Meaford A2A Developments Inc.

Functional Servicing Report

Meaford Highlands Resort

Municipality of Meaford

Project No. L10-512

May 2012

COLE ENGINEERING

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EXECUTIVE SUMMARY

Meaford A2A Development Inc. proposes to develop approximately 154 ha of vacant rural land easterly of 3rd Line and southerly of Highway 26. The lands were previously draft approved for subdivision development by the former Township of St. Vincent but the approval has lapsed. Initial servicing of roadways and watercourse crossings had commenced.

The proposal anticipates 1071 units plus golf course, commercial and retail. The ultimate build-out will be phased in five (5) phases.

Meaford A2A Development Inc. envisions a resource based recreational resort with a full range of recreational, commercial and residential uses. The development can be supported on full municipal water and waste water services. The servicing design will indentify and integrate the natural and environmental characteristics of the site and utilize best management practices measures for sustainability.

The development can be serviced by municipal water and wastewater treatment. The Water Treatment Plant located in the Municipality of Meaford has surplus capacity for the proposal. It will be necessary to extend the distribution system from the St. Vincent booster station to the site. A storage facility, either an in-ground reservoir or elevated tank with another booster station will be constructed. The details of the expansion and the location of the facilities will be determined through the review of alternatives and selection of a preferred alternative.

The Water Pollution Control Plant, also located in the Municipality of Meaford, has some uncommitted reserve capacity for the initial phase of the development. The Municipality has identified options and costs for the expansion of the facility to provide capacity for additional growth. The ultimate build-out can be serviced by the recommended plant expansion. The site can be internally serviced by gravity sanitary sewers and two (2) pumping stations. The unit flows used in the calculation of the uncommitted reserve capacity are very conservative compared to actual flows resulting from the water conservation measures required by the Ontario Building Code. The actual design unit flows should be discussed further with the Municipality and sustainable design and water re-use opportunities explored.

The road design will include roadside ditches and swales which will provide conveyance capacity and stormwater treatment capability to maintain the pre-development infiltration amounts. In areas subject to excessive erosion curb and gutter with storm sewers will be constructed. Three (3) 600mm culverts are proposed for the roadway watercourse crossings. The preliminary analysis concludes that the post-development flows can be controlled to pre-development levels by constructing one (1) wet pond and three (3) dry ponds. Quality treatment will be provided by the wet pond and oil / grit separators.

Table of Contents

1.0 Introduction 1
1.1. Scope of Functional Servicing Report 1
1.2. Background Review 1
1.3. Existing Conditions 1
2.0 Proposed Development 2
2.1. Phasing of Development 2
3.0 Area Grading 3
3.1. Existing Topography 3
3.2. Proposed Grading 3
4.0 Water Supply Requirements 4
4.1. Domestic Demand 4
4.2. Fire Flow Requirements 4
4.3. Water Supply 4
4.4. Proposed Water Servicing 4
5.0 Sanitary Servicing 5
5.1. Existing Sanitary Treatment 5
5.2. Proposed Sanitary Sewers 5
6.0 Storm Drainage 6
6.1. Minor Storm Drainage 6
6.2. Major Storm Drainage 6
7.0 Stormwater Management 8
7.1. SWM Criteria 8
7.2. Existing Conditions 8
7.2.1. Existing Land Use 8
7.2.2. Existing Drainage Patterns 8
7.2.3. External Drainage Areas 8
7.2.4. Site Land Cover and Soils 9
7.2.5. Existing Hydrological Conditions 9
7.3. Proposed Conditions 10
7.3.1. Stormwater Quantity Control 10
7.3.2. Stormwater Management Facilities 12
7.3.3. Stormwater Quality Control 13
7.3.4. Erosion Control 15
7.3.5. Best Management Practices and Low Impact Development Considerations 15
8.0 Conclusions 17

LIST OF FIGURES

Figure C10 Weston Consulting Group Inc. Concept Plan
Figure P1 Weston Consulting Group Inc. Phasing Plan
Figure 1 External Water and Sanitary Servicing
Figure DE-1 Typical R.O.W. Sections
DAP-1 Pre-Development Drainage Area Plan
DAP-2 Post-Development Drainage Area Plan

LIST OF DRAWINGS

GR1 Grading Plan
WM Watermain Layout
SAN-2 Sanitary Sewer Layout

LIST OF TABLES

Table 2.1 – Proposed Land Uses and Areas 2
Table 4.1 – Domestic Demand 4
Table 6.1 – Minor System Conveyance Capacity 6
Table 6.2 – Major System Conveyance Capacity 6
Table 7.1 – Pre-Development Condition Input Parameters 9
Table 7.2 – Pre-development Peak Flows 10
Table 7.3 – Post-development Input Parameters (STANDHYD Commands) 11
Table 7.4 – Post-Development Condition Input Parameters (NASHYD Commands) 11
Table 7.5 – Post-development Peak Flows 12
Table 7.6 – Proposed Quantity Control Features 12
Table 7.7 – Water Quality Storage Requirements – Enhanced (Level 1) Protection 14
Table 7.8 – Water Quality Storage Requirements – Enhanced (Level 1) Protection 14
Table 7.9 – Extended Detention Pond Volumes 15
Table 7.10 – Lot Level / Conveyance BMP Analysis 16

APPENDICES

Appendix A – FlowMaster Output
Appendix B – MTO Design Charts and Pre-Development Input Parameters
Appendix C – Pre-Development Hydrologic Model Output
Appendix D – Post-Development Input Parameters
Appendix E – Post-Development Hydrologic Model Output
Appendix F – Quality Controls- CDS Units
Appendix G – Quality Pond Sizing Calculations
Appendix H – Statement of Limiting Conditions and Assumptions

1.0 Introduction

1.1. Scope of Functional Servicing Report

Cole Engineering Group Ltd. (Cole Engineering) has been retained by Meaford A2A Developments Inc. to prepare a Functional Servicing Report (FSR) in support of Official Plan Amendment, Re-Zoning and subsequent Draft Plan of Subdivision applications for a proposed resource based recreational resort development located on the easterly side of 3rd Line, southerly of Highway 26, in the Municipality of Meaford, Grey County, Ontario. The proposal is to provide full municipal water and wastewater services for the development.

This Report has been prepared to review the sanitary servicing, water distribution network, storm drainage systems, preliminary site grading and storm water management features and to provide recommendations for the services required to accommodate site development based on the proposed Concept Plan C10 revised April 11, 2012, prepared by Weston Consulting Group Inc. The Concept Plan is attached as **Figure C10**. This FSR also includes the preliminary road grading design for the proposed development areas covered by the proposed Concept Plan.

The Concept Plan has been forwarded to all utility companies and Canada Post for input.

1.2. Background Review

The following background studies and information were referenced while preparing this report:

- Municipality of Meaford Wastewater Treatment , Municipal Class Environmental Assessment, Earth Tech, November 2007;
- Alternatives for Upgrading of Meaford Wastewater Treatment Plant, GENIVAR Consultants LP, May,2010;
- Municipality of Meaford Southeast Meaford Service Area St. Vincent Street Booster Station, Design Brief, The Ainley Group, September, 2009;
- Municipality of Meaford Ultimate Water Supply and Distribution System Model Update, Ainley and Associates Limited, January, 2011;
- Market Demand Analysis, Phase 1, Watson and Associates, May 9, 2012;
- Municipality of Meaford Staff Report OPS-2012-001, January 8, 2012; and
- Draft Geotechnical Investigation, Terraprobe Inc., May 3, 2012.

1.3. Existing Conditions

The subject site is 153.90 hectares in size. It is generally vacant rural / agricultural land. The site was granted draft plan of subdivision approval by the Ontario Ministry of Municipal Affairs and Housing in 1979 (42T-23746) but this approval has lapsed. There is evidence that the previous developer had commenced some roadway construction.

The Draft Geotechnical Investigation Report indicates that the soil stratigraphy consists of 0 to 250mm of topsoil and / or organic stained silt, upper red clayey silt graded into weathered shale bedrock below depths of 2 to 5.3m below existing grade. Water levels were recorded and ranged in depth from .7 to 9m below grade. These levels will continue to be monitored through the ongoing hydrogeological study.

2.0 Proposed Development

The proposal consists of a fully integrated mix of resort, residential and commercial / recreational uses which will incorporate best practices for sustainable development which will utilize approximately one half of the area. The balance of the development area will be golf course, parkland and environmental area.

The Market Demand Analysis projects an ultimate population of permanent and seasonal of 3256. This population projection is based on a calculated 2.92 persons per dwelling unit.

Table 2.1 summarizes the proposed land uses and corresponding development areas:

Table 2.1 – Proposed Land Uses and Areas

Land Use	Units	Areas (hectares)
Single Family Residential	505	21.57
Semi-detached and Townhouse Residential	254	24.26
Meaford Highlands Resort Villas, Golf Course and Commercial	312	35.87
Parkland		5.14
Roads and Open Space/Trails		20.55
Environmental Area		40.40
Storm Water Management		6.06
TOTAL	**1071**	**153.85**

2.1. Phasing of Development

The development is proposed to be built in five (5) phases. **Figure P1** shows the phasing of the development. The phasing sequence is based on the most cost effective and orderly extension of the sanitary and water services, utilities, stormwater management facilities and road network.

The phasing will also permit the utilization of the capacity of the Water Pollution Control Plant as capacity becomes available through expansion, reduction of inflow and infiltration or negotiation of reduced unit flows due to sustainability measures. The proposed development can be accommodated with the proposed plant expansion.

3.0 Area Grading

3.1. Existing Topography

The development site generally consists of open table land which slopes from north to south towards Georgian Bay. The land falls approximately 30 metres to the edge of a steep and densely wooded bluff which abuts Highway 26. Beacon Environmental has identified seven (7) watercourses that are wholly or partially on the site.

3.2. Proposed Grading

A preliminary grading plan has been prepared for the proposed roads and lots within the subject lands. Perimeter grades along the existing lots and along the existing abutting municipal right-of-ways will generally be maintained. Street C from 3rd Line easterly into the site requires significant cutting to achieve the maximum 8% road slope and a retaining wall is required. **Drawing GR-1** shows the approximate location and limits of the retaining wall. Detailed retaining wall structural design is necessary to generate final alternatives.

The preliminary grading scheme is developed based on the current Municipality of Meaford Engineering Design Standards and Criteria and defines the major system drainage divides to conform to the proposed storm water management strategy described within **Section 7.0** of this report.

The proposed public roads are generally graded in the range of 1% to 2.5% with only limited sections graded in the 5-8 % range.

The proposed development will utilize conventional lot type drainage patterns such as Front and Split Draining, where possible. In areas where the grading becomes constricted due to significant grade differences at the existing perimeter grades, the use of Walk-Out and Walk-Up lot types utilizing 3:1 sloping will be specified and require additional attention at the detail design stage.

The preliminary road and lot grading design is illustrated on **Drawing GR-1**.

4.0 Water Supply Requirements

4.1. Domestic Demand

The total area to be occupied by residential units and commercial uses is 60.73 ha. It is assumed that a total of 1071 residential units plus a residential unit equivalent of 50 for the commercial/ recreational facilities will require servicing on this site based on Weston Consulting Group Inc.'s Preliminary Development Concept for the site. Domestic water supply for the golf course club house will be provided from the proposed distribution system. Golf course irrigation is not included but will be addressed under separate analysis at a later date. The domestic demands were calculated and summarized in **Table 4.1** as follows:

Table 4.1 – Domestic Demand

Demand Description	Demand Flow
Average Day Demand	22 L/s
Maximum Day Demand	42 L/s
Peak Hourly Demand	64 L/s

4.2. Fire Flow Requirements

Fire flow requirements are generally estimated using the guidelines by the Fire Underwriters Survey, "Water Supply for Public Fire Protection 1999." Fire flow requirements are calculated based on floor areas, construction methods and sprinkler protection. In the absence of this detailed information, a conservatively high fire flow demand of 200 L/s was assumed for the residential units.

4.3. Water Supply

The construction of a new trunk watermain from the Municipality of Meaford's proposed St. Vincent booster pumping station to the proposed Whitelaws storage facility, including a new booster pumping station, is necessary to service the resort development. The modelling update for the ultimate water system by Ainsley included demands for 845 residential units on the Meaford Highlands Resort development and additional modelling and design will need to be completed to confirm the ultimate required water system details. The updated modelling will be required to generate the alternatives and provide the basis for the selection of a preferred alternative under the Municipal Class Environmental Assessment process.

The existing Water Treatment Plant has a rated capacity of 26,848 m^3 per day. The Ultimate Water Supply and Distribution System Model Update, dated January 2011, confirms that there is adequate Water Treatment Plant capacity for the ultimate development.

4.4. Proposed Water Servicing

Local watermains with service connections for each unit will be constructed within the proposed roadway alignments. The proposed layout is shown on **Drawing WM.** The final sizing of the watermains and available pressures for supply and fire flow will be confirmed with the Municipality through the final detailed design process. Since the water supply will be connected to the proposed extension from the St. Vincent booster station, the final design needs to integrate with the new booster station and Whitelaws reservoir modelling and design. An alternative for the water supply external to the development is shown on **Figure 1.**

5.0 Sanitary Servicing

5.1. Existing Sanitary Treatment

The Municipality of Meaford Water Pollution Control Plant is located on Grant Street within the existing settlement boundary of the Town.

Wastewater is collected through a network of sanitary sewers and five (5) sewage pumping stations. The subject lands are located approximately 2.5 km from the Water Pollution Control Plant and an extension to the sanitary sewer collection system is necessary.

The treatment plant is rated for 3910 m^3 per day but the actual capacity is limited by the aeration tank and secondary clarifier which have an actual capacity of 2600 m^3 per day. The 2010 Uncommitted Reserve Capacity report indicates that the treatment plant is operating at 83.7% of the committed reserve capacity which means that 492 additional residential units can be connected. The report also indicates that there is a continuing problem with excessive extraneous flows. The Municipality's program to reduce the extraneous flows is successful to date and resulted in a reduction of the peaking factor from 4.5 to 3 between 2008 and 2010. However, there is still a significant amount of extraneous flow entering the existing sanitary sewer collection system.

The Municipality of Meaford has completed an Environmental Study Report to address the long term wastewater treatment plant requirements. The identified preferred alternative is to expand the existing plant on-site, purchase abutting property for buffer zones, optimize plant operation and continue with the program to reduce inflow and infiltration in the existing collection system to provide service for a population of 11,500 with a hydraulic loading of 6000 cubic metres per day. The estimated capital cost is $18,425,000 with a lifecycle cost of $24,500,000.

The Municipality did not proceed with the upgrading and expansion of the plant and retained Genivar Consultants to investigate options for treatment expansion. GENIVAR Consultants concluded that the plant can be expanded to increase the rated capacity by approximately 20% at an estimated cost of $9.5 million. The recommended expansion to a revised rated capacity of 4692 m^3 will permit an additional 604 equivalent residential units. The total available reserve capacity with the expansion is 1096 residential equivalent units. It is noted that the unit flow calculations used to generate the capacity available are based on 1.296 cubic metres per unit per day. This unit flow is extremely conservative and should be reviewed with the Municipality since the requirements of the Ontario Building Code and other water conservation measures have reduced water demand and wastewater generation significantly.

5.2. Proposed Sanitary Sewers

The proposed development will be internally serviced by gravity sanitary sewers and two (2) pumping stations which are required because of the depth of the watercourses bisecting the subject lands. It is possible to service the majority of the site by gravity. The proposed layout is shown on **Drawing SAN-2.**

The outlet for the wastewater generated by the development will be by a gravity sewer to be designed and constructed. The final route and design details will be confirmed. An option for the routing of the sanitary sewer between the development and the Wastewater Treatment Facility is shown on **Figure 1.**

6.0 Storm Drainage

The proposed Stormwater Drainage will be serviced by a "dual" drainage system. The major system consists of the roadway (rural cross section) and overland flow routes. The minor system consists of road side ditches and / or drainage swales. The design of the dual drainage storm drainage system will be based on the Municipality of Meaford Standard Guidelines. The pre and post-development drainage area plans are shown in **Figures DAP-1 and DAP-2** respectively.

6.1. Minor Storm Drainage

The proposed minor system drainage will be designed to convey the 5-year storm event via road side ditches. A typical cross section of a road side ditch as part of the rural road right-of-way can be found in **Appendix H**. It should be noted that a 5% slope to the property line has been assumed. In order to determine the maximum conveyance capacity of the minor system through the road-side ditches, a capacity calculation using Bentley FlowMaster was conducted. The peak 5-year flow for drainage area A2-2 was considered for the minor system as it contains the most conservative road slope of 0.5% just south of proposed pond P2. Approximately 29.74 ha from the drainage area drain to this location. **Table 6.1** below summarizes the minor system conveyance capacity.

Table 6.1 – Minor System Conveyance Capacity

Storm Event	Peak flow A2Post (m^3/s)	Flowmaster Conveyance Capacity (m^3/s)
5 year	2.61	2.66

As can been seen, the conveyance capacity of the road side ditches are adequate to convey the 5-year design storm. The FlowMaster Output can be found in **Appendix A**.

In order to convey lot and road drainage, driveway culverts are proposed in the road side ditches throughout the development.

6.2. Major Storm Drainage

The proposed major system drainage will be designed to convey the 100-year storm event via the road network. A typical cross section of the rural road right-of-way can be found in **Appendix H**. As previously noted, a 5% slope to the property line has been assumed. In order to determine the maximum conveyance capacity of the major system through the road right-of-way, a capacity calculation using Bentley FlowMaster was conducted. Similarly in assessing the minor storm drainage, the peak 100-year flow for drainage area A2-2 was considered for the major system as it contains the most conservative road slope of 0.5% just south of proposed pond P2. Approximately 29.74 ha from the drainage area drain to this location. **Table 6.2** below summarises the major system conveyance capacity.

Table 6.2 – Major System Conveyance Capacity

Storm Event	Peak flow A2Post (m3/s)	Flowmaster Conveyance Capacity (m3/s)
100 year	5.20	8.08

As can been seen, the conveyance capacity of the road is adequate to convey the peak flow from the 100-year design storm. The FlowMaster Output can be found in **Appendix A.**

There are a total of three (3) culverts proposed under post-development conditions to convey the 100-year peak flow. Culverts #1 and #2 are proposed in drainage area A4-2, inline with Watercourse 3, under proposed Street A and B, and will be designed to convey a 100-year peak flow of 0.519 m^3/s and 0.882 m^3/s respectively. Culvert #3 is proposed in drainage area A6-3, inline with Watercourse 5 under Street N. The post-development peak flow to be conveyed from the area is 0.464 m^3/s. All of the above mentioned peak flows can be accommodated by a 600 mm culvert ranging in slope from 0.5 – 2.0%. The culvert locations are shown in **Figure DAP-2**.

All rooftop drainage will be directed towards the front of the lots and conveyed by the road and road-side ditches. Drainage to SWM facilities will be controlled to pre-development levels before they are ultimately discharged. In some instances where the proposed development is in the vicinity of an existing watercourse, rear lot drainage will discharge directly to the watercourses. This is illustrated in **Figure DAP-2**.

The analysis for the golf course assumed that there is no increase in imperviousness from predevelopment to post-development conditions. As such, the peak flow discharge under post-development conditions can be controlled to pre-development levels without additional quantity control. At the detail design stage, consideration will be given to options to provide irrigation for the proposed golf course from rainwater harvesting ponds.

7.0 Stormwater Management

The proposed development should meet Province of Ontario standards as set out in the MOE 2003 Stormwater Management Planning & Design (SWMP) manual; standards set by the Municipality of Meaford, and Grey Sauble Conservation Authority (GSCA).

7.1. SWM Criteria

SWM criteria to be applied to this site are as follows:

- Stormwater is to be treated to Enhanced Protection levels as defined in the MOE SWM Planning and Design Manual (2003);
- Post-development peak flows for all events from the site should be controlled to the peak flow resulting from the pre-development conditions;
- The City of Owen Sound's IDF data and a 24hr SCS storm distribution has been used for the analysis; and,
- Runoff volume from the 25 mm, 4-hour Chicago Design Storm is to be detained on-site for erosion control.

7.2. Existing Conditions

7.2.1. Existing Land Use

The study area is primarily considered to be agricultural / rural with open space covering the southern and northern portions of the site.

7.2.2. Existing Drainage Patterns

The total drainage area for the site is approximately 186 ha. The site is generally divided into six (6) major drainage areas. Based on topographic information for the site, drainage is predominantly from the southeast to the northwest. A preliminary environmental constraints analysis conducted by Beacon Environmental in November, 2010, identified a total of seven (7) watercourses which are wholly or partially located within the boundary of the study area. The majority of the drainage generated from the site is conveyed by four (4) of the seven (7) watercourses which discharge through a steep, densely wooded shore cliff bluff which abuts Highway 26 and eventually towards Georgian Bay. The discharge through these watercourses has resulted in several deeply incised gullies in the face of the bluff. Pre-development drainage areas for the site are shown in **Figure DAP-1**.

7.2.3. External Drainage Areas

Four (4) external undeveloped areas to the south of the site contribute stormwater flow to the site. The external areas are located directly south of the site and are identified as EXT1, EXT2, EXT3 and EXT4. EXT1 drains overland towards Watercourse 7. EXT2 will drain to Watercourse 6. EXT 3 drains overland towards watercourse 3 and EXT4 drains overland towards Watercourse 5.

Drainage from EXT1 to the site will be conveyed away from the proposed developed and discharged to Watercourse 7 under pre-development conditions. Therefore, external drainage from EXT1 to the site was not considering in sizing the SWM facility in drainage area A1pre. Similarly, external drainage area EXT3 will be conveyed away from the proposed development and directly discharge to Watercourse 3 under pre-development conditions and will not be considered in sizing a SWM facility.

The proposed grading provides for drainage from areas EXT2 and EXT4 to be conveyed through the development to proposed SWM facilities. These external drainage areas, along with the internal drainage, will be considered in sizing the SWM facilities. All flow up to and including the Regional (Timmins) storm will be controlled to pre-development levels prior to discharge.

7.2.4. Site Land Cover and Soils

The land cover and soil conditions of the site were established from Ontario Soils Mapping. The northern portion of the site is silty clay loam and the southern portion of the site is predominantly clay. The Soil Conservation Service (SCS) curve numbers for the soils types of this site were determined with the MTO Design Charts 1.08 and 1.09 for pasture and other unimproved land. External drainage areas mostly consist of clay soil conditions. MTO Design Charts and Pre-Development Input Parameters can be found under **Appendix B**. A preliminary geotechnical investigation stated that the soil type I in the area consisted of stiff to hard, silt to clayey silt. This is generally consistent with the Ontario Soils Mapping.

7.2.5. Existing Hydrological Conditions

The pre-development drainage areas are illustrated in **Figure DAP-1**. As previously stated, the existing site surface is largely pervious. The City of Owen Sound's IDF data and a 24hr SCS storm distribution were used to determine the various flows through the site under the 2, 5, 10, 25, 50, 100-year and the Regional (Timmins) storms under pre-development conditions. Pre-development conditions were modelled in Visual OTTHYMO v2.4.0 (VO2) using NASHYD commands. Input parameters used to model the pre-development condition are provided in **Table 7.1**.

Table 7.1 – Pre-Development Condition Input Parameters

Catchment	Drainage Area (ha)	Runoff Coefficient	Curve Number	Tp
A1pre	3.46	0.25	76	0.36
A2pre	26.60	0.25	76	0.65
A3pre	12.75	0.25	76	0.48
A4pre	51.63	0.25	76	0.50
A5pre	33.23	0.25	76	0.42
A6pre	25.89	0.25	76	0.39
EXT1	12.39	0.25	76	0.59
EXT2	6.09	0.25	76	0.44
EXT3	5.79	0.25	76	0.39
EXT4	7.42	0.25	76	0.52

As previously stated, the curve number value is based from the Ontario Soils Map and MTO Design Charts 1.08 and 1.09. The preliminary result from a geotechnical investigation conducted on the site is consistent with Ontario Soils Map and the MTO Design Charts.

Modeling results for pre-development conditions are shown in **Table 7.2** below and pre-development input parameters as well as detailed output for the 2-year to the 100-year storm events for the 24 hour SCS storm based on the City's IDF parameters.

Flow points have been identified at the discharge location of each of the six (6) drainage areas in order to compare peak flow rates in the pre and post-development conditions. The flow points are generally located near watercourses or slightly downstream to identify proposed discharge locations. The detailed pre-development hydrologic model output can be found in **Appendix C**.

Table 7.2 – Pre-development Peak Flows

Flow Point	Contributing Catchments	Peak Flow (m^3/s)						
		2-year	5-year	10-year	25-year	50-year	100-year	Regional (Timmins)
A1	A1 PRE + EXT1	0.275	0.420	0.526	0.668	0.779	0.892	1.269
A2	A2 PRE + EXT2	0.525	0.802	1.004	1.275	1.486	1.702	2.518
A3	A3 PRE	0.245	0.374	0.469	0.596	0.695	0.797	1.068
A4	A4 PRE + EXT3	1.207	1.843	2.309	2.936	3.425	3.924	4.951
A5	A5 PRE	0.702	1.070	1.341	1.706	1.990	2.279	2.887
A6	A6 PRE + EXT4	0.718	1.097	1.374	1.748	2.038	2.335	2.951

7.3. Proposed Conditions

With the development of the site, there will be an increase in the impervious area. To mitigate the effects of the development, on-site controls will be required. The locations and details are discussed in the following sections. The post-development flows can be controlled that of the pre-development conditions with the use of the SWM features.

During development of the site, existing drainage patterns on adjacent undeveloped properties will not be altered and stormwater runoff from the development will not be directed to drain onto adjacent undeveloped properties. The external undeveloped drainage areas that currently contribute flows to the site will remain unaltered.

7.3.1. Stormwater Quantity Control

A VO2 model was also created for the post-development site conditions using City of Owen Sound's IDF data to determine peak flows through the site under proposed conditions. The post-development drainage area plan is shown on **Figure DAP-2**. The NASHYD and STANDHYD input parameters used in the post-development VO2 model are summarised in **Table 7.3** and **7.4** respectively. The detailed calculations for the post-development input parameters and imperviousness calculations are provided in **Appendix D**. The detailed post-development VO2 model output is provided in **Appendix E**.

Values for percent imperviousness of the site were based on the Township's Standard Guidelines various types of land use. The imperviousness is calculated assuming a runoff coefficient of 0.25 for pervious areas and 0.90 for impervious areas. The input parameters for the STANDHYD commands are shown in **Table 7.3** below.

Table 7.3 – Post-development Input Parameters (STANDHYD Commands)

Catchment	Drainage Area (ha)	XIMP	TIMP
A1-1*	1.18	50%	50%
A1-2-	3.03	24%	34%
A2-1*	2.89	50%	50%
A2-2	37.83	32%	62%
A3	3.28	27%	27%
A4-1*	2.73	0%	22%
A4-3	3.08	49%	86%
A4-4	0.58	4%	35%
A5-1*	0.88	50%	50%
A5-2	10.12	37%	70%
A6-1*	1.09	50%	50%
A6-2	4.60	29%	71%

*These catchments represent the SWM facilities themselves and have an assumed imperviousness of 50%.

Some areas under post-development conditions will remain uncontrolled and have been modelled as NASHYD commands. The parameters were based on existing soil conditions and have been previously explained in **Section 7.2.4**. The input for the NASHYD commands is shown in **Table 7.4** below.

Table 7.4 – Post-Development Condition Input Parameters (NASHYD Commands)

Catchment	Drainage Area (ha)	Runoff Coefficient	Curve Number	Tp
A1-3	0.79	0.25	76	0.28
A1-4	0.96	0.25	76	0.16
A2-3	3.44	0.25	76	0.30
A4-2	35.93	0.25	76	0.51
A4-5	0.53	0.25	76	0.17
A5-3	20.14	0.25	76	0.31
A6-3	17.97	0.25	76	0.18
A6-4	1.95	0.25	76	0.30
EXT1	12.39	0.25	76	0.59
EXT2	6.09	0.25	76	0.44
EXT3	5.79	0.25	76	0.39
EXT4a	3.32	0.25	76	0.29
EXT4b	4.15	0.25	76	0.42

In order to meet the target pre-development flows at various flow points, four (4) SWM facilities are proposed for the current development plan.

Quantity control for the site will be provided by the active storage component of the SWM facilities. Visual Otthymo v2.4.0 (VO2) was used to size the active storage required to control post-development peak runoff rates to the pre-development runoff rates for the same storm. The post-development peak flows and required site storage are shown below in **Table 7.5 and 7.6**. Detailed model results of the post-development model as well as input parameters are provided in **Appendix E**.

Table 7.5 – Post-development Peak Flows

Flow Point	Contributing Catchments	Peak Flow (m^3/s)						
		2-year	5-year	10-year	25-year	50-year	100-year	Regional (Timmins)
A1	A1-1 to A1-4 and EXT1	0.225	0.343	0.438	0.570	0.680	0.772	1.120
A2	A2-1 to A2-4 and EXT2	0.464	0.679	0.931	1.203	1.390	1.598	2.498
A3	A3	0.180	0.244	0.318	0.389	0.443	0.498	0.329
A4	A4-1 to A4-5 and EXT3	0.997	1.445	1.791	2.242	2.600	2.964	4.104
A5	A5-1 to A5-3	0.608	0.941	1.248	1.645	1.878	2.115	2.611
A6	A6-1 to A6-4 , EXT4a and EXT4b	0.707	1.066	1.328	1.686	1.980	2.278	2.508

Table 7.6 – Proposed Quantity Control Features

SWM Facility	Facility Type	Contributing Catchments	Drainage Area to SWM Facility (ha)	% Imperviousness	Storage Required Regional Event (m^3)	Storage Available Regional Event (m^3)
P1	Dry Pond	A1-1, A1-2	5.170	31	5,178	6,000
P2	Wet Pond	A2-1, A2-2, EXT2	47.690	53	27,570	28,000
P3	Dry Pond	A5-1, A5-2	11.00	68	5,237	6,000
P4	Dry Pond	A6-1, A6-2, EXT4b	9.840	39	5,489	6,500

The proposed ponds all provide adequate storage volumes for the required volume for the Regional storm event. The pond designs are further detailed in **Section 7.3.2**. It is noted that all required and available storage for each drainage area must be confirmed during detailed design.

7.3.2. Stormwater Management Facilities

SWM Facility P1 – Dry Pond

This dry facility is proposed to provide quantity control for catchments A1-1 and A1-4 and services a drainage area of 5.170 ha. The dry pond will control the Regional (Timmins) peak flow to the allowable target peak flow and discharge to watercourse #7, represented by Flow Point A1, at an approximate elevation of 316 m. Details regarding the exact discharge location including the pond outlet design will be provided at detailed design.

SWM Facility P2 – Wet Pond

This wet facility is proposed to provide quantity and quality control for catchments A2-1, A2-2, A2-4 as well as EXT2 and services a drainage area of 47.69 ha. The amount of land required is primarily due to grading associated with creating a permanent pool. The wet pond will control the Regional (Timmins) peak flow to the allowable target peak flow and discharge to watercourse #6 represented by Flow Point A2. The approximate discharge elevation is 317 m. Details regarding the exact discharge location including the pond outlet design will be provided at detailed design.

SWM Facility P3 – Dry Pond

The dry facility is proposed to provide quantity control for catchments A5-1 to A5-3 and services a drainage area of 11.00 ha. The dry pond will control the Regional (Timmins) peak flow to the allowable target peak flow and discharge to watercourse #4 at an elevation of 329 m. In this case, Flow Point A5 is located downstream of the proposed discharge location in order to account for peak flows from uncontrolled area A5-3. Details regarding the exact discharge location including the pond outlet design will be provided at detailed design.

SWM Facility P4 – Dry Pond

The dry facility is proposed to provide quantity control for catchments A6-1 to A6-3 and services a drainage area of 9.84 ha. The dry pond will control the Regional (Timmins) peak flow to the allowable target peak flow and discharge to watercourse #5 at an elevation of 329 m. Details regarding the exact discharge location including the pond outlet design will be provided at detailed design. The final pond design and location will meet the development setbacks established by the Slope Stability Analysis.

The advantages in implementing a wet pond facility include:

- All stormwater quantity, quality, and water balance criteria can be achieved; and,
- Relatively low capital cost.

The advantages in implementing a dry pond facility include:

- Relatively small pond block size compared to wet facility as there is no permanent pool;
- Less maintenance requirements compared to wet facilities; and,
- Lower costs compared to wet facilities.

According to the proposed Phasing Plan for the development, it is recommended that SWM Facility P2 is considered for detail design prior to the other three (3) facilities which will be considered in subsequent phasing of the development.

7.3.3. Stormwater Quality Control

The proposed water quality control measures for the site include a combination of the quality facility (wet pond P2) and oil / grit separator (OGS) units. This combination approach is thought to be the most practical and cost effective method of quality control for the proposed development. Wet ponds are better suited for larger drainage areas as they generally require more land area for construction. In contrast, OGS units are more practical in smaller drainage areas where grading or land use may constrain the construction of a quality facility.

The MOE SWM Planning & Design Manual (2003) was referenced for quality control criteria. In order to meet an Enhanced (Level 1) Protection wet pond, facilities for water quality control were considered in drainage area A2. Storage value requirements for the extended detention and permanent pool for the wet ponds are based on 40 m^3/ha and 145 m^3/ha respectively, which conforms to the guidance provided in the MOE SWM Planning & Design Manual (2003). The required quality facility sizing is summarized in **Table 7.7** below, and the calculations are provided in **Appendix G.**

Table 7.7 – Water Quality Storage Requirements – Enhanced (Level 1) Protection

SWM Facility	Catchments	Drainage Area (ha)	% Imperviousness	Permanent Pool Storage Volume based on Impervious Level (m^3/ha)	Extended Detention Storage Volume (m^3/ha)
P2	A2-1, A2-2, A2-4, EXT2	47.69	53	6,913	1,908

OGS units are proposed for drainage areas directly upstream of dry SWM facilities. The proposed OGS units will be sized to provide 80% removal of total suspended solids (TSS). Required OGS sizing is summarized in **Table 7.8** and the detailed unit output is provided in **Appendix F**.

Table 7.8 – Water Quality Storage Requirements – Enhanced (Level 1) Protection

SWM Facility	Catchments	Drainage Area (ha)	% Imperviousness	% TSS Removal	Proposed OGS Model
P1	A1-1, A1-2	5.170	31	80	CDS30_35
P3	A5-1, A5-2	11.00	68	80	CDS56_53
P4	A6-1, A6-2, EXT4b	9.840	39	80	CDS56_40
Not Applicable	A4-1	2.73	22	80	CDS20_25
Not Applicable	A4-3	3.03	86	80	CDS30_35

Detailed grading and servicing may require the use of additional OGS units throughout the development to meet Enhanced (Level 1) Protection. In order to achieve 80% TSS removal upstream of the proposed SWM facilities P1, P3 and P4, as well as drainage areas A4-1 and A4-2, a CDS30_35, CDS56_53, CDS56_40, CDS20_25 and a CDS30_35 OGS unit or approved equivalent in each respective area, could provide a quality control solution. OGS unit sizing specifications are found in **Appendix F.**

Upon completion the hydrogeological investigation, there may be the opportunities to include storm water mitigation measures such as BMPs/LIDs.

It should be noted that although OGS units have been proposed for quality control, road side ditches have the ability to provide quality control. The design of road side ditches, such that they will have the ability to provide quality control as per the MOE design standards, will be further investigated at the detailed design stage. This may reduce the size of the recommended OGS units.

7.3.4. Erosion Control

The erosion flow criteria considered for the site is to control runoff from the 25 mm 4-hour event. It is proposed to accomplish erosion control through a combination of extended detention wet and dry ponds, as well as best management practices, as described in **Section 7.3.5**.

Under proposed conditions, the total volume of runoff expected for a 25 mm 4-hour Chicago Storm is summarised in **Table 7.9** below.

Table 7.9 – Extended Detention Pond Volumes

SWM Facility	Facility Type	Contributing Catchments	Drainage Area to SWM Facility (ha)	% Imperviousness	Volume of Extended Detention Required (m^3)
P1	Dry Pond	A1-1, A1-2	5.17	31	510
P2	Wet Pond	A2-1, A2-2, EXT2	47.69	53	5,784
P3	Dry Pond	A5-1, A5-2	11.00	68	1,634
P4	Dry Pond	A6-1, A6-2, EXT4b	9.84	39	988

This runoff will be retained in the stormwater detention ponds to reduce potential erosion impacts to the downstream watercourses.

7.3.5. Best Management Practices and Low Impact Development Considerations

Best Management Practices (BMPs) are recommended where possible in order to reduce the peak flows from a developed area. In addition, BMPs can improve water quality by developing an integrated treatment train approach on a site-specific basis. The BMPs are typically categorized as lot level, conveyance, or end-of-pipe controls. Infiltration and percolation rates will be confirmed once soil and hydrogeologic studies are completed. The MOE SWMP (2003) suggests several BMPs for application at the lot level, in the conveyance system, or for multiple lot small drainage areas (less than 2 ha). Potential lot level / conveyance BMPs for the development are listed in **Table 7.10** for water quality, quantity, erosion and water balance controls.

Table 7.10 – Lot Level / Conveyance BMP Analysis

BMP	Primary Objective	Feasible	Rationale
Storage Controls			
Rooftop Storage	Peak Flow Control	N	▪ To assist with quantity control ▪ Rooftop storage on single family homes is undesirable
Parking Lot Storage	Peak Flow Control	N	▪ To assist with quantity control ▪ Majority of area is residential with no parking lots
Superpipe Storage	Peak Flow Control	N	▪ To assist with quantity control ▪ Cannot be implemented due to space restrictions
Rear Yard Storage	Peak Flow Control	N	▪ Undesirable or unmanaged ponded water will not be acceptable on residential lands
Infiltration Controls			
Reduced Lot Grading	Water Balance	Y	▪ Reduced lot grading will be implemented where available
Green Roof	Water Balance Water Quantity Water Quality	N	▪ Green roofs will be difficult to enforce and maintain on private residential lots
Direct Roof Leaders to Soakaway Pits, Cisterns, or Rain Barrels (Rainwater Harvesting)	Water Balance	Y	▪ Tentative depending on site layout design ▪ Dependent on neighborhood co-operation and implementation
Infiltration Trenches	Water Balance	Y	▪ Recommended but dependent on site layout design and soil analysis
Grassed Swales	Water Balance Water Quality	N	▪ Undesirable or unmanaged ponded water will not be acceptable on residential lands ▪ Space limitations in residential development
Rain Garden	Water Balance Water Quality	Y	▪ Tentative depending on site layout design, space restrictions, and neighbourhood approval
Pervious Pipe System	Water Balance	Y	▪ Tentative depending on site layout design

It is noted that specific BMPs are to be confirmed on a site-specific basis at the detailed design stage.

The feasibility of quality facilities will be further investigated at the detailed design phase. If these types of facilities are not feasible, alternative treatment methods such as cisterns and water reuse systems could be implemented, including the above mentioned BMP's.

As previously mentioned, opportunities to provide quality control through road side ditches will be further investigated at the detailed design stage.

8.0 Conclusions

Grading

The preliminary proposed grading scheme follows Municipality of Meaford Engineering Design Standards and respects the perimeter grades of the surrounding properties.

The proposed grading respects the existing and proposed drainage patterns as defined under **Section 6** of this FSR. The proposed most northerly entrance will require significant cutting and a retaining wall adjacent to the existing developed lots.

Water Supply

The water distribution modelling reports confirm that there is adequate reserve capacity at the Water Treatment Plant for the proposed development. The water distribution system will need to be extended and a water storage reservoir and booster station constructed to provide the domestic and fire supply for the proposed development.

Storm Drainage

Storm water conveyance will generally be accomplished by constructing road side ditches and constructing storm sewer pipes through areas of development in locations where the road grades dictate. The recommended road design cross section, shown on **Figure DE-1**, consists of a widened pavement with allowance for bicycle or pedestrian walkways. The storm drainage will be conveyed to the roadside ditches or swales which are capable of conveying the major storm events and can also be designed to provide treatment and enhanced infiltration.

Sanitary Sewers

The proposed development will be serviced by a sanitary sewer system. Pumping will be required for conveyance across the water courses in two (2) locations.

The Water Pollution Control Plant, at present, has adequate capacity for the first phase of the development. The Municipality of Meaford has undertaken a review of the options to upgrade and expand the treatment plant and has proposed a capital budget project to undertake the final design of the expansion. The GENIVAR report on the review of the treatment plant upgrading and expansion has recommended capital works to expand the capacity of the treatment facility to 4992 cubic metres per day which will permit the addition of 604 residential dwelling units which is adequate for the full development. Staff have identified that there is existing uncommitted reserve capacity for an additional 492 residential units at the present time. Discussions will be held with the Municipality to review the unit flows used to generate the available capacity at the Wastewater Treatment Facility since the flows are conservative and the anticipated flow from new development is significantly lower due to the requirements of the Ontario Building Code.

It will be necessary to construct a sanitary sewer from the Water Pollution Control Plant to the proposed site to provide the conveyance for the flows generated by the development.

Stormwater Management

A SWM plan is proposed to reduce the increase in runoff volumes and peak flows as a result of change in land use for the proposed development. In order to meet the design criteria set forth by the Municipality of Meaford, Grey Sauble Conservation Authority and the MOE, quantity and quality control measures are proposed. The location of the stormwater management facilities permits the phasing of the development.

Yours truly,

COLE ENGINEERING GROUP LTD.

John Oostveenk, P.Eng.
Senior Project Manager, Subdivisions

Geoff Masotti, P.Eng.
Project Manager, Water Resources

S:\2010 Projects\D-LD(L10)\Subdivision\L10-512 MHR FSR TIS Lot 9 & 10, 3rd Line, Meaford\Reports\FSR May 2012\MeafordHighlands FSR 05 31 12.doc

NOTES:

1. The concept has not been updated based on geotechnical studies, borehole data or hydrogeological information. To be confirmed by a qualified professional.
2. The concept is based on a Karst Assessment completed by Karst Solutions.
3. Concept boundaries and topographic information is based on surveys completed by JD Barnes & Associates.
4. The concept has not been updated with results of any field work and/ or environmental analysis completed by Beacon Environmental in Spring of 2012.
5. Top-of-bank and other environmental constraints boundaries have not been confirmed.
6. Environmental Area boundaries are based on Beacon Environmental Preliminary Environmental Constraints Mapping dated November 2010 and include medium and high constraint areas.
7. Stormwater management pond location and sizing is based on the servicing information prepared by Cole Engineering, dated April 2012.
8. Proposed water supply and sanitary methods are based on servicing information prepared by Cole Engineering, dated April 2012.
9. Permits will be obtained for development on lands that fall within the Regulated Areas of GSCA under O.Reg. 151/06. Based on Environmental Impact Study prepared by Beacon Environmental.
10. Exiting Right-of-way width is assumed to be twice the distance from property line to hard surface centerline as shown on the topographic survey.
11. Areas are approximate between different land uses.

Topo information from survey by J. D. Barnes OLS., dated Nov 4, 2011

0 100 200
SCALE METERS

DEVELOPMENT CONCEPT
MEAFORD HIGHLANDS RESORT

LOTS 9 & 10 3RD LINE
MEAFORD
COUNTY OF GREY

WESTON CONSULTING GROUP INC.

DEVELOPMENT STATISTICS

RESORT

Meaford Highlands Inn and Villas Spa / Retail/ Aquatic & Wellness Centre	16.53 ha
Golf Course and Club House	19.37 ha

RESORT RESIDENTIAL

Low Density Resort Residential	21.57 ha
Resort Residential	24.26 ha
Roads	18.79 ha
Environmental Area	40.42 ha
Open Space / Buffer / Trail	1.76 ha
Park	5.14 ha
Storm Water Management	6.06 ha
TOTAL SITE AREA	153.90 ha

ROAD LENGTH

26m ROW:	985 m
20m ROW:	3,295 m
18m ROW:	4,560 m
14m ROW:	540 m

LEGEND

- Property Boundary
- Meaford Highlands Resort and Villas
- Low Density Resort Residential (21m)
- Low Density Resort Residential (18.3m)
- Resort Residential Single Family (15.2m)
- Resort Residential Single Family (12.2m)
- Resort Residential Semi Detached (9m)
- Resort Residential Townhomes(7m)
- Resort Golf Course
- Environmental - High Constraint Area
  Source: Beacon Environmental, Nov. 2010
- Environmental - Medium Constraint Area
  Source: Beacon Environmental, Nov. 2010
- Park / Parkette
- Trail block / Buffer
- Storm Water Management

REVISIONS LIST

2012 APR 11	REVISE NW SWMP, REMOVE CUL-DE-SAC, REMOVE N SWMP.
2012 APR 5	REVISE LOCATION OF AMPHITHEATRE

WESTON CONSULTING GROUP INC.

Vaughan Office:
201 Millway Avenue, Unit 19,
Vaughan, Ontario, L4K 5K8
Phone: (905) 738-8080

Oakville Office:
1660 North Service Road E., Suite 114,
Oakville, Ontario, L6H 7G3
Phone: (905) 844-8749

1-800-363-3558 Fax: (905) 738-6637 www.westonconsulting.com

File Number:	5305-1
Date Drawn:	2012 MAR 27
Drawn By:	SB
Planner:	RG
Scale:	see scale bar
CAD:	5305-1/concepts/C10rev for sub Apr 26_12.dgn

Drawing Number: C10

DRAFT

FOR DISCUSSION PURPOSES ONLY

HIGHWAY 26

3RD LINE

PARK
AMPHI-THEATRE
VILLAS
PARK
PARK
Phases 2-5
INN
WELLNESS CENTRE
RETAIL
SWM
AQUATIC CENTRE
Phase 1
CLUBHOUSE PRACTICE FACILITY
PARK
PARK
Phase 1
Phase 1
Phase 3
SWM
Phases 4-5
Phase 2
VILLAS
SWM
PARKETTE
Phase 3
Phase 1
Phase 1
Phase 4
Phases 4-5
VILLAS
PARK
Phase 5
SWM
VILLAS
VILLAS
PARK
PARKETTE
Phase 1
PARKETTE

Topo information from survey by J. D. Barnes OLS., dated Nov 4, 2011
Phasing Plan based on Development Concept C10, Apr 11_12, by Weston Consulting Group Inc.

0 100 200
SCALE METERS

PHASING PLAN
MEAFORD HIGHLANDS RESORT
LOTS 9 & 10 3RD LINE
MEAFORD
COUNTY OF GREY

WESTON CONSULTING GROUP INC.

LEGEND

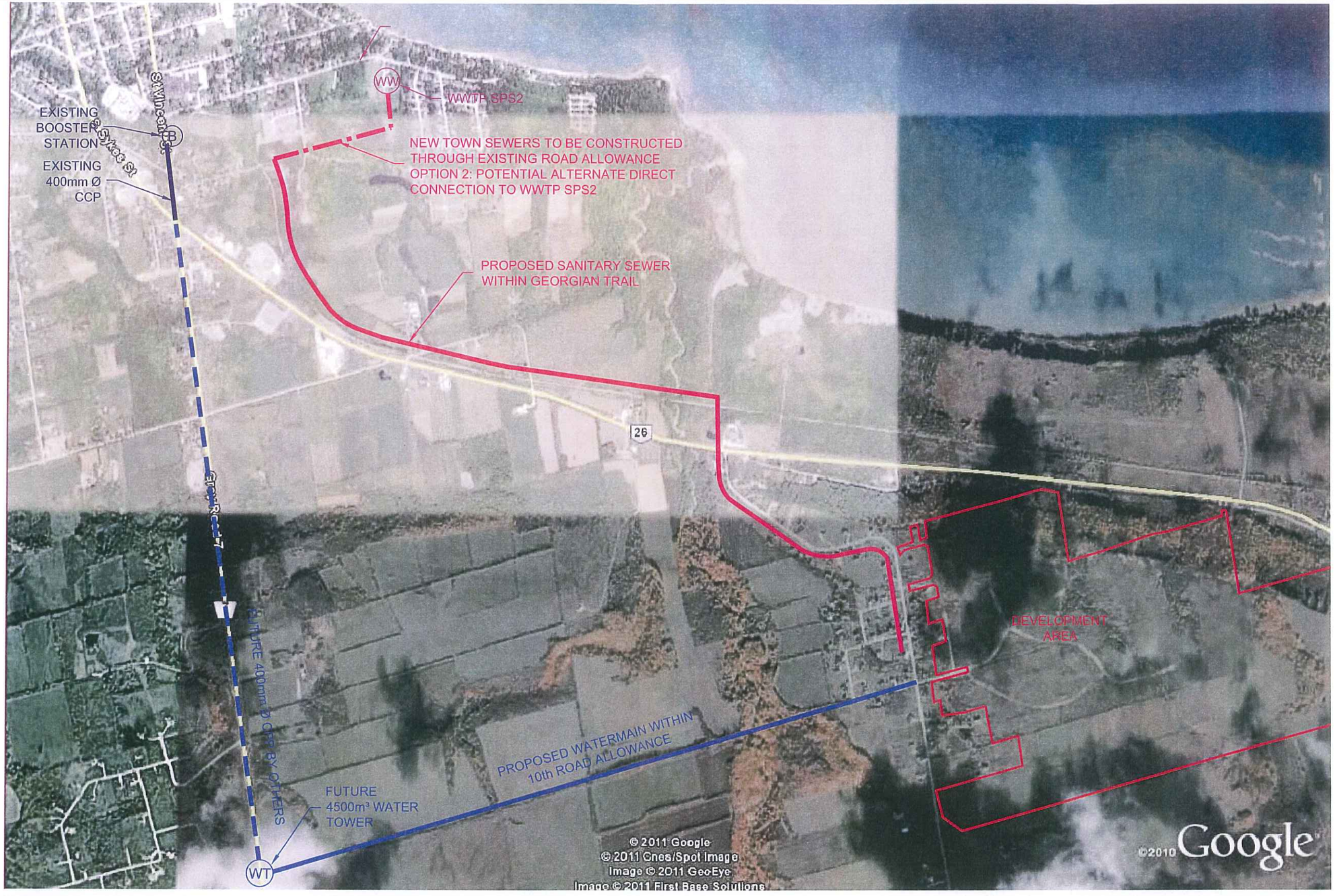
- Property Boundary
- Phase Boundary

REVISIONS LIST

WESTON CONSULTING GROUP INC.
Vaughan Office: 201 Millway Avenue, Unit 19, Vaughan, Ontario, L4K 5K8 Phone: (905) 738-8080
Oakville Office: 1660 North Service Road E., Suite 114, Oakville, Ontario, L6H 7G3 Phone: (905) 844-8749
1-800-363-3558 Fax: (905) 738-6637 www.westonconsulting.com

File Number:	5305-1
Date Drawn:	2012 APR 19
Drawn By:	SB
Planner:	RG
Scale:	see scale bar
CAD:	5305-1/concepts/Phasing Plan/P1 Phasing Plan.dgn

Drawing Number: P1



COLE ENGINEERING
70 VALLEYWOOD DRIVE, MARKHAM, ON L3R 4T5
T:416.987.6161 / 905.940.6161 F:905.940.2064

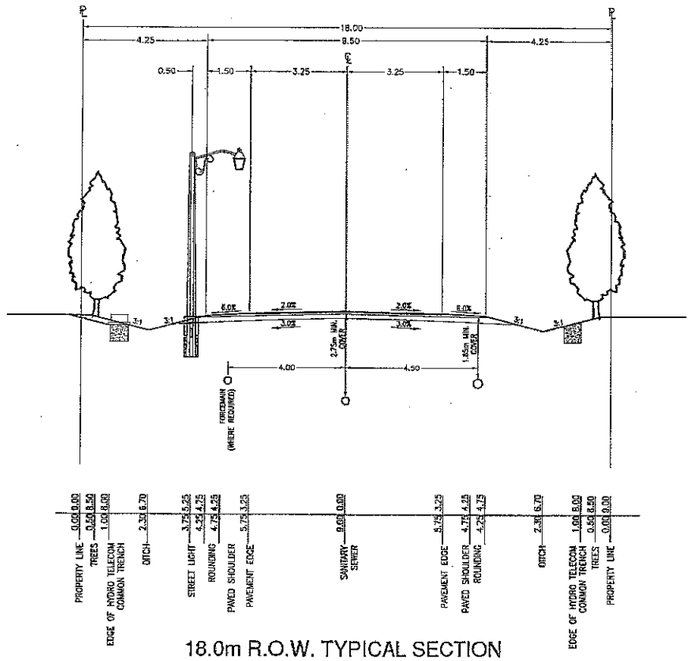
LEGEND

- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- FUTURE WATERMAIN BY OTHERS
- (B) EXISTING BOOSTER STATION
- (B) PROPOSED BOOSTER STATION
- (WT) FUTURE WATER TOWER
- EX. SANITARY SEWERS TO BE UPGRADED (OPTION 1)
- NEW TOWN SEWERS (OPTION 2)
- PROPOSED SANITARY SEWER
- (WW) EXISTING WWTP SPS2

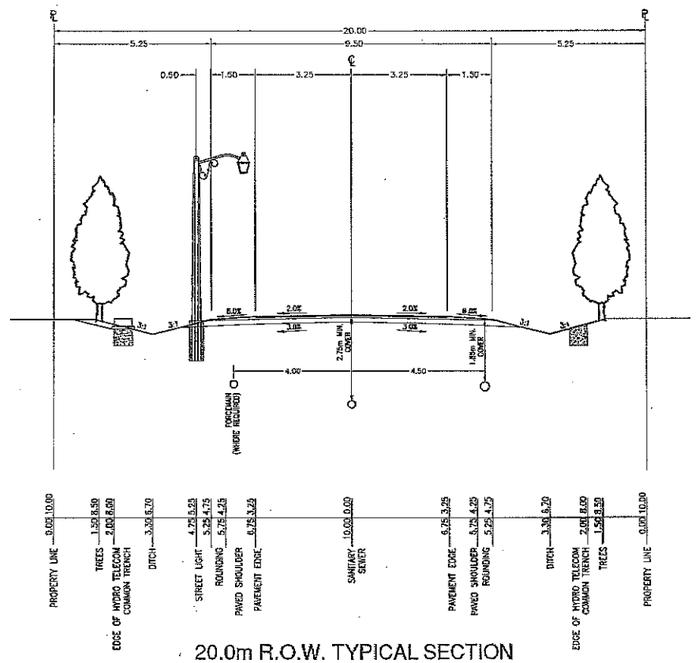
EXTERNAL WATER & SANITARY SERVICING

PART OF LOT 9, CONCESSION 1 AND
PARTS OF LOTS 9 AND 10, CONCESSION 2
MUNICIPALITY OF MEAFORD

DATE:	AUGUST 2011	PROJECT No.:	L10-512
SCALE:	NTS	FIGURE No.:	1



18.0m R.O.W. TYPICAL SECTION



20.0m R.O.W. TYPICAL SECTION

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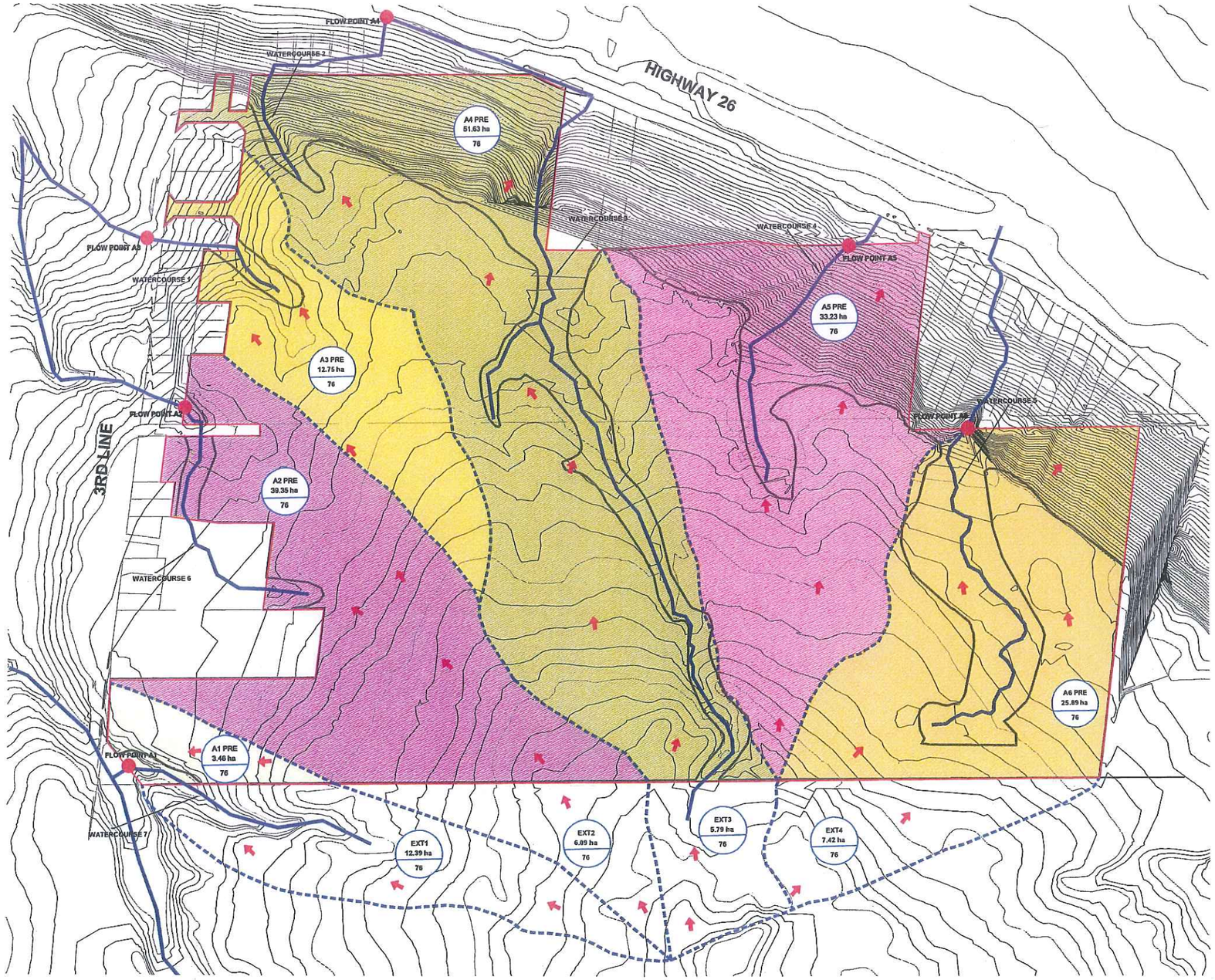
LEGEND

PRELIMINARY SERVICING ASSESSMENT
TYPICAL R.O.W. SECTION
PART OF LOT 9, CONCESSION 1 AND
PARTS OF LOTS 9 AND 10, CONCESSION 2
MUNICIPALITY OF MEAFORD

DATE:	MARCH 2012	PROJECT No.:	L10-512
SCALE:	1:200	FIGURE No.:	DE-1

S:\2010 Projects\D-LD(L10)\Subdivision\L10-512 MHR FSR TIS Lot 9 & 10, 3rd Line, Meaford\Cad\1-FSR - Design\Sheets\L10-512 DE1 Typical Cross Section.dwg



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LEGEND

- PRE-DEVELOPMENT DRAINAGE AREA
- A1 PRE 6.86 ha / 76 — PRE-DEVELOPMENT AREA / SCS CURVE NUMBER
- WATERCOURSE
- ROAD
- FLOW POINT
- OVERLAND FLOW
- PROPERTY LIMIT
- DEVELOPMENT LIMITS

PRELIMINARY SERVICING ASSESSMENT
PRE-DEVELOPMENT DRAINAGE AREA PLAN
PART OF LOT 9, CONCESSION 1 AND
PARTS OF LOTS 9 AND 10, CONCESSION 2
MUNICIPALITY OF MEAFORD

DATE:	MARCH 2012	PROJECT No.:	L10-512
SCALE:	1:8000	FIGURE No.:	DAP-1

S:\2010 Projects\0-LD(L10)\Subdivision\L10-512 MHR FSR TIS Lot 9 & 10, 3rd Line, Meaford\Cad\1-FSR - Design\Sheets\SWM\L10-512 Base STM 1.dwg

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LEGEND

- PROPERTY LIMIT
- A1 POST 2.49 ha 0.53 — POST-DEVELOPMENT AREA / SCS CURVE NUMBER / PERCENT IMPERVIOUSNESS
- FLOW POINT
- DEVELOPMENT LIMITS
- CULVERT
- WATERCOURSE
- POST-DEVELOPMENT DRAINAGE AREA
- OVERLAND FLOW
- POST-DEVELOPMENT PONDS

PRELIMINARY SERVICING ASSESSMENT
POST-DEVELOPMENT DRAINAGE AREA PLAN
PART OF LOT 9, CONCESSION 1 AND
PARTS OF LOTS 9 AND 10, CONCESSION 2
MUNICIPALITY OF MEAFORD

DATE:	MARCH 2012	PROJECT No.:	L10-512
SCALE:	1:8000	FIGURE No.:	DAP-2

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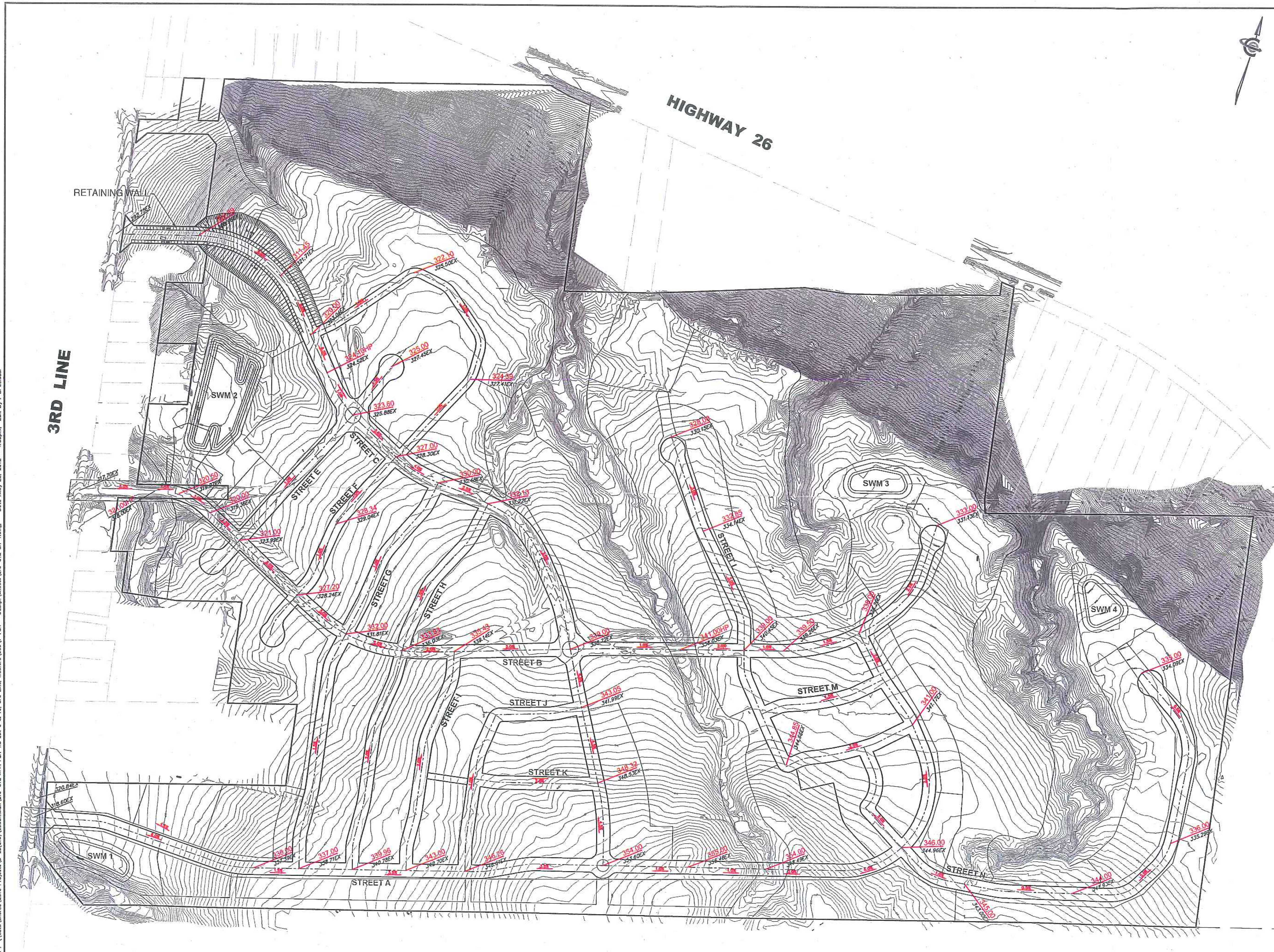


LEGEND

205	EXISTING CONTOUR
	PROPOSED/EXISTING GRADE
	PROPOSED 3:1 (MAX) SLOPE

SURVEY INFORMATION

J.D.BARNES
LAND INFORMATION SPECIALISTS
565 BRYNE DRIVE, UNIT E
BARRIE, ON L4N 9Y3
PHONE: (705) 739-6770
FAX: (705)739-6771

BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE IN METRES AND ARE DERIVED FROM PUBLISHED BENCHMARK No. 00119720295 HAVING AN ELEVATION OF 234.558m.

NO.	REVISIONS	DATE	BY
1	FSR	XXX. XX/XXXX	P.S.

MUNICIPALITY OF MEAFORD

REVIEWED BY: ____________

DATE: ____________

ENGINEER'S SEAL

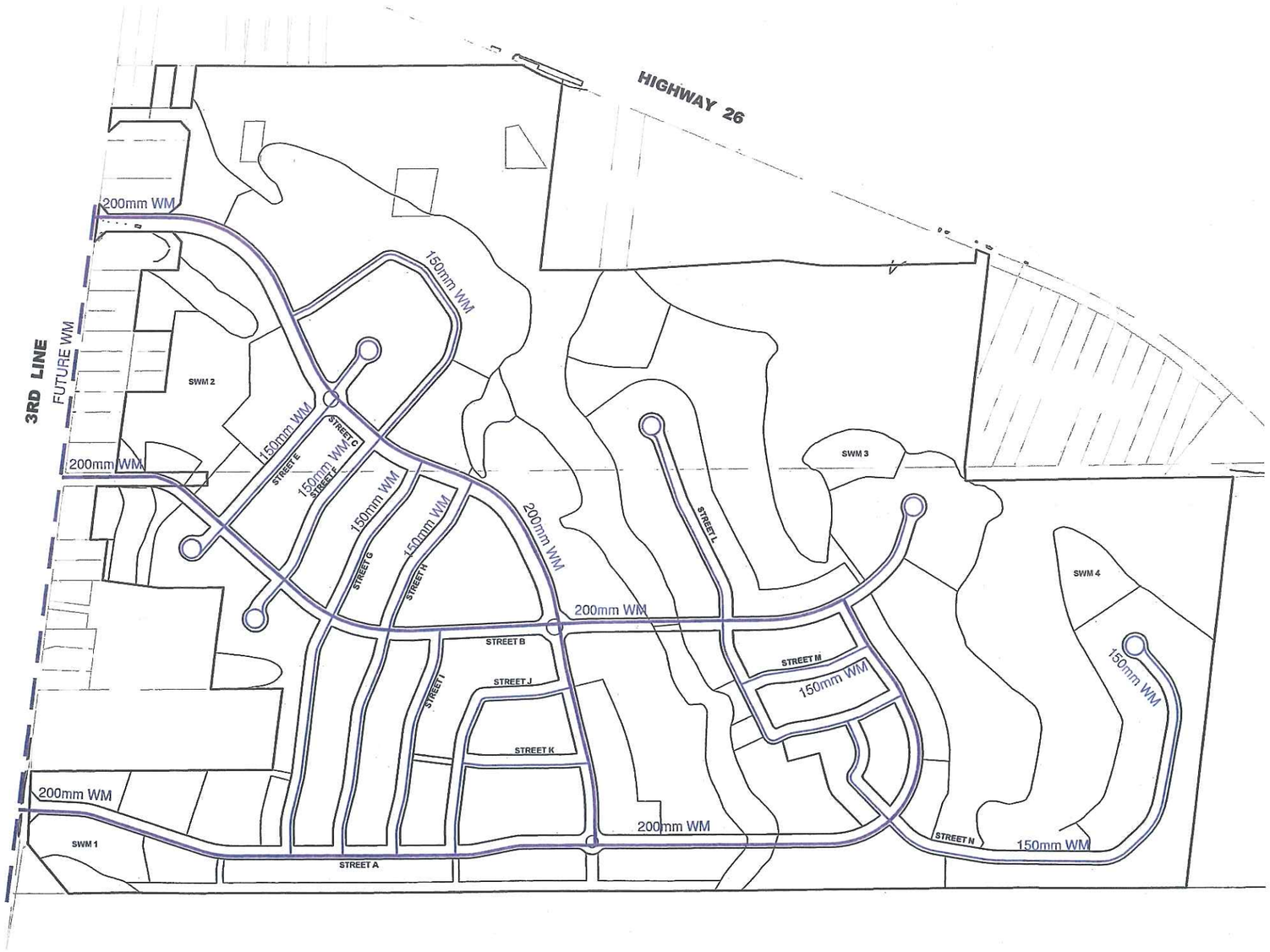
REVIEWING ENGINEER
PETER SLAMA, P.ENG.

Municipality of Meaford

MEAFORD HIGHLANDS RESORT
LOTS 9 & 10 3RD LINE
GRADING PLAN

COLE ENGINEERING
70 VALLEYWOOD DRIVE, MARKHAM, ON L3R 4T5
T 416 987 6161 / 905 940 6161 F 905 940 2064

SCALE:	1:2500	PROJECT NO:	L10-512
DRAWN BY:	A.L.		
CHECKED BY:	P.S.	DRAWING NO:	GR1
DESIGNED BY:	A.C.		
DATE:	MARCH 2012		



LEGEND

- PROPOSED 150 mm WATERMAIN
- PROPOSED 200 mm WATERMAIN

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PRELIMINARY SERVICING ASSESSMENT
WATERMAIN LAYOUT
PART OF LOT 9, CONCESSION 1 AND
PARTS OF LOTS 9 AND 10, CONCESSION 2
MUNICIPALITY OF MEAFORD

DATE:	MARCH 2012	PROJECT No.:	L10-512
SCALE:	1:7500	FIGURE No.:	WM

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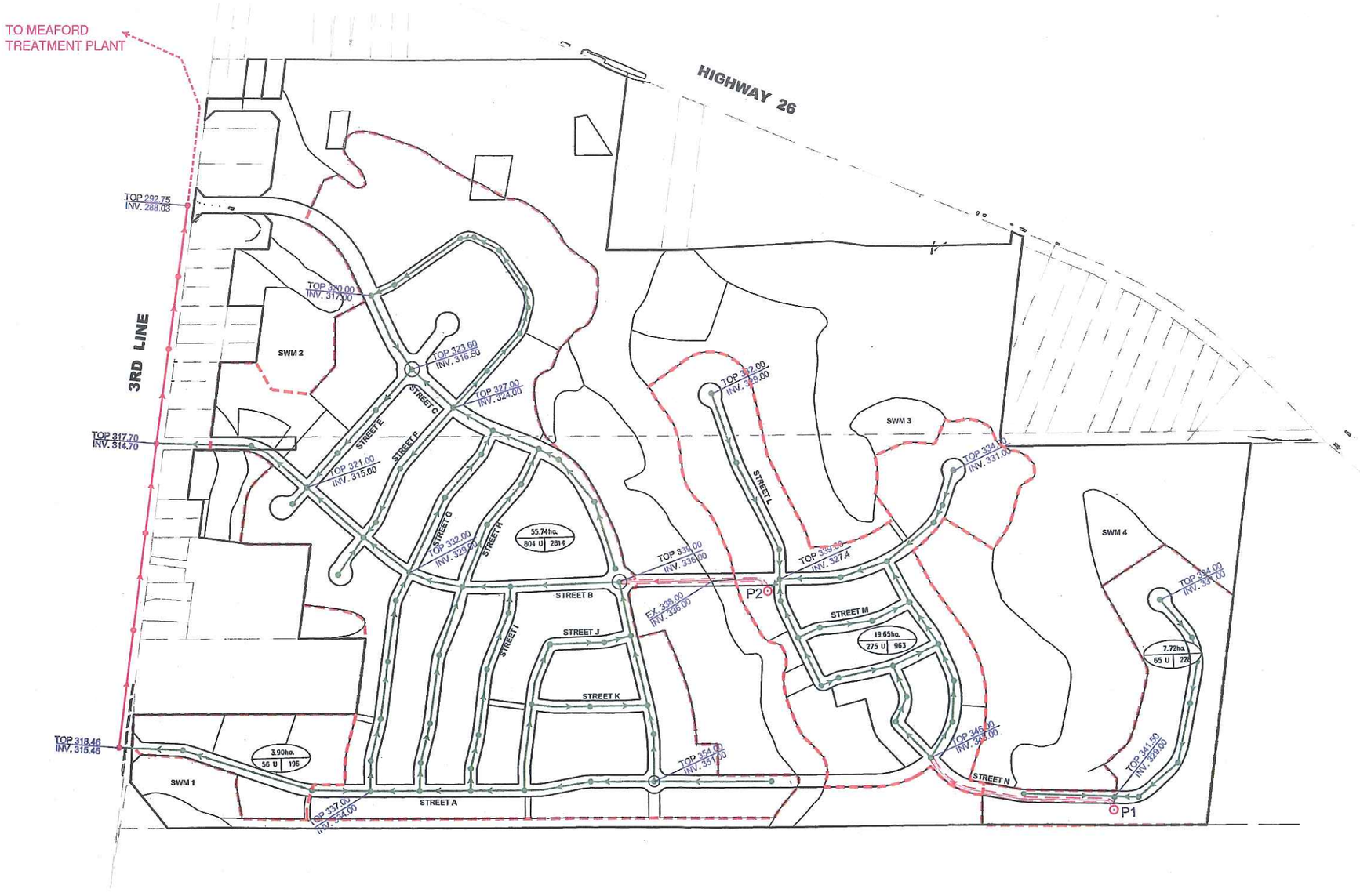

COLE ENGINEERING

70 VALLEYWOOD DRIVE, MARKHAM, ON L3R 4T5
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LEGEND

- PROPOSED SANITARY MANHOLE
- PROPOSED LOW FLOW SANITARY PUMP
- TOP 335.50 / INV. 332.20 — PROPOSED TOP/INVERT ELEVATION
- PROPOSED SANITARY TRUNK SEWER (BY GRAVITY)
- SANITARY DRAINAGE AREA BOUNDARY
- PROPOSED INTERNAL SANITARY SEWER (BY GRAVITY)
- PROPOSED FORCEMAIN
- 7.72ha. — AREA; 65 U — POPULATION; 228 — UNITS

PRELIMINARY SERVICING ASSESSMENT
SANITARY SEWER LAYOUT (OPTIONAL)
PART OF LOT 9, CONCESSION 1 AND
PARTS OF LOTS 9 AND 10, CONCESSION 2
MUNICIPALITY OF MEAFORD

DATE:	MARCH 2012	PROJECT No.:	L10-512
SCALE:	1:7500	FIGURE No.:	SAN-2

S:\2010 Projects\D-LD(L10)\Subdivision\L10-512 MHR FSR TIS Lot 9 & 10, 3rd Line, Meaford\Cad\1-FSR - Design\Sheets\L10-512 SAN Option.dwg 3:28:47 PM

APPENDIX A
FlowMaster Output

Worksheet for Rural Cross Section - 1

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Channel Slope	0.00500	m/m
Normal Depth	0.80	m

Section Definitions

Station (m)	Elevation (m)
0+00	100.05
0+01	100.00
0+03	99.25
0+05	100.00
0+07	100.09
0+10	100.16
0+13	100.09
0+15	100.00
0+17	99.25
0+19	100.00
0+20	100.05

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 100.05)	(0+01, 100.00)	0.030
(0+01, 100.00)	(0+03, 99.25)	0.030
(0+03, 99.25)	(0+05, 100.00)	0.030
(0+05, 100.00)	(0+07, 100.09)	0.016
(0+07, 100.09)	(0+10, 100.16)	0.013
(0+10, 100.16)	(0+13, 100.09)	0.013
(0+13, 100.09)	(0+15, 100.00)	0.016
(0+15, 100.00)	(0+17, 99.25)	0.030
(0+17, 99.25)	(0+19, 100.00)	0.030
(0+19, 100.00)	(0+20, 100.05)	0.030

Worksheet for Rural Cross Section - 1

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Discharge		4.04	m^3/s
Elevation Range	99.25 to 100.16 m		
Flow Area		3.70	m^2
Wetted Perimeter		12.69	m
Hydraulic Radius		0.29	m
Top Width		12.17	m
Normal Depth		0.80	m
Critical Depth		0.64	m
Critical Slope		0.01267	m/m
Velocity		1.09	m/s
Velocity Head		0.06	m
Specific Energy		0.86	m
Froude Number		0.63	
Flow Type	Subcritical		

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.80	m
Critical Depth	0.64	m
Channel Slope	0.00500	m/m
Critical Slope	0.01267	m/m

Worksheet for Triangular raod side Channel - 1

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.045	
Channel Slope	0.00500	m/m
Normal Depth	0.75	m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)

Results

Discharge	1.33	m^3/s
Flow Area	1.69	m^2
Wetted Perimeter	4.74	m
Hydraulic Radius	0.36	m
Top Width	4.50	m
Critical Depth	0.53	m
Critical Slope	0.03326	m/m
Velocity	0.79	m/s
Velocity Head	0.03	m
Specific Energy	0.78	m
Froude Number	0.41	
Flow Type	Subcritical	

GVF Input Data

Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.75	m
Critical Depth	0.53	m
Channel Slope	0.00500	m/m
Critical Slope	0.03326	m/m

APPENDIX B
MTO Design Charts and Pre-Development Input Parameters

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/Land Use Curve Numbers

Land Use	Treatment or Practice	Hydrologic Condition[4]	Hydrologic Soil Group			
			A	B	C	D
Fallow	Straight row	—	77	86	91	94
Row crops	"	Poor	72	81	88	91
	"	Good	67	78	85	89
	Contoured	Poor	70	79	84	88
	"	Good	65	75	82	86
	" and terraced	Poor	66	74	8	82
	" " "	Good	62	71	78	81
Small grain	Straight row	Poor	65	76	84	88
		Good	63	75	83	87
	Contoured	Poor	63	74	82	85
		Good	61	73	81	84
	" and terraced	Poor	61	72	79	82
		Good	59	70	78	81
Close-seeded legumes[2] or rotation meadow	Straight row	Poor	66	77	85	89
	" "	Good	58	72	81	85
	Contoured	Poor	64	75	83	85
	"	Good	55	69	78	83
	" and terraced	Poor	63	73	80	83
	" and terraced	Good	51	67	76	80
Pasture or range		Poor	68	79	86	89
		Fair	49	69	79	84
	Contoured	Good	39	61	74	80
	"	Poor	47	67	81	88
	"	Fair	25	59	75	83
		Good	6	35	70	79
Meadow		Good	30	58	71	78
Woods		Poor	45	66	77	83
		Fair	36	60	73	79
		Good	25	55	70	77
Farmsteads		—	59	74	82	86
		—	72	82	87	89
		—	74	84	90	92

For average anticedent soil moisture condition (AMC II)
[2] Close-drilled or broadcast.

[4] The hydrologic condition of cropland is good if a good crop rotation practice is used; it is poor if one crop is grown continuously.

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.

SOILS
OF
GREY COUNTY
NORTH SHEET
ONTARIO
SOIL SURVEY REPORT No. 17

MAP SYMBOL	SOIL TYPE	GREAT GROUP	PARENT MATERIALS	DRAINAGE CLASS
	VINCENT - Silty Loam Clay	Gray-Brown Podzolic	Fine-Textured Limestone Till	Good
Dc°	DUNEDIN - Clay	Gray-Brown Podzolic	Fine-Textured Derived from Red Shale	Good

COLE ENGINEERING
70 VALLEYWOOD DRIVE, MARKHAM, ON L3R 4T5
T:416.987.6161 / 905.940.6161 F:905.940.2064

SOILS MAP

PART OF LOT 9, CONCESSION 1 AND
PARTS OF LOTS 9 AND 10, CONCESSION 2
MUNICIPALITY OF MEAFORD

DATE:	MARCH 2012	PROJECT No.:	L10-512
SCALE:	N.T.S.	FIGURE No.:	SM

COLE ENGINEERING

Pre-Development (OTTHYMO)
Input Parameters (NASHYD)

Town of Meaford
File No. L10-512
Date : March, 2012

Pre-Development Drainage Area (OTTHYMO)

Parameter	Unit	Description	EXT1	EXT2	EXT3	EXT4	A1 PRE	A2 PRE	A3 PRE	A4 PRE	A5 PRE	A6 PRE
Area	ha	Watershed Area	12.39	6.09	5.79	7.42	3.46	28.60	12.75	51.63	33.23	25.89
TP	hr	Unit Hydrograph Time to Peak	0.59	0.44	0.39	0.52	0.36	0.65	0.48	0.42	0.42	0.39
DT	min	Time Step Increment	15									
DWF	cms	Dry Weather Flow (Base Flow)	0									
CN	-	SCS Curve Number	76									
IA	mm	Initial Abstraction	5									
N	-	Number of Linear Reservior	3									
Rain	mm/hr	Optional Rainfall Intensities	0 - Without Rain									

Note: 1 - Clay / Silty Clay Loam with good drainage - pasture & other unimproved land / Hydrologic Group C
2 - IA for field is used for this development IA=5

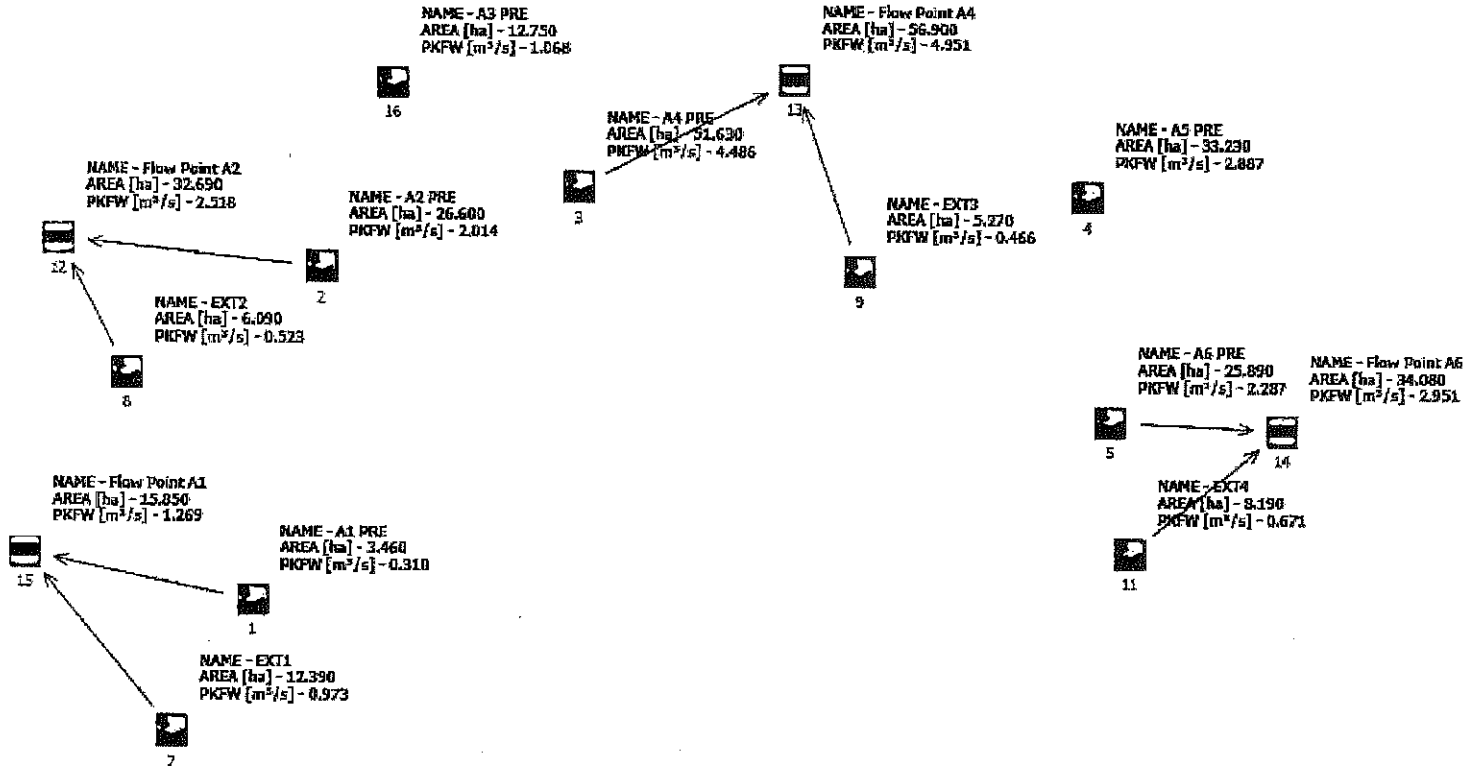
Time of Concentration Calculation

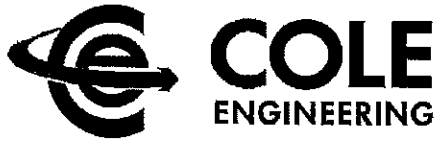
Area Number	Area	Cpre	CN	L	Elevation Change	Sw	Tc Airport	Tp (Airport)
	(ha)			(m)	(m)	(%)	(min)	(hr)
EXT1	12.39	0.25	76	957	40.0	4.18	53.47	0.59
EXT2	6.09	0.25	76	507	20.0	3.94	39.67	0.44
EXT3	5.79	0.25	76	329	10.0	3.04	34.83	0.39
EXT4	7.42	0.25	76	508	12.0	2.36	47.03	0.52
A1 PRE	3.46	0.25	76	406	22.0	5.42	31.97	0.36
A2 PRE	28.60	0.25	76	1031	36.0	3.49	58.89	0.65
A3 PRE	51.63	0.30	76	676	26.0	3.85	43.47	0.48
A4 PRE	33.23	0.30	76	941	94.0	9.99	37.43	0.42
A5 PRE	25.89	0.30	76	875	98.0	11.20	34.76	0.39
A6 PRE	25.89	0.30	76	875	98.0	11.20	34.76	0.39

APPENDIX C
Pre-Development Hydrologic Model Output

L10-512
Meaford Highlands Resort, Municipality of Meaford, ON
Pre Development Model Schematic
April, 2012

VO2 Model Schematic






```
 V    V   I    SSSSS  U   U    A    L
 V    V   I    SS     U   U   A A   L
  V  V    I     SS    U   U  AAAAA  L
  V  V    I      SS   U   U  A   A  L
   VV     I    SSSSS  UUUUU  A   A  LLLLL

  OOO    TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
 O   O     T      T    H   H   Y Y   MM MM  O   O
 O   O     T      T    H   H    Y    M M M  O   O    Company
  OOO      T      T    H   H    Y    M   M   OOO              Serial

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

  Input   filename: C:\Program Files\Visual Otthymo 2.4\V02\voin.dat
  Output  filename: C:\WinTemp\dacbb7bd-af23-4cc9-8a8a-296c40b39855\Scenario.out
  Summary filename: C:\WinTemp\dacbb7bd-af23-4cc9-8a8a-296c40b39855\Scenario.sum

DATE: 04/01/2012                          TIME: 04:28:54

USER:


COMMENTS: _____________________________________________________

  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************


-------------------
|    READ STORM   |     Filename: C:\WinTemp\dac
|                 |               bb7bd-af23-4cc9-8a8a-296c40b39855\
|                 |               e0251e1d-2fd5-409e-be77-bcabea1906ce
| Ptotal= 47.30 mm|  Comments: Meaford 2 year 24 Hour SCS Type II Storm
-------------------

  TIME   RAIN |  TIME   RAIN |  TIME   RAIN |  TIME   RAIN
   hrs  mm/hr |   hrs  mm/hr |   hrs  mm/hr |   hrs  mm/hr
  0.08   0.00 |  6.17   0.95 | 12.25   6.81 | 18.33   0.85
  0.17   0.52 |  6.25   0.95 | 12.33   6.81 | 18.42   0.85
  0.25   0.52 |  6.33   0.95 | 12.42   6.81 | 18.50   0.85
  0.33   0.52 |  6.42   0.95 | 12.50   6.81 | 18.58   0.85
  0.42   0.52 |  6.50   0.95 | 12.58   6.81 | 18.67   0.85
  0.50   0.52 |  6.58   0.95 | 12.67   3.50 | 18.75   0.85
  0.58   0.52 |  6.67   0.95 | 12.75   3.50 | 18.83   0.85
  0.67   0.52 |  6.75   0.95 | 12.83   3.50 | 18.92   0.85
  0.75   0.52 |  6.83   0.95 | 12.92   3.50 | 19.00   0.85
  0.83   0.52 |  6.92   0.95 | 13.00   3.50 | 19.08   0.85
  0.92   0.52 |  7.00   0.95 | 13.08   3.50 | 19.17   0.85
  1.00   0.52 |  7.08   0.95 | 13.17   0.66 | 19.25   0.85
  1.08   0.52 |  7.17   0.95 | 13.25   0.66 | 19.33   0.85
  1.17   0.52 |  7.25   0.95 | 13.33   0.66 | 19.42   0.85
  1.25   0.52 |  7.33   0.95 | 13.42   0.66 | 19.50   0.85
  1.33   0.52 |  7.42   0.95 | 13.50   0.66 | 19.58   0.85
  1.42   0.52 |  7.50   0.95 | 13.58   0.66 | 19.67   0.85
  1.50   0.52 |  7.58   0.95 | 13.67   3.88 | 19.75   0.85
  1.58   0.52 |  7.67   0.95 | 13.75   3.88 | 19.83   0.85
  1.67   0.52 |  7.75   0.95 | 13.83   3.88 | 19.92   0.85
  1.75   0.52 |  7.83   0.95 | 13.92   3.88 | 20.00   0.85
  1.83   0.52 |  7.92   0.95 | 14.00   3.88 | 20.08   0.85
  1.92   0.52 |  8.00   0.95 | 14.08   3.88 | 20.17   0.57
  2.00   0.52 |  8.08   0.95 | 14.17   1.42 | 20.25   0.57
  2.08   0.52 |  8.17   1.28 | 14.25   1.42 | 20.33   0.57
  2.17   0.61 |  8.25   1.28 | 14.33   1.42 | 20.42   0.57
  2.25   0.61 |  8.33   1.28 | 14.42   1.42 | 20.50   0.57
  2.33   0.61 |  8.42   1.28 | 14.50   1.42 | 20.58   0.57
  2.42   0.61 |  8.50   1.28 | 14.58   1.42 | 20.67   0.57
  2.50   0.61 |  8.58   1.28 | 14.67   1.42 | 20.75   0.57
  2.58   0.61 |  8.67   1.28 | 14.75   1.42 | 20.83   0.57
  2.67   0.61 |  8.75   1.28 | 14.83   1.42 | 20.92   0.57
  2.75   0.61 |  8.83   1.28 | 14.92   1.42 | 21.00   0.57
  2.83   0.61 |  8.92   1.28 | 15.00   1.42 | 21.08   0.57
  2.92   0.61 |  9.00   1.28 | 15.08   1.42 | 21.17   0.57
  3.00   0.61 |  9.08   1.28 | 15.17   1.42 | 21.25   0.57
  3.08   0.61 |  9.17   1.51 | 15.25   1.42 | 21.33   0.57
  3.17   0.61 |  9.25   1.51 | 15.33   1.42 | 21.42   0.57
  3.25   0.61 |  9.33   1.51 | 15.42   1.42 | 21.50   0.57
  3.33   0.61 |  9.42   1.51 | 15.50   1.42 | 21.58   0.57
  3.42   0.61 |  9.50   1.51 | 15.58   1.42 | 21.67   0.57
  3.50   0.61 |  9.58   1.51 | 15.67   1.42 | 21.75   0.57
  3.58   0.61 |  9.67   1.70 | 15.75   1.42 | 21.83   0.57
  3.67   0.61 |  9.75   1.70 | 15.83   1.42 | 21.92   0.57
  3.75   0.61 |  9.83   1.70 | 15.92   1.42 | 22.00   0.57
  3.83   0.61 |  9.92   1.70 | 16.00   1.42 | 22.08   0.57
  3.92   0.61 | 10.00   1.70 | 16.08   1.42 | 22.17   0.57
  4.00   0.61 | 10.08   1.70 | 16.17   0.85 | 22.25   0.57
  4.08   0.61 | 10.17   2.18 | 16.25   0.85 | 22.33   0.57
  4.17   0.76 | 10.25   2.18 | 16.33   0.85 | 22.42   0.57
  4.25   0.76 | 10.33   2.18 | 16.42   0.85 | 22.50   0.57
  4.33   0.76 | 10.42   2.18 | 16.50   0.85 | 22.58   0.57
  4.42   0.76 | 10.50   2.18 | 16.58   0.85 | 22.67   0.57
  4.50   0.76 | 10.58   2.18 | 16.67   0.85 | 22.75   0.57
  4.58   0.76 | 10.67   2.93 | 16.75   0.85 | 22.83   0.57
  4.67   0.76 | 10.75   2.93 | 16.83   0.85 | 22.92   0.57
  4.75   0.76 | 10.83   2.93 | 16.92   0.85 | 23.00   0.57
  4.83   0.76 | 10.92   2.93 | 17.00   0.85 | 23.08   0.57
  4.92   0.76 | 11.00   2.93 | 17.08   0.85 | 23.17   0.57
  5.00   0.76 | 11.08   2.93 | 17.17   0.85 | 23.25   0.57
  5.08   0.76 | 11.17   4.54 | 17.25   0.85 | 23.33   0.57
  5.17   0.76 | 11.25   4.54 | 17.33   0.85 | 23.42   0.57
  5.25   0.76 | 11.33   4.54 | 17.42   0.85 | 23.50   0.57
  5.33   0.76 | 11.42   4.54 | 17.50   0.85 | 23.58   0.57
  5.42   0.76 | 11.50   4.54 | 17.58   0.85 | 23.67   0.57
  5.50   0.76 | 11.58   4.54 | 17.67   0.85 | 23.75   0.57
  5.58   0.76 | 11.67  19.68 | 17.75   0.85 | 23.83   0.57
  5.67   0.76 | 11.75  19.68 | 17.83   0.85 | 23.92   0.57
  5.75   0.76 | 11.83  19.68 | 17.92   0.85 | 24.00   0.57
  5.83   0.76 | 11.92  52.22 | 18.00   0.85 | 24.08   0.57
  5.92   0.76 | 12.00  52.22 | 18.08   0.85 |
  6.00   0.76 | 12.08  52.22 | 18.17   0.85 |
  6.08   0.76 | 12.17   6.81 | 18.25   0.85 |


-------------------
| CALIB           |
| NASHYD  (0004)  |   Area     (ha)=  33.23   Curve Number  (CN)= 76.0
|ID= 1 DT= 5.0 min|   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.42

     Unit Hyd Qpeak  (cms)=   3.022

     PEAK FLOW       (cms)=   0.702 (i)
     TIME TO PEAK    (hrs)=  12.417
     RUNOFF VOLUME    (mm)=  14.604
     TOTAL RAINFALL   (mm)=  47.300
     RUNOFF COEFFICIENT   =   0.309

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


-------------------
| CALIB           |
| NASHYD  (0008)  |   Area     (ha)=   6.08   Curve Number  (CN)= 76.0
|ID= 1 DT= 5.0 min|   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.44
```

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Unit Hyd Qpeak (cms)= 0.529

PEAK FLOW (cms)= 0.125 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 14.604
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

| CALIB | NASHYD (0002) | ID= 1 DT= 5.0 min |

Area (ha)= 26.60 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.65

Unit Hyd Qpeak (cms)= 1.563

PEAK FLOW (cms)= 0.414 (i)
TIME TO PEAK (hrs)= 12.667
RUNOFF VOLUME (mm)= 14.605
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

| ADD HYD (0012) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	26.60	0.414	12.67	14.60
+ ID2= 2 (0008):	6.09	0.125	12.42	14.60
ID = 3 (0012):	32.69	0.525	12.58	14.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | NASHYD (0009) | ID= 1 DT= 5.0 min |

Area (ha)= 5.27 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.39

Unit Hyd Qpeak (cms)= 0.516

PEAK FLOW (cms)= 0.118 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 14.603
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

| CALIB | NASHYD (0003) | ID= 1 DT= 5.0 min |

Area (ha)= 51.63 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.42

Unit Hyd Qpeak (cms)= 4.695

PEAK FLOW (cms)= 1.091 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 14.604
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

| ADD HYD (0013) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0003):	51.63	1.091	12.42	14.60
+ ID2= 2 (0009):	5.27	0.118	12.33	14.60
ID = 3 (0013):	56.90	1.207	12.42	14.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | NASHYD (0011) | ID= 1 DT= 5.0 min |

Area (ha)= 8.19 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.52

Unit Hyd Qpeak (cms)= 0.602

PEAK FLOW (cms)= 0.149 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 14.604
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

| CALIB | NASHYD (0005) | ID= 1 DT= 5.0 min |

Area (ha)= 25.89 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.39

Unit Hyd Qpeak (cms)= 2.536

PEAK FLOW (cms)= 0.579 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 14.603
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

| ADD HYD (0014) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0005):	25.89	0.579	12.33	14.60
+ ID2= 2 (0011):	8.19	0.149	12.50	14.60
ID = 3 (0014):	34.08	0.718	12.33	14.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | NASHYD (0001) | ID= 1 DT= 5.0 min |

Area (ha)= 3.46 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.36

Unit Hyd Qpeak (cms)= 0.367

PEAK FLOW (cms)= 0.082 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 14.602
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

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```
| CALIB                |
| NASHYD    (0007) |   Area     (ha)=  12.39   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-----------------------  U.H. Tp(hrs)=   0.58

     Unit Hyd Qpeak  (cms)=   0.802

     PEAK FLOW       (cms)=   0.206 (i)
     TIME TO PEAK    (hrs)=  12.583
     RUNOFF VOLUME    (mm)=  14.605
     TOTAL RAINFALL   (mm)=  47.300
     RUNOFF COEFFICIENT   =   0.309

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

```
| ADD HYD   (0015) |
|   1 + 2 = 3      |          AREA     QPEAK     TPEAK      R.V.
-------------------            (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (0001):        3.46     0.082     12.33     14.60
      + ID2= 2 (0007):       12.39     0.206     12.58     14.60
        ==========================================================
        ID = 3 (0015):       15.85     0.275     12.50     14.60

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

```
| CALIB                |
| NASHYD    (0016) |   Area     (ha)=  12.75   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-----------------------  U.H. Tp(hrs)=   0.48

     Unit Hyd Qpeak  (cms)=   1.015

     PEAK FLOW       (cms)=   0.265 (i)
     TIME TO PEAK    (hrs)=  12.417
     RUNOFF VOLUME    (mm)=  14.604
     TOTAL RAINFALL   (mm)=  47.300
     RUNOFF COEFFICIENT   =   0.309

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

```
  ***************************
  ** SIMULATION NUMBER:   2 **
  ***************************
```

```
|    READ STORM    |   Filename: C:\WinTemp\dac
|                  |             bb7bd-af23-4cc9-8a8a-296c40b39855\
|                  |             6d3d4dec-f71b-4b8f-8e8f-5c0f0feba31b
| Ptotal= 59.30 mm |   Comments: Meaford 5 year 24 Hour SCS Type II Storm
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.09	6.17	1.19	12.25	8.54	18.33	1.07
0.17	0.65	6.25	1.19	12.33	8.54	18.42	1.07
0.25	0.65	6.33	1.19	12.42	8.54	18.50	1.07
0.33	0.65	6.42	1.19	12.50	8.54	18.58	1.07
0.42	0.65	6.50	1.19	12.58	8.54	18.67	1.07
0.50	0.65	6.58	1.19	12.67	4.39	18.75	1.07
0.58	0.65	6.67	1.19	12.75	4.39	18.83	1.07
0.67	0.65	6.75	1.19	12.83	4.39	18.92	1.07
0.75	0.65	6.83	1.19	12.92	4.39	19.00	1.07
0.83	0.65	6.92	1.19	13.00	4.39	19.08	1.07
0.92	0.65	7.00	1.19	13.08	4.39	19.17	1.07
1.00	0.65	7.08	1.19	13.17	0.83	19.25	1.07
1.08	0.65	7.17	1.19	13.25	0.83	19.33	1.07
1.17	0.65	7.25	1.19	13.33	0.83	19.42	1.07
1.25	0.65	7.33	1.19	13.42	0.83	19.50	1.07
1.33	0.65	7.42	1.19	13.50	0.83	19.58	1.07
1.42	0.65	7.50	1.19	13.58	0.83	19.67	1.07
1.50	0.65	7.58	1.19	13.67	4.86	19.75	1.07
1.58	0.65	7.67	1.19	13.75	4.86	19.83	1.07
1.67	0.65	7.75	1.19	13.83	4.86	19.92	1.07
1.75	0.65	7.83	1.19	13.92	4.86	20.00	1.07
1.83	0.65	7.92	1.19	14.00	4.86	20.08	1.07
1.92	0.65	8.00	1.19	14.08	4.86	20.17	0.71
2.00	0.65	8.08	1.19	14.17	1.78	20.25	0.71
2.08	0.65	8.17	1.60	14.25	1.78	20.33	0.71
2.17	0.77	8.25	1.60	14.33	1.78	20.42	0.71
2.25	0.77	8.33	1.60	14.42	1.78	20.50	0.71
2.33	0.77	8.42	1.60	14.50	1.78	20.58	0.71
2.42	0.77	8.50	1.60	14.58	1.78	20.67	0.71
2.50	0.77	8.58	1.60	14.67	1.78	20.75	0.71
2.58	0.77	8.67	1.60	14.75	1.78	20.83	0.71
2.67	0.77	8.75	1.60	14.83	1.78	20.92	0.71
2.75	0.77	8.83	1.60	14.92	1.78	21.00	0.71
2.83	0.77	8.92	1.60	15.00	1.78	21.08	0.71
2.92	0.77	9.00	1.60	15.08	1.78	21.17	0.71
3.00	0.77	9.08	1.60	15.17	1.78	21.25	0.71
3.08	0.77	9.17	1.90	15.25	1.78	21.33	0.71
3.17	0.77	9.25	1.90	15.33	1.78	21.42	0.71
3.25	0.77	9.33	1.90	15.42	1.78	21.50	0.71
3.33	0.77	9.42	1.90	15.50	1.78	21.58	0.71
3.42	0.77	9.50	1.90	15.58	1.78	21.67	0.71
3.50	0.77	9.58	1.90	15.67	1.78	21.75	0.71
3.58	0.77	9.67	2.13	15.75	1.78	21.83	0.71
3.67	0.77	9.75	2.13	15.83	1.78	21.92	0.71
3.75	0.77	9.83	2.13	15.92	1.78	22.00	0.71
3.83	0.77	9.92	2.13	16.00	1.78	22.08	0.71
3.92	0.77	10.00	2.13	16.08	1.78	22.17	0.71
4.00	0.77	10.08	2.13	16.17	1.07	22.25	0.71
4.08	0.77	10.17	2.73	16.25	1.07	22.33	0.71
4.17	0.95	10.25	2.73	16.33	1.07	22.42	0.71
4.25	0.95	10.33	2.73	16.42	1.07	22.50	0.71
4.33	0.95	10.42	2.73	16.50	1.07	22.58	0.71
4.42	0.95	10.50	2.73	16.58	1.07	22.67	0.71
4.50	0.95	10.58	2.73	16.67	1.07	22.75	0.71
4.58	0.95	10.67	3.68	16.75	1.07	22.83	0.71
4.67	0.95	10.75	3.68	16.83	1.07	22.92	0.71
4.75	0.95	10.83	3.68	16.92	1.07	23.00	0.71
4.83	0.95	10.92	3.68	17.00	1.07	23.08	0.71
4.92	0.95	11.00	3.68	17.08	1.07	23.17	0.71
5.00	0.95	11.08	3.68	17.17	1.07	23.25	0.71
5.08	0.95	11.17	5.69	17.25	1.07	23.33	0.71
5.17	0.95	11.25	5.69	17.33	1.07	23.42	0.71
5.25	0.95	11.33	5.69	17.42	1.07	23.50	0.71
5.33	0.95	11.42	5.69	17.50	1.07	23.58	0.71
5.42	0.95	11.50	5.69	17.58	1.07	23.67	0.71
5.50	0.95	11.58	5.69	17.67	1.07	23.75	0.71
5.58	0.95	11.67	24.67	17.75	1.07	23.83	0.71
5.67	0.95	11.75	24.67	17.83	1.07	23.92	0.71
5.75	0.95	11.83	24.67	17.92	1.07	24.00	0.71
5.83	0.95	11.92	85.47	18.00	1.07	24.08	0.71
5.92	0.95	12.00	85.47	18.08	1.07		
6.00	0.95	12.08	65.47	18.17	1.07		
6.08	0.95	12.17	8.54	18.25	1.07		

```
| CALIB                |
| NASHYD    (0004) |   Area     (ha)=  33.23   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-----------------------  U.H. Tp(hrs)=   0.42

     Unit Hyd Qpeak  (cms)=   3.022

     PEAK FLOW       (cms)=   1.070 (i)
     TIME TO PEAK    (hrs)=  12.333
     RUNOFF VOLUME    (mm)=  21.916
     TOTAL RAINFALL   (mm)=  59.300
     RUNOFF COEFFICIENT   =   0.370

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

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```
| CALIB                |
| NASHYD     (0008)    |   Area     (ha)=   6.09   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.44

      Unit Hyd Qpeak  (cms)=    0.529

      PEAK FLOW       (cms)=    0.190 (i)
      TIME TO PEAK    (hrs)=   12.417
      RUNOFF VOLUME    (mm)=   21.918
      TOTAL RAINFALL   (mm)=   59.300
      RUNOFF COEFFICIENT   =    0.370

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

```
| CALIB                |
| NASHYD     (0002)    |   Area     (ha)=  26.60   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.65

      Unit Hyd Qpeak  (cms)=    1.563

      PEAK FLOW       (cms)=    0.631 (i)
      TIME TO PEAK    (hrs)=   12.667
      RUNOFF VOLUME    (mm)=   21.920
      TOTAL RAINFALL   (mm)=   59.300
      RUNOFF COEFFICIENT   =    0.370

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

```
| ADD HYD   (0012)  |
|  1 +  2 =  3      |          AREA    QPEAK    TPEAK     R.V.
                            (ha)     (cms)    (hrs)      (mm)
        ID1= 1 (0002):     26.60    0.631    12.67     21.92
      + ID2= 2 (0008):      6.09    0.190    12.42     21.92
                          ========================================
        ID = 3 (0012):     32.69    0.802    12.50     21.92

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

```
| CALIB                |
| NASHYD     (0009)    |   Area     (ha)=   5.27   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.39

      Unit Hyd Qpeak  (cms)=    0.516

      PEAK FLOW       (cms)=    0.180 (i)
      TIME TO PEAK    (hrs)=   12.333
      RUNOFF VOLUME    (mm)=   21.917
      TOTAL RAINFALL   (mm)=   59.300
      RUNOFF COEFFICIENT   =    0.370

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

```
| CALIB                |
| NASHYD     (0003)    |   Area     (ha)=  51.63   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.42

      Unit Hyd Qpeak  (cms)=    4.695

      PEAK FLOW       (cms)=    1.663 (i)
      TIME TO PEAK    (hrs)=   12.333
      RUNOFF VOLUME    (mm)=   21.918
      TOTAL RAINFALL   (mm)=   59.300
      RUNOFF COEFFICIENT   =    0.370

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

```
| ADD HYD   (0013)  |
|  1 +  2 =  3      |          AREA    QPEAK    TPEAK     R.V.
                            (ha)     (cms)    (hrs)      (mm)
        ID1= 1 (0003):     51.63    1.663    12.33     21.92
      + ID2= 2 (0009):      5.27    0.180    12.33     21.92
                          ========================================
        ID = 3 (0013):     56.90    1.843    12.33     21.92

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

```
| CALIB                |
| NASHYD     (0011)    |   Area     (ha)=   8.19   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.52

      Unit Hyd Qpeak  (cms)=    0.602

      PEAK FLOW       (cms)=    0.228 (i)
      TIME TO PEAK    (hrs)=   12.500
      RUNOFF VOLUME    (mm)=   21.919
      TOTAL RAINFALL   (mm)=   59.300
      RUNOFF COEFFICIENT   =    0.370

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

```
| CALIB                |
| NASHYD     (0005)    |   Area     (ha)=  25.89   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.39

      Unit Hyd Qpeak  (cms)=    2.536

      PEAK FLOW       (cms)=    0.884 (i)
      TIME TO PEAK    (hrs)=   12.333
      RUNOFF VOLUME    (mm)=   21.917
      TOTAL RAINFALL   (mm)=   59.300
      RUNOFF COEFFICIENT   =    0.370

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

```
| ADD HYD   (0014)  |
|  1 +  2 =  3      |          AREA    QPEAK    TPEAK     R.V.
                            (ha)     (cms)    (hrs)      (mm)
        ID1= 1 (0005):     25.89    0.884    12.33     21.92
      + ID2= 2 (0011):      8.19    0.228    12.50     21.92
                          ========================================
        ID = 3 (0014):     34.08    1.097    12.33     21.92

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

```
| CALIB                |
| NASHYD     (0001)    |   Area     (ha)=   3.46   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.36

      Unit Hyd Qpeak  (cms)=    0.367

      PEAK FLOW       (cms)=    0.125 (i)
```

TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 21.916
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.370

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

CALIB					
NASHYD (0007)	Area (ha)=	12.39	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.59		

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.315 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 21.919
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.370

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

ADD HYD (0015)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		3.46	0.125	12.33	21.92
+ ID2= 2 (0007):		12.39	0.315	12.58	21.92
ID = 3 (0015):		15.85	0.420	12.50	21.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0016)	Area (ha)=	12.75	Curve Number (CN)=	78.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.48		

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 0.374 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 21.919
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.370

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

****
** SIMULATION NUMBER: 3 **
****

READ STORM	Filename: C:\WinTemp\dac bb7bd-af23-4cc9-8a8a-296c40b39855\ 423db9ae-100c-4686-871f-45bcc32048c2
Ptotal= 67.30 mm	Comments: Meaford 10 year 24 Hour SCS Type II Stor

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.00	6.17	1.35	12.25	9.69	18.33	1.21
0.17	0.74	6.25	1.35	12.33	9.69	18.42	1.21
0.25	0.74	6.33	1.35	12.42	9.69	18.50	1.21
0.33	0.74	6.42	1.35	12.50	9.69	18.58	1.21
0.42	0.74	6.50	1.35	12.58	9.69	18.67	1.21
0.50	0.74	6.58	1.35	12.67	4.98	18.75	1.21
0.58	0.74	6.67	1.35	12.75	4.98	18.83	1.21
0.67	0.74	6.75	1.35	12.83	4.98	18.92	1.21
0.75	0.74	6.83	1.35	12.92	4.98	19.00	1.21
0.83	0.74	6.92	1.35	13.00	4.98	19.08	1.21
0.92	0.74	7.00	1.35	13.08	4.98	19.17	1.21
1.00	0.74	7.08	1.35	13.17	0.94	19.25	1.21
1.08	0.74	7.17	1.35	13.25	0.94	19.33	1.21
1.17	0.74	7.25	1.35	13.33	0.94	19.42	1.21
1.25	0.74	7.33	1.35	13.42	0.94	19.50	1.21
1.33	0.74	7.42	1.35	13.50	0.94	19.58	1.21
1.42	0.74	7.50	1.35	13.58	0.94	19.67	1.21
1.50	0.74	7.58	1.35	13.67	5.52	19.75	1.21
1.58	0.74	7.67	1.35	13.75	5.52	19.83	1.21
1.67	0.74	7.75	1.35	13.83	5.52	19.92	1.21
1.75	0.74	7.83	1.35	13.92	5.52	20.00	1.21
1.83	0.74	7.92	1.35	14.00	5.52	20.08	1.21
1.92	0.74	8.00	1.35	14.08	5.52	20.17	0.81
2.00	0.74	8.08	1.35	14.17	2.02	20.25	0.81
2.08	0.74	8.17	1.82	14.25	2.02	20.33	0.81
2.17	0.87	8.25	1.82	14.33	2.02	20.42	0.81
2.25	0.87	8.33	1.82	14.42	2.02	20.50	0.81
2.33	0.87	8.42	1.82	14.50	2.02	20.58	0.81
2.42	0.87	8.50	1.82	14.58	2.02	20.67	0.81
2.50	0.87	8.58	1.82	14.67	2.02	20.75	0.81
2.58	0.87	8.67	1.82	14.75	2.02	20.83	0.81
2.67	0.87	8.75	1.82	14.83	2.02	20.92	0.81
2.75	0.87	8.83	1.82	14.92	2.02	21.00	0.81
2.83	0.87	8.92	1.82	15.00	2.02	21.08	0.81
2.92	0.87	9.00	1.82	15.08	2.02	21.17	0.81
3.00	0.87	9.08	1.82	15.17	2.02	21.25	0.81
3.08	0.87	9.17	2.15	15.25	2.02	21.33	0.81
3.17	0.87	9.25	2.15	15.33	2.02	21.42	0.81
3.25	0.87	9.33	2.15	15.42	2.02	21.50	0.81
3.33	0.87	9.42	2.15	15.50	2.02	21.58	0.81
3.42	0.87	9.50	2.15	15.58	2.02	21.67	0.81
3.50	0.87	9.58	2.15	15.67	2.02	21.75	0.81
3.58	0.87	9.67	2.42	15.75	2.02	21.83	0.81
3.67	0.87	9.75	2.42	15.83	2.02	21.92	0.81
3.75	0.87	9.83	2.42	15.92	2.02	22.00	0.81
3.83	0.87	9.92	2.42	16.00	2.02	22.08	0.81
3.92	0.87	10.00	2.42	16.08	2.02	22.17	0.81
4.00	0.87	10.08	2.42	16.17	1.21	22.25	0.81
4.08	0.87	10.17	3.10	16.25	1.21	22.33	0.81
4.17	1.08	10.25	3.10	16.33	1.21	22.42	0.81
4.25	1.08	10.33	3.10	16.42	1.21	22.50	0.81
4.33	1.08	10.42	3.10	16.50	1.21	22.58	0.81
4.42	1.08	10.50	3.10	16.58	1.21	22.67	0.81
4.50	1.08	10.58	3.10	16.67	1.21	22.75	0.81
4.58	1.08	10.67	4.17	16.75	1.21	22.83	0.81
4.67	1.08	10.75	4.17	16.83	1.21	22.92	0.81
4.75	1.08	10.83	4.17	16.92	1.21	23.00	0.81
4.83	1.08	10.92	4.17	17.00	1.21	23.08	0.81
4.92	1.08	11.00	4.17	17.08	1.21	23.17	0.81
5.00	1.08	11.08	4.17	17.17	1.21	23.25	0.81
5.08	1.08	11.17	6.46	17.25	1.21	23.33	0.81
5.17	1.08	11.25	6.46	17.33	1.21	23.42	0.81
5.25	1.08	11.33	6.46	17.42	1.21	23.50	0.81
5.33	1.08	11.42	6.46	17.50	1.21	23.58	0.81
5.42	1.08	11.50	6.46	17.58	1.21	23.67	0.81
5.50	1.08	11.58	6.46	17.67	1.21	23.75	0.81
5.58	1.08	11.67	28.00	17.75	1.21	23.83	0.81
5.67	1.08	11.75	28.00	17.83	1.21	23.92	0.81
5.75	1.08	11.83	28.00	17.92	1.21	24.00	0.81
5.83	1.08	11.92	74.30	18.00	1.21	24.08	0.81
5.92	1.08	12.00	74.30	18.08	1.21		
6.00	1.08	12.08	74.30	18.17	1.21		
6.08	1.08	12.17	9.69	18.25	1.21		

CALIB					
NASHYD (0004)	Area (ha)=	33.23	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.08	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.42		

Unit Hyd Qpeak (cms)= 3.022

PEAK FLOW (cms)= 1.341 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 27.232
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

CALIB		
NASHYD (0008)	Area (ha)= 6.09	Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.44	

Unit Hyd Qpeak (cms)= 0.529

PEAK FLOW (cms)= 0.238 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 27.233
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

CALIB		
NASHYD (0002)	Area (ha)= 26.60	Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.65	

Unit Hyd Qpeak (cms)= 1.563

PEAK FLOW (cms)= 0.789 (i)
TIME TO PEAK (hrs)= 12.667
RUNOFF VOLUME (mm)= 27.235
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

ADD HYD (0012)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	26.60	0.789	12.67	27.23
+ ID2= 2 (0009):	6.09	0.238	12.42	27.23
ID = 3 (0012):	32.69	1.004	12.58	27.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB		
NASHYD (0009)	Area (ha)= 5.27	Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.39	

Unit Hyd Qpeak (cms)= 0.516

PEAK FLOW (cms)= 0.225 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 27.231
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

CALIB		
NASHYD (0003)	Area (ha)= 51.63	Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.42	

Unit Hyd Qpeak (cms)= 4.695

PEAK FLOW (cms)= 2.084 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 27.232
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

ADD HYD (0013)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0003):	51.63	2.084	12.33	27.23
+ ID2= 2 (0009):	5.27	0.225	12.33	27.23
ID = 3 (0013):	56.90	2.309	12.33	27.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB		
NASHYD (0011)	Area (ha)= 8.19	Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.52	

Unit Hyd Qpeak (cms)= 0.602

PEAK FLOW (cms)= 0.285 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 27.234
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

CALIB		
NASHYD (0005)	Area (ha)= 25.89	Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.39	

Unit Hyd Qpeak (cms)= 2.536

PEAK FLOW (cms)= 1.107 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 27.231
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

ADD HYD (0014)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0005):	25.89	1.107	12.33	27.23
+ ID2= 2 (0011):	8.19	0.285	12.50	27.23
ID = 3 (0014):	34.08	1.374	12.33	27.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB

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| NASHYD    (0001) |   Area     (ha)=   3.46   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.36

     Unit Hyd Qpeak  (cms)=   0.367

     PEAK FLOW       (cms)=   0.156 (i)
     TIME TO PEAK    (hrs)=  12.333
     RUNOFF VOLUME    (mm)=  27.230
     TOTAL RAINFALL   (mm)=  67.300
     RUNOFF COEFFICIENT   =   0.405

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

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| CALIB             |
| NASHYD    (0007) |   Area     (ha)=  12.39   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.59

     Unit Hyd Qpeak  (cms)=   0.802

     PEAK FLOW       (cms)=   0.394 (i)
     TIME TO PEAK    (hrs)=  12.583
     RUNOFF VOLUME    (mm)=  27.234
     TOTAL RAINFALL   (mm)=  67.300
     RUNOFF COEFFICIENT   =   0.405

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

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| ADD HYD   (0015) |
|  1 + 2 = 3       |          AREA     QPEAK     TPEAK      R.V.
-------------------             (ha)     (cms)     (hrs)      (mm)
        ID1= 1 (0001):         3.46    0.156     12.33     27.23
      + ID2= 2 (0007):        12.39    0.394     12.58     27.23
      ================================================================
        ID = 3 (0015):        15.85    0.526     12.50     27.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB             |
| NASHYD    (0016) |   Area     (ha)=  12.75   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.48

     Unit Hyd Qpeak  (cms)=   1.015

     PEAK FLOW       (cms)=   0.469 (i)
     TIME TO PEAK    (hrs)=  12.417
     RUNOFF VOLUME    (mm)=  27.233
     TOTAL RAINFALL   (mm)=  67.300
     RUNOFF COEFFICIENT   =   0.405

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

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  ** SIMULATION NUMBER:   4 **
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|    READ STORM     |   Filename: C:\WinTemp\dac
|                   |             bb7bd-af23-4cc9-8a8a-296c40b39055\
|                   |             fe84fd84-2318-4f82-865a-3910ee0769b
| Ptotal= 77.40 mm  |   Comments: Mexford 25 year 24 Hour SCS Type II Stor
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      TIME     RAIN |  TIME     RAIN |  TIME     RAIN |  TIME     RAIN
       hrs    mm/hr |   hrs    mm/hr |   hrs    mm/hr |   hrs    mm/hr
      0.08     0.00 |  6.17     1.55 | 12.25    11.15 | 18.33     1.39
      0.17     0.85 |  6.25     1.55 | 12.33    11.15 | 18.42     1.39
      0.25     0.85 |  6.33     1.55 | 12.42    11.15 | 18.50     1.39
      0.33     0.85 |  6.42     1.55 | 12.50    11.15 | 18.58     1.39
      0.42     0.85 |  6.50     1.55 | 12.58    11.15 | 18.67     1.39
      0.50     0.85 |  6.58     1.55 | 12.67     5.73 | 18.75     1.39
      0.58     0.85 |  6.67     1.55 | 12.75     5.73 | 18.83     1.39
      0.67     0.85 |  6.75     1.55 | 12.83     5.73 | 18.92     1.39
      0.75     0.85 |  6.83     1.55 | 12.92     5.73 | 19.00     1.39
      0.83     0.85 |  6.92     1.55 | 13.00     5.73 | 19.08     1.39
      0.92     0.85 |  7.00     1.55 | 13.08     5.73 | 19.17     1.39
      1.00     0.85 |  7.08     1.55 | 13.17     1.08 | 19.25     1.39
      1.08     0.85 |  7.17     1.55 | 13.25     1.08 | 19.33     1.39
      1.17     0.85 |  7.25     1.55 | 13.33     1.08 | 19.42     1.39
      1.25     0.85 |  7.33     1.55 | 13.42     1.08 | 19.50     1.39
      1.33     0.85 |  7.42     1.55 | 13.50     1.08 | 19.58     1.39
      1.42     0.85 |  7.50     1.55 | 13.58     1.08 | 19.67     1.39
      1.50     0.85 |  7.58     1.55 | 13.67     6.35 | 19.75     1.39
      1.58     0.85 |  7.67     1.55 | 13.75     6.35 | 19.83     1.39
      1.67     0.85 |  7.75     1.55 | 13.83     6.35 | 19.92     1.39
      1.75     0.85 |  7.83     1.55 | 13.92     6.35 | 20.00     1.39
      1.83     0.85 |  7.92     1.55 | 14.00     6.35 | 20.08     1.39
      1.92     0.85 |  8.00     1.55 | 14.08     6.35 | 20.17     0.93
      2.00     0.85 |  8.08     1.55 | 14.17     2.32 | 20.25     0.93
      2.08     0.85 |  8.17     2.09 | 14.25     2.32 | 20.33     0.93
      2.17     1.01 |  8.25     2.09 | 14.33     2.32 | 20.42     0.93
      2.25     1.01 |  8.33     2.09 | 14.42     2.32 | 20.50     0.93
      2.33     1.01 |  8.42     2.09 | 14.50     2.32 | 20.58     0.93
      2.42     1.01 |  8.50     2.09 | 14.58     2.32 | 20.67     0.93
      2.50     1.01 |  8.58     2.09 | 14.67     2.32 | 20.75     0.93
      2.58     1.01 |  8.67     2.09 | 14.75     2.32 | 20.83     0.93
      2.67     1.01 |  8.75     2.09 | 14.83     2.32 | 20.92     0.93
      2.75     1.01 |  8.83     2.09 | 14.92     2.32 | 21.00     0.93
      2.83     1.01 |  8.92     2.09 | 15.00     2.32 | 21.08     0.93
      2.92     1.01 |  9.00     2.09 | 15.08     2.32 | 21.17     0.93
      3.00     1.01 |  9.08     2.09 | 15.17     2.32 | 21.25     0.93
      3.08     1.01 |  9.17     2.48 | 15.25     2.32 | 21.33     0.93
      3.17     1.01 |  9.25     2.48 | 15.33     2.32 | 21.42     0.93
      3.25     1.01 |  9.33     2.48 | 15.42     2.32 | 21.50     0.93
      3.33     1.01 |  9.42     2.48 | 15.50     2.32 | 21.58     0.93
      3.42     1.01 |  9.50     2.48 | 15.58     2.32 | 21.67     0.93
      3.50     1.01 |  9.58     2.48 | 15.67     2.32 | 21.75     0.93
      3.58     1.01 |  9.67     2.79 | 15.75     2.32 | 21.83     0.93
      3.67     1.01 |  9.75     2.79 | 15.83     2.32 | 21.92     0.93
      3.75     1.01 |  9.83     2.79 | 15.92     2.32 | 22.00     0.93
      3.83     1.01 |  9.92     2.79 | 16.00     2.32 | 22.08     0.93
      3.92     1.01 | 10.00     2.79 | 16.08     2.32 | 22.17     0.93
      4.00     1.01 | 10.08     2.79 | 16.17     1.39 | 22.25     0.93
      4.08     1.01 | 10.17     3.56 | 16.25     1.39 | 22.33     0.93
      4.17     1.24 | 10.25     3.56 | 16.33     1.39 | 22.42     0.93
      4.25     1.24 | 10.33     3.56 | 16.42     1.39 | 22.50     0.93
      4.33     1.24 | 10.42     3.56 | 16.50     1.39 | 22.58     0.93
      4.42     1.24 | 10.50     3.56 | 16.58     1.39 | 22.67     0.93
      4.50     1.24 | 10.58     3.56 | 16.67     1.39 | 22.75     0.93
      4.58     1.24 | 10.67     4.80 | 16.75     1.39 | 22.83     0.93
      4.67     1.24 | 10.75     4.80 | 16.83     1.39 | 22.92     0.93
      4.75     1.24 | 10.83     4.80 | 16.92     1.39 | 23.00     0.93
      4.83     1.24 | 10.92     4.80 | 17.00     1.39 | 23.08     0.93
      4.92     1.24 | 11.00     4.80 | 17.08     1.39 | 23.17     0.93
      5.00     1.24 | 11.08     4.80 | 17.17     1.39 | 23.25     0.93
      5.08     1.24 | 11.17     7.43 | 17.25     1.39 | 23.33     0.93
      5.17     1.24 | 11.25     7.43 | 17.33     1.39 | 23.42     0.93
      5.25     1.24 | 11.33     7.43 | 17.42     1.39 | 23.50     0.93
      5.33     1.24 | 11.42     7.43 | 17.50     1.39 | 23.58     0.93
      5.42     1.24 | 11.50     7.43 | 17.58     1.39 | 23.67     0.93
      5.50     1.24 | 11.58     7.43 | 17.67     1.39 | 23.75     0.93
      5.58     1.24 | 11.67    32.20 | 17.75     1.39 | 23.83     0.93
      5.67     1.24 | 11.75    32.20 | 17.83     1.39 | 23.92     0.93
      5.75     1.24 | 11.83    32.20 | 17.92     1.39 | 24.00     0.93
      5.83     1.24 | 11.92    85.45 | 18.00     1.39 | 24.08     0.93
      5.92     1.24 | 12.00    85.45 | 18.08     1.39 |
      6.00     1.24 | 12.08    85.45 | 18.17     1.39 |
      6.08     1.24 | 12.17    11.15 | 18.25     1.39 |

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CALIB					
NASHYD (0004)	Area	(ha)=	33.23	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.42		

Unit Hyd Qpeak (cms)= 9.022

PEAK FLOW (cms)= 1.706 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 34.344
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

CALIB					
NASHYD (0008)	Area	(ha)=	6.09	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.44		

Unit Hyd Qpeak (cms)= 0.529

PEAK FLOW (cms)= 0.303 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 34.344
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

CALIB					
NASHYD (0002)	Area	(ha)=	26.60	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.68		

Unit Hyd Qpeak (cms)= 1.563

PEAK FLOW (cms)= 1.002 (i)
TIME TO PEAK (hrs)= 12.667
RUNOFF VOLUME (mm)= 34.347
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

ADD HYD (0012)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0002):		26.60	1.002	12.67	34.35
+ ID2= 2 (0008):		6.09	0.303	12.42	34.34
ID = 3 (0012):		32.69	1.275	12.58	34.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0009)	Area	(ha)=	5.27	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.39		

Unit Hyd Qpeak (cms)= 0.516

PEAK FLOW (cms)= 0.286 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 34.343
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

CALIB					
NASHYD (0003)	Area	(ha)=	51.63	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.42		

Unit Hyd Qpeak (cms)= 4.695

PEAK FLOW (cms)= 2.650 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 34.344
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

ADD HYD (0013)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0003):		51.63	2.650	12.33	34.34
+ ID2= 2 (0009):		5.27	0.286	12.33	34.34
ID = 3 (0013):		56.90	2.936	12.33	34.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0011)	Area	(ha)=	8.19	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.52		

Unit Hyd Qpeak (cms)= 0.602

PEAK FLOW (cms)= 0.362 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 34.346
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

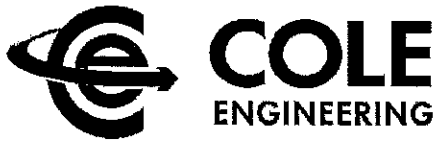
CALIB					
NASHYD (0005)	Area	(ha)=	25.89	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.39		

Unit Hyd Qpeak (cms)= 2.536

PEAK FLOW (cms)= 1.407 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 34.343
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

ADD HYD (0014)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):		25.89	1.407	12.33	34.34
+ ID2= 2 (0011):		8.19	0.362	12.50	34.35



ID = 3 (0014): 34.09 1.748 12.33 34.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | NASHYD (0001) | ID= 1 DT= 5.0 min |

Area (ha)= 3.46 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.36

Unit Hyd Qpeak (cms)= 0.367

PEAK FLOW (cms)= 0.198 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 34.841
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

| CALIB | NASHYD (0007) | ID= 1 DT= 5.0 min |

Area (ha)= 12.39 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.501 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 34.346
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

| ADD HYD (0015) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	3.46	0.198	12.33	34.34
+ ID2= 2 (0007):	12.39	0.501	12.58	34.35
ID = 3 (0015):	15.85	0.668	12.50	34.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | NASHYD (0016) | ID= 1 DT= 5.0 min |

Area (ha)= 12.75 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.48

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 0.596 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 34.345
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

****
** SIMULATION NUMBER: 5 **
****

| READ STORM | Filename: C:\WinTemp\dac

| | bb7bd-af23-4cc9-8a8a-296c40b39855\
| | 1b24607c-ddf4-4535-9270-a2d94abbe657
| Ptotal= 84.90 mm | Comments: Meaford 50 year 24 Hour SCS Type II Stor

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.00	6.17	1.70	12.25	12.23	18.33	1.53
0.17	0.93	6.25	1.70	12.33	12.23	18.42	1.53
0.25	0.93	6.33	1.70	12.42	12.23	18.50	1.53
0.33	0.93	6.42	1.70	12.50	12.23	18.58	1.53
0.42	0.93	6.50	1.70	12.58	12.23	18.67	1.53
0.50	0.93	6.58	1.70	12.67	6.28	18.75	1.53
0.58	0.93	6.67	1.70	12.75	6.28	18.83	1.53
0.67	0.93	6.75	1.70	12.83	6.28	18.92	1.53
0.75	0.93	6.83	1.70	12.92	6.28	19.00	1.53
0.83	0.93	6.92	1.70	13.00	6.28	19.08	1.53
0.92	0.93	7.00	1.70	13.08	6.28	19.17	1.53
1.00	0.93	7.08	1.70	13.17	1.19	19.25	1.53
1.08	0.93	7.17	1.70	13.25	1.19	19.33	1.53
1.17	0.93	7.25	1.70	13.33	1.19	19.42	1.53
1.25	0.93	7.33	1.70	13.42	1.19	19.50	1.53
1.33	0.93	7.42	1.70	13.50	1.19	19.58	1.53
1.42	0.93	7.50	1.70	13.58	1.19	19.67	1.53
1.50	0.93	7.58	1.70	13.67	6.96	19.75	1.53
1.58	0.93	7.67	1.70	13.75	6.96	19.83	1.53
1.67	0.93	7.75	1.70	13.83	6.96	19.92	1.53
1.75	0.93	7.83	1.70	13.92	6.96	20.00	1.53
1.83	0.93	7.92	1.70	14.00	6.96	20.08	1.53
1.92	0.93	8.00	1.70	14.08	6.96	20.17	1.02
2.00	0.93	8.08	1.70	14.17	2.55	20.25	1.02
2.08	0.93	8.17	2.29	14.25	2.55	20.33	1.02
2.17	1.10	8.25	2.29	14.33	2.55	20.42	1.02
2.25	1.10	8.33	2.29	14.42	2.55	20.50	1.02
2.33	1.10	8.42	2.29	14.50	2.55	20.58	1.02
2.42	1.10	8.50	2.29	14.58	2.55	20.67	1.02
2.50	1.10	8.58	2.29	14.67	2.55	20.75	1.02
2.58	1.10	8.67	2.29	14.75	2.55	20.83	1.02
2.67	1.10	8.75	2.29	14.83	2.55	20.92	1.02
2.75	1.10	8.83	2.29	14.92	2.55	21.00	1.02
2.83	1.10	8.92	2.29	15.00	2.55	21.08	1.02
2.92	1.10	9.00	2.29	15.08	2.55	21.17	1.02
3.00	1.10	9.08	2.29	15.17	2.55	21.25	1.02
3.08	1.10	9.17	2.72	15.25	2.55	21.33	1.02
3.17	1.10	9.25	2.72	15.33	2.55	21.42	1.02
3.25	1.10	9.33	2.72	15.42	2.55	21.50	1.02
3.33	1.10	9.42	2.72	15.50	2.55	21.58	1.02
3.42	1.10	9.50	2.72	15.58	2.55	21.67	1.02
3.50	1.10	9.58	2.72	15.67	2.55	21.75	1.02
3.58	1.10	9.67	3.06	15.75	2.55	21.83	1.02
3.67	1.10	9.75	3.06	15.83	2.55	21.92	1.02
3.75	1.10	9.83	3.06	15.92	2.55	22.00	1.02
3.83	1.10	9.92	3.06	16.00	2.55	22.08	1.02
3.92	1.10	10.00	3.06	16.08	2.55	22.17	1.02
4.00	1.10	10.08	3.06	16.17	1.53	22.25	1.02
4.08	1.10	10.17	3.91	16.25	1.53	22.33	1.02
4.17	1.36	10.25	3.91	16.33	1.53	22.42	1.02
4.25	1.36	10.33	3.91	16.42	1.53	22.50	1.02
4.33	1.36	10.42	3.91	16.50	1.53	22.58	1.02
4.42	1.36	10.50	3.91	16.58	1.53	22.67	1.02
4.50	1.36	10.58	3.91	16.67	1.53	22.75	1.02
4.58	1.36	10.67	5.26	16.75	1.53	22.83	1.02
4.67	1.36	10.75	5.26	16.83	1.53	22.92	1.02
4.75	1.36	10.83	5.26	16.92	1.53	23.00	1.02
4.83	1.36	10.92	5.26	17.00	1.53	23.08	1.02
4.92	1.36	11.00	5.26	17.08	1.53	23.17	1.02
5.00	1.36	11.08	5.26	17.17	1.53	23.25	1.02
5.08	1.36	11.17	8.15	17.25	1.53	23.33	1.02
5.17	1.36	11.25	8.15	17.33	1.53	23.42	1.02
5.25	1.36	11.33	8.15	17.42	1.53	23.50	1.02
5.33	1.36	11.42	8.15	17.50	1.53	23.58	1.02
5.42	1.36	11.50	8.15	17.58	1.53	23.67	1.02
5.50	1.36	11.58	8.15	17.67	1.53	23.75	1.02
5.58	1.36	11.67	35.32	17.75	1.53	23.83	1.02
5.67	1.36	11.75	35.32	17.83	1.53	23.92	1.02
5.75	1.36	11.83	35.32	17.92	1.53	24.00	1.02
5.83	1.36	11.92	93.73	18.00	1.53	24.08	1.02

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5.92	1.36	12.00	93.73	18.08	1.53
6.00	1.36	12.08	93.73	18.17	1.53
6.08	1.36	12.17	12.23	18.25	1.53

CALIB					
NASHYD (0004)	Area (ha)=	33.23	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.42		

Unit Hyd Qpeak (cms)= 3.022

PEAK FLOW (cms)= 1.990 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 39.868
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

CALIB					
NASHYD (0008)	Area (ha)=	6.09	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.44		

Unit Hyd Qpeak (cms)= 0.529

PEAK FLOW (cms)= 0.353 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 39.869
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

CALIB					
NASHYD (0002)	Area (ha)=	26.60	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.65		

Unit Hyd Qpeak (cms)= 1.563

PEAK FLOW (cms)= 1.168 (i)
TIME TO PEAK (hrs)= 12.567
RUNOFF VOLUME (mm)= 39.872
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

ADD HYD (0012)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	26.60	1.168	12.67	39.87
+ ID2= 2 (0008):	6.09	0.353	12.42	39.87
ID = 3 (0012):	32.69	1.486	12.58	39.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0009)	Area (ha)=	5.27	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.39		

Unit Hyd Qpeak (cms)= 0.516

PEAK FLOW (cms)= 0.334 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 39.867
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

CALIB					
NASHYD (0003)	Area (ha)=	51.63	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.42		

Unit Hyd Qpeak (cms)= 4.695

PEAK FLOW (cms)= 3.091 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 39.869
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

ADD HYD (0013)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0003):	51.63	3.091	12.33	39.87
+ ID2= 2 (0009):	5.27	0.334	12.33	39.87
ID = 3 (0013):	56.90	3.425	12.33	39.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0011)	Area (ha)=	8.19	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.52		

Unit Hyd Qpeak (cms)= 0.602

PEAK FLOW (cms)= 0.422 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 39.871
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

CALIB					
NASHYD (0005)	Area (ha)=	25.85	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.39		

Unit Hyd Qpeak (cms)= 2.536

PEAK FLOW (cms)= 1.648 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 39.867
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

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ADD HYD (0014)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):		25.89	1.640	12.33	39.87
+ ID2= 2 (0011):		8.19	0.422	12.50	39.87
ID = 3 (0014):		34.08	2.038	12.33	39.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0001)	Area	(ha)=	3.46	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.36		

Unit Hyd Qpeak (cms)= 0.367

PEAK FLOW (cms)= 0.231 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 39.865
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

CALIB					
NASHYD (0007)	Area	(ha)=	12.39	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.59		

Unit Hyd Qpeak (cms)= 0.902

PEAK FLOW (cms)= 0.583 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 39.871
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

ADD HYD (0015)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		3.46	0.231	12.33	39.86
+ ID2= 2 (0007):		12.39	0.583	12.58	39.87
ID = 3 (0015):		15.85	0.779	12.50	39.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0015)	Area	(ha)=	12.75	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.48		

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 0.695 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 39.870
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

****
** SIMULATION NUMBER: 6 **
****

READ STORM		
	Filename:	C:\WinTemp\dac bb7bd-af23-4cc9-8a8a-296c40b39855\ 1146dff3-8702-4b13-ad95-3fd727837c1b
Ptotal= 92.30 mm	Comments:	Meaford 50 year 24 Hour SCS Type II Stor

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.00	6.17	1.85	12.25	13.29	18.33	1.66
0.17	1.02	6.25	1.85	12.33	13.29	18.42	1.66
0.25	1.02	6.33	1.85	12.42	13.29	18.50	1.66
0.33	1.02	6.42	1.85	12.50	13.29	18.58	1.66
0.42	1.02	6.50	1.85	12.58	13.29	18.67	1.66
0.50	1.02	6.58	1.85	12.67	6.83	18.75	1.66
0.58	1.02	6.67	1.85	12.75	6.83	18.83	1.66
0.67	1.02	6.75	1.85	12.83	6.83	18.92	1.66
0.75	1.02	6.83	1.85	12.92	6.83	19.00	1.66
0.83	1.02	6.92	1.85	13.00	6.83	19.08	1.66
0.92	1.02	7.00	1.85	13.08	6.83	19.17	1.66
1.00	1.02	7.08	1.85	13.17	1.29	19.25	1.66
1.08	1.02	7.17	1.85	13.25	1.29	19.33	1.66
1.17	1.02	7.25	1.85	13.33	1.29	19.42	1.66
1.25	1.02	7.33	1.85	13.42	1.29	19.50	1.66
1.33	1.02	7.42	1.85	13.50	1.29	19.58	1.66
1.42	1.02	7.50	1.85	13.58	1.29	19.67	1.66
1.50	1.02	7.58	1.85	13.67	7.57	19.75	1.66
1.58	1.02	7.67	1.85	13.75	7.57	19.83	1.66
1.67	1.02	7.75	1.85	13.83	7.57	19.92	1.66
1.75	1.02	7.83	1.85	13.92	7.57	20.00	1.66
1.83	1.02	7.92	1.85	14.00	7.57	20.08	1.66
1.92	1.02	8.00	1.85	14.08	7.57	20.17	1.11
2.00	1.02	8.08	1.85	14.17	2.77	20.25	1.11
2.08	1.02	8.17	2.49	14.25	2.77	20.33	1.11
2.17	1.20	8.25	2.49	14.33	2.77	20.42	1.11
2.25	1.20	8.33	2.49	14.42	2.77	20.50	1.11
2.33	1.20	8.42	2.49	14.50	2.77	20.58	1.11
2.42	1.20	8.50	2.49	14.58	2.77	20.67	1.11
2.50	1.20	8.58	2.49	14.67	2.77	20.75	1.11
2.58	1.20	8.67	2.49	14.75	2.77	20.83	1.11
2.67	1.20	8.75	2.49	14.83	2.77	20.92	1.11
2.75	1.20	8.83	2.49	14.92	2.77	21.00	1.11
2.83	1.20	8.92	2.49	15.00	2.77	21.08	1.11
2.92	1.20	9.00	2.49	15.08	2.77	21.17	1.11
3.00	1.20	9.08	2.49	15.17	2.77	21.25	1.11
3.08	1.20	9.17	2.95	15.25	2.77	21.33	1.11
3.17	1.20	9.25	2.95	15.33	2.77	21.42	1.11
3.25	1.20	9.33	2.95	15.42	2.77	21.50	1.11
3.33	1.20	9.42	2.95	15.50	2.77	21.58	1.11
3.42	1.20	9.50	2.95	15.58	2.77	21.67	1.11
3.50	1.20	9.58	2.95	15.67	2.77	21.75	1.11
3.58	1.20	9.67	3.32	15.75	2.77	21.83	1.11
3.67	1.20	9.75	3.32	15.83	2.77	21.92	1.11
3.75	1.20	9.83	3.32	15.92	2.77	22.00	1.11
3.83	1.20	9.92	3.32	16.00	2.77	22.08	1.11
3.92	1.20	10.00	3.32	16.08	2.77	22.17	1.11
4.00	1.20	10.08	3.32	16.17	1.66	22.25	1.11
4.08	1.20	10.17	4.25	16.25	1.66	22.33	1.11
4.17	1.48	10.25	4.25	16.33	1.66	22.42	1.11
4.25	1.48	10.33	4.25	16.42	1.66	22.50	1.11
4.33	1.48	10.42	4.25	16.50	1.66	22.58	1.11
4.42	1.48	10.50	4.25	16.58	1.66	22.67	1.11
4.50	1.48	10.58	4.25	16.67	1.66	22.75	1.11
4.58	1.48	10.67	5.72	16.75	1.66	22.83	1.11
4.67	1.48	10.75	5.72	16.83	1.66	22.92	1.11
4.75	1.48	10.83	5.72	16.92	1.66	23.00	1.11
4.83	1.48	10.92	5.72	17.00	1.66	23.08	1.11
4.92	1.48	11.00	5.72	17.08	1.66	23.17	1.11
5.00	1.48	11.08	5.72	17.17	1.66	23.25	1.11
5.08	1.48	11.17	8.86	17.25	1.66	23.33	1.11
5.17	1.48	11.25	8.86	17.33	1.66	23.42	1.11
5.25	1.48	11.33	8.86	17.42	1.66	23.50	1.11

5.33	1.48	11.42	8.86	17.50	1.66	23.58	1.11
5.42	1.48	11.50	8.86	17.58	1.66	23.67	1.11
5.50	1.48	11.58	8.86	17.67	1.66	23.75	1.11
5.58	1.48	11.67	38.40	17.75	1.66	23.83	1.11
5.67	1.48	11.75	38.40	17.83	1.66	23.92	1.11
5.75	1.48	11.83	38.40	17.92	1.66	24.00	1.11
5.83	1.48	11.92	101.90	18.00	1.66	24.08	1.11
5.92	1.48	12.00	101.90	18.08	1.66		
6.00	1.48	12.08	101.90	18.17	1.66		
6.00	1.48	12.17	13.29	18.25	1.66		

CALIB					
NASHYD (0004)	Area	(ha)=	33.23	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.42		

Unit Hyd Qpeak (cms)= 3.022

PEAK FLOW (cms)= 2.279 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 45.493
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

CALIB					
NASHYD (0008)	Area	(ha)=	6.09	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.44		

Unit Hyd Qpeak (cms)= 0.529

PEAK FLOW (cms)= 0.404 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 45.493
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

CALIB					
NASHYD (0002)	Area	(ha)=	26.60	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.65		

Unit Hyd Qpeak (cms)= 1.563

PEAK FLOW (cms)= 1.337 (i)
TIME TO PEAK (hrs)= 12.667
RUNOFF VOLUME (mm)= 45.497
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

ADD HYD (0012)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0002):		26.60	1.337	12.67	45.50
+ ID2= 2 (0008):		6.09	0.404	12.42	45.49
ID = 3 (0012):		32.69	1.702	12.58	45.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0009)	Area	(ha)=	5.27	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.39		

Unit Hyd Qpeak (cms)= 0.516

PEAK FLOW (cms)= 0.382 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 45.491
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

CALIB					
NASHYD (0003)	Area	(ha)=	51.63	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.42		

Unit Hyd Qpeak (cms)= 4.695

PEAK FLOW (cms)= 3.542 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 45.493
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

ADD HYD (0013)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0003):		51.63	3.542	12.33	45.49
+ ID2= 2 (0009):		5.27	0.382	12.33	45.49
ID = 3 (0013):		56.90	3.924	12.33	45.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0011)	Area	(ha)=	8.19	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.52		

Unit Hyd Qpeak (cms)= 0.602

PEAK FLOW (cms)= 0.483 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 45.495
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

CALIB					
NASHYD (0005)	Area	(ha)=	25.89	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.39		

Unit Hyd Qpeak (cms)= 2.836

PEAK FLOW (cms)= 1.878 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 45.491

TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

ADD HYD (0014)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):		25.89	1.878	12.33	45.49
+ ID2= 2 (0011):		8.19	0.483	12.50	45.50
ID = 3 (0014):		34.08	2.335	12.33	45.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0001)	Area	(ha)=	3.46	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.36		

Unit Hyd Qpeak (cms)= 0.367

PEAK FLOW (cms)= 0.264 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 45.489
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

CALIB					
NASHYD (0007)	Area	(ha)=	12.39	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.59		

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.668 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 45.496
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

ADD HYD (0015)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		3.46	0.264	12.33	45.49
+ ID2= 2 (0007):		12.39	0.668	12.58	45.50
ID = 3 (0015):		15.85	0.892	12.50	45.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0016)	Area	(ha)=	12.75	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.48		

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 0.797 (i)
TIME TO PEAK (hrs)= 12.417

RUNOFF VOLUME (mm)= 45.495
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

****
** SIMULATION NUMBER: 7 **
****

READ STORM		Filename: C:\WinTemp\dac bb7bd-af23-4cc8-8a8a-296c40b39655\ 1b6deb8b-b33c-4793-a20b-364a3c2d5667
Ptotal=193.00 mm		Comments: Timmins Storm event mm/hr

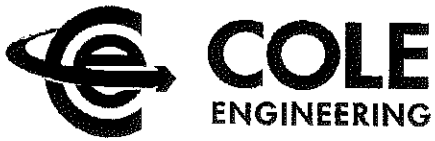
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.10	15.00	3.10	3.00	6.10	43.00	9.10	13.00
0.20	15.00	3.20	3.00	6.20	43.00	9.20	13.00
0.30	15.00	3.30	3.00	6.30	43.00	9.30	13.00
0.40	15.00	3.40	3.00	6.40	43.00	9.40	13.00
0.50	15.00	3.50	3.00	6.50	43.00	9.50	13.00
0.60	15.00	3.60	3.00	6.60	43.00	9.60	13.00
0.70	15.00	3.70	3.00	6.70	43.00	9.70	13.00
0.80	15.00	3.80	3.00	6.80	43.00	9.80	13.00
0.90	15.00	3.90	3.00	6.90	43.00	9.90	13.00
1.00	15.00	4.00	3.00	7.00	43.00	10.00	13.00
1.10	20.00	4.10	5.00	7.10	20.00	10.10	13.00
1.20	20.00	4.20	5.00	7.20	20.00	10.20	13.00
1.30	20.00	4.30	5.00	7.30	20.00	10.30	13.00
1.40	20.00	4.40	5.00	7.40	20.00	10.40	13.00
1.50	20.00	4.50	5.00	7.50	20.00	10.50	13.00
1.60	20.00	4.60	5.00	7.60	20.00	10.60	13.00
1.70	20.00	4.70	5.00	7.70	20.00	10.70	13.00
1.80	20.00	4.80	5.00	7.80	20.00	10.80	13.00
1.90	20.00	4.90	5.00	7.90	20.00	10.90	13.00
2.00	20.00	5.00	5.00	8.00	20.00	11.00	13.00
2.10	10.00	5.10	20.00	8.10	23.00	11.10	8.00
2.20	10.00	5.20	20.00	8.20	23.00	11.20	8.00
2.30	10.00	5.30	20.00	8.30	23.00	11.30	8.00
2.40	10.00	5.40	20.00	8.40	23.00	11.40	8.00
2.50	10.00	5.50	20.00	8.50	23.00	11.50	8.00
2.60	10.00	5.60	20.00	8.60	23.00	11.60	8.00
2.70	10.00	5.70	20.00	8.70	23.00	11.70	8.00
2.80	10.00	5.80	20.00	8.80	23.00	11.80	8.00
2.90	10.00	5.90	20.00	8.90	23.00	11.90	8.00
3.00	10.00	6.00	20.00	9.00	23.00	12.00	8.00

CALIB					
NASHYD (0004)	Area	(ha)=	33.23	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.42		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	15.00	3.083	3.00	6.083	43.00	9.08	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.250	15.00	3.250	3.00	6.250	43.00	9.25	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.417	15.00	3.417	3.00	6.417	43.00	9.42	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.583	15.00	3.583	3.00	6.583	43.00	9.58	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.750	15.00	3.750	3.00	6.750	43.00	9.75	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.917	15.00	3.917	3.00	6.917	43.00	9.92	13.00



1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.083	20.00	4.083	5.00	7.083	20.00	10.08	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.250	20.00	4.250	5.00	7.250	20.00	10.25	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.417	20.00	4.417	5.00	7.417	20.00	10.42	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.583	20.00	4.583	5.00	7.583	20.00	10.58	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.750	20.00	4.750	5.00	7.750	20.00	10.75	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.917	20.00	4.917	5.00	7.917	20.00	10.92	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.083	10.00	5.083	20.00	8.083	23.00	11.08	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.250	10.00	5.250	20.00	8.250	23.00	11.25	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.417	10.00	5.417	20.00	8.417	23.00	11.42	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.583	10.00	5.583	20.00	8.583	23.00	11.58	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.750	10.00	5.750	20.00	8.750	23.00	11.75	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.917	10.00	5.917	20.00	8.917	23.00	11.92	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	8.00

Unit Hyd Qpeak (cms)= 3.022

PEAK FLOW (cms)= 2.887 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 131.763
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

CALIB					
NASHYD (0008)	Area	(ha)=	6.09	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.44		

Unit Hyd Qpeak (cms)= 0.529

PEAK FLOW (cms)= 0.523 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 131.766
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

CALIB					
NASHYD (0002)	Area	(ha)=	26.60	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.65		

Unit Hyd Qpeak (cms)= 1.563

PEAK FLOW (cms)= 2.014 (i)
TIME TO PEAK (hrs)= 7.333
RUNOFF VOLUME (mm)= 131.775
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

ADD HYD (0012)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0002)		26.60	2.014	7.33	131.77
+ ID2= 2 (0008)		6.09	0.523	7.08	131.77
ID = 3 (0012)		32.69	2.518	7.25	131.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0009)	Area	(ha)=	5.27	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.39		

Unit Hyd Qpeak (cms)= 0.516

PEAK FLOW (cms)= 0.466 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 131.759
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

CALIB					
NASHYD (0003)	Area	(ha)=	51.63	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.42		

Unit Hyd Qpeak (cms)= 4.695

PEAK FLOW (cms)= 4.486 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 131.763
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

ADD HYD (0013)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0003)		51.63	4.486	7.08	131.76
+ ID2= 2 (0009)		5.27	0.466	7.08	131.76
ID = 3 (0013)		56.90	4.951	7.08	131.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0011)	Area	(ha)=	8.19	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.52		

Unit Hyd Qpeak (cms)= 0.602

PEAK FLOW (cms)= 0.671 (i)
TIME TO PEAK (hrs)= 7.167
RUNOFF VOLUME (mm)= 131.771
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

CALIB					
NASHYD (0005)	Area	(ha)=	25.89	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00

U.H. Tp(hrs)= 0.39

Unit Hyd Qpeak (cms)= 2.536

PEAK FLOW (cms)= 2.287 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 131.759
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

| ADD HYD (0014) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0005):	25.89	2.287	7.08	131.76
+ ID2= 2 (0011):	8.19	0.671	7.17	131.77
ID = 3 (0014):	34.08	2.951	7.08	131.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| NASHYD (0001) |
|ID= 1 DT= 5.0 min |

Area (ha)= 3.45 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.36

Unit Hyd Qpeak (cms)= 0.367

PEAK FLOW (cms)= 0.310 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 131.752
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

| CALIB |
| NASHYD (0007) |
|ID= 1 DT= 5.0 min |

Area (ha)= 12.39 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59

Unit Hyd Qpeak (cms)= 0.802

PEAK FLOW (cms)= 0.973 (i)
TIME TO PEAK (hrs)= 7.250
RUNOFF VOLUME (mm)= 131.773
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

| ADD HYD (0015) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	3.46	0.310	7.08	131.75
+ ID2= 2 (0007):	12.39	0.973	7.25	131.77
ID = 3 (0015):	15.85	1.269	7.17	131.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| NASHYD (0016) |

Area (ha)= 12.75 Curve Number (CN)= 76.0

|ID= 1 DT= 5.0 min |

Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.48

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 1.068 (i)
TIME TO PEAK (hrs)= 7.167
RUNOFF VOLUME (mm)= 131.763
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

****
** SIMULATION NUMBER: 8 **
****

| CHICAGO STORM |
| Ptotal= 78.03 mm |

IDF curve parameters: A=1770.000
B= 4.000
C= 0.820
used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	4.34	1.17	38.21	2.17	10.60	3.17	5.19
0.33	5.00	1.33	203.31	2.33	8.96	3.33	4.81
0.50	5.92	1.50	50.96	2.50	7.78	3.50	4.48
0.67	7.33	1.67	25.51	2.67	6.90	3.67	4.20
0.83	9.77	1.83	17.18	2.83	6.21	3.83	3.96
1.00	15.10	2.00	13.06	3.00	5.65	4.00	3.74

| MODIFY STORM |
| CASE= 1 |

MODIFYING PARAMETERS
Multiplication Factor= 0.32
Time shift (min) = 0.00

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	1.39	1.167	12.26	2.167	3.40	3.17	1.67
0.333	1.60	1.333	65.26	2.333	2.88	3.33	1.54
0.500	1.90	1.500	16.36	2.500	2.50	3.50	1.44
0.667	2.35	1.667	8.19	2.667	2.21	3.67	1.35
0.833	3.13	1.833	5.52	2.833	1.99	3.83	1.27
1.000	4.85	2.000	4.19	3.000	1.81	4.00	1.20

| CALIB |
| NASHYD (0004) |
|ID= 1 DT= 5.0 min |

Area (ha)= 33.23 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.42

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.39	1.083	12.26	2.083	3.40	3.08	1.67
0.167	1.39	1.167	12.26	2.167	3.40	3.17	1.67
0.250	1.60	1.250	65.26	2.250	2.88	3.25	1.54
0.333	1.60	1.333	65.26	2.333	2.88	3.33	1.54
0.417	1.90	1.417	16.36	2.417	2.50	3.42	1.44
0.500	1.90	1.500	16.36	2.500	2.50	3.50	1.44
0.583	2.35	1.583	8.19	2.583	2.21	3.58	1.35
0.667	2.35	1.667	8.19	2.667	2.21	3.67	1.35
0.750	3.13	1.750	5.52	2.750	1.99	3.75	1.27
0.833	3.13	1.833	5.52	2.833	1.99	3.83	1.27

0.917	4.85	1.917	4.19	2.917	1.81	3.92	1.20
1.000	4.85	2.000	4.19	3.000	1.81	4.00	1.20

Unit Hyd Qpeak (cms)= 3.022

PEAK FLOW (cms)= 0.250 (i)
TIME TO PEAK (hrs)= 1.833
RUNOFF VOLUME (mm)= 4.008
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

CALIB
NASHYD (0008) | Area (ha)= 6.09 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.44

Unit Hyd Qpeak (cms)= 0.529

PEAK FLOW (cms)= 0.044 (i)
TIME TO PEAK (hrs)= 1.833
RUNOFF VOLUME (mm)= 4.008
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

CALIB
NASHYD (0002) | Area (ha)= 26.60 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.68

Unit Hyd Qpeak (cms)= 1.563

PEAK FLOW (cms)= 0.150 (i)
TIME TO PEAK (hrs)= 2.167
RUNOFF VOLUME (mm)= 4.008
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

ADD HYD (0012)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	26.60	0.150	2.17	4.01
+ ID2= 2 (0008):	6.09	0.044	1.83	4.01
ID = 3 (0012):	32.69	0.189	2.00	4.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0009) | Area (ha)= 5.27 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.39

Unit Hyd Qpeak (cms)= 0.516

PEAK FLOW (cms)= 0.042 (i)
TIME TO PEAK (hrs)= 1.833
RUNOFF VOLUME (mm)= 4.008
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

CALIB
NASHYD (0003) | Area (ha)= 51.63 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.42

Unit Hyd Qpeak (cms)= 4.695

PEAK FLOW (cms)= 0.389 (i)
TIME TO PEAK (hrs)= 1.833
RUNOFF VOLUME (mm)= 4.008
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

ADD HYD (0013)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0003):	51.63	0.389	1.83	4.01
+ ID2= 2 (0009):	5.27	0.042	1.83	4.01
ID = 3 (0013):	56.90	0.430	1.83	4.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0011) | Area (ha)= 8.19 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.52

Unit Hyd Qpeak (cms)= 0.602

PEAK FLOW (cms)= 0.054 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 4.008
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

CALIB
NASHYD (0005) | Area (ha)= 25.89 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.39

Unit Hyd Qpeak (cms)= 2.536

PEAK FLOW (cms)= 0.204 (i)
TIME TO PEAK (hrs)= 1.833
RUNOFF VOLUME (mm)= 4.008
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

ADD HYD (0014)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0005):	25.89	0.204	1.83	4.01
+ ID2= 2 (0011):	8.19	0.054	2.00	4.01
ID = 3 (0014):	34.08	0.255	1.83	4.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0001)	Area (ha)=	3.46	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.36		

Unit Hyd Qpeak (cms)= 0.367

PEAK FLOW (cms)= 0.029 (i)
TIME TO PEAK (hrs)= 1.750
RUNOFF VOLUME (mm)= 4.007
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

CALIB					
NASHYD (0007)	Area (ha)=	12.39	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.59		

Unit Hyd Qpeak (cms)= 0.902

PEAK FLOW (cms)= 0.074 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 4.008
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

ADD HYD (0015)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0001):	3.46	0.029	1.75	4.01
	+ ID2= 2 (0007):	12.39	0.074	2.08	4.01
	ID = 3 (0015):	15.85	0.099	2.00	4.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0016)	Area (ha)=	12.75	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.48		

Unit Hyd Qpeak (cms)= 1.015

PEAK FLOW (cms)= 0.088 (i)
TIME TO PEAK (hrs)= 1.917
RUNOFF VOLUME (mm)= 4.008
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

FINISH

APPENDIX D
Post-Development Input Parameters

COLE ENGINEERING

Post-Development (OTTHYMO) Input Parameters (STANDHYD)

Town of Meaford
File No. L10-512
Date: March, 2012

Post-Development Drainage Area (OTTHYMO)

Parameter	Description	A1-1	A1-2	A2-1	A2-2	A3	A4-1	A4-3	A4-4	A5-1	A5-2	A6-1	A6-2
AREA	(ha)	1.16	3.03	2.89	37.83	3.28	2.73	3.08	0.58	0.88	10.12	1.09	4.60
XIMP	Impervious Area (Direct Connection)	50%	24%	50%	32%	27%	0%	49%	4%	50%	37%	50%	29%
TIMP	Total Impervious Area	50%	34%	50%	62%	27%	22%	86%	35%	50%	70%	50%	71%
LGI	Overland Flow Length (Impervious)	88.69	142.13	138.8	502.2	147.87	134.91	143.29	62.18	76.59	259.74	85.24	175.1
SLPI	Average Slope (Impervious)		1.0%										
DT	Time Step Increment		15										
DWF	Dry Weather Flow (Base Flow)		0										
LOSS	Rainfall Loss Method		Modified SCS Curve Number										
SLPP	Average Slope (Pervious)		2.0%										
LGP	Overland Flow Length (Pervious)		40										
MNP	Manning's Roughness Coefficient (Pervious)		0.25										
DPSI	Depression Storage (Impervious)		1										
MNI	Manning's Roughness Coefficient (Impervious)		0.013										

COLE ENGINEERING

Post-Development (OTTHYMO)
Input Parameters (NASHYD)

Town of Meaford
File No. L10-512
Date: March, 2012

Post-Development Drainage Area (OTTHYMO)

Parameter	Unit	Description	EXT1	EXT2	EXT3	EXT4a	EXT4b	A1-3	A1-4	A2-3	A2-4	A4-2	A4-5	A5-3	A6-3	A6-4
Area	ha	Watershed Area	12.39	6.09	5.74	3.82	4.15	0.79	0.96	3.44	0.88	35.93	0.53	20.14	17.97	1.95
TP	hr	Unit Hydrograph Time to Peak	0.61	0.42	0.38	0.29	0.42	0.28	0.16	0.30	0.56	0.51	0.17	0.31	0.19	0.30
DT	min	Time Step Increment	15													
DWF	cms	Dry Weather Flow (Base Flow)	0													
CN	-	SCS Curve Number	76													
IA	mm	Initial Abstraction	5													
N	-	Number of Linear Reservior	3													
Rain	mm/hr	Optional Rainfall Intensities	0 - Without Rain													

Note: 1 - Clay / Silty Clay Loam with good drainage - pasture & other unimproved land / Hydrologic Group C
2 - IA for field is used for this development IA=5

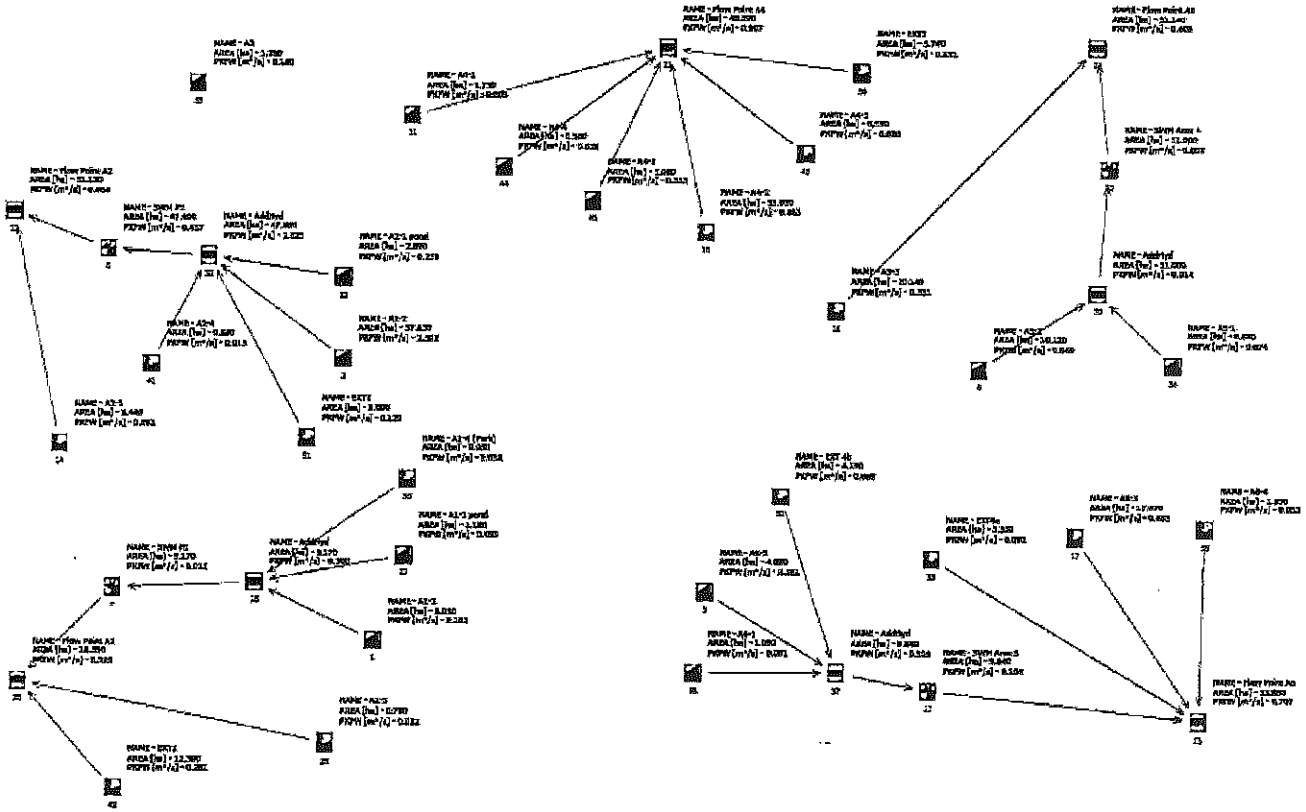
Time of Concentration Calculation

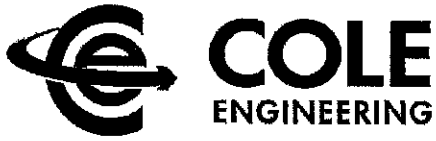
Area Number	Area	C	CN	L	Elevation Change	Sw	Tc Airport	Tp (Airport)
	(ha)			(m)	(m)	(%)	(min)	(hr)
EXT1	12.39	0.25	76	964	38.0	3.94	64.71	0.61
EXT2	6.09	0.25	76	477	20.0	4.19	37.71	0.42
EXT3	5.74	0.25	76	324	10.0	3.09	34.39	0.38
EXT4a	3.82	0.25	76	270	14.0	5.19	25.45	0.29
EXT4b	4.15	0.25	76	480	20.0	4.17	37.91	0.42
A1-3	0.79	0.25	76	289	20.0	6.92	24.86	0.28
A1-4	0.96	0.30	76	120	10.0	8.33	14.19	0.16
A2-3	3.44	0.25	76	280	14	5.00	27.26	0.30
A2-4	0.88	0.25	76	617	16	2.59	50.26	0.56
A4-2	35.93	0.30	76	1221	100	8.19	45.53	0.51
A4-5	0.53	0.25	76	97	6	6.19	14.96	0.17
A5-3	20.14	0.30	76	683	102	14.93	27.93	0.31
A6-3	17.97	0.30	76	142	10	7.04	16.32	0.19
A6-4	1.95	0.30	76	579	76	13.13	26.83	0.30

APPENDIX E
Post-Development Hydrologic Model Output

L10-512
Meaford Highlands Resort, Municipality of Meaford, ON
Post Development Model Schematic
April, 2012

VO2 Model Schematic






```
 V    V   I    SSSSS  U   U    A    L
 V    V   I   SS      U   U   A A   L
  V  V    I    SS     U   U  AAAAA  L
  V  V    I     SS    U   U  A   A  L
   VV     I   SSSSS   UUUUU  A   A  LLLLL

  OOO    TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
 O   O     T      T    H   H   Y Y   MM MM  O   O
 O   O     T      T    H   H    Y    M M M  O   O    Company
  OOO      T      T    H   H    Y    M   M   OOO              Serial

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

  Input   filename: C:\Program Files\Visual OtThymo 2.4\VO2\Vo1n.dat
  Output  filename: C:\WinTemp\cb8bcec4-7cf1-4534-9c44-852c1e2952b4\Scenario.out
  Summary filename: C:\WinTemp\cb8bcec4-7cf1-4534-9c44-852c1e2952b4\Scenario.sum

DATE: 04/01/2012                          TIME: 05:06:02

USER:


COMMENTS: _____

  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************

 READ STORM
 Ptotal= 47.30 mm

 Filename: C:\WinTemp\cb8
           bcec4-7cf1-4534-9c44-852c1e2952b4\
           2930962e-e1f8-4eab-b4cc-f38d8D6ed932
 Comments: Meaford 2 year 24 Hour SCS Type II Storm

  TIME   RAIN |  TIME   RAIN |  TIME   RAIN |  TIME   RAIN
   hrs  mm/hr |   hrs  mm/hr |   hrs  mm/hr |   hrs  mm/hr
  0.08   0.00 |  6.17   0.95 | 12.25   6.81 | 18.33   0.85
  0.17   0.52 |  6.25   0.95 | 12.33   6.81 | 18.42   0.85
  0.25   0.52 |  6.33   0.95 | 12.42   6.81 | 18.50   0.85
  0.33   0.52 |  6.42   0.95 | 12.50   6.81 | 18.58   0.85
  0.42   0.52 |  6.50   0.95 | 12.58   6.81 | 18.67   0.85
  0.50   0.52 |  6.58   0.95 | 12.67   3.50 | 18.75   0.85
  0.58   0.52 |  6.67   0.95 | 12.75   3.50 | 18.83   0.85
  0.67   0.52 |  6.75   0.95 | 12.83   3.50 | 18.92   0.85
  0.75   0.52 |  6.83   0.95 | 12.92   3.50 | 19.00   0.85
  0.83   0.52 |  6.92   0.95 | 13.00   3.50 | 19.08   0.85
  0.92   0.52 |  7.00   0.95 | 13.08   3.50 | 19.17   0.85
  1.00   0.52 |  7.08   0.95 | 13.17   0.66 | 19.25   0.85
  1.08   0.52 |  7.17   0.95 | 13.25   0.66 | 19.33   0.85
  1.17   0.52 |  7.25   0.95 | 13.33   0.66 | 19.42   0.85
  1.25   0.52 |  7.33   0.95 | 13.42   0.66 | 19.50   0.85
  1.33   0.52 |  7.42   0.95 | 13.50   0.66 | 19.58   0.85
  1.42   0.52 |  7.50   0.95 | 13.58   0.66 | 19.67   0.85
  1.50   0.52 |  7.58   0.95 | 13.67   3.88 | 19.75   0.85
  1.58   0.52 |  7.67   0.95 | 13.75   3.88 | 19.83   0.85
  1.67   0.52 |  7.75   0.95 | 13.83   3.88 | 19.92   0.85
  1.75   0.52 |  7.83   0.95 | 13.92   3.88 | 20.00   0.85
  1.83   0.52 |  7.92   0.95 | 14.00   3.88 | 20.08   0.85
  1.92   0.52 |  8.00   0.95 | 14.08   3.88 | 20.17   0.57
  2.00   0.52 |  8.08   0.95 | 14.17   1.42 | 20.25   0.57
  2.08   0.52 |  8.17   1.28 | 14.25   1.42 | 20.33   0.57
  2.17   0.61 |  8.25   1.28 | 14.33   1.42 | 20.42   0.57
  2.25   0.61 |  8.33   1.28 | 14.42   1.42 | 20.50   0.57
  2.33   0.61 |  8.42   1.28 | 14.50   1.42 | 20.58   0.57
  2.42   0.61 |  8.50   1.28 | 14.58   1.42 | 20.67   0.57
  2.50   0.61 |  8.58   1.28 | 14.67   1.42 | 20.75   0.57
  2.58   0.61 |  8.67   1.28 | 14.75   1.42 | 20.83   0.57
  2.67   0.61 |  8.75   1.28 | 14.83   1.42 | 20.92   0.57
  2.75   0.61 |  8.83   1.28 | 14.92   1.42 | 21.00   0.57
  2.83   0.61 |  8.92   1.28 | 15.00   1.42 | 21.08   0.57
  2.92   0.61 |  9.00   1.28 | 15.08   1.42 | 21.17   0.57
  3.00   0.61 |  9.08   1.28 | 15.17   1.42 | 21.25   0.57
  3.08   0.61 |  9.17   1.51 | 15.25   1.42 | 21.33   0.57
  3.17   0.61 |  9.25   1.51 | 15.33   1.42 | 21.42   0.57
  3.25   0.61 |  9.33   1.51 | 15.42   1.42 | 21.50   0.57
  3.33   0.61 |  9.42   1.51 | 15.50   1.42 | 21.58   0.57
  3.42   0.61 |  9.50   1.51 | 15.58   1.42 | 21.67   0.57
  3.50   0.61 |  9.58   1.51 | 15.67   1.42 | 21.75   0.57
  3.58   0.61 |  9.67   1.70 | 15.75   1.42 | 21.83   0.57
  3.67   0.61 |  9.75   1.70 | 15.83   1.42 | 21.92   0.57
  3.75   0.61 |  9.83   1.70 | 15.92   1.42 | 22.00   0.57
  3.83   0.61 |  9.92   1.70 | 16.00   1.42 | 22.08   0.57
  3.92   0.61 | 10.00   1.70 | 16.08   1.42 | 22.17   0.57
  4.00   0.61 | 10.08   1.70 | 16.17   0.85 | 22.25   0.57
  4.08   0.61 | 10.17   2.18 | 16.25   0.85 | 22.33   0.57
  4.17   0.76 | 10.25   2.18 | 16.33   0.85 | 22.42   0.57
  4.25   0.76 | 10.33   2.18 | 16.42   0.85 | 22.50   0.57
  4.33   0.76 | 10.42   2.18 | 16.50   0.85 | 22.58   0.57
  4.42   0.76 | 10.50   2.18 | 16.58   0.85 | 22.67   0.57
  4.50   0.76 | 10.58   2.18 | 16.67   0.85 | 22.75   0.57
  4.58   0.76 | 10.67   2.93 | 16.75   0.85 | 22.83   0.57
  4.67   0.76 | 10.75   2.93 | 16.83   0.85 | 22.92   0.57
  4.75   0.76 | 10.83   2.93 | 16.92   0.85 | 23.00   0.57
  4.83   0.76 | 10.92   2.93 | 17.00   0.85 | 23.08   0.57
  4.92   0.76 | 11.00   2.93 | 17.08   0.85 | 23.17   0.57
  5.00   0.76 | 11.08   2.93 | 17.17   0.85 | 23.25   0.57
  5.08   0.76 | 11.17   4.54 | 17.25   0.85 | 23.33   0.57
  5.17   0.76 | 11.25   4.54 | 17.33   0.85 | 23.42   0.57
  5.25   0.76 | 11.33   4.54 | 17.42   0.85 | 23.50   0.57
  5.33   0.76 | 11.42   4.54 | 17.50   0.85 | 23.58   0.57
  5.42   0.76 | 11.50   4.54 | 17.58   0.85 | 23.67   0.57
  5.50   0.76 | 11.58   4.54 | 17.67   0.85 | 23.75   0.57
  5.58   0.76 | 11.67  19.68 | 17.75   0.85 | 23.83   0.57
  5.67   0.76 | 11.75  19.68 | 17.83   0.85 | 23.92   0.57
  5.75   0.76 | 11.83  19.68 | 17.92   0.85 | 24.00   0.57
  5.83   0.76 | 11.92  52.22 | 18.00   0.85 | 24.08   0.57
  5.92   0.76 | 12.00  52.22 | 18.08   0.85 |
  6.00   0.76 | 12.08  52.22 | 18.17   0.85 |
  6.08   0.76 | 12.17   6.81 | 18.25   0.85 |

 CALIB
 NASHYD   (0014)
 ID= 1 DT= 5.0 min

 Area     (ha)=  3.44   Curve Number    (CN)= 76.0
 Ia       (mm)=  5.00   # of Linear Res.(N)= 3.00
 U.H. Tp(hrs)=  0.30

 Unit Hyd Qpeak  (cms)=  0.438

 PEAK FLOW       (cms)=  0.093 (i)
 TIME TO PEAK    (hrs)=  12.250
 RUNOFF VOLUME    (mm)=  14.599
 TOTAL RAINFALL   (mm)=  47.300
 RUNOFF COEFFICIENT   =  0.309

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

 CALIB
 STANDHYD  (0002)
 ID= 1 DT= 5.0 min

 Area     (ha)=  37.83
 Total Imp(%)=  62.00   Dir. Conn.(%)=  32.00
```

COLE ENGINEERING

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	23.45	14.38	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	502.20	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	52.22	56.05	
over	(min)	10.00	20.00	
Storage Coeff.	(min)=	8.72 (ii)	17.62 (ii)	
Unit Hyd. Tpeak	(min)=	10.00	20.00	
Unit Hyd. peak	(cms)=	0.12	0.06	
				TOTALS
PEAK FLOW	(cms)=	1.45	1.17	2.392 (iii)
TIME TO PEAK	(hrs)=	12.08	12.25	12.17
RUNOFF VOLUME	(mm)=	46.30	23.65	30.90
TOTAL RAINFALL	(mm)=	47.30	47.30	47.30
RUNOFF COEFFICIENT	=	0.98	0.50	0.65

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

CALIB					
STANDHYD (0032)	Area	(ha)=	2.89		
ID= 1 DT= 5.0 min	Total Imp	(%)=	50.00	Dir. Conn. (%)=	50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	1.45	1.45	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	138.80	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	52.22	20.76	
over	(min)	5.00	20.00	
Storage Coeff.	(min)=	4.03 (ii)	17.27 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	20.00	
Unit Hyd. peak	(cms)=	0.24	0.06	
				TOTALS
PEAK FLOW	(cms)=	0.21	0.05	0.239 (iii)
TIME TO PEAK	(hrs)=	12.08	12.25	12.08
RUNOFF VOLUME	(mm)=	46.30	16.65	31.47
TOTAL RAINFALL	(mm)=	47.30	47.30	47.30
RUNOFF COEFFICIENT	=	0.98	0.35	0.67

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

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

CALIB					
NASHYD (0041)	Area	(ha)=	0.88	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.08	# of Linear Res.	(N)= 3.00
	U.H. Tp	(hrs)=	0.56		

Unit Hyd Qpeak (cms)= 0.060

PEAK FLOW (cms)= 0.015 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 14.603
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

CALIB					
NASHYD (0051)	Area	(ha)=	6.09	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp	(hrs)=	0.42		

Unit Hyd Qpeak (cms)= 0.584

PEAK FLOW (cms)= 0.129 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 14.604
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

ADD HYD (0030)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0002):	37.83	2.392	12.17	30.90
	+ ID2= 2 (0032):	2.89	0.239	12.08	31.47
	ID = 3 (0030):	40.72	2.539	12.08	30.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0030):	40.72	2.539	12.08	30.94
	+ ID2= 2 (0041):	0.88	0.015	12.58	14.60
	ID = 1 (0030):	41.60	2.546	12.08	30.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0030):	41.60	2.546	12.08	30.59
	+ ID2= 2 (0051):	6.09	0.129	12.42	14.60
	ID = 3 (0030):	47.69	2.625	12.17	28.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0008)					
IN= 2---> OUT= 1	OUTFLOW	STORAGE		OUTFLOW	STORAGE
DT= 5.0 min	(cms)	(ha.m.)		(cms)	(ha.m.)
	0.0000	0.0000		1.1500	1.2500
	0.4500	0.6800		1.3500	1.4000
	0.6500	0.9000		1.5500	1.5500
	1.0000	1.1000		2.3500	2.8000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0030)	47.690	2.625	12.17	28.55
OUTFLOW: ID= 1 (0008)	47.690	0.437	13.17	28.54

PEAK FLOW REDUCTION [Qout/Qin] (%)= 16.66
TIME SHIFT OF PEAK FLOW (min)= 60.00
MAXIMUM STORAGE USED (ha.m.)= 0.6605

COLE ENGINEERING

ADD HYD (0020)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0008):	47.69	0.437	13.17	28.54
	+ ID2= 2 (0014):	3.44	0.093	12.25	14.60
	ID = 3 (0020):	51.13	0.464	12.83	27.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD (0015)	ID= 1 DT= 5.0 min	Area (ha)= 35.93	Ia (mm)= 5.00	U.H. Tp(hrs)= 0.51	Curve Number (CN)= 76.0	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 2.691

PEAK FLOW	(cms)=	0.663 (i)
TIME TO PEAK	(hrs)=	12.500
RUNOFF VOLUME	(mm)=	14.604
TOTAL RAINFALL	(mm)=	47.300
RUNOFF COEFFICIENT	=	0.309

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

CALIB	NASHYD (0045)	ID= 1 DT= 5.0 min	Area (ha)= 0.53	Ia (mm)= 5.00	U.H. Tp(hrs)= 0.17	Curve Number (CN)= 76.0	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.119

PEAK FLOW	(cms)=	0.020 (i)
TIME TO PEAK	(hrs)=	12.083
RUNOFF VOLUME	(mm)=	14.553
TOTAL RAINFALL	(mm)=	47.300
RUNOFF COEFFICIENT	=	0.308

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

CALIB	NASHYD (0054)	ID= 1 DT= 5.0 min	Area (ha)= 5.74	Ia (mm)= 5.00	U.H. Tp(hrs)= 0.38	Curve Number (CN)= 76.0	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.577

PEAK FLOW	(cms)=	0.131 (i)
TIME TO PEAK	(hrs)=	12.333
RUNOFF VOLUME	(mm)=	14.603
TOTAL RAINFALL	(mm)=	47.300
RUNOFF COEFFICIENT	=	0.309

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

CALIB	STANDHYD (0031)	ID= 1 DT= 5.0 min	Area (ha)= 2.73	Total Imp(%)= 22.00	Dir. Conn.(%)= 0.10

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.60	2.13
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	134.91	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		52.22	31.45
over (min)		5.00	20.00
Storage Coeff. (min)=		3.96 (ii)	15.18 (ii)
Unit Hyd. Tpeak (min)=		5.00	20.00
Unit Hyd. peak (cms)=		0.24	0.07

		TOTALS
PEAK FLOW	(cms)=	0.00 0.11 0.108 (iii)
TIME TO PEAK	(hrs)=	12.08 12.25 12.25
RUNOFF VOLUME	(mm)=	46.30 19.57 19.59
TOTAL RAINFALL	(mm)=	47.30 47.30 47.30
RUNOFF COEFFICIENT	=	0.98 0.41 0.41

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

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

CALIB	STANDHYD (0044)	ID= 1 DT= 5.0 min	Area (ha)= 0.58	Total Imp(%)= 55.00	Dir. Conn.(%)= 4.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.38
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	62.18	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		52.22	39.59
over (min)		5.00	15.00
Storage Coeff. (min)=		2.49 (ii)	12.72 (ii)
Unit Hyd. Tpeak (min)=		5.00	15.00
Unit Hyd. peak (cms)=		0.29	0.08

		TOTALS
PEAK FLOW	(cms)=	0.00 0.03 0.028 (iii)
TIME TO PEAK	(hrs)=	12.08 12.17 12.17
RUNOFF VOLUME	(mm)=	46.30 21.30 22.28
TOTAL RAINFALL	(mm)=	47.30 47.30 47.30
RUNOFF COEFFICIENT	=	0.98 0.45 0.47

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

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

CALIB	STANDHYD (0040)	ID= 1 DT= 5.0 min	Area (ha)= 3.00	Total Imp(%)= 86.00	Dir. Conn.(%)= 49.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.65	0.43
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	143.29	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		52.22	150.89
over (min)		5.00	15.00
Storage Coeff. (min)=		4.11 (ii)	10.10 (ii)
Unit Hyd. Tpeak (min)=		5.00	15.00
Unit Hyd. peak (cms)=		0.24	0.10

				TOTALS	
PEAK FLOW	(cms)=	0.22	0.13	0.333	(iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08	
RUNOFF VOLUME	(mm)=	46.30	31.91	38.96	
TOTAL RAINFALL	(mm)=	47.30	47.30	47.30	
RUNOFF COEFFICIENT	=	0.98	0.67	0.82	

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

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

ADD HYD (0021)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0015):	35.93	0.663	12.50	14.60
+ ID2= 2 (0031):	2.73	0.108	12.25	19.59
ID = 3 (0021):	38.66	0.736	12.42	14.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	38.66	0.736	12.42	14.96
+ ID2= 2 (0040):	3.08	0.333	12.08	38.96
ID = 1 (0021):	41.74	0.835	12.33	16.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	41.74	0.835	12.33	16.73
+ ID2= 2 (0044):	0.58	0.028	12.17	22.28
ID = 3 (0021):	42.32	0.855	12.33	16.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	42.32	0.855	12.33	16.80
+ ID2= 2 (0045):	0.53	0.020	12.08	14.55
ID = 1 (0021):	42.85	0.867	12.33	16.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	42.85	0.867	12.33	16.78
+ ID2= 2 (0054):	5.74	0.131	12.33	14.60
ID = 3 (0021):	48.59	0.997	12.33	16.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0034)
ID= 1 DT= 5.0 min

Area (ha)= 0.88
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.44	0.44
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	76.59	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		52.22	20.76
over (min)		5.00	20.00
Storage Coeff.	(min)=	2.82 (ii)	16.06 (ii)
Unit Hyd. Tpeak	(min)=	5.00	20.00
Unit Hyd. peak	(cms)=	0.28	0.06

				TOTALS	
PEAK FLOW	(cms)=	0.06	0.01	0.074	(iii)
TIME TO PEAK	(hrs)=	12.08	12.25	12.08	
RUNOFF VOLUME	(mm)=	46.30	16.65	31.46	
TOTAL RAINFALL	(mm)=	47.30	47.30	47.30	
RUNOFF COEFFICIENT	=	0.98	0.35	0.67	

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

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

CALIB
STANDHYD (0004)
ID= 1 DT= 5.0 min

Area (ha)= 10.12
Total Imp(%)= 70.00 Dir. Conn.(%)= 37.00

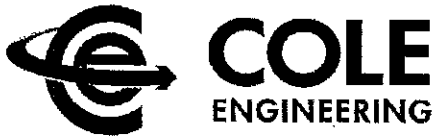
		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.08	3.04
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	259.74	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		52.22	71.02
over (min)		5.00	15.00
Storage Coeff.	(min)=	5.87 (ii)	13.97 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.19	0.08

				TOTALS	
PEAK FLOW	(cms)=	0.52	0.37	0.840	(iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08	
RUNOFF VOLUME	(mm)=	46.30	25.60	33.26	
TOTAL RAINFALL	(mm)=	47.30	47.30	47.30	
RUNOFF COEFFICIENT	=	0.98	0.54	0.70	

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

ADD HYD (0035)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	10.12	0.840	12.08	33.26

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    + ID2= 2 (0034):     0.88    0.074     12.08     31.46
    ================================================================
      ID = 3 (0035):    11.00    0.914     12.08     33.11

  NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| RESERVOIR (0010) |
| IN= 2---> OUT= 1 |
| DT= 5.0 min      |

  OUTFLOW    STORAGE     OUTFLOW    STORAGE
   (cms)     (ha.m.)      (cms)     (ha.m.)
  0.0000     0.0000     | 0.4000     0.3600
  0.1000     0.2000     | 0.5000     0.4500
  0.2500     0.2500     | 0.6000     0.4800
  0.3500     0.2700     | 1.2000     0.6000

                        AREA     QPEAK     TPEAK      R.V.
                        (ha)     (cms)     (hrs)      (mm)
  INFLOW : ID= 2 (0035)  11.000     0.914     12.08     33.11
  OUTFLOW: ID= 1 (0010)  11.000     0.097     13.08     33.07

        PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.63
        TIME SHIFT OF PEAK FLOW       (min)= 60.00
        MAXIMUM  STORAGE  USED      (ha.m.)=  0.1944

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| CALIB                |
| NASHYD    (0016)     |  Area     (ha)=  20.14   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |  Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.31

  Unit Hyd Qpeak  (cms)=   2.481

  PEAK FLOW       (cms)=   0.531 (i)
  TIME TO PEAK    (hrs)=  12.250
  RUNOFF VOLUME    (mm)=  14.600
  TOTAL RAINFALL   (mm)=  47.300
  RUNOFF COEFFICIENT  =   0.309

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

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

| ADD HYD   (0022)  |
|  1 + 2 = 3        |

                        AREA     QPEAK     TPEAK      R.V.
                        (ha)     (cms)     (hrs)      (mm)
      ID1= 1 (0010):    11.00    0.097     13.08     33.07
    + ID2= 2 (0016):    20.14    0.531     12.25     14.60
    ================================================================
      ID = 3 (0022):    31.14    0.608     12.25     21.12

  NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB                |
| NASHYD    (0017)     |  Area     (ha)=  17.97   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |  Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.30

  Unit Hyd Qpeak  (cms)=   2.288

  PEAK FLOW       (cms)=   0.485 (i)
  TIME TO PEAK    (hrs)=  12.250
  RUNOFF VOLUME    (mm)=  14.599
  TOTAL RAINFALL   (mm)=  47.300
  RUNOFF COEFFICIENT  =   0.309

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

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| CALIB              |
| STANDHYD  (0036)   |  Area     (ha)=   1.09
|ID= 1 DT= 5.0 min   |  Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00

                        IMPERVIOUS     PERVIOUS (i)
  Surface Area    (ha)=      0.55          0.55
  Dep. Storage    (mm)=      1.00          1.50
  Average Slope    (%)=      1.00          2.00
  Length           (m)=     85.24         40.00
  Mannings n        =       0.013         0.250

  Max.Eff.Inten.(mm/hr)=     52.22         20.76
        over      (min)      5.00         20.00
  Storage Coeff.  (min)=     3.01 (ii)    16.25 (ii)
  Unit Hyd. Tpeak (min)=     5.00         20.00
  Unit Hyd. peak  (cms)=     0.28          0.06
                                                    *TOTALS*
  PEAK FLOW       (cms)=     0.08          0.02      0.091 (iii)
  TIME TO PEAK    (hrs)=    12.08         12.25     12.08
  RUNOFF VOLUME    (mm)=    45.30         16.65     31.47
  TOTAL RAINFALL   (mm)=    47.30         47.30     47.30
  RUNOFF COEFFICIENT  =      0.98          0.35      0.67

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

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

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| CALIB              |
| STANDHYD  (0005)   |  Area     (ha)=   4.60
|ID= 1 DT= 5.0 min   |  Total Imp(%)=  71.00   Dir. Conn.(%)=  29.00

                        IMPERVIOUS     PERVIOUS (i)
  Surface Area    (ha)=      3.27          1.33
  Dep. Storage    (mm)=      1.00          1.50
  Average Slope    (%)=      1.00          2.00
  Length           (m)=    175.12         40.00
  Mannings n        =       0.013         0.250

  Max.Eff.Inten.(mm/hr)=     52.22         88.42
        over      (min)      5.00         15.00
  Storage Coeff.  (min)=     4.64 (ii)    12.05 (ii)
  Unit Hyd. Tpeak (min)=     5.00         15.00
  Unit Hyd. peak  (cms)=     0.22          0.09
                                                    *TOTALS*
  PEAK FLOW       (cms)=     0.19          0.21      0.381 (iii)
  TIME TO PEAK    (hrs)=    12.08         12.17     12.08
  RUNOFF VOLUME    (mm)=    46.30         27.44     32.90
  TOTAL RAINFALL   (mm)=    47.30         47.30     47.30
  RUNOFF COEFFICIENT  =      0.98          0.58      0.70

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

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

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

| CALIB              |
| NASHYD    (0052)   |  Area     (ha)=   4.15   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min   |  Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.42

  Unit Hyd Qpeak  (cms)=   0.377

  PEAK FLOW       (cms)=   0.088 (i)
  TIME TO PEAK    (hrs)=  12.417
  RUNOFF VOLUME    (mm)=  14.603
  TOTAL RAINFALL   (mm)=  47.300
```

RUNOFF COEFFICIENT = 0.309

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

ADD HYD (0037)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0005):		4.60	0.381	12.08	32.90
	+ ID2= 2 (0036):		1.09	0.091	12.08	31.47
	ID = 3 (0037):		5.69	0.472	12.08	32.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0037)	3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 3 (0037):		5.69	0.472	12.08	32.63
	+ ID2= 2 (0052):		4.15	0.088	12.42	14.60
	ID = 1 (0037):		9.84	0.525	12.08	25.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0011) | IN= 2---> OUT= 1 | DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2600	0.2100
0.1100	0.1100	0.3000	0.2450
0.1600	0.1600	0.3500	0.2700
0.2000	0.1800	0.4000	0.6500

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW :	ID= 2 (0037)	9.840	0.525	12.08	25.03
OUTFLOW:	ID= 1 (0011)	9.840	0.104	13.00	25.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 19.89
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.1044

| CALIB | NASHYD (0053) | ID= 1 DT= 5.0 min | Area (ha)= 3.32 Curve Number (CN)= 76.0 | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 0.29

Unit Hyd Qpeak (cms)= 0.437

PEAK FLOW (cms)= 0.092 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 14.599
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

| CALIB | NASHYD (0058) | ID= 1 DT= 5.0 min | Area (ha)= 1.95 Curve Number (CN)= 76.0 | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 0.248

PEAK FLOW (cms)= 0.053 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 14.599
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

ADD HYD (0023)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0011):		9.84	0.104	13.00	25.00
	+ ID2= 2 (0017):		17.97	0.485	12.25	14.60
	ID = 3 (0023):		27.81	0.563	12.25	18.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0023)	3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 3 (0023):		27.81	0.563	12.25	18.28
	+ ID2= 2 (0053):		3.32	0.092	12.25	14.60
	ID = 1 (0023):		31.13	0.655	12.25	17.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0023)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0023):		31.13	0.655	12.25	17.89
	+ ID2= 2 (0058):		1.95	0.053	12.25	14.60
	ID = 3 (0023):		33.08	0.707	12.25	17.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | STANDHYD (0027) | ID= 1 DT= 5.0 min | Area (ha)= 1.18 | Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.59	0.59	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	88.69	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		52.22	20.76	
over (min)		5.00	20.00	
Storage Coeff. (min)=		3.08 (ii)	16.32 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		0.27	0.06	
				TOTALS
PEAK FLOW	(cms)=	0.09	0.02	0.099 (iii)
TIME TO PEAK	(hrs)=	12.08	12.25	12.08
RUNOFF VOLUME	(mm)=	46.30	16.65	31.46
TOTAL RAINFALL	(mm)=	47.30	47.30	47.30
RUNOFF COEFFICIENT	=	0.98	0.35	0.67

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB | STANDHYD (0001) | ID= 1 DT= 5.0 min | Area (ha)= 3.03 Total Imp(%)= 34.00 Dir. Conn.(%)= 24.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.03	2.00
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	142.13	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	52.22	26.37
over (min)	5.00	20.00
Storage Coeff. (min)=	4.09 (ii)	15.12 (ii)
Unit Hyd. Tpeak (min)=	5.00	20.00
Unit Hyd. peak (cms)=	0.24	0.06
		TOTALS
PEAK FLOW (cms)=	0.10	0.08 0.163 (iii)
TIME TO PEAK (hrs)=	12.08	12.25 12.08
RUNOFF VOLUME (mm)=	46.30	18.29 25.01
TOTAL RAINFALL (mm)=	47.30	47.30 47.30
RUNOFF COEFFICIENT =	0.98	0.39 0.53

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

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

| CALIB | NASHYD (0050) | ID= 1 DT= 5.0 min | Area (ha)= 0.96 Curve Number (CN)= 76.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.16

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.038 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 14.539
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.307

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

| ADD HYD (0028) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	3.03	0.163	12.08	25.01
+ ID2= 2 (0027):	1.18	0.099	12.08	31.46
ID = 3 (0028):	4.21	0.262	12.08	26.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0026) | 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	4.21	0.262	12.08	26.82
+ ID2= 2 (0050):	0.96	0.038	12.08	14.54
ID = 1 (0026):	5.17	0.300	12.08	24.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0007) | IN= 2---> OUT= 1 | DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0750	0.1550
0.0150	0.0950	0.0800	0.1750
0.0400	0.1300	0.0950	0.1950
0.0525	0.1400	0.1000	0.6000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0026)	5.170	0.300	12.08	24.54
OUTFLOW: ID= 1 (0007)	5.170	0.013	16.08	24.23

PEAK FLOW REDUCTION [Qout/Qin](%)= 4.41
TIME SHIFT OF PEAK FLOW (min)=240.00
MAXIMUM STORAGE USED (ha.m.)= 0.0838

| CALIB | NASHYD (0025) | ID= 1 DT= 5.0 min | Area (ha)= 0.79 Curve Number (CN)= 76.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.28

Unit Hyd Qpeak (cms)= 0.108

PEAK FLOW (cms)= 0.022 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 14.597
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

| CALIB | NASHYD (0049) | ID= 1 DT= 5.0 min | Area (ha)= 12.39 Curve Number (CN)= 76.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.61

Unit Hyd Qpeak (cms)= 0.776

PEAK FLOW (cms)= 0.201 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 14.605
TOTAL RAINFALL (mm)= 47.300
RUNOFF COEFFICIENT = 0.309

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

| ADD HYD (0026) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	5.17	0.013	16.08	24.23
+ ID2= 2 (0025):	0.79	0.022	12.25	14.60
ID = 3 (0026):	5.96	0.031	12.25	22.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0026) | 3 + 2 = 1 |

	AREA	QPEAK	TPEAK	R.V.

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	(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0026):	5.96	0.031	12.25	22.95
+ ID2= 2 (0049):	12.39	0.201	12.58	14.60
ID = 1 (0026):	18.35	0.225	12.58	17.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0055) | Area (ha)= 3.28
ID= 1 DT= 5.0 min | Total Imp(%)= 27.00 Dir. Conn.(%)= 27.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.89	2.39	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	147.87	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)	=	52.22	20.76	
over	(min)	5.00	20.00	
Storage Coeff.	(min)=	4.19 (ii)	17.43 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	20.00	
Unit Hyd. peak	(cms)=	0.24	0.06	
				TOTALS
PEAK FLOW	(cms)=	0.13	0.08	0.180 (iii)
TIME TO PEAK	(hrs)=	12.08	12.25	12.08
RUNOFF VOLUME	(mm)=	16.30	16.65	24.65
TOTAL RAINFALL	(mm)=	47.30	47.30	47.30
RUNOFF COEFFICIENT	=	0.98	0.35	0.52

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

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

****
** SIMULATION NUMBER: 2 **
****

READ STORM | Filename: C:\WinTemp\cb8
bcec4-7cf1-4534-9c44-852c1e2952b4\
59ea29e6-7b48-41df-8a60-db1dbda0465a
Ptotal= 59.30 mm | Comments: Meaford 5 year 24 hour SCS Type II Storm

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.00	6.17	1.19	12.25	8.54	18.33	1.07
0.17	0.65	6.25	1.19	12.33	8.54	18.42	1.07
0.25	0.65	6.33	1.19	12.42	8.54	18.50	1.07
0.33	0.65	6.42	1.19	12.50	8.54	18.58	1.07
0.42	0.65	6.50	1.19	12.58	8.54	18.67	1.07
0.50	0.65	6.58	1.19	12.67	4.39	18.75	1.07
0.58	0.65	6.67	1.19	12.75	4.39	18.83	1.07
0.67	0.65	6.75	1.19	12.83	4.39	18.92	1.07
0.75	0.65	6.83	1.19	12.92	4.39	19.00	1.07
0.83	0.65	6.92	1.19	13.00	4.39	19.08	1.07
0.92	0.65	7.00	1.19	13.08	4.39	19.17	1.07
1.00	0.65	7.08	1.19	13.17	0.83	19.25	1.07
1.08	0.65	7.17	1.19	13.25	0.83	19.33	1.07
1.17	0.65	7.25	1.19	13.33	0.83	19.42	1.07
1.25	0.65	7.33	1.19	13.42	0.83	19.50	1.07
1.33	0.65	7.42	1.19	13.50	0.83	19.58	1.07
1.42	0.65	7.50	1.19	13.58	0.83	19.67	1.07
1.50	0.65	7.58	1.19	13.67	4.86	19.75	1.07
1.58	0.65	7.67	1.19	13.75	4.86	19.83	1.07
1.67	0.65	7.75	1.19	13.83	4.86	19.92	1.07
1.75	0.65	7.83	1.19	13.92	4.86	20.00	1.07
1.83	0.65	7.92	1.19	14.00	4.86	20.08	1.07
1.92	0.65	8.00	1.19	14.08	4.86	20.17	0.71
2.00	0.65	8.08	1.19	14.17	1.78	20.25	0.71
2.08	0.65	8.17	1.60	14.25	1.78	20.33	0.71
2.17	0.77	8.25	1.60	14.33	1.78	20.42	0.71
2.25	0.77	8.33	1.60	14.42	1.78	20.50	0.71
2.33	0.77	8.42	1.60	14.50	1.78	20.58	0.71
2.42	0.77	8.50	1.60	14.58	1.78	20.67	0.71
2.50	0.77	8.58	1.60	14.67	1.78	20.75	0.71
2.58	0.77	8.67	1.60	14.75	1.78	20.83	0.71
2.67	0.77	8.75	1.60	14.83	1.78	20.92	0.71
2.75	0.77	8.83	1.60	14.92	1.78	21.00	0.71
2.83	0.77	8.92	1.60	15.00	1.78	21.08	0.71
2.92	0.77	9.00	1.60	15.08	1.78	21.17	0.71
3.00	0.77	9.08	1.60	15.17	1.78	21.25	0.71
3.08	0.77	9.17	1.90	15.25	1.78	21.33	0.71
3.17	0.77	9.25	1.90	15.33	1.78	21.42	0.71
3.25	0.77	9.33	1.90	15.42	1.78	21.50	0.71
3.33	0.77	9.42	1.90	15.50	1.78	21.58	0.71
3.42	0.77	9.50	1.90	15.58	1.78	21.67	0.71
3.50	0.77	9.58	1.90	15.67	1.78	21.75	0.71
3.58	0.77	9.67	2.13	15.75	1.78	21.83	0.71
3.67	0.77	9.75	2.13	15.83	1.78	21.92	0.71
3.75	0.77	9.83	2.13	15.92	1.78	22.00	0.71
3.83	0.77	9.92	2.13	16.00	1.78	22.08	0.71
3.92	0.77	10.00	2.13	16.08	1.78	22.17	0.71
4.00	0.77	10.08	2.13	16.17	1.07	22.25	0.71
4.08	0.77	10.17	2.73	16.25	1.07	22.33	0.71
4.17	0.95	10.25	2.73	16.33	1.07	22.42	0.71
4.25	0.95	10.33	2.73	16.42	1.07	22.50	0.71
4.33	0.95	10.42	2.73	16.50	1.07	22.58	0.71
4.42	0.95	10.50	2.73	16.58	1.07	22.67	0.71
4.50	0.95	10.58	2.73	16.67	1.07	22.75	0.71
4.58	0.95	10.67	3.68	16.75	1.07	22.83	0.71
4.67	0.95	10.75	3.68	16.83	1.07	22.92	0.71
4.75	0.95	10.83	3.68	16.92	1.07	23.00	0.71
4.83	0.95	10.92	3.68	17.00	1.07	23.08	0.71
4.92	0.95	11.00	3.68	17.08	1.07	23.17	0.71
5.00	0.95	11.08	3.68	17.17	1.07	23.25	0.71
5.08	0.95	11.17	5.69	17.25	1.07	23.33	0.71
5.17	0.95	11.25	5.69	17.33	1.07	23.42	0.71
5.25	0.95	11.33	5.69	17.42	1.07	23.50	0.71
5.33	0.95	11.42	5.69	17.50	1.07	23.58	0.71
5.42	0.95	11.50	5.69	17.58	1.07	23.67	0.71
5.50	0.95	11.58	5.69	17.67	1.07	23.75	0.71
5.58	0.95	11.67	24.67	17.75	1.07	23.83	0.71
5.67	0.95	11.75	24.67	17.83	1.07	23.92	0.71
5.75	0.95	11.83	24.67	17.92	1.07	24.00	0.71
5.83	0.95	11.92	65.47	18.00	1.07	24.08	0.71
5.92	0.95	12.00	65.47	18.08	1.07		
6.00	0.95	12.08	65.47	18.17	1.07		
6.08	0.95	12.17	8.54	18.25	1.07		

CALIB
NASHYD (0014) | Area (ha)= 3.44 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 0.438

PEAK FLOW (cms)= 0.141 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 21.911
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.370

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

CALIB
STANDHYD (0002) | Area (ha)= 37.83
ID= 1 DT= 5.0 min | Total Imp(%)= 62.00 Dir. Conn.(%)= 32.00

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		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	23.45	14.38	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	502.20	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		65.47	78.12	
over	(min)	10.00	20.00	
Storage Coeff.	(min)=	7.97 (ii)	15.76 (ii)	
Unit Hyd. Tpeak	(min)=	10.00	20.00	
Unit Hyd. peak	(cms)=	0.13	0.07	
				TOTALS
PEAK FLOW	(cms)=	1.86	1.73	3.276 (iii)
TIME TO PEAK	(hrs)=	12.08	12.25	12.17
RUNOFF VOLUME	(mm)=	58.30	33.09	41.16
TOTAL RAINFALL	(mm)=	59.30	59.30	59.30
RUNOFF COEFFICIENT	=	0.98	0.56	0.69

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

CALIB
STANDHYD (0032) | Area (ha)= 2.89
ID= 1 DT= 5.0 min | Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	1.45	1.45	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	138.80	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		65.47	30.36	
over	(min)	5.00	20.00	
Storage Coeff.	(min)=	3.68 (ii)	15.05 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	20.00	
Unit Hyd. peak	(cms)=	0.25	0.07	
				TOTALS
PEAK FLOW	(cms)=	0.26	0.07	0.311 (iii)
TIME TO PEAK	(hrs)=	12.08	12.25	12.08
RUNOFF VOLUME	(mm)=	58.30	24.21	41.25
TOTAL RAINFALL	(mm)=	59.30	59.30	59.30
RUNOFF COEFFICIENT	=	0.98	0.41	0.70

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

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

CALIB
NASHYD (0041) | Area (ha)= 0.88 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.56

Unit Hyd Qpeak (cms)= 0.060

PEAK FLOW (cms)= 0.023 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 21.918
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.370

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

CALIB
NASHYD (0051) | Area (ha)= 6.09 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.42

Unit Hyd Qpeak (cms)= 0.554

PEAK FLOW (cms)= 0.196 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 21.918
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.370

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

ADD HYD (0030)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	37.83	3.276	12.17	41.16
+ ID2= 2 (0032):	2.89	0.311	12.08	41.25
ID = 3 (0030):	40.72	3.456	12.08	41.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	40.72	3.456	12.08	41.16
+ ID2= 2 (0041):	0.88	0.023	12.58	21.92
ID = 1 (0030):	41.60	3.467	12.08	40.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	41.60	3.467	12.08	40.76
+ ID2= 2 (0051):	6.09	0.196	12.33	21.92
ID = 3 (0030):	47.69	3.608	12.17	38.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0008)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	1.1500	1.2500
0.4500	0.6900	1.3500	1.4000
0.6500	0.9000	1.5500	1.5500
1.0000	1.1000	2.3500	2.3000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0030)	47.690	3.608	12.17	38.35
OUTFLOW: ID= 1 (0008)	47.690	0.636	13.08	38.34

PEAK FLOW REDUCTION [Qout/Qin](%)= 17.63
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.8851

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ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0008):		47.69	0.636	13.08	38.34
+ ID2= 2 (0014):		3.44	0.141	12.25	21.91
ID = 3 (0020):		51.13	0.679	12.83	37.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB | NASHYD (0015) | ID= 1 DT= 5.0 min

Area	(ha)=	35.93	Curve Number (CN)= 76.0
Ia	(mm)=	5.00	# of Linear Res.(N)= 3.00
U.H. Tp	(hrs)=	0.51	

Unit Hyd Qpeak (cms)= 2.691

PEAK FLOW	(cms)=	1.011 (i)
TIME TO PEAK	(hrs)=	12.500
RUNOFF VOLUME	(mm)=	21.919
TOTAL RAINFALL	(mm)=	59.300
RUNOFF COEFFICIENT	=	0.370

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

CALIB | NASHYD (0045) | ID= 1 DT= 5.0 min

Area	(ha)=	0.53	Curve Number (CN)= 76.0
Ia	(mm)=	5.00	# of Linear Res.(N)= 3.00
U.H. Tp	(hrs)=	0.17	

Unit Hyd Qpeak (cms)= 0.119

PEAK FLOW	(cms)=	0.030 (i)
TIME TO PEAK	(hrs)=	12.083
RUNOFF VOLUME	(mm)=	21.841
TOTAL RAINFALL	(mm)=	59.300
RUNOFF COEFFICIENT	=	0.368

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

CALIB | NASHYD (0054) | ID= 1 DT= 5.0 min

Area	(ha)=	5.74	Curve Number (CN)= 76.0
Ia	(mm)=	5.00	# of Linear Res.(N)= 3.00
U.H. Tp	(hrs)=	0.38	

Unit Hyd Qpeak (cms)= 0.577

PEAK FLOW	(cms)=	0.200 (i)
TIME TO PEAK	(hrs)=	12.333
RUNOFF VOLUME	(mm)=	21.917
TOTAL RAINFALL	(mm)=	59.300
RUNOFF COEFFICIENT	=	0.370

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

CALIB | STANDHYD (0031) | ID= 1 DT= 5.0 min

Area (ha)= 2.73 Total Imp(%)= 22.00 Dir. Conn.(%)= 0.10

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.60	2.13
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	134.91	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	65.47	47.53
over	(min)	5.00	15.00
Storage Coeff.	(min)=	3.62 (ii)	13.13 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.25	0.08

				TOTALS
PEAK FLOW	(cms)=	0.00	0.17	0.175 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.17
RUNOFF VOLUME	(mm)=	38.30	27.98	28.01
TOTAL RAINFALL	(mm)=	59.30	59.30	59.30
RUNOFF COEFFICIENT	=	0.98	0.47	0.47

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

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

CALIB | STANDHYD (0044) | ID= 1 DT= 5.0 min

Area (ha)= 0.58 Total Imp(%)= 35.00 Dir. Conn.(%)= 4.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.38
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	62.16	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	65.47	59.00
over	(min)	5.00	15.00
Storage Coeff.	(min)=	2.28 (ii)	10.99 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.30	0.09

				TOTALS
PEAK FLOW	(cms)=	0.00	0.04	0.042 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.17
RUNOFF VOLUME	(mm)=	58.30	30.17	31.29
TOTAL RAINFALL	(mm)=	59.30	59.30	59.30
RUNOFF COEFFICIENT	=	0.98	0.51	0.53

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

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

CALIB | STANDHYD (0040) | ID= 1 DT= 5.0 min

Area (ha)= 3.08 Total Imp(%)= 86.00 Dir. Conn.(%)= 49.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.65	0.43
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	143.29	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	65.47	200.54
over	(min)	5.00	10.00
Storage Coeff.	(min)=	3.76 (ii)	9.10 (ii)
Unit Hyd. Tpeak	(min)=	5.00	10.00

Unit Hyd. peak	(cms)=	0.25	0.12	
				TOTALS
PEAK FLOW	(cms)=	0.27	0.19	0.459 (iii)
TIME TO PEAK	(hrs)=	12.08	12.08	12.08
RUNOFF VOLUME	(mm)=	58.30	42.86	50.42
TOTAL RAINFALL	(mm)=	59.30	59.30	59.30
RUNOFF COEFFICIENT	=	0.98	0.72	0.85

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

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

ADD HYD (0021)

1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0015):	35.93	1.011	12.50	21.92
+ ID2= 2 (0031):	2.73	0.175	12.17	28.01
ID = 3 (0021):	38.66	1.101	12.42	22.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)

3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	38.66	1.101	12.42	22.35
+ ID2= 2 (0040):	3.08	0.459	12.08	50.42
ID = 1 (0021):	41.74	1.199	12.33	24.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)

1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	41.74	1.199	12.33	24.42
+ ID2= 2 (0044):	0.58	0.042	12.17	31.29
ID = 3 (0021):	42.32	1.227	12.25	24.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)

3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	42.32	1.227	12.25	24.51
+ ID2= 2 (0045):	0.53	0.030	12.08	21.84
ID = 1 (0021):	42.85	1.251	12.25	24.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)

1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	42.85	1.251	12.25	24.48
+ ID2= 2 (0054):	5.74	0.200	12.33	21.92
ID = 3 (0021):	48.59	1.445	12.25	24.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0034)
ID= 1 DT= 5.0 min

Area (ha)= 0.88
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.44	0.44	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	76.59	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		68.47	30.36	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	2.58 (ii)	13.95 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.29	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.08	0.02	0.100 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	58.30	24.21	41.25
TOTAL RAINFALL	(mm)=	59.30	59.30	59.30
RUNOFF COEFFICIENT	=	0.98	0.41	0.70

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

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

CALIB
STANDHYD (0004)
ID= 1 DT= 5.0 min

Area (ha)= 10.12
Total Imp(%)= 70.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	7.08	3.04	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	259.74	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		65.47	97.84	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	5.37 (ii)	12.49 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.21	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.65	0.53	1.133 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	58.30	35.46	43.91
TOTAL RAINFALL	(mm)=	59.30	59.30	59.30
RUNOFF COEFFICIENT	=	0.98	0.60	0.74

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

ADD HYD (0035)

1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

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ID1= 1 (0004):	10.12	1.133	12.08	43.91
+ ID2= 2 (0034):	0.88	0.100	12.08	41.25
ID = 3 (0035):	11.00	1.233	12.08	43.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0010)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.4000	0.3500
0.1000	0.2000	0.5000	0.4500
0.2500	0.2500	0.6000	0.4800
0.3500	0.2700	1.2000	0.6000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0035)	11.000	1.233	12.08	43.70
OUTFLOW: ID= 1 (0010)	11.000	0.221	12.75	43.65

PEAK FLOW REDUCTION [Qout/Qin](%)= 17.94
TIME SHIFT OF PEAK FLOW (min)= 40.00
MAXIMUM STORAGE USED (ha.m.)= 0.2407

CALIB
NASHYD (0016)
ID= 1 DT= 5.0 min

Area (ha)= 20.14 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.31

Unit Hyd Qpeak (cms)= 2.481

PEAK FLOW (cms)= 0.810 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 21.913
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.370

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

ADD HYD (0022)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	11.00	0.221	12.75	43.65
+ ID2= 2 (0016):	20.14	0.810	12.25	21.91
ID = 3 (0022):	31.14	0.941	12.33	29.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
NASHYD (0017)
ID= 1 DT= 5.0 min

Area (ha)= 17.97 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 2.288

PEAK FLOW (cms)= 0.739 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 21.912
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.370

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

CALIB
STANDHYD (0036)
ID= 1 DT= 5.0 min

Area (ha)= 1.09
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.55	0.55
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	95.24	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		65.47	30.36
over (min)		5.00	15.00
Storage Coeff. (min)=		2.75 (ii)	14.12 (ii)
Unit Hyd. Tpeak (min)=		5.00	15.00
Unit Hyd. peak (cms)=		0.28	0.08

				TOTALS
PEAK FLOW	(cms)=	0.10	0.03	0.124 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	58.30	24.21	41.24
TOTAL RAINFALL	(mm)=	59.30	59.30	59.30
RUNOFF COEFFICIENT	=	0.98	0.41	0.70

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

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

CALIB
STANDHYD (0005)
ID= 1 DT= 5.0 min

Area (ha)= 4.60
Total Imp(%)= 71.00 Dir. Conn.(%)= 29.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.27	1.33
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	175.12	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		65.47	120.53
over (min)		5.00	15.00
Storage Coeff. (min)=		4.24 (ii)	10.79 (ii)
Unit Hyd. Tpeak (min)=		5.00	15.00
Unit Hyd. peak (cms)=		0.24	0.09

				TOTALS
PEAK FLOW	(cms)=	0.24	0.31	0.517 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	58.30	37.66	43.65
TOTAL RAINFALL	(mm)=	59.30	59.30	59.30
RUNOFF COEFFICIENT	=	0.98	0.64	0.74

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

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

CALIB
NASHYD (0052)
ID= 1 DT= 5.0 min

Area (ha)= 4.15 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.42

Unit Hyd Qpeak (cms)= 0.377

PEAK FLOW (cms)= 0.134 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 21.918

TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.370

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

ADD HYD (0037)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):		4.60	0.517	12.08	43.65
+ ID2= 2 (0036):		1.09	0.124	12.08	41.24
ID = 3 (0037):		5.69	0.641	12.08	43.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0037)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0037):		5.69	0.641	12.08	43.19
+ ID2= 2 (0052):		4.15	0.134	12.33	21.92
ID = 1 (0037):		9.84	0.723	12.08	34.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0011)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2600	0.2100
0.1100	0.1100	0.3000	0.2450
0.1500	0.1600	0.3500	0.2700
0.2000	0.1800	0.4000	0.6500

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	9.840	0.723	12.08	34.22
OUTFLOW: ID= 1 (0011)	9.840	0.144	13.00	34.19

PEAK FLOW REDUCTION [Qout/Qin](%)= 19.87
TIME SHIFT OF PEAK FLOW (min)= 55.00
MAXIMUM STORAGE USED (ha.m.)= 0.1438

CALIB					
NASHYD (0053)	Area (ha)=	3.32	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.29		

Unit Hyd Qpeak (cms)= 0.437

PEAK FLOW (cms)= 0.139 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 21.910
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.369

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

CALIB					
NASHYD (0056)	Area (ha)=	1.95	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.30		

Unit Hyd Qpeak (cms)= 0.248

PEAK FLOW (cms)= 0.080 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 21.911
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.369

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

ADD HYD (0023)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0011):		9.84	0.144	13.00	34.19
+ ID2= 2 (0017):		17.97	0.789	12.25	21.91
ID = 3 (0023):		27.81	0.847	12.25	26.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0023)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0023):		27.81	0.847	12.25	26.26
+ ID2= 2 (0053):		3.32	0.139	12.25	21.91
ID = 1 (0023):		31.13	0.986	12.25	25.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0023)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0023):		31.13	0.986	12.25	25.79
+ ID2= 2 (0058):		1.95	0.080	12.25	21.91
ID = 3 (0023):		33.08	1.066	12.25	25.56

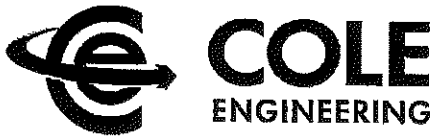
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
STANDHYD (0027)	Area (ha)=	1.18		
ID= 1 DT= 5.0 min	Total Imp(%)=	50.00	Dir. Conn.(%)=	50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.59	0.59	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	88.69	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		63.47	30.35	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.82 (ii)	14.19 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.28	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.11	0.03	0.134 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	58.30	24.21	41.25
TOTAL RAINFALL	(mm)=	59.30	59.30	59.30
RUNOFF COEFFICIENT	=	0.98	0.41	0.70

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:



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

| CALIB | STANDHYD (0001) | ID= 1 DT= 5.0 min | Area (ha)= 3.03 | Total Imp(%)= 34.00 | Dir. Conn.(%)= 24.00

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	1.03	2.00	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	142.13	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	65.47	38.18	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.74 (ii)	14.11 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.25	0.08	
			TOTALS
PEAK FLOW (cms)=	0.13	0.13	0.248 (iii)
TIME TO PEAK (hrs)=	12.08	12.17	12.08
RUNOFF VOLUME (mm)=	58.30	26.35	34.02
TOTAL RAINFALL (mm)=	59.30	59.30	59.30
RUNOFF COEFFICIENT =	0.98	0.44	0.57

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

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

| CALIB | NASHYD (0050) | ID= 1 DT= 5.0 min | Area (ha)= 0.96 | Ia (mm)= 5.00 | U.H. Tp(hrs)= 0.16 | Curve Number (CN)= 76.0 | # of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.058 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 21.821
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.368

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

| ADD HYD (0028) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	3.03	0.248	12.08	34.02
+ ID2= 2 (0027):	1.18	0.134	12.08	41.25
ID = 3 (0028):	4.21	0.382	12.08	36.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0028) | 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	4.21	0.382	12.08	36.04
+ ID2= 2 (0050):	0.96	0.058	12.08	21.82
ID = 1 (0028):	5.17	0.440	12.08	33.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0007) | IN= 2---> OUT= 1 | DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0750	0.1550
0.0150	0.0950	0.0900	0.1750
0.0400	0.1300	0.0950	0.1950
0.0525	0.1400	0.1000	0.6000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0028)	5.170	0.440	12.08	33.40
OUTFLOW: ID= 1 (0007)	5.170	0.025	14.42	33.09

PEAK FLOW REDUCTION [Qout/Qin](%)= 5.77
TIME SHIFT OF PEAK FLOW (min)=140.00
MAXIMUM STORAGE USED (ha.m.)= 0.1096

| CALIB | NASHYD (0025) | ID= 1 DT= 5.0 min | Area (ha)= 0.79 | Ia (mm)= 5.00 | U.H. Tp(hrs)= 0.28 | Curve Number (CN)= 76.0 | # of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.108

PEAK FLOW (cms)= 0.034 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 21.908
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.369

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

| CALIB | NASHYD (0049) | ID= 1 DT= 5.0 min | Area (ha)= 12.39 | Ia (mm)= 5.00 | U.H. Tp(hrs)= 0.61 | Curve Number (CN)= 76.0 | # of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.776

PEAK FLOW (cms)= 0.307 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 21.919
TOTAL RAINFALL (mm)= 59.300
RUNOFF COEFFICIENT = 0.370

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

| ADD HYD (0026) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	5.17	0.025	14.42	33.09
+ ID2= 2 (0025):	0.79	0.034	12.25	21.91
ID = 3 (0026):	5.96	0.046	12.25	31.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0026) |

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3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0026):	5.96	0.046	12.25	31.61
+ ID2= 2 (0049):	12.39	0.307	12.58	21.92
ID = 1 (0026):	18.35	0.348	12.58	25.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0055) | Area (ha)= 3.28
ID= 1 DT= 5.0 min | Total Imp(%)= 27.00 Dir. Conn.(%)= 27.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.89	2.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	147.87	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)	=	65.47	30.36
over	(min)	5.00	20.00
Storage Coeff.	(min)=	3.83 (ii)	15.20 (ii)
Unit Hyd. Tpeak	(min)=	5.00	20.00
Unit Hyd. peak	(cms)=	0.25	0.07
			TOTALS
PEAK FLOW	(cms)=	0.16	0.12 0.244 (i,ii)
TIME TO PEAK	(hrs)=	12.08	12.25 12.08
RUNOFF VOLUME	(mm)=	58.30	24.21 33.41
TOTAL RAINFALL	(mm)=	59.30	59.30 59.30
RUNOFF COEFFICIENT	=	0.98	0.41 0.56

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

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

** SIMULATION NUMBER: 3 **

READ STORM | Filename: C:\WinTemp\cb8
bcec4-7cf1-4534-9c44-852c1e2952b4\
6a7a6ddd-722c-4342-a63b-de160ef31b5e
Ptotal= 67.30 mm | Comments: Meaford 10 year 24 Hour SCS Type II Stor

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.00	6.17	1.35	12.25	9.69	18.33	1.21
0.17	0.74	6.25	1.35	12.33	9.69	18.42	1.21
0.25	0.74	6.33	1.35	12.42	9.69	18.50	1.21
0.33	0.74	6.42	1.35	12.50	9.69	18.58	1.21
0.42	0.74	6.50	1.35	12.58	9.69	18.67	1.21
0.50	0.74	6.58	1.35	12.67	4.98	18.75	1.21
0.58	0.74	6.67	1.35	12.75	4.98	18.83	1.21
0.67	0.74	6.75	1.35	12.83	4.98	18.92	1.21
0.75	0.74	6.83	1.35	12.92	4.98	19.00	1.21
0.83	0.74	6.92	1.35	13.00	4.98	19.08	1.21
0.92	0.74	7.00	1.35	13.08	4.98	19.17	1.21
1.00	0.74	7.08	1.35	13.17	0.94	19.25	1.21
1.08	0.74	7.17	1.35	13.25	0.94	19.33	1.21
1.17	0.74	7.25	1.35	13.33	0.94	19.42	1.21
1.25	0.74	7.33	1.35	13.42	0.94	19.50	1.21
1.33	0.74	7.42	1.35	13.50	0.94	19.58	1.21
1.42	0.74	7.50	1.35	13.58	0.94	19.67	1.21
1.50	0.74	7.58	1.35	13.67	5.52	19.75	1.21
1.58	0.74	7.67	1.35	13.75	5.52	19.83	1.21
1.67	0.74	7.75	1.35	13.83	5.52	19.92	1.21
1.75	0.74	7.83	1.35	13.92	5.52	20.00	1.21
1.83	0.74	7.92	1.35	14.00	5.52	20.08	1.21
1.92	0.74	8.00	1.35	14.08	5.52	20.17	0.81
2.00	0.74	8.08	1.35	14.17	2.02	20.25	0.81
2.08	0.74	8.17	1.82	14.25	2.02	20.33	0.81
2.17	0.87	8.25	1.82	14.33	2.02	20.42	0.81
2.25	0.87	8.33	1.82	14.42	2.02	20.50	0.81
2.33	0.87	8.42	1.82	14.50	2.02	20.58	0.81
2.42	0.87	8.50	1.82	14.58	2.02	20.67	0.81
2.50	0.87	8.58	1.82	14.67	2.02	20.75	0.81
2.58	0.87	8.67	1.82	14.75	2.02	20.83	0.81
2.67	0.87	8.75	1.82	14.83	2.02	20.92	0.81
2.75	0.87	8.83	1.82	14.92	2.02	21.00	0.81
2.83	0.87	8.92	1.82	15.00	2.02	21.08	0.81
2.92	0.87	9.00	1.82	15.08	2.02	21.17	0.81
3.00	0.87	9.08	1.82	15.17	2.02	21.25	0.81
3.08	0.87	9.17	2.15	15.25	2.02	21.33	0.81
3.17	0.87	9.25	2.15	15.33	2.02	21.42	0.81
3.25	0.87	9.33	2.15	15.42	2.02	21.50	0.81
3.33	0.87	9.42	2.15	15.50	2.02	21.58	0.81
3.42	0.87	9.50	2.15	15.58	2.02	21.67	0.81
3.50	0.87	9.58	2.15	15.67	2.02	21.75	0.81
3.58	0.87	9.67	2.42	15.75	2.02	21.83	0.81
3.67	0.87	9.75	2.42	15.83	2.02	21.92	0.81
3.75	0.87	9.83	2.42	15.92	2.02	22.00	0.81
3.83	0.87	9.92	2.42	16.00	2.02	22.08	0.81
3.92	0.87	10.00	2.42	16.08	2.02	22.17	0.81
4.00	0.87	10.08	2.42	16.17	1.21	22.25	0.81
4.08	0.87	10.17	3.10	16.25	1.21	22.33	0.81
4.17	1.08	10.25	3.10	16.33	1.21	22.42	0.81
4.25	1.08	10.33	3.10	16.42	1.21	22.50	0.81
4.33	1.08	10.42	3.10	16.50	1.21	22.58	0.81
4.42	1.08	10.50	3.10	16.58	1.21	22.67	0.81
4.50	1.08	10.58	3.10	16.67	1.21	22.75	0.81
4.58	1.08	10.67	4.17	16.75	1.21	22.83	0.81
4.67	1.08	10.75	4.17	16.83	1.21	22.92	0.81
4.75	1.08	10.83	4.17	16.92	1.21	23.00	0.81
4.83	1.08	10.92	4.17	17.00	1.21	23.08	0.81
4.92	1.08	11.00	4.17	17.08	1.21	23.17	0.81
5.00	1.08	11.08	4.17	17.17	1.21	23.25	0.81
5.08	1.08	11.17	6.46	17.25	1.21	23.33	0.81
5.17	1.08	11.25	6.46	17.33	1.21	23.42	0.81
5.25	1.08	11.33	6.46	17.42	1.21	23.50	0.81
5.33	1.08	11.42	6.46	17.50	1.21	23.58	0.81
5.42	1.08	11.50	6.46	17.58	1.21	23.67	0.81
5.50	1.08	11.58	6.46	17.67	1.21	23.75	0.81
5.58	1.08	11.67	28.00	17.75	1.21	23.83	0.81
5.67	1.08	11.75	28.00	17.83	1.21	23.92	0.81
5.75	1.08	11.83	28.00	17.92	1.21	24.00	0.81
5.83	1.08	11.92	74.30	18.00	1.21	24.08	0.81
5.92	1.08	12.00	74.30	18.08	1.21		
6.00	1.08	12.08	74.30	18.17	1.21		
6.08	1.08	12.17	9.69	18.25	1.21		

CALIB
NASHYD (0014) | Area (ha)= 3.44 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 0.438

PEAK FLOW (cms)= 0.177 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 27.224
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

CALIB
STANDHYD (0002) | Area (ha)= 37.83

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|ID= 1 DT= 5.0 min | Total Imp(%)= 62.00 Dir. Conn.(%)= 32.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	23.45	14.35	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	502.20	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		74.30	93.40	
over (min)		10.00	15.00	
Storage Coeff. (min)=		7.58 (ii)	14.83 (ii)	
Unit Hyd. Tpeak (min)=		10.00	15.00	
Unit Hyd. peak (cms)=		0.13	0.08	
				TOTALS
PEAK FLOW	(cms)=	2.14	2.25	4.138 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.17
RUNOFF VOLUME	(mm)=	66.30	39.69	48.21
TOTAL RAINFALL	(mm)=	67.30	67.30	67.30
RUNOFF COEFFICIENT	=	0.99	0.59	0.72

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

| CALIB | STANDHYD (0032) | ID= 1 DT= 5.0 min | Area (ha)= 2.89 Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	1.45	1.45	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	138.80	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		74.30	37.30	
over (min)		5.00	15.00	
Storage Coeff. (min)=		3.50 (ii)	13.97 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.26	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.30	0.10	0.379 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	66.30	29.65	47.97
TOTAL RAINFALL	(mm)=	67.30	67.30	67.30
RUNOFF COEFFICIENT	=	0.99	0.44	0.71

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

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

| CALIB | NASHYD (0041) | ID= 1 DT= 5.0 min | Area (ha)= 0.88 Ia (mm)= 5.00 U.H. Tp(hrs)= 0.58 Curve Number (CN)= 76.0 # of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.060

PEAK FLOW (cms)= 0.029 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 27.233
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

| CALIB | NASHYD (0051) | ID= 1 DT= 5.0 min | Area (ha)= 6.09 Ia (mm)= 5.00 U.H. Tp(hrs)= 0.42 Curve Number (CN)= 76.0 # of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.554

PEAK FLOW (cms)= 0.246 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 27.232
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

| ADD HYD (0030) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	37.83	4.138	12.17	48.21
+ ID2= 2 (0032):	2.89	0.379	12.08	47.97
ID = 3 (0030):	40.72	4.510	12.08	48.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0030) | 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	40.72	4.510	12.08	48.19
+ ID2= 2 (0041):	0.88	0.029	12.50	27.23
ID = 1 (0030):	41.60	4.524	12.08	47.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0030) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	41.60	4.524	12.08	47.75
+ ID2= 2 (0051):	6.09	0.246	12.33	27.23
ID = 3 (0030):	47.69	4.677	12.08	45.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0008) | IN= 2---> OUT= 1 | DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	1.1500	1.2500
0.4500	0.6800	1.3500	1.4000
0.6500	0.9000	1.5500	1.5500
1.0000	1.1000	2.3500	2.8000

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0030)		47.690	4.677	12.08	45.13
OUTFLOW: ID= 1 (0008)		47.690	0.868	12.92	45.12

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.56
TIME SHIFT OF PEAK FLOW (min)= 50.00

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MAXIMUM STORAGE USED (ha.m.)= 1.0248

ADD HYD (0020)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0008):	47.69	0.868	12.92	45.12
	+ ID2= 2 (0014):	3.44	0.177	12.25	27.22
	ID = 3 (0020):	51.13	0.931	12.75	43.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0015)	Area	(ha)=	35.93	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp	(hrs)=	0.51		

Unit Hyd Qpeak (cms)= 2.691

PEAK FLOW (cms)= 1.266 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 27.234
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

CALIB					
NASHYD (0045)	Area	(ha)=	0.53	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp	(hrs)=	0.17		

Unit Hyd Qpeak (cms)= 0.119

PEAK FLOW (cms)= 0.038 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 27.137
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.403

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

CALIB					
NASHYD (0054)	Area	(ha)=	5.74	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.	(N)= 3.00
	U.H. Tp	(hrs)=	0.38		

Unit Hyd Qpeak (cms)= 0.577

PEAK FLOW (cms)= 0.250 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 27.231
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

CALIB					
STANDHYD (0031)	Area	(ha)=	2.73		
ID= 1 DT= 5.0 min	Total Imp	(%)=	22.00	Dir. Conn.	(%)= 0.10

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.60	2.13
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	134.91	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	74.30	57.61
over	(min)	5.00	15.00
Storage Coeff.	(min)=	3.44 (ii)	12.24 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.26	0.09
			TOTALS
PEAK FLOW	(cms)=	0.00	0.22 0.219 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17 12.17
RUNOFF VOLUME	(mm)=	66.30	33.96 33.99
TOTAL RAINFALL	(mm)=	67.30	67.30 67.30
RUNOFF COEFFICIENT	=	0.99	0.50 0.51

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

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

CALIB					
STANDHYD (0044)	Area	(ha)=	0.58		
ID= 1 DT= 5.0 min	Total Imp	(%)=	35.00	Dir. Conn.	(%)= 4.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.38
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	62.18	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	74.30	71.09
over	(min)	5.00	15.00
Storage Coeff.	(min)=	2.16 (ii)	10.25 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.31	0.09
			TOTALS
PEAK FLOW	(cms)=	0.00	0.05 0.052 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17 12.17
RUNOFF VOLUME	(mm)=	66.30	36.43 37.62
TOTAL RAINFALL	(mm)=	67.30	67.30 67.30
RUNOFF COEFFICIENT	=	0.99	0.54 0.56

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

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

CALIB					
STANDHYD (0040)	Area	(ha)=	3.08		
ID= 1 DT= 5.0 min	Total Imp	(%)=	86.00	Dir. Conn.	(%)= 49.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.65	0.43
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	145.29	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	74.30	238.86
over	(min)	5.00	10.00
Storage Coeff.	(min)=	3.57 (ii)	8.39 (ii)

Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.26	0.12	
			TOTALS
PEAK FLOW (cms)=	0.31	0.23	0.535 (iii)
TIME TO PEAK (hrs)=	12.08	12.08	12.08
RUNOFF VOLUME (mm)=	56.30	50.32	58.15
TOTAL RAINFALL (mm)=	67.30	67.30	67.30
RUNOFF COEFFICIENT =	0.99	0.75	0.86

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

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

ADD HYD (0021)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0015):		35.93	1.266	12.50	27.23
+ ID2= 2 (0031):		2.73	0.219	12.17	33.99
ID = 3 (0021):		38.66	1.374	12.42	27.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0021):		38.66	1.374	12.42	27.71
+ ID2= 2 (0040):		3.08	0.535	12.08	58.15
ID = 1 (0021):		41.74	1.484	12.33	29.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0021):		41.74	1.484	12.33	29.96
+ ID2= 2 (0044):		0.58	0.052	12.17	37.62
ID = 3 (0021):		42.32	1.519	12.25	30.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0021):		42.32	1.519	12.25	30.06
+ ID2= 2 (0045):		0.53	0.058	12.08	27.14
ID = 1 (0021):		42.85	1.548	12.25	30.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0021):		42.85	1.548	12.25	30.03
+ ID2= 2 (0054):		5.74	0.250	12.33	27.23
ID = 3 (0021):		48.59	1.791	12.25	29.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
STANDHYD (0034)	Area (ha)= 0.88
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.44	0.44	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	76.59	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		74.30	37.30	
over (min)		5.00	15.00	
Storage Coeff.	(min)=	2.45 (ii)	12.92 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.30	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.09	0.03	0.117 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	66.30	29.65	47.97
TOTAL RAINFALL	(mm)=	67.30	67.30	67.30
RUNOFF COEFFICIENT	=	0.99	0.44	0.71

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

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

CALIB	
STANDHYD (0004)	Area (ha)= 10.12
ID= 1 DT= 5.0 min	Total Imp(%)= 70.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	7.08	3.04	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	259.74	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		74.30	116.26	
over (min)		5.00	15.00	
Storage Coeff.	(min)=	5.10 (ii)	11.75 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.21	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.75	0.65	1.336 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	66.30	42.31	51.19
TOTAL RAINFALL	(mm)=	67.30	67.30	67.30
RUNOFF COEFFICIENT	=	0.99	0.63	0.76

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

ADD HYD (0035)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3					

	[ha]	[cms]	[hrs]	[mm]
ID1= 1 (0004):	10.12	1.336	12.08	51.19
+ ID2= 2 (0034):	0.98	0.117	12.08	47.97
ID = 3 (0035):	11.00	1.453	12.08	50.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0010)	IN= 2---> OUT= 1	DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.4000	0.3500
0.1000	0.2000	0.5000	0.4500
0.2500	0.2500	0.6000	0.4800
0.3500	0.2700	1.2000	0.6000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0035)	11.000	1.453	12.08	50.93
OUTFLOW: ID= 1 (0010)	11.000	0.336	12.58	50.88

PEAK FLOW REDUCTION [Qout/Qin](%)= 23.15
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.2674

CALIB	NASHYD (0016)	ID= 1 DT= 5.0 min

Area (ha)= 20.14 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.31

Unit Hyd Qpeak (cms)= 2.481

PEAK FLOW (cms)= 1.013 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 27.226
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

ADD HYD (0022)	1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	11.00	0.336	12.58	50.88
+ ID2= 2 (0016):	20.14	1.013	12.25	27.23
ID = 3 (0022):	31.14	1.248	12.33	35.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD (0017)	ID= 1 DT= 5.0 min

Area (ha)= 17.97 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 2.288

PEAK FLOW (cms)= 0.924 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 27.224
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

CALIB	STANDHYD (0036)	ID= 1 DT= 5.0 min

Area (ha)= 1.09
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.55	0.55	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	85.24	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	74.30	37.30	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	2.61 (ii)	13.09 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.29	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.11	0.04	0.145 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	66.30	29.65	47.97
TOTAL RAINFALL	(mm)=	67.30	67.30	67.30
RUNOFF COEFFICIENT	=	0.99	0.44	0.71

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

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

CALIB	STANDHYD (0005)	ID= 2 DT= 5.0 min

Area (ha)= 4.60
Total Imp(%)= 71.00 Dir. Conn.(%)= 29.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	3.27	1.33	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	175.12	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	74.30	142.40	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	4.03 (ii)	10.15 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.24	0.10	
				TOTALS
PEAK FLOW	(cms)=	0.27	0.37	0.612 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	66.30	44.72	50.98
TOTAL RAINFALL	(mm)=	67.30	67.30	67.30
RUNOFF COEFFICIENT	=	0.99	0.66	0.76

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

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

CALIB	NASHYD (0052)	ID= 1 DT= 5.0 min

Area (ha)= 4.15 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.42

Unit Hyd Qpeak (cms)= 0.377

PEAK FLOW (cms)= 0.167 (i)
TIME TO PEAK (hrs)= 12.333

RUNOFF VOLUME (mm)= 27.232
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

ADD HYD (0037)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):		4.60	0.612	12.08	50.98
+ ID2= 2 (0036):		1.09	0.145	12.08	47.97
ID = 3 (0037):		5.69	0.756	12.08	50.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0037)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0037):		5.69	0.756	12.08	50.40
+ ID2= 2 (0052):		4.15	0.167	12.33	27.23
ID = 1 (0037):		9.84	0.860	12.08	40.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0011)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2600	0.2100
0.1100	0.1100	0.3000	0.2450
0.1600	0.1600	0.3500	0.2700
0.2000	0.1800	0.4000	0.6500

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)		9.840	0.860	12.08	40.63
OUTFLOW: ID= 1 (0011)		9.840	0.181	12.92	40.60

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.99
TIME SHIFT OF PEAK FLOW (min)= 50.00
MAXIMUM STORAGE USED (ha.m.)= 0.1703

CALIB
NASHYD (0053)
ID= 1 DT= 5.0 min

Area (ha)= 3.32 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.29

Unit Hyd Qpeak (cms)= 0.437

PEAK FLOW (cms)= 0.174 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 27.223
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.404

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

CALIB
NASHYD (0058)
ID= 1 DT= 5.0 min

Area (ha)= 1.95 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 0.248

PEAK FLOW (cms)= 0.100 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 27.224
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

ADD HYD (0023)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0011):		9.84	0.181	12.92	40.60
+ ID2= 2 (0017):		17.97	0.924	12.25	27.22
ID = 3 (0023):		27.81	1.053	12.25	31.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0023)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0023):		27.81	1.053	12.25	31.96
+ ID2= 2 (0053):		3.32	0.174	12.25	27.22
ID = 1 (0023):		31.13	1.227	12.25	31.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0023)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0023):		31.13	1.227	12.25	31.45
+ ID2= 2 (0058):		1.95	0.100	12.25	27.22
ID = 3 (0023):		33.08	1.326	12.25	31.20

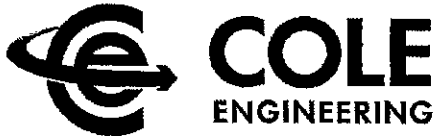
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0027)
ID= 1 DT= 5.0 min

Area (ha)= 1.10
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.55	0.55	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	68.69	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	74.30	37.30	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	2.68 (ii)	13.15 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.29	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.12	0.04	0.156 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	66.30	29.65	47.97
TOTAL RAINFALL	(mm)=	67.30	67.30	67.30
RUNOFF COEFFICIENT	=	0.99	0.44	0.71

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



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

| CALIB | STANDHYD (0001) | ID= 1 DT= 5.0 min |

Area (ha)= 3.03
Total Imp(%)= 34.00 Dir. Conn.(%)= 24.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.03	2.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	142.13	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	74.30	49.03
over	(min)	5.00	15.00
Storage Coeff.	(min)=	3.55 (ii)	12.94 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.26	0.08

				TOTALS
PEAK FLOW	(cms)=	0.15	0.17	0.299 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	66.30	32.11	48.31
TOTAL RAINFALL	(mm)=	67.30	67.30	67.30
RUNOFF COEFFICIENT	=	0.99	0.48	0.69

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

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

| CALIB | NASHYD (0050) | ID= 1 DT= 5.0 min |

Area (ha)= 0.96 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.16

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.072 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 27.112
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.403

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

| ADD HYD (0028) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	3.03	0.299	12.08	48.31
+ ID2= 2 (0027):	1.18	0.156	12.08	47.97
ID = 3 (0028):	4.21	0.456	12.08	48.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0028) | 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	4.21	0.456	12.08	48.46
+ ID2= 2 (0050):	0.96	0.072	12.08	27.11
ID = 1 (0028):	5.17	0.527	12.08	39.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0007) | IN= 2---> OUT= 1 | DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0750	0.1550
0.0150	0.0950	0.0800	0.1750
0.0400	0.1300	0.0850	0.1950
0.0525	0.1400	0.1000	0.6000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0028)	5.170	0.527	12.08	39.61
OUTFLOW: ID= 1 (0007)	5.170	0.036	13.25	39.30

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.87
TIME SHIFT OF PEAK FLOW (min)= 70.00
MAXIMUM STORAGE USED (ha.m.)= 0.1248

| CALIB | NASHYD (0025) | ID= 1 DT= 5.0 min |

Area (ha)= 0.79 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.28

Unit Hyd Qpeak (cms)= 0.108

PEAK FLOW (cms)= 0.042 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 27.221
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.404

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

| CALIB | NASHYD (0049) | ID= 1 DT= 5.0 min |

Area (ha)= 12.89 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.61

Unit Hyd Qpeak (cms)= 0.776

PEAK FLOW (cms)= 0.385 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 27.234
TOTAL RAINFALL (mm)= 67.300
RUNOFF COEFFICIENT = 0.405

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

| ADD HYD (0026) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	5.17	0.036	13.25	39.30
+ ID2= 2 (0025):	0.79	0.042	12.25	27.22
ID = 3 (0026):	5.96	0.059	12.33	37.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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ADD HYD (0026)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0026):		5.96	0.059	12.33	37.70
+ ID2= 2 (0049):		12.39	0.385	12.58	27.23
ID = 1 (0026):		18.35	0.438	12.58	30.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	STANDHYD (0055)	ID= 1 DT= 5.0 min	Area (ha)= 3.28	Total Imp(%)= 27.00	Dir. Conn.(%)= 27.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.89	2.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	147.87	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	74.30	37.30
over	(min)	5.00	15.00
Storage Coeff.	(min)=	3.64 (ii)	14.11 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.25	0.08

				TOTALS
PEAK FLOW	(cms)=	0.18	0.16	0.318 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	66.30	29.65	39.55
TOTAL RAINFALL	(mm)=	67.30	67.30	67.30
RUNOFF COEFFICIENT	=	0.99	0.44	0.59

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

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

****
** SIMULATION NUMBER: 4 **
****

READ STORM	Ptotal= 77.40 mm

Filename: C:\WinTemp\cb8
bcec4-7cf1-4534-9c44-852c1e2952b4\
0337f5cf-e9fe-4b95-8055-7d210b9b83c1
Comments: Meaford 25 year 24 Hour SCS Type II Stor

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.00	6.17	1.55	12.25	11.15	18.33	1.39
0.17	0.85	6.25	1.55	12.33	11.15	18.42	1.39
0.25	0.85	6.33	1.55	12.42	11.15	18.50	1.39
0.33	0.85	6.42	1.55	12.50	11.15	18.58	1.39
0.42	0.85	6.50	1.55	12.58	11.15	18.67	1.39
0.50	0.85	6.58	1.55	12.67	5.73	18.75	1.39
0.58	0.85	6.67	1.55	12.75	5.73	18.83	1.39
0.67	0.85	6.75	1.55	12.83	5.73	18.92	1.39
0.75	0.85	6.83	1.55	12.92	5.73	19.00	1.39
0.83	0.85	6.92	1.55	13.00	5.73	19.08	1.39
0.92	0.85	7.00	1.55	13.08	5.73	19.17	1.39
1.00	0.85	7.08	1.55	13.17	1.08	19.25	1.39
1.08	0.85	7.17	1.55	13.25	1.08	19.33	1.39
1.17	0.85	7.25	1.55	13.33	1.08	19.42	1.39
1.25	0.85	7.33	1.55	13.42	1.08	19.50	1.39
1.33	0.85	7.42	1.55	13.50	1.08	19.58	1.39
1.42	0.85	7.50	1.55	13.58	1.08	19.67	1.39
1.50	0.85	7.58	1.55	13.67	6.35	19.75	1.39
1.58	0.85	7.67	1.55	13.75	6.35	19.83	1.39
1.67	0.85	7.75	1.55	13.83	6.35	19.92	1.39
1.75	0.85	7.83	1.55	13.92	6.35	20.00	1.39
1.83	0.85	7.92	1.55	14.00	6.35	20.08	1.39
1.92	0.85	8.00	1.55	14.08	6.35	20.17	0.93
2.00	0.85	8.08	1.55	14.17	2.32	20.25	0.93
2.08	0.85	8.17	2.09	14.25	2.32	20.33	0.93
2.17	1.01	8.25	2.09	14.33	2.32	20.42	0.93
2.25	1.01	8.33	2.09	14.42	2.32	20.50	0.93
2.33	1.01	8.42	2.09	14.50	2.32	20.58	0.93
2.42	1.01	8.50	2.09	14.58	2.32	20.67	0.93
2.50	1.01	8.58	2.09	14.67	2.32	20.75	0.93
2.58	1.01	8.67	2.09	14.75	2.32	20.83	0.93
2.67	1.01	8.75	2.09	14.83	2.32	20.92	0.93
2.75	1.01	8.83	2.09	14.92	2.32	21.00	0.93
2.83	1.01	8.92	2.09	15.00	2.32	21.08	0.93
2.92	1.01	9.00	2.09	15.08	2.32	21.17	0.93
3.00	1.01	9.08	2.09	15.17	2.32	21.25	0.93
3.08	1.01	9.17	2.48	15.25	2.32	21.33	0.93
3.17	1.01	9.25	2.48	15.33	2.32	21.42	0.93
3.25	1.01	9.33	2.48	15.42	2.32	21.50	0.93
3.33	1.01	9.42	2.48	15.50	2.32	21.58	0.93
3.42	1.01	9.50	2.48	15.58	2.32	21.67	0.93
3.50	1.01	9.58	2.48	15.67	2.32	21.75	0.93
3.58	1.01	9.67	2.79	15.75	2.32	21.83	0.93
3.67	1.01	9.75	2.79	15.83	2.32	21.92	0.93
3.75	1.01	9.83	2.79	15.92	2.32	22.00	0.93
3.83	1.01	9.92	2.79	16.00	2.32	22.08	0.93
3.92	1.01	10.00	2.79	16.08	2.32	22.17	0.93
4.00	1.01	10.08	2.79	16.17	1.39	22.25	0.93
4.08	1.01	10.17	3.56	16.25	1.39	22.33	0.93
4.17	1.24	10.25	3.56	16.33	1.39	22.42	0.93
4.25	1.24	10.33	3.56	16.42	1.39	22.50	0.93
4.33	1.24	10.42	3.56	16.50	1.39	22.58	0.93
4.42	1.24	10.50	3.56	16.58	1.39	22.67	0.93
4.50	1.24	10.58	3.56	16.67	1.39	22.75	0.93
4.58	1.24	10.67	4.80	16.75	1.39	22.83	0.93
4.67	1.24	10.75	4.80	16.83	1.39	22.92	0.93
4.75	1.24	10.83	4.80	16.92	1.39	23.00	0.93
4.83	1.24	10.92	4.80	17.00	1.39	23.08	0.93
4.92	1.24	11.00	4.80	17.08	1.39	23.17	0.93
5.00	1.24	11.08	4.80	17.17	1.39	23.25	0.93
5.08	1.24	11.17	7.43	17.25	1.39	23.33	0.93
5.17	1.24	11.25	7.43	17.33	1.39	23.42	0.93
5.25	1.24	11.33	7.43	17.42	1.39	23.50	0.93
5.33	1.24	11.42	7.43	17.50	1.39	23.58	0.93
5.42	1.24	11.50	7.43	17.58	1.39	23.67	0.93
5.50	1.24	11.58	7.43	17.67	1.39	23.75	0.93
5.58	1.24	11.67	32.20	17.75	1.39	23.83	0.93
5.67	1.24	11.75	32.20	17.83	1.39	23.92	0.93
5.75	1.24	11.83	32.20	17.92	1.39	24.00	0.93
5.83	1.24	11.92	85.45	18.00	1.39	24.08	0.93
5.92	1.24	12.00	85.45	18.08	1.39		
6.00	1.24	12.08	85.45	18.17	1.39		
6.08	1.24	12.17	11.15	18.25	1.39		

CALIB	NASHYD (0014)	ID= 1 DT= 5.0 min	Area (ha)= 3.44	Ia (mm)= 5.00	U.H. Tp(hrs)= 0.30	Curve Number (CN)= 76.0	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.438

PEAK FLOW (cms)= 0.225 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 34.334
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

CALIB

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| STANDHYD (0002) | Area (ha)= 37.83
|ID= 1 DT= 5.0 min | Total Imp(%)= 62.00 Dir. Conn.(%)= 32.00

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	23.45	14.38	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	502.20	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	85.45	113.14	
over (min)	5.00	15.00	
Storage Coeff. (min)=	7.16 (ii)	13.88 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.17	0.08	
			TOTALS
PEAK FLOW (cms)=	2.64	2.62	5.154 (iii)
TIME TO PEAK (hrs)=	12.08	12.17	12.08
RUNOFF VOLUME (mm)=	76.40	48.29	57.29
TOTAL RAINFALL (mm)=	77.40	77.40	77.40
RUNOFF COEFFICIENT =	0.99	0.62	0.74

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

| CALIB |
| STANDHYD (0032) | Area (ha)= 2.89
|ID= 1 DT= 5.0 min | Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	1.45	1.45	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	138.80	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	85.45	48.93	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.31 (ii)	12.71 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.26	0.08	
			TOTALS
PEAK FLOW (cms)=	0.34	0.12	0.450 (iii)
TIME TO PEAK (hrs)=	12.08	12.17	12.08
RUNOFF VOLUME (mm)=	76.40	36.90	56.65
TOTAL RAINFALL (mm)=	77.40	77.40	77.40
RUNOFF COEFFICIENT =	0.99	0.48	0.73

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

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

| CALIB |
| NASHYD (0041) | Area (ha)= 0.88 Curve Number (CN)= 76.0
|ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.56

Unit Hyd Qpeak (cms)= 0.060

PEAK FLOW (cms)= 0.037 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 34.345
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

| CALIB |
| NASHYD (0051) | Area (ha)= 6.09 Curve Number (CN)= 76.0
|ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.42

Unit Hyd Qpeak (cms)= 0.554

PEAK FLOW (cms)= 0.313 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 34.344
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

| ADD HYD (0030) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	37.83	5.154	12.08	57.29
+ ID2= 2 (0032):	2.89	0.450	12.08	56.65
ID = 3 (0030):	40.72	5.604	12.08	57.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0030) |
| 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	40.72	5.604	12.08	57.24
+ ID2= 2 (0041):	0.88	0.037	12.50	34.34
ID = 1 (0030):	41.60	5.622	12.08	56.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0030) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	41.60	5.622	12.08	56.76
+ ID2= 2 (0051):	6.09	0.313	12.33	34.34
ID = 3 (0030):	47.69	5.818	12.08	53.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0008) |
| IN= 2---> OUT= 1 |
| DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	1.1500	1.2500
0.4500	0.6800	1.3500	1.4000
0.6500	0.9000	1.5500	1.5500
1.0000	1.1000	2.3500	2.8000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0030)	47.690	5.818	12.08	53.89
OUTFLOW: ID= 1 (0008)	47.690	1.101	12.83	53.89

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.92

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TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 1.2016

| ADD HYD (0020) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0008):	47.69	1.101	12.83	53.89
+ ID2= 2 (0014):	3.44	0.225	12.25	34.33
ID = 3 (0020):	51.13	1.203	12.58	52.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| NASHYD (0015) | ID= 1 DT= 5.0 min |

Area (ha)= 35.93 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.51

Unit Hyd Qpeak (cms)= 2.691

PEAK FLOW (cms)= 1.608 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 34.346
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

| CALIB |
| NASHYD (0045) | ID= 1 DT= 5.0 min |

Area (ha)= 0.53 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.17

Unit Hyd Qpeak (cms)= 0.119

PEAK FLOW (cms)= 0.066 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 34.224
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.442

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

| CALIB |
| NASHYD (0054) | ID= 1 DT= 5.0 min |

Area (ha)= 5.74 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.38

Unit Hyd Qpeak (cms)= 0.577

PEAK FLOW (cms)= 0.318 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 34.342
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

| CALIB |
| STANDHYD (0031) | ID= 1 DT= 5.0 min |

Area (ha)= 2.73
Total Imp(%)= 22.00 Dir. Conn.(%)= 0.10

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.60	2.13
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	134.91	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	85.45	70.81
over (min)	5.00	15.00
Storage Coeff. (min)=	3.26 (ii)	11.36 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.27	0.09
		TOTALS
PEAK FLOW (cms)=	0.00	0.278 (iii)
TIME TO PEAK (hrs)=	12.08	12.17
RUNOFF VOLUME (mm)=	76.40	41.88
TOTAL RAINFALL (mm)=	77.40	77.40
RUNOFF COEFFICIENT =	0.99	0.54

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

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

| CALIB |
| STANDHYD (0044) | ID= 1 DT= 5.0 min |

Area (ha)= 0.58
Total Imp(%)= 35.00 Dir. Conn.(%)= 4.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.20	0.38
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	62.18	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	85.45	85.83
over (min)	5.00	10.00
Storage Coeff. (min)=	2.05 (ii)	9.51 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.31	0.12
		TOTALS
PEAK FLOW (cms)=	0.01	0.07 0.074 (iii)
TIME TO PEAK (hrs)=	12.08	12.08 12.08
RUNOFF VOLUME (mm)=	76.40	44.64 45.90
TOTAL RAINFALL (mm)=	77.40	77.40 77.40
RUNOFF COEFFICIENT =	0.99	0.58 0.59

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

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

| CALIB |
| STANDHYD (0040) | ID= 1 DT= 5.0 min |

Area (ha)= 3.08
Total Imp(%)= 86.00 Dir. Conn.(%)= 49.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.65	0.43
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	143.29	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	85.45	276.01
over (min)	5.00	10.00

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Storage Coeff. (min)=	3.38 (ii)	7.93 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.26	0.15		
			TOTALS	
PEAK FLOW (cms)=	0.36	0.27	0.628 (iii)	
TIME TO PEAK (hrs)=	12.08	12.08	12.08	
RUNOFF VOLUME (mm)=	76.40	59.87	67.97	
TOTAL RAINFALL (mm)=	77.40	77.40	77.40	
RUNOFF COEFFICIENT =	0.99	0.77	0.88	

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

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

ADD HYD (0021)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0015):	35.93	1.608	12.50	34.35
+ ID2= 2 (0031):	2.73	0.278	12.17	41.88
ID = 3 (0021):	38.66	1.740	12.42	34.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	38.66	1.740	12.42	34.88
+ ID2= 2 (0040):	3.08	0.628	12.08	67.97
ID = 1 (0021):	41.74	1.866	12.33	37.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	41.74	1.866	12.33	37.32
+ ID2= 2 (0044):	0.58	0.074	12.08	45.90
ID = 3 (0021):	42.32	1.898	12.33	37.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	42.32	1.898	12.33	37.44
+ ID2= 2 (0045):	0.53	0.045	12.08	34.22
ID = 1 (0021):	42.85	1.932	12.25	37.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	42.85	1.932	12.25	37.40
+ ID2= 2 (0054):	5.74	0.310	12.33	34.34
ID = 3 (0021):	48.59	2.242	12.25	37.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0034)
ID= 1 DT= 5.0 min

Area (ha)= 0.88
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.44	0.44	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	76.59	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		85.45	48.93	
over (min)		5.00	15.00	
Storage Coeff.	(min)=	2.32 (ii)	11.71 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.30	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.10	0.04	0.139 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	76.40	36.90	56.64
TOTAL RAINFALL	(mm)=	77.40	77.40	77.40
RUNOFF COEFFICIENT	=	0.99	0.48	0.73

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

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

CALIB
STANDHYD (0004)
ID= 1 DT= 5.0 min

Area (ha)= 10.12
Total Imp(%)= 70.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	7.08	3.04	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	259.74	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		85.45	139.90	
over (min)		5.00	15.00	
Storage Coeff.	(min)=	4.82 (ii)	10.99 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.22	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.86	0.81	1.600 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	76.40	51.15	60.52
TOTAL RAINFALL	(mm)=	77.40	77.40	77.40
RUNOFF COEFFICIENT	=	0.99	0.66	0.78

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

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

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ADD HYD (0035)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	10.12	1.600	12.08	60.52
+ ID2= 2 (0034):	0.88	0.139	12.08	56.64
ID = 3 (0035):	11.00	1.739	12.08	60.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0010)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.4000	0.3500
	0.1000	0.2000	0.5000	0.4500
	0.2500	0.2500	0.6000	0.4800
	0.3500	0.2700	1.2000	0.6000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0035)	11.000	1.739	12.08	60.21
OUTFLOW: ID= 1 (0010)	11.000	0.375	12.58	60.16

PEAK FLOW REDUCTION [Qout/Qin](%)= 21.59
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.3112

CALIB					
NASHYD (0016)	Area (ha)=	20.14	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.31		

Unit Hyd Qpeak (cms)= 2.481

PEAK FLOW (cms)= 1.287 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 34.336
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

ADD HYD (0022)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	11.00	0.375	12.58	60.16
+ ID2= 2 (0016):	20.14	1.287	12.25	34.34
ID = 3 (0022):	31.14	1.645	12.25	43.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0017)	Area (ha)=	17.97	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.30		

Unit Hyd Qpeak (cms)= 2.288

PEAK FLOW (cms)= 1.173 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 34.334
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

CALIB			
STANDHYD (0036)	Area (ha)=	1.09	
ID= 1 DT= 5.0 min	Total Imp(%)=	50.00	Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.55	0.55
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	85.24	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	85.45	48.93
over	(min)	5.00	15.00
Storage Coeff.	(min)=	2.47 (ii)	11.87 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.29	0.09
			TOTALS
PEAK FLOW	(cms)=	0.13	0.05 0.172 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17 12.08
RUNOFF VOLUME	(mm)=	76.40	36.90 56.64
TOTAL RAINFALL	(mm)=	77.40	77.40 77.40
RUNOFF COEFFICIENT	=	0.99	0.48 0.73

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

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

CALIB			
STANDHYD (0005)	Area (ha)=	4.60	
ID= 1 DT= 5.0 min	Total Imp(%)=	71.00	Dir. Conn.(%)= 25.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.27	1.33
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	175.12	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	85.45	170.34
over	(min)	5.00	10.00
Storage Coeff.	(min)=	3.81 (ii)	9.51 (ii)
Unit Hyd. Tpeak	(min)=	5.00	10.00
Unit Hyd. peak	(cms)=	0.25	0.12
			TOTALS
PEAK FLOW	(cms)=	0.31	0.48 0.797 (iii)
TIME TO PEAK	(hrs)=	12.08	12.08 12.08
RUNOFF VOLUME	(mm)=	76.40	53.82 60.37
TOTAL RAINFALL	(mm)=	77.40	77.40 77.40
RUNOFF COEFFICIENT	=	0.99	0.70 0.78

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

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

CALIB					
NASHYD (0052)	Area (ha)=	4.15	Curve Number (CN)=	76.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.42		

Unit Hyd Qpeak (cms)= 0.377

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PEAK FLOW (cms)= 0.213 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 34.344
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

| ADD HYD (0037) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0005):	4.80	0.797	12.08	60.37
+ ID2= 2 (0036):	1.09	0.172	12.08	56.64
ID = 3 (0037):	5.89	0.969	12.08	59.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0037) | 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0037):	5.69	0.969	12.08	59.66
+ ID2= 2 (0052):	4.15	0.213	12.33	34.34
ID = 1 (0037):	9.84	1.103	12.08	48.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0011) | IN= 2---> OUT= 1 | DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2600	0.2100
0.1100	0.1100	0.3000	0.2450
0.1600	0.1600	0.3500	0.2700
0.2000	0.1900	0.4000	0.6500

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	9.840	1.103	12.08	48.98
OUTFLOW: ID= 1 (0011)	9.840	0.241	12.83	48.96

PEAK FLOW REDUCTION [Qout/Qin](%)= 21.86
TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 0.2006

| CALIB | NASHYD (0058) | ID= 1 DT= 5.0 min |

Area (ha)= 3.32 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.29

Unit Hyd Qpeak (cms)= 0.437

PEAK FLOW (cms)= 0.221 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 34.332
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

| CALIB | NASHYD (0058) | ID= 1 DT= 5.0 min |

Area (ha)= 1.95 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 0.248

PEAK FLOW (cms)= 0.127 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 34.334
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

| ADD HYD (0023) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	9.84	0.241	12.83	48.96
+ ID2= 2 (0017):	17.97	1.173	12.25	34.33
ID = 3 (0023):	27.81	1.337	12.25	39.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0023) | 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0023):	27.81	1.337	12.25	39.51
+ ID2= 2 (0053):	3.32	0.221	12.25	34.33
ID = 1 (0023):	31.13	1.559	12.25	38.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0023) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):	31.13	1.559	12.25	38.96
+ ID2= 2 (0058):	1.95	0.127	12.25	34.33
ID = 3 (0023):	33.08	1.686	12.25	38.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | STANDHYD (0027) | ID= 1 DT= 5.0 min |

Area (ha)= 1.18
Total Tmp(%)= 50.00 Dir. Conn.(%)= 50.00

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.59	0.59	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	88.69	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	85.45	48.93	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.53 (ii)	11.92 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.29	0.09	
			TOTALS
PEAK FLOW (cms)=	0.14	0.05	0.186 (iii)
TIME TO PEAK (hrs)=	12.08	12.17	12.08
RUNOFF VOLUME (mm)=	76.40	36.90	56.65
TOTAL RAINFALL (mm)=	77.40	77.40	77.40
RUNOFF COEFFICIENT =	0.99	0.48	0.73

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

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

| CALIB | STANDHYD (0001) | ID= 1 DT= 5.0 min | Area (ha)= 3.03 Total Imp(%)= 34.00 Dir. Conn.(%)= 24.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.03	2.00
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	142.13	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	85.45	60.56
over (min)	5.00	15.00
Storage Coeff. (min)=	3.36 (ii)	11.99 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.26	0.09

			TOTALS
PEAK FLOW	(cms)=	0.17	0.22	0.366 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	76.40	39.73	48.53
TOTAL RAINFALL	(mm)=	77.40	77.40	77.40
RUNOFF COEFFICIENT	=	0.99	0.51	0.63

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

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

| CALIB | NASHYD (0050) | ID= 1 DT= 5.0 min | Area (ha)= 0.95 Curve Number (CN)= 76.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.15

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.091 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 54.192
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.442

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

| ADD HYD (0028) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	3.03	0.366	12.08	48.53
+ ID2= 2 (0027):	1.18	0.186	12.08	56.65
ID = 3 (0028):	4.21	0.551	12.08	50.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0028) | 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	4.21	0.551	12.08	50.80
+ ID2= 2 (0050):	0.96	0.091	12.08	34.19
ID = 1 (0028):	5.17	0.643	12.08	47.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0007) | IN= 2---> OUT= 1 | DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0750	0.1550
0.0150	0.0950	0.0800	0.1750
0.0400	0.1300	0.0950	0.1950
0.0525	0.1400	0.1000	0.6000

	AREA (ha)	QPEAR (cms)	TPEAR (hrs)	R.V. (mm)
INFLOW : ID= 2 (0028)	5.170	0.643	12.08	47.72
OUTFLOW: ID= 1 (0007)	5.170	0.061	13.08	47.41

PEAK FLOW REDUCTION [Qout/Qin](%)= 9.50
TIME SHIFT OF PEAK FLOW (min)= 60.00
MAXIMUM STORAGE USED (ha.m.)= 0.1458

| CALIB | NASHYD (0025) | ID= 1 DT= 5.0 min | Area (ha)= 0.79 Curve Number (CN)= 76.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.28

Unit Hyd Qpeak (cms)= 0.108

PEAK FLOW (cms)= 0.054 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 34.329
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

| CALIB | NASHYD (0049) | ID= 1 DT= 5.0 min | Area (ha)= 12.39 Curve Number (CN)= 76.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.61

Unit Hyd Qpeak (cms)= 0.776

PEAK FLOW (cms)= 0.489 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 34.347
TOTAL RAINFALL (mm)= 77.400
RUNOFF COEFFICIENT = 0.444

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

| ADD HYD (0026) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	5.17	0.061	13.08	47.41
+ ID2= 2 (0025):	0.79	0.054	12.25	34.33
ID = 3 (0026):	5.96	0.085	12.33	45.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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ADD HYD (0026)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0026):		5.96	0.085	12.33	45.67
+ ID2= 2 (0049):		12.39	0.489	12.58	34.35
ID = 1 (0026):		18.35	0.570	12.58	38.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB | STANDHYD (0055) | ID= 1 DT= 5.0 min | Area (ha)= 3.28 | Total Imp(%)= 27.00 | Dir. Conn.(%)= 27.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.89	2.39	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	147.87	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	85.45	48.93	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	3.48 (ii)	12.83 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.26	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.21	0.20	0.389 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	76.40	36.96	47.56
TOTAL RAINFALL	(mm)=	77.40	77.40	77.40
RUNOFF COEFFICIENT	=	0.99	0.48	0.61

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

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

** SIMULATION NUMBER: 5 **

READ STORM | Ptotal= 64.90 mm | Filename: C:\WinTemp\cb$bcec4-7cf1-4534-9c44-852c1a2952b4\0fc77930-4e39-4f9d-aa3f-15680c07f894 | Comments: Wexford 50 year 24 Hour SCS Type II Stor

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.00	6.17	1.70	12.25	12.23	18.33	1.53
0.17	0.93	6.25	1.70	12.33	12.23	18.42	1.53
0.25	0.93	6.33	1.70	12.42	12.23	18.50	1.53
0.33	0.93	6.42	1.70	12.50	12.23	18.58	1.53
0.42	0.93	6.50	1.70	12.58	12.23	18.67	1.53
0.50	0.93	6.58	1.70	12.67	6.28	18.75	1.53
0.58	0.93	6.67	1.70	12.75	6.28	18.83	1.53
0.67	0.93	6.75	1.70	12.83	6.28	18.92	1.53
0.75	0.93	6.83	1.70	12.92	6.28	19.00	1.53
0.83	0.93	6.92	1.70	13.00	6.28	19.08	1.53
0.92	0.93	7.00	1.70	13.08	6.28	19.17	1.53
1.00	0.93	7.08	1.70	13.17	1.19	19.25	1.53
1.08	0.93	7.17	1.70	13.25	1.19	19.33	1.53
1.17	0.93	7.25	1.70	13.33	1.19	19.42	1.53
1.25	0.93	7.33	1.70	13.42	1.19	19.50	1.53
1.33	0.93	7.42	1.70	13.50	1.19	19.58	1.53
1.42	0.93	7.50	1.70	13.58	1.19	19.67	1.53
1.50	0.93	7.58	1.70	13.67	6.96	19.75	1.53
1.58	0.93	7.67	1.70	13.75	6.96	19.83	1.53
1.67	0.93	7.75	1.70	13.83	6.96	19.92	1.53
1.75	0.93	7.83	1.70	13.92	6.96	20.00	1.53
1.83	0.93	7.92	1.70	14.00	6.96	20.08	1.53
1.92	0.93	8.00	1.70	14.08	6.96	20.17	1.02
2.00	0.93	8.08	1.70	14.17	2.55	20.25	1.02
2.08	0.93	8.17	2.29	14.25	2.55	20.33	1.02
2.17	1.10	8.25	2.29	14.33	2.55	20.42	1.02
2.25	1.10	8.33	2.29	14.42	2.55	20.50	1.02
2.33	1.10	8.42	2.29	14.50	2.55	20.58	1.02
2.42	1.10	8.50	2.29	14.58	2.55	20.67	1.02
2.50	1.10	8.58	2.29	14.67	2.55	20.75	1.02
2.58	1.10	8.67	2.29	14.75	2.55	20.83	1.02
2.67	1.10	8.75	2.29	14.83	2.55	20.92	1.02
2.75	1.10	8.83	2.29	14.92	2.55	21.00	1.02
2.83	1.10	8.92	2.29	15.00	2.55	21.08	1.02
2.92	1.10	9.00	2.29	15.08	2.55	21.17	1.02
3.00	1.10	9.08	2.29	15.17	2.55	21.25	1.02
3.08	1.10	9.17	2.72	15.25	2.55	21.33	1.02
3.17	1.10	9.25	2.72	15.33	2.55	21.42	1.02
3.25	1.10	9.33	2.72	15.42	2.55	21.50	1.02
3.33	1.10	9.42	2.72	15.50	2.55	21.58	1.02
3.42	1.10	9.50	2.72	15.58	2.55	21.67	1.02
3.50	1.10	9.58	2.72	15.67	2.55	21.75	1.02
3.58	1.10	9.67	3.06	15.75	2.55	21.83	1.02
3.67	1.10	9.75	3.06	15.83	2.55	21.92	1.02
3.75	1.10	9.83	3.06	15.92	2.55	22.00	1.02
3.83	1.10	9.92	3.06	16.00	2.55	22.08	1.02
3.92	1.10	10.00	3.06	16.08	2.55	22.17	1.02
4.00	1.10	10.08	3.06	16.17	1.53	22.25	1.02
4.08	1.10	10.17	3.91	16.25	1.53	22.33	1.02
4.17	1.36	10.25	3.91	16.33	1.53	22.42	1.02
4.25	1.36	10.33	3.91	16.42	1.53	22.50	1.02
4.33	1.36	10.42	3.91	16.50	1.53	22.58	1.02
4.42	1.36	10.50	3.91	16.58	1.53	22.67	1.02
4.50	1.36	10.58	3.91	16.67	1.53	22.75	1.02
4.58	1.36	10.67	5.26	16.75	1.53	22.83	1.02
4.67	1.36	10.75	5.26	16.83	1.53	22.92	1.02
4.75	1.36	10.83	5.26	16.92	1.53	23.00	1.02
4.83	1.36	10.92	5.26	17.00	1.53	23.08	1.02
4.92	1.36	11.00	5.26	17.08	1.53	23.17	1.02
5.00	1.36	11.08	5.26	17.17	1.53	23.25	1.02
5.08	1.36	11.17	8.15	17.25	1.53	23.33	1.02
5.17	1.36	11.25	8.15	17.33	1.53	23.42	1.02
5.25	1.36	11.33	8.15	17.42	1.53	23.50	1.02
5.33	1.36	11.42	8.15	17.50	1.53	23.58	1.02
5.42	1.36	11.50	8.15	17.58	1.53	23.67	1.02
5.50	1.36	11.58	8.15	17.67	1.53	23.75	1.02
5.58	1.36	11.67	35.32	17.75	1.53	23.83	1.02
5.67	1.36	11.75	35.32	17.83	1.53	23.92	1.02
5.75	1.36	11.83	35.32	17.92	1.53	24.00	1.02
5.83	1.36	11.92	93.78	18.00	1.53	24.08	1.02
5.92	1.36	12.00	93.78	18.08	1.53		
6.00	1.36	12.08	93.78	18.17	1.53		
6.08	1.36	12.17	12.23	18.25	1.53		

CALIB | NASHYD (0014) | ID= 1 DT= 5.0 min | Area (ha)= 3.44 | Ia (mm)= 5.00 | U.H. Tp(hrs)= 0.30 | Curve Number (CN)= 76.0 | # of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.438

PEAK FLOW (cms)= 0.262 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 39.857
TOTAL RAINFALL (mm)= 64.900
RUNOFF COEFFICIENT = 0.469

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

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```
| CALIB                |
| STANDHYD  (0002)     |   Area     (ha)=  37.83
|ID= 1 DT= 5.0 min     |   Total Imp(%)=  62.00   Dir. Conn.(%)=  32.00
```

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	23.45	14.38	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	502.20	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		93.73	128.03	
over (min)		5.00	15.00	
Storage Coeff. (min)=		6.80 (ii)	13.30 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.18	0.08	
				TOTALS
PEAK FLOW	(cms)=	2.92	3.25	5.838 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	83.90	54.63	64.13
TOTAL RAINFALL	(mm)=	84.90	84.90	84.90
RUNOFF COEFFICIENT	=	0.99	0.65	0.76

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

```
| CALIB                |
| STANDHYD  (0032)     |   Area     (ha)=   2.83
|ID= 1 DT= 5.0 min     |   Total Imp(%)=  50.00   Dir. Conn.(%)=  50.00
```

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	1.45	1.45	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	138.80	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		93.73	56.31	
over (min)		5.00	15.00	
Storage Coeff. (min)=		3.19 (ii)	12.07 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.27	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.37	0.15	0.504 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	83.90	42.51	63.20
TOTAL RAINFALL	(mm)=	84.90	84.90	84.90
RUNOFF COEFFICIENT	=	0.99	0.50	0.74

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

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

```
| CALIB                |
| NASHYD    (0041)     |   Area     (ha)=   0.88   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.56

Unit Hyd Qpeak  (cms)=   0.060

PEAK FLOW       (cms)=   0.043 (i)
TIME TO PEAK    (hrs)=  12.500
RUNOFF VOLUME    (mm)=  39.870
TOTAL RAINFALL   (mm)=  84.900
RUNOFF COEFFICIENT   =   0.470
```

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

```
| CALIB                |
| NASHYD    (0051)     |   Area     (ha)=   6.09   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                         U.H. Tp(hrs)=   0.42

Unit Hyd Qpeak  (cms)=   0.554

PEAK FLOW       (cms)=   0.365 (i)
TIME TO PEAK    (hrs)=  12.333
RUNOFF VOLUME    (mm)=  39.860
TOTAL RAINFALL   (mm)=  84.900
RUNOFF COEFFICIENT   =   0.470
```

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

```
| ADD HYD   (0030)     |
|  1 +  2 =  3         |
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	37.83	5.838	12.08	64.13
+ ID2= 2 (0032):	2.89	0.504	12.08	63.20
ID = 3 (0030):	40.72	6.341	12.08	64.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD   (0030)     |
|  3 +  2 =  1         |
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	40.72	6.341	12.08	64.06
+ ID2= 2 (0041):	0.88	0.043	12.50	39.87
ID = 1 (0030):	41.60	6.363	12.08	63.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| ADD HYD   (0030)     |
|  1 +  2 =  3         |
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	41.60	6.363	12.08	63.55
+ ID2= 2 (0051):	6.09	0.365	12.33	39.87
ID = 3 (0030):	47.69	6.594	12.08	60.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| RESERVOIR (0008)     |
| IN= 2---> OUT= 1     |
| DT= 5.0 min          |
```

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	1.1500	1.2500
0.4500	0.6800	1.3500	1.4000
0.6500	0.9000	1.5500	1.5500
1.0000	1.1000	2.3500	2.8000

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0030)		47.690	6.594	12.08	60.53
OUTFLOW: ID= 1 (0008)		47.690	1.273	12.83	60.52

PEAK FLOW REDUCTION [Qout/Qin](%)= 19.31
TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 1.3424

| ADD HYD (0020) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0008):	47.69	1.273	12.83	60.52
+ ID2= 2 (0014):	3.44	0.262	12.25	39.66
ID = 3 (0020):	51.13	1.390	12.67	59.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| NASHYD (0015) | ID= 1 DT= 5.0 min |

Area (ha)= 35.83 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.51

Unit Hyd Qpeak (cms)= 2.691

PEAK FLOW (cms)= 1.874 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 39.871
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

| CALIB |
| NASHYD (0045) | ID= 1 DT= 5.0 min |

Area (ha)= 0.53 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.17

Unit Hyd Qpeak (cms)= 0.119

PEAK FLOW (cms)= 0.056 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 39.730
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.468

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

| CALIB |
| NASHYD (0054) | ID= 1 DT= 5.0 min |

Area (ha)= 5.74 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.38

Unit Hyd Qpeak (cms)= 0.577

PEAK FLOW (cms)= 0.370 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 39.656
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

| CALIB |
| STANDHYD (0031) | ID= 1 DT= 5.0 min |

Area (ha)= 2.79
Total Imp(%)= 22.00 Dir. Conn.(%)= 0.10

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.60	2.13
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	134.91	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	93.73	80.89
over (min)	5.00	15.00
Storage Coeff. (min)=	3.14 (ii)	10.82 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	0.27	0.09
		TOTALS
PEAK FLOW (cms)=	0.00	0.32 0.324 (iii)
TIME TO PEAK (hrs)=	12.08	12.17 12.17
RUNOFF VOLUME (mm)=	83.90	47.90 47.93
TOTAL RAINFALL (mm)=	84.90	84.90 84.90
RUNOFF COEFFICIENT =	0.99	0.56 0.56

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

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

| CALIB |
| STANDHYD (0044) | ID= 1 DT= 5.0 min |

Area (ha)= 0.58
Total Imp(%)= 35.00 Dir. Conn.(%)= 4.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.20	0.38
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	62.18	40.00
Mannings n =	0.013	0.250
Max.Eff.Inten.(mm/hr)=	93.73	98.78
over (min)	5.00	10.00
Storage Coeff. (min)=	1.97 (ii)	9.06 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	0.31	0.12
		TOTALS
PEAK FLOW (cms)=	0.01	0.08 0.086 (iii)
TIME TO PEAK (hrs)=	12.08	12.08 12.08
RUNOFF VOLUME (mm)=	83.90	50.92 52.23
TOTAL RAINFALL (mm)=	84.90	84.90 84.90
RUNOFF COEFFICIENT =	0.99	0.60 0.62

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

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

| CALIB |
| STANDHYD (0040) | ID= 1 DT= 5.0 min |

Area (ha)= 3.08
Total Imp(%)= 86.00 Dir. Conn.(%)= 49.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	2.65	0.43
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	143.29	40.00
Mannings n =	0.013	0.250

Max.Eff.Inten.	(mm/hr)=	93.73	307.32	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	3.25 (ii)	7.64 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.27	0.13	
				TOTALS
PEAK FLOW	(cms)=	0.38	0.31	0.698 (iii)
TIME TO PEAK	(hrs)=	12.08	12.08	12.08
RUNOFF VOLUME	(mm)=	83.90	67.02	75.29
TOTAL RAINFALL	(mm)=	84.90	84.90	84.90
RUNOFF COEFFICIENT	=	0.99	0.79	0.89

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

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

ADD HYD (0021)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0015):	35.93	1.874	12.50	39.87
+ ID2= 2 (0031):	2.73	0.324	12.17	47.93
ID = 3 (0021):	38.66	2.024	12.42	40.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	38.66	2.024	12.42	40.44
+ ID2= 2 (0040):	3.08	0.698	12.08	75.29
ID = 1 (0021):	41.74	2.162	12.33	43.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	41.74	2.162	12.33	43.01
+ ID2= 2 (0044):	0.58	0.086	12.08	52.23
ID = 3 (0021):	42.32	2.197	12.33	43.14

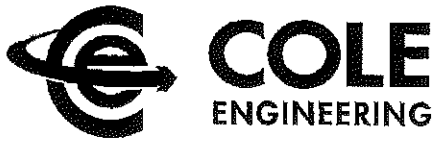
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	42.32	2.197	12.33	43.14
+ ID2= 2 (0045):	0.53	0.056	12.08	39.73
ID = 1 (0021):	42.85	2.239	12.25	43.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)



1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	42.85	2.239	12.25	43.10
+ ID2= 2 (0054):	5.74	0.370	12.33	39.87
ID = 3 (0021):	48.59	2.600	12.25	42.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0034) | Area (ha)= 0.88
ID= 1 DT= 5.0 min | Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.44	0.44	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	76.59	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	93.73	56.31	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	2.23 (ii)	11.11 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.30	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.11	0.05	0.155 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	83.90	42.51	63.20
TOTAL RAINFALL	(mm)=	84.90	84.90	84.90
RUNOFF COEFFICIENT	=	0.99	0.50	0.74

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

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

CALIB
STANDHYD (0004) | Area (ha)= 10.12
ID= 1 DT= 5.0 min | Total Imp(%)= 70.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	7.08	3.04	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	259.74	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	93.73	157.65	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	4.65 (ii)	10.53 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.22	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.95	0.92	1.800 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	83.90	57.91	67.53
TOTAL RAINFALL	(mm)=	84.90	84.90	84.90
RUNOFF COEFFICIENT	=	0.99	0.68	0.80

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

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

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ADD HYD (0035)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0004):		10.12	1.800	12.08	67.53
+ ID2= 2 (0034):		0.88	0.155	12.08	63.20
ID = 3 (0035):		11.00	1.955	12.08	67.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0010)		OUTFLOW	STORAGE		OUTFLOW	STORAGE
IN= 2---> OUT= 1		(cms)	(ha.m.)		(cms)	(ha.m.)
DT= 5.0 min		0.0000	0.0000		0.4000	0.3500
		0.1000	0.2000		0.5000	0.4500
		0.2500	0.2500		0.6000	0.4800
		0.3500	0.2700		1.2000	0.6000

		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2	(0035)	11.000	1.955	12.08	67.18
OUTFLOW: ID= 1	(0010)	11.000	0.399	12.58	67.13

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.41
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.3493

CALIB					
NASHYD (0016)	Area	(ha)=	20.14	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.31		

Unit Hyd Qpeak (cms)= 2.481

PEAK FLOW	(cms)=	1.500 (i)
TIME TO PEAK	(hrs)=	12.250
RUNOFF VOLUME	(mm)=	39.859
TOTAL RAINFALL	(mm)=	84.900
RUNOFF COEFFICIENT	=	0.469

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

ADD HYD (0022)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):		11.00	0.399	12.58	67.13
+ ID2= 2 (0016):		20.14	1.500	12.25	39.86
ID = 3 (0022):		31.14	1.870	12.25	49.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0017)	Area	(ha)=	17.97	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.36		

Unit Hyd Qpeak (cms)= 2.288

PEAK FLOW	(cms)=	1.367 (i)
TIME TO PEAK	(hrs)=	12.250
RUNOFF VOLUME	(mm)=	39.857
TOTAL RAINFALL	(mm)=	84.900
RUNOFF COEFFICIENT	=	0.469

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

CALIB					
STANDHYD (0035)	Area	(ha)=	1.09		
ID= 1 DT= 5.0 min	Total Imp(%)=		50.00	Dir. Conn.(%)=	50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.55	0.55
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	85.24	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		93.73	56.31
over (min)		5.00	15.00
Storage Coeff. (min)=		2.38 (ii)	11.26 (ii)
Unit Hyd. Tpeak (min)=		5.00	15.00
Unit Hyd. peak (cms)=		0.30	0.09
			TOTALS
PEAK FLOW (cms)=		0.14	0.06 0.152 (iii)
TIME TO PEAK (hrs)=		12.08	12.17 12.08
RUNOFF VOLUME (mm)=		63.90	42.51 63.20
TOTAL RAINFALL (mm)=		84.90	84.90 84.90
RUNOFF COEFFICIENT =		0.99	0.50 0.74

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

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

CALIB					
STANDHYD (0005)	Area	(ha)=	4.60		
ID= 1 DT= 5.0 min	Total Imp(%)=		71.00	Dir. Conn.(%)=	29.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.27	1.33
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	175.12	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		93.73	191.23
over (min)		5.00	10.00
Storage Coeff. (min)=		3.67 (ii)	9.11 (ii)
Unit Hyd. Tpeak (min)=		5.00	10.00
Unit Hyd. peak (cms)=		0.25	0.12
			TOTALS
PEAK FLOW (cms)=		0.34	0.55 0.898 (iii)
TIME TO PEAK (hrs)=		12.08	12.08 12.08
RUNOFF VOLUME (mm)=		83.90	60.69 67.42
TOTAL RAINFALL (mm)=		84.90	84.90 84.90
RUNOFF COEFFICIENT =		0.99	0.71 0.79

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

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

CALIB					
NASHYD (0052)	Area	(ha)=	4.15	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.42		

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Unit Hyd Qpeak (cms)= 0.377

PEAK FLOW (cms)= 0.248 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 39.868
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

| ADD HYD (0037) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0005):	4.60	0.858	12.08	67.42
+ ID2= 2 (0036):	1.09	0.192	12.08	63.20
ID = 3 (0037):	5.69	1.090	12.08	66.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0037) |
| 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0037):	5.69	1.090	12.08	66.61
+ ID2= 2 (0052):	4.15	0.248	12.33	39.87
ID = 1 (0037):	9.84	1.247	12.08	55.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0011) |
| IN= 2---> OUT= 1 |
| DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2600	0.2100
0.1100	0.1100	0.3000	0.2450
0.1600	0.1600	0.3500	0.2700
0.2000	0.1800	0.4000	0.6500

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	9.840	1.247	12.08	55.33
OUTFLOW: ID= 1 (0011)	9.840	0.276	12.83	55.31

PEAK FLOW REDUCTION [Qout/Qin](%)= 22.15
TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 0.2243

| CALIB |
| NASHYD (0053) |
| ID= 1 DT= 5.0 min |

Area (ha)= 3.32 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.29

Unit Hyd Qpeak (cms)= 0.437

PEAK FLOW (cms)= 0.258 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 39.855
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.469

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

| CALIB |

| NASHYD (0058) |
| ID= 1 DT= 5.0 min |

Area (ha)= 1.95 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 0.248

PEAK FLOW (cms)= 0.148 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 39.857
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.469

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

| ADD HYD (0023) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	9.84	0.276	12.83	55.31
+ ID2= 2 (0017):	17.97	1.367	12.25	39.86
ID = 3 (0023):	27.81	1.574	12.25	45.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0023) |
| 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0023):	27.81	1.574	12.25	45.32
+ ID2= 2 (0053):	3.32	0.258	12.25	39.85
ID = 1 (0023):	31.13	1.831	12.25	44.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0023) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):	31.13	1.831	12.25	44.74
+ ID2= 2 (0058):	1.95	0.148	12.25	39.86
ID = 3 (0023):	33.08	1.900	12.25	44.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| STANDHYD (0027) |
| ID= 1 DT= 5.0 min |

Area (ha)= 1.18
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.59	0.59	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	88.59	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		93.73	56.31	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	2.44 (ii)	11.32 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.30	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.15	0.06	0.208 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	83.90	42.31	63.28
TOTAL RAINFALL	(mm)=	84.90	84.90	84.90

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RUNOFF COEFFICIENT = 0.99 0.50 0.74

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

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

| CALIB | STANDHYD (0001) | ID= 1 DT= 5.0 min |

Area (ha)= 3.03
Total Imp(%)= 34.00 Dir. Conn.(%)= 24.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	1.03	2.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	142.13	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	99.78	69.39	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	3.24 (ii)	11.41 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.27	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.19	0.26	0.417 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	83.90	45.60	54.79
TOTAL RAINFALL	(mm)=	84.90	84.90	84.90
RUNOFF COEFFICIENT	=	0.99	0.54	0.65

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

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

| CALIB | NASHYD (0050) | ID= 1 DT= 5.0 min |

Area (ha)= 0.96 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.16

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.106 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 39.693
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.468

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

| ADD HYD (0028) | 1 + 2 = 3 |

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):		3.03	0.417	12.08	54.79
+ ID2= 2 (0027):		1.18	0.208	12.08	63.20
ID = 3 (0028):		4.21	0.625	12.08	57.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0028) | 3 + 2 = 1 |

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):		4.21	0.625	12.08	57.15
+ ID2= 2 (0050):		0.96	0.106	12.08	39.69
ID = 1 (0028):		5.17	0.731	12.08	53.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0007) | IN= 2---> OUT= 1 | DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0750	0.1550
0.0150	0.0950	0.0800	0.1750
0.0400	0.1300	0.0950	0.1950
0.0525	0.1400	0.1000	0.6000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0028)	5.170	0.731	12.08	53.91
OUTFLOW: ID= 1 (0007)	5.170	0.077	13.08	53.60

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.46
TIME SHIFT OF PEAK FLOW (min)= 60.00
MAXIMUM STORAGE USED (ha.m.)= 0.1611

| CALIB | NASHYD (0025) | ID= 1 DT= 5.0 min |

Area (ha)= 0.79 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.28

Unit Hyd Qpeak (cms)= 0.108

PEAK FLOW (cms)= 0.062 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 39.851
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.469

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

| CALIB | NASHYD (0049) | ID= 1 DT= 5.0 min |

Area (ha)= 12.39 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.61

Unit Hyd Qpeak (cms)= 0.776

PEAK FLOW (cms)= 0.370 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 39.872
TOTAL RAINFALL (mm)= 84.900
RUNOFF COEFFICIENT = 0.470

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

| ADD HYD (0026) | 1 + 2 = 3 |

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):		5.17	0.077	13.08	53.60
+ ID2= 2 (0025):		0.79	0.062	12.25	39.85
ID = 3 (0026):		5.96	0.113	12.42	51.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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ADD HYD (0026)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		[ha]	[cms]	[hrs]	[mm]
	ID1= 3 (0026):	5.96	0.113	12.42	51.77
	+ ID2= 2 (0049):	12.39	0.570	12.58	39.87
	ID = 1 (0026):	18.35	0.680	12.58	43.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	STANDHYD (0055)	ID= 1 DT= 5.0 min	Area (ha)= 3.28	Total Imp(%)= 27.00	Dir. Conn.(%)= 27.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.89	2.39	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	147.87	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		93.73	56.31	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	3.32 (ii)	12.20 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.26	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.23	0.24	0.443 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	88.90	42.51	53.68
TOTAL RAINFALL	(mm)=	84.90	84.90	84.90
RUNOFF COEFFICIENT	=	0.99	0.50	0.63

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

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

****
** SIMULATION NUMBER: 6 **
****

READ STORM	Ptotal= 92.30 mm	Filename: C:\WinTemp\cb8bcec4-7cf1-4534-9c44-852c1e2952b4\2f362eb2-4bc3-4288-9926-1cd1d06a2a21	Comments: Mesford 50 year 24 Hour SCS Type II Stor

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.00	6.17	1.85	12.25	13.29	18.33	1.66
0.17	1.02	6.25	1.85	12.33	13.29	18.42	1.66
0.25	1.02	6.33	1.85	12.42	13.29	18.50	1.66
0.33	1.02	6.42	1.85	12.50	13.29	18.58	1.66
0.42	1.02	6.50	1.85	12.58	13.29	18.67	1.66
0.50	1.02	6.58	1.85	12.67	6.83	18.75	1.66
0.58	1.02	6.67	1.85	12.75	6.83	18.83	1.66
0.67	1.02	6.75	1.85	12.83	6.83	18.92	1.66
0.75	1.02	6.83	1.85	12.92	6.83	19.00	1.66
0.83	1.02	6.92	1.85	13.00	6.83	19.08	1.66
0.92	1.02	7.00	1.85	13.08	6.83	19.17	1.66
1.00	1.02	7.08	1.85	13.17	1.29	19.25	1.66
1.08	1.02	7.17	1.85	13.25	1.29	19.33	1.66
1.17	1.02	7.25	1.85	13.33	1.29	19.42	1.66
1.25	1.02	7.33	1.85	13.42	1.29	19.50	1.66
1.33	1.02	7.42	1.85	13.50	1.29	19.58	1.66
1.42	1.02	7.50	1.85	13.58	1.29	19.67	1.66
1.50	1.02	7.58	1.85	13.67	7.57	19.75	1.66
1.58	1.02	7.67	1.85	13.75	7.57	19.83	1.66
1.67	1.02	7.75	1.85	13.83	7.57	19.92	1.66
1.75	1.02	7.83	1.85	13.92	7.57	20.00	1.66
1.83	1.02	7.92	1.85	14.00	7.57	20.08	1.66
1.92	1.02	8.00	1.85	14.08	7.57	20.17	1.11
2.00	1.02	8.08	1.85	14.17	2.77	20.25	1.11
2.08	1.02	8.17	2.49	14.25	2.77	20.33	1.11
2.17	1.20	8.25	2.49	14.33	2.77	20.42	1.11
2.25	1.20	8.33	2.49	14.42	2.77	20.50	1.11
2.33	1.20	8.42	2.49	14.50	2.77	20.58	1.11
2.42	1.20	8.50	2.49	14.58	2.77	20.67	1.11
2.50	1.20	8.58	2.49	14.67	2.77	20.75	1.11
2.58	1.20	8.67	2.49	14.75	2.77	20.83	1.11
2.67	1.20	8.75	2.49	14.83	2.77	20.92	1.11
2.75	1.20	8.83	2.49	14.92	2.77	21.00	1.11
2.83	1.20	8.92	2.49	15.00	2.77	21.08	1.11
2.92	1.20	9.00	2.49	15.08	2.77	21.17	1.11
3.00	1.20	9.08	2.49	15.17	2.77	21.25	1.11
3.08	1.20	9.17	2.95	15.25	2.77	21.33	1.11
3.17	1.20	9.25	2.95	15.33	2.77	21.42	1.11
3.25	1.20	9.33	2.95	15.42	2.77	21.50	1.11
3.33	1.20	9.42	2.95	15.50	2.77	21.58	1.11
3.42	1.20	9.50	2.95	15.58	2.77	21.67	1.11
3.50	1.20	9.58	2.95	15.67	2.77	21.75	1.11
3.58	1.20	9.67	3.32	15.75	2.77	21.83	1.11
3.67	1.20	9.75	3.32	15.83	2.77	21.92	1.11
3.75	1.20	9.83	3.32	15.92	2.77	22.00	1.11
3.83	1.20	9.92	3.32	16.00	2.77	22.08	1.11
3.92	1.20	10.00	3.32	16.08	2.77	22.17	1.11
4.00	1.20	10.08	3.32	16.17	1.66	22.25	1.11
4.08	1.20	10.17	4.25	16.25	1.66	22.33	1.11
4.17	1.48	10.25	4.25	16.33	1.66	22.42	1.11
4.25	1.48	10.33	4.25	16.42	1.66	22.50	1.11
4.33	1.48	10.42	4.25	16.50	1.66	22.58	1.11
4.42	1.48	10.50	4.25	16.58	1.66	22.67	1.11
4.50	1.48	10.58	4.25	16.67	1.66	22.75	1.11
4.58	1.48	10.67	5.72	16.75	1.66	22.83	1.11
4.67	1.48	10.75	5.72	16.83	1.66	22.92	1.11
4.75	1.48	10.83	5.72	16.92	1.66	23.00	1.11
4.83	1.48	10.92	5.72	17.00	1.66	23.08	1.11
4.92	1.48	11.00	5.72	17.08	1.66	23.17	1.11
5.00	1.48	11.08	5.72	17.17	1.66	23.25	1.11
5.08	1.48	11.17	8.86	17.25	1.66	23.33	1.11
5.17	1.48	11.25	8.86	17.33	1.66	23.42	1.11
5.25	1.48	11.33	8.86	17.42	1.66	23.50	1.11
5.33	1.48	11.42	8.86	17.50	1.66	23.58	1.11
5.42	1.48	11.50	8.86	17.58	1.66	23.67	1.11
5.50	1.48	11.58	8.86	17.67	1.66	23.75	1.11
5.58	1.48	11.67	38.40	17.75	1.66	23.83	1.11
5.67	1.48	11.75	38.40	17.83	1.66	23.92	1.11
5.75	1.48	11.83	38.40	17.92	1.66	24.00	1.11
5.83	1.48	11.92	101.90	18.00	1.66	24.08	1.11
5.92	1.48	12.00	101.90	18.08	1.66		
6.00	1.48	12.08	101.90	18.17	1.66		
6.08	1.48	12.17	13.29	18.25	1.66		

CALIB	NASHYD (0014)	ID= 1 DT= 5.0 min	Area (ha)= 3.46	Ia (mm)= 5.00	U.H. Tp(hrs)= 0.30	Curve Number (CN)= 76.0	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.438

PEAK FLOW (cms)= 0.299 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 45.480
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

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CALIB	STANDHYD (0002)	ID= 1 DT= 5.0 min	Area (ha)= 37.83 Total Imp(%)= 62.00 Dir. Conn.(%)= 32.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	23.45	14.38	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	502.20	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	101.90	142.85	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	6.68 (ii)	12.80 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.18	0.08	
				TOTALS
PEAK FLOW	(cms)=	3.19	3.70	5.526 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	91.30	61.38	70.95
TOTAL RAINFALL	(mm)=	92.30	92.30	92.30
RUNOFF COEFFICIENT	=	0.99	0.67	0.77

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

CALIB	STANDHYD (0003)	ID= 1 DT= 5.0 min	Area (ha)= 2.89 Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	1.45	1.45	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	138.80	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	101.30	63.78	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	3.09 (ii)	11.54 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.27	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.41	0.17	0.558 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	91.30	48.21	69.75
TOTAL RAINFALL	(mm)=	92.30	92.30	92.30
RUNOFF COEFFICIENT	=	0.99	0.52	0.76

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

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

CALIB	NASHYD (0041)	ID= 1 DT= 5.0 min	Area (ha)= 0.88 Curve Number (CN)= 76.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.56

Unit Hyd Qpeak (cms)= 0.060

PEAK FLOW (cms)= 0.049 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 45.494
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

CALIB	NASHYD (0051)	ID= 1 DT= 5.0 min	Area (ha)= 6.09 Curve Number (CN)= 76.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.42

Unit Hyd Qpeak (cms)= 0.554

PEAK FLOW (cms)= 0.419 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 45.493
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

ADD HYD (0030)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0002):		37.83	6.526	12.08	70.95
+	ID2= 2 (0003):		2.89	0.558	12.08	69.75
=	ID = 3 (0030):		40.72	7.084	12.08	70.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)	3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 3 (0030):		40.72	7.084	12.08	70.87
+	ID2= 2 (0041):		0.88	0.049	12.50	45.49
=	ID = 1 (0030):		41.60	7.109	12.08	70.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0030):		41.60	7.109	12.08	70.33
+	ID2= 2 (0051):		6.09	0.418	12.33	45.49
=	ID = 3 (0030):		47.69	7.375	12.08	67.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0006)	IN= 2---> OUT= 1	DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	1.3500	1.2500
0.4500	0.6800	1.3500	1.4000
0.6500	0.9000	1.3500	1.5500
1.0000	1.1000	2.3500	2.8000

AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

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INFLOW : ID= 2 (0030)     47.690      7.375      12.08      67.16
OUTFLOW: ID= 1 (0008)     47.690      1.458      12.83      67.15

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 19.78
                TIME SHIFT OF PEAK FLOW        (min)= 45.00
                MAXIMUM  STORAGE   USED        (ha.m.)= 1.4821
```

```
| ADD HYD    (0020) |
|  1 + 2 = 3        |
-------------------
                        AREA     QPEAK     TPEAK      R.V.
                        (ha)     (cms)     (hrs)      (mm)
          ID1= 1 (0008):  47.69     1.458     12.83      67.15
        + ID2= 2 (0014):   3.44     0.299     12.25      45.48
          ==========================================================
          ID = 3 (0020):  51.13     1.598     12.67      65.69

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

```
| CALIB                |
| NASHYD     (0015)    |   Area     (ha)=  35.93   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-----------------------   U.H. Tp(hrs)=   0.51

     Unit Hyd Qpeak  (cms)=   2.691

     PEAK FLOW       (cms)=   2.145 (i)
     TIME TO PEAK    (hrs)=  12.500
     RUNOFF VOLUME    (mm)=  45.495
     TOTAL RAINFALL   (mm)=  92.300
     RUNOFF COEFFICIENT    =   0.493

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

```
| CALIB                |
| NASHYD     (0045)    |   Area     (ha)=   0.53   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-----------------------   U.H. Tp(hrs)=   0.17

     Unit Hyd Qpeak  (cms)=   0.119

     PEAK FLOW       (cms)=   0.064 (i)
     TIME TO PEAK    (hrs)=  12.083
     RUNOFF VOLUME    (mm)=  45.334
     TOTAL RAINFALL   (mm)=  92.300
     RUNOFF COEFFICIENT    =   0.491

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

```
| CALIB                |
| NASHYD     (0054)    |   Area     (ha)=   5.74   Curve Number    (CN)= 76.0
|ID= 1 DT= 5.0 min     |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-----------------------   U.H. Tp(hrs)=   0.30

     Unit Hyd Qpeak  (cms)=   0.577

     PEAK FLOW       (cms)=   0.424 (i)
     TIME TO PEAK    (hrs)=  12.333
     RUNOFF VOLUME    (mm)=  45.490
     TOTAL RAINFALL   (mm)=  92.300
     RUNOFF COEFFICIENT    =   0.493

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

```
| CALIB                |
| STANDHYD   (0031)    |   Area     (ha)=   2.73
|ID= 1 DT= 5.0 min     |   Total Imp(%)=  22.00   Dir. Conn.(%)=   0.10
-----------------------
```

```
                        IMPERVIOUS     PERVIOUS (i)
Surface Area     (ha)=      0.60          2.13
Dep. Storage     (mm)=      1.00          1.50
Average Slope     (%)=      1.00          2.00
Length            (m)=    134.91         40.00
Mannings n             =    0.013         0.250

Max.Eff.Inten.(mm/hr)=    101.90         91.01
          over (min)          5.00         15.00
Storage Coeff.   (min)=      3.03 (ii)    10.36 (ii)
Unit Hyd. Tpeak  (min)=      5.00         15.00
Unit Hyd. peak   (cms)=      0.27          0.09
                                                    *TOTALS*
PEAK FLOW        (cms)=      0.00          0.37      0.371 (iii)
TIME TO PEAK     (hrs)=     12.08         12.17      12.17
RUNOFF VOLUME     (mm)=     91.30         54.01      54.05
TOTAL RAINFALL    (mm)=     92.30         92.30      92.30
RUNOFF COEFFICIENT     =     0.99          0.59       0.59

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

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

```
| CALIB                |
| STANDHYD   (0044)    |   Area     (ha)=   0.58
|ID= 1 DT= 5.0 min     |   Total Imp(%)=  35.00   Dir. Conn.(%)=   4.00
-----------------------
                        IMPERVIOUS     PERVIOUS (i)
Surface Area     (ha)=      0.20          0.38
Dep. Storage     (mm)=      1.00          1.50
Average Slope     (%)=      1.00          2.00
Length            (m)=     62.18         40.00
Mannings n             =    0.013         0.250

Max.Eff.Inten.(mm/hr)=    101.90        110.73
          over (min)          5.00         10.00
Storage Coeff.   (min)=      1.91 (ii)     8.68 (ii)
Unit Hyd. Tpeak  (min)=      5.00         10.00
Unit Hyd. peak   (cms)=      0.32          0.12
                                                    *TOTALS*
PEAK FLOW        (cms)=      0.01          0.09      0.097 (iii)
TIME TO PEAK     (hrs)=     12.08         12.08      12.08
RUNOFF VOLUME     (mm)=     91.30         57.23      58.59
TOTAL RAINFALL    (mm)=     92.30         92.30      92.30
RUNOFF COEFFICIENT     =     0.99          0.62       0.63

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

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

```
| CALIB                |
| STANDHYD   (0040)    |   Area     (ha)=   3.08
|ID= 1 DT= 5.0 min     |   Total Imp(%)=  86.00   Dir. Conn.(%)=  49.00
-----------------------
                        IMPERVIOUS     PERVIOUS (i)
Surface Area     (ha)=      2.65          0.43
Dep. Storage     (mm)=      1.00          1.50
Average Slope     (%)=      1.00          2.00
Length            (m)=    143.29         40.00
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Mannings n	=	0.013	0.250
Max.Eff.Inten. (mm/hr)	=	101.90	338.18
over (min)		5.00	10.00
Storage Coeff. (min)	=	3.15 (ii)	7.39 (ii)
Unit Hyd. Tpeak (min)	=	5.00	10.00
Unit Hyd. peak (cms)	=	0.27	0.13

				TOTALS
PEAK FLOW	(cms)	=	0.42	0.34	0.757 (iii)
TIME TO PEAK	(hrs)	=	12.08	12.08	12.08
RUNOFF VOLUME	(mm)	=	91.30	74.19	82.54
TOTAL RAINFALL	(mm)	=	92.30	92.30	92.30
RUNOFF COEFFICIENT		=	0.99	0.80	0.89

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

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

ADD HYD (0021)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0015):	35.93	2.145	12.50	45.50
+ ID2= 2 (0031):	2.73	0.371	12.17	54.05
ID = 3 (0021):	38.66	2.312	12.42	46.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	38.66	2.312	12.42	46.10
+ ID2= 2 (0040):	3.08	0.767	12.08	82.54
ID = 1 (0021):	41.74	2.462	12.33	48.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	41.74	2.462	12.33	48.79
+ ID2= 2 (0044):	0.58	0.097	12.08	58.59
ID = 3 (0021):	42.32	2.501	12.33	48.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	42.32	2.501	12.33	48.92
+ ID2= 2 (0045):	0.53	0.064	12.08	45.33
ID = 1 (0021):	42.85	2.550	12.25	48.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	42.85	2.550	12.25	48.88
+ ID2= 2 (0054):	5.74	0.424	12.33	45.49
ID = 3 (0021):	48.59	2.964	12.25	48.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0034) | Area (ha)= 0.88
ID= 1 DT= 5.0 min | Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha) =	0.44	0.44
Dep. Storage	(mm) =	1.00	1.50
Average Slope	(%) =	1.00	2.00
Length	(m) =	76.59	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten. (mm/hr)	=	101.90	63.78
over (min)		5.00	15.00
Storage Coeff.	(min) =	2.16 (ii)	10.61 (ii)
Unit Hyd. Tpeak	(min) =	5.00	15.00
Unit Hyd. peak	(cms) =	0.31	0.09

				TOTALS
PEAK FLOW	(cms) =	0.12	0.05	0.172 (iii)
TIME TO PEAK	(hrs) =	12.08	12.17	12.08
RUNOFF VOLUME	(mm) =	91.30	48.21	69.75
TOTAL RAINFALL	(mm) =	92.30	92.30	92.30
RUNOFF COEFFICIENT	=	0.99	0.52	0.76

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

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

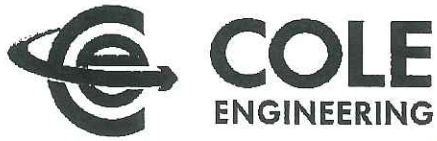
CALIB
STANDHYD (0004) | Area (ha)= 10.12
ID= 1 DT= 5.0 min | Total Imp(%)= 70.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha) =	7.08	3.04
Dep. Storage	(mm) =	1.00	1.50
Average Slope	(%) =	1.00	2.00
Length	(m) =	259.74	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten. (mm/hr)	=	101.90	175.26
over (min)		5.00	15.00
Storage Coeff.	(min) =	4.50 (ii)	10.13 (ii)
Unit Hyd. Tpeak	(min) =	5.00	15.00
Unit Hyd. peak	(cms) =	0.23	0.10

				TOTALS
PEAK FLOW	(cms) =	1.04	1.04	2.000 (iii)
TIME TO PEAK	(hrs) =	12.08	12.17	12.08
RUNOFF VOLUME	(mm) =	91.30	64.63	74.50
TOTAL RAINFALL	(mm) =	92.30	92.30	92.30
RUNOFF COEFFICIENT	=	0.99	0.70	0.81

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

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



ADD HYD (0035)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0004):		10.12	2.000	12.08	74.50
+ ID2= 2 (0034):		0.88	0.172	12.08	69.75
ID = 3 (0035):		11.00	2.172	12.08	74.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0010)	IN= 2---> OUT= 1	DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
			0.0000	0.0000	0.4000	0.3500
			0.1000	0.2000	0.5000	0.4500
			0.2500	0.2500	0.6000	0.4800
			0.3500	0.2700	1.2000	0.6000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0035)	11.000	2.172	12.08	74.12
OUTFLOW: ID= 1 (0010)	11.000	0.435	12.58	74.07

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.01
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.3853

CALIB	NASHYD (0016)	ID= 1 DT= 5.0 min	Area (ha)= 20.14	Curve Number (CN)= 76.0	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 0.31

Unit Hyd Qpeak (cms)= 2.481

PEAK FLOW (cms)= 1.717 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 45.482
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

ADD HYD (0022)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):		11.00	0.435	12.58	74.07
+ ID2= 2 (0016):		20.14	1.717	12.25	45.48
ID = 3 (0022):		31.14	2.115	12.25	55.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD (0017)	ID= 1 DT= 5.0 min	Area (ha)= 17.97	Curve Number (CN)= 76.0	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 2.288

PEAK FLOW (cms)= 1.561 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 45.480
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

CALIB	STANDHYD (0036)	ID= 1 DT= 5.0 min	Area (ha)= 1.09	Total Imp(%)= 50.00	Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.55	0.55
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	85.24	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	101.90	63.78
over	(min)	5.00	15.00
Storage Coeff.	(min)=	2.30 (ii)	10.75 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.30	0.09

				TOTALS
PEAK FLOW	(cms)=	0.15	0.07	0.213 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	91.30	48.21	69.75
TOTAL RAINFALL	(mm)=	92.30	92.30	92.30
RUNOFF COEFFICIENT	=	0.99	0.52	0.76

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

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

CALIB	STANDHYD (0005)	ID= 1 DT= 5.0 min	Area (ha)= 4.60	Total Imp(%)= 71.00	Dir. Conn.(%)= 29.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.27	1.33
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	178.12	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	101.90	211.91
over	(min)	5.00	10.00
Storage Coeff.	(min)=	3.55 (ii)	8.78 (ii)
Unit Hyd. Tpeak	(min)=	5.00	10.00
Unit Hyd. peak	(cms)=	0.26	0.12

				TOTALS
PEAK FLOW	(cms)=	0.37	0.62	0.998 (iii)
TIME TO PEAK	(hrs)=	12.08	12.08	12.08
RUNOFF VOLUME	(mm)=	91.30	67.55	74.44
TOTAL RAINFALL	(mm)=	92.30	92.30	92.30
RUNOFF COEFFICIENT	=	0.99	0.73	0.81

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

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

CALIB	NASHYD (0052)	ID= 1 DT= 5.0 min	Area (ha)= 4.15	Curve Number (CN)= 76.0	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00

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U.H. Tp(hrs)= 0.42

Unit Hyd Qpeak (cms)= 0.377

PEAK FLOW (cms)= 0.285 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 45.493
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

ADD HYD (0037)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0005):		4.60	0.998	12.08	74.44
+	ID2= 2 (0036):		1.09	0.213	12.08	68.75
	ID = 3 (0037):		5.69	1.211	12.08	73.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0037)	3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 3 (0037):		5.69	1.211	12.08	73.54
+	ID2= 2 (0052):		4.15	0.285	12.33	45.49
	ID = 1 (0037):		9.84	1.392	12.08	61.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0011)	IN= 2---> OUT= 1	DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
			0.0000	0.0000	0.2600	0.2100
			0.1100	0.1100	0.3000	0.2450
			0.1600	0.1600	0.3500	0.2700
			0.2000	0.1900	0.4000	0.6500

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	9.840	1.392	12.08	61.71
OUTFLOW: ID= 1 (0011)	9.840	0.309	12.83	61.69

PEAK FLOW REDUCTION [Qout/Qin](%)= 22.19
TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 0.2495

CALIB	NASHYD (0053)	ID= 1 DT= 5.0 min	Area (ha)= 3.32	Ia (mm)= 5.00	U.H. Tp(hrs)= 0.29	Curve Number (CN)= 76.0	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.437

PEAK FLOW (cms)= 0.235 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 45.477
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

CALIB	NASHYD (0058)	ID= 1 DT= 5.0 min	Area (ha)= 1.95	Ia (mm)= 5.00	U.H. Tp(hrs)= 0.30	Curve Number (CN)= 76.0	# of Linear Res.(N)= 3.00

Unit Hyd Qpeak (cms)= 0.248

PEAK FLOW (cms)= 0.170 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 45.480
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

ADD HYD (0023)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0011):		9.84	0.309	12.83	61.69
+	ID2= 2 (0017):		17.97	1.564	12.25	45.48
	ID = 3 (0023):		27.81	1.813	12.25	51.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0023)	3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 3 (0023):		27.81	1.813	12.25	51.21
+	ID2= 2 (0053):		3.32	0.295	12.25	45.48
	ID = 1 (0023):		31.13	2.108	12.25	50.60

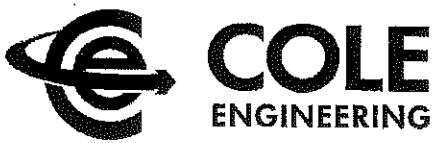
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0023)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0023):		31.13	2.108	12.25	50.60
+	ID2= 2 (0058):		1.95	0.170	12.25	45.48
	ID = 3 (0023):		33.08	2.278	12.25	50.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	STANDHYD (0027)	ID= 1 DT= 5.0 min	Area (ha)= 1.18	Total Imp(%)= 50.00	Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.59	0.59	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	88.69	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		101.90	63.78	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.36 (ii)	10.81 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.30	0.09	
				TOTALS
PEAK FLOW (cms)=		0.17	0.07	0.230 (iii)
TIME TO PEAK (hrs)=		12.08	12.17	12.08



RUNOFF VOLUME	(mm)=	91.30	48.21	69.75
TOTAL RAINFALL	(mm)=	92.30	92.30	92.30
RUNOFF COEFFICIENT	=	0.99	0.52	0.76

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

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

CALIB
STANDHYD (0001) | Area (ha)= 3.03
ID= 1 DT= 5.0 min | Total Imp(%)= 34.00 Dir. Conn.(%)= 24.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	1.03	2.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	142.13	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		101.90	78.30	
over (min)		5.00	15.00	
Storage Coeff.	(min)=	3.13 (ii)	10.91 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.27	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.20	0.29	0.470 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	91.30	51.54	61.08
TOTAL RAINFALL	(mm)=	92.30	92.30	92.30
RUNOFF COEFFICIENT	=	0.99	0.56	0.66

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

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

CALIB
NASHYD (0050) | Area (ha)= 0.96 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.16

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.122 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 45.292
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.491

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

ADD HYD (0028)
1 + 2 = 3

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):		3.03	0.470	12.08	61.08
+ ID2= 2 (0027):		1.18	0.230	12.08	69.75
ID = 3 (0028):		4.21	0.700	12.08	63.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
3 + 2 = 1

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):		4.21	0.700	12.08	63.51
+ ID2= 2 (0050):		0.96	0.122	12.08	45.29
ID = 1 (0028):		5.17	0.821	12.08	60.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0007)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0750	0.1550
0.0150	0.0950	0.0800	0.1750
0.0400	0.1300	0.0950	0.1950
0.0525	0.1400	0.1000	0.6000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0028)	5.170	0.821	12.08	60.13
OUTFLOW: ID= 1 (0007)	5.170	0.083	13.08	59.82

PEAK FLOW REDUCTION (Qout/Qin)(%)= 10.14
TIME SHIFT OF PEAK FLOW (min)= 60.00
MAXIMUM STORAGE USED (ha.m.)= 0.1793

CALIB
NASHYD (0025) | Area (ha)= 0.79 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.28

Unit Hyd Qpeak (cms)= 0.108

PEAK FLOW (cms)= 0.071 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 45.473
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

CALIB
NASHYD (0049) | Area (ha)= 12.39 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.61

Unit Hyd Qpeak (cms)= 0.776

PEAK FLOW (cms)= 0.653 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 45.496
TOTAL RAINFALL (mm)= 92.300
RUNOFF COEFFICIENT = 0.493

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

ADD HYD (0026)
1 + 2 = 3

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):		5.17	0.083	13.08	59.82
+ ID2= 2 (0025):		0.79	0.071	12.25	45.47
ID = 3 (0026):		5.96	0.141	12.33	57.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0026)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0026):	5.96	0.141	12.33	57.92
	+ ID2= 2 (0049):	12.39	0.653	12.58	45.50
	ID = 1 (0026):	18.35	0.772	12.58	49.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0055)
ID= 1 DT= 5.0 min

Area (ha)= 3.26
Total Imp(%)= 27.00 Dir. Conn.(%)= 27.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.89	2.39	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	147.87	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	101.90	63.78	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	3.21 (ii)	11.56 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.27	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.25	0.28	0.498 (iii)
TIME TO PEAK	(hrs)=	12.08	12.17	12.08
RUNOFF VOLUME	(mm)=	91.30	48.21	59.64
TOTAL RAINFALL	(mm)=	92.30	92.30	92.30
RUNOFF COEFFICIENT	=	0.99	0.52	0.65

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

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

****
** SIMULATION NUMBER: 7 **
****

READ STORM
Ptotal=193.00 mm

Filename: C:\WinTemp\ch8
bcec4-7cf1-4534-9c44-852c1e2952b4\
1b5hcef4-9790-45b4-9db3-a15ba501b178
Comments: Timmins Storm event mm/hr

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.10	15.00	3.10	3.00	6.10	43.00	9.10	13.00
0.20	15.00	3.20	3.00	6.20	43.00	9.20	13.00
0.30	15.00	3.30	3.00	6.30	43.00	9.30	13.00
0.40	15.00	3.40	3.00	6.40	43.00	9.40	13.00
0.50	15.00	3.50	3.00	6.50	43.00	9.50	13.00
0.60	15.00	3.60	3.00	6.60	43.00	9.60	13.00
0.70	15.00	3.70	3.00	6.70	43.00	9.70	13.00
0.80	15.00	3.80	3.00	6.80	43.00	9.80	13.00
0.90	15.00	3.90	3.00	6.90	43.00	9.90	13.00
1.00	15.00	4.00	3.00	7.00	43.00	10.00	13.00
1.10	20.00	4.10	5.00	7.10	20.00	10.10	13.00
1.20	20.00	4.20	5.00	7.20	20.00	10.20	13.00
1.30	20.00	4.30	5.00	7.30	20.00	10.30	13.00
1.40	20.00	4.40	5.00	7.40	20.00	10.40	13.00
1.50	20.00	4.50	5.00	7.50	20.00	10.50	13.00
1.60	20.00	4.60	5.00	7.60	20.00	10.60	13.00
1.70	20.00	4.70	5.00	7.70	20.00	10.70	13.00
1.80	20.00	4.80	5.00	7.80	20.00	10.80	13.00
1.90	20.00	4.90	5.00	7.90	20.00	10.90	13.00
2.00	20.00	5.00	5.00	8.00	20.00	11.00	13.00
2.10	10.00	5.10	20.00	8.10	23.00	11.10	8.00
2.20	10.00	5.20	20.00	8.20	23.00	11.20	8.00
2.30	10.00	5.30	20.00	8.30	23.00	11.30	8.00
2.40	10.00	5.40	20.00	8.40	23.00	11.40	8.00
2.50	10.00	5.50	20.00	8.50	23.00	11.50	8.00
2.60	10.00	5.60	20.00	8.60	23.00	11.60	8.00
2.70	10.00	5.70	20.00	8.70	23.00	11.70	8.00
2.80	10.00	5.80	20.00	8.80	23.00	11.80	8.00
2.90	10.00	5.90	20.00	8.90	23.00	11.90	8.00
3.00	10.00	6.00	20.00	9.00	23.00	12.00	8.00

CALIB
NASHYD (0014)
ID= 1 DT= 5.0 min

Area (ha)= 3.44 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	15.00	3.083	3.00	6.083	43.00	9.08	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.250	15.00	3.250	3.00	6.250	43.00	9.25	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.417	15.00	3.417	3.00	6.417	43.00	9.42	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.583	15.00	3.583	3.00	6.583	43.00	9.58	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.750	15.00	3.750	3.00	6.750	43.00	9.75	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.917	15.00	3.917	3.00	6.917	43.00	9.92	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.083	20.00	4.083	5.00	7.083	20.00	10.08	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.250	20.00	4.250	5.00	7.250	20.00	10.25	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.417	20.00	4.417	5.00	7.417	20.00	10.42	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.583	20.00	4.583	5.00	7.583	20.00	10.58	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.750	20.00	4.750	5.00	7.750	20.00	10.75	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.917	20.00	4.917	5.00	7.917	20.00	10.92	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.083	10.00	5.083	20.00	8.083	23.00	11.08	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.250	10.00	5.250	20.00	8.250	23.00	11.25	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.417	10.00	5.417	20.00	8.417	23.00	11.42	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.583	10.00	5.583	20.00	8.583	23.00	11.58	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.750	10.00	5.750	20.00	8.750	23.00	11.75	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.917	10.00	5.917	20.00	8.917	23.00	11.92	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	8.00

Unit Hyd Qpeak (cms)= 0.438

PEAK FLOW (cms)= 0.317 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 131.726
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

CALIB	
STANDHYD (0002)	Area (ha)= 37.83
ID= 1 DT= 5.0 min	Total Imp(%)= 62.00 Dir. Conn.(%)= 32.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	23.45	14.38	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	502.20	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		43.00	70.62	
over (min)		10.00	20.00	
Storage Coeff. (min)=		9.43 (ii)	17.54 (ii)	
Unit Hyd. Tpeak (min)=		10.00	20.00	
Unit Hyd. peak (cms)=		0.12	0.06	
				TOTALS
PEAK FLOW	(cms)=	1.44	2.68	4.122 (iii)
TIME TO PEAK	(hrs)=	7.00	7.00	7.00
RUNOFF VOLUME	(mm)=	192.00	155.82	167.39
TOTAL RAINFALL	(mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT	=	0.99	0.81	0.87

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

CALIB	
STANDHYD (0032)	Area (ha)= 2.89
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	1.45	1.45	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	138.80	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		43.00	35.28	
over (min)		5.00	20.00	
Storage Coeff. (min)=		4.36 (ii)	15.07 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		0.23	0.07	
				TOTALS
PEAK FLOW	(cms)=	0.17	0.13	0.307 (iii)
TIME TO PEAK	(hrs)=	6.92	7.00	7.00
RUNOFF VOLUME	(mm)=	192.00	134.97	163.48
TOTAL RAINFALL	(mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT	=	0.99	0.70	0.85

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

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

CALID			
NASHYD (0041)	Area (ha)= 0.88	Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.55	

Unit Hyd Qpeak (cms)= 0.060

PEAK FLOW (cms)= 0.070 (i)
TIME TO PEAK (hrs)= 7.167
RUNOFF VOLUME (mm)= 131.771
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

CALIB			
NASHYD (0051)	Area (ha)= 6.09	Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.42	

Unit Hyd Qpeak (cms)= 0.556

PEAK FLOW (cms)= 0.529 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 131.763
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	37.83	4.122	7.00	167.39
+ ID2= 2 (0032):	2.89	0.307	7.00	163.48
ID = 3 (0030):	40.72	4.430	7.00	167.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):	40.72	4.430	7.00	167.12
+ ID2= 2 (0041):	0.88	0.070	7.17	131.77
ID = 1 (0030):	41.60	4.496	7.00	166.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0030)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):	41.60	4.496	7.00	166.37
+ ID2= 2 (0051):	6.09	0.529	7.08	131.76
ID = 3 (0030):	47.69	5.017	7.00	161.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0008)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	1.1500	1.2500
	0.4500	0.6800	1.3500	1.4000
	0.6500	0.9000	1.5500	1.5500
	1.0000	1.1000	2.3500	2.6000

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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0030)	47.690	5.017	7.00	161.95
OUTFLOW: ID= 1 (0008)	47.690	2.320	9.25	161.94

PEAK FLOW REDUCTION [Qout/Qin](%)= 46.24
TIME SHIFT OF PEAK FLOW (min)=135.00
MAXIMUM STORAGE USED (ha.m.)= 2.7544

ADD HYD (0020)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0008):	47.69	2.320	9.25	161.94
	+ ID2= 2 (0014):	3.44	0.317	7.00	151.73
	ID = 3 (0020):	51.13	2.498	9.08	159.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD (0015)	ID= 1 DT= 5.0 min	Area (ha)= 35.93	Curve Number (CN)= 76.0	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 0.51

Unit Hyd Qpeak (cms)= 2.691

PEAK FLOW (cms)= 2.960 (i)
TIME TO PEAK (hrs)= 7.167
RUNOFF VOLUME (mm)= 131.771
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

CALIB	NASHYD (0045)	ID= 1 DT= 5.0 min	Area (ha)= 0.53	Curve Number (CN)= 76.0	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 0.17

Unit Hyd Qpeak (cms)= 0.119

PEAK FLOW (cms)= 0.051 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 131.306
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.680

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

CALIB	NASHYD (0054)	ID= 1 DT= 5.0 min	Area (ha)= 5.74	Curve Number (CN)= 76.0	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 0.38

Unit Hyd Qpeak (cms)= 0.577

PEAK FLOW (cms)= 0.510 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 131.757
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

| CALIB |

STANDHYD (0031)	ID= 1 DT= 5.0 min	Area (ha)= 2.73	Total Imp(%)= 22.00	Dir. Conn.(%)= 0.10

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.60	2.13
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	134.91	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	43.00	47.92
over	(min)	5.00	15.00
Storage Coeff.	(min)=	4.29 (ii)	13.76 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.23	0.08
			TOTALS
PEAK FLOW	(cms)=	0.00	0.27 0.275 (iii)
TIME TO PEAK	(hrs)=	6.67	7.00 7.00
RUNOFF VOLUME	(mm)=	192.00	144.62 144.66
TOTAL RAINFALL	(mm)=	193.00	193.00 193.00
RUNOFF COEFFICIENT	=	0.99	0.75 0.75

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

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

| CALIB |

STANDHYD (0044)	ID= 1 DT= 5.0 min	Area (ha)= 0.58	Total Imp(%)= 35.00	Dir. Conn.(%)= 4.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.38
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	62.18	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	43.00	56.68
over	(min)	5.00	15.00
Storage Coeff.	(min)=	2.69 (ii)	11.55 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.29	0.09
			TOTALS
PEAK FLOW	(cms)=	0.00	0.06 0.061 (iii)
TIME TO PEAK	(hrs)=	6.58	7.00 7.00
RUNOFF VOLUME	(mm)=	192.00	149.65 151.33
TOTAL RAINFALL	(mm)=	193.00	193.00 193.00
RUNOFF COEFFICIENT	=	0.99	0.78 0.78

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

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

| CALIB |

STANDHYD (0040)	ID= 1 DT= 5.0 min	Area (ha)= 3.08	Total Imp(%)= 86.00	Dir. Conn.(%)= 49.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.65	0.43
Dep. Storage	(mm)=	1.00	1.50

Average Slope	(%)=	1.00	2.00	
Length	(m)=	143.29	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	43.00	152.41	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	4.44 (ii)	10.41 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.23	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.18	0.18	0.362 (iii)
TIME TO PEAK	(hrs)=	6.92	7.00	7.00
RUNOFF VOLUME	(mm)=	192.00	172.83	182.22
TOTAL RAINFALL	(mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT	=	0.99	0.90	0.94

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

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

ADD HYD (0021)
1 + 2 = 3

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1	(0015):	35.93	2.960	7.17	131.77
+ ID2= 2	(0031):	2.73	0.275	7.00	144.66
ID = 3	(0021):	38.66	3.204	7.17	132.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
3 + 2 = 1

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3	(0021):	38.66	3.204	7.17	132.68
+ ID2= 2	(0040):	3.08	0.362	7.00	182.22
ID = 1	(0021):	41.74	3.487	7.08	136.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
1 + 2 = 3

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1	(0021):	41.74	3.487	7.08	136.34
+ ID2= 2	(0044):	0.58	0.061	7.00	151.33
ID = 3	(0021):	42.32	3.548	7.00	136.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
3 + 2 = 1

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3	(0021):	42.32	3.548	7.00	136.54
+ ID2= 2	(0045):	0.53	0.051	7.00	131.31
ID = 1	(0021):	42.85	3.599	7.00	136.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
1 + 2 = 3

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1	(0021):	42.85	3.599	7.00	136.48
+ ID2= 2	(0054):	5.74	0.510	7.08	131.76
ID = 3	(0021):	48.59	4.104	7.00	135.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0034)
ID= 1 DT= 5.0 min

Area (ha)= 0.88
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.44	0.44	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	76.59	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	43.00	35.28	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	3.05 (ii)	13.76 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.27	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.05	0.04	0.094 (iii)
TIME TO PEAK	(hrs)=	6.75	7.00	7.00
RUNOFF VOLUME	(mm)=	192.00	134.97	163.47
TOTAL RAINFALL	(mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT	=	0.99	0.70	0.85

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

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

CALIB
STANDHYD (0004)
ID= 1 DT= 5.0 min

Area (ha)= 10.12
Total Imp(%)= 70.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	7.08	3.04	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	259.74	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	43.00	84.43	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	6.35 (ii)	13.90 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.19	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.45	0.70	1.143 (iii)
TIME TO PEAK	(hrs)=	7.00	7.00	7.00
RUNOFF VOLUME	(mm)=	192.00	160.42	172.10
TOTAL RAINFALL	(mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT	=	0.99	0.83	0.89

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

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

ADD HYD (0035)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0004):		10.12	1.149	7.00	172.10
+	ID2= 2 (0034):		0.88	0.094	7.00	163.47
	ID = 3 (0035):		11.00	1.237	7.00	171.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0010) | IN= 2---> OUT= 1 | DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.4000	0.3500
0.1000	0.2000	0.5000	0.4500
0.2500	0.2500	0.6000	0.4800
0.3500	0.2700	1.2000	0.6000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0035)	11.000	1.237	7.00	171.41
OUTFLOW: ID= 1 (0010)	11.000	0.819	7.25	171.37

PEAK FLOW REDUCTION [Qout/Qin](%)= 66.16
TIME SHIFT OF PEAK FLOW (min)= 15.00
MAXIMUM STORAGE USED (ha.m.)= 0.3237

| CALIB | STANDHYD (0016) | ID= 1 DT= 5.0 min |

Area (ha)= 20.14 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.31

Unit Hyd Qpeak (cms)= 2.481

PEAK FLOW (cms)= 1.850 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 131.732
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

ADD HYD (0022)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0010):		11.00	0.819	7.25	171.37
+	ID2= 2 (0016):		20.14	1.850	7.00	181.73
	ID = 3 (0022):		31.14	2.611	7.08	165.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | NASHYD (0017) | ID= 1 DT= 5.0 min |

Area (ha)= 17.97 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 2.288

PEAK FLOW (cms)= 1.658 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 131.726
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

| CALIB | STANDHYD (0036) | ID= 1 DT= 5.0 min |

Area (ha)= 1.09
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.55	0.55
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	95.24	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		43.00	35.28
over	(min)	5.00	15.00
Storage Coeff.	(min)=	3.25 (ii)	13.96 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.27	0.08

				TOTALS
PEAK FLOW	(cms)=	0.07	0.05	0.117 (iii)
TIME TO PEAK	(hrs)=	6.83	7.00	7.00
RUNOFF VOLUME	(mm)=	192.00	134.97	163.48
TOTAL RAINFALL	(mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT	=	0.99	0.70	0.85

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

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

| CALIB | STANDHYD (0005) | ID= 1 DT= 5.0 min |

Area (ha)= 4.60
Total Imp(%)= 71.00 Dir. Conn.(%)= 29.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.27	1.33
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	175.12	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		43.00	99.86
over	(min)	5.00	15.00
Storage Coeff.	(min)=	5.01 (ii)	12.07 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.21	0.09

				TOTALS
PEAK FLOW	(cms)=	0.16	0.36	0.524 (iii)
TIME TO PEAK	(hrs)=	6.92	7.00	7.00
RUNOFF VOLUME	(mm)=	192.00	164.39	172.40
TOTAL RAINFALL	(mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT	=	0.99	0.85	0.89

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

| CALIB | NASHYD (0052) | ID= 1 DT= 5.0 min |

Area (ha)= 4.15 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00

COLE ENGINEERING

U.H. Tp(hrs)= 0.42

Unit Hyd Qpeak (cms)= 0.377

PEAK FLOW (cms)= 0.361 (i)
TIME TO PEAK (hrs)= 7.083
RUNOFF VOLUME (mm)= 131.763
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

| ADD HYD (0037) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0005):	4.60	0.324	7.00	172.40
+ ID2= 2 (0036):	1.09	0.117	7.00	168.48
ID = 3 (0037):	5.69	0.641	7.00	170.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0037) |
| 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0037):	5.69	0.641	7.00	170.69
+ ID2= 2 (0052):	4.15	0.361	7.08	131.76
ID = 1 (0037):	9.84	0.996	7.00	154.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0011) |
| IN= 2---> OUT= 1 |
| DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2600	0.2100
0.1100	0.1100	0.3000	0.2450
0.1600	0.1600	0.3500	0.2700
0.2000	0.1900	0.4000	0.6500

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	9.840	0.996	7.00	154.27
OUTFLOW: ID= 1 (0011)	9.840	0.387	9.58	154.25

PEAK FLOW REDUCTION [Qout/Qin](%)= 38.83
TIME SHIFT OF PEAK FLOW (min)=155.00
MAXIMUM STORAGE USED (ha.m.)= 0.5489

| CALIB |
| NASHYD (0053) |
| ID= 1 DT= 5.0 min |

Area (ha)= 3.32 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.29

Unit Hyd Qpeak (cms)= 0.437

PEAK FLOW (cms)= 0.308 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 131.718
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.682

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

| CALIB |
| NASHYD (0058) |
| ID= 1 DT= 5.0 min |

Area (ha)= 1.95 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 0.248

PEAK FLOW (cms)= 0.180 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 131.725
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

| ADD HYD (0023) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0011):	9.84	0.387	9.58	154.25
+ ID2= 2 (0017):	17.97	1.658	7.00	131.73
ID = 3 (0023):	27.81	2.020	7.00	139.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0023) |
| 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0023):	27.81	2.020	7.00	139.69
+ ID2= 2 (0053):	3.32	0.308	7.00	131.72
ID = 1 (0023):	31.13	2.328	7.00	138.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0023) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0023):	31.13	2.328	7.00	138.84
+ ID2= 2 (0058):	1.95	0.180	7.00	131.73
ID = 3 (0023):	33.08	2.508	7.00	138.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| STANDHYD (0027) |
| ID= 1 DT= 5.0 min |

Area (ha)= 1.18
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.59	0.59	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	88.69	40.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	49.00	98.25	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.33 (ii)	14.04 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.26	0.08	
			TOTALS
PEAK FLOW (cms)=	0.07	0.06	0.126 (iii)
TIME TO PEAK (hrs)=	6.83	7.00	7.00

COLE ENGINEERING

RUNOFF VOLUME (mm)=	192.00	134.97	163.48
TOTAL RAINFALL (mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT =	0.99	0.70	0.85

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

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

CALIB				
STANDHYD (0001)	Area (ha)=	3.03		
ID= 1 DT= 5.0 min	Total Imp(%)=	34.00	Dir. Conn.(%)=	24.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	1.03	2.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	142.13	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	43.00	42.16	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	4.42 (ii)	14.39 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.23	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.09	0.23	0.313 (iii)
TIME TO PEAK	(hrs)=	6.92	7.00	7.00
RUNOFF VOLUME	(mm)=	192.00	140.61	152.94
TOTAL RAINFALL	(mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT	=	0.99	0.73	0.79

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

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

CALIB					
NASHYD (0050)	Area	(ha)=	0.96	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.16		

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.092 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 131.183
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.680

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

ADD HYD (0028)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		3.03	0.313	7.00	152.94
+ ID2= 2 (0027):		1.18	0.126	7.00	163.48
ID = 3 (0028):		4.21	0.439	7.00	155.89

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0028):		4.21	0.439	7.00	155.89
+ ID2= 2 (0050):		0.96	0.092	7.00	131.18
ID = 1 (0028):		5.17	0.531	7.00	151.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0007)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0750	0.1550
0.0150	0.0950	0.0800	0.1750
0.0400	0.1300	0.0950	0.1950
0.0525	0.1400	0.1000	0.6000

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2	(0028)	5.170	0.531	7.00	151.30
OUTFLOW: ID= 1	(0007)	5.170	0.099	12.00	150.99

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.65
TIME SHIFT OF PEAK FLOW (min)=300.00
MAXIMUM STORAGE USED (ha.m.)= 0.5178

CALIB					
NASHYD (0025)	Area	(ha)=	0.79	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.28		

Unit Hyd Qpeak (cms)= 0.108

PEAK FLOW (cms)= 0.074 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 131.709
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.682

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

CALIB					
NASHYD (0049)	Area	(ha)=	12.39	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.61		

Unit Hyd Qpeak (cms)= 0.776

PEAK FLOW (cms)= 0.961 (i)
TIME TO PEAK (hrs)= 7.250
RUNOFF VOLUME (mm)= 131.774
TOTAL RAINFALL (mm)= 193.000
RUNOFF COEFFICIENT = 0.683

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

ADD HYD (0026)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0007):		5.17	0.099	12.00	150.99
+ ID2= 2 (0025):		0.79	0.074	7.00	131.71
ID = 3 (0026):		5.96	0.170	7.00	148.44

COLE ENGINEERING

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0026) |
| 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0026):	5.96	0.170	7.00	148.44
+ ID2= 2 (0049):	12.89	0.961	7.25	131.77
ID = 1 (0026):	18.85	1.120	7.25	137.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB |
| STANDHYD (0055) |
| ID= 1 DT= 5.0 min |

Area (ha)= 3.28
Total Imp(%)= 27.00 Dir. Conn.(%)= 27.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.89	2.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	147.87	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		43.00	38.28
over (min)		5.00	20.00
Storage Coeff. (min)=		4.53 (ii)	15.23 (ii)
Unit Hyd. Tpeak (min)=		5.00	20.00
Unit Hyd. peak (cms)=		0.23	0.07
			TOTALS
PEAK FLOW (cms)=		0.11	0.22 0.329 (iii)
TIME TO PEAK (hrs)=		6.92	7.00 7.00
RUNOFF VOLUME (mm)=		192.00	134.97 150.36
TOTAL RAINFALL (mm)=		193.00	193.00 193.00
RUNOFF COEFFICIENT =		0.99	0.70 0.78

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

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

****
** SIMULATION NUMBER: 8 **
****

| CHICAGO STORM |
| Ptotal= 70.03 mm |

IDF curve parameters: A=1770.000
B= 4.000
C= 0.820
used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	4.34	1.17	38.21	2.17	10.60	3.17	5.19
0.33	5.09	1.33	203.31	2.33	8.96	3.33	4.81
0.50	5.92	1.50	50.96	2.50	7.78	3.50	4.48
0.67	7.33	1.67	25.61	2.67	6.90	3.67	4.20
0.83	9.77	1.83	17.18	2.83	6.21	3.83	3.96
1.00	15.10	2.00	13.06	3.00	5.65	4.00	3.74

| MODIFY STORM |
| CASE= 1 |

MODIFYING PARAMETERS
Multiplication Factor= 0.32
Time shift (min) = 0.00

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	1.39	1.167	12.26	2.167	3.40	3.17	1.67
0.333	1.60	1.333	65.26	2.333	2.88	3.33	1.54
0.500	1.90	1.500	16.36	2.500	2.50	3.50	1.44
0.667	2.35	1.667	8.19	2.667	2.21	3.67	1.35
0.833	3.13	1.833	5.52	2.833	1.99	3.83	1.27
1.000	4.85	2.000	4.19	3.000	1.81	4.00	1.20

| CALIB |
| NASHYD (0014) |
| ID= 1 DT= 5.0 min |

Area (ha)= 3.44 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.39	1.083	12.26	2.083	3.40	3.00	1.67
0.167	1.39	1.167	12.26	2.167	3.40	3.17	1.67
0.250	1.60	1.250	65.26	2.250	2.88	3.25	1.54
0.333	1.60	1.333	65.26	2.333	2.88	3.33	1.54
0.417	1.90	1.417	16.36	2.417	2.50	3.42	1.44
0.500	1.90	1.500	16.36	2.500	2.50	3.50	1.44
0.583	2.35	1.583	8.19	2.583	2.21	3.58	1.35
0.667	2.35	1.667	8.19	2.667	2.21	3.67	1.35
0.750	3.13	1.750	5.52	2.750	1.99	3.75	1.27
0.833	3.13	1.833	5.52	2.833	1.99	3.83	1.27
0.917	4.85	1.917	4.19	2.917	1.81	3.92	1.20
1.000	4.85	2.000	4.19	3.000	1.81	4.00	1.20

Unit Hyd Qpeak (cms)= 0.438

PEAK FLOW (cms)= 0.832 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 4.007
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

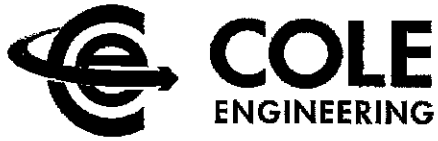
(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0002) |
| ID= 1 DT= 5.0 min |

Area (ha)= 37.83
Total Imp(%)= 62.00 Dir. Conn.(%)= 32.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	23.45	14.38
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	502.20	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		65.26	28.01
over (min)		10.00	20.00
Storage Coeff. (min)=		7.98 (ii)	19.72 (ii)
Unit Hyd. Tpeak (min)=		10.00	20.00
Unit Hyd. peak (cms)=		0.13	0.06
			TOTALS
PEAK FLOW (cms)=		1.45	0.58 1.792 (iii)
TIME TO PEAK (hrs)=		1.42	1.58 1.42
RUNOFF VOLUME (mm)=		24.05	8.49 13.47
TOTAL RAINFALL (mm)=		25.05	25.05 25.05
RUNOFF COEFFICIENT =		0.96	0.34 0.54

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:



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      CN* = 76.0    Ia = Dep. Storage  (Above)
   (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
        THAN THE STORAGE COEFFICIENT.
  (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

CALIB					
STANDHYD (0032)	Area (ha)=	2.89			
ID= 1 DT= 5.0 min	Total Imp(%)=	80.00	Dir. Conn.(%)=	50.00	
		IMPERVIOUS	PERVIOUS (i)		
Surface Area	(ha)=	1.45	1.45		
Dep. Storage	(mm)=	1.00	1.50		
Average Slope	(%)=	1.00	2.00		
Length	(m)=	138.80	40.00		
Mannings n	=	0.013	0.250		
Max.Eff.Inten.(mm/hr)=		65.26	8.28		
over	(min)	5.00	25.00		
Storage Coeff.	(min)=	3.69 (ii)	22.81 (ii)		
Unit Hyd. Tpeak	(min)=	5.00	25.00		
Unit Hyd. peak	(cms)=	0.25	0.05		
				TOTALS	
PEAK FLOW	(cms)=	0.25	0.02	0.252 (iii)	
TIME TO PEAK	(hrs)=	1.33	1.67	1.33	
RUNOFF VOLUME	(mm)=	24.05	5.34	14.69	
TOTAL RAINFALL	(mm)=	25.05	25.05	25.05	
RUNOFF COEFFICIENT	=	0.96	0.21	0.59	

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

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

CALIB					
NASHYD (0041)	Area (ha)=	0.88	Curve Number (CN)=	76.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.56			

```
    Unit Hyd Qpeak  (cms)=    0.060

    PEAK FLOW       (cms)=    0.005 (i)
    TIME TO PEAK    (hrs)=    2.000
    RUNOFF VOLUME    (mm)=    4.007
    TOTAL RAINFALL   (mm)=   25.047
    RUNOFF COEFFICIENT    =   0.160

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

CALIB					
NASHYD (0051)	Area (ha)=	6.09	Curve Number (CN)=	76.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.42			

```
    Unit Hyd Qpeak  (cms)=    0.554

    PEAK FLOW       (cms)=    0.046 (i)
    TIME TO PEAK    (hrs)=    1.833
    RUNOFF VOLUME    (mm)=    4.000
    TOTAL RAINFALL   (mm)=   25.047
    RUNOFF COEFFICIENT    =   0.160

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

ADD HYD (0030)

1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):		37.83	1.792	1.42	13.47
+ ID2= 2 (0032):		2.89	0.252	1.33	14.69
ID = 3 (0030):		40.72	1.912	1.42	13.55

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

ADD HYD (0030)

3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0030):		40.72	1.912	1.42	13.55
+ ID2= 2 (0041):		0.88	0.005	2.00	4.01
ID = 1 (0030):		41.60	1.914	1.42	13.35

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

ADD HYD (0030)

1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0030):		41.60	1.914	1.42	13.35
+ ID2= 2 (0051):		6.09	0.046	1.83	4.01
ID = 3 (0030):		47.69	1.931	1.42	12.16

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

RESERVOIR (0008)
IN= 2----> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	1.1500	1.2500
0.4500	0.6800	1.3500	1.4000
0.6500	0.9000	1.5500	1.5500
1.0000	1.1000	2.3500	2.8000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0030)	47.690	1.931	1.42	12.16
OUTFLOW: ID= 1 (0008)	47.690	0.253	2.75	12.15

```
    PEAK  FLOW  REDUCTION [Qout/Qin](%)= 13.11
    TIME SHIFT OF PEAK FLOW       (min)= 80.00
    MAXIMUM  STORAGE  USED      (ha.m.)= 0.3825
```

ADD HYD (0020)

1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0008):		47.69	0.253	2.75	12.15
+ ID2= 2 (0014):		3.44	0.032	1.67	4.01
ID = 3 (0020):		51.13	0.263	2.50	11.60

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

CALIB					
NASHYD (0015)	Area (ha)=	35.93	Curve Number (CN)=	76.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.51			

```
    Unit Hyd Qpeak  (cms)=    2.691
```

ADD HYD (0030)

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PEAK FLOW	(cms)=	0.238 (i)
TIME TO PEAK	(hrs)=	2.000
RUNOFF VOLUME	(mm)=	4.008
TOTAL RAINFALL	(mm)=	25.047
RUNOFF COEFFICIENT	=	0.160

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

CALIB					
NASHYD (0045)	Area	(ha)=	0.53	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.17		

Unit Hyd Qpeak	(cms)=	0.119
PEAK FLOW	(cms)=	0.007 (i)
TIME TO PEAK	(hrs)=	1.500
RUNOFF VOLUME	(mm)=	3.993
TOTAL RAINFALL	(mm)=	25.047
RUNOFF COEFFICIENT	=	0.159

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

CALIB					
NASHYD (0054)	Area	(ha)=	5.74	Curve Number	(CN)= 76.0
ID= 1 DT= 5.0 min	Ia	(mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.38		

Unit Hyd Qpeak	(cms)=	0.577
PEAK FLOW	(cms)=	0.046 (i)
TIME TO PEAK	(hrs)=	1.750
RUNOFF VOLUME	(mm)=	4.008
TOTAL RAINFALL	(mm)=	25.047
RUNOFF COEFFICIENT	=	0.160

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

CALIB					
STANDHYD (0031)	Area	(ha)=	2.73		
ID= 1 DT= 5.0 min	Total Imp(%)=		22.00	Dir. Conn.(%)=	0.10

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.60	2.13	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	134.91	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		65.26	13.29	
over (min)		5.00	20.00	
Storage Coeff.	(min)=	3.63 (ii)	19.45 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	20.00	
Unit Hyd. peak	(cms)=	0.25	0.06	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.05	0.047 (iii)
TIME TO PEAK	(hrs)=	1.33	1.58	1.58
RUNOFF VOLUME	(mm)=	24.05	6.59	6.60
TOTAL RAINFALL	(mm)=	25.05	25.05	25.05
RUNOFF COEFFICIENT	=	0.96	0.26	0.26

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

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

CALIB					
STANDHYD (0044)	Area	(ha)=	0.58		
ID= 1 DT= 5.0 min	Total Imp(%)=		35.00	Dir. Conn.(%)=	4.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.20	0.38	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	62.18	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		65.26	19.75	
over (min)		5.00	20.00	
Storage Coeff.	(min)=	2.28 (ii)	15.78 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	20.00	
Unit Hyd. peak	(cms)=	0.30	0.07	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.01	0.013 (iii)
TIME TO PEAK	(hrs)=	1.33	1.58	1.58
RUNOFF VOLUME	(mm)=	24.05	7.37	8.02
TOTAL RAINFALL	(mm)=	25.05	25.05	25.05
RUNOFF COEFFICIENT	=	0.96	0.29	0.32

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

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

CALIB					
STANDHYD (0040)	Area	(ha)=	3.08		
ID= 1 DT= 5.0 min	Total Imp(%)=		86.00	Dir. Conn.(%)=	49.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	2.65	0.43	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	143.29	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		65.26	119.01	
over (min)		5.00	15.00	
Storage Coeff.	(min)=	3.76 (ii)	10.34 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.25	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.26	0.08	0.302 (iii)
TIME TO PEAK	(hrs)=	1.33	1.50	1.33
RUNOFF VOLUME	(mm)=	24.05	13.01	18.42
TOTAL RAINFALL	(mm)=	25.05	25.05	25.05
RUNOFF COEFFICIENT	=	0.96	0.52	0.74

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

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

ADD HYD (0021)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)

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ID1= 1 (0015):	35.93	0.238	2.00	4.01
+ ID2= 2 (0031):	2.73	0.047	1.58	6.60
ID = 3 (0021):	38.66	0.269	1.92	4.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	38.66	0.269	1.92	4.19
+ ID2= 2 (0040):	3.08	0.302	1.33	18.42
ID = 1 (0021):	41.74	0.344	1.33	5.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	41.74	0.344	1.33	5.24
+ ID2= 2 (0044):	0.58	0.013	1.58	8.02
ID = 3 (0021):	42.32	0.352	1.33	5.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0021):	42.32	0.352	1.33	5.28
+ ID2= 2 (0045):	0.53	0.007	1.50	3.99
ID = 1 (0021):	42.85	0.356	1.33	5.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0021)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0021):	42.85	0.356	1.33	5.26
+ ID2= 2 (0054):	5.74	0.046	1.75	4.01
ID = 3 (0021):	48.59	0.385	1.67	5.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0034)
ID= 1 DT= 5.0 min

Area (ha)= 0.88
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.44	0.44
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	76.59	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	65.26	8.28
over	(min)	5.00	25.00
Storage Coeff.	(min)=	2.58 (ii)	21.70 (ii)
Unit Hyd. Tpeak	(min)=	5.00	25.00
Unit Hyd. peak	(cms)=	0.29	0.05

			TOTALS
PEAK FLOW	(cms)=	0.08	0.080 (iii)
TIME TO PEAK	(hrs)=	1.33	1.67
RUNOFF VOLUME	(mm)=	24.05	5.34
TOTAL RAINFALL	(mm)=	25.05	25.05
RUNOFF COEFFICIENT	=	0.96	0.21

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

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

CALIB
STANDHYD (0004)
ID= 1 DT= 5.0 min

Area (ha)= 10.12
Total Imp(%)= 70.00 Dir. Conn.(%)= 37.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.08	3.04
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	259.74	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	65.26	47.27
over	(min)	5.00	15.00
Storage Coeff.	(min)=	5.37 (ii)	14.90 (ii)
Unit Hyd. Tpeak	(min)=	5.00	15.00
Unit Hyd. peak	(cms)=	0.21	0.08

			TOTALS
PEAK FLOW	(cms)=	0.59	0.20	0.686 (iii)
TIME TO PEAK	(hrs)=	1.33	1.50	1.33
RUNOFF VOLUME	(mm)=	24.05	9.47	14.86
TOTAL RAINFALL	(mm)=	25.05	25.05	25.05
RUNOFF COEFFICIENT	=	0.96	0.38	0.59

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

ADD HYD (0035)
1 + 2 = 3

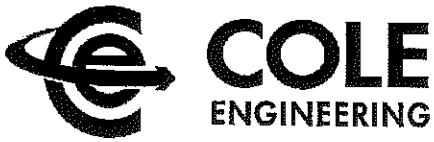
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	10.12	0.686	1.33	14.86
+ ID2= 2 (0034):	0.88	0.080	1.33	14.86
ID = 3 (0035):	11.00	0.766	1.33	14.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0010)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.4000	0.3500
0.1000	0.2000	0.5000	0.4500
0.2500	0.2500	0.6000	0.4600
0.3500	0.2700	1.2000	0.5000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0035)	11.000	0.766	1.33	14.85
OUTFLOW: ID= 1 (0010)	11.000	0.058	2.67	14.80



PEAK FLOW REDUCTION [Qout/Qin](%)= 7.61
TIME SHIFT OF PEAK FLOW (min)= 20.00
MAXIMUM STORAGE USED (ha.m.)= 0.1165

CALIB	
NASHYD (0016)	Area (ha)= 20.14 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.31

Unit Hyd Qpeak (cms)= 2.481

PEAK FLOW (cms)= 0.184 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 4.007
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

ADD HYD (0022)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):		11.00	0.058	2.67	14.86
+ ID2= 2 (0016):		20.14	0.184	1.67	4.01
ID = 3 (0022):		31.14	0.230	1.75	7.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (0017)	Area (ha)= 17.97 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 2.288

PEAK FLOW (cms)= 0.168 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 4.007
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

CALIB	
STANDHYD (0036)	Area (ha)= 1.09
ID= 1 DT= 5.0 min	Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.55	0.55
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	85.24	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten. (mm/hr)=		65.26	8.28
over (min)		5.00	25.00
Storage Coeff. (min)=		2.75 (ii)	21.87 (ii)
Unit Hyd. Tpeak (min)=		5.00	25.00
Unit Hyd. peak (cms)=		0.26	0.05

		TOTALS
PEAK FLOW	(cms)=	0.10 0.01 0.098 (iii)
TIME TO PEAK	(hrs)=	1.33 1.67 1.33
RUNOFF VOLUME	(mm)=	24.05 5.34 14.68
TOTAL RAINFALL	(mm)=	25.05 25.05 25.05
RUNOFF COEFFICIENT	=	0.96 0.21 0.59

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

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

CALIB	
STANDHYD (0005)	Area (ha)= 4.60
ID= 1 DT= 5.0 min	Total Imp(%)= 71.00 Dir. Conn.(%)= 29.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	3.27	1.33
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	175.12	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten. (mm/hr)=		65.26	61.71
over (min)		5.00	15.00
Storage Coeff. (min)=		4.24 (ii)	12.80 (ii)
Unit Hyd. Tpeak (min)=		5.00	15.00
Unit Hyd. peak (cms)=		0.24	0.08

		TOTALS
PEAK FLOW	(cms)=	0.22 0.12 0.293 (iii)
TIME TO PEAK	(hrs)=	1.33 1.50 1.33
RUNOFF VOLUME	(mm)=	24.05 10.44 14.38
TOTAL RAINFALL	(mm)=	25.05 25.05 25.05
RUNOFF COEFFICIENT	=	0.96 0.42 0.57

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

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

CALIB	
NASHYD (0032)	Area (ha)= 4.15 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.42

Unit Hyd Qpeak (cms)= 0.377

PEAK FLOW (cms)= 0.031 (i)
TIME TO PEAK (hrs)= 1.833
RUNOFF VOLUME (mm)= 4.008
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

ADD HYD (0037)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):		4.60	0.263	1.33	14.38
+ ID2= 2 (0036):		1.09	0.098	1.33	14.68
ID = 3 (0037):		5.69	0.362	1.33	14.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0037)

3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 3 (0037):	5.69	0.382	1.33	14.44
+	ID2= 2 (0052):	4.15	0.031	1.83	4.01
	ID = 1 (0037):	9.84	0.387	1.33	10.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0011)	IN= 2---> OUT= 1	DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2600	0.2100
0.1100	0.1180	0.3000	0.2450
0.1600	0.1600	0.3500	0.2700
0.2000	0.1890	0.4000	0.6500

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	9.840	0.387	1.33	10.04
OUTFLOW: ID= 1 (0011)	9.840	0.058	2.42	10.02

PEAK FLOW REDUCTION [Qout/Qin](%)= 14.95
TIME SHIFT OF PEAK FLOW (min)= 65.00
MAXIMUM STORAGE USED (ha.m.)= 0.0578

CALIB	NASHYD (0053)	ID= 1 DT= 5.0 min

Area (ha)= 9.32 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.29

Unit Hyd Qpeak (cms)= 0.437

PEAK FLOW (cms)= 0.032 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 4.006
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

CALIB	NASHYD (0058)	ID= 1 DT= 5.0 min

Area (ha)= 1.95 Curve Number (CN)= 76.0
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

Unit Hyd Qpeak (cms)= 0.248

PEAK FLOW (cms)= 0.018 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 4.006
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

ADD HYD (0023)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
		ID1= 1 (0011):	9.84	0.058	2.42	10.02
	+	ID2= 2 (0017):	17.97	0.168	1.67	4.01
		ID = 3 (0023):	27.81	0.213	1.67	6.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0023)	3 + 2 = 1		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
		ID1= 3 (0023):	27.81	0.213	1.67	6.13
	+	ID2= 2 (0053):	3.32	0.032	1.67	4.01
		ID = 1 (0023):	31.13	0.245	1.67	5.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0023)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
		ID1= 1 (0023):	31.13	0.245	1.67	5.91
	+	ID2= 2 (0058):	1.95	0.018	1.67	4.01
		ID = 3 (0023):	33.08	0.263	1.67	5.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	STANDHYD (0027)	ID= 1 DT= 5.0 min

Area (ha)= 1.18
Total Imp(%)= 50.00 Dir. Conn.(%)= 50.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.59	0.59	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	88.69	48.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.	(mm/hr)=	65.26	8.28	
over	(min)	5.00	25.00	
Storage Coeff.	(min)=	2.82 (ii)	21.94 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	25.00	
Unit Hyd. peak	(cms)=	0.26	0.05	
				TOTALS
PEAK FLOW	(cms)=	0.10	0.01	0.106 (iii)
TIME TO PEAK	(hrs)=	1.33	1.67	1.33
RUNOFF VOLUME	(mm)=	24.05	5.34	14.69
TOTAL RAINFALL	(mm)=	25.05	25.05	25.05
RUNOFF COEFFICIENT	=	0.96	0.21	0.59

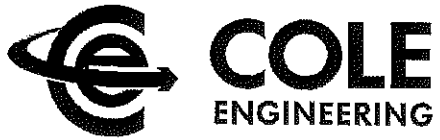
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

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

CALIB	STANDHYD (0001)	ID= 1 DT= 5.0 min

Area (ha)= 3.03
Total Imp(%)= 34.00 Dir. Conn.(%)= 24.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.03	2.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	142.13	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.	(mm/hr)=	65.26	10.87
over	(min)	5.00	25.00
Storage Coeff.	(min)=	3.74 (ii)	20.89 (ii)
Unit Hyd. Tpeak	(min)=	5.00	25.00



Unit Hyd. peak	(cms)=	0.25	0.05	
				TOTALS
PEAK FLOW	(cms)=	0.12	0.03	0.133 (iii)
TIME TO PEAK	(hrs)=	1.33	1.67	1.33
RUNOFF VOLUME	(mm)=	24.05	6.04	10.35
TOTAL RAINFALL	(mm)=	25.05	25.05	25.05
RUNOFF COEFFICIENT	=	0.96	0.24	0.41

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

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

CALIB
NASHYD (0050) | Area (ha)= 0.96 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.16

Unit Hyd Qpeak (cms)= 0.229

PEAK FLOW (cms)= 0.013 (i)
TIME TO PEAK (hrs)= 1.500
RUNOFF VOLUME (mm)= 3.990
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.159

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

ADD HYD (0028)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	3.03	0.133	1.33	10.35
+ ID2= 2 (0027):	1.18	0.106	1.33	14.69
ID = 3 (0028):	4.21	0.239	1.33	11.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0028)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0028):	4.21	0.239	1.33	11.57
+ ID2= 2 (0050):	0.96	0.013	1.50	3.99
ID = 1 (0028):	5.17	0.247	1.33	10.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0007)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0750	0.1550
0.0150	0.0950	0.0800	0.1750
0.0400	0.1300	0.0950	0.1950
0.0525	0.1400	0.1000	0.6000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0028)	5.170	0.247	1.33	10.16
OUTFLOW: ID= 1 (0007)	5.170	0.007	4.08	9.85

PEAK FLOW REDUCTION [Qout/Qin](%)= 2.91

TIME SHIFT OF PEAK FLOW (min)=165.00
MAXIMUM STORAGE USED (ha.m.)= 0.0455

CALIB
NASHYD (0025) | Area (ha)= 0.79 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.28

Unit Hyd Qpeak (cms)= 0.106

PEAK FLOW (cms)= 0.008 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 4.006
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

CALIB
NASHYD (0049) | Area (ha)= 12.39 Curve Number (CN)= 76.0
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.61

Unit Hyd Qpeak (cms)= 0.776

PEAK FLOW (cms)= 0.073 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 4.008
TOTAL RAINFALL (mm)= 25.047
RUNOFF COEFFICIENT = 0.160

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

ADD HYD (0026)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	5.17	0.007	4.08	9.85
+ ID2= 2 (0025):	0.79	0.008	1.67	4.01
ID = 3 (0026):	5.96	0.012	1.67	9.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

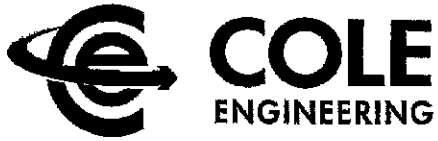
ADD HYD (0026)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0026):	5.96	0.012	1.67	9.08
+ ID2= 2 (0049):	12.39	0.073	2.08	4.01
ID = 1 (0026):	18.35	0.083	2.08	5.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB
STANDHYD (0055) | Area (ha)= 3.28
ID= 1 DT= 5.0 min | Total Imp(%)= 27.00 Dir. Conn.(%)= 27.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.89	2.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	147.87	40.00
Mannings n	=	0.013	0.250



Max.Eff.Inten.	(mm/hr)=	65.26	8.28		
over	(min)	5.00	25.00		
Storage Coeff.	(min)=	3.83 (i)	22.95 (ii)		
Unit Hyd. Tpeak	(min)=	5.00	25.00		
Unit Hyd. peak	(cms)=	0.25	0.05		
				TOTALS	
PEAK FLOW	(cms)=	0.15	0.03	0.158	(iii)
TIME TO PEAK	(hrs)=	1.33	1.67	1.33	
RUNOFF VOLUME	(mm)=	24.05	5.34	10.39	
TOTAL RAINFALL	(mm)=	25.05	25.05	25.05	
RUNOFF COEFFICIENT	=	0.96	0.21	0.41	

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

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

FINISH

APPENDIX F
Quality Controls - CDS Units

Annual TSS Removal Efficiency Using Historical Weather Data

Area (ha) =	5.17		**Engineer:**	**Cole Engineering Group Ltd.**
C =	0.45		**Contact:**	Arun Hindupur, M.Sc., P.Eng.
Rational Conv.	2.775	converts from m3/s to l/s	**Report Date:**	30-Mar-12
CDS Model:	CDS30_35			
Flowrate =	106	l/s	**Site:**	Meaford Development
Orifice Control =	0	l/s	**Location:**	Meaford
Weather Station:	6158350		**Unit:**	1

Rainfall Intensity Range (mm/hr)	*Total Rainfall* (mm)*	*Rainfall intensity mm/hr (I)*	*Runoff Rate Per The Rational Method (l/s) Q = C x I x A x 2.77*	*Rainfall Volume %*	*CDS Flow Rate (l/s)*	*Operating Rate*	*Efficiency** (%)*	*Relative Efficiency (%)*
0.0 - 0.5	620.70	0.5	3.2	7.3%	3.2	0.03	98.0	7.2
0.5 - 1.0	791.80	1.0	6.5	9.4%	6.5	0.06	97.1	9.1
1.0 - 1.5	809.20	1.5	9.7	9.6%	9.7	0.09	96.2	9.2
1.5 - 2.0	765.50	2.0	12.9	9.1%	12.9	0.12	95.4	8.7
2.0 - 2.5	546.70	2.5	16.1	6.5%	16.1	0.15	94.5	6.1
2.5 -3.0	512.90	3.0	19.4	6.1%	19.4	0.18	93.6	5.7
3.0 - 4.0	840.50	4.0	25.8	10.0%	25.8	0.24	91.9	9.2
4.0 - 5.0	644.80	5.0	32.3	7.6%	32.3	0.30	90.1	6.8
5.0 - 6.0	505.30	6.0	38.7	6.0%	38.7	0.37	88.4	5.3
6.0 - 7.0	430.30	7.0	45.2	5.1%	45.2	0.43	86.6	4.4
7.0 - 8.0	302.10	8.0	51.6	3.6%	51.6	0.49	84.9	3.1
8.0 - 9.0	167.40	9.0	58.1	2.0%	58.1	0.55	83.1	1.7
9.0 - 10.0	275.00	10.0	64.6	3.3%	64.6	0.61	81.4	2.7
10.0 - 11.0	198.10	11.0	71.0	2.3%	71.0	0.67	79.7	1.8
11.0 - 12.0	160.70	12.0	77.5	1.9%	77.5	0.73	77.9	1.5
12.0 - 13.0	136.50	13.0	83.9	1.6%	83.9	0.79	76.2	1.2
13.0 - 15.0	150.10	15.0	96.8	1.8%	96.8	0.91	72.7	1.3
15.0 - 20.0	366.60	20.0	129.1	4.3%	106.0	1.00	57.6	2.5
20.0 - 25.0	70.80	25.0	161.4	0.8%	106.0	1.00	46.1	0.4
25.0 - 30.0	111.90	30.0	193.7	1.3%	106.0	1.00	38.4	0.5
30.0 -35.0	0.00	35.0	226.0	0.0%	106.0	1.00	32.9	0.0
35.0 - 40.0	38.70	40.0	258.2	0.5%	106.0	1.00	28.8	0.1
	8445.60							

TSS Removal:	**88.5%**
Efficiency Adjustment:	**6.5%**
Net Annual TSS Removal:	**82.0%**
Net Annual Volume Treated:	**96.7%**

* Historical Data including years 1982 to 1998 from Ontario Climate Centre

** CDS Efficiency based on Washington Department of Ecology TAPE Water Quality Control Test Protocol

*** Adjustment for use of 60 minute time step data on site with a time of concentration less than 30 minutes

Annual TSS Removal Efficiency Using Historical Weather Data

Area (ha) =	11		**Engineer:**	**Cole Engineering Group Ltd.**
C =	0.69		**Contact:**	Arun Hindupur, M.Sc., P.Eng.
Rational Conv.	2.775	converts from m3/s to l/s	**Report Date:**	30-Mar-12
CDS Model:	CDS 56_53			
Flowrate =	396	l/s	**Site:**	Meaford Development
Orifice Control =	0	l/s	**Location:**	Meaford
Weather Station:	6158350		**Unit:**	2

Rainfall Intensity Range (mm/hr)	*Total Rainfall* (mm)*	*Rainfall intensity mm/hr (I)*	*Runoff Rate Per The Rational Method (l/s) Q = C x I x A x 2.77*	*Rainfall Volume %*	*CDS Flow Rate (l/s)*	*Operating Rate*	*Efficiency** (%)*	*Relative Efficiency (%)*
0.0 - 0.5	620.70	0.5	10.5	7.3%	10.5	0.03	98.1	7.2
0.5 - 1.0	791.80	1.0	21.1	9.4%	21.1	0.05	97.3	9.1
1.0 - 1.5	809.20	1.5	31.6	9.6%	31.6	0.08	96.6	9.3
1.5 - 2.0	765.50	2.0	42.1	9.1%	42.1	0.11	95.8	8.7
2.0 - 2.5	546.70	2.5	52.7	6.5%	52.7	0.13	95.0	6.2
2.5 -3.0	512.90	3.0	63.2	6.1%	63.2	0.16	94.3	5.8
3.0 - 4.0	840.50	4.0	84.2	10.0%	84.2	0.21	92.8	9.3
4.0 - 5.0	644.80	5.0	105.3	7.6%	105.3	0.27	91.2	6.9
5.0 - 6.0	505.30	6.0	126.4	6.0%	126.4	0.32	89.7	5.4
6.0 - 7.0	430.30	7.0	147.4	5.1%	147.4	0.37	88.2	4.5
7.0 - 8.0	302.10	8.0	168.5	3.6%	168.5	0.43	86.7	3.1
8.0 - 9.0	167.40	9.0	189.6	2.0%	189.6	0.48	85.1	1.7
9.0 - 10.0	275.00	10.0	210.6	3.3%	210.6	0.53	83.6	2.8
10.0 - 11.0	198.10	11.0	231.7	2.3%	231.7	0.59	82.1	1.9
11.0 - 12.0	160.70	12.0	252.7	1.9%	252.7	0.64	80.6	1.5
12.0 - 13.0	136.50	13.0	273.8	1.6%	273.8	0.69	79.0	1.3
13.0 - 15.0	150.10	15.0	315.9	1.8%	315.9	0.80	76.0	1.4
15.0 - 20.0	366.60	20.0	421.2	4.3%	396.0	1.00	66.0	2.8
20.0 - 25.0	70.80	25.0	526.6	0.8%	396.0	1.00	52.8	0.4
25.0 - 30.0	111.90	30.0	631.9	1.3%	396.0	1.00	44.0	0.6
30.0 -35.0	0.00	35.0	737.2	0.0%	396.0	1.00	37.7	0.0
35.0 - 40.0	38.70	40.0	842.5	0.5%	396.0	1.00	33.0	0.2
	8445.60							

TSS Removal:	**89.9%**
Efficiency Adjustment:	**6.5%**
Net Annual TSS Removal:	**83.4%**
Net Annual Volume Treated:	**97.2%**

* Historical Data including years 1982 to 1998 from Ontario Climate Centre

** CDS Efficiency based on Washington Department of Ecology TAPE Water Quality Control Test Protocol

*** Adjustment for use of 60 minute time step data on site with a time of concentration less than 30 minutes

Annual TSS Removal Efficiency Using Historical Weather Data

Area (ha) =	9.84		**Engineer:**	**Cole Engineering Group Ltd.**
C =	0.504		**Contact:**	Arun Hindupur, M.Sc., P.Eng.
Rational Conv.	2.775	converts from m3/s to l/s	**Report Date:**	30-Mar-12
CDS Model:	CDS56_40			
Flowrate =	255	l/s	**Site:**	Meaford Development
Orifice Control =	0	l/s	**Location:**	Meaford
Weather Station:	6158350		**Unit:**	3

Rainfall Intensity Range (mm/hr)	*Total Rainfall* (mm)*	*Rainfall intensity mm/hr (I)*	*Runoff Rate Per The Rational Method (l/s) Q = C x I x A x 2.77*	*Rainfall Volume %*	*CDS Flow Rate (l/s)*	*Operating Rate*	*Efficiency** (%)*	*Relative Efficiency (%)*
0.0 - 0.5	620.70	0.5	6.9	7.3%	6.9	0.03	98.1	7.2
0.5 - 1.0	791.80	1.0	13.8	9.4%	13.8	0.05	97.3	9.1
1.0 - 1.5	809.20	1.5	20.6	9.6%	20.6	0.08	96.5	9.3
1.5 - 2.0	765.50	2.0	27.5	9.1%	27.5	0.11	95.8	8.7
2.0 - 2.5	546.70	2.5	34.4	6.5%	34.4	0.13	95.0	6.2
2.5 -3.0	512.90	3.0	41.3	6.1%	41.3	0.16	94.2	5.7
3.0 - 4.0	840.50	4.0	55.0	10.0%	55.0	0.22	92.7	9.3
4.0 - 5.0	644.80	5.0	68.8	7.6%	68.8	0.27	91.1	6.9
5.0 - 6.0	505.30	6.0	82.6	6.0%	82.6	0.32	89.6	5.4
6.0 - 7.0	430.30	7.0	96.3	5.1%	96.3	0.38	88.0	4.5
7.0 - 8.0	302.10	8.0	110.1	3.6%	110.1	0.43	86.5	3.1
8.0 - 9.0	167.40	9.0	123.9	2.0%	123.9	0.49	84.9	1.7
9.0 - 10.0	275.00	10.0	137.6	3.3%	137.6	0.54	83.4	2.8
10.0 - 11.0	198.10	11.0	151.4	2.3%	151.4	0.59	81.8	1.9
11.0 - 12.0	160.70	12.0	165.1	1.9%	165.1	0.65	80.3	1.5
12.0 - 13.0	136.50	13.0	178.9	1.6%	178.9	0.70	78.7	1.3
13.0 - 15.0	150.10	15.0	206.4	1.8%	206.4	0.81	75.7	1.4
15.0 - 20.0	366.60	20.0	275.2	4.3%	255.0	1.00	65.0	2.8
20.0 - 25.0	70.80	25.0	344.1	0.8%	255.0	1.00	52.0	0.4
25.0 - 30.0	111.90	30.0	412.9	1.3%	255.0	1.00	43.4	0.6
30.0 -35.0	0.00	35.0	481.7	0.0%	255.0	1.00	37.2	0.0
35.0 - 40.0	38.70	40.0	550.5	0.5%	255.0	1.00	32.5	0.2
	8445.60							

TSS Removal:	**89.8%**
Efficiency Adjustment:	**6.5%**
Net Annual TSS Removal:	**83.3%**
Net Annual Volume Treated:	**97.1%**

* Historical Data including years 1982 to 1998 from Ontario Climate Centre

** CDS Efficiency based on Washington Department of Ecology TAPE Water Quality Control Test Protocol

*** Adjustment for use of 60 minute time step data on site with a time of concentration less than 30 minutes

Annual TSS Removal Efficiency Using Historical Weather Data

Area (ha) =	3.08		**Engineer:**	**Cole Engineering Group Ltd.**
C =	0.809		**Contact:**	Arun Hindupur, M.Sc., P.Eng.
Rational Conv.	2.775	converts from m3/s to l/s	**Report Date:**	30-Mar-12
CDS Model:	CDS30_35			
Flowrate =	106	l/s	**Site:**	Meaford Development
Orifice Control =	0	l/s	**Location:**	Meaford
Weather Station:	6158350		**Unit:**	4

Rainfall Intensity Range (mm/hr)	*Total Rainfall* (mm)*	*Rainfall intensity mm/hr (I)*	*Runoff Rate Per The Rational Method (l/s) Q = C x I x A x 2.77*	*Rainfall Volume %*	*CDS Flow Rate (l/s)*	*Operating Rate*	*Efficiency** (%)*	*Relative Efficiency (%)*
0.0 - 0.5	620.70	0.5	3.5	7.3%	3.5	0.03	97.9	7.1
0.5 - 1.0	791.80	1.0	6.9	9.4%	6.9	0.07	97.0	9.1
1.0 - 1.5	809.20	1.5	10.4	9.6%	10.4	0.10	96.1	9.2
1.5 - 2.0	765.50	2.0	13.8	9.1%	13.8	0.13	95.1	8.7
2.0 - 2.5	546.70	2.5	17.3	6.5%	17.3	0.16	94.2	6.1
2.5 -3.0	512.90	3.0	20.7	6.1%	20.7	0.20	93.2	5.7
3.0 - 4.0	840.50	4.0	27.7	10.0%	27.7	0.26	91.4	9.1
4.0 - 5.0	644.80	5.0	34.6	7.6%	34.6	0.33	89.5	6.8
5.0 - 6.0	505.30	6.0	41.5	6.0%	41.5	0.39	87.6	5.3
6.0 - 7.0	430.30	7.0	48.4	5.1%	48.4	0.46	85.8	4.4
7.0 - 8.0	302.10	8.0	55.3	3.6%	55.3	0.52	83.9	3.0
8.0 - 9.0	167.40	9.0	62.2	2.0%	62.2	0.59	82.0	1.6
9.0 - 10.0	275.00	10.0	69.1	3.3%	69.1	0.65	80.2	2.6
10.0 - 11.0	198.10	11.0	76.1	2.3%	76.1	0.72	78.3	1.8
11.0 - 12.0	160.70	12.0	83.0	1.9%	83.0	0.78	76.4	1.5
12.0 - 13.0	136.50	13.0	89.9	1.6%	89.9	0.85	74.5	1.2
13.0 - 15.0	150.10	15.0	103.7	1.8%	103.7	0.98	70.8	1.3
15.0 - 20.0	366.60	20.0	138.3	4.3%	106.0	1.00	53.8	2.3
20.0 - 25.0	70.80	25.0	172.9	0.8%	106.0	1.00	43.0	0.3
25.0 - 30.0	111.90	30.0	207.4	1.3%	106.0	1.00	35.9	0.5
30.0 -35.0	0.00	35.0	242.0	0.0%	106.0	1.00	30.7	0.0
35.0 - 40.0	38.70	40.0	276.6	0.5%	106.0	1.00	26.9	0.1
	8445.60							

TSS Removal:	**87.8%**
Efficiency Adjustment:	**6.5%**
Net Annual TSS Removal:	**81.3%**
Net Annual Volume Treated:	**96.4%**

* Historical Data including years 1982 to 1998 from Ontario Climate Centre

** CDS Efficiency based on Washington Department of Ecology TAPE Water Quality Control Test Protocol

*** Adjustment for use of 60 minute time step data on site with a time of concentration less than 30 minutes

Annual TSS Removal Efficiency Using Historical Weather Data

Area (ha) =	2.73		**Engineer:**	**Cole Engineering Group Ltd.**
C =	0.393		**Contact:**	Arun Hindupur, M.Sc., P.Eng.
Rational Conv.	2.775	converts from m3/s to l/s	**Report Date:**	30-Mar-12
CDS Model:	CDS20_25			
Flowrate =	45	l/s	**Site:**	Meaford Development
Orifice Control =	0	l/s	**Location:**	Meaford
Weather Station:	6158350		**Unit:**	5

Rainfall Intensity Range (mm/hr)	*Total Rainfall* (mm)*	*Rainfall intensity mm/hr (I)*	*Runoff Rate Per The Rational Method (l/s) Q = C x I x A x 2.77*	*Rainfall Volume %*	*CDS Flow Rate (l/s)*	*Operating Rate*	*Efficiency** (%)*	*Relative Efficiency (%)*
0.0 - 0.5	620.70	0.5	1.5	7.3%	1.5	0.03	97.9	7.1
0.5 - 1.0	791.80	1.0	3.0	9.4%	3.0	0.07	97.0	9.1
1.0 - 1.5	809.20	1.5	4.5	9.6%	4.5	0.10	96.0	9.2
1.5 - 2.0	765.50	2.0	6.0	9.1%	6.0	0.13	95.1	8.7
2.0 - 2.5	546.70	2.5	7.4	6.5%	7.4	0.17	94.1	6.1
2.5 -3.0	512.90	3.0	8.9	6.1%	8.9	0.20	93.2	5.7
3.0 - 4.0	840.50	4.0	11.9	10.0%	11.9	0.26	91.3	9.1
4.0 - 5.0	644.80	5.0	14.9	7.6%	14.9	0.33	89.4	6.8
5.0 - 6.0	505.30	6.0	17.9	6.0%	17.9	0.40	87.5	5.2
6.0 - 7.0	430.30	7.0	20.8	5.1%	20.8	0.46	85.6	4.4
7.0 - 8.0	302.10	8.0	23.8	3.6%	23.8	0.53	83.7	3.0
8.0 - 9.0	167.40	9.0	26.8	2.0%	26.8	0.60	81.8	1.6
9.0 - 10.0	275.00	10.0	29.8	3.3%	29.8	0.66	79.9	2.6
10.0 - 11.0	198.10	11.0	32.7	2.3%	32.7	0.73	78.0	1.8
11.0 - 12.0	160.70	12.0	35.7	1.9%	35.7	0.79	76.1	1.4
12.0 - 13.0	136.50	13.0	38.7	1.6%	38.7	0.86	74.2	1.2
13.0 - 15.0	150.10	15.0	44.7	1.8%	44.7	0.99	70.4	1.3
15.0 - 20.0	366.60	20.0	59.5	4.3%	45.0	1.00	53.0	2.3
20.0 - 25.0	70.80	25.0	74.4	0.8%	45.0	1.00	42.4	0.3
25.0 - 30.0	111.90	30.0	89.3	1.3%	45.0	1.00	35.4	0.5
30.0 -35.0	0.00	35.0	104.2	0.0%	45.0	1.00	30.3	0.0
35.0 - 40.0	38.70	40.0	119.1	0.5%	45.0	1.00	26.5	0.1
	8445.60							

TSS Removal:	**87.7%**
Efficiency Adjustment:	**6.5%**
Net Annual TSS Removal:	**81.2%**
Net Annual Volume Treated:	**96.4%**

* Historical Data including years 1982 to 1998 from Ontario Climate Centre

** CDS Efficiency based on Washington Department of Ecology TAPE Water Quality Control Test Protocol

*** Adjustment for use of 60 minute time step data on site with a time of concentration less than 30 minutes

APPENDIX G
Quality Pond Sizing Calculations

COLE ENGINEERING

Quality Pond Sizing
Pond A2post
Meaford Highland Resort
File No. L10-512
Date: March, 2012

Quality Pond Sizing

	Drainage Area			
$A_{to\text{-}pond}$ =	47.69	ha	Percent Impervious	53.0%
$V_{permanent\ pool}$ =	6913	m^3	Percent Pervious	47.0%
$V_{extended\ detention}$ =	1908	m^3		

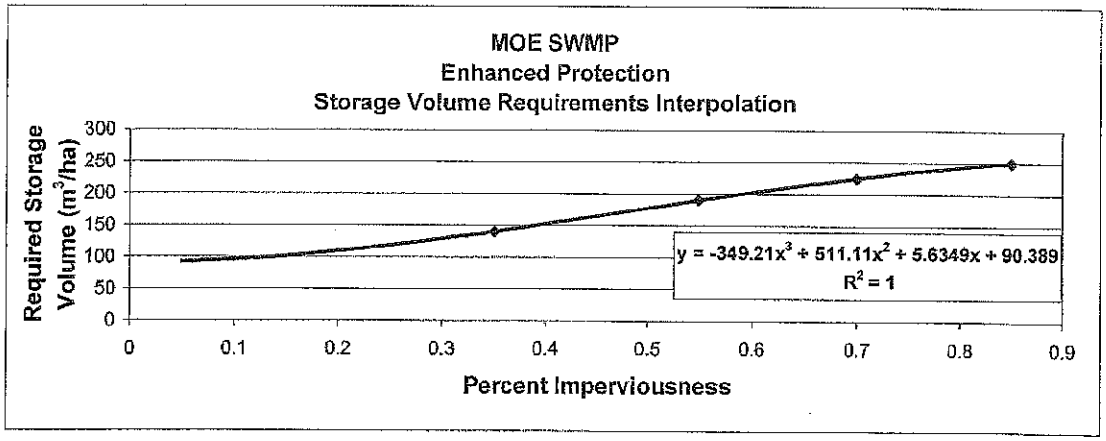
Storage Volume: V = 185 m^3 / ha
Extended Detention: V = 40 m^3 / ha
Permanent Pool: V = 145 m^3 / ha

therefore, provide extended detention storage of 1908 m^3
and permanent pool volume of 6913 m^3

MOE 2003 SWMP Manual: Water Quality Storage Requirements based on Receiving Waters *

PROTECTION LEVEL	SWMP Type	STORAGE VOLUME (m^3 / ha) FOR IMPERVIOUS LEVEL				
		35%	53.0%	55%	70%	85%
Enhanced	Wet Pond	140	**185**	190	225	250
Normal	Wet Pond	90		110	130	150
Basic	Wet Pond	60		75	85	95

* Table 3.2 from the MOE SWMP Planning & Design Manual, 2004, pg 3-10



APPENDIX H
Statement of Limiting Conditions and Assumptions

Statement of Limiting Conditions and Assumptions

1. This Report/Study (the "Work") has been prepared at the request of, and for the exclusive use of, the Owner, and its affiliates (the "Intended Users"). No one other than the Intended Users has the right to use and rely on the Work without first obtaining the written authorization of Cole Engineering Group Ltd. (Cole Engineering) and its Owner.

2. Cole Engineering expressly excludes liability to any party except the Intended Users for any use of, and/or reliance upon, the Work.

3. Cole Engineering notes that the following assumptions were made in completing the Work:

   a) the land use description(s) supplied to us are correct;
   b) the surveys and data supplied to Cole Engineering by the Owner are accurate;
   c) market timing, approval delivery and secondary source information is within the control of Parties other than Cole Engineering; and
   d) there are no encroachments, leases, covenants, binding agreements, restrictions, pledges, charges, liens or special assessments outstanding, or encumbrances which would significantly affect the use or servicing.

   Investigations have not been carried out to verify these assumptions. Cole Engineering deems the sources of data and statistical information contained herein to be reliable, but we extend no guarantee of accuracy in these respects.

4. Cole Engineering accepts no responsibility for legal interpretations, questions of survey, opinion of title, hidden or inconspicuous conditions of the property, toxic wastes or contaminated materials, soil or sub-soil conditions, environmental, engineering or other factual and technical matters disclosed by the Owner, the Client, or any public agency, which by their nature, may change the outcome of the Work. Such factors, beyond the scope of this Work, could affect the findings, conclusions and opinions rendered in the Work. We have made disclosure of related potential problems that have come to our attention. Responsibility for diligence with respect to all matters of fact reported herein rests with the Intended Users.

5. Cole Engineering practices engineering in the general areas of infrastructure and transportation. It is not qualified to and is not providing legal or planning advice in this Work.

6. The legal description of the property and the area of the site were based upon surveys and data supplied to us by the Owner. The plans, photographs, and sketches contained in this report are included solely to aide in visualizing the location of the property, the configuration and boundaries of the site, and the relative position of the improvements on the said lands.

7. We have made investigations from secondary sources as documented in the Work, but we have not checked for compliance with by-laws, codes, agency and governmental regulations, etc., unless specifically noted in the Work.

8. Because conditions, including capacity, allocation, economic, social, and political factors change rapidly and, on occasion, without notice or warning, the findings of the Work expressed herein, are as of the date of the Work and cannot necessarily be relied upon as of any other date without subsequent advice from Cole Engineering.

9. The value of proposed improvements should be applied only with regard to the purpose and function of the Work, as outlined in the body of this Work. Any cost estimates set out in the Work are based on construction averages and subject to change.

10. Neither possession of the Work, nor a copy of it, carries the right of publication. All copyright in the Work is reserved to Cole Engineering. The Work shall not be disclosed, produced or reproduced, quoted from, or referred to, in whole or in part, or published in any manner, without the express written consent of Cole Engineering and the Owner.

11. The Work is only valid if it bears the professional engineer's seal and original signature of the author, and if considered in its entirety. Responsibility for unauthorized alteration to the Work is denied.