               over (min)        1.00         5.00
     Storage Coeff.  (min)=       .41 (ii)    5.32 (ii)
     Unit Hyd. Tpeak (min)=       1.00         5.00
     Unit Hyd. peak  (cms)=       1.55          .22
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .12          .04          .134 (iii)
     TIME TO PEAK    (hrs)=       .33          .42          .333
     RUNOFF VOLUME    (mm)=     48.21        24.48        32.787
     TOTAL RAINFALL   (mm)=     48.81        48.81        48.806
     RUNOFF COEFFICIENT   =       .99          .50          .672

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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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001:0075--------------------------------------------------------------------------
*
* Area 301
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    8.44
| 03:301    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   25.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      5.06         3.38
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      4.90         6.40
     Length            (m)=    700.00        35.00
     Mannings n            =      .013         .250

     Max.eff.Inten.(mm/hr)=    312.52       196.42
               over (min)        3.00         7.00
     Storage Coeff.  (min)=       3.23 (ii)    6.74 (ii)
     Unit Hyd. Tpeak (min)=       3.00         7.00
     Unit Hyd. peak  (cms)=        .36          .17
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.22         1.13         1.895 (iii)
     TIME TO PEAK    (hrs)=        .37          .45          .417
     RUNOFF VOLUME    (mm)=     48.21        25.30        31.025
     TOTAL RAINFALL   (mm)=     48.81        48.81        48.806
     RUNOFF COEFFICIENT   =       .99          .52          .636

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0076--------------------------------------------------------------------------
*
--------------------
| COMPUTE VOLUME   |
| ID:03  (301   )  |             DISCHARGE      TIME
--------------------               (cms)       (hrs)
          START CONTROLLING AT     .000        .033
          INFLOW HYD. PEAKS AT    1.895        .417
          STOP  CONTROLLING AT     .220       1.077

          REQUIRED STORAGE VOLUME (ha.m.)=    .2119
          TOTAL HYDROGRAPH VOLUME (ha.m.)=    .2619
          % OF HYDROGRAPH TO STORE       =  80.9357

          NOTE:  Storage was computed to reduce the Inflow
                 peak to     .220  (cms).

     *** WARNING: Calculated volume may not be the maximum.

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001:0077--------------------------------------------------------------------------
*
* Area 401
*
---------------------
| CALIB NASHYD       |   Area    (ha)=   13.38   Curve Number   (CN)=72.20
| 05:401    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.136

     PEAK FLOW       (cms)=     .509 (i)
     TIME TO PEAK    (hrs)=     .967
     RUNOFF VOLUME    (mm)=   14.078
     TOTAL RAINFALL   (mm)=   48.806
     RUNOFF COEFFICIENT   =     .288

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

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001:0078--------------------------------------------------------------------------
*
* Area 501
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---------------------
| CALIB STANDHYD     |   Area    (ha)=    3.92
| 06:501    DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   35.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      2.55         1.37
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      4.90         6.40
     Length            (m)=    500.00        35.00
     Mannings n            =      .013         .250

     Max.eff.Inten.(mm/hr)=    312.52       212.32
               over (min)        3.00         6.00
     Storage Coeff.  (min)=       2.64 (ii)    6.04 (ii)
     Unit Hyd. Tpeak (min)=       3.00         6.00
     Unit Hyd. peak  (cms)=        .41          .19
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .86          .48         1.141 (iii)
     TIME TO PEAK    (hrs)=        .37          .43          .367
     RUNOFF VOLUME    (mm)=     48.21        25.17        33.236
     TOTAL RAINFALL   (mm)=     48.81        48.81        48.806
     RUNOFF COEFFICIENT   =       .99          .52          .681

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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001:0079--------------------------------------------------------------------------
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| COMPUTE VOLUME   |
| ID:06  (501   )  |             DISCHARGE      TIME
--------------------               (cms)       (hrs)
          START CONTROLLING AT     .000        .033
          INFLOW HYD. PEAKS AT    1.141        .367
          STOP  CONTROLLING AT     .162        .963

          REQUIRED STORAGE VOLUME (ha.m.)=    .0949
          TOTAL HYDROGRAPH VOLUME (ha.m.)=    .1303
          % OF HYDROGRAPH TO STORE       =  72.8772

          NOTE:  Storage was computed to reduce the Inflow
                 peak to     .162  (cms).

     *** WARNING: Calculated volume may not be the maximum.
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001:0080---------------------------------------------------------------------
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*
*
* 100 year event - 4 hr Chicago
*
--------------------
| CHICAGO STORM    |     IDF curve parameters: A= 971.139
| Ptotal= 72.33 mm |                           B=   1.500
--------------------                           C=   .726
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  4.00 hrs
                        Storm time step    =  2.00 min
                        Time to peak ratio =   .33

                    The CORRELATION coefficient is = .9996862

                     TIME        ENTERED             COMPUTED
                     (min)       (mm/hr)             (mm/hr)
                       5.         268.10              249.52
                      10.         165.10              164.90
                      15.         124.40              126.88
                      30.          76.60               79.34
                      60.          47.20               48.82
                     120.          29.10               29.78
                     360.          13.50               13.49
                     720.           8.30                8.17
                    1440.           5.10                4.94

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .03   5.110 |  1.03  15.562 |  2.03  13.687 |  3.03   7.038
                 .07   5.209 |  1.07  17.083 |  2.07  13.212 |  3.07   6.937
                 .10   5.314 |  1.10  19.009 |  2.10  12.774 |  3.10   6.840
                 .13   5.423 |  1.13  21.539 |  2.13  12.369 |  3.13   6.746
                 .17   5.537 |  1.17  25.035 |  2.17  11.993 |  3.17   6.655
                 .20   5.658 |  1.20  30.231 |  2.20  11.644 |  3.20   6.567
                 .23   5.785 |  1.23  38.904 |  2.23  11.317 |  3.23   6.481
                 .27   5.919 |  1.27  56.826 |  2.27  11.011 |  3.27   6.399
                 .30   6.060 |  1.30 121.721 |  2.30  10.725 |  3.30   6.318
                 .33   6.210 |  1.33 391.100 |  2.33  10.455 |  3.33   6.240
                 .37   6.369 |  1.37 155.358 |  2.37  10.201 |  3.37   6.164
                 .40   6.538 |  1.40  89.546 |  2.40   9.961 |  3.40   6.091
                 .43   6.719 |  1.43  64.172 |  2.43   9.734 |  3.43   6.019
                 .47   6.911 |  1.47  50.663 |  2.47   9.519 |  3.47   5.950
                 .50   7.117 |  1.50  42.230 |  2.50   9.314 |  3.50   5.882
                 .53   7.338 |  1.53  36.437 |  2.53   9.120 |  3.53   5.816
                 .57   7.576 |  1.57  32.195 |  2.57   8.936 |  3.57   5.752
                 .60   7.834 |  1.60  28.944 |  2.60   8.760 |  3.60   5.689
                 .63   8.113 |  1.63  26.366 |  2.63   8.591 |  3.63   5.628
                 .67   8.417 |  1.67  24.267 |  2.67   8.431 |  3.67   5.569
                 .70   8.750 |  1.70  22.521 |  2.70   8.277 |  3.70   5.511
                 .73   9.116 |  1.73  21.043 |  2.73   8.130 |  3.73   5.454
                 .77   9.520 |  1.77  19.774 |  2.77   7.989 |  3.77   5.399
                 .80   9.969 |  1.80  18.672 |  2.80   7.853 |  3.80   5.345
                 .83  10.473 |  1.83  17.704 |  2.83   7.723 |  3.83   5.293
                 .87  11.041 |  1.87  16.846 |  2.87   7.598 |  3.87   5.241
                 .90  11.688 |  1.90  16.081 |  2.90   7.478 |  3.90   5.191
                 .93  12.432 |  1.93  15.393 |  2.93   7.362 |  3.93   5.142
                 .97  13.300 |  1.97  14.770 |  2.97   7.250 |  3.97   5.094
                1.00  14.326 |  2.00  14.204 |  3.00   7.142 |  4.00   5.047

-------------------------------------------------------------------------------
001:0081---------------------------------------------------------------------
*
* Area 101
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .28
| 01:101    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .14          .14
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       2.90         2.90
     Length            (m)=      42.00        35.00
     Mannings n             =     .013         .250

     Max.eff.Inten.(mm/hr)=     391.10       190.86
               over (min)          1.00         5.00
     Storage Coeff.  (min)=        .64 (ii)    5.14 (ii)
     Unit Hyd. Tpeak (min)=       1.00         5.00
     Unit Hyd. peak  (cms)=       1.34          .22
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .10          .05          .122 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.40         1.333
     RUNOFF VOLUME    (mm)=      71.73        43.76        53.549
     TOTAL RAINFALL   (mm)=      72.33        72.33        72.334
     RUNOFF COEFFICIENT   =        .99          .60          .740

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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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001:0082---------------------------------------------------------------------
*
* Area 201
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .32
| 02:201    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .16          .16
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       2.80         2.80
     Length            (m)=      20.00        35.00
     Mannings n             =     .013         .250

     Max.eff.Inten.(mm/hr)=     391.10       190.86
               over (min)          1.00         5.00
     Storage Coeff.  (min)=        .41 (ii)    4.96 (ii)
     Unit Hyd. Tpeak (min)=       1.00         5.00
     Unit Hyd. peak  (cms)=       1.55          .23
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .12          .05          .143 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.40         1.333
     RUNOFF VOLUME    (mm)=      71.73        43.76        53.549
     TOTAL RAINFALL   (mm)=      72.33        72.33        72.334
     RUNOFF COEFFICIENT   =        .99          .60          .740

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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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001:0083---------------------------------------------------------------------
*
* Area 301
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.44
| 03:301    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   25.00
----------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.06         3.38
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       4.90         6.40
     Length            (m)=     700.00        35.00
     Mannings n             =     .013         .250

     Max.eff.Inten.(mm/hr)=     312.52       255.40
               over (min)          3.00         6.00
     Storage Coeff.  (min)=       3.23 (ii)    6.39 (ii)
     Unit Hyd. Tpeak (min)=       3.00         6.00
     Unit Hyd. peak  (cms)=        .36          .18
                                                      *TOTALS*
     PEAK FLOW       (cms)=       1.23         1.48         2.379 (iii)
     TIME TO PEAK    (hrs)=       1.37         1.42         1.400
     RUNOFF VOLUME    (mm)=      71.73        44.76        51.507
     TOTAL RAINFALL   (mm)=      72.33        72.33        72.334
     RUNOFF COEFFICIENT   =        .99          .62          .712

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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001:0084---------------------------------------------------------------------
*
--------------------
| COMPUTE VOLUME   |
| ID:03  (301   )  |              DISCHARGE      TIME
--------------------              (cms)         (hrs)
          START CONTROLLING AT      .000         .100
          INFLOW HYD. PEAKS AT     2.379        1.400
          STOP  CONTROLLING AT      .289        2.132

          REQUIRED STORAGE VOLUME (ha.m.)=    .2173
          TOTAL HYDROGRAPH VOLUME (ha.m.)=    .4347
          % OF HYDROGRAPH TO STORE       =  49.9784

          NOTE:  Storage was computed to reduce the Inflow
                 peak to     .289  (cms).
```

*** WARNING: Calculated volume may not be the maximum.

001:0085

* Area 401

CALIB NASHYD	Area (ha)= 13.38 Curve Number (CN)=72.20
05:401 DT= 2.00	Ia (mm)= 4.000 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= .450

Unit Hyd Qpeak (cms)= 1.136

PEAK FLOW (cms)= .667 (i)
TIME TO PEAK (hrs)= 1.933
RUNOFF VOLUME (mm)= 28.107
TOTAL RAINFALL (mm)= 72.334
RUNOFF COEFFICIENT = .389

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

001:0086

* Area 501

CALIB STANDHYD	Area (ha)= 3.92
06:501 DT= 1.00	Total Imp(%)= 65.00 Dir. Conn.(%)= 35.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.55	1.37
Dep. Storage	(mm)=	.60	2.50
Average Slope	(%)=	4.90	6.40
Length	(m)=	500.00	35.00
Mannings n	=	.013	.250
Max.eff.Inten.(mm/hr)=		312.52	251.85
over (min)		3.00	6.00
Storage Coeff. (min)=		2.64 (ii)	5.82 (ii)
Unit Hyd. Tpeak (min)=		3.00	6.00
Unit Hyd. peak (cms)=		.41	.19

		TOTALS
PEAK FLOW	(cms)=	.86 .62 1.265 (iii)
TIME TO PEAK	(hrs)=	1.37 1.42 1.367
RUNOFF VOLUME	(mm)=	71.73 44.59 54.093
TOTAL RAINFALL	(mm)=	72.33 72.33 72.334
RUNOFF COEFFICIENT	=	.99 .62 .748

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

001:0087

COMPUTE VOLUME		
ID:06 (501)	DISCHARGE (cms)	TIME (hrs)
START CONTROLLING AT	.000	.100
INFLOW HYD. PEAKS AT	1.265	1.367
STOP CONTROLLING AT	.217	1.823

REQUIRED STORAGE VOLUME (ha.m.)= .0829
TOTAL HYDROGRAPH VOLUME (ha.m.)= .2120
% OF HYDROGRAPH TO STORE = 39.1157

NOTE: Storage was computed to reduce the Inflow
peak to .217 (cms).

*** WARNING: Calculated volume may not be the maximum.

001:0088

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* 100 year - 6hr SCS Type II

READ STORM	Filename: C:\SWMHYM~1\LAKEST~1\100SCS6
Ptotal= 80.90 mm	Comments: 100year SCS 6hr

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
1.00	5.259	3.00	50.563	5.00	4.045		
2.00	7.686	4.00	10.113	6.00	3.236		

001:0089

* Area 101

CALIB STANDHYD	Area (ha)= .28
01:101 DT= 1.00	Total Imp(%)= 50.00 Dir. Conn.(%)= 35.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.14	.14
Dep. Storage	(mm)=	.60	2.50
Average Slope	(%)=	2.90	2.90
Length	(m)=	42.00	35.00
Mannings n	=	.013	.250
Max.eff.Inten.(mm/hr)=		50.56	53.79
over (min)		1.00	9.00
Storage Coeff. (min)=		1.45 (ii)	8.92 (ii)
Unit Hyd. Tpeak (min)=		1.00	9.00
Unit Hyd. peak (cms)=		.85	.13

		TOTALS
PEAK FLOW	(cms)=	.01 .02 .034 (iii)
TIME TO PEAK	(hrs)=	2.78 3.00 3.000
RUNOFF VOLUME	(mm)=	80.30 51.18 61.373
TOTAL RAINFALL	(mm)=	80.90 80.90 80.900
RUNOFF COEFFICIENT	=	.99 .63 .759

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 82.0 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.

001:0090

* Area 201

CALIB STANDHYD	Area (ha)= .32
02:201 DT= 1.00	Total Imp(%)= 50.00 Dir. Conn.(%)= 35.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.16	.16
Dep. Storage	(mm)=	.60	2.50
Average Slope	(%)=	2.80	2.80
Length	(m)=	20.00	35.00
Mannings n	=	.013	.250
Max.eff.Inten.(mm/hr)=		50.56	53.89
over (min)		1.00	8.00
Storage Coeff. (min)=		.94 (ii)	8.48 (ii)
Unit Hyd. Tpeak (min)=		1.00	8.00
Unit Hyd. peak (cms)=		1.11	.14

		TOTALS
PEAK FLOW	(cms)=	.02 .02 .039 (iii)
TIME TO PEAK	(hrs)=	2.78 3.00 3.000
RUNOFF VOLUME	(mm)=	80.30 51.18 61.373
TOTAL RAINFALL	(mm)=	80.90 80.90 80.900
RUNOFF COEFFICIENT	=	.99 .63 .759

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 82.0 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.

001:0091

* Area 301

CALIB STANDHYD	Area (ha)= 8.44
03:301 DT= 1.00	Total Imp(%)= 60.00 Dir. Conn.(%)= 25.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.06	3.38
Dep. Storage	(mm)=	.60	2.50
Average Slope	(%)=	4.90	6.40
Length	(m)=	700.00	35.00
Mannings n	=	.013	.250
Max.eff.Inten.(mm/hr)=		50.56	77.92
over (min)		7.00	12.00
Storage Coeff. (min)=		6.70 (ii)	11.77 (ii)
Unit Hyd. Tpeak (min)=		7.00	12.00
Unit Hyd. peak (cms)=		.17	.10

		TOTALS
PEAK FLOW	(cms)=	.30 .68 .977 (iii)

```
     TIME TO PEAK    (hrs)=       3.00         3.02         3.000
     RUNOFF VOLUME    (mm)=      80.30        52.24        59.257
     TOTAL RAINFALL   (mm)=      80.90        80.90        80.900
     RUNOFF COEFFICIENT   =        .99          .65          .732

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0092----------------------------------------------------------------------
*
--------------------
| COMPUTE VOLUME   |
| ID:03  (301   )  |             DISCHARGE      TIME
--------------------               (cms)       (hrs)
           START CONTROLLING AT     .000        .100
           INFLOW HYD. PEAKS AT     .977       3.000
           STOP  CONTROLLING AT     .191       4.114

           REQUIRED STORAGE VOLUME (ha.m.)=    .2946
           TOTAL HYDROGRAPH VOLUME (ha.m.)=    .5001
           % OF HYDROGRAPH TO STORE       =  58.9072

           NOTE:  Storage was computed to reduce the Inflow
                  peak to     .191  (cms).

      *** WARNING: Calculated volume may not be the maximum.

--------------------------------------------------------------------------------
001:0093----------------------------------------------------------------------
*
* Area 401
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   13.38   Curve Number    (CN)=72.20
| 05:401    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------  U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.136

     PEAK FLOW       (cms)=     .761 (i)
     TIME TO PEAK    (hrs)=    3.200
     RUNOFF VOLUME    (mm)=   33.850
     TOTAL RAINFALL   (mm)=   80.900
     RUNOFF COEFFICIENT   =     .418

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

--------------------------------------------------------------------------------
001:0094----------------------------------------------------------------------
*
* Area 501
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.92
| 06:501    DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   35.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.55         1.37
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       4.90         6.40
     Length            (m)=     500.00        35.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      50.56        77.14
               over (min)        5.00        11.00
     Storage Coeff.  (min)=     5.47 (ii)   10.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00        11.00
     Unit Hyd. peak  (cms)=        .21          .11
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .19          .28          .470 (iii)
     TIME TO PEAK    (hrs)=       3.00         3.02         3.000
     RUNOFF VOLUME    (mm)=      80.30        52.06        61.944
     TOTAL RAINFALL   (mm)=      80.90        80.90        80.900
     RUNOFF COEFFICIENT   =        .99          .64          .766

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0095----------------------------------------------------------------------
*
--------------------
| COMPUTE VOLUME   |
| ID:06  (501   )  |             DISCHARGE      TIME
--------------------               (cms)       (hrs)
           START CONTROLLING AT     .000        .100
           INFLOW HYD. PEAKS AT     .470       3.000
           STOP  CONTROLLING AT     .212       3.249

           REQUIRED STORAGE VOLUME (ha.m.)=    .0806
           TOTAL HYDROGRAPH VOLUME (ha.m.)=    .2428
           % OF HYDROGRAPH TO STORE       =  33.2100

           NOTE:  Storage was computed to reduce the Inflow
                  peak to     .212  (cms).

      *** WARNING: Calculated volume may not be the maximum.

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001:0096----------------------------------------------------------------------
*
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********************************************************************************
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********************************************************************************
*
*
* 100 year - 12hr SCS Type II
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM~1\LAKEST~1\100SCS12
| Ptotal=  99.70 mm|    Comments: 100year SCS 12hr
--------------------
            TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
             hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
            1.00   2.493 |  4.00   4.486 |  7.00   9.970 | 10.00   3.490
            2.00   2.493 |  5.00   8.474 |  8.00   2.243 | 11.00   3.490
            3.00   3.988 |  6.00  52.343 |  9.00   2.243 | 12.00   3.988

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001:0097----------------------------------------------------------------------
*
*
*
* Area 101
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .28
| 01:101    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .14          .14
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       2.90         2.90
     Length            (m)=      42.00        35.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      52.34        57.93
               over (min)        1.00         9.00
     Storage Coeff.  (min)=     1.43 (ii)    8.68 (ii)
     Unit Hyd. Tpeak (min)=       1.00         9.00
     Unit Hyd. peak  (cms)=        .86          .13
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .01          .02          .036 (iii)
     TIME TO PEAK    (hrs)=       5.65         6.00         6.000
     RUNOFF VOLUME    (mm)=      99.10        67.96        78.862
     TOTAL RAINFALL   (mm)=      99.70        99.70        99.701
     RUNOFF COEFFICIENT   =        .99          .68          .791

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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.

--------------------------------------------------------------------------------
001:0098----------------------------------------------------------------------
*
* Area 201
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .32
| 02:201    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .16          .16
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       2.80         2.80
     Length            (m)=      20.00        35.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      52.34        58.01
               over (min)        1.00         8.00
     Storage Coeff.  (min)=        .93 (ii)    8.25 (ii)
     Unit Hyd. Tpeak (min)=       1.00         8.00
     Unit Hyd. peak  (cms)=       1.12          .14
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .02          .03          .041 (iii)
     TIME TO PEAK    (hrs)=       5.62         6.00         6.000
     RUNOFF VOLUME    (mm)=      99.10        67.96        78.862
     TOTAL RAINFALL   (mm)=      99.70        99.70        99.701
     RUNOFF COEFFICIENT   =        .99          .68          .791
```

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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.

--------------------------------------------------------------------------------
001:0099--------------------------------------------------------------------------
*
* Area 301
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.44
| 03:301    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   25.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.06         3.38
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       4.90         6.40
     Length            (m)=     700.00        35.00
     Mannings n             =      .013         .250

     Max.eff.Inten.(mm/hr)=      52.34        83.89
               over (min)        7.00        12.00
     Storage Coeff.  (min)=       6.60 (ii)   11.53 (ii)
     Unit Hyd. Tpeak (min)=       7.00        12.00
     Unit Hyd. peak  (cms)=        .17          .10
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .31          .75          1.054 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.02          6.000
     RUNOFF VOLUME    (mm)=      99.09        69.11         76.618
     TOTAL RAINFALL   (mm)=      99.70        99.70         99.701
     RUNOFF COEFFICIENT   =        .99          .69           .768

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0100--------------------------------------------------------------------------
*
--------------------
| COMPUTE VOLUME   |
| ID:03  (301   )  |             DISCHARGE      TIME
--------------------               (cms)       (hrs)
           START CONTROLLING AT     .000        .233
           INFLOW HYD. PEAKS AT    1.054       6.000
           STOP  CONTROLLING AT     .211       7.049

           REQUIRED STORAGE VOLUME (ha.m.)=    .3007
           TOTAL HYDROGRAPH VOLUME (ha.m.)=    .6467
           % OF HYDROGRAPH TO STORE       =  46.5036

           NOTE:  Storage was computed to reduce the Inflow
                  peak to     .211  (cms).

      *** WARNING: Calculated volume may not be the maximum.

--------------------------------------------------------------------------------
001:0101--------------------------------------------------------------------------
*
* Area 401
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   13.38   Curve Number    (CN)=72.20
| 05:401    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.136

     PEAK FLOW       (cms)=     .908 (i)
     TIME TO PEAK    (hrs)=    6.167
     RUNOFF VOLUME    (mm)=   47.331
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .475

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

--------------------------------------------------------------------------------
001:0102--------------------------------------------------------------------------
*
* Area 501
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.92
| 06:501    DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   35.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.55         1.37
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       4.90         6.40
     Length            (m)=     500.00        35.00
     Mannings n             =      .013         .250

     Max.eff.Inten.(mm/hr)=      52.34        83.15
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       5.40 (ii)   10.34 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .21          .11
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .20          .30           .504 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00          6.000
     RUNOFF VOLUME    (mm)=      99.09        68.91         79.481
     TOTAL RAINFALL   (mm)=      99.70        99.70         99.701
     RUNOFF COEFFICIENT   =        .99          .69           .797

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0103--------------------------------------------------------------------------
*
--------------------
| COMPUTE VOLUME   |
| ID:06  (501   )  |             DISCHARGE      TIME
--------------------               (cms)       (hrs)
           START CONTROLLING AT     .000        .233
           INFLOW HYD. PEAKS AT     .504       6.000
           STOP  CONTROLLING AT     .248       6.210

           REQUIRED STORAGE VOLUME (ha.m.)=    .0750
           TOTAL HYDROGRAPH VOLUME (ha.m.)=    .3116
           % OF HYDROGRAPH TO STORE       =  24.0687

           NOTE:  Storage was computed to reduce the Inflow
                  peak to     .248  (cms).

      *** WARNING: Calculated volume may not be the maximum.

--------------------------------------------------------------------------------
001:0104--------------------------------------------------------------------------
*
*
********************************************************************************
********************************************************************************
********************************************************************************
********************************************************************************
*
* 2 year - 12hr AES
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM-1\LAKEST~1\2AES12.stm
| Ptotal=  44.80 mm|    Comments: 2 year AES 12hr
--------------------
            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
            1.00   8.064 |   4.00   6.720 |   7.00   1.344 |  10.00    .000
            2.00   9.408 |   5.00   6.272 |   8.00    .448 |  11.00    .000
            3.00   8.960 |   6.00   3.584 |   9.00    .000 |  12.00    .000

--------------------------------------------------------------------------------
001:0105--------------------------------------------------------------------------
*
*
* Area 101
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .28
| 01:101    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .14          .14
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       2.90         2.90
     Length            (m)=      42.00        35.00
     Mannings n             =      .013         .250

     Max.eff.Inten.(mm/hr)=       9.41         6.71
               over (min)        3.00        20.00
     Storage Coeff.  (min)=       2.84 (ii)   20.01 (ii)
     Unit Hyd. Tpeak (min)=       3.00        20.00
     Unit Hyd. peak  (cms)=        .39          .06
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .00          .00           .005 (iii)
     TIME TO PEAK    (hrs)=       1.82         3.13          3.000
     RUNOFF VOLUME    (mm)=      44.20        21.43         29.403
     TOTAL RAINFALL   (mm)=      44.80        44.80         44.800
     RUNOFF COEFFICIENT   =        .99          .48           .656

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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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--------------------------------------------------------------------------------
001:0106----------------------------------------------------------------------
*
* Area 201
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=     .32
| 02:201    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .16          .16
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      2.80         2.80
     Length            (m)=     20.00        35.00
     Mannings n             =     .013         .250

     Max.eff.Inten.(mm/hr)=      9.41         6.72
               over (min)        2.00        19.00
     Storage Coeff.  (min)=      1.84 (ii)   19.18 (ii)
     Unit Hyd. Tpeak (min)=      2.00        19.00
     Unit Hyd. peak  (cms)=       .59          .06
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .00          .00          .006 (iii)
     TIME TO PEAK    (hrs)=      1.75         3.12         3.000
     RUNOFF VOLUME    (mm)=     44.20        21.43        29.403
     TOTAL RAINFALL   (mm)=     44.80        44.80        44.800
     RUNOFF COEFFICIENT   =       .99          .48          .656

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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.

--------------------------------------------------------------------------------
001:0107----------------------------------------------------------------------
*
* Area 301
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    8.44
| 03:301    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   25.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      5.06         3.38
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      4.90         6.40
     Length            (m)=    700.00        35.00
     Mannings n             =     .013         .250

     Max.eff.Inten.(mm/hr)=      9.41         9.88
               over (min)       13.00        25.00
     Storage Coeff.  (min)=     13.12 (ii)   24.72 (ii)
     Unit Hyd. Tpeak (min)=     13.00        25.00
     Unit Hyd. peak  (cms)=       .09          .05
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .05          .09          .137 (iii)
     TIME TO PEAK    (hrs)=      2.02         3.20         3.067
     RUNOFF VOLUME    (mm)=     44.20        22.20        27.705
     TOTAL RAINFALL   (mm)=     44.80        44.80        44.800
     RUNOFF COEFFICIENT   =       .99          .50          .618

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0108----------------------------------------------------------------------
*
---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>03:(301   )    |
| OUT<04:(POND  )    |    =========  OUTLFOW STORAGE TABLE  =========
--------------------   OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                         (cms)    (ha.m.)   |    (cms)    (ha.m.)
                          .000  .0000E+00    |     .059  .3300E+00
                          .007  .3000E-01    |     .062  .3600E+00
                          .009  .6000E-01    |     .065  .3900E+00
                          .011  .9000E-01    |     .068  .4200E+00
                          .026  .1200E+00    |     .070  .4500E+00
                          .033  .1500E+00    |     .073  .4800E+00
                          .039  .1800E+00    |     .075  .5100E+00
                          .043  .2100E+00    |     .077  .5400E+00
                          .048  .2400E+00    |     .529  .5700E+00
                          .052  .2700E+00    |     .000  .0000E+00
                          .055  .3000E+00    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >03: (301   )       8.44      .137     3.067     27.705
     OUTFLOW<04: (POND  )       8.44      .038     6.667     27.704
    OVERFLOW<**: (000001)        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   27.702
                    TIME SHIFT OF PEAK FLOW          (min)=   216.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.1762E+00

--------------------------------------------------------------------------------
001:0109----------------------------------------------------------------------
*
* Area 401
*
---------------------
| CALIB NASHYD       |   Area    (ha)=   13.38   Curve Number    (CN)=72.20
| 05:401    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.136

     PEAK FLOW       (cms)=     .101 (i)
     TIME TO PEAK    (hrs)=    5.067
     RUNOFF VOLUME    (mm)=   12.010
     TOTAL RAINFALL   (mm)=   44.800
     RUNOFF COEFFICIENT   =     .268

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

--------------------------------------------------------------------------------
001:0110----------------------------------------------------------------------
*
* Area 501
*
---------------------
| CALIB STANDHYD     |   Area    (ha)=    3.92
| 06:501    DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   35.00
---------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      2.55         1.37
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      4.90         6.40
     Length            (m)=    500.00        35.00
     Mannings n             =     .013         .250

     Max.eff.Inten.(mm/hr)=      9.41         9.78
               over (min)       11.00        22.00
     Storage Coeff.  (min)=     10.72 (ii)   22.37 (ii)
     Unit Hyd. Tpeak (min)=     11.00        22.00
     Unit Hyd. peak  (cms)=       .10          .05
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .04          .03          .068 (iii)
     TIME TO PEAK    (hrs)=      2.00         3.15         3.033
     RUNOFF VOLUME    (mm)=     44.20        22.09        29.830
     TOTAL RAINFALL   (mm)=     44.80        44.80        44.800
     RUNOFF COEFFICIENT   =       .99          .49          .666

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0111----------------------------------------------------------------------
*
---------------------
| ROUTE RESERVOIR    |    Requested routing time step =  1.0 min.
|  IN>06:(501   )    |
| OUT<07:(POND  )    |    =========  OUTLFOW STORAGE TABLE  =========
--------------------   OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                         (cms)    (ha.m.)   |    (cms)    (ha.m.)
                          .000  .0000E+00    |     .074  .1200E+00
                          .004  .1500E-01    |     .080  .1350E+00
                          .005  .3000E-01    |     .086  .1500E+00
                          .006  .4500E-01    |     .092  .1650E+00
                          .036  .6000E-01    |     .098  .1800E+00
                          .048  .7500E-01    |     .325  .1950E+00
                          .058  .9000E-01    |     .735  .2100E+00
                          .066  .1050E+00    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >06: (501   )       3.92      .068     3.033     29.830
     OUTFLOW<07: (POND  )       3.92      .041     5.417     29.829
    OVERFLOW<**: (000001)        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   60.396
                    TIME SHIFT OF PEAK FLOW          (min)=   143.00
```

MAXIMUM STORAGE USED (ha.m.)=.6665E-01

```
001:0112------------------------------------------------------------------------
*
*
********************************************************************************
********************************************************************************
*
*
* 5year - 12hr AES
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM-1\LAKEST~1\5AES12.stm
| Ptotal= 59.60 mm |    Comments: 5 year AES 12hr
--------------------
              TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
              1.00  10.728 |   4.00   8.940 |   7.00   1.788 |  10.00    .000
              2.00  12.516 |   5.00   8.344 |   8.00    .596 |  11.00    .000
              3.00  11.920 |   6.00   4.768 |   9.00    .000 |  12.00    .000

------------------------------------------------------------------------------
001:0113------------------------------------------------------------------------
*
*
* Area 101
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .28
| 01:101    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .14          .14
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      2.90         2.90
     Length            (m)=     42.00        35.00
     Mannings n            =      .013         .250

     Max.eff.Inten.(mm/hr)=     12.52        10.35
               over (min)        3.00        17.00
     Storage Coeff.  (min)=     2.53 (ii)   16.97 (ii)
     Unit Hyd. Tpeak (min)=     3.00        17.00
     Unit Hyd. peak  (cms)=      .42          .07
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .00          .00         .007 (iii)
     TIME TO PEAK    (hrs)=     1.48         3.07        3.000
     RUNOFF VOLUME    (mm)=    59.00        33.08       42.151
     TOTAL RAINFALL   (mm)=    59.60        59.60       59.600
     RUNOFF COEFFICIENT   =      .99          .55         .707

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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.

------------------------------------------------------------------------------
001:0114------------------------------------------------------------------------
*
* Area 201
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .32
| 02:201    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .16          .16
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      2.80         2.80
     Length            (m)=     20.00        35.00
     Mannings n            =      .013         .250

     Max.eff.Inten.(mm/hr)=     12.52        10.36
               over (min)        2.00        16.00
     Storage Coeff.  (min)=     1.64 (ii)   16.22 (ii)
     Unit Hyd. Tpeak (min)=     2.00        16.00
     Unit Hyd. peak  (cms)=      .63          .07
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .00          .00         .008 (iii)
     TIME TO PEAK    (hrs)=     1.35         3.07        3.000
     RUNOFF VOLUME    (mm)=    59.00        33.08       42.151
     TOTAL RAINFALL   (mm)=    59.60        59.60       59.600
     RUNOFF COEFFICIENT   =      .99          .55         .707

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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.

------------------------------------------------------------------------------
001:0115------------------------------------------------------------------------
*
* Area 301
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.44
| 03:301    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   25.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      5.06         3.38
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      4.90         6.40
     Length            (m)=    700.00        35.00
     Mannings n            =      .013         .250

     Max.eff.Inten.(mm/hr)=     12.52        15.15
               over (min)       12.00        21.00
     Storage Coeff.  (min)=    11.70 (ii)   21.48 (ii)
     Unit Hyd. Tpeak (min)=     12.00        21.00
     Unit Hyd. peak  (cms)=      .10          .05
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .07          .13         .203 (iii)
     TIME TO PEAK    (hrs)=     2.00         3.12        3.050
     RUNOFF VOLUME    (mm)=    58.99        33.98       40.243
     TOTAL RAINFALL   (mm)=    59.60        59.60       59.600
     RUNOFF COEFFICIENT   =      .99          .57         .675

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

------------------------------------------------------------------------------
001:0116------------------------------------------------------------------------
*
--------------------
| ROUTE RESERVOIR  |    Requested routing time step =  1.0 min.
|  IN>03:(301   )  |
| OUT<04:(POND  )  |    =========  OUTFLOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                          .000  .0000E+00    |     .059  .3300E+00
                          .007  .3000E-01    |     .062  .3600E+00
                          .009  .6000E-01    |     .065  .3900E+00
                          .011  .9000E-01    |     .068  .4200E+00
                          .026  .1200E+00    |     .070  .4500E+00
                          .033  .1500E+00    |     .073  .4800E+00
                          .039  .1800E+00    |     .075  .5100E+00
                          .043  .2100E+00    |     .077  .5400E+00
                          .048  .2400E+00    |     .529  .5700E+00
                          .052  .2700E+00    |     .000  .0000E+00
                          .055  .3000E+00    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     ---------------            (ha)     (cms)     (hrs)       (mm)
     INFLOW >03: (301   )       8.44      .203     3.050      40.243
     OUTFLOW<04: (POND  )       8.44      .050     6.650      40.242
    OVERFLOW<**: (000001)        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   24.613
                    TIME SHIFT OF PEAK FLOW         (min)=   216.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.2580E+00

------------------------------------------------------------------------------
001:0117------------------------------------------------------------------------
*
* Area 401
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   13.38   Curve Number    (CN)=72.20
| 05:401    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.136

     PEAK FLOW       (cms)=     .163 (i)
     TIME TO PEAK    (hrs)=    5.067
     RUNOFF VOLUME    (mm)=   20.152
     TOTAL RAINFALL   (mm)=   59.600
     RUNOFF COEFFICIENT   =     .338

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

------------------------------------------------------------------------------
001:0118------------------------------------------------------------------------
*
* Area 501
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.92
| 06:501    DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   35.00
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                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=           2.55          1.37
     Dep. Storage     (mm)=            .60          2.50
     Average Slope     (%)=           4.90          6.40
     Length            (m)=         500.00         35.00
     Mannings n           =           .013          .250

     Max.eff.Inten.(mm/hr)=         12.52         14.99
               over (min)           10.00         19.00
     Storage Coeff.  (min)=          9.56 (ii)    19.38 (ii)
     Unit Hyd. Tpeak (min)=         10.00         19.00
     Unit Hyd. peak  (cms)=           .12           .06
                                                          *TOTALS*
     PEAK FLOW       (cms)=           .05           .05          .099 (iii)
     TIME TO PEAK    (hrs)=          2.00          3.10         3.017
     RUNOFF VOLUME    (mm)=         59.00         33.84        42.649
     TOTAL RAINFALL   (mm)=         59.60         59.60        59.600
     RUNOFF COEFFICIENT   =           .99           .57          .716

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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001:0119--------------------------------------------------------------------------
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>06:(501   )   |
| OUT<07:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                          .000  .0000E+00    |     .074  .1200E+00
                          .004  .1500E-01    |     .080  .1350E+00
                          .005  .3000E-01    |     .086  .1500E+00
                          .006  .4500E-01    |     .092  .1650E+00
                          .036  .6000E-01    |     .098  .1800E+00
                          .048  .7500E-01    |     .325  .1950E+00
                          .058  .9000E-01    |     .735  .2100E+00
                          .066  .1050E+00    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >06: (501   )       3.92      .099     3.017     42.649
     OUTFLOW<07: (POND  )       3.92      .057     5.400     42.648
    OVERFLOW<**: (000001)        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   57.722
                    TIME SHIFT OF PEAK FLOW         (min)=   143.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.8876E-01

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001:0120--------------------------------------------------------------------------
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*
********************************************************************************
********************************************************************************
*
*
* 10 year - 12hr AES
*
---------------------
| READ STORM        |    Filename: C:\SWMHYM-1\LAKEST~1\10AES12.stm
| Ptotal=  69.30 mm|    Comments: 10 year AES 12hr
---------------------
            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
            1.00  12.474 |   4.00  10.395 |   7.00   2.079 |  10.00    .000
            2.00  14.553 |   5.00   9.702 |   8.00    .693 |  11.00    .000
            3.00  13.860 |   6.00   5.544 |   9.00    .000 |  12.00    .000

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001:0121--------------------------------------------------------------------------
*
*
* Area 101
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=     .28
| 01:101    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
---------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=           .14           .14
     Dep. Storage     (mm)=           .60          2.50
     Average Slope     (%)=          2.90          2.90
     Length            (m)=         42.00         35.00
     Mannings n           =           .013          .250

     Max.eff.Inten.(mm/hr)=         14.55         12.84
               over (min)            2.00         16.00
     Storage Coeff.  (min)=          2.38 (ii)    15.63 (ii)
     Unit Hyd. Tpeak (min)=          2.00         16.00
     Unit Hyd. peak  (cms)=           .50           .07
                                                          *TOTALS*
     PEAK FLOW       (cms)=           .00           .00          .009 (iii)
     TIME TO PEAK    (hrs)=          2.00          3.05         3.000
     RUNOFF VOLUME    (mm)=         68.70         41.17        50.805
     TOTAL RAINFALL   (mm)=         69.30         69.30        69.300
     RUNOFF COEFFICIENT   =           .99           .59          .733

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0     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.

--------------------------------------------------------------------------------
001:0122--------------------------------------------------------------------------
*
* Area 201
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=     .32
| 02:201    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
---------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=           .16           .16
     Dep. Storage     (mm)=           .60          2.50
     Average Slope     (%)=          2.80          2.80
     Length            (m)=         20.00         35.00
     Mannings n           =           .013          .250

     Max.eff.Inten.(mm/hr)=         14.55         12.85
               over (min)            2.00         15.00
     Storage Coeff.  (min)=          1.54 (ii)    14.92 (ii)
     Unit Hyd. Tpeak (min)=          2.00         15.00
     Unit Hyd. peak  (cms)=           .65           .08
                                                          *TOTALS*
     PEAK FLOW       (cms)=           .00           .01          .010 (iii)
     TIME TO PEAK    (hrs)=          2.00          3.05         3.000
     RUNOFF VOLUME    (mm)=         68.70         41.17        50.805
     TOTAL RAINFALL   (mm)=         69.30         69.30        69.300
     RUNOFF COEFFICIENT   =           .99           .59          .733

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0     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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001:0123--------------------------------------------------------------------------
*
* Area 301
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    8.44
| 03:301    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   25.00
---------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          5.06          3.38
     Dep. Storage     (mm)=           .60          2.50
     Average Slope     (%)=          4.90          6.40
     Length            (m)=        700.00         35.00
     Mannings n           =           .013          .250

     Max.eff.Inten.(mm/hr)=         14.55         18.74
               over (min)           11.00         20.00
     Storage Coeff.  (min)=         11.02 (ii)    20.00 (ii)
     Unit Hyd. Tpeak (min)=         11.00         20.00
     Unit Hyd. peak  (cms)=           .10           .06
                                                          *TOTALS*
     PEAK FLOW       (cms)=           .09           .17          .248 (iii)
     TIME TO PEAK    (hrs)=          2.00          3.08         3.033
     RUNOFF VOLUME    (mm)=         68.69         42.15        48.792
     TOTAL RAINFALL   (mm)=         69.30         69.30        69.300
     RUNOFF COEFFICIENT   =           .99           .61          .704

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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001:0124--------------------------------------------------------------------------
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>03:(301   )   |
| OUT<04:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
```

.000	.0000E+00	|	.059	.3300E+00
.007	.3000E-01	|	.062	.3600E+00
.009	.6000E-01	|	.065	.3900E+00
.011	.9000E-01	|	.068	.4200E+00
.026	.1200E+00	|	.070	.4500E+00
.033	.1500E+00	|	.073	.4800E+00
.039	.1800E+00	|	.075	.5100E+00
.043	.2100E+00	|	.077	.5400E+00
.048	.2400E+00	|	.529	.5700E+00
.052	.2700E+00	|	.000	.0000E+00
.055	.3000E+00	|	.000	.0000E+00

ROUTING RESULTS	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW >03: (301)	8.44	.248	3.033	48.792
OUTFLOW<04: (POND)	8.44	.057	6.667	48.790
OVERFLOW<**: (000001)	.00	.000	.000	.000

TOTAL NUMBER OF SIMULATED OVERFLOWS = 0
CUMULATIVE TIME OF OVERFLOWS (hours)= .00
PERCENTAGE OF TIME OVERFLOWING (%)= .00

PEAK FLOW REDUCTION [Qout/Qin](%)= 22.966
TIME SHIFT OF PEAK FLOW (min)= 218.00
MAXIMUM STORAGE USED (ha.m.)=.3159E+00

001:0125

*
* Area 401
*

CALIB NASHYD	Area (ha)= 13.38	Curve Number (CN)=72.20
05:401 DT= 2.00	Ia (mm)= 4.000	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= .450	

Unit Hyd Qpeak (cms)= 1.136

PEAK FLOW (cms)= .211 (i)
TIME TO PEAK (hrs)= 3.267
RUNOFF VOLUME (mm)= 26.144
TOTAL RAINFALL (mm)= 69.300
RUNOFF COEFFICIENT = .377

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

001:0126

*
* Area 501
*

CALIB STANDHYD	Area (ha)= 3.92		
06:501 DT= 1.00	Total Imp(%)= 65.00	Dir. Conn.(%)= 35.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.55	1.37
Dep. Storage	(mm)=	.60	2.50
Average Slope	(%)=	4.90	6.40
Length	(m)=	500.00	35.00
Mannings n	=	.013	.250
Max.eff.Inten.	(mm/hr)=	14.55	18.54
over	(min)	9.00	18.00
Storage Coeff.	(min)=	9.00 (ii)	18.02 (ii)
Unit Hyd. Tpeak	(min)=	9.00	18.00
Unit Hyd. peak	(cms)=	.13	.06

		TOTALS
PEAK FLOW	(cms)=	.06 .07 .120 (iii)
TIME TO PEAK	(hrs)=	2.00 3.07 3.017
RUNOFF VOLUME	(mm)=	68.70 41.99 51.340
TOTAL RAINFALL	(mm)=	69.30 69.30 69.300
RUNOFF COEFFICIENT	=	.99 .61 .741

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.5 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

001:0127

*

ROUTE RESERVOIR	Requested routing time step = 1.0 min.
IN>06:(501)	
OUT<07:(POND)	

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
.000	.0000E+00	.074	.1200E+00
.004	.1500E-01	.080	.1350E+00
.005	.3000E-01	.086	.1500E+00
.006	.4500E-01	.092	.1650E+00
.036	.6000E-01	.098	.1800E+00
.048	.7500E-01	.325	.1950E+00
.058	.9000E-01	.735	.2100E+00
.066	.1050E+00	.000	.0000E+00

ROUTING RESULTS	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW >06: (501)	3.92	.120	3.017	51.340
OUTFLOW<07: (POND)	3.92	.067	5.400	51.338
OVERFLOW<**: (000001)	.00	.000	.000	.000

TOTAL NUMBER OF SIMULATED OVERFLOWS = 0
CUMULATIVE TIME OF OVERFLOWS (hours)= .00
PERCENTAGE OF TIME OVERFLOWING (%)= .00

PEAK FLOW REDUCTION [Qout/Qin](%)= 55.534
TIME SHIFT OF PEAK FLOW (min)= 143.00
MAXIMUM STORAGE USED (ha.m.)=.1056E+00

001:0128

*
*
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****
*
*
* 25 year - 12hr AES
*

READ STORM	Filename: C:\SWMHYM~1\LAKEST~1\25AES12.stm
Ptotal= 81.30 mm	Comments: 25 year AES 12hr

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
1.00	14.634	4.00	12.195	7.00	2.439	10.00	.000
2.00	17.073	5.00	11.382	8.00	.813	11.00	.000
3.00	16.260	6.00	6.504	9.00	.000	12.00	.000

001:0129

*
*
* Area 101
*

CALIB STANDHYD	Area (ha)= .28		
01:101 DT= 1.00	Total Imp(%)= 50.00	Dir. Conn.(%)= 35.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.14	.14
Dep. Storage	(mm)=	.60	2.50
Average Slope	(%)=	2.90	2.90
Length	(m)=	42.00	35.00
Mannings n	=	.013	.250
Max.eff.Inten.	(mm/hr)=	17.07	16.00
over	(min)	2.00	14.00
Storage Coeff.	(min)=	2.24 (ii)	14.36 (ii)
Unit Hyd. Tpeak	(min)=	2.00	14.00
Unit Hyd. peak	(cms)=	.52	.08

		TOTALS
PEAK FLOW	(cms)=	.00 .01 .010 (iii)
TIME TO PEAK	(hrs)=	1.85 3.03 3.000
RUNOFF VOLUME	(mm)=	80.70 51.53 61.741
TOTAL RAINFALL	(mm)=	81.30 81.30 81.300
RUNOFF COEFFICIENT	=	.99 .63 .759

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 82.0 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.

001:0130

*
* Area 201
*

CALIB STANDHYD	Area (ha)= .32		
02:201 DT= 1.00	Total Imp(%)= 50.00	Dir. Conn.(%)= 35.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.16	.16
Dep. Storage	(mm)=	.60	2.50
Average Slope	(%)=	2.80	2.80
Length	(m)=	20.00	35.00
Mannings n	=	.013	.250
Max.eff.Inten.	(mm/hr)=	17.07	16.00
over	(min)	1.00	14.00
Storage Coeff.	(min)=	1.45 (ii)	13.70 (ii)
Unit Hyd. Tpeak	(min)=	1.00	14.00
Unit Hyd. peak	(cms)=	.85	.08

```
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .01          .01          .012 (iii)
     TIME TO PEAK    (hrs)=       1.78         3.03         3.000
     RUNOFF VOLUME    (mm)=      80.70        51.53        61.741
     TOTAL RAINFALL   (mm)=      81.30        81.30        81.300
     RUNOFF COEFFICIENT   =        .99          .63          .759

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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.

--------------------------------------------------------------------------------
001:0131----------------------------------------------------------------------
*
* Area 301
*
----------------------
| CALIB STANDHYD     |   Area     (ha)=    8.44
| 03:301    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   25.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.06         3.38
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       4.90         6.40
     Length            (m)=     700.00        35.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      17.07        23.29
               over (min)        10.00        19.00
     Storage Coeff.  (min)=     10.34 (ii)   18.57 (ii)
     Unit Hyd. Tpeak (min)=      10.00        19.00
     Unit Hyd. peak  (cms)=        .11          .06
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .10          .21          .304 (iii)
     TIME TO PEAK    (hrs)=       2.00         3.07         3.017
     RUNOFF VOLUME    (mm)=      80.69        52.59        59.622
     TOTAL RAINFALL   (mm)=      81.30        81.30        81.300
     RUNOFF COEFFICIENT   =        .99          .65          .733

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0132----------------------------------------------------------------------
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>03:(301   )   |
| OUT<04:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)     (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00    |     .059  .3300E+00
                           .007  .3000E-01    |     .062  .3600E+00
                           .009  .6000E-01    |     .065  .3900E+00
                           .011  .9000E-01    |     .068  .4200E+00
                           .026  .1200E+00    |     .070  .4500E+00
                           .033  .1500E+00    |     .073  .4800E+00
                           .039  .1800E+00    |     .075  .5100E+00
                           .043  .2100E+00    |     .077  .5400E+00
                           .048  .2400E+00    |     .529  .5700E+00
                           .052  .2700E+00    |     .000  .0000E+00
                           .055  .3000E+00    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >03: (301   )       8.44      .304     3.017     59.622
     OUTFLOW<04: (POND  )       8.44      .065     6.700     59.621
    OVERFLOW<**: (000001)        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   21.284
                    TIME SHIFT OF PEAK FLOW          (min)=   221.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.3908E+00

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001:0133----------------------------------------------------------------------
*
* Area 401
*
----------------------
| CALIB NASHYD       |   Area     (ha)=   13.38   Curve Number    (CN)=72.20
| 05:401    DT= 2.00 |   Ia       (mm)=   4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.136

     PEAK FLOW       (cms)=     .277 (i)
     TIME TO PEAK    (hrs)=    3.233
     RUNOFF VOLUME    (mm)=   34.125
     TOTAL RAINFALL   (mm)=   81.300
     RUNOFF COEFFICIENT   =     .420

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

--------------------------------------------------------------------------------
001:0134----------------------------------------------------------------------
*
* Area 501
*
----------------------
| CALIB STANDHYD     |   Area     (ha)=    3.92
| 06:501    DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   35.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.55         1.37
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       4.90         6.40
     Length            (m)=     500.00        35.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      17.07        23.04
               over (min)         8.00        17.00
     Storage Coeff.  (min)=      8.45 (ii)   16.71 (ii)
     Unit Hyd. Tpeak (min)=      8.00         17.00
     Unit Hyd. peak  (cms)=       .14          .07
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .07          .08          .146 (iii)
     TIME TO PEAK    (hrs)=      2.00         3.05         3.000
     RUNOFF VOLUME    (mm)=     80.70        52.41        62.313
     TOTAL RAINFALL   (mm)=     81.30        81.30        81.300
     RUNOFF COEFFICIENT   =       .99          .64          .766

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0135----------------------------------------------------------------------
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>06:(501   )   |
| OUT<07:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)     (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00    |     .074  .1200E+00
                           .004  .1500E-01    |     .080  .1350E+00
                           .005  .3000E-01    |     .086  .1500E+00
                           .006  .4500E-01    |     .092  .1650E+00
                           .036  .6000E-01    |     .098  .1800E+00
                           .048  .7500E-01    |     .325  .1950E+00
                           .058  .9000E-01    |     .735  .2100E+00
                           .066  .1050E+00    |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     -------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >06: (501   )       3.92      .146     3.000     62.313
     OUTFLOW<07: (POND  )       3.92      .078     5.417     62.312
    OVERFLOW<**: (000001)        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   52.946
                    TIME SHIFT OF PEAK FLOW          (min)=   145.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.1285E+00

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001:0136----------------------------------------------------------------------
*
*
**************************************************************************
**************************************************************************
*
*
* 50 year - 12hr AES
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM~1\LAKEST~1\50AES12.stm
| Ptotal=  90.40 mm|    Comments: 50 year AES 12hr
--------------------
            TIME    RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
             hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
            1.00  16.272 |   4.00  13.560 |   7.00   2.712 |  10.00    .000
            2.00  18.984 |   5.00  12.656 |   8.00    .904 |  11.00    .000
            3.00  18.080 |   6.00   7.232 |   9.00    .000 |  12.00    .000
```

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--------------------------------------------------------------------------------
001:0137--------------------------------------------------------------------------
*
*
* Area 101
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .28
| 01:101    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .14          .14
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      2.90         2.90
     Length            (m)=     42.00        35.00
     Mannings n             =    .013         .250

     Max.eff.Inten.(mm/hr)=     18.98        18.41
               over (min)       2.00        14.00
     Storage Coeff.  (min)=      2.14 (ii)   13.61 (ii)
     Unit Hyd. Tpeak (min)=      2.00        14.00
     Unit Hyd. peak  (cms)=       .53          .08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .01          .01          .012 (iii)
     TIME TO PEAK    (hrs)=      1.42         3.03         3.000
     RUNOFF VOLUME    (mm)=     89.80        59.59        70.164
     TOTAL RAINFALL   (mm)=     90.40        90.40        90.400
     RUNOFF COEFFICIENT   =       .99          .66          .776

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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.

--------------------------------------------------------------------------------
001:0138--------------------------------------------------------------------------
*
* Area 201
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .32
| 02:201    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .16          .16
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      2.80         2.80
     Length            (m)=     20.00        35.00
     Mannings n             =    .013         .250

     Max.eff.Inten.(mm/hr)=     18.98        18.43
               over (min)       1.00        13.00
     Storage Coeff.  (min)=      1.39 (ii)   12.97 (ii)
     Unit Hyd. Tpeak (min)=      1.00        13.00
     Unit Hyd. peak  (cms)=       .87          .09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .01          .01          .014 (iii)
     TIME TO PEAK    (hrs)=      1.28         3.03         3.000
     RUNOFF VOLUME    (mm)=     89.80        59.59        70.164
     TOTAL RAINFALL   (mm)=     90.40        90.40        90.400
     RUNOFF COEFFICIENT   =       .99          .66          .776

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0    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.

--------------------------------------------------------------------------------
001:0139--------------------------------------------------------------------------
*
* Area 301
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.44
| 03:301    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   25.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      5.06         3.38
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      4.90         6.40
     Length            (m)=    700.00        35.00
     Mannings n             =    .013         .250

     Max.eff.Inten.(mm/hr)=     18.98        26.79
               over (min)      10.00        18.00
     Storage Coeff.  (min)=      9.91 (ii)   17.69 (ii)
     Unit Hyd. Tpeak (min)=     10.00        18.00
     Unit Hyd. peak  (cms)=       .11          .06
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .11          .24          .348 (iii)
     TIME TO PEAK    (hrs)=      2.00         3.05         3.017
     RUNOFF VOLUME    (mm)=     89.79        60.69        67.978
     TOTAL RAINFALL   (mm)=     90.40        90.40        90.400
     RUNOFF COEFFICIENT   =       .99          .67          .752

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0140--------------------------------------------------------------------------
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>03:(301   )   |
| OUT<04:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           .000  .0000E+00    |    .059  .3300E+00
                           .007  .3000E-01    |    .062  .3600E+00
                           .009  .6000E-01    |    .065  .3900E+00
                           .011  .9000E-01    |    .068  .4200E+00
                           .026  .1200E+00    |    .070  .4500E+00
                           .033  .1500E+00    |    .073  .4800E+00
                           .039  .1800E+00    |    .075  .5100E+00
                           .043  .2100E+00    |    .077  .5400E+00
                           .048  .2400E+00    |    .529  .5700E+00
                           .052  .2700E+00    |    .000  .0000E+00
                           .055  .3000E+00    |    .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK        R.V.
     -------------------         (ha)     (cms)     (hrs)        (mm)
     INFLOW >03: (301   )       8.44      .348     3.017      67.978
     OUTFLOW<04: (POND  )       8.44      .070     6.733      67.977
    OVERFLOW<**: (000001)        .00      .000      .000       .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =         0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=       .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=       .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=    20.192
                    TIME SHIFT OF PEAK FLOW          (min)=   223.00
                    MAXIMUM  STORAGE   USED        (ha.m.)=.4496E+00

--------------------------------------------------------------------------------
001:0141--------------------------------------------------------------------------
*
* Area 401
*
----------------------
| CALIB NASHYD       |   Area    (ha)=   13.38   Curve Number   (CN)=72.20
| 05:401    DT= 2.00 |   Ia      (mm)=    4.000   # of Linear Res.(N)= 3.00
----------------------   U.H. Tp(hrs)=     .450

     Unit Hyd Qpeak  (cms)=     1.136

     PEAK FLOW       (cms)=      .330 (i)
     TIME TO PEAK    (hrs)=     3.233
     RUNOFF VOLUME    (mm)=    40.526
     TOTAL RAINFALL   (mm)=    90.400
     RUNOFF COEFFICIENT   =      .448

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

--------------------------------------------------------------------------------
001:0142--------------------------------------------------------------------------
*
* Area 501
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    3.92
| 06:501    DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   35.00
----------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      2.55         1.37
     Dep. Storage     (mm)=       .60         2.50
     Average Slope     (%)=      4.90         6.40
     Length            (m)=    500.00        35.00
     Mannings n             =    .013         .250

     Max.eff.Inten.(mm/hr)=     18.98        26.51
               over (min)       8.00        16.00
     Storage Coeff.  (min)=      8.10 (ii)   15.91 (ii)
     Unit Hyd. Tpeak (min)=      8.00        16.00
     Unit Hyd. peak  (cms)=       .14          .07
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .07          .10          .167 (iii)
     TIME TO PEAK    (hrs)=      2.00         3.03         3.000
     RUNOFF VOLUME    (mm)=     89.79        60.50        70.760
     TOTAL RAINFALL   (mm)=     90.40        90.40        90.400
     RUNOFF COEFFICIENT   =       .99          .67          .783

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

```
          THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0143--------------------------------------------------------------------------
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>06:(501   )   |
| OUT<07:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)     (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |     .074  .1200E+00
                           .004  .1500E-01   |     .080  .1350E+00
                           .005  .3000E-01   |     .086  .1500E+00
                           .006  .4500E-01   |     .092  .1650E+00
                           .036  .6000E-01   |     .098  .1800E+00
                           .048  .7500E-01   |     .325  .1950E+00
                           .058  .9000E-01   |     .735  .2100E+00
                           .066  .1050E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >06: (501   )       3.92      .167     3.000     70.760
     OUTFLOW<07: (POND  )       3.92      .085     5.433     70.758
    OVERFLOW<**: (000001)        .00      .000      .000      .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=   51.210
                    TIME SHIFT OF PEAK FLOW         (min)=  146.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=.1471E+00

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001:0144--------------------------------------------------------------------------
*
*
********************************************************************************
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*
*
* 100 year - 12hr AES
*
--------------------
| READ STORM       |    Filename: C:\SWMHYM-1\LAKEST~1\100AES12.stm
| Ptotal=  99.70 mm|    Comments: 100 year AES 12hr
--------------------
              TIME     RAIN |   TIME    RAIN |   TIME    RAIN |   TIME    RAIN
               hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr |    hrs   mm/hr
              1.00  17.946 |   4.00  14.955 |   7.00   2.991 |  10.00    .000
              2.00  20.937 |   5.00  13.958 |   8.00    .997 |  11.00    .000
              3.00  19.940 |   6.00   7.976 |   9.00    .000 |  12.00    .000

--------------------------------------------------------------------------------
001:0145--------------------------------------------------------------------------
*
*
*
* Area 101
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .28
| 01:101    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .14          .14
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       2.90         2.90
     Length            (m)=      42.00        35.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      20.94        20.92
               over (min)        2.00        13.00
     Storage Coeff.  (min)=       2.06 (ii)   12.96 (ii)
     Unit Hyd. Tpeak (min)=       2.00        13.00
     Unit Hyd. peak  (cms)=        .55          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .01          .01          .013 (iii)
     TIME TO PEAK    (hrs)=       1.40         3.02         3.000
     RUNOFF VOLUME    (mm)=      99.10        67.96        78.862
     TOTAL RAINFALL   (mm)=      99.70        99.70        99.700
     RUNOFF COEFFICIENT   =        .99          .68          .791

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0     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.

--------------------------------------------------------------------------------
001:0146--------------------------------------------------------------------------
*
* Area 201
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=     .32
| 02:201    DT= 1.00 |   Total Imp(%)=   50.00   Dir. Conn.(%)=   35.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .16          .16
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       2.80         2.80
     Length            (m)=      20.00        35.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      20.94        20.93
               over (min)        1.00        12.00
     Storage Coeff.  (min)=       1.33 (ii)   12.34 (ii)
     Unit Hyd. Tpeak (min)=       1.00        12.00
     Unit Hyd. peak  (cms)=        .90          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .01          .01          .015 (iii)
     TIME TO PEAK    (hrs)=       1.28         3.02         3.000
     RUNOFF VOLUME    (mm)=      99.10        67.96        78.862
     TOTAL RAINFALL   (mm)=      99.70        99.70        99.700
     RUNOFF COEFFICIENT   =        .99          .68          .791

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  82.0     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.

--------------------------------------------------------------------------------
001:0147--------------------------------------------------------------------------
*
* Area 301
*
----------------------
| CALIB STANDHYD     |   Area    (ha)=    8.44
| 03:301    DT= 1.00 |   Total Imp(%)=   60.00   Dir. Conn.(%)=   25.00
----------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.06         3.38
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       4.90         6.40
     Length            (m)=     700.00        35.00
     Mannings n            =       .013         .250

     Max.eff.Inten.(mm/hr)=      20.94        30.40
               over (min)       10.00        17.00
     Storage Coeff.  (min)=       9.53 (ii)   16.93 (ii)
     Unit Hyd. Tpeak (min)=      10.00        17.00
     Unit Hyd. peak  (cms)=        .12          .07
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .12          .28          .393 (iii)
     TIME TO PEAK    (hrs)=       2.00         3.05         3.017
     RUNOFF VOLUME    (mm)=      99.09        69.11        76.618
     TOTAL RAINFALL   (mm)=      99.70        99.70        99.700
     RUNOFF COEFFICIENT   =        .99          .69          .768

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0148--------------------------------------------------------------------------
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>03:(301   )   |
| OUT<04:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
---------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                           (cms)     (ha.m.)   |    (cms)    (ha.m.)
                           .000  .0000E+00   |     .059  .3300E+00
                           .007  .3000E-01   |     .062  .3600E+00
                           .009  .6000E-01   |     .065  .3900E+00
                           .011  .9000E-01   |     .068  .4200E+00
                           .026  .1200E+00   |     .070  .4500E+00
                           .033  .1500E+00   |     .073  .4800E+00
                           .039  .1800E+00   |     .075  .5100E+00
                           .043  .2100E+00   |     .077  .5400E+00
                           .048  .2400E+00   |     .529  .5700E+00
                           .052  .2700E+00   |     .000  .0000E+00
                           .055  .3000E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------        (ha)     (cms)     (hrs)       (mm)
     INFLOW >03: (301   )       8.44      .393     3.017     76.618
     OUTFLOW<04: (POND  )       8.44      .075     6.783     76.616
    OVERFLOW<**: (000001)        .00      .000      .000      .000

                    TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                    CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                    PERCENTAGE OF TIME OVERFLOWING    (%)=      .00
```

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   19.066
                  TIME SHIFT OF PEAK FLOW          (min)=   226.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.5113E+00

--------------------------------------------------------------------------------
001:0149----------------------------------------------------------------------
*
* Area 401
*
---------------------
| CALIB NASHYD      |   Area    (ha)=   13.38   Curve Number    (CN)=72.20
| 05:401    DT= 2.00 |   Ia      (mm)=   4.000   # of Linear Res.(N)= 3.00
---------------------   U.H. Tp(hrs)=    .450

     Unit Hyd Qpeak  (cms)=    1.136

     PEAK FLOW       (cms)=     .387 (i)
     TIME TO PEAK    (hrs)=    3.200
     RUNOFF VOLUME    (mm)=   47.331
     TOTAL RAINFALL   (mm)=   99.700
     RUNOFF COEFFICIENT   =     .475

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

--------------------------------------------------------------------------------
001:0150----------------------------------------------------------------------
*
* Area 501
*
---------------------
| CALIB STANDHYD    |   Area    (ha)=    3.92
| 06:501    DT= 1.00 |   Total Imp(%)=   65.00   Dir. Conn.(%)=   35.00
---------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.55         1.37
     Dep. Storage     (mm)=        .60         2.50
     Average Slope     (%)=       4.90         6.40
     Length            (m)=     500.00        35.00
     Mannings n           =       .013         .250

     Max.eff.Inten.(mm/hr)=      20.94        30.08
               over (min)        8.00        15.00
     Storage Coeff.  (min)=       7.79 (ii)   15.22 (ii)
     Unit Hyd. Tpeak (min)=       8.00        15.00
     Unit Hyd. peak  (cms)=        .14          .07
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .08          .11           .187 (iii)
     TIME TO PEAK    (hrs)=       2.00         3.03          3.000
     RUNOFF VOLUME    (mm)=      99.10        68.91         79.480
     TOTAL RAINFALL   (mm)=      99.70        99.70         99.700
     RUNOFF COEFFICIENT   =        .99          .69           .797

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN* =  76.5    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
001:0151----------------------------------------------------------------------
*
---------------------
| ROUTE RESERVOIR   |    Requested routing time step =  1.0 min.
|  IN>06:(501   )   |
| OUT<07:(POND  )   |    =========  OUTLFOW STORAGE TABLE  =========
--------------------    OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
                          (cms)    (ha.m.)   |    (cms)    (ha.m.)
                          .000  .0000E+00   |     .074  .1200E+00
                          .004  .1500E-01   |     .080  .1350E+00
                          .005  .3000E-01   |     .086  .1500E+00
                          .006  .4500E-01   |     .092  .1650E+00
                          .036  .6000E-01   |     .098  .1800E+00
                          .048  .7500E-01   |     .325  .1950E+00
                          .058  .9000E-01   |     .735  .2100E+00
                          .066  .1050E+00   |     .000  .0000E+00

     ROUTING RESULTS            AREA     QPEAK     TPEAK       R.V.
     --------------------       (ha)     (cms)     (hrs)       (mm)
     INFLOW >06: (501   )       3.92      .187     3.000     79.480
     OUTFLOW<07: (POND  )       3.92      .093     5.450     79.479
    OVERFLOW<**: (000001)        .00      .000      .000       .000

                  TOTAL NUMBER OF SIMULATED OVERFLOWS  =        0
                  CUMULATIVE TIME OF OVERFLOWS  (hours)=      .00
                  PERCENTAGE OF TIME OVERFLOWING    (%)=      .00


                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=   49.629
                  TIME SHIFT OF PEAK FLOW          (min)=   147.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=.1669E+00

--------------------------------------------------------------------------------
001:0152----------------------------------------------------------------------
*
*
********************************************************************************
     FINISH
--------------------------------------------------------------------------------
********************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
 001:0066 COMPUTE VOLUME
      *** WARNING: Calculated volume may not be the maximum.
 001:0070 COMPUTE VOLUME
      *** WARNING: Calculated volume may not be the maximum.
 001:0076 COMPUTE VOLUME
      *** WARNING: Calculated volume may not be the maximum.
 001:0079 COMPUTE VOLUME
      *** WARNING: Calculated volume may not be the maximum.
 001:0084 COMPUTE VOLUME
      *** WARNING: Calculated volume may not be the maximum.
 001:0087 COMPUTE VOLUME
      *** WARNING: Calculated volume may not be the maximum.
 001:0092 COMPUTE VOLUME
      *** WARNING: Calculated volume may not be the maximum.
 001:0095 COMPUTE VOLUME
      *** WARNING: Calculated volume may not be the maximum.
 001:0100 COMPUTE VOLUME
      *** WARNING: Calculated volume may not be the maximum.
 001:0103 COMPUTE VOLUME
      *** WARNING: Calculated volume may not be the maximum.
   Simulation ended on 2004-09-19     at 02:53:39
================================================================================
```

Stage-Storage-Discharge Relationship **Pond 301**

Orifice 1 - quality

orifice	*Q=cA(2gh)^0.5*		
orifice diameter	0.1	c	0.6
orifice radius	0.05	g	9.81
orifice area	0.00785	2g	19.62

Orifice 2 - quantity

orifice	*Q=cA(2gh)^0.5*		
orifice diameter	0.14	c	0.6
orifice radius	0.07	g	9.81
orifice area	0.01539	2g	19.62

Overflow

overflow	*Q=CLH^1.5*
c	1.67
L	8.5

				Orifice 1		Orifice 2		Overflow		
Description	**Elevation**	**Storage (m3)**	**ha m**	**Head (m)**	**Discharge (m3/s)**	**Head (m)**	**Discharge (m3/s)**			**Qt**
		0	0.0000	0	0.0000					0.0000
		300.0	0.0300	0.10	0.0066					0.0066
		600.0	0.0600	0.20	0.0093					0.0093
Top of quality		900.0	0.0900	0.30	0.0114	0	0			0.0114
		1200.0	0.1200	0.40	0.0132	0.1000	0.0129			0.0261
		1500.0	0.1500	0.50	0.0148	0.2000	0.0183			0.0330
		1800.0	0.1800	0.60	0.0162	0.3000	0.0224			0.0386
		2100.0	0.2100	0.7000	0.0175	0.4000	0.0259			0.0433
		2400.0	0.2400	0.8000	0.0187	0.5000	0.0289			0.0476
		2700.0	0.2700	0.9000	0.0198	0.6000	0.0317			0.0515
		3000.0	0.3000	1.0000	0.0209	0.7000	0.0342			0.0551
		3300.0	0.3300	1.1000	0.0219	0.8000	0.0366			0.0585
		3600.0	0.3600	1.2000	0.0229	0.9000	0.0388			0.0616
		3900.0	0.3900	1.3000	0.0238	1.0000	0.0409			0.0647
		4200.0	0.4200	1.4000	0.0247	1.1000	0.0429			0.0676
		4500.0	0.4500	1.5000	0.0256	1.2000	0.0448			0.0703
		4800.0	0.4800	1.6000	0.0264	1.3000	0.0466			0.0730
		5100.0	0.5100	1.6000	0.0264	1.4000	0.0484			0.0748
top of quantity		5400.0	0.5400	1.7000	0.0272	1.5000	0.0501	0.0000	0.0000	0.0773
		5700.0	0.5700	1.8000	0.0280	1.6000	0.0517	0.1000	0.4489	0.5286
		6000.0	0.6000	1.9000	0.0288	1.7000	0.0533	0.2000	1.2696	1.3517
top of overflow		6300.0	0.6300	2.0000	0.0295	1.8000	0.0549	0.3000	2.3325	2.4168

Stage-Storage-Discharge Relationship **Pond 501**

Orifice 1 - quality

orifice	*Q=cA(2gh)^0.5*		
orifice diameter	0.075	c	0.6
orifice radius	0.0375	g	9.81
orifice area	0.00442	2g	19.62

Orifice 2 - quantity

orifice	*Q=cA(2gh)^0.5*		
orifice diameter	0.207	c	0.6
orifice radius	0.1035	g	9.81
orifice area	0.03364	2g	19.62

Overflow

overflow	*Q=CLH^1.5*
c	1.67
L	4.2

				Orifice 1		Orifice 2		Overflow		
Description	**Elevation**	**Storage (m3)**	**ha m**	**Head (m)**	**Discharge (m3/s)**	**Head (m)**	**Discharge (m3/s)**			**Qt**
		0	0.0000	0	0.0000					0.0000
		150.0	0.0150	0.10	0.0037					0.0037
		300.0	0.0300	0.20	0.0052					0.0052
Top of quality		450.0	0.0450	0.30	0.0064	0	0			0.0064
		600.0	0.0600	0.40	0.0074	0.1000	0.0283			0.0357
		750.0	0.0750	0.50	0.0083	0.2000	0.0400			0.0483
		900.0	0.0900	0.60	0.0091	0.3000	0.0490			0.0581
		1050.0	0.1050	0.70	0.0098	0.4000	0.0565			0.0664
		1200.0	0.1200	0.80	0.0105	0.5000	0.0632			0.0737
		1350.0	0.1350	0.90	0.0111	0.6000	0.0692			0.0804
		1500.0	0.1500	1.00	0.0117	0.7000	0.0748			0.0865
		1650.0	0.1650	1.10	0.0123	0.8000	0.0800			0.0923
top of quantity		1800.0	0.1800	1.20	0.0129	0.9000	0.0848	0.0000	0.0000	0.0977
		1950.0	0.1950	1.30	0.0134	1.0000	0.0894	0.1000	0.2218	0.3246
		2100.0	0.2100	1.40	0.0139	1.1000	0.0938	0.2000	0.6274	0.7350
top of overflow		2250.0	0.2250	1.50	0.0144	1.2000	0.0979	0.3000	1.1525	1.2648

Appendix C

Pond 301

24 hour Draw Down

Event	25 mm	
volume	1058	m^3
24 hr avg	0.0122	m^3/s

Forebay Sizing Calculations

Settling Calculation
D=SQRT(rQp/Vs)

r	2	
Qp	0.0122	m^3/s
Vs	0.0003	m^3/s
D	**9.04**	**m**

Dispersion Calculation
D=8Q/dVf

Q	0.203	m^3/s
d	1	**m**
Vf	0.5	m/s
D	**3.25**	**m**

Width Calculation
W=D/8

D	9.04	**m**
W	**1.13**	**m**

Note: **Qp =** discharge of quality event for 24 hr draw down
Q = Q 5 from SWMHYMO model

Pond 501

24 hour Draw Down

Event	25 mm	
volume	552	m^3
24 hr avg	0.0064	m^3/s

Forebay Sizing Calculations

Settling Calculation
D=SQRT(rQp/Vs)

r	2	
Qp	0.0064	m^3/s
Vs	0.0003	m^3/s
D	**6.53**	**m**

Dispersion Calculation
D=8Q/dVf

Q	0.099	m^3/s
d	1	**m**
Vf	0.5	m/s
D	**1.58**	**m**

Width Calculation
W=D/8

D	6.53	**m**
W	**0.82**	**m**

Note: **Qp =** discharge of quality event for 24 hr draw down
Q = Q 5 from SWMHYMO model

Appendix D

Sediment Accumulation **Pond 301**

Initial Volume Avialable in Main Pond	1000	cubic metres	
Initial Volume Avialable in Forebay	500	cubic metres	
Target Volume for Cleanout	75 % remaining		
Contributing Area	8.44	ha	
Annual Loading @ 55%	1.9	cubic metres\ha	per MOE Table 6.3
annual accumulation (site)	16.036	cubic metres	

Main Pond 20 % of sediment

Year	Volume Available	Accumulated Sediment	% Volume Remaining
0	1000	0	100
1	996.8	3.2	100
2	993.6	6.4	99
3	990.4	9.6	99
4	987.2	12.8	99
5	984.0	16.0	98
6	980.8	19.2	98
7	977.5	22.5	98
8	974.3	25.7	97
9	971.1	28.9	97
10	967.9	32.1	97
11	964.7	35.3	96
12	961.5	38.5	96
13	958.3	41.7	96
14	955.1	44.9	96
15	951.9	48.1	95
16	948.7	51.3	95
17	945.5	54.5	95
18	942.3	57.7	94
19	939.1	60.9	94
20	935.9	64.1	94

Forebay 80 % of sediment

Year	Volume Available	Accumulated Sediment	% Volume Remaining
0	500	0	100
1	487.2	12.8	97
2	474.3	25.7	95
3	461.5	38.5	92
4	448.7	51.3	90
5	435.9	64.1	87
6	423.0	77.0	85
7	410.2	89.8	82
8	397.4	102.6	79
9	384.5	115.5	77
10	371.7	128.3	74
11	358.9	141.1	72
12	346.1	153.9	69
13	333.2	166.8	67
14	320.4	179.6	64
15	307.6	192.4	62
16	294.7	205.3	59
17	281.9	218.1	56

Sediment Accumulation **Pond 501**

Initial Volume Avialable in Main Pond	500	cubic metres	
Initial Volume Avialable in Forebay	300	cubic metres	
Target Volume for Cleanout	75 % remaining		
Contributing Area	3.92	ha	
Annual Loading @ 65%	2.5	cubic metres\ha	per MOE Table 6.3
annual accumulation (site)	9.8	cubic metres	

Main Pond 20 % of sediment

Year	Volume Available	Accumulated Sediment	% Volume Remaining
0	500	0	100
1	498.0	2.0	100
2	496.1	3.9	99
3	494.1	5.9	99
4	492.2	7.8	98
5	490.2	9.8	98
6	488.2	11.8	98
7	486.3	13.7	97
8	484.3	15.7	97
9	482.4	17.6	96
10	480.4	19.6	96
11	478.4	21.6	96
12	476.5	23.5	95
13	474.5	25.5	95
14	472.6	27.4	95
15	470.6	29.4	94
16	468.6	31.4	94
17	466.7	33.3	93
18	464.7	35.3	93
19	462.8	37.2	93
20	460.8	39.2	92

Forebay 80 % of sediment

Year	Volume Available	Accumulated Sediment	% Volume Remaining
0	300	0	100
1	292.2	7.8	97
2	284.3	15.7	95
3	276.5	23.5	92
4	268.6	31.4	90
5	260.8	39.2	87
6	253.0	47.0	84
7	245.1	54.9	82
8	237.3	62.7	79
9	229.4	70.6	76
10	221.6	78.4	74
11	213.8	86.2	71
12	205.9	94.1	69
13	198.1	101.9	66
14	190.2	109.8	63
15	182.4	117.6	61
16	174.6	125.4	58
17	166.7	133.3	56